

Please note that this PDF is subject to specific restrictions that limit its use and distribution. The terms and conditions are available online at www.iea.org/about/copyright.asp

2011
EDITION

CO₂ EMISSIONS FROM FUEL COMBUSTION



International
Energy Agency

2011
EDITION

CO₂ EMISSIONS FROM FUEL COMBUSTION

In recognition of fundamental changes in the way governments approach energy-related environmental issues, the IEA has prepared this publication on CO₂ emissions from fuel combustion. This annual publication was first published in 1997 and has become an essential tool for analysts and policy makers in many international fora such as the Conference of the Parties.

The seventeenth session of the Conference of the Parties to the Climate Change Convention (COP 17), in conjunction with the seventh meeting of the Parties to the Kyoto Protocol (CMP 7), will be meeting in Durban, South Africa from 28 November to 9 December 2011.

The data in this book are designed to assist in understanding the evolution of the emissions of CO₂ from 1971 to 2009 for more than 140 countries and regions by sector and by fuel. Emissions were calculated using IEA energy databases and the default methods and emission factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*.

(61 2011 12 1 P1) €165
ISBN 978-92-64-10283-5



2011
EDITION

**CO₂ EMISSIONS
FROM FUEL COMBUSTION**

INTERNATIONAL ENERGY AGENCY

The International Energy Agency (IEA), an autonomous agency, was established in November 1974. Its primary mandate was – and is – two-fold: to promote energy security amongst its member countries through collective response to physical disruptions in oil supply, and provide authoritative research and analysis on ways to ensure reliable, affordable and clean energy for its 28 member countries and beyond. The IEA carries out a comprehensive programme of energy co-operation among its member countries, each of which is obliged to hold oil stocks equivalent to 90 days of its net imports. The Agency's aims include the following objectives:

- Secure member countries' access to reliable and ample supplies of all forms of energy; in particular, through maintaining effective emergency response capabilities in case of oil supply disruptions.
- Promote sustainable energy policies that spur economic growth and environmental protection in a global context – particularly in terms of reducing greenhouse-gas emissions that contribute to climate change.
- Improve transparency of international markets through collection and analysis of energy data.
 - Support global collaboration on energy technology to secure future energy supplies and mitigate their environmental impact, including through improved energy efficiency and development and deployment of low-carbon technologies.
 - Find solutions to global energy challenges through engagement and dialogue with non-member countries, industry, international organisations and other stakeholders.

IEA member countries:

Australia
Austria
Belgium
Canada
Czech Republic
Denmark
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Japan
Korea (Republic of)
Luxembourg
Netherlands
New Zealand
Norway
Poland
Portugal
Slovak Republic
Spain
Sweden
Switzerland
Turkey
United Kingdom
United States



**International
Energy Agency**

© OECD/IEA, 2011
International Energy Agency
9 rue de la Fédération
75739 Paris Cedex 15, France
www.iea.org

Please note that this publication is subject to specific restrictions that limit its use and distribution. The terms and conditions are available online at www.iea.org/about/copyright.asp

The European Commission also participates in the work of the IEA.

FOREWORD

Recent years have witnessed a fundamental change in the way governments approach energy-related environmental issues. Promoting sustainable development and combating climate change have become integral aspects of energy planning, analysis and policy making in many countries, including all IEA member states.

In recognition of the importance attached to the environmental aspects of energy, the IEA Secretariat has prepared this edition of its published statistics on CO₂ emissions from fossil-fuel combustion. These data are also available on CD-ROM and on the Internet.

The purpose of this volume is to put our best and most current information in the hands of those who need it, including in particular the participants in the UNFCCC process. The IEA Secretariat is a contributor to the official Intergovernmental Panel on Climate Change (IPCC) methodologies for estimating greenhouse-gas emissions. The IEA's energy data are the figures most often cited in the field. For these reasons, we felt it appropriate to publish this information in a comprehensive form.

It is our hope that this book will assist the reader in better understanding the evolution of CO₂ emissions from fuel combustion from 1971 to 2009 for more than 140 countries and regions, by sector and by fuel. This publication incorporates comments and suggestions received since the first edition in November 1997.

Most of the data presented in this publication are only for energy-related CO₂. Thus they may differ from countries' official submissions of emissions inventories to the UNFCCC Secretariat.

In addition, summary data for CO₂ from non-energy-related sources and gas flaring, and emissions of CH₄, N₂O, HFC, PFC and SF₆ are shown in Part III in cooperation with the Netherlands Environmental Assessment Agency (PBL) and the Joint Research Centre (JRC).

The publication also includes information on "Key Sources" from fuel combustion, as developed in the *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*.

This report is published under my responsibility as Executive Director of the IEA and does not necessarily reflect the views of IEA member countries.

Maria Van der Hoeven
Executive Director

What's New?

Starting with this year's edition, the countries **Chile, Estonia, Israel** and **Slovenia**, which joined the OECD in 2010, have been incorporated into the OECD regions. The regional aggregate OECD North America has been changed to **OECD Americas** and now includes Chile. OECD Pacific has been changed to **OECD Asia Oceania** and now includes Israel. **OECD Europe** now includes Estonia and Slovenia starting in 1990. Prior to 1990, data for Estonia are included in Former Soviet Union and data for Slovenia in Former Yugoslavia.

Following the inclusion of Estonia and Slovenia in OECD, the regions Former Soviet Union and Non-OECD Europe were merged and renamed **Non-OECD Europe and Eurasia**. This new regional aggregate includes data for Former Soviet Union and for Former Yugoslavia prior to 1990.

At its fifteenth session, the Conference of the Parties decided to amend Annex I to the Convention to include **Malta** (Decision 3/CP.15). The amendment entered into force on 26 October 2010. As a result, Malta has been included in Annex I starting with this edition.

TABLE OF CONTENTS

2009 OVERVIEW

Snapshot of CO ₂ emissions	xiii
Regional aspects of the energy-climate challenge.....	xxiii

PART I: METHODOLOGY

1. IEA emissions estimates	I.3	4. Geographical coverage	I.17
2. Units and conversions	I.11	5. IPCC methodologies.....	I.21
3. Indicators.....	I.13		

PART II: CO₂ EMISSIONS FROM FUEL COMBUSTION

SUMMARY TABLES

CO ₂ emissions: Sectoral Approach	II.4	Population.....	II.43
CO ₂ emissions: Reference Approach	II.16	CO ₂ emissions / TPES	II.46
CO ₂ emissions from international marine bunkers	II.19	CO ₂ emissions / GDP.....	II.49
CO ₂ emissions from international aviation bunkers	II.22	CO ₂ emissions / population.....	II.55
CO ₂ emissions by sector in 2009.....	II.25	Per capita emissions by sector in 2009	II.58
CO ₂ emissions with electricity and heat allocated to consuming sectors in 2009.....	II.28	Per capita emissions with electricity and heat allocated to consuming sectors in 2009	II.61
Total primary energy supply	II.31	Electricity and heat output.....	II.64
GDP.....	II.37	CO ₂ emissions per kWh from electricity and heat generation	II.67

GLOBAL AND REGIONAL TOTALS

World	II.80	OECD Asia Oceania.....	II.102
<i>Annex I Parties</i>	II.82	OECD Europe.....	II.104
<i>Annex II Parties</i>	II.84	European Union - 27.....	II.106
<i>North America</i>	II.86	Africa.....	II.108
<i>Europe</i>	II.88	Middle East.....	II.110
<i>Asia Oceania</i>	II.90	Non-OECD Europe and Eurasia.....	II.112
<i>Economies in Transition</i>	II.92	Latin America.....	II.114
<i>Non-Annex I Parties</i>	II.94	Asia (excluding China).....	II.116
<i>Annex I Kyoto Parties</i>	II.96	China.....	II.118
OECD Total	II.98		
OECD Americas.....	II.100		

COUNTRY TABLES

Albania	II.122	Austria	II.134
Algeria.....	II.124	Azerbaijan.....	II.136
Angola.....	II.126	Bahrain	II.138
Argentina.....	II.128	Bangladesh	II.140
Armenia.....	II.130	Belarus.....	II.142
Australia	II.132	Belgium	II.144

Benin	II.146	Jordan	II.252
Bolivia	II.148	Kazakhstan	II.254
Bosnia and Herzegovina	II.150	Kenya	II.256
Botswana	II.152	Democratic People's Republic of Korea	II.258
Brazil	II.154	Korea	II.260
Brunei Darussalam	II.156	Kuwait	II.262
Bulgaria	II.158	Kyrgyzstan	II.264
Cambodia	II.160	Latvia	II.266
Cameroon	II.162	Lebanon	II.268
Canada	II.164	Libyan Arab Jamahiriya	II.270
Chile	II.166	Lithuania	II.272
People's Republic of China	II.168	Luxembourg	II.274
Chinese Taipei	II.170	Former Yugoslav Republic of Macedonia	II.276
Colombia	II.172	Malaysia	II.278
Congo	II.174	Malta	II.280
Democratic Republic of Congo	II.176	Mexico	II.282
Costa Rica	II.178	Republic of Moldova	II.284
Côte d'Ivoire	II.180	Mongolia	II.286
Croatia	II.182	Morocco	II.288
Cuba	II.184	Mozambique	II.290
Cyprus	II.186	Myanmar	II.292
Czech Republic	II.188	Namibia	II.294
Denmark	II.190	Nepal	II.296
Dominican Republic	II.192	Netherlands	II.298
Ecuador	II.194	Netherlands Antilles	II.300
Egypt	II.196	New Zealand	II.302
El Salvador	II.198	Nicaragua	II.304
Eritrea	II.200	Nigeria	II.306
Estonia	II.202	Norway	II.308
Ethiopia	II.204	Oman	II.310
Finland	II.206	Pakistan	II.312
France	II.208	Panama	II.314
Gabon	II.210	Paraguay	II.316
Georgia	II.212	Peru	II.318
Germany	II.214	Philippines	II.320
Ghana	II.216	Poland	II.322
Gibraltar	II.218	Portugal	II.324
Greece	II.220	Qatar	II.326
Guatemala	II.222	Romania	II.328
Haiti	II.224	Russian Federation	II.330
Honduras	II.226	Saudi Arabia	II.332
Hong Kong, China	II.228	Senegal	II.334
Hungary	II.230	Serbia	II.336
Iceland	II.232	Singapore	II.338
India	II.234	Slovak Republic	II.340
Indonesia	II.236	Slovenia	II.342
Islamic Republic of Iran	II.238	South Africa	II.344
Iraq	II.240	Spain	II.346
Ireland	II.242	Sri Lanka	II.348
Israel	II.244	Sudan	II.350
Italy	II.246	Sweden	II.352
Jamaica	II.248	Switzerland	II.354
Japan	II.250	Syrian Arab Republic	II.356

Tajikistan.....	II.358	United Kingdom	II.378
United Republic of Tanzania.....	II.360	United States.....	II.380
Thailand	II.362	Uruguay	II.382
Togo	II.364	Uzbekistan	II.384
Trinidad and Tobago	II.366	Venezuela	II.386
Tunisia.....	II.368	Vietnam	II.388
Turkey	II.370	Yemen.....	II.390
Turkmenistan.....	II.372	Zambia.....	II.392
Ukraine.....	II.374	Zimbabwe	II.394
United Arab Emirates.....	II.376		

PART III: GREENHOUSE-GAS EMISSIONS

1. Shares and trends in GHG emissions	III.3	3. Total greenhouse-gas emissions	III.25
2. Sources and methods.....	III.11		

Kyoto Protocol base years

The year 1990 should be the base year for the estimation and reporting of inventories. According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, the following Annex I Parties that are undergoing the process of transition to a market economy, are allowed to use a base year or a period of years other than 1990, as follows:

Bulgaria:	to use 1988
Hungary:	to use the average of the years 1985 to 1987
Poland:	to use 1988
Romania:	to use 1989
Slovenia:	to use 1986

ABBREVIATIONS

Btu:	British thermal unit
GJ:	gigajoule
Gt C:	gigatonnes of carbon
GWh:	gigawatt hour
J:	joule
kcal:	kilocalorie
kg:	kilogramme
kt:	thousand tonnes
ktoe:	thousand tonnes of oil equivalent
kWh:	kilowatt hour
MJ:	megajoule
Mt:	million tonnes
Mtoe:	million tonnes of oil equivalent
m ³ :	cubic metre
PJ:	petajoule
t:	metric ton = tonne = 1 000 kg
t C:	tonne of carbon
Tcal:	teracalorie
TJ:	terajoule
toe:	tonne of oil equivalent = 10 ⁷ kcal
CEF:	carbon emission factor
CHP:	combined heat and power
GCV:	gross calorific value
GDP:	gross domestic product
HHV:	higher heating value = GCV
LHV:	lower heating value = NCV
NCV:	net calorific value
PPP:	purchasing power parity
TPES:	total primary energy supply
AIJ:	Activities Implemented Jointly under the United Nations Framework Convention on Climate Change
Annex I:	See Chapter 4, Geographical coverage
Annex II:	See Chapter 4, Geographical coverage
CDM:	Clean Development Mechanism
Convention:	United Nations Framework Convention on Climate Change
COP:	Conference of the Parties to the Convention
EITs:	Economies in Transition (see Chapter 4, Geographical coverage)
IEA:	International Energy Agency
IPCC:	Intergovernmental Panel on Climate Change
OECD:	Organisation for Economic Co-Operation and Development
SBI:	Subsidiary Body for Implementation
SBSTA:	Subsidiary Body for Scientific and Technological Advice
TCA:	Technology Co-operation Agreement
UN:	United Nations
UNECE:	United Nations Economic Commission for Europe
UNFCCC:	United Nations Framework Convention on Climate Change
e	estimated
..	not available
-	nil
x	not applicable
+	growth greater than 1 000%

Important cautionary notes

- The estimates of CO₂ emissions from fuel combustion presented in this publication are calculated using the IEA energy balances and the default methods and emission factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*. There are many reasons why **the IEA Secretariat estimates may not be the same as the numbers that a country submits to the UNFCCC**, even if a country has accounted for all of its energy use and correctly applied the *IPCC Guidelines*.
- In this publication, the IEA Secretariat presents CO₂ emissions calculated using both the IPCC Reference Approach and the IPCC Tier 1 Sectoral Approach. In some of the OECD non-member countries, there can be **large differences between the two sets of calculations** due to various problems in some energy data. As a consequence, this can lead to different emission trends between 1990 and 2009 for certain countries. Please see Chapter 1, “IEA emissions estimates” for further details.
- Information on “key sources” from fuel combustion, as developed in the *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*, are only given for combustion sources and will not include key sources from fugitive emissions, industrial processes, solvents, agriculture and waste. Please see Chapter 1, “IEA emissions estimates” and Chapter 5, “IPCC methodologies” for further information.

Energy data on OECD member and non-member countries are collected by the Energy Statistics Division (ESD) of the IEA Secretariat, headed by Jean-Yves Garnier. The IEA would like to thank and acknowledge the dedication and professionalism of the statisticians working on energy data in the countries. Karen Tréanton, with the assistance of Alex Blackburn, is responsible for the estimates of CO₂ emissions from fuel combustion. Desktop publishing support was provided by Sharon Burghraeve.

CO₂ emission estimates from 1960 to 2009 for the Annex II countries and from 1971 to 2009 for all other countries are available on CD-ROM suitable for

use on IBM-compatible personal computers. To order, please see the information provided at the end of this publication.

In addition, a data service is available on the Internet. It includes unlimited access through an annual subscription as well as the possibility to obtain data on a pay-per-view basis. Details are available at www.iea.org.

Enquiries about data or methodology should be addressed to:

Karen Tréanton:
Telephone: (+33-1) 40-57-66-33,
E-mail: emissions@iea.org.

2009 OVERVIEW

SNAPSHOT OF CO₂ EMISSIONS

Latest developments in 2009¹ (and beyond)

While the emissions of developing countries (non-Annex I²) continued to grow in 2009 (+3.3%), led by Asia and the Middle East, the emissions of developed countries (Annex I³) fell sharply (-6.5%), putting them at 6.4% below their 1990 collective level. It should be noted that 2009 emission levels for the group of countries participating in the Kyoto protocol were 14.7% below their 1990 level.

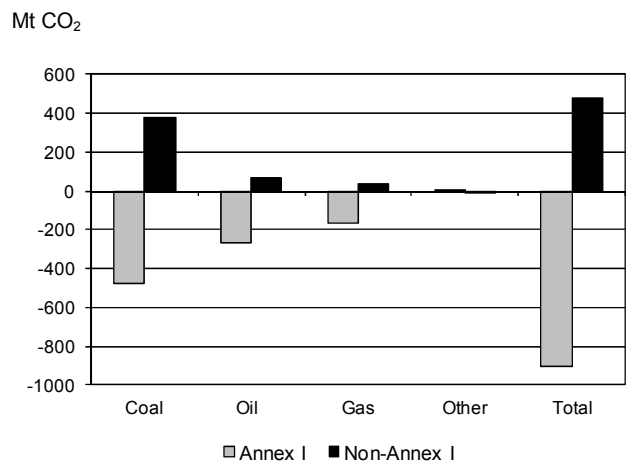
Global CO₂ emissions actually decreased by 0.5 Gt CO₂ between 2008 and 2009, which represented a decline of 1.5%. However, trends varied greatly: as already noted above, the emissions of Annex I countries decreased, whereas the emissions of non-Annex I countries increased. Due to these diverging trends, the share of total emissions for developing countries increased to 54% (excluding bunkers), after becoming larger than Annex I's share for the first time since 2008.

The changes were not equal across fuels, regions and sectors. The increase in emissions for developing countries was primarily due to an increase in coal

demand (with oil and gas increasing more modestly). On the contrary, the reduction in emissions for developed countries was more spread out over fuels: 53% of the decrease came from coal, while 30% from oil and 18% from natural gas (Figure 1).

Early indications suggest that CO₂ emissions trends in developing countries in 2010 will continue to increase, through growing consumption of fossil fuels in some of the larger countries. The trend of emissions in developed countries will rebound in 2010 and CO₂ emissions will likely be at a similar level to 2008, before the recent financial crisis and the slowdown in economic activity.

Figure 1. Global change in CO₂ emissions (2008-2009)



Key point: CO₂ emissions in Annex I countries decreased by 6.5% in 2009, whereas emissions in developing countries rose by over 3%.

In the medium term, Annex I CO₂ emissions are expected to rebound when economic conditions pick up. In its New Policies Scenario, the *World Energy Outlook*

1. Energy consumption in 2009 was affected by the global financial crisis and some of the CO₂ emission trends seen may be deceptive.

2. In this publication, developing countries refers to non-Annex I Parties to the UNFCCC.

3. The Annex I Parties to the 1992 UN Framework Convention on Climate Change (UNFCCC) are: Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, the Czech Republic, Denmark, Estonia, European Economic Community, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Lichtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom and United States. See www.unfccc.int. For country coverage of Annex I EIT and Annex II, see Geographical Coverage.

(*WEO 2010*)⁴ projects that world CO₂ emissions from fuel combustion will continue to grow unabated, albeit at a lower rate, reaching 35.4 Gt CO₂ by 2035. This is an improvement over the Current Policies Scenario of the WEO and is in line with the worst-case scenario presented by the Intergovernmental Panel on Climate Change (IPCC)⁵ in the *Fourth Assessment Report* (2007), which projects a world average temperature increase of between 2.4°C and 6.4°C by 2100.

CO₂ emissions by fuel

In 2009, 43% of CO₂ emissions from fuel combustion were produced from coal, 37% from oil and 20% from gas. Growth of these fuels in 2009 was quite different, reflecting varying trends that are expected to continue in the future.

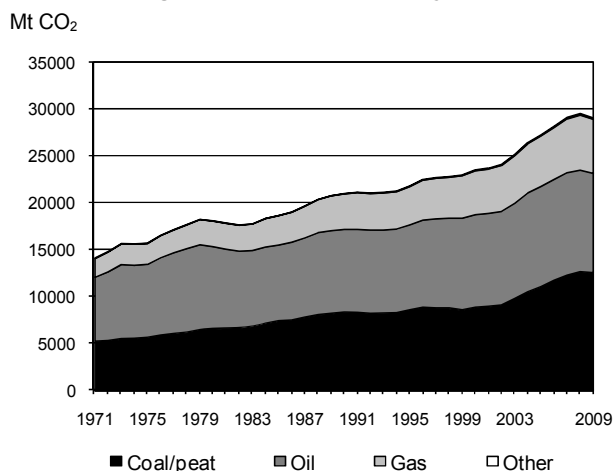
Between 2008 and 2009, CO₂ emissions from the combustion of coal decreased by nearly 1% and represented 12.5 Gt CO₂. Currently, coal is filling much of the growing energy demand of those developing countries, such as China and India, where energy-intensive industrial production is growing rapidly and large coal reserves exist with limited reserves of other energy sources (Figure 2). Without additional measures, the *WEO 2010* projects that emissions from coal will grow to 14.4 Gt CO₂ in 2035. *Energy Technology Perspectives (ETP 2010)* shows that intensified use of coal would substantially increase CO₂ emissions unless there was a very widespread deployment of carbon capture and storage (CCS).

CO₂ emissions from oil fell in 2008, decreasing 2.2% throughout the year. The decreasing share of oil in total primary energy supply (TPES), as a result of the growth of coal and the penetration of gas, put downward pressure on CO₂ emissions from oil, which produced 10.6 Gt

CO₂ in 2009. However, the *WEO 2010* projects that emissions from oil will grow to 12.6 Gt CO₂ in 2035.

Emissions of CO₂ from gas in 2009 represented 5.8 Gt CO₂, 2.2% higher than in the previous year. Again, the *WEO 2010* projects emissions from gas will continue to grow, rising to 8.4 Gt CO₂ in 2035.

Figure 2. CO₂ emissions by fuel



Key point: Combustion of coal drove the growth in global emissions through 2008; with a decline in 2009, which will most likely be reversed in 2010.

CO₂ emissions by region

Between 2008 and 2009, CO₂ emission trends varied markedly by region. As mentioned earlier, CO₂ emissions from non-Annex I countries grew by 3.3%, while those of Annex I countries decreased by 6.5%, causing the aggregate emissions of the developing countries to increase their small lead over those of the developed countries. At the regional level (Figure 3), CO₂ emissions increased significantly in Asia (5.5%), China (5%) and the Middle East (3.6%).

On the other hand, between 2008 and 2009, CO₂ emissions decreased in all other regions, ranging from 1.5% in Africa to 7.4% in the Annex II European countries.

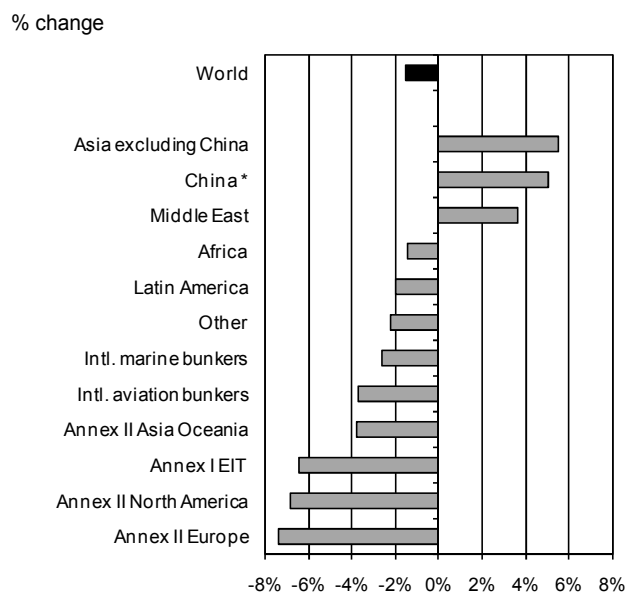
However, regional differences in contributions to global emissions conceal even larger differences among individual countries (Figure 4).

Two-thirds of global emissions for 2009 originated from just ten countries, with the shares of China and the United States far surpassing those of all others. Combined, these two countries alone produced 12.0 Gt CO₂, 41% of world CO₂ emissions.

4. Unless otherwise specified, projections from the *World Energy Outlook* refer to the New Policies Scenario from the 2010 edition. This scenario takes account of the broad policy commitments and plans that have been announced by countries around the world, including the national pledges to reduce greenhouse-gas emissions and plans to phase out fossil-energy subsidies even where the measures to implement these commitments have yet to be identified or announced. These commitments are assumed to be implemented in a relatively cautious manner, reflecting their non-binding character and, in many cases, the uncertainty shrouding how they are to be put into effect.

5. The IPCC was created in 1988 by the World Meteorological Organisation and the United Nations Environment Programme to assess scientific, technical and socio-economic information relevant for the understanding of climate change, its potential impacts, and options for adaptation and mitigation.

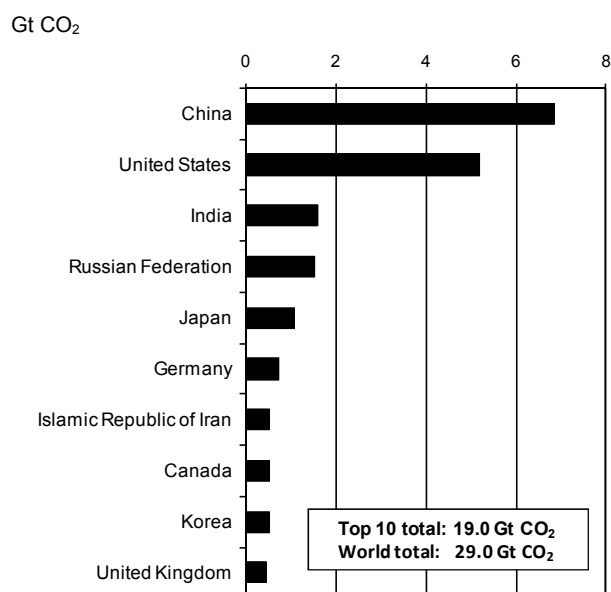
Figure 3. Change in CO₂ emissions by region (2008-2009)



* China includes Hong-Kong.

Key point: Between 2008 and 2009, CO₂ emissions increased significantly in Asia, China and the Middle East, while declining in the world as a whole.

Figure 4. Top 10 emitting countries in 2009

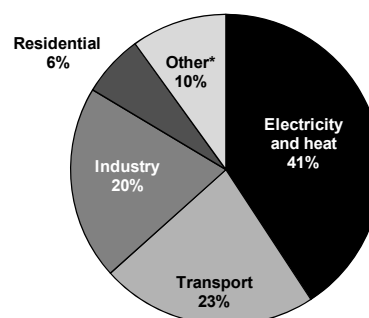


Key point: The top 10 emitting countries account for about two-thirds of the world CO₂ emissions.

CO₂ emissions by sector

Two sectors, electricity and heat generation and transport, produced nearly two-thirds of global CO₂ emissions in 2009 (Figure 5).

Figure 5. World CO₂ emissions by sector in 2009



* Other includes commercial/public services, agriculture/forestry, fishing, energy industries other than electricity and heat generation, and other emissions not specified elsewhere.

Key point: The combined share of electricity and heat generation and transport represented nearly two-thirds of global emissions in 2009.

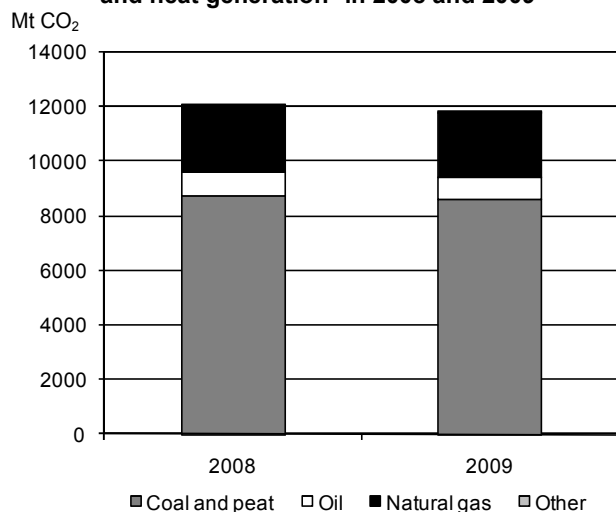
Generation of electricity and heat was by far the largest producer of CO₂ emissions and was responsible for 41% of the world CO₂ emissions in 2009. Worldwide, this sector relies heavily on coal, the most carbon-intensive of fossil fuels, amplifying its share in global emissions. Countries such as Australia, China, India, Poland and South Africa produce between 68% and 94% of their electricity and heat through the combustion of coal.

Between 2008 and 2009, total CO₂ emissions from the generation of electricity and heat decreased by 1.7% (Figure 6), while the fuel mix stayed similar. CO₂ emissions from oil decreased the most, by 2.8%, while coal and gas decreased by 1.9% and 0.7% respectively. The future development of the emissions intensity of this sector depends strongly on the fuels used to generate the electricity and on the share of non-emitting sources, such as renewables and nuclear.

By 2035, the *WEO 2010* projects that demand for electricity will be approximately three-quarters higher than current demand. This demand will be driven by rapid growth in population and income in developing countries, by the continuing increase in the number of electrical devices used in homes and commercial buildings, and by the growth in electrically driven industrial processes. Meanwhile, renewables-based electricity generation is expected to continue growing over the next 25 years, benefiting from government support, declining investment costs and rising fossil-

fuel prices. The share of renewables in total electricity generation rises from 19% in 2008 to 23%, 32% and 45% in the Current Policies, New Policies and 450 scenarios, respectively.

Figure 6. CO₂ emissions from electricity and heat generation* in 2008 and 2009

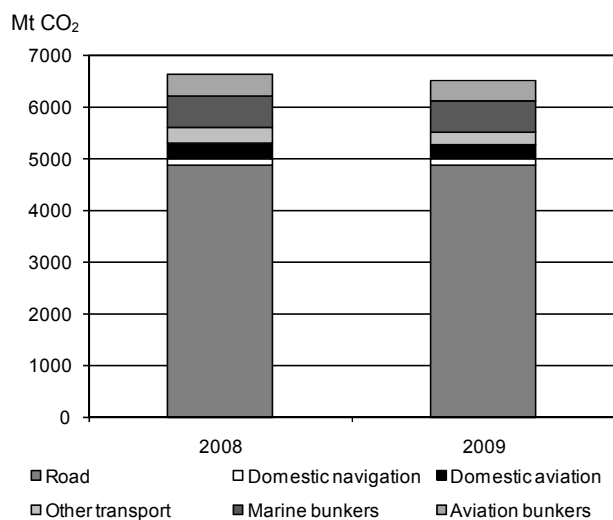


* Refers to main activity producers and autoproducers of electricity and heat.

Key point: CO₂ emissions from electricity and heat generation decreased slightly between 2008 and 2009, after remaining broadly flat the previous year.

Transport, the second-largest sector, represented 23% of global CO₂ emissions in 2009. CO₂ emissions in this sector decreased between 2008 and 2009 by 1.7% (Figure 7).

Figure 7. CO₂ emissions from transport in 2008 and 2009



Key point: CO₂ emissions from road make up the vast majority of emissions from transport.

The United States has the highest level of passenger travel per capita in the world (more than 25 000 km per person per year). Until recently, lower fuel prices in the United States contributed to the use of larger vehicles, while in Europe higher fuel prices encouraged improved fuel economy (along with the EU voluntary agreement with manufacturers). As a result, there is more than a 50% variation in the average fuel consumption of new light-duty vehicles across OECD member countries (*ETP 2010*, p. 262).

Global demand for transport appears unlikely to decrease in the foreseeable future; the *WEO 2010* projects that transport fuel demand will grow by about 40% by 2035. To limit emissions from this sector, policy makers should first and foremost consider measures to encourage or require improved vehicle efficiency, as the United States has recently done and the European Union is currently doing as a follow-up to the voluntary agreements. Policies that encourage a shift from cars to public transportation and to lower-emission modes of transportation can also help. Finally, policies can encourage a shift to new, preferably low-carbon fuels. These include electricity (e.g. electric and plug-in hybrid vehicles), hydrogen (e.g. through the introduction of fuel cell vehicles) and greater use of biofuels (e.g. as a blend in gasoline and diesel fuel). To avoid a rebound in transport fuel demand, these moves must also be backed up by emissions pricing or fuel excise policies.

These policies would both reduce the environmental impact of transport and help to secure domestic fuel supplies, which are sometimes unsettled by the threat of supply disruptions, whether from natural disasters, accidents or the geopolitics of oil trade. As these policies will ease demand growth, they are also likely to help reduce oil prices below what the prices might otherwise be.

Coupling emissions with socio-economic indicators⁶

Indicators such as those briefly discussed in this section strongly reflect energy constraints and choices made to supply the economic activities of each country. They also reflect sectors that predominate in different countries' economies.

In 2009, the largest five emitters (China, the United States, India, the Russian Federation and Japan) comprised 45% of the total population and together produced 56% of the global CO₂ emissions

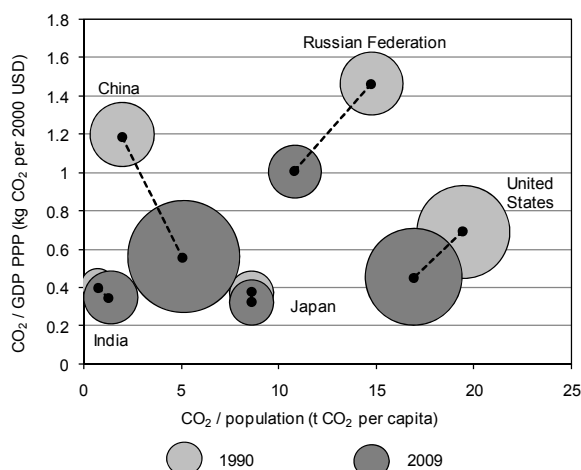
6. No single indicator can provide a complete picture of a country's CO₂ emissions performance or its relative capacity to reduce emissions. The indicators discussed here provide an indication of performance but are certainly incomplete.

and 51% of the world gross domestic product (GDP).⁷ However, the relative shares of these five countries for all three variables were very diverse.

In the United States, the large share of global emissions is associated with a commensurate share of economic output (as measured by GDP), the largest in the world. Japan, with a GDP more than double that of the Russian Federation, emits 29% less than the Russian Federation.

Although climate and other variables also affect energy use, relatively high values of emissions per GDP indicate a potential for decoupling CO₂ emissions from economic growth. Possible improvements can derive from fuel switching away from carbon-intensive sources or from energy efficiency at all stages of the energy supply chain (from fuel extraction to energy end-use).⁸ Among the five largest emitters of CO₂ in 2009, China, the Russian Federation and the United States have significantly reduced their CO₂ emissions per unit of GDP between 1990 and 2009 (Figure 8). The other two countries, India and Japan, already had much lower emissions per GDP.

Figure 8. Trends in CO₂ emission intensities for the top 5 emitting countries*



* Size of circle represents total CO₂ emissions from the country in that year.

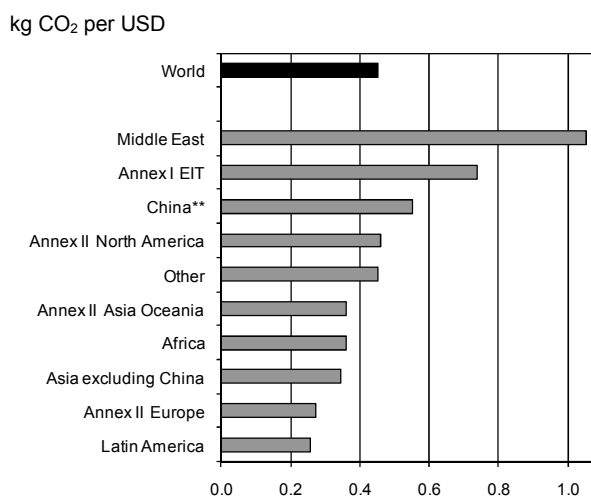
Key point: China, the Russian Federation and the United States have all made significant improvements in the amount of CO₂ emissions emitted per unit of GDP.

7. Throughout this analysis, GDP refers to GDP in 2000 USD, using purchasing power parities.

8. The IEA's Policies and Measures Databases offer access to information on energy-related policies and measures taken or planned to reduce greenhouse-gas emissions, improve energy efficiency and support renewable energy development and deployment. The online databases can be consulted at: www.iea.org/textbase/pm/index.html.

Worldwide, the highest levels of emissions per GDP are observed for the oil and gas exporting region of the Middle East and for the relatively energy-intensive Economies in transition EITs⁹ (Figure 9). China emissions per GDP have fallen close to the level of the United States.

Figure 9. CO₂ emissions per GDP* by major world regions in 2009



* GDP in 2000 USD, using purchasing power parities.

** China includes Hong Kong.

Key point: Emission intensities in economic terms vary greatly around the world.

As compared to emissions per unit of GDP, the range of per capita emission levels across the world is even larger, highlighting wide divergences in the way different countries and regions use energy.

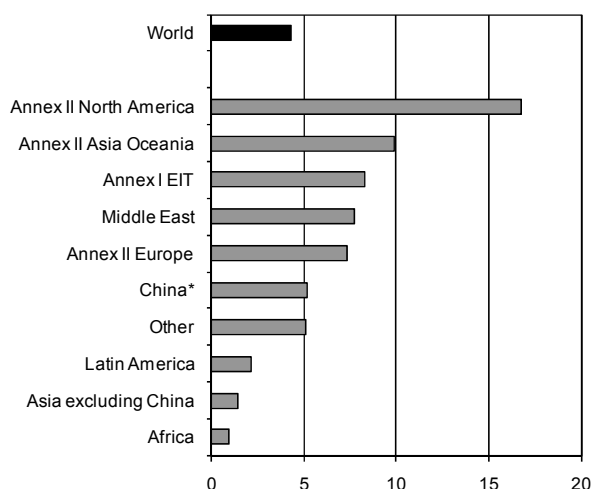
In 2009, the United States alone generated 18% of world CO₂ emissions, despite a population of less than 5% of the global total. Conversely, China contributed a comparable share of world emissions (24%) while accounting for 20% of the world population. India, with 17% of world population, contributed more than 5% of the CO₂ emissions. Among the five largest emitters, the levels of per capita emissions were very diverse, ranging from 1 t of CO₂ per capita for India and 5 t for China to 17 t for the United States.

9. EITs are those countries in Annex I that are undergoing the process of transition to a market economy. This includes Belarus, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation, the Slovak Republic, Slovenia and Ukraine.

Industrialised countries emit far larger amounts of CO₂ per capita than the world average (Figure 10). However, some rapidly expanding economies are significantly increasing their emissions per capita. For example, between 1990 and 2009, among the top 5 emitting countries, China increased its per capita emissions by over two and a half times and India doubled them. Clearly, these two countries contributed much to the 8% increase of global per capita emissions over the period. Conversely, both the Russian Federation and the United States decreased their per capita emissions significantly, by 27% and 13% respectively, over the same period.

Figure 10. CO₂ emissions per capita by major world regions in 2009

T CO₂ per capita



* China includes Hong Kong.

Key point: Emissions per capita vary even more widely across world regions than GDP per capita.

Developing a low-carbon world

Until recently, industrialised countries have emitted the large majority of anthropogenic greenhouse gases. However shares of developing countries are rising very rapidly and are projected to continue to do so. To shift towards a low-carbon world, mitigation measures now taking shape within industrialised countries will need to be accelerated, and complemented by comprehensive efforts worldwide.

Complementing various national policies and measures, the Kyoto Protocol of the UNFCCC is so far the most comprehensive binding multinational agreement to mitigate climate change. Having entered into force in February 2005, the Protocol commits industrialised

countries (as a group) to curb domestic emissions by about 5% relative to 1990 by the 2008-12 first commitment period. The Protocol also creates “flexible mechanisms” by which industrialised countries can transfer emission allowances among themselves and earn emission credits from emissions reduction projects in participating developing countries and EIT countries.

Despite its extensive coverage (192 countries), the Protocol is limited in its potential to address global emissions since not all major emitters are included in reduction commitments. The United States remains outside of its jurisdiction and though most developing countries (*i.e.* non-Annex I countries) have signed the Protocol, they do not face emissions targets. The Kyoto Protocol implies action on less than one-third of global CO₂ emissions, as measured in 2008 (Table 1).

The Protocol has made carbon a tradable commodity, and has been a key driver for the development of emissions trading schemes as detailed below.

Emissions trading schemes

Emissions trading schemes (ETS) are developing or being proposed in several regions and countries around the world. Some are operational (EU ETS, New Zealand, Norway, Tokyo, Switzerland, the Regional Greenhouse Gas Initiative in the United States, Alberta, Canada and New South Wales, Australia) while others are under active development (California, Australia, Korea, China).

Given the significant uncertainties surrounding future international climate commitments, policy makers have allowed flexibility in changing design options over the longer term. Indeed, lessons from the first years of existing schemes are helping the elaboration of others (Hood, 2010).

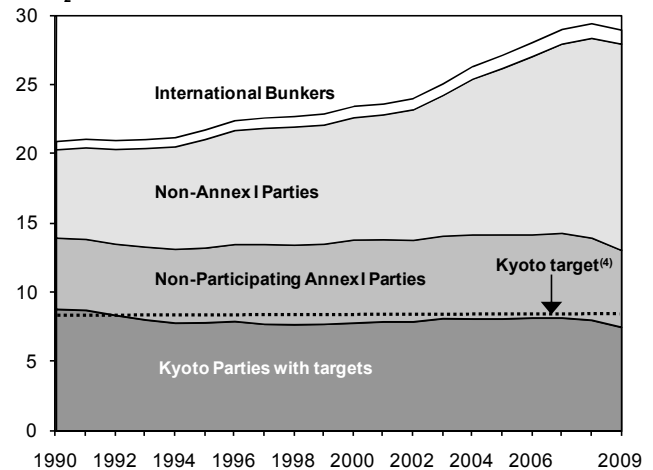
In the European Union, the largest scheme in operation is the EU ETS, which covers emitters in the energy and industrial sectors (aviation will be added from 2012), representing about 45% of the energy-related CO₂ emissions of the region. Norway’s ETS is fully linked to the EU system. The lessons from its first two phases have helped to shape the scheme’s post-2012 design (Ellerman *et al.*, 2010).

In December 2008, the European Council and the European Parliament endorsed an agreement on the climate change and energy package which implements a political commitment by the European Union to reduce its greenhouse-gas emissions by 20% by 2020 compared to 1990 levels.¹⁰ The package also includes a target for renewables in the EU set at 20% of final energy demand by 2020.

10. A 30% reduction target is proposed if other Parties were to take equally ambitious mitigation objectives.

Table 1. World CO₂ emissions from fuel combustion and Kyoto Protocol targets⁽¹⁾Mt CO₂

	1990	2009	% change 90-09	Kyoto Target		1990	2009	% change 90-09	Kyoto Target
KYOTO PARTIES WITH TARGETS	8 785.6	7 497.2	-14.7%	-4.7% e	OTHER COUNTRIES	11 566.8	20 486.5	77.1%	
<i>North America</i>	432.3	520.7	20.4%		<i>Non-participating</i>				
Canada	432.3	520.7	20.4%	-6%	<i>Annex I Parties</i>	5 122.4	5 514.6	7.7%	
					Belarus	124.6	60.8	-51.2%	none
<i>Europe</i>	3 154.2	3 001.2	-4.9%		Malta	2.3	2.4	7.0%	none
Austria	56.5	63.4	12.2%	-13%	Turkey	126.9	256.3	102.0%	none
Belgium	107.9	100.7	-6.7%	-7.5%	United States	4 868.7	5 195.0	6.7%	-7%
Denmark	50.4	46.8	-7.2%	-21%					
Finland	54.4	55.0	1.1%	0%	<i>Other Regions</i>	6 333.8	14 815.0	133.9%	none
France ⁽²⁾	352.3	354.3	0.6%	0%	Africa	545.4	927.5	70.1%	none
Germany	950.4	750.2	-21.1%	-21%	Middle East	556.8	1 509.0	171.0%	none
Greece	70.1	90.2	28.6%	+25%	N-OECD Eur. & Eurasia ⁽³⁾	641.9	458.4	-28.6%	none
Iceland	1.9	2.0	6.2%	+10%	Latin America ⁽³⁾	843.3	1 374.2	63.0%	none
Ireland	29.8	39.5	32.4%	+13%	Asia (excl. China) ⁽³⁾	1 502.3	3 668.7	144.2%	none
Italy	397.4	389.3	-2.0%	-6.5%	China	2 244.1	6 877.2	206.5%	none
Luxembourg	10.4	10.0	-4.4%	-28%					
Netherlands	155.8	176.1	13.0%	-6%	INTL. MARINE BUNKERS	357.9	592.2	65.5%	
Norway	28.3	37.3	31.9%	+1%	INTL. AVIATION BUNKERS	255.9	423.4	65.5%	
Portugal	39.3	53.1	35.3%	+27%					
Spain	205.8	283.4	37.7%	+15%	WORLD	20 966.3	28 999.4	38.3%	
Sweden	52.8	41.7	-20.9%	+4%					
Switzerland	41.4	42.4	2.5%	-8%					
United Kingdom	549.3	465.8	-15.2%	-12.5%					
<i>Asia Oceania</i>	1 347.8	1 519.0	12.7%						
Australia	260.1	394.9	51.8%	+8%					
Japan	1 064.4	1 092.9	2.7%	-6%					
New Zealand	23.3	31.3	34.3%	0%					
<i>Economies in Transition</i>	3 851.3	2 456.2	-36.2%						
Bulgaria	74.9	42.2	-43.7%	-8%					
Croatia	21.6	19.8	-8.4%	-5%					
Czech Republic	155.1	109.8	-29.2%	-8%					
Estonia	36.1	14.7	-59.4%	-8%					
Hungary	66.7	48.2	-27.8%	-6%					
Latvia	18.6	6.8	-63.8%	-8%					
Lithuania	33.1	12.4	-62.6%	-8%					
Poland	342.1	286.8	-16.2%	-6%					
Romania	167.1	78.4	-53.1%	-8%					
Russian Federation	2 178.8	1 532.6	-29.7%	0%					
Slovak Republic	56.7	33.2	-41.5%	-8%					
Slovenia	12.5	15.2	21.2%	-8%					
Ukraine	687.9	256.4	-62.7%	0%					

Gt CO₂

(1) The targets apply to a basket of six greenhouse gases and allow sinks and international credits to be used for compliance with the target. The overall EU-15 target under the Protocol is 8%, but the member countries have agreed on a burden-sharing arrangement as listed. Because of lack of data and information on base years and gases, an overall "Kyoto target" cannot be precisely calculated for total Kyoto Parties: estimates applying the targets to IEA energy data suggest the target is equivalent to about 4.7% on an aggregate basis for CO₂ emissions from fuel combustion.

(2) Emissions from Monaco are included with France.

(3) Composition of regions differs from elsewhere in this publication to take into account countries that are not Kyoto Parties.

(4) The Kyoto target is calculated as percentage of the 1990 CO₂ emissions from fuel combustion only, therefore it does not represent the total target for the six-gas basket. This assumes that the reduction targets are spread equally across all gases.

Key point: Existing climate goals have not always led to reductions in CO₂ emissions from fuel combustion.

The EU ETS will play a key role in achieving this target, as the 2020 emissions cap for ETS installations is 21% below the actual level of 2005 emissions,¹¹ or 34% below if the overall target moves to a 30% reduction. There will be a significant increase in the proportion of allowances auctioned rather than allocated for free, including full auctioning (in general) for the power generation sector. Continued use of credits from the Kyoto Protocol flexible mechanisms Clean Development Mechanism (CDM) and Joint Implementation (JI) will be allowed, with both quantitative and qualitative restrictions.

In New Zealand, a comprehensive economy-wide emission trading scheme (NZ ETS) is being progressively introduced, starting with the forestry sector in January 2008. The energy, transport and industrial sectors are included from July 2010, and waste and agricultural emissions enter by 2015. There is a transition phase from 2010 to 2012 with a capped price and partial obligations. The scheme is fully linked to the international Kyoto market, and allows unlimited use of Kyoto Protocol project and forestry credits. No emissions cap is specified: linking to the international market is intended rather to ensure that an appropriate carbon price is set in the New Zealand economy.

Several other ETS schemes are operating, including in countries that are not Parties to the Kyoto Protocol. In the United States, the first regional scheme (the Regional Greenhouse Gas Initiative covering the electricity sector in the northeastern states) began on 1 January 2009. Small schemes are also in place in New South Wales (covering the power sector), Tokyo (covering commercial sites) and Alberta (covering large emitters). Switzerland's ETS allows companies to manage their emissions through trading instead of facing the country's carbon tax.

A number of other domestic trading schemes are also under development, in both Annex I and non-Annex I countries. The Korean government has submitted legislation to establish an emissions trading scheme from 2015, to assist in delivering Korea's target of a 30% improvement on business-as-usual (BAU) emissions by 2020. The Australian government also has legislation progressing to implement emissions trading, with a fixed-price transitional period starting in 2012,

moving to full trading in 2015. As part of its 12th five-year plan (2011 to 2015), the Chinese government is investigating options for ETS pilots in two provinces and four cities. These pilots are to be developed by 2013, to inform the potential implementation of a nation-wide policy after 2015. California also intends to begin trading in its domestic market in 2013, and other US states and Canadian provinces may link to the California scheme thereafter under the umbrella of the Western Climate Initiative.

An important development in 2011 was the launch of the World Bank's Partnership for Market Readiness, which provides funding and technical assistance to developing countries for capacity building toward the development and piloting of market-based instruments for greenhouse gas reduction. Chile, China, Columbia, Costa Rica, Indonesia, Mexico, Thailand and Turkey received grants in the first round of funding.

Steps for future action

Held in late 2005, the first Meeting of the Parties to the Kyoto Protocol (COP/MOP1) witnessed the official opening of talks on post-2012 climate change policy. The Bali Road Map adopted at COP/MOP3 in Bali in 2007 established a two-track process, *i.e.* both for the Convention and Kyoto Protocol strands, aiming at the identification of a post-2012 global climate regime to be adopted by COP15 and COP/MOP5 in Copenhagen in 2009. In Bali, Parties organised two official fora: the Ad Hoc Working Group on the Kyoto Protocol (AWG-KP) and the Ad Hoc Working Group on Long-term Co-operative Action (AWG-LCA).

The AWG-KP focuses on the design of post-2012 commitments for Annex I Parties under the Protocol. Ideally, it would also provide some certainty to carbon-constrained investments in infrastructure and to the carbon market itself. However, the AWG has no mandate to encourage participation from non-Annex I Parties or from non-participating Annex I Parties.

By contrast, the broader AWG-LCA was designed to enable full and sustained implementation of the UN Framework Convention on Climate Change by all Parties, up to and beyond 2012, through long-term co-operative action. While the Bali Action Plan, adopted under the Convention track, did not introduce binding commitments to reduce greenhouse-gas emissions, it included the request for developing countries to contribute to the mitigation of global warming in the context of sustainable development. In addition, the plan envisaged enhanced actions on adaptation, technology development and on the provision of financial resources,

11. Annual cap: 1 974 Mt in 2013, falling in linear fashion to 1 720 Mt by 2020; average annual cap over 2013-20: 1 846 Mt (compared to an annual cap of 2 083 Mt in phase 2). If the overall target moves to a 30% reduction, the 2020 ETS cap will be reduced to 34% below 2005 levels.

as well as measures against deforestation. The Bali Action Plan introduced a focus on mitigation actions by all Parties and the provision of financial resources by developed countries that are “measurable, reportable and verifiable”, now central to the establishment of a post-2012 framework for climate action.

After the unprecedented move at COP15 and COP/MOP5 in Copenhagen, where heads of states and high-level representatives negotiated the Copenhagen Accord, COP16 and COP/MOP6 in Cancún were widely seen as having put the international negotiating process back on track. In Cancún the key elements of the Copenhagen Accord were formally adopted into the UN process, including the goal of limiting global temperature increase to less than 2°C above pre-industrial levels, commitments for the provision of financial resources, and sketching a framework for monitoring and reviewing mitigation actions and commitments. Annex I Parties submitted quantified economy-wide greenhouse-gas targets to 2020 as part of the accord, and several non-Annex I countries also listed mitigation actions, or sectoral or economy-wide greenhouse-gas targets. The Cancún meeting also set an ambitious forward work programme for issues to be considered in Durban at the end of 2011, including a peak year for global emissions, 2050 emissions targets, and options for new market-based mechanisms for emissions reduction.

The challenge of post-2012 discussions is the need to engage developing countries with approaches, possibly including the carbon market, which suit their capacity and their legitimate aspiration for economic and social development. The Asia Pacific Partnership for Clean Development and Climate (APP or AP7), the G8 2005 Gleneagles Plan of Action, and the Major Economies Forum on Energy and Climate (MEF) and Clean Energy Ministerial processes seek to involve developed and developing nations in common measures to address climate change. Other international fora gathering both developed and developing countries have emerged to further mitigation efforts in specific areas, such as the Clean Energy Ministerial (CEM), the International Renewable Energy Agency (IRENA), and the International Partnership for Energy Efficiency Co-operation (IPEEC).

The AP7, which groups Australia, Canada, China, India, Japan, Korea and the United States, focuses on the emissions of specific sectors (iron and steel, cement, aluminium, mining, buildings and appliances) and the methods of clean fossil energy use, renewable energy generation and more efficient power generation and transmission.

Canada, France, Germany, Italy, Japan, the Russian Federation, the United Kingdom and United States launched the July 2005 G8 Gleneagles Plan of Action to, in part, promote clean energy and sustainable development while mitigating climate change. The IEA was tasked under the Plan of Action to develop concrete recommendations to help the G8 achieve its clean energy objectives. Additionally, the G8 sought to engage South Africa, India, Brazil, China and Mexico in an official dialogue to address climate change, clean energy, and sustainable development worldwide. This commitment by the G8 was reiterated at all subsequent summits.

The G20 summits have also served as a forum to advance climate change and clean energy discussions, including a commitment to rationalising and phasing out inefficient fossil fuel subsidies over the medium term. In 2011, the G20 formed a new Clean Energy and Energy Efficiency (C3E) Working Group to further its work in this area. It remains to be seen how this group, whose membership has a high degree of overlap with the CEM and IPEEC will coordinate its work with those bodies.

In all these efforts, timely and accurate CO₂ and other greenhouse-gas statistics will prove central to ascertain compliance to international agreements and to inform policy makers and carbon market participants. The ability of countries to monitor and review emissions from their sources is essential in their engagement towards national and global greenhouse-gas mitigation.

References

- Ellerman, D.A., F.J. Convery, C. de Perthuis, E. Alberola, R. Baron, B.K. Buchner, A. Delbosch, C. Hight, F. Matthes and J. Keppler (2010), *Pricing Carbon, The European Emissions Trading Scheme*, Cambridge University Press, Cambridge.
- Hood, C. (2010), *Reviewing existing and proposed emissions trading systems*, IEA information paper, OECD/IEA, Paris.
- IEA (2010), *World Energy Outlook 2010* (WEO 2010), OECD/IEA, Paris.
- IEA (2010), *Energy Technology Perspectives 2010* (ETP 2010), OECD/IEA, Paris.
- IPCC (2007), *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories (1996 IPCC Guidelines)*, IPCC, Bracknell, UK.

REGIONAL ASPECTS OF THE ENERGY-CLIMATE CHALLENGE

A growing body of evidence has established links between climate change and the CO₂ emissions that arise from energy production and consumption. This chapter provides background on the link between energy use and climate change and then examines how growing demand in some rapidly expanding economies, all of which are in non-OECD regions, will dramatically change future emissions trends. It closes with a call for all countries (and not just the industrialised countries) to address this increasingly urgent global issue.

Understanding energy and climate change

In its *Fourth Assessment Report*¹², the IPCC concluded: “Most of the observed increase in global average temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse-gas concentrations”. The language “very likely” has been upgraded from “likely,” which was referred to six years earlier in the Third Assessment Report, thus confirming the broad acceptance by scientists of the link between greenhouse-gas emissions and global climate change. Energy production and use have various environmental implications: since energy represents about 65% of global anthropogenic greenhouse-gas emissions, reducing emissions must necessarily start with actions geared to reduce emissions from fuel combustion.

12. *IPCC Fourth Assessment Report – Climate Change 2007*, available at www.ipcc.ch. In the summary for policy makers, the following terms have been used to indicate the assessed likelihood, using expert judgement, of an outcome or a result: *Virtually certain* > 99% probability of occurrence, *Extremely likely* > 95%, *Very likely* > 90%, *Likely* > 66%, *More likely than not* > 50%, *Unlikely* < 33%, *Very unlikely* < 10%, *Extremely unlikely* < 5%.

Greenhouse gases and global warming

The increased concentrations of key greenhouse gases are a direct consequence of human activities. Since anthropogenic greenhouse gases accumulate in the atmosphere, they produce net warming by strengthening the natural “greenhouse effect”.

Carbon dioxide (CO₂) concentrations in the atmosphere have been increasing over the past century compared to the rather steady level of the pre-industrial era (about 280 parts per million in volume, or ppmv). The 2005 concentration of CO₂ (379 ppmv) was about 35% higher than in the mid-1800s, with the fastest growth occurring in the last ten years (1.9 ppmv/year in the period 1995-2005). Significant increases have also occurred in levels of methane (CH₄) and nitrous oxide (N₂O).

Some impacts of the increased greenhouse-gas concentrations may be slow to become apparent since stability is an inherent characteristic of the interacting climate, ecological and socio-economic systems. Even after stabilisation of the atmospheric concentration of CO₂, anthropogenic warming and sea level rise would continue for centuries due to the time scales associated with climate processes and feedbacks. Some changes in the climate system would be irreversible in the course of a human lifespan.

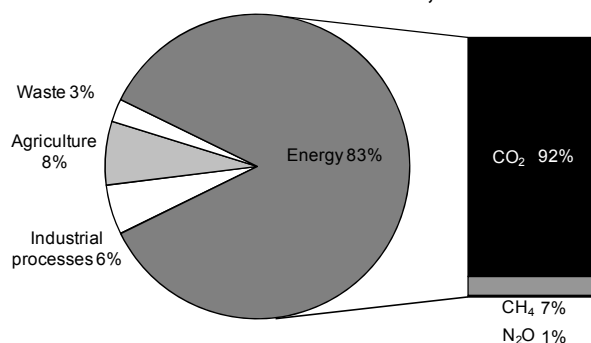
Given the long lifetime of CO₂ in the atmosphere, stabilising concentrations of greenhouse gases at any level would require large reductions of global CO₂ emissions from current levels. The lower the chosen level for stabilisation, the sooner the decline in global CO₂ emissions would need to begin, or the deeper the emission reduction would need to be on the longer term.

The UNFCCC creates a structure for intergovernmental efforts to tackle the challenge posed by climate change. The Convention's ultimate objective is to stabilise greenhouse-gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. This would require significant reductions in global greenhouse-gas emissions.

Energy use and greenhouse gases

Among the many human activities that produce greenhouse gases, the use of energy represents by far the largest source of emissions. Energy accounts for over 80% of the anthropogenic greenhouse gases in Annex I countries, with emissions resulting from the production, transformation, handling and consumption of all kinds of energy commodities (Figure 11). Smaller shares correspond to agriculture, producing mainly CH₄ and N₂O from domestic livestock and rice cultivation, and to industrial processes not related to energy, producing mainly fluorinated gases and N₂O.

Figure 11. Shares of anthropogenic greenhouse-gas emissions in Annex I countries, 2009*



* Based on Annex I data for 2009; without Land Use, Land-Use Change and Forestry, and with Solvent Use included in Industrial Processes and "other" included with waste.

Source: UNFCCC.

Key point: Accounting for the largest share of global greenhouse-gas emissions, energy emissions are predominantly CO₂.

Greenhouse-gas emissions from the energy sector are dominated by the direct combustion of fuels.¹³ A

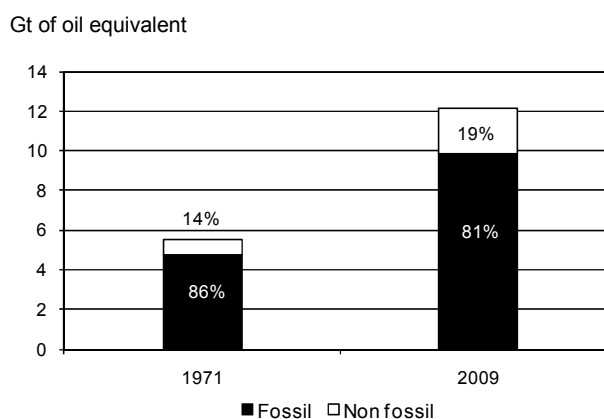
13. Energy includes emissions from "fuel combustion" (the large majority) and "fugitive emissions", which are intentional or unintentional releases of gases resulting from production, processes, transmission, storage and use of fuels (e.g. CH₄ emissions from coal mining or oil and gas systems).

by-product of fuel combustion, CO₂ results from the oxidation of carbon in fuels.

CO₂ from energy represents about 83% of the anthropogenic greenhouse-gas emissions for the Annex I countries and about 65% of global emissions. This percentage varies greatly by country, due to diverse national energy structures.

Worldwide economic stability and development require energy. Global total primary energy supply (TPES) doubled between 1971 and 2009, mainly relying on fossil fuels (Figure 12).

Figure 12. World primary energy supply*



* World primary energy supply includes international bunkers.

Key point: Fossil fuels still account for most of the world energy supply.

Despite the growth of non-fossil energy (such as nuclear and hydropower) considered as non-emitting,¹⁴ fossil fuels have maintained their shares of the world energy supply relatively unchanged over the course of the past 35 years. In 2009, fossil sources accounted for 81% of the global TPES.

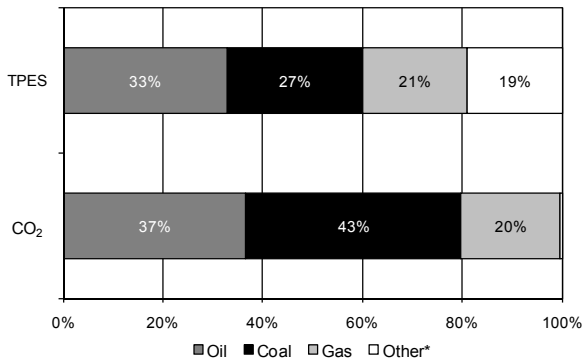
Though coal represented only one-quarter of the world TPES in 2009, it accounted for 43% of the global CO₂ emissions due to its heavy carbon content per unit of energy released (Figure 13). As compared to gas, coal is nearly twice as emission intensive on average.¹⁵

14. Excluding the life cycle of all non-emitting sources and excluding combustion of biofuels (considered as non-emitting CO₂, based on the assumption that the released carbon will be reabsorbed by biomass regrowth, under balanced conditions).

15. IPCC default carbon emission factors from the 1996 IPCC Guidelines: 15.3 t C/TJ for gas, 16.8 to 27.5 t C/TJ for oil products, 25.8 to 29.1 t C/TJ for primary coal products.

Figure 13. World primary energy supply and CO₂ emissions: Shares by fuel in 2009

Percent share

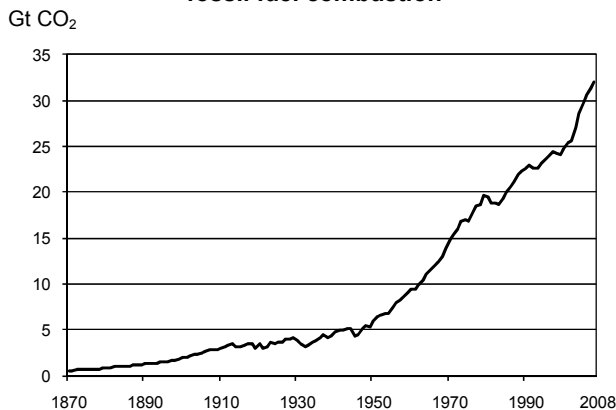


* Other includes nuclear, hydro, geothermal, solar, tide, wind, biofuels and waste.

Key point: Coal generates about twice the CO₂ emissions of gas, while having a comparable share in the world energy supply.

Growing world energy demand from fossil fuels plays a key role in the upward trend in CO₂ emissions (Figure 14). Since the Industrial Revolution, annual CO₂ emissions from fuel combustion dramatically increased from near zero to 29 Gt CO₂ in 2009.

Figure 14. Trend in CO₂ emissions from fossil fuel combustion



Source: Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, US Department of Energy, Oak Ridge, Tenn., United States.

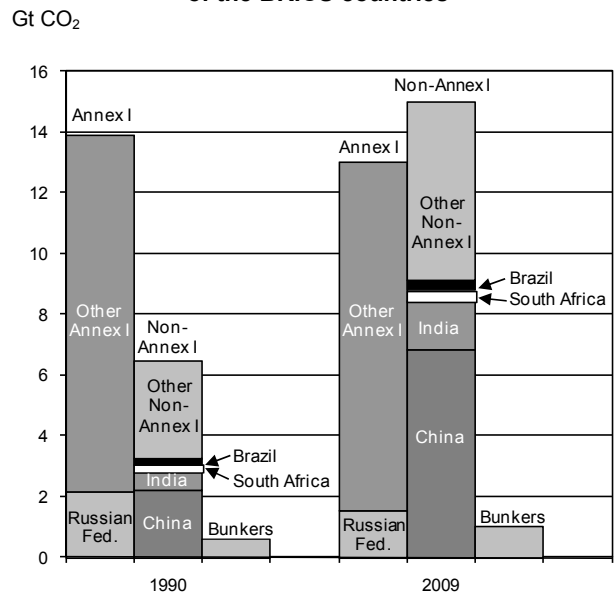
Key point: Since 1870, CO₂ emissions from fuel combustion have risen exponentially.

The link between climate change and energy is a part of the larger challenge of sustainable development. The socio-economic and technological characteristics of development paths will strongly affect emissions, the rate and magnitude of climate change, climate change impacts, the capability to adapt and the capacity to mitigate the emissions themselves.

BRICS countries altering the regional balance

One of the most important recent developments in the world economy is the increasing economic integration of large non-OECD countries, in particular Brazil, the Russian Federation, India, China and South Africa, the so-called BRICS countries. Already, the BRICS represent almost one-third of world GDP, up from 18% in 1990. In 2009, these five countries represented 33% of global energy use and 37% of CO₂ emissions from fuel combustion (Figure 15). These shares are likely to rise further in coming years if the strong economic performance currently occurring in most of these countries continues, as many commentators expect. In fact, China, the Russian Federation and India are already three of the four countries that emit the most CO₂ emissions in absolute terms.

Figure 15. The growing importance of the BRICS countries



Key point: With the exception of the Russian Federation, the BRICS countries represent a growing share of CO₂ emissions in the world.

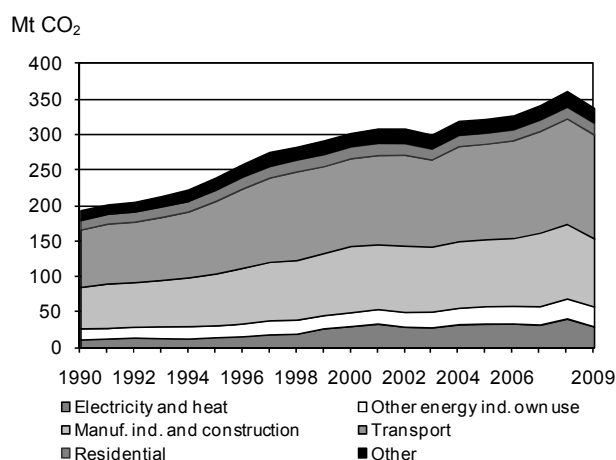
This brief discussion focuses on the BRICS countries, of which only the Russian Federation is a member of Annex I Parties to the UNFCCC. Each of these countries has very different endemic resources, energy supply constraints and sectoral consumption patterns. Consequently, the issues relating to CO₂ emissions facing these five countries are quite different.

Brazil

Brazil is the third-largest emitter of total greenhouse gases in the world, with the particularity that the country's energy system has a relatively minor impact on greenhouse-gas emissions (only 15%). The bulk of Brazilian greenhouse-gas emissions (85%) comes, instead, from agriculture, land-use and forestry activities, mainly through the expansion of agricultural frontiers in the Amazon region.

Compared to the Russian Federation, China and India, CO₂ emissions from fuel combustion in Brazil are small, representing only 1.2% of global CO₂ emissions from fuel combustion. Brazil's energy matrix is one of the cleanest in the world with renewables accounting for 46% of TPES. Brazil is also one of the world's largest producers of hydropower. Within the energy sector, the sub-sectors that contribute the most to total greenhouse-gas emissions – transport (44% in 2009) and industry (28%) – are those likely to grow the most over the next years (Figure 16).

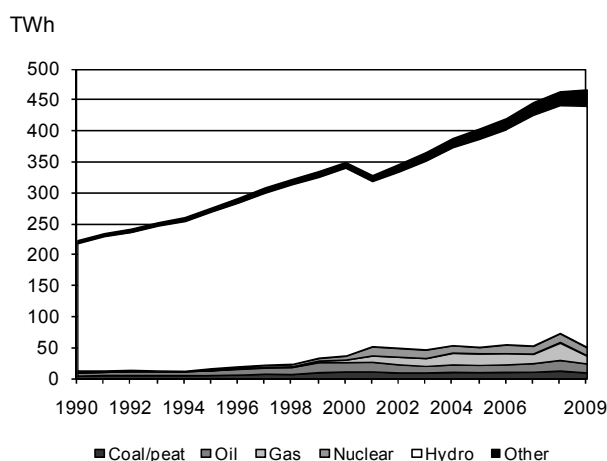
Figure 16. Brazil: CO₂ emissions by sector



Key point: The transport sector produces the largest share of CO₂ emissions from fuel combustion in Brazil.

Electricity generation in Brazil relies heavily on hydropower (Figure 17). Over the last three decades, the number of major dams has grown steadily and hydropower accounted for 84% of total electricity generation in 2009. Many of Brazil's hydropower generating facilities are located far away from the main demand centres, resulting in high transmission and distribution losses. Droughts in recent years have led to a wider diversification in the electricity production mix, increasing the use of natural gas. Electricity generation from natural gas rose to 6% in 2008 before falling back to 3% in 2009.

Figure 17. Brazil: Electricity generation by fuel



Key point: Brazilian electricity generation draws heavily on hydropower.

In 2009, the government announced plans to build two new large hydroelectric plants. As a result, there are currently 22 GW of hydropower capacity already contracted and under construction (including the 11.2 GW of the Belo Monte) plus 3.9 GW of small hydro plants. However, unclear regulation of the power sector remains a source of concern. Environmental issues have also delayed some of the large hydropower projects.

In 2007, amid concerns about the risk of power-supply shortages beyond 2012 unless Brazil builds new capacity, the Brazilian government announced the development of five new nuclear power plants. The government's 2030 National Energy Plan anticipates 5.3 GW of additional installed generation capacity from new nuclear plants (Angra 3 and four other plants) by 2030. Moreover, electricity produced from CHP plants, mainly from sugarcane bagasse, is planned to constitute 11.4% of the country's electricity supply by 2030.

Biofuels supply a comparatively significant share of the energy consumed for road transport (Figure 18). As such, Brazilian transport has a relatively low CO₂ emissions intensity.¹⁶ CO₂ emissions per unit of fuel consumed in road traffic are 20% lower than the world average (2.3 versus 2.9 t CO₂ per toe).

16. See box on "Using biofuels to reduce emissions" for a more complete discussion on the advantages and limitations of using biofuels to replace oil. Note: CO₂ emissions intensity considers the tank-to-wheel emissions and assumes that the CO₂ emissions derived from the combustion of biofuels are zero.

Using biofuels to reduce emissions

Compatible with many conventional engines (in low-percentage blends) and blendable with current transport fuels, biofuels have the potential to reduce greenhouse-gas emissions and to contribute to energy security by diversifying supply sources for transport. However, the economic, environmental and social benefits of the current generation of biofuels vary.

In order to assess their efficacy in reducing greenhouse-gas emissions, biofuels can be compared on the basis of their well-to-wheel* performance with respect to conventional fossil fuels. When ethanol is derived from corn, the well-to-wheel greenhouse-gas reduction with respect to conventional gasoline is typically in the range of 10% to 50%. The reduction is typically much higher for sugarcane-based ethanol from Brazil, reaching an estimated 70-120%** . Similarly, oilseed-derived biodiesel typically leads to greenhouse-gas reductions, on a well-to-wheel basis, of 30% to 60% when compared to conventional petroleum diesel.

However, these comparisons do not take into account the possibility that changes in land use caused by bio-fuel production can result in one-time releases of CO₂ that could be quite large; more research is needed on the impacts of both direct and indirect land-use change and how to minimise adverse impacts.

New and emerging biofuel technologies, which can use as feedstock biomass residues and energy crops such as fast growing trees and perennial grasses, have the potential to dramatically expand the scope for production of very low-carbon biofuels. However these biofuel technologies are not yet commercially operational at full scale. The most mature of these technologies are still at the edge between demonstration and first commercial plants.

For both conventional and advanced biofuels, production cost is a main barrier to their larger penetration in the transport fuel mix. Only ethanol from sugarcane produced in Brazil has been more or less the only bio-fuel competitive with petroleum fuels without direct subsidies, but this may change with the higher oil prices occurring recently and the relatively high sugar price. In most regions the cost barrier for biofuels is such that market introduction has typically required substantial regulatory intervention and governmental support.

* Well-to-wheel life cycle analysis refers to the total emissions from the production stage to the consumption stage of the product.

** GHG savings of more than 100% are possible through use of co-products.

Currently, several countries have mandated or promoted biofuel blending to displace oil in domestic transport supply. In Brazil, gasoline contains 20% to 25% ethanol. Furthermore, 84% of cars produced in Brazil in 2009 can run on either 100% ethanol or on a gasoline/ethanol blend. Depending on the oil price, most drivers are choosing to operate these vehicles mainly on ethanol. In 2006, the United States introduced mandatory standards and these were extended in 2007 under the EISA law. Blending requirements will reach 12.9 billion gallons in 2010 and 36 billion gallons by 2022 (of which more than half will be required to be "advanced biofuels"*** and about one-third cellulosic).****

Several years ago, the European Union introduced a target for biofuel use equivalent to 2% of the market share of motor fuel by 2005 (although it was not reached) and 5.75% by the end of 2010. The target for renewable energy sources in transport for 2020 is now set at 10%. The current legislation also requires "sustainability criteria" favouring biofuels derived from waste, residues and lignocellulosic material in order to prevent mass investment in biofuels when their use may potentially be harmful to the environment. Australia (New South Wales and Queensland) and Canada are also mandating the use of biofuels, as are a number of non-OECD countries.

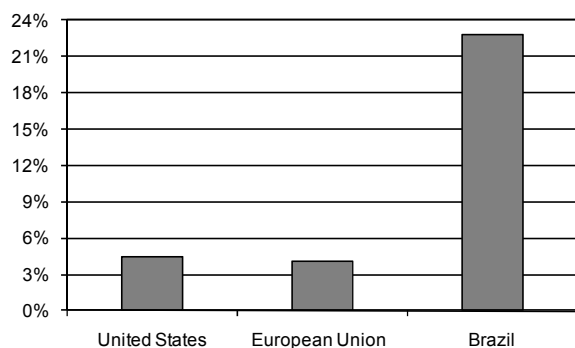
In the future, it is crucial that policies foster innovation and support only the most sustainable biofuels, through a continuous monitoring and assessment of their effectiveness in reducing greenhouse-gas emissions and in providing social, environmental and economic benefits. Suitable land availability and potential influence of biofuel production on global food prices also need to be carefully monitored, taking into account global food, fibre and energy needs for a steadily growing world population. However, barriers to the commercial viability of biofuels shrink as technologies evolve and as prices of conventional fossil fuels remain high. Moreover, if well managed and co-ordinated with investments in infrastructures and agriculture, biofuels can provide an opportunity for increasing land productivity and creating economic development, particularly in rural areas.

*** Advanced biofuels in the US Renewable Fuels Standard refers to biofuels that provide more than 50% life-cycle CO₂ savings compared with gasoline.

**** Cellulose is an organic compound with the formula C₆H₁₀O₅ and is the structural component of the primary cell wall of green plants. Lignocellulosic biomass refers to plant biomass that is composed of cellulose, hemicellulose and lignin.

Brazil is the world's largest exporter and consumer of fuel ethanol from sugarcane.¹⁷ In 2009, Brazil produced 450 000 bbl/d of ethanol, up from 410 000 bbl/d in 2008. Currently, cars that can run on either 100% ethanol or a gasoline-anhydrous ethanol blend represent 84% of the new cars purchased in Brazil (an estimated 2.2 million in 2009) and cost the same as cars that can only run on conventional fuel.

Figure 18: Share of biofuels energy in road transport (2009)



Key point: Brazil's relative consumption of biofuels far outstrips that of any other country.

Brazil's profile as an energy producer will be transformed in the medium term, following the discovery in November 2007 of a major deepwater oilfield in the Santos Basin, which is now being developed with some fields already in production. Brazil's oil and gas reserves are currently estimated at 14 billion barrels.

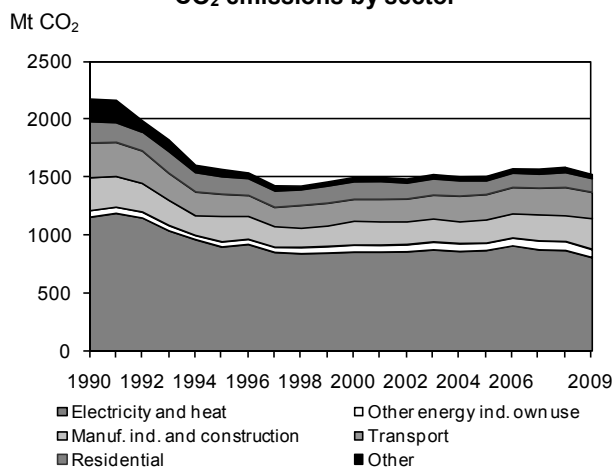
Russian Federation

The Russian Federation is the only one of the BRICS countries where CO₂ emissions fell between 1990 and 2009, with a 30% drop over the period (Figure 19). The economic downturn after the break-up of the former Soviet Union caused emissions to fall by 34% between 1990 and 1998. Yet, CO₂ emissions grew in 1999 and 2000 (2% and 3% a year, respectively) due to the Russian Federation's strong economic recovery, stimulated by the increase in world energy prices. CO₂ emissions remained fairly constant for the next five years. After a 4% increase in 2006, the CO₂ emissions were stable in 2007, increased by 1% in 2008, before falling 4% in 2009, largely due to the global financial crisis.

The *WEO 2010* New Policies Scenario projects that the Russian Federation CO₂ emissions will continue to increase steadily, and in 2035 will represent around 75% of the estimated 1990 level.

17. In 2005, the United States displaced Brazil as the largest ethanol producer, although mainly derived from corn and not sugarcane.

Figure 19. Russian Federation: CO₂ emissions by sector



Key point: CO₂ emissions in the Russian Federation have remained fairly constant over the last ten years.

CO₂ emissions from fuel combustion in the Russian Federation have stabilised over the 2000s. However, other sources of greenhouse gases (in particular CH₄ emissions from leaks in the oil and gas transmission/distribution system and CO₂ emissions from flaring of associated gas) represent an important share of the Russian greenhouse-gas emissions. To effectively reduce greenhouse-gas emissions from energy, these two problems would also need to be addressed (IEA, 2006a).

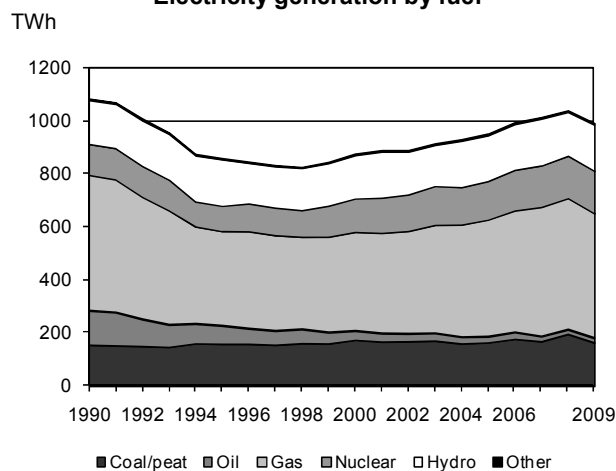
In early 2009, the Russian government passed the resolution "On the Measures Stimulating Reduction of Atmospheric Pollution by Products of Associated Gas Flaring." The document set a target for 2012 and beyond, limiting associated petroleum gas (APG) flaring levels to only 5% of the entire APG output. Starting 1 January 2012, producers will be liable to paying increased fees for excessive flaring. The fees will be hiked by 4.5 times. In case a producer fails to install at his production facilities the tools to measure and log the actual volumes of APG production, utilisation and flaring, a factor of 6 would be used to calculate the excessive flaring fee.

In 2009, the electricity and heat generation sector represented 53% of Russian CO₂ emissions, compared to a global average of 41%. Within this sector, 47% of the electricity was generated by natural gas, 17% by coal and only 2% by oil (Figure 20).

The Russian government enacted a decree in January 2009 that sets targets to increase the share of electricity generated by renewable energy sources (excluding large hydro) from less than 1% to 4.5% by 2020. This decree could go a long way to get the

Russian Federation more in line with the global average. However, to stimulate the utilisation of renewable energy sources including wind, biofuels, solar and recovered methane from coal mines (coalmine methane), a range of supporting regulations will be needed, amplifying this important framework legislation.

Figure 20. Russian Federation: Electricity generation by fuel



Key point: A large portion of the Russian Federation's electricity and heat generation comes from non-emitting (nuclear and hydro) or low-emitting (natural gas) sources.

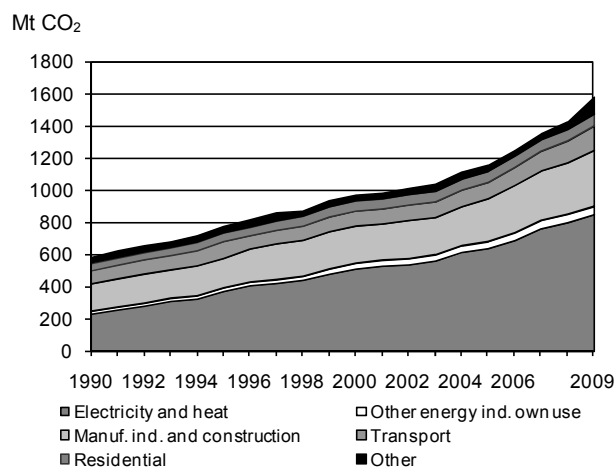
Of the BRICS countries, in 2009, the Russian Federation had the highest CO₂ emissions per capita (10.8 t CO₂), which put it close to the average of OECD member countries (9.8 t CO₂). In terms of CO₂/GDP, the Russian Federation's economy remains CO₂ intensive with 1.0 kg CO₂ per unit of GDP, more than 2.5 times higher than the OECD average. Canada, whose geography and natural resources are comparable to those of the Russian Federation, has a carbon intensity of 0.5 kg CO₂/USD – half of the Russian Federation's level. However, IEA statistics show a reduction of the Russian Federation's energy intensity of GDP of about 5% per year since 1998. It is not clear how much this can be attributed to energy efficiency improvements or changes in the sectoral composition of GDP and industrial product mix as opposed to the dramatic increase in GDP due to the Russian Federation's much higher export earnings from oil and gas.

India

India emits more than 5% of global CO₂ emissions, and emissions continue to grow. CO₂ emissions have almost tripled between 1990 and 2009. The *WEO 2010*

New Policies Scenario projects that CO₂ emissions in India will increase by almost 2.5 times between 2008 and 2035. A large share of these emissions are produced by the electricity and heat sector, which represented 54% of CO₂ in 2009, up from 40% in 1990. CO₂ emissions in the transport sector accounted for only 9% of total emissions in 2009, but transport is one of the fastest growing sectors (Figure 21).

Figure 21. India: CO₂ emissions by sector

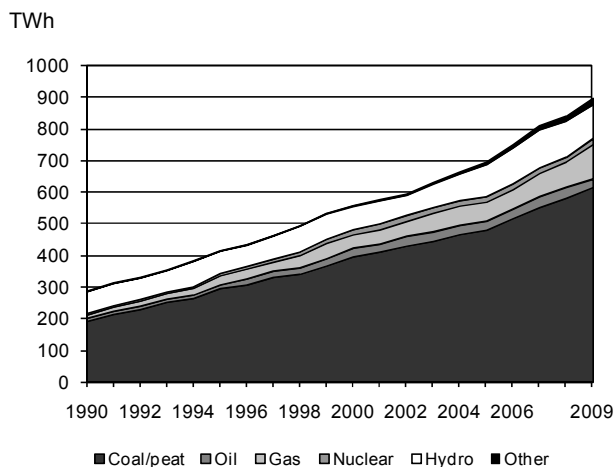


Key point: The bulk of CO₂ emissions in India comes from the electricity and heat generation sector and its share is continuing to grow.

In 2009, 69% of electricity in India came from coal, another 12% from natural gas and 3% from oil (Figure 22). The share of fossil fuels in the generation mix grew from 73% in 1990 to 85% in 2002. The share of fossil fuels has declined steadily since then, falling to 81% in 2006, although increasing back up to 84% in 2009. Although electricity produced from hydro has actually risen during this period, the share fell from 25% in 1990 to 12% in 2009.

India is promoting the addition of other renewable power sources into its generation mix and had an installed capacity of 17 GW of renewable energy sources on 30 June 2010. Under its National Action Plan on Climate Change, India plans to install 20 GW of solar power by 2020. With an installed wind capacity of 12 GW in June 2010,¹⁸ India has the world's fifth-largest installed capacity of wind power.

18. According to the website of the Ministry of New and Renewable Energy of the Government of India. See www.mnre.gov.in.

Figure 22. India: Electricity generation by fuel

Key point: About two-thirds of India's electricity comes from coal.

Of the BRICS countries, India has the lowest CO₂ emissions per capita (1.4 t CO₂ in 2009), about one-third that of the world average. However, due to the recent large increases in emissions, the Indian ratio is more than two times that of its ratio in 1990 and will continue to grow. India's per capita emissions in 2035 will, however, still be well below those in the OECD member countries today.

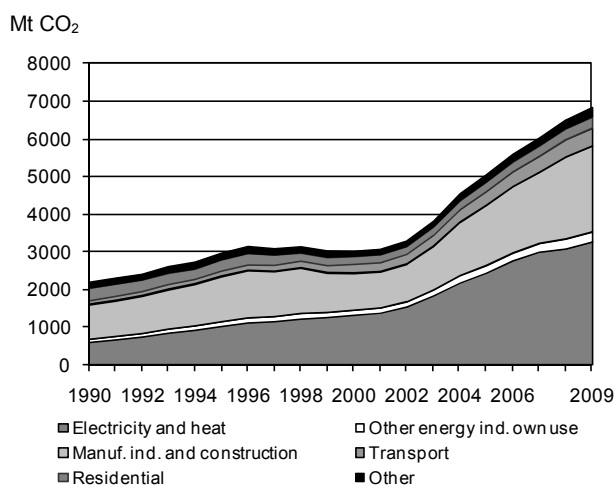
In terms of CO₂/GDP, India has continuously improved the efficiency of its economy and reduced the CO₂ emissions per unit of GDP by 16% between 1990 and 2009. India aims to further reduce emissions intensity of GDP by 20-25% by 2020 compared with the 2005 level.¹⁹

China

With almost 7 billion tonnes of CO₂ in 2009 (24% of global emissions), Chinese emissions far surpass those of the other BRICS countries. In fact, China overtook the United States in 2007 as the world's largest annual emitter of energy-related CO₂, although in cumulative and per capita terms the United States remains the largest. Chinese CO₂ emissions tripled between 1990 and 2009. The increases were especially large in recent years (16% in 2003, 19% in 2004, 11% in both 2005 and 2006, and 8% in 2007 and 2008). However, due to the world economic crisis, the rate of growth slowed to 5% in 2009. The *WEO 2010* New Policies Scenario

projects that the growth in Chinese emissions could slow down to 1.5% per year between 2009 and 2035. Even with this further slowed growth, emissions in 2035 would be 1.5 times current levels.

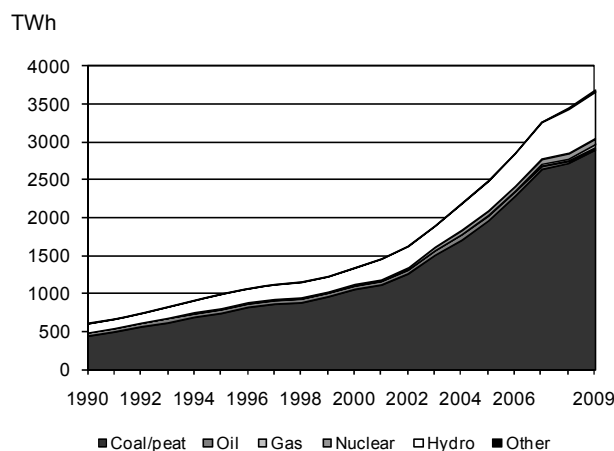
Since 1990, the electricity and heat generation sector grew the most, representing 48% of Chinese CO₂ emissions in 2009 (Figure 23). The transport sector also grew rapidly, but from a much smaller base, representing 7% of CO₂ emissions in 2009. The *WEO 2010* New Policies Scenario projects that the transport sector will continue to grow, rising to an estimated 13% in 2035, as switching to low- or zero-carbon energy sources is much more difficult in transport than in other sectors.

Figure 23. China: CO₂ emissions by sector

Key point: In recent years, and in line with vigorous economic expansion, China showed dramatic growth in CO₂ emissions from electricity and heat generation.

Chinese demand for electricity was the largest driver of the rise in emissions. The rate of capacity additions peaked in 2006, but in 2009 China's installed capacity rose by a net 81 GW (China Electricity Council, 2010), slightly more than the total installed capacity of South Korea. At the same time, it closed over 26 GW of small, inefficient fossil fuel-fired plants (Zhang, 2010), about the size of Ireland and Switzerland's combined installed capacity. Coal played a major role in supporting the growing demand for electricity generation (Figure 24). Nearly all of the 1990-2009 emissions growth from power generation derived from coal, although the emissions performance of coal-fired power generation has improved significantly (IEA, 2009), and China has started to add some natural gas (electricity generated from natural gas increased by 64% in 2009).

19. As per its stated goal in association with the Copenhagen Accord.

Figure 24. China: Electricity generation by fuel

Key point: Coal dominates China's electricity generation and its very fast growth.

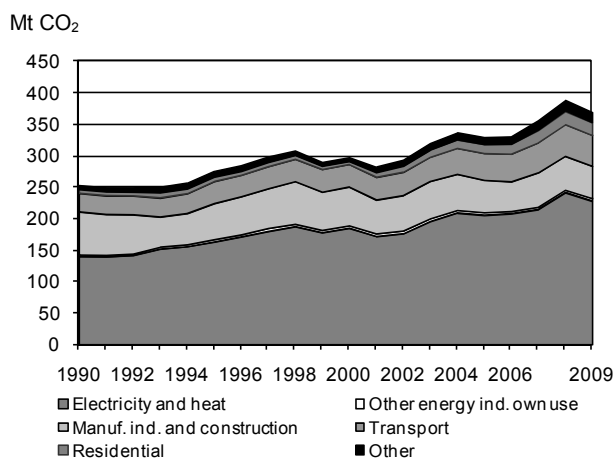
In the past few decades, China experienced a rapid decoupling of energy consumption and CO₂ emissions from economic growth. During the 1980s, the central government in China reduced industrial energy intensity by establishing standards and quotas for the energy supplied to firms and had the authority to shut off the power supply when enterprises exceeded their limits (Lin, 2005). However, as the Chinese economy has moved towards an open-market operation, investment in energy conservation as a percentage of total energy investment gradually declined (IEA, 2006b).

The rapid expansion since 2003 of heavy industrial sectors to serve huge infrastructure investments and burgeoning demand for Chinese products from domestic and overseas consumers pushed up demand for fossil fuels. As a result, CO₂ emissions per unit of GDP actually rose from 2002 to 2004. Still, the 2009 CO₂/GDP is 53% less than in 1990, and a recent push by the government to reduce energy intensity has helped to resume the long-term intensity decline, albeit at a much slower rate than in the past. The increasing share of coal in power generation, however, despite some of the world's largest investments in renewables, means that a small decline in energy intensity may still be paired with an increase in emissions intensity, as was the case in 2003 and 2004. Although per-capita emissions in China in 2009 were only about one-half that of the OECD average, they have increased two and a half times since 1990, with the largest increases occurring in the last seven years. The country is seeking ways to limit growth in CO₂

emissions, though, and is requiring all provincial and local governments to participate in implementing the 12th Five-Year Plan target of lowering CO₂ emissions per unit of GDP by 17% in 2015 compared to 2010. Regional pilot projects are underway to find practical ways of reaching this target, as well as the national pledge, announced in late 2009 under the Copenhagen Accord, to reduce CO₂ emissions per unit of GDP by 40% to 45% in 2020 compared to 2005.

South Africa

South Africa currently relies heavily on fossil fuels as a primary energy source (88% in 2009); with coal providing most of it. Although South Africa accounted for 40% of CO₂ emissions from fuel combustion in Africa in 2009, it represented only 1% of the global total. The electricity and heat sector produced 62% of South Africa's CO₂ emissions in 2009 (Figure 25).

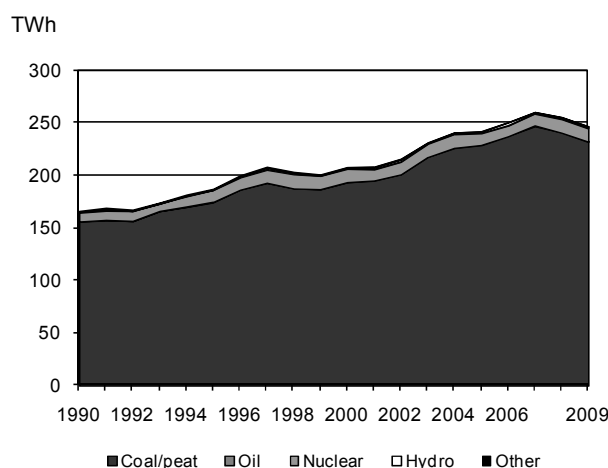
Figure 25. South Africa: CO₂ emissions by sector

Key point: The largest share of CO₂ emissions in South Africa comes from the electricity and heat sector, but growth remains moderate compared to some of the other BRICS countries.

Coal dominates the South African energy system, accounting for 68% of primary energy supply and one-quarter of final energy consumption. In 2009, South Africa generated 94% of its electricity using coal (Figure 26). In South Africa's Long-Term Mitigation Scenarios (LTMS), emissions would quadruple between 2003 and 2050 in the absence of radical energy-choice changes, dominated by energy-related emissions, notably from the electricity, industrial and transport sectors. One of the major climate change

mitigation issues facing South Africa is a reduction of its greenhouse-gas emissions from the power sector, primarily by reducing reliance on coal. South Africa is already taking steps to expand the use of both renewable and nuclear energy, to explore the use of carbon capture and storage (CCS) technologies, and to reduce energy demand through a nationwide energy efficiency programme. South Africa's public utility Eskom also has a target to reduce dependence on conventional coal to 70% by 2025 and reduce greenhouse-gas emissions in absolute terms by 2050 (including increasing capacity from renewables). South Africa's current target is to have 1 000 MW of renewable capacity by 2013 and 3 800 MW by 2016.

Figure 26. South Africa: Electricity generation by fuel



Key point: South Africa relies almost solely on coal to produce its electricity.

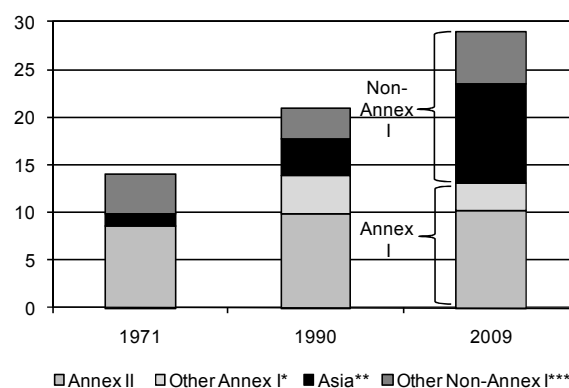
The prices of commercial forms of energy in South Africa are, in general, quite low by international standards. Given the relatively lower rate of electrification (about 88% in urban areas and only 55% in rural areas in 2008), the direct use of commercial forms of energy by households is more limited. Biofuels (especially wood) dominates energy use by rural households, generating health and safety problems, as well as concerns about the sustainability of wood supplies. Over the last 19 years, per-capita CO₂ emissions in South Africa have remained fairly constant while emissions per unit of GDP have decreased by 12%. South Africa aims to reduce greenhouse-gas emissions 34% below its business-as-usual (BAU) growth trajectory by 2020, increasing to 42% below the BAU trajectory by 2025.

Sustainable energy use requires global engagement

Trends in CO₂ emissions from fuel combustion illustrate the need for all countries to shape a more sustainable energy future. Special emphasis should first be on the industrialised nations that have the highest per capita incomes and that are responsible for the bulk of cumulative emissions. However, with the rapidly growing energy demand of developing countries, it is important that they also strive to use energy in a sustainable way. *ETP 2010* shows that enhancing energy efficiency and reducing the carbon intensity of energy supply, which is largely reliant on fossil fuels, are both fundamental steps towards a global low-carbon energy system.

Between 1971 and 2008, global CO₂ emissions doubled. However, two important turning points occurred in 2008: for the first time, emissions from non-Annex I countries surpassed those in Annex I and the emission levels of Annex I countries fell below 1990 levels (Figure 27) due to economic contraction arising from the recession and high oil prices in 2008.

Figure 27. Trends in regional CO₂ emissions
Gt CO₂



* Other Annex I includes Annex I EIT, Malta and Turkey
 ** Asia includes Korea and excludes Japan (which is included in Annex II).
 *** Other non-Annex I includes Africa, Latin America, Middle East, non-Annex I, non-OECD Europe and Eurasia, international bunkers, and, for 1971, Other Annex I.

Key points: In 2009, CO₂ emissions from Annex I countries fell back to 1990 levels, while emissions from non-Annex I countries continued to grow. The CO₂ emissions from non-Annex I countries continued to surpass those of Annex I countries (which occurred first in 2008).

The share of CO₂ emissions in Annex I countries to the UNFCCC progressively shrank (66% in 1990 and 45% in 2008), as emissions in developing countries (led by Asia) increased at a much faster rate. The growth in Asian emissions reflects a striking rate of economic development, particularly within China and India. Between 1990 and 2009, CO₂ emissions rose by 132% for non-Annex I countries as a whole and nearly tripled for Asia. This is in contrast to the reduction in emissions below 1990 levels (a 6% drop between 1990 and 2009) which occurred in the Annex I countries.

Emission trends within Annex I countries were very different. Emissions of CO₂ in Annex II countries in 2009 were 4% higher than in 1990. On the other hand, emissions in Annex I EIT countries were 37% lower due to a rapid decline in industrial productivity subsequent to the collapse of their centrally planned economies in 1989.

Since the Industrial Revolution, the bulk of annual CO₂ emissions have originated from industrialised countries. However, this long period of dominance will soon end given the size of some developing economies and the growth in their energy needs. Effective emissions mitigation will require all countries, regardless of energy demand and infrastructure, to use energy in a sustainable manner.

References

- China Electricity Council (2010), *China National Power Industry Statistics Flash Report 2009*, China Electricity Council, Beijing.
- IEA (2006a), *Optimising Russian Natural Gas: Reform and Climate Policy*, OECD/IEA, Paris.
- IEA (2006b), *China's Power Sector Reforms: Where to Next?* OECD/IEA, Paris.
- IEA (2009), *Cleaner Coal in China*, OECD/IEA, Paris.
- IEA (2010), *World Energy Outlook 2010* (WEO 2010), OECD/IEA, Paris.
- IEA (2010), *Energy Technology Perspectives 2010* (ETP 2010), OECD/IEA, Paris.
- IPCC (2007), *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* (1996 IPCC Guidelines), IPCC, Bracknell, UK.
- Lin, J. (2005), *Trends in Energy Efficiency Investments in China and the US*, Lawrence Berkeley National Laboratory, Berkeley, CA.
- Zhang G.B. (ed.) (2010), *Report on China's Energy Development for 2010*, Economic Science Press, Beijing.

PART I:

METHODOLOGY

Note	See multilingual glossary at the end of the publication.
Attention	Voir le glossaire en plusieurs langues à la fin du présent recueil.
Achtung	Deutsches GLOSSAR auf der letzten Umschlagseite.
Attenzione	Riferirsi al glossario multilingue alla fine del libro.
注意事項	巻末の日本語用語集を参照
Nota	Véase el glosario plurilingüe al final del libro.
Примеч.	Смотрите многоязычный словарь в конце книги.

1. IEA EMISSIONS ESTIMATES

The estimates of CO₂ emissions from fuel combustion presented in this publication are calculated using the IEA energy data¹ and the default methods and emission factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, IPCC/OECD/IEA, Paris, 1997 (*1996 IPCC Guidelines*).

Although the IPCC approved the *2006 Guidelines* at the 25th session of the IPCC in April 2006 in Mauritius, many countries (as well as the IEA Secretariat) are still calculating their inventories using the *1996 IPCC Guidelines* since this was the version used for the Kyoto Protocol.

The IEA Secretariat reviews its energy databases each year. In the light of new assessments, important revisions may be made to the time series of individual countries. Therefore, certain data in this publication may have been revised with respect to previous editions.

Inventory quality

The *IPCC Guidelines* allow Parties under the UNFCCC to prepare and periodically update national inventories that are accurate, complete, comparable and transparent. Inventory quality is an important issue since countries are now implementing legally-binding commitments.

One way to assess inventory quality is to do comparisons among inventories, methodologies and input data. The *IPCC Guidelines* recommend that countries which have used a detailed Sectoral Approach for CO₂ emissions from energy combustion also use the Reference Approach for verification purposes. This will identify areas where a full accounting of emissions may not have been made (see Chapter 5, *IPCC methodologies*).

1. Published in *Energy Statistics of OECD Countries, Energy Balances of OECD Countries, Energy Statistics of Non-OECD Countries and Energy Balances of Non-OECD Countries*, IEA, Paris, 2011.

Reference Approach vs. Sectoral Approach

The Reference Approach and the Sectoral Approach often give different results because the Reference Approach is a top-down approach using a country's energy supply data and has no detailed information on how the individual fuels are used in each sector.

The Reference Approach provides estimates of CO₂ to compare with estimates derived using a Sectoral Approach. Theoretically, it indicates an upper bound to the Sectoral Approach "1A fuel combustion", because some of the carbon in the fuel is not combusted but will be emitted as fugitive emissions (as leakage or evaporation in the production and/or transformation stage).

Calculating CO₂ emissions inventories with the two approaches can lead to different results for some countries. In general the gap between the two approaches is relatively small (5 per cent or less) when compared to the total carbon flows involved. In cases where 1) fugitive emissions are proportional to the mass flows entering production and/or transformation processes, 2) stock changes at the level of the final consumer are not significant and 3) statistical differences in the energy data are limited, the Reference Approach and the Sectoral Approach should lead to similar evaluations of the CO₂ emissions trends.

When significant discrepancies and/or large time-series deviations do occur, they may be due to various reasons such as:

Large statistical differences between the energy supply and the energy consumption in the basic energy data. Statistical differences arise from the collection of data from different parts of the fuel flow from its supply origins to the various stages of downstream

conversion and use. They are a normal part of a fuel balance. Large random statistical differences must always be examined to determine the reason for the difference, but equally importantly smaller statistical differences which systematically show an excess of supply over demand (or vice versa) should be pursued.

Significant mass imbalances between crude oil and other feedstock entering refineries and the (gross) oil products manufactured.

The use of aggregate net calorific and carbon content values for primary fuels which are converted rather than combusted. For example, it may appear that there is not conservation of energy or carbon depending on the calorific value and/or the carbon content chosen for the crude oil entering refineries and for the mix of products produced from the refinery for a particular year. This may cause an overestimation or underestimation of the emissions associated with the Reference Approach.

The misallocation of the quantities of fuels used for conversion into derived products (other than power or heat) **or quantities combusted in energy industry own use.** When reconciling differences between the Reference Approach and a Sectoral Approach it is important to ensure that the quantities reported in transformation and energy industry own use (e.g. for coke ovens) reflect correctly the quantities used for conversion and for fuel use, respectively, and that no misallocation has occurred. Note that the quantities of fuels converted to derived products should have been reported in transformation in the energy balance. If any derived products are used to fuel the conversion process, the amounts involved should have been reported in energy industry own use of the energy balance. In a Sectoral Approach the inputs to transformation should not be included in the activity data used to estimate emissions.

Missing information on certain transformation outputs. Emissions from combustion of secondary fuels produced in integrated processes (for example, coke oven gas) may be overlooked in a Tier 1 Sectoral Approach if data are poor or unavailable. The use of secondary fuels (the output from the transformation process) should be included in the Sectoral Approach. Failure to do so will result in an underestimation of the Sectoral Approach.

Simplifications in the Reference Approach. Certain quantities of carbon should be included in the Reference Approach because their emissions fall under fuel combustion. These quantities have been excluded where the flows are small or not represented by a major statistic available within energy data. Examples

of quantities not accounted for in the Reference Approach include lubricants used in two-stroke engines, blast furnace and other by-product gases which are used for fuel combustion outside their source category of production and combustion of waxed products in waste plants with heat recovery. On the other hand, certain flows of carbon should be excluded from the Reference Approach, but for reasons similar to the above no practical means can be found to exclude them without over complicating the calculations. These include coals and other hydrocarbons injected into blast furnaces as well as cokes used as reductants in the manufacture of inorganic chemicals. These simplifications will determine discrepancies between the Reference Approach and a Sectoral Approach. If data are available, the magnitudes of these effects can be estimated.

Missing information on stock changes that may occur at the final consumer level. The relevance of consumer stocks depends on the method used for the Sectoral Approach. If delivery figures are used (this is often the case) then changes in consumers' stocks are irrelevant. If, however, the Sectoral Approach is using actual consumption of the fuel, then this could cause either an overestimation or an underestimation of the Reference Approach.

High distribution losses or unrecorded consumption for natural gas may mean that the emissions are overestimated by the Reference Approach or underestimated by the Sectoral Approach.

The treatment of transfers and reclassifications of energy products may cause a difference in the Sectoral Approach estimation since different net calorific values and emission factors may be used depending on how the fuel is classified.

Differences between IEA estimates and UNFCCC submissions

It is possible to use the IEA CO₂ estimates for comparison with the greenhouse-gas inventories reported by countries to the UNFCCC Secretariat. In this way, problems in methods, input data or emission factors may become apparent. However, care should be used in interpreting the results of any comparison since the IEA estimates may differ from a country's official submission for many reasons.

A recent comparison of the IEA estimates with the inventories submitted to the UNFCCC showed that for

most Annex II countries, the two calculations were within 5%. For some EIT and non-Annex I countries, differences between the IEA estimates and national inventories were larger. In some of the countries the underlying energy data were different, suggesting that more work is needed on the collecting and reporting of energy statistics for those countries.

Some countries have incorrectly defined bunkers as fuel used abroad by their own ships and planes. Still other countries have made calculation errors for carbon oxidation or have included international bunkers in their totals. Since all of the above will affect the national totals of CO₂ emissions from fuel combustion, a systematic comparison with the IEA estimates would allow countries to verify their calculations and produce more internationally comparable inventories.

In addition, the main bias in the energy data and emission factors will probably be systematic and not random. This means that the emission trends will usually be more reliable than the absolute emission levels. By comparing trends in the IEA estimates with trends in emissions as reported to the UNFCCC, it should be possible to identify definition problems or changes in the calculations, which were not reflected in the base year.

For many reasons the IEA estimates may differ from the numbers that a country submits to the UNFCCC, even if a country has accounted for all of its energy use and correctly applied the *IPCC Guidelines*. No attempt has been made to quantify the effects of these differences. In most cases these differences will be relatively small. Some of the reasons for these differences are:

- **The IEA uses a Tier 1 method.**

The IEA uses a Tier 1 Sectoral Approach based on the *1996 IPCC Guidelines*. Countries may be using a Tier 2 or Tier 3 method that takes into account different technologies.

- **The IEA is using the 1996 IPCC Guidelines.**

The IEA is still using the *1996 IPCC Guidelines*. Some countries may have already started using the *2006 IPCC Guidelines*.

- **Energy activity data are extracted from the IEA energy balances and may differ from those used for the UNFCCC calculations.**

Countries often have several “official” sources of data such as a Ministry, a Central Bureau of Statistics, a nationalised electricity company, etc. Data can also be collected from the energy suppliers, the energy consumers or customs statistics. The IEA Secretariat tries to collect the most accurate data, but does not necessarily

have access to the complete data set that may be available to national experts calculating emission inventories for the UNFCCC. In addition to different sources, the methodology used by the national bodies providing the data to the IEA and to the UNFCCC may differ. For example, general surveys, specific surveys, questionnaires, estimations, combined methods and classifications of data used in national statistics and in their subsequent reclassification according to international standards may result in different series.

- **The IEA uses average net calorific values.**

The IEA uses an average net calorific value (NCV) for each secondary oil product. These NCVs are region-specific and constant over time. Country-specific NCVs that can vary over time are used for NGL, refinery feedstocks and additives. Crude oil NCVs are further split into production, imports, exports and average. Different coal types have specific NCVs for production, imports, exports, inputs to main activity power plants and coal used in coke ovens, blast furnaces and industry, and can vary over time for each country.

Country experts may have the possibility of going into much more detail when calculating the heat content of the fuels. This in turn could produce different values than the IEA.

- **The IEA uses average emission factors.**

The IEA uses the default emission factors which are given in the *1996 IPCC Guidelines*. Country experts may have better information available.

- **The IEA does not have detailed information for the stored carbon calculation.**

The IEA does not have complete information on the non-energy use of fuels. The amount of carbon stored is estimated using the default values given in the *1996 IPCC Guidelines*. For “other products” in the stored carbon calculation, the IEA assumes that 100% of kerosene, white spirit and petroleum coke that is reported as non-energy use in the energy balance is also stored. Country experts calculating the inventories may have more detailed information.

- **The IEA cannot allocate emissions from auto-producers into the end-use sectors.**

The *1996 IPCC Guidelines* recommend that emissions from autoproduction should be included with emissions from other fuel use by end-consumers. At the same time, the emissions from the autoproduction of electricity and heat should be excluded from the energy transformation source category to avoid double counting. The IEA is not able to allocate the fuel use

from autoproducers between industry and *other*. Therefore, this publication shows a category called “Unallocated autoproducers”. However, this should not affect the total emissions for a country.

- **Military emissions may be treated differently.**

According to the *1996 IPCC Guidelines*, military emissions should be reported in Source/Sink Category 1 A 5, *Other (not elsewhere specified)*. Previously, the IEA questionnaires requested that warships be included in international marine bunkers and that the military use of aviation fuels be included in domestic air. All other military use should have been reported in *non-specified other*.

At the IEA/Eurostat/UNECE Energy Statistics Working Group meeting (Paris, November 2004), participants decided to harmonise the definitions used to collect energy data on the joint IEA/Eurostat/UNECE questionnaires with those used by the IPCC to report greenhouse-gas inventories. As a result, starting in the 2006 edition of this publication, all military consumption should be reported in *non-specified other*. Sea-going versus coastal is no longer a criterion for splitting international and domestic navigation.

However, it is not clear whether countries are reporting on the new basis, and if they are, whether they will be able to revise their historical data. The IEA has found that in practice most countries consider information on military consumption as confidential and therefore either combine it with other information or do not include it at all.

- **The IEA estimates include emissions from coke inputs into blast furnaces. Countries may have included these emissions in the IPCC category industrial processes.**

National greenhouse-gas inventories submitted to the UNFCCC divide emissions according to source categories. Two of these IPCC Source/Sink Categories are energy and industrial processes. The IPCC Reference Approach estimates national emissions from fuel combustion based on the supply of fuel to a country and by implication includes emissions from coke inputs to blast furnaces in energy industry own use. However, within detailed sectoral calculations certain non-energy processes can be distinguished. In the reduction of iron in a blast furnace through the combustion of coke, the primary purpose of coke oxidation is to produce pig iron and the emissions can be considered as an industrial process. Care must be taken not to double count these emissions in both energy and industrial processes. The IEA estimates of emissions from fuel combustion in this publication include the coke inputs to blast furnaces.

- **The units may be different.**

The *1996 IPCC Guidelines* and the UNFCCC *Reporting Guidelines on Annual Inventories* both ask that CO₂ emissions be reported in Gg of CO₂. A million tonnes of CO₂ is equal to 1 000 Gg of CO₂, so to compare the numbers in this publication with national inventories expressed in Gg, the IEA emissions must be multiplied by 1 000.

Key sources

In May 2000, the IPCC Plenary accepted the report on *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*. The report provides good practice guidance to assist countries in determining their key source categories. By identifying these key sources in the national inventory, inventory agencies can prioritise their efforts and improve their overall estimates.

The *Good Practice Guidance* identifies a key source category as one that is prioritised within the national inventory system because its estimate has a significant influence on a country’s total inventory of direct greenhouse gases in terms of the absolute level of emissions, the trend in emissions, or both.

For a more complete description of the IPCC methodology for determining key sources, see Chapter 5, IPCC methodologies.

In the *Good Practice Guidance*, the recommendation for choosing the level of the key source analysis is to “disaggregate to the level where emission factors are distinguished. In most inventories, this will be the main fuel types. If emission factors are determined independently for some sub-source categories, these should be distinguished in the analysis.”

Since the emission estimates in this publication were produced using the default emission factors from the *1996 IPCC Guidelines*, this means that the fuel combustion categories would have been divided into:

- stationary combustion – coal
- stationary combustion – oil
- stationary combustion – gas
- mobile combustion – coal
- mobile combustion – oil
- mobile combustion – gas

Clearly this level of aggregation is not particularly useful in identifying where additional work is needed in refining the inventory. It does not take into account

the possibility of improving data collection methods, improving emission factors or using a higher tier calculation for certain key sectors within the energy from fuel combustion source category. For this reason the IEA has disaggregated the key source analysis to the same level of detail presented in the country tables of this publication. For each country, the 11 largest sources, split by coal, oil, gas and other, are shown in the key sources table.

To calculate the level assessment, the IEA has started with the CO₂ emissions from fuel combustion as calculated by the IEA. To supplement this, where possible, the IEA has used the emissions that were submitted by the Annex I Parties to the UNFCCC in the 2011 submission of the Common Reporting Format for CO₂ (only fugitive), CH₄, N₂O, HFCs, PFCs and SF₆, not taking into account CO₂ emissions/removals from land use, land use change and forestry.²

For the non-Annex I Parties, CO₂ emissions from fuel combustion were from the IEA and the rest of the 2009 emissions were estimated by PBL.

The cumulative contribution only includes the 11 largest key sources of CO₂ from fuel combustion. As a result, in most cases the cumulative contribution will not be 95% as recommended in the *Good Practice Guidance* and key sources from fugitive emissions, industrial processes, solvents, agriculture and waste will not be shown. The percentage of CO₂ emissions from fuel combustion in total greenhouse-gas emissions has been included as a memo item at the bottom of the table.

Notes on tables and graphs

Table of CO₂ emissions by sector

Row 1: *Sectoral Approach* contains total CO₂ emissions from fuel combustion as calculated using the IPCC Tier 1 Sectoral Approach and corresponds to IPCC Source/Sink Category 1 A. Emissions calculated using a Sectoral Approach include emissions only when the fuel is actually combusted.

Row 2: *Main activity producer electricity and heat* contains the sum of emissions from main activity producer electricity generation, combined heat and power generation and heat plants. Main activity producers

are defined as those undertakings whose primary activity is to supply the public. They may be publicly or privately owned. Emissions from own on-site use of fuel are included. This corresponds to IPCC Source/Sink Category 1 A 1 a.

Row 3: *Unallocated autoproducers* contains the emissions from the generation of electricity and/or heat by autoproducers. Autoproducers are defined as undertakings that generate electricity and/or heat, wholly or partly for their own use as an activity which supports their primary activity. They may be privately or publicly owned. In the *1996 IPCC Guidelines*, these emissions would normally be distributed between industry, transport and *other*.

Row 4: *Other energy industry own use* contains emissions from fuel combusted in oil refineries, for the manufacture of solid fuels, coal mining, oil and gas extraction and other energy-producing industries. This corresponds to the IPCC Source/Sink Categories 1 A 1 b and 1 A 1 c. According to the *1996 IPCC Guidelines*, emissions from coke inputs to blast furnaces can either be counted here or in the industrial processes source/sink category. Within detailed sectoral calculations, certain non-energy processes can be distinguished. In the reduction of iron in a blast furnace through the combustion of coke, the primary purpose of the coke oxidation is to produce pig iron and the emissions can be considered as an industrial process. Care must be taken not to double count these emissions in both energy and industrial processes. In the IEA estimations, emissions from energy industry own use in blast furnaces have been included in this category.

Row 5: *Manufacturing industries and construction* contains the emissions from combustion of fuels in industry. The IPCC Source/Sink Category 1 A 2 includes these emissions. However, in the *1996 IPCC Guidelines*, the IPCC category also includes emissions from industry autoproducers that generate electricity and/or heat. The IEA data are not collected in a way that allows the energy consumption to be split by specific end-use and therefore, this publication shows autoproducers as a separate item. See Row 3, *Unallocated autoproducers*. *Manufacturing industries and construction* also includes some emissions from coke inputs into blast furnaces, which may be reported either in transformation, energy industry own use, industry or the separate IPCC Source/Sink Category 2, industrial processes.

Row 6: *Transport* contains emissions from the combustion of fuel for all transport activity, regardless of the sector, except for international marine and aviation bunkers. This includes domestic aviation, domestic

2. As recommended in the *Good Practice Guidance*.

navigation, road, rail and pipeline transport, and corresponds to IPCC Source/Sink Category 1 A 3. In addition, the IEA data are not collected in a way that allows the autoproducer consumption to be split by specific end-use and therefore, this publication shows autoproducers as a separate item. See Row 3, *Unallocated autoproducers*.

Note: Starting in the 2006 edition, military consumption previously included in *domestic aviation* and in *road* should be in *non-specified other*. See the section on Differences between IEA estimates and UNFCCC submissions, for further details.

Row 7: *Road* contains the emissions arising from fuel use in road vehicles, including the use of agricultural vehicles on highways. This corresponds to the IPCC Source/Sink Category 1 A 3 b.

Row 8: *Other* contains the emissions from commercial/institutional activities, agriculture/forestry, fishing, residential and other emissions not specified elsewhere that are included in the IPCC Source/Sink Categories 1 A 4 and 1 A 5. In the *1996 IPCC Guidelines*, the category also includes emissions from autoproducers in commercial/public services, residential and agriculture that generate electricity and/or heat. The IEA data are not collected in a way that allows the energy consumption to be split by specific end-use, and therefore, this publication shows autoproducers as a separate item. See Row 3, *Unallocated autoproducers*.

Row 9: *Residential* contains all emissions from fuel combustion in households. This corresponds to IPCC Source/Sink Category 1 A 4 b.

Row 10: *Reference Approach* contains total CO₂ emissions from fuel combustion as calculated using the IPCC Reference Approach. The Reference Approach is based on the supply of energy in a country and as a result, all inventories calculated using this method include fugitive emissions from energy transformation (e.g. from oil refineries) which are normally included in Category 1 B. For this reason, Reference Approach estimates are likely to overestimate national CO₂ emissions. In these tables, the difference between the Sectoral Approach and the Reference Approach includes statistical differences, product transfers, transformation losses and distribution losses.

Row 11: *Differences due to losses and/or transformation* contains emissions that result from the transformation of energy from a primary fuel to a secondary or tertiary fuel. Included here are solid fuel transformation,

oil refineries, gas works and other fuel transformation industries. These emissions are normally reported as fugitive emissions in the IPCC Source/Sink Category 1 B, but will be included in 1 A in inventories that are calculated using the IPCC Reference Approach. Theoretically, this category should show relatively small emissions representing the loss of carbon by other ways than combustion, such as evaporation or leakage.

Negative emissions for one product and positive emissions for another product would imply a change in the classification of the emission source as a result of an energy transformation between coal and gas, between coal and oil, etc. In practice, however, it often proves difficult to correctly account for all inputs and outputs in energy transformation industries, and to separate energy that is transformed from energy that is combusted. Therefore, the row *Differences due to losses and/or transformation* sometimes shows quite large positive emissions or even negative ones due to problems in the underlying energy data.

Row 12: *Statistical differences* can be due to unexplained discrepancies in the underlying energy data. They can also be caused by differences between emissions calculated using the Reference Approach and the Sectoral Approach.

Row 13: *International marine bunkers* contains emissions from fuels burned by ships of all flags that are engaged in international navigation. The international navigation may take place at sea, on inland lakes and waterways, and in coastal waters. Consumption by ships engaged in domestic navigation is excluded. The domestic/international split is determined on the basis of port of departure and port of arrival, and not by the flag or nationality of the ship. Consumption by fishing vessels and by military forces is also excluded. Emissions from international marine bunkers should be excluded from the national totals. This corresponds to IPCC Source/Sink Category 1 A 3 d i.

Row 14: *International aviation bunkers* contains emissions from fuels used by aircraft for international aviation. Fuels used by airlines for their road vehicles are excluded. The domestic/international split should be determined on the basis of departure and landing locations and not by the nationality of the airline. Emissions from international aviation should be excluded from the national totals. This corresponds to IPCC Source/Sink Category 1 A 3 a i.

Figures 2 and 3: Emissions by sector

Other includes emissions from commercial/public services, agriculture/forestry and fishing. Emissions from unallocated autoproducers are included in *Electricity and heat*.

Figure 5: Electricity generation by fuel

The product *Other* includes geothermal, solar, wind, combustible renewables and waste, etc. Electricity generation includes both main activity producer and autoproducer electricity.

Country notes

Cuba

International marine bunkers for residual fuel oil in the period 1971-1983 were estimated on the basis of 1984 figures and the data reported as domestic navigation in the energy balance.

Cyprus

Note by Turkey:

The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus" issue.

Note by all the European Union Member States of the OECD and the European Commission:

The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this report relates to the area under the effective control of the Government of the Republic of Cyprus.

Estonia

The data reported as lignite in the energy balance represent oil shale.

France

The methodology for calculating main activity electricity and heat production from gas changed in 2000.

Israel

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Italy

Prior to 1990, gas use in commercial/public services was included in residential.

Japan

Between 2004 and 2007, the IEA received revisions from the Japanese Administration. The first set of revisions received in 2004 increased the 1990 supply by 5% for coal, 2% for natural gas and 0.7% for oil compared to the previous data. This led to an increase of 2.5% in 1990 CO₂ emissions calculated using the Reference Approach while the Sectoral Approach remained fairly constant. For the 2006 edition, the IEA received revisions to the coal and oil data which had a significant impact on both the energy data and the CO₂ emissions. The most significant revisions occurred for coke oven coke, naphtha, blast furnace gas and petroleum coke. These revisions affected consumption rather than supply in the years concerned. As a result, the sectoral approach CO₂ emissions increased for all the years, however at different rates. For example, the sectoral approach CO₂ emissions for 1990 were 4.6% higher than those calculated for the 2005 edition while the 2003 emissions were 1.1% higher than those of the previous edition. Due to the impact these successive revisions have had on the final energy balance as well as on CO₂ emissions, the IEA was in close contact with the Japanese Administration to better understand the reasons behind these changes. These changes are mainly due to the Government of Japan's efforts to improve the input-output balances in the production of oil products and coal products in response to inquiries from the UNFCCC Secretariat. To cope with this issue, the Japanese Administration established a working group in March 2004. The working group completed its work in April 2006. Many of its conclusions were incorporated in the 2006 edition but some further revisions to the time series (especially in industry and *other*) were submitted for the 2007 edition.

Netherlands Antilles

Prior to 1992, the Reference Approach overstates emissions since data for lubricants and bitumen (which store carbon) are not available.

Norway

Discrepancies between Reference and Sectoral Approach estimates and the difference in the resulting growth rates arise from statistical differences between supply and consumption data for oil and natural gas. For Norway, supply of these fuels is the residual of two very large and opposite terms, production and exports.

Switzerland

The sectoral breakdown for gas/diesel oil used in residential before 1978 was estimated on the basis of

commercial and residential consumption in 1978 and the data reported as commercial consumption in the energy balance in previous years.

United Kingdom

For reasons of confidentiality, gas for main activity electricity is included in autoproducers for 1990.

Vietnam

A detailed sectoral breakdown is available starting in 1980.

2. UNITS AND CONVERSIONS

General conversion factors for energy

To:	TJ	Gcal	Mtoe	MBtu	GWh
From:	multiply by:				
terajoule (TJ)	1	238.8	2.388×10^{-5}	947.8	0.2778
gigacalorie (Gcal)	4.1868×10^{-3}	1	10^{-7}	3.968	1.163×10^{-3}
million tonne of oil equivalent (Mtoe)	4.1868×10^4	10^7	1	3.968×10^7	11630
million British thermal unit (MBtu)	1.0551×10^{-3}	0.252	2.52×10^{-8}	1	2.931×10^{-4}
gigawatt hour (GWh)	3.6	860	8.6×10^{-5}	3412	1

Conversion factors for mass

To:	kg	t	lt	st	lb
From:	multiply by:				
kilogramme (kg)	1	0.001	9.84×10^{-4}	1.102×10^{-3}	2.2046
tonne (t)	1000	1	0.984	1.1023	2204.6
long ton (lt)	1016	1.016	1	1.120	2240.0
short ton (st)	907.2	0.9072	0.893	1	2000.0
pound (lb)	0.454	4.54×10^{-4}	4.46×10^{-4}	5.0×10^{-4}	1

Conversion factors for volume

To:	gal U.S.	gal U.K.	bbl	ft ³	l	m ³
From:	multiply by:					
U.S. gallon (gal)	1	0.8327	0.02381	0.1337	3.785	0.0038
U.K. gallon (gal)	1.201	1	0.02859	0.1605	4.546	0.0045
barrel (bbl)	42.0	34.97	1	5.615	159.0	0.159
cubic foot (ft ³)	7.48	6.229	0.1781	1	28.3	0.0283
litre (l)	0.2642	0.220	0.0063	0.0353	1	0.001
cubic metre (m ³)	264.2	220.0	6.289	35.3147	1000.0	1

Decimal prefixes

10 ¹	deca (da)	10 ⁻¹	deci (d)
10 ²	hecto (h)	10 ⁻²	centi (c)
10 ³	kilo (k)	10 ⁻³	milli (m)
10 ⁶	mega (M)	10 ⁻⁶	micro (μ)
10 ⁹	giga (G)	10 ⁻⁹	nano (n)
10 ¹²	tera (T)	10 ⁻¹²	pico (p)
10 ¹⁵	peta (P)	10 ⁻¹⁵	femto (f)
10 ¹⁸	exa (E)	10 ⁻¹⁸	atto (a)

Tonne of CO₂

The *1996 IPCC Guidelines* and the *UNFCCC Reporting Guidelines on Annual Inventories* both ask that CO₂ emissions be reported in Gg of CO₂. A million tonnes of CO₂ is equal to 1 000 Gg of CO₂, so to compare the numbers in this publication with national inventories expressed in Gg, multiply the IEA emissions by 1 000.

Other organisations may present CO₂ emissions in tonnes of carbon instead of tonnes of CO₂. To convert from tonnes of carbon, multiply by 44/12, which is the molecular weight ratio of CO₂ to C.

3. INDICATORS

Population

The main source of the 1970 to 2009 population data for the OECD member countries is *National Accounts of OECD Countries, Volume 1*, OECD, Paris, 2011. Data for 1960 to 1969 have been estimated using the growth rates from the population series published in the *OECD Economic Outlook No. 76*. For the **Czech Republic**, **Hungary** and **Poland** (1960 to 1969) and **Mexico** (1960 to 1962), the data are estimated using the growth rates from the population series from the World Bank published in the *World Development Indicators CD-ROM*. For the **Slovak Republic**, population data for 1960 to 1989 are from the Demographic Research Centre, Infostat, Slovak Republic.

The main source of the population data for the OECD non-member countries is *World Development Indicators*, World Bank, Washington D.C., 2011. Population data for **Chinese Taipei**, **Gibraltar**, **Iraq** and a few countries within the regions³ **Other Africa**, **Other Latin America** and **Other Asia** are based on the CHELEM-CEPII online database, 2011. Population data for 2009 for **Cyprus** are calculated using the population growth rate supplied by Eurostat, 2011.

GDP

The main source of the 1970 to 2009 GDP series for the OECD member countries is *National Accounts of OECD Countries, Volume 1*, 2011. GDP data for **Australia**, **France**, **Greece** and **Sweden** for 1960 to 1969 and **Denmark** for 1966 to 1969 as well as for **Netherlands** for 1969 come directly from the most recent volume of *National Accounts*. GDP data for 1960 to 1969 for the other countries have been estimated

using the growth rates from the series in the *OECD Economic Outlook No 76* and data previously published by the OECD Secretariat. Data prior to 1986 for **Chile**, prior to 1990 for the **Czech Republic** and **Poland**, prior to 1991 for **Hungary**, and prior to 1992 for the **Slovak Republic** are IEA Secretariat estimates based on GDP growth rates from the World Bank.

The main source of the GDP series for the non-OECD member countries is *World Development Indicators*, World Bank, Washington D.C., 2011. GDP figures for **Chinese Taipei**, **Cuba**, **Eritrea** (2009), **Gibraltar**, **Iraq**, **Democratic People's Republic of Korea**, **Libyan Arab Jamahiriya**, **Myanmar**, **Namibia** (1971-1979), **Netherlands Antilles** (available from 1980), **Qatar**, **Former Soviet Union** (before 1990), **Former Yugoslavia** (before 1990) and a few countries within the regions³ **Other Africa**, **Other Latin America** and **Other Asia** are based on the CHELEM-CEPII online databases 2011. GDP figures for **Albania** (1971-1979), **Angola** (1971-1984), **Bahrain** (1971-1979, 2006-2008), **Bosnia and Herzegovina** (1990-1993), **Brunei Darussalam** (1971-1973, 2008-2009), **Bulgaria** (1971-1979), **Cyprus** (2008-2009), **Ethiopia** (1971-1980), **Jordan** (1971-1974), **Kuwait** (1990-1991, 2007-2009), **Lebanon** (1971-1987), **Malta** (2008-2009), **Mozambique** (1971-1979), **Oman** (2006-2009), **Romania** (1971-1979), **Serbia**⁴ (1990-1998), **United Republic of Tanzania** (1971-1987), the **United Arab Emirates** (1971-1972 and 2007-2009), **Vietnam** (1971-1983), **Yemen** (1971-1989) and **Zimbabwe**

3. Due to lack of complete time series, figures for population and for GDP of Other Latin America do not include British Virgin Islands, Cayman Islands, Falkland Islands, Martinique, Montserrat, Saint Pierre and Miquelon, and Turks and Caicos Islands; and figures for population and GDP of Other Asia do not include Cook Islands.

4. Data for GDP for Serbia include Montenegro until 2004.

(2006-2009) have been estimated based on the growth rates of the CHELEM-CEPII online database, 2011.

The GDP data have been compiled for individual countries at market prices in local currency and annual rates. These data have been scaled up/down to the price levels of 2000 and then converted to US dollars using the yearly average 2000 exchange rates or purchasing power parities (PPPs).⁵

For the OECD member countries, the PPPs selected to convert the GDP from national currencies to US dollars come from the OECD Secretariat and were aggregated using the Geary-Khamis (GK) method and rebased on the United States. For a more detailed description of the methodology please see *Purchasing Power Parities and Real Expenditures, GK Results, Volume II, 1990*, OECD, 1993. The PPPs for the other countries come from the World Bank and CHELEM-CEPII.

For the OECD non-member countries, while both the World Bank and CHELEM-CEPII rebased their GDP PPP time series on 2005, this publication shows GDP data on a 2000 basis. Therefore, only time series of GDP PPP 2000 USD were obtained by applying the ratio GDP 2000 USD to GDP PPP 2000 USD of last year's edition to the new GDP 2000 USD figures.

CO₂ emissions

The estimates of CO₂ emissions in this publication are based on the *1996 IPCC Guidelines* and represent the total emissions from fuel combustion. Emissions have been calculated using both the IPCC Reference Approach and the IPCC Sectoral Approach (which corresponds to IPCC Source/Sink Category 1 A). Reference Approach totals may include certain fugitive emissions from energy transformation which should normally be included in Category 1 B. National totals do not include emissions from international marine and aviation bunkers. See the Country Notes in Chapter 1 for further details.

5. Purchasing power parities are the rates of currency conversion that equalise the purchasing power of different currencies. A given sum of money, when converted into different currencies at the PPP rates, buys the same basket of goods and services in all countries. In other words, PPPs are the rates of currency conversion which eliminate the differences in price levels between different countries.

Total primary energy supply

Total primary energy supply (TPES) is made up of production + imports - exports - international marine bunkers - *international aviation bunkers* ± stock changes.

Note: In October 2008 the IEA hosted the third meeting of InterEnerStat. This group is made up of 24 international organisations that collect or use energy statistics. One of the objectives of the group is to improve the quality of energy data by harmonising definitions for energy sources and flows. As a result of this meeting, the IEA has decided to align its energy statistics and balances with most other international organisations and to treat international aviation bunkers in the same way as international marine bunkers. Starting with the 2009 edition, international aviation bunkers is subtracted out of supply in the same way as international marine bunkers.

Electricity and heat output

Total output (shown in the summary tables section) includes electricity and heat generated in transformation using fossil fuels, nuclear, hydro (excluding pumped storage), geothermal, solar, biofuels, etc.

Both **main activity**⁶ **producer** and **autoproducer**⁷ **plants** have been included where available.

For electricity, data include the total number of TWh generated by both **electricity plants** and **CHP plants**.

For heat, data include the total amount of TJ generated by both **CHP plants** and **heat plants**.

To calculate the total electricity and heat output, the heat generated in TJ has been converted to TWh using the relationship 1 TWh = 3 600 TJ and added to electricity generated.

6. Main activity producers generate electricity and/or heat for sale to third parties, *as their primary activity*. They may be privately or publicly owned. Note that the sale need not take place through the public grid.

7. Autoproducer undertakings generate electricity and/or heat, wholly or partly for their own use as an activity which supports their primary activity. They may be privately or publicly owned.

Ratios

CO₂ / TPES: This ratio is expressed in tonnes of CO₂ per terajoule. It has been calculated using the Sectoral Approach CO₂ emissions and total primary energy supply (including biofuels and other non-fossil forms of energy).

CO₂ / GDP: This ratio is expressed in kilogrammes of CO₂ per 2000 US dollar. It has been calculated using the Sectoral Approach CO₂ emissions and is shown with both GDP calculated using exchange rates and GDP calculated using purchasing power parities.

CO₂ / population: This ratio is expressed in tonnes of CO₂ per capita. It has been calculated using the Sectoral Approach CO₂ emissions.

Per capita CO₂ emissions by sector: These ratios are expressed in kilogrammes of CO₂ per capita. They have been calculated in two different ways. In the first ratio, the emissions from electricity and heat production are shown separately. In the second ratio, the emissions from electricity and heat have been allocated to final consuming sectors in proportion to the electricity and heat consumed by those sectors.

CO₂ emissions per kWh: These ratios are expressed in grammes of CO₂ per kWh. They have been calculated using CO₂ emissions from electricity and heat as shown in the country tables in the rows “main activity producer electricity and heat” and “unallocated autoproducers”, and electricity and heat output as described above.

In the first table on CO₂ emissions per kWh, the CO₂ emissions include emissions from fossil fuels, industrial waste and non-renewable municipal waste that are consumed for electricity and heat generation in transformation and output includes electricity and heat generated from fossil fuels, nuclear, hydro (excluding pumped storage), geothermal, solar, biofuels, etc. As a result, the emissions per kWh can vary from year to year depending on the generation mix.

In the ratios of CO₂ emissions per kWh **by fuel**:

- **Coal/peat** includes primary and secondary coal, peat and coal gases.
- **Oil** includes oil products (and small amounts of crude oil for some countries).
- **Gas** represents natural gas.

Note: Emissions per kWh should be used with caution due to data quality problems relating to electricity efficiencies for some countries.

Implied emission factors from electricity and heat generation	
Summary tables presenting CO ₂ emissions per kWh from electricity and heat generation by country are presented in Part II. However, these values will vary enormously depending on the fuel mix of individual countries. Average implied emission factors by individual product for this sector are presented below. These values represent the average grammes of CO ₂ per kWh of electricity and heat produced in the OECD member countries between 2007 and 2009. These figures will reflect any problems that may occur in net calorific values or in input/output efficiencies. Consequently, these values are given as an approximation and actual values may vary considerably.	
Fuel	g CO ₂ / kWh
Anthracite *	835
Coking coal *	715
Other bituminous coal	830
Sub-bituminous coal	920
Lignite	940
Patent fuel	890
Coke oven coke *	510
BKB/peat briquettes *	500-1100
Gas works gas *	380
Coke oven gas *	390
Blast furnace gas *	2100
Oxygen steel furnace gas *	1900
Natural gas	370
Crude oil *	610
Natural gas liquids *	500
Liquefied petroleum gases *	600
Kerosene *	650
Gas/diesel oil *	650
Fuel oil	620
Petroleum coke *	970
Peat *	560
Industrial waste *	450-1300
Municipal waste (non-renewable)*	450-2500
* These fuels represent less than 1% of electricity and heat output in the OECD. Values will be less reliable and should be used with caution.	

4. GEOGRAPHICAL COVERAGE

Africa includes Algeria, Angola, Benin, Botswana (from 1981), Cameroon, Congo, Democratic Republic of Congo, Côte d'Ivoire, Egypt, Eritrea, Ethiopia, Gabon, Ghana, Kenya, Libyan Arab Jamahiriya, Morocco, Mozambique, Namibia (from 1991), Nigeria, Senegal, South Africa, Sudan, United Republic of Tanzania, Togo, Tunisia, Zambia, Zimbabwe and **Other Africa**.

Other Africa includes Botswana (until 1980), Burkina Faso, Burundi, Cape Verde, Central African Republic, Chad, Comoros, Djibouti, Equatorial Guinea, Gambia, Guinea, Guinea-Bissau, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Namibia (until 1990), Niger, Reunion, Rwanda, Sao Tome and Principe, Seychelles, Sierra Leone, Somalia, Swaziland, Uganda and Western Sahara (from 1990).

Middle East includes Bahrain, Islamic Republic of Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates and Yemen.

Non-OECD Europe and Eurasia includes Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus⁸, Georgia, Gibraltar, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Former Yugoslav Republic of Macedonia (FYROM), Malta, Republic of Moldova, Romania, Russian Federation, Serbia⁹, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, Former Soviet Union¹⁰ (prior to 1990) and Former Yugoslavia¹⁰ (prior to 1990).

Latin America includes Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Netherlands Antilles, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, Venezuela and **Other Latin America**.

Other Latin America includes Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, Cayman Islands, Dominica, Falkland Islands, French Guyana, Grenada, Guadeloupe, Guyana, Martinique, Montserrat, Puerto Rico¹¹ (for natural gas and electricity), St. Kitts and Nevis, Saint Lucia, Saint Pierre et Miquelon, St. Vincent and the Grenadines, Suriname and Turks/Caicos Islands.

China includes the People's Republic of China and Hong Kong (China).

Asia includes Bangladesh, Brunei Darussalam, Cambodia (from 1995), Chinese Taipei, India, Indonesia, DPR of Korea, Malaysia, Mongolia (from 1985), Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Vietnam and **Other Asia**.

Other Asia includes Afghanistan, Bhutan, Cambodia (until 1994), Cook Islands, East Timor, Fiji, French Polynesia, Kiribati, Laos, Macau, Maldives, Mongolia (until 1984), New Caledonia, Palau (from 1994), Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu.

The **Organisation for Economic Co-Operation and Development (OECD)** includes Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia¹², Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan,

8. See the note concerning Cyprus in Chapter 1.

9. Serbia includes Montenegro until 2004 and Kosovo until 1999.

10. Prior to 1990, data for Estonia are included in Former Soviet Union and data for Slovenia in Former Yugoslavia.

11. Oil statistics as well as coal trade statistics for Puerto Rico are included under the United States.

12. Estonia and Slovenia are included in OECD totals starting in 1990. Prior to 1990, data for Estonia are included in Former Soviet Union and data for Slovenia in Former Yugoslavia.

Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia¹², Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

Within the **OECD**:

Australia excludes the overseas territories.

Denmark excludes Greenland and the Danish Faroes, except prior to 1990, where data on oil for Greenland were included with the Danish statistics. The Administration is planning to revise the series back to 1974 to exclude these amounts.

France includes Monaco, and excludes the following overseas departments and territories (Guadeloupe, Guyana, Martinique, New Caledonia, French Polynesia, Reunion and St.-Pierre and Miquelon).

Germany includes the new federal states of Germany from 1970 onwards.

The statistical data for **Israel** are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Italy includes San Marino and the Vatican.

Japan includes Okinawa.

The **Netherlands** excludes Suriname and the Netherlands Antilles.

Portugal includes the Azores and Madeira.

Spain includes the Canary Islands.

Switzerland includes Liechtenstein for the oil data. Data for other fuels do not include Liechtenstein.

Shipments of coal and oil to the Channel Islands and the Isle of Man from the **United Kingdom** are not classed as exports. Supplies of coal and oil to these islands are, therefore, included as part of UK supply. Exports of natural gas to the Isle of Man are included with the exports to Ireland.

United States includes the 50 states and the District of Columbia. Oil statistics as well as coal trade statistics also include Puerto Rico¹³, Guam, the Virgin Islands, American Samoa, Johnston Atoll, Midway Islands, Wake Island and the Northern Mariana Islands.

The **European Union - 27 (EU-27)** includes Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, the Slovak Republic, Slovenia, Spain, Sweden and the United Kingdom.

The **International Energy Agency (IEA)** includes Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, Luxembourg, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

Annex I Parties include Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, the Czech Republic¹⁴, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein (not available in this publication), Lithuania, Luxembourg, Malta, Monaco (included with France), the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, the Slovak Republic¹⁴, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom and the United States.

The countries that are listed above are included in Annex I of the United Nations Framework Convention on Climate Change as amended on 11 December 1997 by the 12th Plenary meeting of the Third Conference of the Parties in Decision 4/CP.3. This includes the countries that were members of the OECD at the time of the signing of the Convention, the EEC, and fourteen countries in Central and Eastern Europe and the Former Soviet Union that are undergoing the process of transition to market economies. At its fifteenth session, the Conference of the Parties decided to amend Annex I to the Convention to include Malta (Decision 3/CP.15). The amendment entered into force on 26 October 2010.

Annex II Parties include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States.

According to Decision 26/CP.7 in document FCCC/CP/2001/13/Add.4, Turkey has been deleted from the list of Annex II countries to the Convention. This amendment entered into force on 28 June 2002.

13. Natural gas and electricity data for Puerto Rico are included under Other Latin America.

14. Czechoslovakia was in the original list of Annex I countries.

Economies in Transition (EITs) are those countries in Annex I that are undergoing the process of transition to a market economy. This includes Belarus, Bulgaria, Croatia, the Czech Republic¹⁴, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation, the Slovak Republic¹⁴, Slovenia and Ukraine.

Annex I Kyoto Parties include Australia, Austria, Belgium, Bulgaria, Canada, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein (not available in this publication), Lithuania, Luxembourg, Monaco (included with France), the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Ukraine and the United Kingdom.

Membership in the Kyoto Protocol is almost identical to that of Annex I, except for Malta, Turkey and Belarus which did not agree to a target under the Protocol, and the United States which has expressed the intention not to ratify the Protocol. Australia ratified the Protocol on 12 December 2007 and has been included in the Kyoto aggregate in this edition.

Please note that the following countries have not been considered due to lack of data:

Africa: Saint Helena.

Asia and Oceania: Christmas Island, Nauru and Niue.

Latin America: Anguilla.

Non-OECD Europe and Eurasia: Liechtenstein¹⁵ (except for oil data) and Montenegro¹⁶ (after 2004).

15. Oil data for Liechtenstein are included under Switzerland.

16. Data for Montenegro are included under Serbia until 2004.

5. IPCC METHODOLOGIES

General notes

The ultimate objective of the UNFCCC (the Convention) is the stabilisation of greenhouse-gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The Convention also calls for all Parties to commit themselves to the following objectives:

- to develop, update periodically, publish and make available to the Conference of the Parties (COP) their national inventories of anthropogenic emissions by sources and removals by sinks, of all greenhouse gases not controlled by the Montreal Protocol.
- to use comparable methodologies for inventories of greenhouse-gas emissions and removals, to be agreed upon by the COP.

As a response to the objectives of the UNFCCC, the IEA Secretariat, together with the IPCC, the OECD and numerous international experts, has helped to develop and refine an internationally-agreed methodology for the calculation and reporting of national greenhouse-gas emissions from fuel combustion. This methodology was published in 1995 in the *IPCC Guidelines for National Greenhouse Gas Inventories*. After the initial dissemination of the methodology, revisions were added to several chapters, and published as the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories (1996 IPCC Guidelines)*. In April 2006, the IPCC approved the *2006 Guidelines* at the 25th session of the IPCC in Mauritius. For now, many countries (as well as the IEA Secretariat) are still calculating their inventories using the *1996 IPCC Guidelines* since this was the version used for the Kyoto Protocol.¹⁷

17. Both the *1996 IPCC Guidelines* and the *2006 IPCC Guidelines* are available from the IPCC Greenhouse Gas Inventories Programme (www.ipcc-nggip.iges.or.jp).

Since the IPCC methodology for fuel combustion is largely based on energy balances, the IEA estimates for CO₂ from fuel combustion published in this document have been calculated using the IEA energy balances and the default IPCC methodology. However, other possibly more detailed methodologies may be used by Parties to calculate their inventories. This may lead to different estimates of emissions. See Chapter 1, IEA emissions estimates, for further details.

The calculation of CO₂ emissions from fuel combustion may be done at three different levels referred to as Tiers 1, 2 and 3. The Tier 1 methods estimate the emissions from the carbon content of fuels supplied to the country as a whole (the Reference Approach) or to the main fuel combustion activities (Sectoral Approach). The following chapter summarises the IPCC Tier 1 methodology from the *1996 IPCC Guidelines*.

Reference Approach

Introduction

Carbon dioxide emissions are produced when carbon-based fuels are burned. National emissions estimates are based on the amounts of fuels used and on the carbon content of fuels.

Fuel combustion is widely dispersed throughout most activities in national economies and a complete record of the quantities of each fuel type consumed in each end-use activity is a considerable task, which some countries have not undertaken. Fortunately, it is possible to obtain a relatively accurate estimate of national CO₂ emissions by accounting for the carbon in fuels supplied to the economy. The supply of fuels

is simple to record and the statistics are more likely to be available in many countries.

In accounting for fuels supplied¹⁸ it is important to distinguish between *primary fuels* (i.e. fuels which are found in nature such as coal, crude oil, natural gas), and *secondary fuels* or fuel products, such as gasoline and lubricants, which are derived from primary fuels.

Accounting for carbon is based mainly on the supply of primary fuels and the net quantities of secondary fuels brought into the country.

To calculate supply of fuels to the country necessitates the following data for each fuel and year chosen:

- the amounts of primary fuels produced (production of secondary fuels is excluded);
- the amounts of primary and secondary fuels imported;
- the amounts of primary and secondary fuels exported;
- the amounts of fuel used for international marine and aviation bunkers (hereafter referred to as bunkers);
- the net increases or decreases in stocks of the fuels.

For each fuel, the production (where appropriate) and imports are added together and the exports, bunkers, and stock changes are subtracted to calculate the apparent consumption of the fuels. In cases where exports of secondary fuels exceed imports or stock increases exceed net imports, negative numbers will result.

The manufacture of secondary fuels is ignored in the main calculation, as the carbon in these fuels has already been accounted for in the supply of primary fuels from which they are derived. However, information on production of some secondary fuel products is required to adjust for carbon stored in these products.

Three other important points influence the accounting methodology:

- *Stored carbon*

Not all fuel supplied to an economy is burned for heat energy. Some is used as a raw material (or feedstock) for manufacture of products such as plastics or in a non-energy use (e.g. bitumen for road construction), without oxidation (emissions) of the carbon. This is called *stored carbon*, and is deducted from the carbon emissions calculation. Estimation of the stored carbon requires data for fuel use by activities using the fuel as raw material.

- *International bunker fuels*

The procedures given for calculating emissions ensure that emissions from the use of fuels for **international** marine and air transport are excluded from national emissions totals. However, for information purposes, the quantities and types of fuels delivered and the corresponding emissions from international marine and aviation bunkers should be separately reported.

- *Biofuels*

In the IPCC methodology, biofuels (fuels derived from biomass) are not included in the CO₂ emissions from fuel combustion and are only shown for informational purposes. This is because for CO₂ emissions, biomass consumption for fuel is assumed to equal its regrowth. Any departures from this hypothesis are counted within the land use, land use change and forestry module of the *1996 IPCC Guidelines*. For this reason, emissions from the burning of biomass for energy are not included in the CO₂ emissions from fuel combustion in this publication.

Methodology

The IPCC methodology breaks the calculation of carbon dioxide emissions from fuel combustion into six steps:

- Step 1: Estimate apparent fuel consumption in original units
- Step 2: Convert to a common energy unit
- Step 3: Multiply by emission factors to compute the carbon content
- Step 4: Compute carbon stored
- Step 5: Correct for carbon unoxidised
- Step 6: Convert carbon oxidised to CO₂ emissions

18. The following discussion excludes all non-carbon energy sources such as nuclear, hydro, geothermal, solar, etc.

Completing Worksheet 1

This section is from the Workbook of the *1996 IPCC Guidelines* and provides step-by-step instructions for calculating emissions at the detailed fuels and fuel products level. Worksheet 1 can be consulted at the end of this chapter.

NOTE: The main worksheet allows CO₂ emissions from biofuels to be calculated but it does not include them in the national total.

Step 1 Estimating apparent fuel consumption

1 Apparent consumption is the basis for calculating the carbon supply for the country. To calculate apparent consumption (or total fuel supplied) for each fuel, the following data for primary fuels are entered:

- Production (Column A)
- Imports (Column B)
- Exports (Column C)
- International bunkers (Column D)
- Stock change (Column E)

For secondary fuels and products, the only figures entered are:

- Imports (Column B)
- Exports (Column C)
- International bunkers (Column D)
- Stock change (Column E)

These allow the overall calculation to account for all consumption.

Amounts of all fuels can be expressed in joules (J), megajoules (MJ), gigajoules (GJ), terajoules (TJ) or thousands of tonnes of oil equivalent (ktoe). Solid or liquid fuels can be expressed as thousands of tonnes (kt) and dry natural gas can be expressed as teracalories (Tcal) or cubic metres (m³).

NOTE: The figure for production of natural gas, used in Worksheet 1, **does not** include quantities of gas vented, flared or re-injected into the well.

Quantities are expressed in terms of the net calorific values (NCV) of the fuels concerned. NCV is sometimes referred to as the lower heating value (LHV). NCVs are approximately 95% of the gross calorific value (GCV) for liquid fossil, solid fossil and biofuels, and 90% of the GCV for natural gas.

2 Apparent consumption is calculated for each fuel using this formula:

Apparent consumption =

Production + Imports - Exports - International bunkers - Stock change

The results are entered in Column F.

Particular attention is given to the algebraic sign of “stock change” as it is entered in Column E. When more fuel is added to stock than is taken from it during the year there is a net stock build and the quantity is entered in Column E with a plus sign. In the converse case (a stock draw) the quantity is entered in Column E with a minus sign.

Step 2 Converting to a common energy unit (TJ)

1 The conversion factor used for each fuel is entered in Column G.

2 The Apparent consumption is multiplied by the relevant conversion factor (NCV or scaling factor) to give apparent consumption in terajoules. The result is entered in Column H.

TABLE 1
CONVERSION FACTORS

<i>Unit</i>	<i>Conversion factor</i>
J, MJ or GJ	Number is divided by the appropriate factor, 10 ¹² , 10 ⁶ or 10 ³ respectively, to convert to TJ.
10 ⁶ toe	Number is multiplied by the conversion factor, 41868 TJ/10 ⁶ toe, to convert to TJ.
Tcal	Number is multiplied by the conversion factor, 4.1868 TJ/Tcal.
10 ³ t	The net calorific value of each fuel is used (see Table 2).

TABLE 2	
SELECTED NET CALORIFIC VALUES	
	<i>Factors (TJ/10³ tonnes)</i>
Refined petroleum products	
Gasoline	44.80
Jet kerosene	44.59
Other kerosene	44.75
Shale oil	36.00
Gas/diesel oil	43.33
Fuel oil	40.19
LPG	47.31
Ethane	47.49
Naphtha	45.01
Bitumen	40.19
Lubricants	40.19
Petroleum coke	31.00
Refinery feedstocks	44.80
Refinery gas	48.15
Other oil products	40.19
Other products	
Coal oils and tars derived from coking coals	28.00
Oil shale	9.40
Orimulsion	27.50

NOTE: When converting from 10³ t, for anthracite, coking coal, other bituminous coal, sub-bituminous coal and lignite, separate country-specific net calorific values are used for production (Column A), imports (Column B), and exports (Column C). For these fuels, apparent consumption is calculated by converting production, imports, exports, and stock changes to TJ first. For international bunkers (Column D) and stock change (Column E), either a weighted average net calorific value or a factor appropriate to the dominant source of supply is used.

Step 3 Multiplying by carbon emission factors

- 1 The carbon emission factor (CEF) used to convert apparent consumption into carbon content is entered in Column I.

Table 3 shows the default values used in this publication.

TABLE 3	
CARBON EMISSION FACTORS (CEF)	
<i>Fuel</i>	<i>Carbon emission factor (t C/TJ)</i>
LIQUID FOSSIL	
<i>Primary fuels</i>	
Crude oil	20.0
Orimulsion	22.0
Natural gas liquids	17.2
<i>Secondary fuels/products</i>	
Gasoline	18.9
Jet kerosene	19.5
Other kerosene	19.6
Shale oil	20.0
Gas/diesel oil	20.2
Fuel oil	21.1
LPG	17.2
Ethane	16.8
Naphtha	(20.0) ^(a)
Bitumen	22.0
Lubricants	(20.0) ^(a)
Petroleum coke	27.5
Refinery feedstocks	(20.0) ^(a)
Refinery gas	18.2 ^(b)
Other oil	(20.0) ^(a)
SOLID FOSSIL	
<i>Primary fuels</i>	
Anthracite	26.8
Coking coal	25.8
Other bituminous coal	25.8
Sub-bituminous coal	26.2
Lignite	27.6
Oil shale	29.1
Peat	28.9
<i>Secondary fuels/products</i>	
BKB & patent fuel	(25.8) ^(a)
Coke oven / gas coke	29.5
Coke oven gas	13.0 ^(b)
Blast furnace gas	66.0 ^(b)
GASEOUS FOSSIL	
Natural gas (dry)	15.3
BIOFUELS^(c)	
Solid biofuels	29.9
Liquid biofuels	(20.0) ^(a)
Biogases	(30.6) ^(a)

Notes to Table 3

(a) This value is a default value until a fuel specific CEF is determined. For biogases, the CEF is based on the assumption that 50% of the carbon in the biomass is converted to methane and 50% is emitted as CO₂. The CO₂ emissions from biogases should not be included in national inventories. If biogases are released and not combusted, 50% of the carbon content should be included as methane.

(b) For use in the sectoral calculations.

(c) Emissions from the use of biofuels are not shown in this publication.

- 2 The apparent consumption in TJ (in Column H) is multiplied by the carbon emission factor (in Column I) to give the carbon content in tonnes of C. The result is entered in Column J.
- 3 The carbon content in tonnes C is divided by 10³ to give gigagrammes of carbon. The result is entered in Column K.

Step 4 Calculating carbon stored**1 Estimating fuel quantities***Bitumen and lubricants*

Domestic production for bitumen and lubricants is added to the apparent consumption (shown in Column F of the main Worksheet 1) for these products and the sum is entered in Column A of Auxiliary Worksheet 1.

Coal oils and tars

For coking coal, the default assumption is that 6% of the carbon in coking coal consumed is converted to oils and tars. The apparent consumption for coking coal (from Worksheet 1, Column F) is multiplied by 0.06.

Starting with the 2006 edition, the IEA Secretariat has requested coal tar data on its annual coal questionnaire. In cases where this information has been provided, to be consistent with the *1996 IPCC Guidelines*, 75% of the part reported as non-energy was considered to be stored and the default 6% of coking coal was not applied.

Natural gas, LPG, ethane, naphtha and gas/diesel oil

The amount of these fuels used as a feedstock for non-energy purposes is entered in Column A.

2 Converting to TJ

The appropriate conversion factors are inserted in Column B of Auxiliary Worksheet 1. The estimated fuel quantities (Column A) are multiplied by the relevant conversion factor to give the estimated fuel quantities in TJ. The result is entered in Column C.

3 Calculating carbon content

The estimated fuel quantities in TJ (Column C of Auxiliary Worksheet 1) are multiplied by the emission factor in tonnes of carbon per terajoule (Column D) to give the carbon content in tonnes of C (Column E). The figures are divided by 10³ to express the amount as gigagrammes of carbon. The results are entered in Column F.

4 Calculating actual carbon stored

The carbon content (Column F of Auxiliary Worksheet 1) is multiplied by the fraction of carbon stored (Column G) to give the carbon stored. The result is entered in Column H.

When Auxiliary Worksheet 1 is completed

- 5 The values for carbon stored for the relevant fuels/products are entered in Column L of the main Worksheet 1.
- 6 The values for carbon stored (Column L) are subtracted from carbon content (Column K) to give net carbon emissions. The results are entered in Column M.

Step 5 Correcting for carbon unoxidised

- 1 The values for fraction of carbon oxidised are entered in Column N of Worksheet 1. Table 4 provides information on typical values measured from various facilities and suggests global default values for solid, liquid and gaseous fuels.
- 2 Net carbon emissions (Column M) are multiplied by the fraction of carbon oxidised (Column N) and the results are entered in Column O, actual carbon emissions.

TABLE 4
FRACTION OF CARBON OXIDISED

Coal ¹	0.98
Oil and oil products	0.99
Natural gas	0.995
Peat for electricity generation ²	0.99

1. This figure is a global average but varies for different types of coal, and can be as low as 0.91.

2. The fraction for peat used in households may be much lower.

Step 6 Converting to CO₂ emissions

- 1 Actual carbon emissions (Column O) are multiplied by 44/12 (which is the molecular weight ratio of CO₂ to C) to find total carbon dioxide (CO₂) emitted from fuel combustion. The results are entered in Column P.
- 2 The sum is total national emissions of carbon dioxide from fuel combustion. These are the numbers shown for total CO₂ emissions from fuel combustion in this publication.

Sectoral Approach

Introduction

A sectoral breakdown of national CO₂ emissions using the defined IPCC Source/Sink Categories is needed for monitoring and abatement policy discussions. The IPCC Reference Approach provides a rapid estimate of the total CO₂ emissions from fuels supplied to the country but it does not break down the emissions by sector.

The more detailed calculations used for the Sectoral Approach are essentially similar in content to those used for the Reference Approach.

Completing Worksheet 2

This section is from the Workbook of the *1996 IPCC Guidelines* and provides step-by-step instructions for calculating emissions by fuels for each of the main source categories using the IPCC Tier 1 Sectoral Approach. A sample sheet of Worksheet 2 can be consulted at the end of this chapter.

Step 1 Estimating sectoral fuel consumption

The amount of each fuel consumed by sector is entered in Column A.

Energy industries and transformation

Special care needs to be taken when considering the fuel use of energy industries and transformation so that double counting is avoided.

Fuel use in energy industries and transformation can be divided into three groups:

Transformation

- 1 Fuels transformed into secondary fuels by physical or chemical processes not involving combustion (e.g. crude oil to petroleum products in refineries, coal to coke and coke oven gas in coke ovens);
- 2 Fuels combusted to generate electricity and/or heat (excluding fuels used for autoproduction of electricity and heat, which are reported in the sector where they are used);

Energy industries

- 3 Fuels combusted by energy industries (for energy extraction and transformation) for heating, pumping, traction and lighting purposes (e.g. refinery gas for heating distillation columns, use of colliery methane at mines for heating purposes).

In this worksheet, only fuel use by Groups 2 and 3 (fuels that are combusted) is included. However, see Step 4 for the reporting of lubricants used by energy industries. For emissions resulting from fuel use by Group 1, no worksheets are available. They should be reported under the IPCC Source/Sink Category 1B: fugitive emissions from fuels. It is most important that this distinction be appreciated. The quantities of *primary* fuels reported in Column A will understate the quantities used for Group 1 activities. The reported quantities cover only the combustion needs of these industries.

Step 2 Converting to a common energy unit (TJ)

- 1 The conversion factor (NCV or scaling factor) to convert to terajoules is entered in Column B.
- 2 The consumption is multiplied by the relevant conversion factor to give consumption in terajoules. The result is entered in Column C.

Step 3 Multiplying by carbon emission factors

- 1 The carbon emission factor used to convert consumption into carbon content is entered in Column D.
- 2 The consumption in TJ (in Column C) is multiplied by the carbon emission factor (in Column D) to give the carbon content in tonnes of carbon. The result is entered in Column E.

- 3 The carbon content in tonnes of carbon is divided by 10^3 to be expressed as gigagrammes of carbon. The result is entered in Column F.

Step 4 Calculating carbon stored

For the calculation of carbon stored, fuels are distinguished into four groups:

- Fuels used as feedstocks, such as naphtha, natural gas, gas/diesel oil, LPG or ethane;
- Lubricants;
- Bitumen and coal tars;
- Fuels for which no carbon is stored.

Fuels used as feedstocks, such as naphtha, natural gas, gas/diesel oil, LPG or ethane:

This subsection on feedstocks applies only to the industry source category.

1 Estimating fuel quantities

The amount of fuel used as a feedstock for non-energy purposes is entered in Column A of Auxiliary Worksheet 2.

2 Converting to TJ

The appropriate conversion factor is inserted in Column B. Feedstock use (Column A) is multiplied by the relevant conversion factor to give the feedstock use in TJ. The result is entered in Column C of Auxiliary Worksheet 2.

3 Calculating carbon content

The feedstock use in TJ (Column C) is multiplied by the emission factor in tonnes of carbon per terajoule (Column D) to give the carbon content in tonnes C (Column E). The figures are divided by 10^3 to express the amount as gigagrammes of carbon. The results are entered in Column F of Auxiliary Worksheet 2.

4 Calculating actual carbon stored

The carbon content (Column F) is multiplied by the fraction of carbon stored (Column G) to give the carbon stored. The result is entered in Column H of Auxiliary Worksheet 2.

After completion of Auxiliary Worksheet 2

- 5 The amount of carbon stored for the relevant fuel/product is entered in Column H of Worksheet 2 for the industry source category.
- 6 The amount of carbon stored (Column H) is subtracted from the carbon content (Column F) to give net carbon emissions. The results are entered in Column I.

Lubricants:

It has been estimated that during the first use, recycling and final disappearance of lubricants, approximately half of the production is oxidised as CO₂.

- 1 For each sector where lubricants are used, the fraction of carbon stored for lubricants is entered in Column G. The default value of 0.5 is used for this publication.
- 2 The carbon content (Column F) is multiplied by the fraction of carbon stored (Column G) to obtain the amount of carbon stored. The result is entered in Column H.
- 3 The amount of carbon stored (Column H) is subtracted from the carbon content (Column F) to obtain the net carbon emissions. The result is entered in Column I.

Bitumen and coal tars:

Bitumen and coal tars are usually not combusted but used in a manner that stores almost all of the carbon. Emissions of non-methane volatile organic compounds (NMVOCs) from the use of bitumen for road paving are estimated in the industrial processes chapter.

Fuels for which no carbon is stored:

Step 4 is skipped and the values from Column F are entered in Column I before continuing with Step 5.

Step 5 Correcting for carbon unoxidised

- 1 Values for fraction of carbon oxidised are entered in Column J of Worksheet 2. Table 4 provides information on typical values measured from coal facilities and suggests global default values for solid, liquid and gaseous fuels.
- 2 Net carbon emissions (Column I) are multiplied by fraction of carbon oxidised (Column J) and the results are entered in Column K, actual carbon emissions.

Step 6 Converting to CO₂ emissions

- 1 Actual carbon emissions (Column K) are multiplied by 44/12 (which is the molecular weight ratio of CO₂ to C) to find actual carbon dioxide (CO₂) emissions. The results are entered in Column L and correspond to the sectoral emissions included in the present publication.

MODULE		ENERGY					
SUBMODULE		CO ₂ FROM ENERGY SOURCES (REFERENCE APPROACH)					
WORKSHEET		1					
SHEET		1 OF 5					
		STEP 1					
		A	B	C	D	E	F
		Production	Imports	Exports	International Bunkers	Stock Change	Apparent Consumption
FUEL TYPES							F=(A+B-C-D-E)
Liquid Fossil	Primary Fuels	Crude Oil					
		Orimulsion					
		Natural Gas Liquids					
	Secondary Fuels	Gasoline					
		Jet Kerosene					
		Other Kerosene					
		Shale Oil					
		Gas / Diesel Oil					
		Fuel Oil					
		LPG					
		Ethane					
		Naphtha					
		Bitumen					
		Lubricants					
		Petroleum Coke					
		Refinery Feedstocks					
Other Oil							
Liquid Fossil Totals							
Solid Fossil	Primary Fuels	Anthracite ^(a)					
		Coking Coal					
		Other Bit. Coal					
		Sub-Bit. Coal					
		Lignite					
		Oil Shale					
		Peat					
	Secondary Fuels	BKB & Patent Fuel					
		Coke Oven/Gas Coke					
Solid Fossil Totals							
Gaseous Fossil	Natural Gas (Dry)						
Total							
Biofuels Total							
	Solid Biofuels						
	Liquid Biofuels						
	Biogases						

(a) If anthracite is not separately available, include with other bituminous coal.

MODULE		ENERGY					
SUBMODULE		CO ₂ FROM ENERGY SOURCES (REFERENCE APPROACH)					
WORKSHEET		1					
SHEET		2 OF 5					
		STEP 2			STEP 3		
		G(a) Conversion Factor (TJ/Unit)	H Apparent Consumption (TJ)	I Carbon Emission Factor (t C/TJ)	J Carbon Content (t C)	K Carbon Content (Gg C)	
FUEL TYPES			H=(FxG)		J=(HxI)	K=(Jx10 ⁻³)	
Liquid Fossil	Primary Fuels	Crude Oil					
		Orimulsion					
		Natural Gas Liquids					
	Secondary Fuels	Gasoline					
		Jet Kerosene					
		Other Kerosene					
		Shale Oil					
		Gas / Diesel Oil					
		Fuel Oil					
		LPG					
		Ethane					
		Naphtha					
		Bitumen					
		Lubricants					
		Petroleum Coke					
Refinery Feedstocks							
Other Oil							
Liquid Fossil Totals							
Solid Fossil	Primary Fuels	Anthracite ^(b)					
		Coking Coal					
		Other Bit. Coal					
		Sub-Bit. Coal					
		Lignite					
		Oil Shale					
	Peat						
	Secondary Fuels	BKB & Patent Fuel					
		Coke Oven/Gas Coke					
Solid Fossil Totals							
Gaseous Fossil	Natural Gas (Dry)						
Total							
Biofuels Total							
	Solid Biofuels						
	Liquid Biofuels						
	Biogases						

(a) Please specify units.

(b) If anthracite is not separately available, include with other bituminous coal.

MODULE			ENERGY				
SUBMODULE			CO ₂ FROM ENERGY SOURCES (REFERENCE APPROACH)				
WORKSHEET			1				
SHEET			3 OF 5				
			STEP 4		STEP 5		STEP 6
			L Carbon Stored (Gg C)	M Net Carbon Emissions (Gg C)	N Fraction of Carbon Oxidised	O Actual Carbon Emissions (Gg C)	P Actual CO ₂ Emissions (Gg CO ₂)
FUEL TYPES				M=(K-L)		O=(MxN)	P=(Ox[44/12])
Liquid Fossil	Primary Fuels	Crude Oil					
		Orimulsion					
		Natural Gas Liquids					
	Secondary Fuels	Gasoline					
		Jet Kerosene					
		Other Kerosene					
		Shale Oil					
		Gas / Diesel Oil					
		Fuel Oil					
		LPG					
		Ethane					
		Naphtha					
		Bitumen					
		Lubricants					
		Petroleum Coke					
		Refinery Feedstocks					
Other Oil							
Liquid Fossil Totals							
Solid Fossil	Primary Fuels	Anthracite ^(a)					
		Coking Coal					
		Other Bit. Coal					
		Sub-Bit. Coal					
		Lignite					
		Oil Shale					
		Peat					
	Secondary Fuels	BKB & Patent Fuel					
		Coke Oven/Gas Coke					
Solid Fossil Totals							
Gaseous Fossil	Natural Gas (Dry)						
Total							
Biofuels Total							
	Solid Biofuels						
	Liquid Biofuels						
	Biogases						

(a) If anthracite is not separately available, include with other bituminous coal.

MODULE		ENERGY					
SUBMODULE		CO ₂ FROM ENERGY SOURCES (REFERENCE APPROACH)					
WORKSHEET		1					
SHEET		4 OF 5 EMISSIONS FROM INTERNATIONAL BUNKERS (INTERNATIONAL MARINE AND AIR TRANSPORT)					
		STEP 1	STEP 2		STEP 3		
		A	B	C	D	E	F
		Quantities Delivered ^(a)	Conversion Factor (TJ/unit)	Quantities Delivered (TJ)	Carbon Emission Factor (t C/TJ)	Carbon Content (t C)	Carbon Content (Gg C)
FUEL TYPES				$C=(A \times B)$		$E=(C \times D)$	$F=(E \times 10^{-3})$
Solid Fossil	Other Bituminous Coal						
	Sub-Bituminous Coal						
Liquid Fossil	Gasoline						
	Jet Kerosene						
	Gas/Diesel Oil						
	Fuel Oil						
	Lubricants						
		Total					

(a) Enter the quantities from Worksheet 1, Sheet 1, Column D: "International Bunkers".

MODULE		ENERGY					
SUBMODULE		CO ₂ FROM ENERGY SOURCES (REFERENCE APPROACH)					
WORKSHEET		1					
SHEET		5 OF 5 EMISSIONS FROM INTERNATIONAL BUNKERS (INTERNATIONAL MARINE AND AIR TRANSPORT)					
		STEP 4			STEP 5		STEP 6
		G	H	I	J	K	L
		Fraction of Carbon Stored	Carbon Stored (Gg C)	Net Carbon Emissions (Gg C)	Fraction of Carbon Oxidised	Actual Carbon Emissions (Gg C)	Actual CO ₂ Emissions (Gg CO ₂)
FUEL TYPES			$H=(F \times G)$	$I=(F-H)$		$K=(I \times J)$	$L=(K \times 44/12)$
Solid Fossil	Other Bituminous Coal	0	0				
	Sub-Bituminous Coal	0	0				
Liquid Fossil	Gasoline	0	0				
	Jet Kerosene	0	0				
	Gas/Diesel Oil	0	0				
	Fuel Oil	0	0				
	Lubricants	0.5					
		Total ^(a)					

(a) The bunker emissions are not to be added to national totals.

MODULE		ENERGY						
SUBMODULE		CO ₂ FROM ENERGY						
WORKSHEET		AUXILIARY WORKSHEET 1: ESTIMATING CARBON STORED IN PRODUCTS						
SHEET		1 OF 1						
	A	B	C	D	E	F	G	H
	Estimated Fuel Quantities	Conversion Factor (TJ/Units)	Estimated Fuel Quantities (TJ)	Carbon Emission Factor (t C/TJ)	Carbon Content (t C)	Carbon Content (Gg C)	Fraction of Carbon Stored	Carbon Stored (Gg C)
FUEL TYPES			$C=(A \times B)$		$E=(C \times D)$	$F=(E \times 10^{-3})$		$H=(F \times G)$
Naphtha ^(a)							0.80	
Lubricants							0.50	
Bitumen							1.0	
Coal Oils and Tars (from Coking Coal)							0.75	
Natural Gas ^(a)							0.33	
Gas/Diesel Oil ^(a)							0.50	
LPG ^(a)							0.80	
Ethane ^(a)							0.80	
Other fuels ^(b)								

(a) Enter these fuels when they are used as feedstocks.

(b) Use the other fuels rows to enter any other products in which carbon may be stored.

MODULE	ENERGY					
SUBMODULE	CO ₂ FROM FUEL COMBUSTION (TIER I SECTORAL APPROACH)					
WORKSHEET	2 STEP BY STEP CALCULATIONS					
SHEET	SAMPLE SHEET - FILLED OUT FOR EACH SECTOR					
Energy Industries	A Consumption	B Conversion Factor (TJ/unit)	C Consumption (TJ)	D Carbon Emission Factor (t C/TJ)	E Carbon Content (t C)	F Carbon Content (Gg C)
<i>specific fuels listed for each sector (a)</i>			C=(AxB)		E=(Cx D)	F=(E x 10 ⁻³)
			Total			
<i>Memo items:</i>						
Wood/Wood Waste						
Charcoal						
Other Solid Biofuels						
Liquid Biofuels						
Biogases						
			Total Biomass			

(a) Certain sectors have specific calculations for some products. See the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* for further details.

MODULE	ENERGY					
SUBMODULE	CO₂ FROM FUEL COMBUSTION (TIER I SECTORAL APPROACH)					
WORKSHEET	2 STEP BY STEP CALCULATIONS					
SHEET	SAMPLE SHEET - FILLED OUT FOR EACH SECTOR					
Energy Industries	G Fraction of Carbon Stored	H Carbon Stored (Gg C)	I Net Carbon Emissions (Gg C)	J Fraction of Carbon Oxidised	K Actual Carbon Emissions (Gg C)	L Actual CO ₂ Emissions (Gg CO ₂)
<i>specific fuels listed for each sector (a)</i>		H=(F×G)	I=(F-H)		K=(I×J)	L=(K × [44/12])
	Total					
Memo items:						
Wood/Wood Waste						
Charcoal						
Other Solid Biofuels						
Liquid Biofuels						
Biogases						
	Total Biomass					

(a) Certain sectors have specific calculations for some products. See the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* for further details.

MODULE	ENERGY							
SUBMODULE	CO ₂ FROM FUEL COMBUSTION BY (TIER I SECTORAL APPROACH)							
WORKSHEET	AUXILIARY WORKSHEET 2: ESTIMATING CARBON STORED IN PRODUCTS							
SHEET	1							
	A Feedstock Use	B Conversion Factor (TJ/Units)	C Feedstock Use (TJ)	D Carbon Emission Factor (t C/TJ)	E Carbon Content (t C)	F Carbon Content (Gg C)	G Fraction of Carbon Stored	H Carbon Stored ^(a) (Gg C)
FUEL TYPES			$C=(A \times B)$		$E=(C \times D)$	$F=(E \times 10^{-3})$		$H=(F \times G)$
Gas/Diesel Oil							0.5	
LPG							0.8	
Ethane							0.8	
Naphtha							0.8	
Natural Gas							0.33	
Other Fuels ^(b)								

(a) Enter the result of this calculation in Worksheet 2 Step by Step Calculation, in the *manufacturing industries and construction* sector.

(b) Please specify.

Key sources

In May 2000, the IPCC Plenary, at its 16th session held in Montreal, accepted the report on *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*,¹⁹ The report provides good practice guidance to assist countries in producing inventories that are neither over nor underestimates so far as can be judged, and in which uncertainties are reduced as far as practicable. It supports the development of inventories that are transparent, documented, consistent over time, complete, comparable, assessed for uncertainties, subject to quality control and quality assurance, and efficient in the use of resources. The report does not revise or replace the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, but provides a reference that complements and is consistent with those guidelines.

Methodological choice for individual source categories is important in managing overall inventory uncertainty. Generally, inventory uncertainty is lower when emissions are estimated using the most rigorous methods, but due to finite resources, this may not be feasible for every source category. To make the most efficient use of available resources, it is good practice to identify those source categories that have the greatest contribution to overall inventory uncertainty. By identifying these key source categories in the national inventory, inventory agencies can prioritise their efforts and improve their overall estimates. Such a process will lead to improved inventory quality, as well as greater confidence in the resulting emissions estimates. It is good practice for each inventory agency to identify its national key source categories in a systematic and objective manner.

A key source category is one that is prioritised within the national inventory system because its estimate has a significant influence on a country's total inventory of direct greenhouse gases in terms of the absolute level of emissions, the trend in emissions, or both.

Any inventory agency that has prepared an emissions inventory will be able to identify key source categories

in terms of their contribution to the absolute level of national emissions. For those inventory agencies that have prepared a time series, the quantitative determination of key source categories should include evaluation of both the absolute level and the trend in emissions. Evaluating only the influence of a source category on the overall level of emissions provides limited information about why the source category is key. Some key source categories may not be identified if the influence of their trend is not taken into account.

The *Good Practice Guidance* describes both a basic Tier 1 approach and a Tier 2 approach. The basic difference between the two approaches is that the Tier 2 approach accounts for uncertainty.

In each country's national inventory, certain source categories are particularly significant in terms of their contribution to the overall uncertainty of the inventory. It is important to identify these key source categories so that the resources available for inventory preparation may be prioritised and the best possible estimates prepared for the most significant source categories.

The results of the key source category determination will be most useful if the analysis is done at the appropriate level of detail. The *Good Practice Guidance* suggests at which levels of details the various IPCC Source Categories should be analysed. For example, the combustion of fossil fuels is a large emission source category that can be broken down into sub-source categories, and even to the level of individual plants or boilers. The following guidance describes good practice in determining the appropriate level of analysis to identify key source categories:

- The analysis should be performed at the level of IPCC source categories (i.e. at the level at which the IPCC methods are described). The analysis should be performed using CO₂-equivalent emissions calculated using the global warming potentials (GWPs) specified for the preparation of national greenhouse-gas inventories by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories (*UNFCCC Guidelines*).
- Each greenhouse gas emitted from a single source category should be considered separately, unless there are specific methodological reasons for treating gases collectively. For example, carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) are

19. The report on *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* is available from the IPCC Greenhouse Gas Inventories Programme (www.ipcc-nggip.iges.or.jp).

emitted from mobile sources. The key source category evaluation should be performed for each of these gases separately because methods, emission factors and related uncertainties differ for each gas. In contrast, a collective evaluation of hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) may be appropriate for some source categories, such as emissions from substitutes for Ozone Depleting Substances (ODS substitutes).

- Source categories that use the same emission factors based on common assumptions should be aggregated before analysis. This approach can also help deal with cross-correlations between source categories in the uncertainty analysis. The same pattern of aggregation should be used both to quantify uncertainties and to identify key source categories unless the associated activity data uncertainties are very different.

Quantitative approaches to identify key source categories

It is good practice for each inventory agency to identify its national key source categories in a systematic and objective manner, by performing a quantitative analysis of the relationships between the level and the trend of each source category's emissions and total national emissions.

Any inventory agency that has developed an emissions inventory will be able to perform the Tier 1 Level Assessment and identify the source categories whose level has a significant effect on total national emissions. Those inventory agencies that have developed emissions inventories for more than one year will also be able to perform the Tier 1 Trend Assessment and identify sources that are key because of their contribution to the total trend of national emissions. Both assessments are described in detail in the *Good Practice Guidance*.

For CO₂ emissions from stationary combustion, the *Good Practice Guidance* suggests that the emissions be disaggregated to the level where emission factors are distinguished. In most inventories, this will be the main fuel types. If emission factors are determined independently for some sub-source categories, these should be distinguished in the analysis.

When using the Tier 1 approach, key source categories are identified using a pre-determined cumulative emissions threshold. The pre-determined threshold is

based on an evaluation of several inventories, and is aimed at establishing a general level where 90% of inventory uncertainty will be covered by key source categories.

The Tier 1 method to identify key source categories of the national emissions inventory assesses the impacts of various source categories on the level and, if possible, on the trend. When national inventory estimates are available for several years, it is good practice to assess the contribution of each source category to both the level and trend of the national inventory. If only a single year's inventory is available, only a Level Assessment can be performed.

For the **Tier 1 Level Assessment**, the contribution of each source category to the total national inventory level is calculated according to Equation 1:

EQUATION 1

**Source Category Level Assessment =
Source Category Estimate / Total Estimate**

$$L_{x,t} = E_{x,t} / E_t$$

Where:

$L_{x,t}$ is the Level Assessment for source x in year t

Source category estimate ($E_{x,t}$) is the emission estimate of source category x in year t

Total estimate (E_t) is the total inventory estimate in year t

The value of the source category Level Assessment should be calculated separately for each source category, and the cumulative sum of all the entries is calculated. Key source categories are those that, when summed together in descending order of magnitude, add up to over 95% of the total. Any source category that meets the 95% threshold in any year should be identified as a key source category.

The **Tier 1 Trend Assessment** calculates the contribution of each source category trend to the trend in the total national inventory. This assessment will identify source categories that have a different trend to the trend of the overall inventory. As differences in trend are more significant to the overall inventory level for larger source categories, the result of the trend difference (i.e. the source category trend minus

total trend) is multiplied by the result of the level assessment ($L_{x,t}$ from Equation 1) to provide appropriate weighting. Thus, key source categories will be those where the source category trend diverges significantly from the total trend, weighted by the emission level of the source category.

If nationally derived source-level uncertainties are available, inventory agencies can use **Tier 2** to identify

key source categories. The Tier 2 approach is a more detailed analysis that builds on the Tier 1 approach, and it is likely to reduce the number of key source categories. Under Tier 2, the results of the Tier 1 analysis are multiplied by the relative uncertainty of each source category. In this case, the pre-determined threshold applies to the cumulative uncertainty and not to the cumulative emissions. Key source categories are those that together represent 90% of total uncertainty.

PART II:

**CO₂ EMISSIONS FROM FUEL
COMBUSTION**

SUMMARY TABLES

CO₂ emissions: Sectoral Approachmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Non-OECD Total *	4 204.1	5 379.0	6 795.9	7 667.5	9 194.8	9 414.1	10 033.8	13 168.7	14 850.7	15 607.5	15 939.0	73.3%
Algeria	8.7	14.0	28.4	43.2	51.7	55.6	62.4	78.5	85.7	88.1	92.5	79.1%
Angola	1.7	2.0	2.7	2.9	4.0	4.0	5.1	7.0	10.4	12.2	12.9	222.1%
Benin	0.3	0.5	0.4	0.5	0.3	0.2	1.4	2.7	3.7	3.8	4.2	+
Botswana	..	..	..	1.6	2.9	3.3	4.2	4.4	4.4	4.5	4.2	42.5%
Cameroon	0.7	1.0	1.7	2.4	2.7	2.5	2.8	2.9	4.1	4.3	4.8	79.2%
Congo	0.6	0.7	0.8	0.8	0.7	0.5	0.6	0.9	1.2	1.5	1.7	138.1%
Dem. Rep. of Congo	2.5	2.6	3.1	3.2	3.0	2.1	1.7	2.3	2.6	2.8	2.9	-3.1%
Côte d'Ivoire	2.4	3.0	3.4	3.0	2.6	3.2	6.1	5.8	5.7	6.5	6.1	131.4%
Egypt	20.4	25.9	42.3	65.5	79.2	84.0	110.2	151.9	168.7	174.0	175.4	121.4%
Eritrea	..	..	..	..	..	0.8	0.6	0.6	0.5	0.5	0.5	..
Ethiopia	1.3	1.2	1.4	1.4	2.2	2.3	3.2	4.8	6.0	6.8	7.4	235.7%
Gabon	0.5	0.7	1.3	1.7	0.9	1.3	1.4	2.1	2.4	2.3	1.7	88.0%
Ghana	1.9	2.3	2.3	2.2	2.7	3.3	5.1	6.4	8.2	7.3	9.0	233.0%
Kenya	3.2	3.5	4.5	4.6	5.5	5.6	6.8	7.2	8.3	8.6	10.0	82.0%
Libyan Arab Jamahiriya	3.7	9.2	18.6	22.5	27.4	35.1	39.7	42.5	43.1	47.0	50.0	83.0%
Morocco	6.8	9.9	14.0	16.5	19.6	25.3	28.3	38.6	40.5	42.1	41.3	110.3%
Mozambique	2.9	2.3	2.3	1.5	1.1	1.1	1.3	1.5	2.1	2.0	2.2	106.8%
Namibia	..	..	..	..	..	1.8	1.9	2.9	3.3	4.2	3.7	..
Nigeria	5.9	11.7	26.7	32.4	29.2	31.1	39.4	50.4	44.1	49.6	41.2	41.3%
Senegal	1.2	1.6	2.0	2.1	2.0	2.5	3.6	4.6	5.0	5.1	5.3	161.4%
South Africa	173.8	209.2	214.5	229.1	254.7	276.9	298.2	330.3	356.5	388.4	369.4	45.0%
Sudan	3.3	3.3	3.7	4.2	5.5	4.6	5.5	10.0	12.0	12.1	13.3	140.9%
United Rep. of Tanzania	1.5	1.5	1.6	1.5	1.7	2.5	2.6	5.1	5.5	5.8	6.3	267.0%
Togo	0.3	0.3	0.4	0.3	0.6	0.6	1.0	1.0	0.9	1.1	1.1	97.5%
Tunisia	3.7	4.8	7.8	9.6	12.1	14.2	18.0	19.5	20.6	20.9	20.8	72.0%
Zambia	3.4	4.4	3.4	2.8	2.6	2.0	1.7	2.1	1.4	1.6	1.7	-34.9%
Zimbabwe	7.2	7.2	8.0	9.6	16.0	14.8	12.7	10.4	9.3	8.8	8.7	-45.9%
Other Africa	7.6	9.2	13.3	11.8	14.7	16.9	19.3	25.0	27.9	29.5	29.4	100.6%
Africa	265.7	332.1	408.3	476.9	545.4	598.4	684.6	821.7	884.2	941.2	927.5	70.1%
Bangladesh	3.2	4.7	7.2	8.8	13.6	20.5	25.3	36.5	42.0	46.4	50.7	273.5%
Brunei Darussalam	0.4	1.4	2.6	2.9	3.4	4.7	4.6	5.1	7.1	7.5	8.1	141.5%
Cambodia	..	..	..	..	..	1.4	2.4	3.7	4.4	4.6	4.3	..
Chinese Taipei	31.0	42.5	72.2	71.7	114.3	156.5	217.3	258.9	272.3	261.3	250.1	118.8%
India	200.2	241.2	283.3	411.0	582.3	776.6	972.5	1 160.4	1 357.2	1 431.3	1 585.8	172.3%
Indonesia	25.1	38.0	68.8	88.0	142.2	202.1	264.0	336.4	365.5	343.5	376.3	164.7%
DPR of Korea	67.5	76.7	105.6	126.4	114.0	74.9	68.8	74.3	62.4	69.4	66.2	-41.9%
Malaysia	12.7	16.1	24.2	33.4	48.9	78.5	111.1	152.8	171.3	181.7	164.2	235.6%
Mongolia	..	..	..	11.6	12.7	10.1	8.8	9.5	11.1	11.2	12.0	-5.3%
Myanmar	4.5	3.9	5.1	5.8	4.0	6.7	8.1	13.4	12.5	11.9	10.1	154.7%
Nepal	0.2	0.3	0.5	0.5	0.9	1.7	3.1	3.0	2.5	2.8	3.4	284.9%
Pakistan	16.6	20.9	26.1	39.1	58.6	79.5	97.3	117.2	138.6	133.0	136.9	133.7%
Philippines	23.1	29.1	33.3	28.6	38.1	57.0	67.9	71.3	68.9	71.0	70.5	85.1%
Singapore	6.0	8.4	12.7	16.3	28.8	37.5	40.2	44.1	45.6	46.1	44.8	55.7%
Sri Lanka	2.8	2.7	3.7	3.6	3.7	5.5	10.6	13.4	13.0	12.2	12.7	238.1%
Thailand	15.9	20.7	33.2	41.4	80.1	140.3	161.8	219.1	231.9	237.8	227.8	184.5%
Vietnam	16.1	16.7	14.8	17.1	17.2	27.8	44.0	80.8	93.1	102.1	114.1	563.2%
Other Asia	8.4	10.2	16.5	10.1	10.2	9.3	11.3	15.6	14.6	14.5	15.2	48.9%
Asia	433.6	533.5	709.7	916.3	1 273.0	1 690.7	2 119.2	2 615.5	2 914.0	2 988.3	3 153.2	147.7%
People's Rep. of China	800.4	1 051.2	1 405.3	1 704.9	2 211.3	2 986.1	3 037.3	5 062.4	6 028.4	6 506.8	6 831.6	208.9%
Hong Kong, China	9.2	10.8	14.5	22.0	32.8	36.0	39.8	40.7	43.4	42.2	45.6	38.9%
China	809.6	1 062.0	1 419.8	1 726.9	2 244.1	3 022.1	3 077.2	5 103.1	6 071.8	6 549.0	6 877.2	206.5%

* Includes Estonia and Slovenia prior to 1990.

CO₂ emissions: Sectoral Approach - Coal/peatmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
World *	5 198.9	5 605.7	6 556.3	7 368.5	8 303.9	8 538.9	8 817.8	11 003.3	12 228.2	12 591.6	12 493.1	50.4%
<i>Annex I Parties</i>	..	..	..	..	5 111.1	4 596.9	4 712.0	4 762.6	4 876.2	4 710.9	4 231.4	-17.2%
<i>Annex II Parties</i>	2 645.9	2 604.8	2 962.8	3 318.4	3 486.5	3 401.9	3 657.4	3 749.5	3 778.7	3 628.9	3 224.5	-7.5%
<i>North America</i>	1 140.5	1 253.0	1 481.2	1 725.0	1 896.2	1 999.7	2 252.2	2 239.5	2 234.4	2 191.9	1 918.9	1.2%
<i>Europe</i>	1 234.0	1 059.0	1 182.9	1 224.1	1 155.4	925.7	842.6	849.7	870.3	795.8	686.2	-40.6%
<i>Asia Oceania</i>	271.5	292.9	298.7	369.4	434.9	476.5	562.6	660.3	674.0	641.2	619.4	42.4%
<i>Annex I EIT</i>	..	..	..	..	1 566.0	1 134.1	965.7	926.8	982.1	966.6	894.6	-42.9%
<i>Non-Annex I Parties</i>	..	..	..	..	3 192.8	3 942.0	4 105.9	6 240.7	7 352.0	7 880.7	8 261.7	158.8%
<i>Annex I Kyoto Parties</i>	..	..	..	..	3 245.9	2 634.5	2 494.4	2 550.3	2 640.7	2 507.9	2 285.1	-29.6%
Intl. marine bunkers	0.1	-	-	-	-	-	-	-	-	-	-	-
Intl. aviation bunkers	-	-	-	-	-	-	-	-	-	-	-	-
Non-OECD Total **	2 065.4	2 471.5	2 957.8	3 337.4	4 149.4	4 513.5	4 487.4	6 567.0	7 701.0	8 211.1	8 521.8	105.4%
OECD Total ***	3 133.4	3 134.1	3 598.6	4 031.1	4 154.5	4 025.4	4 330.4	4 436.3	4 527.2	4 380.5	3 971.3	-4.4%
Canada	61.7	56.6	80.5	99.4	98.8	103.3	127.0	115.8	116.3	106.2	86.7	-12.2%
Chile	5.0	3.5	4.7	4.8	9.8	9.0	11.9	10.0	14.5	16.5	14.9	51.6%
Mexico	5.2	6.6	7.2	11.6	14.2	25.4	26.6	37.8	36.1	27.1	33.7	137.0%
United States	1 078.7	1 196.4	1 400.7	1 625.5	1 797.4	1 896.4	2 125.1	2 123.7	2 118.1	2 085.7	1 832.1	1.9%
OECD Americas	1 150.6	1 263.1	1 493.2	1 741.4	1 920.3	2 034.1	2 290.6	2 287.4	2 284.9	2 235.5	1 967.5	2.5%
Australia	73.2	90.3	104.0	116.7	137.1	152.4	189.3	222.1	218.0	219.0	220.9	61.1%
Israel	0.0	0.0	0.0	7.2	8.9	15.7	24.4	30.1	31.3	29.6	28.8	224.7%
Japan	194.1	197.7	190.8	248.8	293.4	319.9	369.1	429.8	449.9	414.5	392.4	33.7%
Korea	21.2	30.6	48.1	80.2	86.3	101.6	173.5	193.8	211.3	236.5	252.5	192.5%
New Zealand	4.2	4.8	3.8	3.9	4.3	4.2	4.2	8.4	6.2	7.7	6.1	41.3%
OECD Asia Oceania	292.7	323.5	346.8	456.7	530.1	593.9	760.5	884.2	916.6	907.3	900.8	69.9%
Austria	15.9	13.5	13.7	16.9	16.1	13.8	14.4	15.9	15.8	15.6	11.4	-28.9%
Belgium	42.2	37.0	40.2	37.8	39.0	33.4	29.0	19.1	16.4	16.7	10.6	-72.8%
Czech Republic	129.2	121.7	129.5	136.1	120.7	88.5	83.9	76.2	79.9	75.2	70.0	-42.0%
Denmark	6.0	8.0	23.8	28.4	23.7	25.3	15.4	14.4	18.1	15.9	15.7	-33.9%
Estonia	..	..	..	..	24.1	11.3	10.5	12.0	14.2	12.9	10.6	-55.9%
Finland	8.4	9.3	19.6	19.8	21.1	23.2	20.9	20.0	29.1	22.3	21.6	2.4%
France	135.3	104.2	121.2	91.3	73.6	57.5	57.5	53.8	53.4	51.1	44.2	-39.9%
Germany	554.1	494.5	552.2	580.7	504.6	370.1	337.2	332.3	348.7	328.3	290.1	-42.5%
Greece	6.8	11.0	13.4	24.9	33.4	36.4	37.6	37.8	36.6	35.4	35.1	5.1%
Hungary	34.9	32.9	36.3	34.5	24.2	17.0	15.2	12.2	11.9	11.6	9.9	-58.9%
Iceland	0.0	-	0.1	0.3	0.3	0.2	0.4	0.4	0.5	0.3	0.3	20.5%
Ireland	8.8	7.1	8.0	10.5	13.7	11.6	10.3	10.5	8.9	9.2	8.2	-40.1%
Italy	31.7	30.2	43.0	58.1	55.1	44.9	43.3	62.8	61.0	58.9	46.8	-14.9%
Luxembourg	11.3	7.5	7.9	6.3	5.0	2.1	0.5	0.3	0.3	0.3	0.3	-94.0%
Netherlands	14.4	11.5	13.8	23.1	31.8	33.1	29.1	30.3	31.4	29.8	27.6	-13.3%
Norway	3.7	3.9	3.9	4.4	3.4	4.1	4.2	3.0	2.9	3.0	2.2	-36.9%
Poland	252.5	289.7	350.9	359.8	285.6	268.1	216.8	206.6	211.7	205.3	193.9	-32.1%
Portugal	2.4	1.6	1.6	2.9	10.6	13.9	14.7	13.1	11.2	9.8	11.1	4.7%
Slovak Republic	23.5	23.7	32.0	33.3	30.7	21.1	16.0	15.6	15.8	15.1	14.4	-53.1%
Slovenia	..	..	..	..	5.7	4.9	5.5	6.3	6.5	6.2	5.8	1.9%
Spain	36.9	37.5	47.9	69.4	74.1	71.8	81.5	80.2	78.7	53.4	40.9	-44.8%
Sweden	5.4	6.9	5.4	10.6	10.4	9.4	8.1	9.8	8.9	8.9	6.1	-41.5%
Switzerland	2.0	1.0	1.4	2.0	1.4	0.8	0.6	0.6	0.7	0.6	0.6	-57.7%
Turkey	16.0	20.7	26.8	45.1	57.9	60.7	88.9	86.3	115.4	115.4	112.3	94.0%
United Kingdom	348.4	274.2	266.1	236.8	238.2	174.1	138.1	145.1	147.7	136.2	113.4	-52.4%
OECD Europe ***	1 690.1	1 547.6	1 758.6	1 833.0	1 704.2	1 397.4	1 279.3	1 264.8	1 325.7	1 237.7	1 103.0	-35.3%
<i>European Union - 27</i>	..	..	..	..	1 734.5	1 404.1	1 240.4	1 236.9	1 276.8	1 187.4	1 045.2	-39.7%

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

** Includes Estonia and Slovenia prior to 1990.

*** Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions: Sectoral Approach - Coal/peatmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Non-OECD Total *	2 065.4	2 471.5	2 957.8	3 337.4	4 149.4	4 513.5	4 487.4	6 567.0	7 701.0	8 211.1	8 521.8	105.4%
Algeria	0.4	0.3	0.2	1.0	1.3	1.4	0.7	1.0	1.2	1.2	0.7	-42.9%
Angola	-	-	-	-	-	-	-	-	-	-	-	-
Benin	-	-	-	-	-	-	-	-	-	-	-	-
Botswana	..	..	..	1.1	1.9	2.2	2.5	2.4	2.1	1.9	1.7	-14.6%
Cameroon	-	-	-	-	-	-	-	-	-	-	-	-
Congo	-	-	-	-	-	-	-	-	-	-	-	-
Dem. Rep. of Congo	1.0	0.8	0.8	0.8	0.9	1.0	0.8	1.0	1.1	1.1	1.2	34.9%
Côte d'Ivoire	-	-	-	-	-	-	-	-	-	-	-	-
Egypt	1.3	2.1	2.1	2.7	2.7	2.8	3.3	3.2	3.1	3.0	2.9	8.4%
Eritrea	..	..	..	..	..	-	-	-	-	-	-	..
Ethiopia	-	-	-	-	-	-	-	-	-	-	-	-
Gabon	-	-	-	-	-	-	-	-	-	-	-	-
Ghana	-	-	-	-	-	-	-	-	-	-	-	-
Kenya	0.2	0.1	0.0	0.2	0.4	0.2	0.2	0.2	0.3	0.3	0.2	-37.1%
Libyan Arab Jamahiriya	-	-	-	-	-	-	-	-	-	-	-	-
Morocco	1.2	1.7	1.6	2.7	4.1	6.1	9.2	11.3	11.5	10.2	9.4	127.3%
Mozambique	1.5	1.2	0.7	0.2	0.1	0.1	-	-	0.0	0.0	0.0	-82.8%
Namibia	..	..	..	..	..	0.0	0.0	0.0	0.2	0.9	0.4	..
Nigeria	0.5	0.6	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	-89.5%
Senegal	-	-	-	-	-	-	-	0.4	0.5	0.5	0.6	x
South Africa	146.3	175.1	179.4	189.5	208.3	227.3	248.1	271.1	285.9	313.4	295.4	41.9%
Sudan	-	-	0.0	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	-	-	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	+
Togo	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-	-	-	-	..
Zambia	2.0	1.9	1.4	1.1	0.9	0.3	0.3	0.3	0.0	0.0	0.0	-99.5%
Zimbabwe	5.6	5.0	6.1	7.5	13.4	11.2	9.7	8.3	7.4	6.9	6.8	-48.8%
Other Africa	0.5	0.7	0.6	0.7	1.0	0.7	1.6	1.8	2.3	2.5	2.5	154.9%
Africa	160.7	190.0	193.6	208.2	235.4	253.8	276.8	301.3	315.7	342.2	322.2	36.9%
Bangladesh	0.4	0.5	0.5	0.2	1.1	1.2	1.3	1.4	1.7	2.4	2.4	123.3%
Brunei Darussalam	-	-	-	-	-	-	-	-	-	-	-	-
Cambodia	..	..	..	..	..	-	-	-	-	-	-	..
Chinese Taipei	10.0	8.4	14.7	26.4	42.3	63.2	108.9	143.7	156.7	150.0	144.2	240.8%
India	142.6	176.1	195.4	283.7	395.9	517.3	623.6	782.1	925.6	977.7	1 080.4	172.9%
Indonesia	0.5	0.5	0.5	4.5	17.6	26.0	47.3	85.8	127.7	103.6	110.6	529.7%
DPR of Korea	64.9	72.5	97.5	119.0	106.1	70.9	65.7	71.4	59.8	66.7	64.2	-39.5%
Malaysia	0.0	0.0	0.2	1.1	4.0	4.8	6.9	26.7	34.3	38.0	41.2	923.7%
Mongolia	..	..	..	9.4	10.2	9.0	7.5	7.8	8.8	8.7	9.7	-5.6%
Myanmar	0.6	0.6	0.6	0.6	0.3	0.1	0.2	0.4	0.5	0.5	0.6	113.6%
Nepal	0.0	0.1	0.2	0.0	0.2	0.3	1.0	1.0	0.8	0.7	0.7	360.0%
Pakistan	2.5	2.2	2.6	4.8	7.1	7.8	6.7	13.7	21.1	16.8	16.5	133.4%
Philippines	0.1	0.2	1.5	5.4	5.2	7.0	19.7	22.5	22.9	26.9	25.7	392.5%
Singapore	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	78.1%
Sri Lanka	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2	0.2	980.5%
Thailand	0.5	0.6	1.9	6.5	16.1	29.4	31.4	46.9	55.4	60.4	58.5	264.5%
Vietnam	5.6	10.0	9.2	11.3	9.0	13.4	17.6	32.8	39.9	47.5	50.8	466.6%
Other Asia	4.1	4.3	7.7	0.9	0.8	0.5	1.4	1.9	1.8	2.2	2.3	179.4%
Asia	231.9	276.1	332.5	474.1	615.9	751.2	939.4	1 238.6	1 457.4	1 502.5	1 608.2	161.1%
People's Rep. of China	677.9	837.9	1 125.0	1 435.4	1 889.3	2 538.9	2 433.1	4 169.6	5 002.0	5 431.9	5 720.0	202.8%
Hong Kong, China	0.1	0.1	0.2	12.8	24.4	24.4	17.7	27.2	30.7	28.5	30.8	26.5%
China	678.0	838.1	1 125.2	1 448.1	1 913.7	2 563.2	2 450.9	4 196.8	5 032.7	5 460.4	5 750.8	200.5%

* Includes Estonia and Slovenia prior to 1990.

CO₂ emissions: Sectoral Approach - Coal/peatmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Bahrain	-	-	-	-	-	-	-	-	-	-	-	-
Islamic Republic of Iran	0.5	2.5	2.3	1.9	1.5	2.2	3.4	4.7	4.9	3.6	3.2	119.7%
Iraq	-	-	-	-	-	-	-	-	-	-	-	-
Jordan	-	-	-	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-	-	-	-
Lebanon	0.0	0.0	0.0	-	-	0.5	0.5	0.5	0.5	0.5	0.5	x
Oman	-	-	-	-	-	-	-	-	-	-	-	-
Qatar	-	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-	-	-	-
Syrian Arab Republic	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	x
United Arab Emirates	-	-	-	-	-	-	-	-	-	-	-	-
Yemen	-	-	-	-	-	-	-	-	-	-	-	-
Middle East	0.5	2.6	2.4	1.9	1.5	2.7	3.9	5.2	5.4	4.2	3.7	155.7%
Albania	1.2	1.6	2.5	3.7	2.4	0.1	0.1	0.1	0.1	0.1	0.3	-87.5%
Armenia *	..	..	..	..	1.0	0.0	-	-	0.0	-	-	..
Azerbaijan *	..	..	..	..	0.3	0.0	-	-	-	-	-	..
Belarus *	..	..	..	..	9.2	5.2	3.5	2.3	2.1	1.9	1.9	-79.8%
Bosnia and Herzegovina *	..	..	..	..	17.3	1.4	9.9	11.7	13.6	15.0	15.0	-13.8%
Bulgaria	33.2	35.0	37.8	42.2	36.8	29.6	25.3	27.7	31.5	30.8	26.1	-29.1%
Croatia *	..	..	..	..	3.4	0.7	1.7	2.7	2.7	2.8	2.0	-41.0%
Cyprus	..	..	..	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	-75.6%
Georgia *	..	..	..	..	3.4	0.1	0.0	0.0	0.1	0.3	0.8	-77.2%
Gibraltar	-	-	-	-	-	-	-	-	-	-	-	-
Kazakhstan *	..	..	..	..	153.3	111.1	75.1	102.4	115.4	124.4	116.6	-24.0%
Kyrgyzstan *	..	..	..	..	10.0	1.3	1.9	2.2	2.2	2.2	2.4	-76.0%
Latvia *	..	..	..	..	2.7	1.1	0.5	0.3	0.4	0.4	0.3	-87.9%
Lithuania *	..	..	..	..	3.1	1.0	0.4	0.8	1.0	0.9	0.6	-79.7%
FYR of Macedonia *	..	..	..	..	5.5	5.9	5.5	6.0	6.0	6.2	5.5	1.0%
Malta	-	-	-	0.5	0.7	0.1	-	-	-	-	-	..
Republic of Moldova *	..	..	..	..	7.8	2.3	0.4	0.3	0.2	0.3	0.3	-95.9%
Romania	31.2	38.0	48.9	57.6	49.7	40.5	28.7	33.5	37.6	37.0	30.4	-38.9%
Russian Federation *	..	..	..	..	687.1	483.9	441.4	407.3	418.8	421.7	404.9	-41.1%
Serbia *	..	..	..	..	41.3	36.2	35.0	33.3	33.2	34.6	32.7	-20.9%
Tajikistan *	..	..	..	..	2.5	0.1	0.0	0.2	0.3	0.4	0.4	-85.6%
Turkmenistan *	..	..	..	..	1.2	-	-	-	-	-	-	..
Ukraine *	..	..	..	..	283.0	161.2	116.3	123.4	148.1	144.7	123.9	-56.2%
Uzbekistan *	..	..	..	..	13.7	4.4	5.1	4.6	5.2	5.1	5.5	-59.8%
Former Soviet Union *	875.2	1 028.9	1 141.8	982.9	..	..	..	..	..	..	..	..
Former Yugoslavia *	35.8	40.5	42.6	72.4	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	976.6	1 143.9	1 273.5	1 159.5	1 335.7	886.3	751.1	758.9	818.6	828.9	769.5	-42.4%
Argentina	3.5	3.7	3.3	3.7	3.9	4.9	4.5	5.2	6.5	7.7	7.8	97.8%
Bolivia	-	-	-	0.2	-	-	-	-	-	-	-	-
Brazil	7.0	8.7	17.8	30.1	29.1	36.7	44.9	44.2	46.4	46.9	38.2	31.1%
Colombia	5.6	6.6	7.5	8.8	10.7	12.4	11.4	9.7	9.5	9.7	11.3	6.1%
Costa Rica	0.0	0.0	0.0	0.0	0.0	-	-	0.1	0.3	0.3	0.3	+
Cuba	0.3	0.2	0.5	0.6	0.7	0.4	0.3	0.3	0.3	0.3	0.3	-62.4%
Dominican Republic	-	-	-	0.5	0.0	0.2	0.2	1.1	2.1	2.2	2.2	+
Ecuador	-	-	-	-	-	-	-	-	-	-	-	-
El Salvador	-	-	0.0	-	-	0.0	0.0	0.0	-	-	-	-
Guatemala	-	-	0.1	-	-	-	0.5	1.4	1.6	1.6	3.4	x
Haiti	-	-	-	0.1	0.0	-	-	-	-	-	-	..
Honduras	-	-	-	-	0.0	0.0	0.3	0.4	0.2	0.2	0.2	+
Jamaica	-	-	-	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-1.9%
Netherlands Antilles	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-
Panama	0.0	0.0	-	0.1	0.1	0.1	0.1	-	-	-	-	..
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	0.5	0.6	0.6	0.7	0.6	1.4	2.4	3.5	4.1	3.7	3.3	469.1%
Trinidad and Tobago	-	-	-	-	-	-	-	-	-	-	-	-
Uruguay	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-70.5%
Venezuela	0.6	1.0	0.6	0.7	1.8	0.0	0.5	0.1	0.2	0.2	0.2	-88.9%
Other Latin America	0.1	0.1	0.1	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	299.9%
Latin America	17.7	20.9	30.5	45.6	47.1	56.2	65.3	66.2	71.2	73.0	67.3	42.7%

* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO₂ emissions: Sectoral Approach - Oil

 million tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
World *	6 826.5	7 787.0	8 722.7	8 089.4	8 818.2	9 080.7	9 880.1	10 715.9	10 965.5	10 867.2	10 630.8	20.6%
<i>Annex I Parties</i>	..	..	..	..	5 687.3	5 334.4	5 489.5	5 656.3	5 503.4	5 302.7	5 035.3	-11.5%
<i>Annex II Parties</i>	4 522.9	4 773.7	4 914.7	4 232.8	4 486.1	4 626.4	4 852.6	5 024.1	4 842.4	4 635.1	4 387.7	-2.2%
<i>North America</i>	2 232.9	2 341.6	2 427.9	2 164.8	2 251.2	2 265.8	2 517.9	2 705.0	2 630.5	2 479.9	2 354.9	4.6%
<i>Europe</i>	1 657.7	1 700.3	1 750.2	1 431.1	1 478.2	1 562.3	1 567.1	1 577.3	1 503.9	1 493.7	1 410.0	-4.6%
<i>Asia Oceania</i>	632.3	731.8	736.6	636.9	756.7	798.4	767.6	741.7	708.0	661.5	622.7	-17.7%
<i>Annex I EIT</i>	..	..	..	..	1 137.2	626.8	552.1	552.4	579.7	587.2	568.7	-50.0%
<i>Non-Annex I Parties</i>	..	..	..	..	2 517.1	3 047.8	3 565.4	4 095.6	4 406.5	4 516.7	4 579.8	81.9%
<i>Annex I Kyoto Parties</i>	..	..	..	..	3 493.7	3 169.1	3 101.6	3 122.7	3 037.6	2 985.7	2 830.7	-19.0%
Intl. marine bunkers	342.7	328.6	345.1	293.9	357.9	413.7	480.0	556.1	624.5	608.1	592.2	65.5%
Intl. aviation bunkers	167.7	172.0	200.0	222.8	255.9	284.7	345.2	407.8	431.2	439.7	423.4	65.5%
Non-OECD Total **	1 563.5	2 188.3	2 825.2	2 892.2	3 169.7	3 071.1	3 477.9	4 007.0	4 324.3	4 457.1	4 517.9	42.5%
OECD Total ***	4 752.7	5 098.0	5 352.4	4 680.4	5 034.8	5 311.1	5 577.1	5 744.8	5 585.6	5 362.3	5 097.2	1.2%
Canada	209.8	233.2	246.7	188.8	209.4	212.2	237.1	272.2	267.8	264.2	253.9	21.2%
Chile	14.5	12.4	15.1	13.0	19.1	27.8	30.4	34.4	45.4	47.5	45.5	137.5%
Mexico	71.7	106.5	161.6	186.5	198.6	215.3	256.1	259.3	265.8	264.2	254.3	28.1%
United States	2 023.0	2 108.4	2 181.2	1 976.0	2 041.8	2 053.5	2 280.8	2 432.8	2 362.7	2 215.6	2 101.0	2.9%
OECD Americas	2 319.1	2 460.5	2 604.6	2 364.3	2 468.9	2 508.9	2 804.4	2 998.8	2 941.7	2 791.6	2 654.7	7.5%
Australia	66.8	80.8	87.3	79.9	89.3	94.6	104.7	110.8	111.2	114.3	113.1	26.7%
Israel	14.2	17.0	19.4	17.3	24.2	30.1	30.4	26.9	30.2	29.9	27.4	13.0%
Japan	556.2	639.4	638.6	547.4	655.4	689.5	647.1	613.0	578.6	528.7	492.0	-24.9%
Korea	30.9	46.2	76.2	73.1	135.3	234.1	219.6	203.8	197.5	181.1	182.1	34.5%
New Zealand	9.3	11.6	10.7	9.6	12.0	14.3	15.8	17.9	18.2	18.4	17.5	46.5%
OECD Asia Oceania	677.4	795.0	832.3	727.2	916.3	1 062.5	1 017.7	972.5	935.7	872.4	832.1	-9.2%
Austria	27.2	29.2	33.0	26.9	27.7	29.8	31.2	38.1	35.8	34.5	32.9	18.6%
Belgium	63.3	60.4	65.0	46.7	48.7	55.4	56.9	57.9	51.9	57.0	52.2	7.2%
Czech Republic	19.9	27.9	30.6	27.9	23.0	20.5	20.2	24.9	25.1	24.5	23.8	3.6%
Denmark	49.0	44.2	38.5	30.2	22.0	24.4	23.5	21.7	22.0	21.1	20.2	-8.3%
Estonia	..	..	..	..	9.3	3.5	2.7	3.1	3.2	3.1	2.8	-69.6%
Finland	31.4	33.6	33.9	26.9	28.2	26.2	24.3	26.4	26.6	25.6	24.8	-11.9%
France	277.3	293.5	292.8	214.5	220.1	227.3	234.0	237.0	227.9	223.8	217.0	-1.4%
Germany	385.7	392.4	385.9	326.6	323.1	345.8	324.0	295.7	261.9	283.3	271.0	-16.1%
Greece	18.4	23.5	32.0	29.6	36.5	39.1	45.7	51.7	53.5	50.7	48.5	32.9%
Hungary	18.6	27.2	29.8	27.0	22.7	19.8	17.3	16.8	17.7	17.2	17.2	-24.4%
Iceland	1.4	1.6	1.7	1.4	1.6	1.7	1.7	1.8	1.9	1.9	1.7	3.8%
Ireland	12.9	14.0	16.2	11.4	12.1	15.7	22.9	24.9	25.0	24.3	21.1	73.7%
Italy	237.3	248.6	267.5	229.6	252.3	261.1	248.0	231.8	221.9	211.6	191.1	-24.3%
Luxembourg	4.1	3.8	3.0	2.9	4.4	4.7	5.9	8.2	7.5	7.5	7.0	57.5%
Netherlands	68.1	56.8	83.5	55.6	52.7	57.8	60.7	68.5	70.1	69.9	64.7	22.7%
Norway	19.8	19.8	22.0	19.8	20.0	20.4	21.0	22.8	24.0	22.9	23.0	15.0%
Poland	21.9	33.5	42.8	39.2	34.5	40.9	51.5	57.9	62.9	63.9	63.8	84.9%
Portugal	12.0	16.5	22.2	21.8	28.7	34.4	39.8	40.4	35.3	33.3	31.8	11.0%
Slovak Republic	12.6	15.2	18.1	14.3	14.4	7.1	6.8	9.1	9.5	9.7	8.8	-38.5%
Slovenia	..	..	..	..	5.0	6.7	6.7	7.2	7.3	8.4	7.4	47.2%
Spain	82.4	117.3	136.9	101.6	120.9	143.1	166.8	191.4	190.2	181.8	168.5	39.3%
Sweden	77.1	72.5	67.6	47.3	40.1	45.4	41.5	36.6	33.7	31.9	31.0	-22.8%
Switzerland	36.9	34.8	36.0	35.8	34.2	33.5	33.3	34.2	31.9	33.1	32.1	-6.1%
Turkey	25.4	38.5	44.1	49.4	62.5	78.9	82.7	77.1	78.6	77.8	76.5	22.4%
United Kingdom	253.5	238.0	212.7	202.5	204.7	196.4	185.8	188.1	182.8	179.6	171.6	-16.2%
OECD Europe ***	1 756.2	1 842.6	1 915.6	1 588.9	1 649.6	1 739.7	1 755.0	1 773.6	1 708.2	1 698.3	1 610.4	-2.4%
<i>European Union - 27</i>	..	..	..	..	1 642.6	1 672.5	1 671.7	1 698.6	1 633.9	1 623.9	1 533.4	-6.6%

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

** Includes Estonia and Slovenia prior to 1990.

*** Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions: Sectoral Approach - Oilmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Non-OECD Total *	1 563.5	2 188.3	2 825.2	2 892.2	3 169.7	3 071.1	3 477.9	4 007.0	4 324.3	4 457.1	4 517.9	42.5%
Algeria	5.9	9.1	14.8	20.5	23.0	21.8	24.1	30.6	34.3	36.1	38.5	67.7%
Angola	1.6	1.9	2.5	2.7	3.0	2.9	4.0	5.8	8.8	10.9	11.6	289.3%
Benin	0.3	0.5	0.4	0.5	0.3	0.2	1.4	2.7	3.7	3.8	4.2	+
Botswana	..	..	..	0.5	1.0	1.2	1.7	2.0	2.3	2.6	2.5	155.4%
Cameroon	0.7	1.0	1.7	2.4	2.7	2.5	2.8	2.9	3.5	3.7	4.3	61.2%
Congo	0.6	0.7	0.8	0.8	0.7	0.5	0.6	0.9	1.1	1.4	1.6	122.8%
Dem. Rep. of Congo	1.5	1.8	2.3	2.4	2.1	1.1	0.8	1.3	1.5	1.7	1.7	-19.6%
Côte d'Ivoire	2.4	3.0	3.4	3.0	2.6	3.1	3.2	2.9	2.7	3.4	3.0	14.1%
Egypt	18.9	23.6	36.9	54.8	61.6	58.2	66.9	83.0	92.0	92.0	90.9	47.6%
Eritrea	..	..	..	..	..	0.8	0.6	0.6	0.5	0.5	0.5	..
Ethiopia	1.3	1.2	1.4	1.4	2.2	2.3	3.2	4.8	6.0	6.8	7.4	235.7%
Gabon	0.5	0.7	1.3	1.6	0.7	1.1	1.1	1.9	2.1	2.0	1.3	93.7%
Ghana	1.9	2.3	2.3	2.2	2.7	3.3	5.1	6.4	8.2	7.3	9.0	233.0%
Kenya	3.0	3.4	4.4	4.4	5.1	5.4	6.6	7.0	8.1	8.3	9.8	90.3%
Libyan Arab Jamahiriya	1.6	6.7	13.1	15.5	18.3	26.6	30.9	32.1	31.8	35.2	38.2	108.4%
Morocco	5.6	8.1	12.3	13.6	15.4	19.2	19.0	26.4	27.7	30.8	30.7	99.1%
Mozambique	1.4	1.1	1.6	1.2	0.9	1.0	1.3	1.5	1.9	1.8	2.0	113.2%
Namibia	..	..	..	..	..	1.8	1.9	2.9	3.2	3.3	3.3	..
Nigeria	5.0	10.1	23.4	25.2	22.1	21.9	27.4	33.7	25.7	31.4	28.6	29.7%
Senegal	1.2	1.6	2.0	2.1	2.0	2.4	3.6	4.2	4.4	4.5	4.6	130.9%
South Africa	27.5	34.1	35.1	39.6	46.4	49.6	50.1	59.2	70.6	75.0	73.9	59.3%
Sudan	3.3	3.3	3.7	4.2	5.5	4.6	5.5	10.0	12.0	12.1	13.3	140.9%
United Rep. of Tanzania	1.5	1.5	1.6	1.5	1.7	2.4	2.4	4.2	4.2	4.5	4.8	181.0%
Togo	0.3	0.3	0.4	0.3	0.6	0.6	1.0	1.0	0.9	1.1	1.1	97.5%
Tunisia	3.4	4.0	6.7	7.1	9.0	9.4	11.3	12.1	11.9	11.3	10.7	19.9%
Zambia	1.5	2.5	1.9	1.7	1.7	1.7	1.4	1.7	1.4	1.6	1.7	-3.1%
Zimbabwe	1.6	2.1	1.8	2.0	2.6	3.6	3.0	2.1	1.9	1.8	1.8	-30.8%
Other Africa	7.1	8.5	12.6	11.1	13.7	16.2	17.7	21.6	23.8	25.0	24.9	82.2%
Africa	99.7	133.2	188.4	222.5	247.6	265.4	298.6	365.6	396.4	419.9	426.0	72.0%
Bangladesh	2.2	3.3	4.6	4.6	5.2	8.4	9.4	12.8	12.6	13.4	14.3	177.2%
Brunei Darussalam	0.2	0.2	0.5	0.6	0.9	1.3	1.4	1.6	1.9	2.0	2.0	136.4%
Cambodia	..	..	..	..	..	1.4	2.4	3.7	4.4	4.6	4.3	..
Chinese Taipei	19.0	31.3	54.2	43.5	68.7	85.5	94.5	92.4	90.1	83.9	79.7	16.0%
India	56.3	63.3	85.3	119.3	165.8	223.9	301.8	309.9	355.7	377.3	400.8	141.7%
Indonesia	24.4	36.4	61.0	70.0	96.1	130.2	158.0	186.2	178.0	176.6	186.5	94.1%
DPR of Korea	2.6	4.2	8.0	7.4	7.9	3.9	3.1	2.8	2.6	2.7	2.0	-74.2%
Malaysia	12.6	16.0	23.9	27.9	38.0	50.6	58.7	66.6	69.6	68.6	63.2	66.4%
Mongolia	..	..	..	2.2	2.4	1.0	1.3	1.7	2.3	2.5	2.3	-4.0%
Myanmar	3.8	3.0	3.8	3.4	2.0	3.9	5.2	5.8	5.7	4.8	4.0	97.5%
Nepal	0.2	0.2	0.3	0.5	0.7	1.5	2.1	2.1	1.8	2.1	2.7	267.9%
Pakistan	8.8	11.0	13.2	20.9	30.6	43.7	56.1	47.4	58.7	57.7	61.8	101.8%
Philippines	23.0	28.9	31.8	23.1	32.9	50.0	48.2	42.1	38.8	36.9	37.4	13.6%
Singapore	5.9	8.3	12.6	16.1	28.7	34.4	37.3	30.1	29.6	29.3	27.9	-2.5%
Sri Lanka	2.8	2.7	3.7	3.6	3.7	5.5	10.6	13.2	12.8	12.0	12.5	234.3%
Thailand	15.5	20.2	31.3	28.0	52.4	90.6	89.8	111.6	110.3	107.5	107.0	104.4%
Vietnam	10.6	6.7	5.6	5.8	8.2	13.9	23.8	36.5	40.4	40.0	46.7	467.4%
Other Asia	3.8	5.4	8.6	8.0	8.8	8.3	9.4	13.2	12.4	11.7	12.2	38.4%
Asia	191.6	241.1	348.5	384.7	553.0	758.0	913.1	979.9	1 028.0	1 033.7	1 067.3	93.0%
People's Rep. of China	115.2	195.9	252.4	247.6	296.1	415.5	560.7	809.9	897.5	926.5	947.9	220.1%
Hong Kong, China	9.0	10.7	14.3	9.2	8.4	11.6	16.4	8.4	8.1	8.3	9.7	14.7%
China	124.2	206.6	266.8	256.9	304.6	427.1	577.1	818.3	905.5	934.9	957.6	214.4%

* Includes Estonia and Slovenia prior to 1990.

CO₂ emissions: Sectoral Approach - Oilmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Bahrain	1.2	1.2	1.7	1.8	2.1	2.4	2.5	3.6	4.2	4.1	4.4	110.5%
Islamic Republic of Iran	37.7	65.7	81.8	128.4	141.1	170.1	192.1	228.7	255.9	266.0	264.5	87.5%
Iraq	10.5	12.4	29.8	42.1	49.1	65.7	75.8	80.6	87.2	89.3	96.6	96.8%
Jordan	1.3	2.1	4.2	7.4	9.0	11.6	13.8	14.7	13.6	12.0	12.0	33.8%
Kuwait	4.1	5.2	13.4	27.4	17.2	18.4	30.8	46.7	47.1	49.6	57.1	231.7%
Lebanon	4.5	5.6	6.6	6.5	5.5	12.4	13.6	14.0	11.5	15.3	18.7	243.1%
Oman	0.3	0.7	1.5	3.3	5.0	7.7	8.4	11.8	14.0	17.2	18.1	262.1%
Qatar	0.3	0.7	1.4	1.6	1.9	2.5	3.1	7.8	11.2	13.9	11.6	496.0%
Saudi Arabia	10.0	17.1	77.9	88.5	111.3	143.0	174.7	208.5	234.8	254.3	277.5	149.4%
Syrian Arab Republic	6.0	9.0	13.0	20.8	25.0	28.0	29.5	44.4	55.6	57.0	46.8	87.6%
United Arab Emirates	0.4	1.6	9.5	15.7	18.7	21.1	21.7	28.2	30.7	31.9	32.2	72.1%
Yemen	1.2	1.7	3.4	4.8	6.4	9.3	13.2	18.8	20.6	21.4	22.0	241.7%
Middle East	77.7	123.1	244.3	348.4	392.2	492.3	579.2	707.7	786.5	832.1	861.5	119.7%
Albania	2.4	2.3	4.4	2.8	3.4	1.7	3.1	4.5	3.9	3.7	2.4	-29.9%
Armenia *	..	..	..	..	11.2	0.7	0.8	1.0	0.9	1.0	1.0	-91.3%
Azerbaijan *	..	..	..	..	32.4	18.9	18.4	14.9	10.3	9.8	8.5	-73.8%
Belarus *	..	..	..	..	87.8	30.6	22.3	20.9	21.8	21.0	24.6	-72.0%
Bosnia and Herzegovina *	..	..	..	..	5.4	1.6	3.3	3.2	3.6	3.7	3.7	-31.2%
Bulgaria	29.1	34.9	38.6	28.0	26.1	13.7	10.4	12.0	12.4	11.8	11.3	-56.7%
Croatia *	..	..	..	..	13.4	11.0	11.3	12.9	13.5	12.6	12.5	-7.2%
Cyprus	1.8	1.7	2.6	2.6	3.6	5.0	6.1	6.8	7.2	7.4	7.4	104.5%
Georgia *	..	..	..	..	19.2	5.8	2.3	2.1	2.5	2.2	2.5	-86.8%
Gibraltar	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.4	0.5	0.5	0.5	181.5%
Kazakhstan *	..	..	..	..	58.3	32.5	22.1	25.8	32.7	35.5	28.4	-51.4%
Kyrgyzstan *	..	..	..	..	8.9	1.4	1.2	1.4	2.3	2.2	3.4	-62.0%
Latvia *	..	..	..	..	10.3	5.5	3.8	4.1	4.7	4.4	3.6	-65.4%
Lithuania *	..	..	..	..	19.7	9.0	6.5	7.5	7.5	8.1	7.1	-63.8%
FYR of Macedonia *	..	..	..	..	3.0	2.3	2.7	2.6	3.0	2.6	2.6	-12.6%
Malta	0.6	0.6	1.0	0.7	1.6	2.2	2.1	2.7	2.7	2.6	2.4	56.0%
Republic of Moldova *	..	..	..	..	14.8	3.1	1.2	1.9	1.9	2.2	2.0	-86.4%
Romania	31.5	40.0	51.6	41.1	50.0	32.0	26.5	27.8	27.5	26.9	24.5	-51.0%
Russian Federation *	..	..	..	..	625.4	351.2	332.4	309.9	325.8	336.2	327.2	-47.7%
Serbia *	..	..	..	..	14.1	4.8	4.1	11.5	12.0	10.7	10.4	-26.3%
Tajikistan *	..	..	..	..	5.2	1.2	0.7	0.9	1.6	1.6	1.6	-69.8%
Turkmenistan *	..	..	..	..	16.9	8.2	10.7	12.7	13.5	14.9	13.6	-19.6%
Ukraine *	..	..	..	..	195.5	75.4	33.7	38.2	40.8	39.5	34.1	-82.5%
Uzbekistan *	..	..	..	..	30.6	19.8	19.1	14.3	12.5	11.9	12.0	-60.9%
Former Soviet Union *	688.9	1 018.6	1 210.0	1 193.3	..	..	..	..	..	..	..	..
Former Yugoslavia *	25.5	31.8	39.2	38.3	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	779.9	1 130.0	1 347.5	1 307.0	1 256.9	637.9	545.3	540.1	565.2	573.1	547.1	-56.5%
Argentina	67.3	65.1	70.9	54.4	53.1	62.1	66.0	67.4	73.2	77.8	72.8	37.1%
Bolivia	2.0	2.9	3.6	3.3	3.7	4.6	4.9	5.9	7.0	7.4	7.5	102.1%
Brazil	83.9	127.8	160.9	133.6	158.8	195.3	240.6	240.0	254.8	265.6	260.6	64.1%
Colombia	18.0	18.5	20.6	22.2	26.8	37.4	34.6	32.9	33.5	33.4	31.8	19.0%
Costa Rica	1.3	1.7	2.2	2.0	2.6	4.4	4.5	5.3	6.2	6.3	6.0	130.2%
Cuba	20.6	23.4	28.8	30.7	32.9	22.2	25.3	23.1	23.4	22.9	24.6	-25.4%
Dominican Republic	3.4	5.2	6.3	5.6	7.6	11.2	17.2	15.8	15.7	16.1	14.9	95.0%
Ecuador	3.5	5.9	10.5	11.7	12.7	15.6	17.9	22.7	24.3	25.5	27.5	116.7%
El Salvador	1.4	2.0	1.7	1.8	2.2	4.6	5.2	6.4	6.9	6.2	6.8	204.2%
Guatemala	2.3	3.0	4.2	3.3	3.3	6.0	8.3	10.0	10.9	9.7	11.1	235.8%
Haiti	0.4	0.4	0.6	0.6	0.9	0.9	1.4	2.0	2.3	2.3	2.4	158.8%
Honduras	1.1	1.3	1.7	1.7	2.1	3.5	4.1	6.5	7.7	7.3	6.9	223.5%
Jamaica	5.5	7.4	6.5	4.6	7.1	8.2	9.6	10.3	13.2	11.7	8.1	15.4%
Netherlands Antilles	14.4	10.2	8.7	4.6	2.7	2.8	4.1	4.2	4.5	4.3	5.0	81.1%
Nicaragua	1.5	1.8	1.8	1.8	1.8	2.5	3.5	4.0	4.4	4.2	4.2	130.4%
Panama	2.5	3.2	2.8	2.5	2.3	3.8	4.4	5.5	6.2	6.2	7.3	217.9%
Paraguay	0.6	0.7	1.4	1.4	1.9	3.4	3.3	3.4	3.7	3.7	4.1	112.1%
Peru	14.4	17.0	18.9	16.2	17.6	21.8	23.0	21.5	20.7	24.4	25.7	46.1%
Trinidad and Tobago	2.7	3.0	2.8	2.5	2.1	2.2	2.6	4.0	4.2	4.2	4.2	102.5%
Uruguay	5.1	5.4	5.5	3.1	3.7	4.5	5.2	5.1	5.6	7.5	7.6	104.2%
Venezuela	30.7	37.5	59.1	56.0	57.0	59.9	64.6	84.1	98.1	100.5	104.6	83.6%
Other Latin America	7.7	10.7	10.1	9.2	12.4	13.3	14.4	15.6	16.2	16.2	14.9	20.5%
Latin America	290.3	354.2	429.8	372.6	415.3	490.4	564.5	595.6	642.7	663.4	658.4	58.5%

* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO₂ emissions: Sectoral Approach - Natural gasmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
World *	2 058.3	2 281.2	2 767.2	3 162.6	3 803.5	4 098.6	4 700.2	5 376.9	5 747.8	5 890.2	5 762.3	51.5%
<i>Annex I Parties</i>	..	..	..	..	3 070.3	3 178.1	3 471.2	3 647.6	3 780.5	3 805.9	3 643.2	18.7%
<i>Annex II Parties</i>	1 438.5	1 503.1	1 663.5	1 616.2	1 794.6	2 123.0	2 426.2	2 491.3	2 593.3	2 619.1	2 543.9	41.8%
<i>North America</i>	1 257.4	1 143.4	1 179.4	1 058.1	1 135.1	1 309.4	1 423.0	1 359.9	1 436.3	1 439.8	1 413.9	24.6%
<i>Europe</i>	168.1	331.0	414.3	446.1	505.1	631.3	783.8	894.8	879.6	907.5	858.0	69.9%
<i>Asia Oceania</i>	12.9	28.7	69.8	112.0	154.4	182.3	219.3	236.7	277.3	271.8	272.1	76.2%
<i>Annex I EIT</i>	..	..	..	..	1 269.1	1 042.1	1 016.2	1 103.5	1 116.3	1 116.6	1 031.8	-18.7%
<i>Non-Annex I Parties</i>	..	..	..	..	733.2	920.5	1 228.9	1 729.2	1 967.3	2 084.3	2 119.2	189.0%
<i>Annex I Kyoto Parties</i>	..	..	..	..	2 024.9	1 979.3	2 155.2	2 366.8	2 417.4	2 435.8	2 308.1	14.0%
Intl. marine bunkers	-	-	-	-	-	-	-	-	-	-	-	-
Intl. aviation bunkers	-	-	-	-	-	-	-	-	-	-	-	-
Non-OECD Total **	575.2	719.2	1 012.9	1 437.9	1 875.8	1 817.3	2 052.7	2 575.4	2 808.3	2 921.1	2 879.6	53.5%
OECD Total ***	1 483.1	1 562.1	1 754.3	1 724.7	1 927.7	2 281.3	2 647.5	2 801.5	2 939.5	2 969.1	2 882.7	49.5%
Canada	67.9	87.3	99.7	113.9	123.8	149.1	168.1	170.2	183.4	180.0	179.4	45.0%
Chile	1.3	1.1	1.4	1.6	2.1	2.1	10.3	14.0	6.6	3.7	4.6	117.5%
Mexico	20.2	25.6	43.2	53.6	52.1	55.9	66.6	88.3	108.0	112.5	111.7	114.5%
United States	1 189.5	1 056.1	1 079.7	944.2	1 011.3	1 160.2	1 254.9	1 189.7	1 253.0	1 259.8	1 234.5	22.1%
OECD Americas	1 278.9	1 170.1	1 224.0	1 113.3	1 189.3	1 367.4	1 499.9	1 462.2	1 550.9	1 555.9	1 530.2	28.7%
Australia	4.1	8.9	16.7	24.4	32.8	37.7	43.9	55.7	59.8	59.4	60.4	84.1%
Israel	0.2	0.1	0.2	0.1	0.0	0.0	0.0	3.1	5.4	6.9	8.4	+
Japan	8.5	19.2	51.2	81.5	114.6	137.1	164.8	173.7	209.4	204.9	204.0	78.0%
Korea	-	-	-	-	6.4	19.4	39.9	63.8	73.3	74.9	72.0	+
New Zealand	0.2	0.6	1.8	6.1	7.1	7.5	10.6	7.3	8.1	7.5	7.7	9.2%
OECD Asia Oceania	13.1	28.8	70.0	112.0	160.9	201.7	259.2	303.6	356.0	353.6	352.5	119.2%
Austria	5.6	7.5	9.0	10.1	11.8	14.7	15.0	18.9	16.1	17.2	16.6	40.0%
Belgium	11.3	18.2	20.5	16.9	18.9	24.5	30.7	33.3	34.5	34.3	34.6	83.3%
Czech Republic	1.9	3.1	5.6	9.1	11.5	14.5	17.0	17.8	16.3	16.3	15.2	32.9%
Denmark	-	0.0	0.0	1.5	4.2	7.3	10.3	10.4	9.5	9.6	9.2	121.2%
Estonia	..	..	..	..	2.7	1.3	1.5	1.8	1.8	1.7	1.2	-55.1%
Finland	-	1.5	1.7	1.9	5.1	6.6	7.9	8.4	8.5	8.8	7.9	56.3%
France	19.2	33.0	47.4	54.5	56.1	65.8	81.1	92.5	87.1	90.4	87.6	56.3%
Germany	38.8	86.4	114.9	105.3	118.1	147.0	158.4	179.9	176.9	181.0	173.0	46.4%
Greece	-	-	-	0.1	0.2	0.1	3.9	5.4	7.7	8.1	6.6	+
Hungary	6.8	10.7	17.6	19.2	19.8	20.3	21.6	27.0	24.2	23.9	20.7	4.5%
Iceland	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	-	-	1.7	4.5	4.0	5.0	7.7	8.2	10.0	10.4	10.1	155.0%
Italy	23.9	40.8	49.3	59.8	89.2	102.8	134.0	163.2	160.6	161.1	148.0	65.8%
Luxembourg	0.0	0.8	1.0	0.7	1.0	1.3	1.6	2.7	2.7	2.6	2.6	159.0%
Netherlands	47.0	72.5	69.4	75.3	70.2	78.6	79.7	80.7	76.2	79.7	80.5	14.5%
Norway	-	0.4	2.0	2.8	4.6	8.1	8.0	10.0	10.5	11.1	11.6	150.3%
Poland	11.4	13.5	17.6	18.2	18.5	18.3	20.6	26.2	26.5	26.8	25.8	39.8%
Portugal	-	-	-	-	-	-	4.6	8.6	8.8	9.5	9.6	x
Slovak Republic	2.9	4.9	5.1	6.7	11.7	11.7	13.1	13.2	11.3	11.2	9.8	-16.4%
Slovenia	..	..	..	..	1.8	1.7	1.8	2.1	2.0	2.0	1.9	4.5%
Spain	0.7	1.8	3.1	4.5	10.5	17.4	34.7	67.2	73.8	80.9	72.6	588.7%
Sweden	-	-	-	0.2	1.2	1.6	1.6	1.7	1.9	1.9	2.6	108.8%
Switzerland	0.0	1.0	1.9	2.9	3.8	5.1	5.6	6.5	6.1	6.5	6.3	66.2%
Turkey	-	-	-	0.1	6.5	13.0	28.9	52.8	70.9	70.2	67.4	931.7%
United Kingdom	21.6	67.2	92.3	105.2	106.0	145.4	199.0	197.2	188.7	194.3	178.7	68.5%
OECD Europe ***	191.1	363.2	460.3	499.4	577.5	712.2	888.3	1 035.7	1 032.6	1 059.6	1 000.0	73.2%
<i>European Union - 27</i>	..	..	..	..	657.9	745.6	889.5	1 011.0	988.5	1 014.2	950.3	44.5%

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

** Includes Estonia and Slovenia prior to 1990.

*** Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions: Sectoral Approach - Natural gas

 million tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Non-OECD Total *	575.2	719.2	1 012.9	1 437.9	1 875.8	1 817.3	2 052.7	2 575.4	2 808.3	2 921.1	2 879.6	53.5%
Algeria	2.4	4.6	13.4	21.7	27.4	32.4	37.6	46.9	50.2	50.8	53.3	94.2%
Angola	0.1	0.1	0.2	0.2	1.0	1.1	1.1	1.2	1.6	1.3	1.3	27.8%
Benin	-	-	-	-	-	-	-	-	-	-	-	-
Botswana	..	..	..	-	-	-	-	-	-	-	-	-
Cameroon	-	-	-	-	-	-	-	-	0.6	0.6	0.5	x
Congo	0.0	0.0	-	0.0	-	-	-	0.0	0.0	0.0	0.1	x
Dem. Rep. of Congo	-	-	-	-	-	-	-	-	0.0	0.0	0.0	x
Côte d'Ivoire	-	-	-	-	-	0.1	3.0	2.9	2.9	3.1	3.1	x
Egypt	0.2	0.1	3.4	7.9	14.9	22.9	40.1	65.7	73.6	79.1	81.6	446.4%
Eritrea	..	..	..	..	..	-	-	-	-	-	-	..
Ethiopia	-	-	-	-	-	-	-	-	-	-	-	-
Gabon	-	-	0.0	0.1	0.2	0.3	0.2	0.3	0.3	0.4	0.4	69.0%
Ghana	-	-	-	-	-	-	-	-	-	-	-	-
Kenya	-	-	-	-	-	-	-	-	-	-	-	-
Libyan Arab Jamahiriya	2.1	2.5	5.5	7.0	9.0	8.5	8.8	10.4	11.4	11.8	11.8	31.2%
Morocco	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.9	1.3	1.1	1.2	+
Mozambique	-	-	-	-	-	0.0	0.0	0.0	0.2	0.2	0.2	x
Namibia	..	..	..	..	..	-	-	-	-	-	-	..
Nigeria	0.4	1.0	2.9	6.9	6.9	9.2	12.0	16.7	18.3	18.2	12.5	82.0%
Senegal	-	-	-	-	0.0	0.1	0.0	0.0	0.0	0.0	0.0	161.4%
South Africa	-	-	-	-	-	-	-	-	-	-	-	-
Sudan	-	-	-	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	-	-	-	-	-	-	-	0.8	1.0	1.1	1.3	x
Togo	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	0.0	0.5	0.8	2.2	2.8	4.6	6.4	7.5	8.7	9.6	10.0	258.5%
Zambia	-	-	-	-	-	-	-	-	-	-	-	-
Zimbabwe	-	-	-	-	-	-	-	-	-	-	-	-
Other Africa	-	-	-	-	-	-	0.0	1.5	1.8	1.9	2.0	x
Africa	5.2	9.0	26.3	46.2	62.4	79.2	109.3	154.8	172.0	179.1	179.3	187.4%
Bangladesh	0.6	0.9	2.1	4.0	7.3	10.9	14.6	22.2	27.7	30.6	33.9	364.4%
Brunei Darussalam	0.2	1.2	2.1	2.3	2.5	3.4	3.2	3.5	5.3	5.5	6.1	143.2%
Cambodia	..	..	..	..	..	-	-	-	-	-	-	..
Chinese Taipei	1.9	2.7	3.3	1.9	3.3	7.8	12.9	20.7	23.1	25.1	23.9	630.8%
India	1.3	1.9	2.5	8.0	20.6	35.3	47.1	68.5	75.8	76.3	104.6	407.5%
Indonesia	0.3	1.0	7.3	13.5	28.5	45.9	58.8	64.4	59.8	63.2	79.1	177.6%
DPR of Korea	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia	0.0	0.1	0.1	4.4	6.9	23.1	45.5	59.4	67.3	75.1	59.7	763.9%
Mongolia	..	..	..	-	-	-	-	-	-	-	-	-
Myanmar	0.1	0.3	0.6	1.8	1.7	2.8	2.7	7.1	6.3	6.6	5.6	228.4%
Nepal	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	5.3	7.7	10.3	13.4	20.9	28.0	34.5	56.1	58.7	58.4	58.7	180.6%
Philippines	-	-	-	-	-	0.0	0.0	6.7	7.2	7.2	7.5	x
Singapore	-	-	-	-	-	3.0	2.6	13.6	15.7	16.4	16.6	x
Sri Lanka	-	-	-	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	6.8	11.7	20.4	40.6	60.6	66.1	70.0	62.2	433.4%
Vietnam	-	-	-	0.1	0.0	0.4	2.6	11.5	12.8	14.6	16.6	+
Other Asia	0.5	0.5	0.2	1.2	0.6	0.5	0.5	0.5	0.5	0.7	0.7	23.0%
Asia	10.2	16.3	28.7	57.5	104.0	181.5	265.6	394.7	426.3	449.7	475.3	357.1%
People's Rep. of China	7.3	17.3	27.8	21.9	25.8	31.7	43.4	82.9	128.9	148.3	163.7	534.1%
Hong Kong, China	-	-	-	-	-	0.1	5.7	5.1	4.7	5.4	5.1	x
China	7.3	17.3	27.8	21.9	25.8	31.8	49.2	88.0	133.6	153.8	168.8	553.8%

* Includes Estonia and Slovenia prior to 1990.

CO₂ emissions: Sectoral Approach - Natural gasmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Bahrain	1.8	4.1	5.7	8.6	9.6	9.3	11.6	14.6	17.0	18.2	18.4	91.8%
Islamic Republic of Iran	5.5	8.1	8.5	16.8	37.0	80.0	121.1	193.5	239.9	253.1	265.5	617.7%
Iraq	1.8	3.1	2.4	1.6	3.8	6.0	6.0	2.8	2.8	3.6	2.2	-42.0%
Jordan	-	-	-	-	0.2	0.5	0.5	3.2	5.6	6.4	7.2	+
Kuwait	9.9	9.9	13.2	9.7	11.5	17.7	18.3	23.5	23.0	24.2	23.6	105.3%
Lebanon	-	-	-	-	-	-	-	-	-	-	0.1	x
Oman	-	-	0.7	2.1	4.9	6.7	11.4	16.0	18.4	19.1	20.8	323.2%
Qatar	1.9	4.2	6.3	10.5	12.2	16.2	20.9	29.7	38.1	39.9	44.9	269.3%
Saudi Arabia	2.7	5.4	21.2	34.1	47.6	64.4	77.7	124.3	126.7	132.3	133.0	179.3%
Syrian Arab Republic	-	-	0.1	0.3	3.2	4.8	10.4	10.8	10.8	10.7	13.0	305.5%
United Arab Emirates	2.0	3.3	9.6	19.8	33.1	48.5	64.2	79.9	97.7	112.5	114.8	246.6%
Yemen	-	-	-	-	-	-	-	-	-	-	0.2	x
Middle East	25.6	38.0	67.7	103.6	163.1	254.2	342.1	498.2	580.2	620.0	643.8	294.6%
Albania	0.2	0.6	0.8	0.8	0.5	0.1	0.0	0.0	0.0	0.0	0.0	-96.8%
Armenia *	..	..	..	..	8.3	2.7	2.6	3.1	3.8	4.2	3.3	-60.5%
Azerbaijan *	..	..	..	..	31.5	12.7	10.8	17.7	16.8	19.6	16.7	-46.9%
Belarus *	..	..	..	..	27.5	25.6	32.2	38.3	39.3	40.2	33.1	20.4%
Bosnia and Herzegovina *	..	..	..	..	0.9	0.3	0.5	0.7	0.8	0.8	0.4	-53.6%
Bulgaria	0.6	2.3	7.4	10.8	12.0	10.0	6.2	5.9	6.3	6.1	4.7	-60.5%
Croatia *	..	..	..	..	4.7	4.1	4.7	5.1	5.8	5.6	5.2	10.9%
Cyprus	-	-	-	-	-	-	-	-	-	-	-	-
Georgia *	..	..	..	..	10.6	2.2	2.2	2.2	2.9	2.3	2.3	-78.0%
Gibraltar	-	-	-	-	-	-	-	-	-	-	-	-
Kazakhstan *	..	..	..	..	24.8	23.5	15.2	28.5	39.3	48.0	44.6	79.9%
Kyrgyzstan *	..	..	..	..	3.6	1.7	1.3	1.4	1.6	1.5	1.3	-63.8%
Latvia *	..	..	..	..	5.6	2.3	2.5	3.2	3.2	3.1	2.8	-49.0%
Lithuania *	..	..	..	..	10.3	4.3	4.3	5.3	5.9	5.3	4.6	-55.1%
FYR of Macedonia *	..	..	..	..	-	-	0.1	0.1	0.2	0.2	0.1	x
Malta	-	-	-	-	-	-	-	-	-	-	-	-
Republic of Moldova *	..	..	..	..	7.6	5.5	4.8	5.6	5.3	4.5	3.4	-55.7%
Romania	52.1	62.6	75.7	74.6	67.4	43.1	30.6	30.2	28.0	27.9	23.4	-65.3%
Russian Federation *	..	..	..	..	866.3	728.8	718.1	783.4	820.7	821.5	784.8	-9.4%
Serbia *	..	..	..	..	6.0	3.0	3.4	4.3	4.5	4.5	3.2	-47.3%
Tajikistan *	..	..	..	..	3.2	1.2	1.5	1.3	1.3	1.0	0.8	-73.8%
Turkmenistan *	..	..	..	..	28.6	26.2	25.5	33.3	40.7	40.9	35.2	23.0%
Ukraine *	..	..	..	..	209.4	156.1	141.9	144.0	125.1	125.1	98.4	-53.0%
Uzbekistan *	..	..	..	..	75.5	77.4	93.4	89.4	94.6	97.9	94.9	25.6%
Former Soviet Union *	431.8	520.4	704.2	1 021.2	..	..	..	..	..	..	..	..
Former Yugoslavia *	1.9	2.9	5.8	11.0	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	486.6	588.8	793.9	1 118.3	1 404.5	1 130.7	1 101.9	1 203.2	1 245.9	1 260.2	1 163.6	-17.2%
Argentina	12.3	17.1	21.7	30.5	43.4	51.2	68.5	78.4	87.1	88.3	86.1	98.5%
Bolivia	0.1	0.3	0.6	0.8	1.4	2.3	2.4	3.7	4.4	4.9	5.4	273.0%
Brazil	0.2	0.7	1.7	4.3	6.4	8.5	17.3	38.0	40.7	49.0	39.1	512.0%
Colombia	2.6	3.2	5.7	7.3	7.5	8.3	12.8	14.3	14.2	15.2	17.4	131.3%
Costa Rica	-	-	-	-	-	-	-	-	-	-	-	-
Cuba	0.0	0.1	0.0	0.0	0.1	0.0	0.9	1.3	2.2	2.1	2.0	+
Dominican Republic	-	-	-	-	-	-	-	0.5	1.1	0.9	1.0	x
Ecuador	0.1	0.3	0.1	0.4	0.5	0.6	0.7	0.9	1.5	1.0	1.0	94.1%
El Salvador	-	-	-	-	-	-	-	-	-	-	-	-
Guatemala	-	-	-	-	-	-	-	-	-	-	-	-
Haiti	-	-	-	-	-	-	-	-	-	-	-	-
Honduras	-	-	-	-	-	-	-	-	-	-	-	-
Jamaica	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands Antilles	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-
Panama	-	-	-	-	-	-	-	-	-	-	-	-
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	0.6	0.8	1.0	1.3	1.0	0.6	1.1	3.9	6.1	7.6	9.6	818.9%
Trinidad and Tobago	3.4	2.8	5.1	7.1	9.3	10.0	18.4	29.9	36.4	35.0	35.9	287.4%
Uruguay	-	-	-	-	-	-	0.1	0.2	0.2	0.2	0.1	x
Venezuela	20.8	24.3	32.6	38.5	46.3	58.4	61.7	64.0	55.0	52.7	49.8	7.5%
Other Latin America	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.4	1.5	1.6	1.5	+
Latin America	40.3	49.8	68.6	90.3	116.0	140.0	184.6	236.5	250.3	258.4	248.9	114.6%

* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO₂ emissions: Reference Approachmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
World *	14 613.6	16 155.1	18 639.6	19 298.6	21 536.2	22 110.9	23 763.5	27 708.5	29 354.8	29 967.1	29 549.3	37.2%
<i>Annex I Parties</i>	..	..	..	..	14 168.2	13 311.7	13 867.5	14 334.3	14 386.8	14 149.2	13 159.8	-7.1%
<i>Annex II Parties</i>	8 638.1	8 951.2	9 721.8	9 303.2	9 843.9	10 214.8	11 022.2	11 395.9	11 357.9	11 083.8	10 358.0	5.2%
<i>North America</i>	4 612.3	4 775.0	5 191.6	5 009.7	5 283.9	5 571.2	6 195.0	6 389.3	6 397.3	6 199.8	5 791.3	9.6%
<i>Europe</i>	3 098.9	3 118.9	3 387.8	3 152.0	3 201.6	3 172.2	3 257.2	3 376.0	3 305.5	3 261.1	3 043.6	-4.9%
<i>Asia Oceania</i>	927.0	1 057.4	1 142.4	1 141.5	1 358.4	1 471.3	1 570.0	1 630.7	1 655.2	1 622.9	1 523.1	12.1%
<i>Annex I EIT</i>	..	..	..	..	4 183.7	2 937.4	2 639.7	2 716.1	2 760.3	2 799.9	2 543.2	-39.2%
<i>Non-Annex I Parties</i>	..	..	..	..	6 754.2	8 100.7	9 070.8	12 410.2	13 912.4	14 770.1	15 373.8	127.6%
<i>Annex I Kyoto Parties</i>	..	..	..	..	9 039.9	7 970.7	7 925.8	8 204.1	8 199.7	8 148.9	7 547.2	-16.5%
Intl. marine bunkers	342.8	328.6	345.1	293.9	357.9	413.7	480.0	556.1	624.5	608.1	592.2	65.5%
Intl. aviation bunkers	167.7	172.0	200.0	222.8	255.9	284.7	345.2	407.8	431.2	439.7	423.4	65.5%
Non-OECD Total **	4 641.7	5 730.5	7 124.7	8 154.3	9 647.6	9 697.9	10 275.9	13 573.2	15 054.3	15 931.3	16 330.1	69.3%
OECD Total ***	9 461.5	9 923.9	10 969.8	10 627.5	11 274.8	11 714.5	12 662.4	13 171.3	13 245.0	12 988.0	12 203.6	8.2%
Canada	337.2	392.3	428.6	399.9	423.6	452.7	518.8	545.4	544.9	531.2	501.3	18.4%
Chile	21.5	17.5	21.7	19.8	31.2	39.3	53.7	59.2	64.9	69.1	65.8	110.9%
Mexico	100.8	145.1	242.2	265.7	289.8	298.8	344.4	414.5	426.0	435.8	422.5	45.8%
United States	4 275.1	4 382.7	4 763.0	4 609.9	4 860.4	5 118.5	5 676.2	5 843.9	5 852.4	5 668.6	5 290.0	8.8%
OECD Americas	4 734.6	4 937.6	5 455.5	5 295.3	5 604.9	5 909.4	6 593.0	6 863.0	6 888.1	6 704.8	6 279.7	12.0%
Australia	156.9	182.7	212.1	220.0	260.9	278.5	330.4	368.5	381.7	393.2	399.0	52.9%
Israel	17.2	21.0	23.1	23.5	34.9	48.1	55.5	61.7	66.1	67.0	64.0	83.5%
Japan	755.6	857.1	913.0	899.8	1 074.1	1 165.5	1 208.4	1 229.3	1 241.1	1 197.0	1 092.9	1.7%
Korea	54.8	77.9	125.7	157.7	238.6	355.3	440.6	464.3	498.9	512.8	518.1	117.2%
New Zealand	14.4	17.7	17.3	21.7	23.4	27.3	31.2	32.9	32.3	32.7	31.2	33.5%
OECD Asia Oceania	999.0	1 156.3	1 291.2	1 322.6	1 631.9	1 874.7	2 066.2	2 156.7	2 220.1	2 202.8	2 105.2	29.0%
Austria	51.2	52.3	58.3	55.9	57.1	60.1	62.6	75.6	70.6	70.1	63.8	11.7%
Belgium	120.0	119.5	129.8	103.9	109.4	116.3	121.4	114.8	108.2	111.3	108.2	-1.2%
Czech Republic	168.5	158.9	170.1	174.5	160.7	126.8	125.2	124.8	128.0	120.5	111.2	-30.8%
Denmark	56.2	52.6	61.0	61.0	50.8	58.0	51.2	48.4	51.6	48.8	47.3	-6.8%
Estonia	..	..	..	..	38.5	18.3	16.3	17.8	20.1	18.6	15.8	-59.0%
Finland	39.9	45.5	57.4	50.5	52.1	54.0	54.6	56.7	65.7	58.1	55.5	6.5%
France	434.6	431.8	473.0	374.3	367.3	348.7	360.6	389.9	373.4	374.4	362.2	-1.4%
Germany	993.1	976.5	1 076.4	1 022.5	971.7	877.5	843.9	820.1	804.1	802.5	755.1	-22.3%
Greece	25.3	35.4	45.4	55.9	69.2	72.6	85.3	93.1	91.3	91.2	88.2	27.5%
Hungary	58.2	67.4	80.7	78.8	67.7	59.3	55.0	57.3	54.9	53.5	48.0	-29.1%
Iceland	1.4	1.6	1.8	1.6	2.0	1.9	2.1	2.2	2.3	2.2	2.0	1.5%
Ireland	22.5	21.8	26.3	27.2	31.4	32.7	40.5	41.8	43.1	42.0	40.2	28.0%
Italy	280.3	311.2	349.0	339.6	384.0	413.0	433.6	458.8	444.9	432.7	390.3	1.6%
Luxembourg	15.2	13.1	12.0	10.0	10.4	8.3	8.0	11.4	10.6	10.5	10.0	-4.0%
Netherlands	130.4	138.0	155.7	147.2	158.5	172.3	174.5	182.6	180.7	182.9	178.9	12.9%
Norway	23.4	24.0	28.6	27.1	28.5	31.8	37.1	37.6	39.0	44.8	42.1	47.6%
Poland	310.3	367.5	450.4	445.3	363.3	340.0	294.6	301.6	310.3	310.1	294.9	-18.8%
Portugal	14.9	18.9	24.6	25.5	38.5	49.4	59.9	63.4	56.3	54.0	53.7	39.3%
Slovak Republic	48.3	55.0	60.9	59.4	54.5	42.3	37.4	38.9	36.3	36.9	33.7	-38.1%
Slovenia	..	..	..	..	13.5	14.2	13.9	15.7	15.9	16.8	15.2	12.9%
Spain	121.5	162.1	192.0	187.6	212.1	239.2	286.7	341.9	345.8	321.2	282.5	33.2%
Sweden	84.5	80.9	72.0	61.8	51.8	54.7	49.5	51.3	46.8	48.4	43.0	-16.8%
Switzerland	39.7	37.4	39.8	39.5	42.7	40.1	40.9	43.6	40.5	42.9	43.8	2.7%
Turkey	43.7	62.4	73.3	99.7	138.2	157.3	203.5	219.7	265.8	262.9	256.2	85.4%
United Kingdom	644.9	596.3	584.7	560.8	564.0	541.7	544.8	542.9	530.4	522.9	476.7	-15.5%
OECD Europe ***	3 727.9	3 830.3	4 223.1	4 009.6	4 038.0	3 930.4	4 003.2	4 151.6	4 136.7	4 080.5	3 818.7	-5.4%
<i>European Union - 27</i>	..	..	..	..	4 133.3	3 915.0	3 876.4	4 018.0	3 969.5	3 900.8	3 623.4	-12.3%

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

** Includes Estonia and Slovenia prior to 1990.

*** Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions: Reference Approachmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Non-OECD Total *	4 641.7	5 730.5	7 124.7	8 154.3	9 647.6	9 697.9	10 275.9	13 573.2	15 054.3	15 931.3	16 330.1	69.3%
Algeria	9.8	15.0	29.0	46.4	55.3	60.0	66.8	79.9	91.9	93.1	98.9	78.9%
Angola	1.7	2.1	2.7	2.9	4.1	3.9	5.1	7.0	10.2	12.0	12.7	209.1%
Benin	0.3	0.5	0.4	0.5	0.2	0.2	1.5	2.3	3.8	3.8	4.2	+
Botswana	..	..	..	1.6	2.9	3.3	4.2	4.4	4.5	4.8	4.3	46.9%
Cameroon	0.7	1.0	1.7	2.5	2.7	2.6	3.0	3.2	5.3	5.1	6.2	128.1%
Congo	0.6	0.7	0.8	1.0	0.8	0.6	0.6	1.4	1.4	1.5	1.8	124.0%
Dem. Rep. of Congo	2.7	2.9	2.9	3.4	4.1	3.0	1.7	2.3	2.6	2.9	2.8	-33.1%
Côte d'Ivoire	2.4	3.1	3.4	2.5	2.9	3.7	6.6	6.5	6.6	6.7	6.3	120.6%
Egypt	20.6	26.3	39.6	67.1	82.0	87.6	109.8	147.7	163.1	172.2	175.4	114.0%
Eritrea	..	..	..	..	..	0.8	0.6	0.8	0.6	0.4	0.5	..
Ethiopia	1.4	1.2	1.4	1.4	2.4	2.6	3.2	4.9	5.9	6.4	7.0	191.0%
Gabon	1.7	2.1	2.2	1.9	1.1	1.2	1.3	2.1	2.4	2.3	1.7	60.3%
Ghana	1.9	2.5	2.2	2.5	2.8	3.6	5.4	6.2	8.9	7.8	6.6	130.7%
Kenya	3.2	3.4	4.3	4.6	5.7	5.9	6.7	7.1	8.0	8.0	9.3	62.7%
Libyan Arab Jamahiriya	3.8	9.9	17.2	24.7	28.0	40.6	42.6	45.1	45.7	49.8	53.3	90.7%
Morocco	6.8	9.9	13.9	16.4	20.2	25.2	30.0	39.5	42.2	43.8	43.1	114.0%
Mozambique	3.0	2.4	2.4	1.5	1.0	1.1	1.5	1.5	2.1	2.0	2.2	123.6%
Namibia	..	..	..	..	..	1.8	1.9	2.9	3.3	4.2	3.7	..
Nigeria	5.9	11.8	26.9	33.2	38.2	41.6	40.9	53.2	46.0	54.4	42.9	12.2%
Senegal	1.2	1.6	2.0	1.9	2.2	2.5	3.7	4.7	5.0	5.0	5.3	141.5%
South Africa	148.8	175.6	215.1	295.1	300.3	349.9	364.1	416.4	446.9	486.3	461.5	53.7%
Sudan	4.1	3.9	3.9	4.3	5.6	4.7	7.1	11.2	13.6	12.5	14.5	160.0%
United Rep. of Tanzania	2.1	1.9	2.2	2.0	2.0	3.0	2.3	5.1	5.4	5.8	6.3	206.8%
Togo	0.3	0.3	0.4	0.3	0.6	0.6	1.0	1.0	0.9	1.1	1.1	95.8%
Tunisia	3.7	5.0	8.0	10.1	12.3	14.0	17.4	19.2	20.4	21.0	20.7	68.1%
Zambia	3.4	3.3	3.4	2.9	2.7	2.1	1.7	2.1	1.5	1.7	1.8	-33.9%
Zimbabwe	7.9	7.7	8.0	9.6	15.4	15.3	12.8	10.6	9.5	9.0	8.8	-42.8%
Other Africa	7.3	8.7	11.4	12.2	14.8	17.5	19.4	25.1	28.5	29.5	29.4	98.6%
Africa	245.5	303.0	405.5	552.4	610.5	698.9	762.6	913.5	986.4	1 053.0	1 032.4	69.1%
Bangladesh	3.4	4.7	7.2	9.3	14.1	21.3	26.7	38.1	43.6	47.4	51.2	262.4%
Brunei Darussalam	0.4	1.7	3.2	4.3	4.1	5.5	6.0	6.2	8.1	8.9	7.7	85.6%
Cambodia	..	..	..	..	..	1.4	2.3	3.8	4.4	4.6	4.3	..
Chinese Taipei	31.2	43.2	75.1	74.8	115.9	162.7	226.9	270.0	284.0	268.7	250.2	115.9%
India	198.5	238.4	283.5	419.2	590.8	791.0	973.6	1 198.4	1 372.9	1 450.2	1 630.0	175.9%
Indonesia	25.5	39.3	73.2	90.1	150.4	229.4	277.7	346.7	368.6	364.9	390.3	159.4%
DPR of Korea	69.4	79.6	108.6	129.8	117.6	75.8	68.9	74.4	62.5	69.5	66.3	-43.6%
Malaysia	13.8	16.9	29.5	38.3	55.4	93.3	118.5	164.8	181.9	190.7	173.5	213.3%
Mongolia	..	..	..	11.6	12.7	10.1	8.8	9.5	11.2	11.3	12.0	-5.1%
Myanmar	4.6	4.1	5.2	6.0	4.1	6.7	8.8	14.3	12.8	12.4	10.7	162.1%
Nepal	0.2	0.3	0.5	0.5	0.9	1.8	3.1	3.0	2.5	2.9	3.4	272.6%
Pakistan	17.1	21.2	26.8	40.0	61.0	82.3	102.1	121.3	142.9	137.8	142.5	133.7%
Philippines	24.2	29.3	34.3	26.9	39.4	59.0	69.1	71.8	68.1	71.7	69.5	76.5%
Singapore	7.0	9.7	14.1	16.2	29.3	50.4	52.4	35.0	25.2	28.3	34.1	16.6%
Sri Lanka	2.9	2.9	3.9	3.7	4.0	5.8	10.6	12.4	12.7	11.9	12.8	220.8%
Thailand	17.3	21.8	34.3	40.7	81.2	140.2	159.2	220.6	231.6	239.7	230.6	184.0%
Vietnam	16.1	16.7	14.8	17.1	17.2	27.8	44.0	80.6	92.9	101.9	114.0	562.5%
Other Asia	8.3	10.1	16.4	10.0	10.1	9.3	11.3	14.9	13.8	13.5	14.3	41.2%
Asia	440.0	540.1	730.8	938.8	1 308.1	1 773.7	2 170.1	2 685.9	2 939.7	3 036.4	3 217.4	146.0%
People's Rep. of China	867.6	1 133.9	1 489.2	1 794.7	2 371.1	2 957.8	3 052.2	5 125.0	6 037.2	6 558.4	7 037.9	196.8%
Hong Kong, China	9.1	11.1	14.3	22.8	30.9	34.9	39.2	40.1	45.8	44.3	47.1	52.5%
China	876.7	1 145.0	1 503.5	1 817.5	2 402.0	2 992.7	3 091.4	5 165.1	6 082.9	6 602.7	7 085.0	195.0%

* Includes Estonia and Slovenia prior to 1990.

CO₂ emissions: Reference Approachmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Bahrain	3.1	4.8	6.3	9.8	10.2	11.6	13.8	17.7	20.8	22.0	22.4	120.0%
Islamic Republic of Iran	45.1	73.9	106.8	150.7	183.3	243.7	340.5	453.0	492.7	528.7	549.1	199.5%
Iraq	12.4	15.0	29.9	45.2	50.8	74.6	72.1	97.5	96.1	99.6	92.8	82.9%
Jordan	1.4	2.1	4.3	7.5	9.4	12.4	14.1	18.4	19.4	18.7	19.5	108.9%
Kuwait	14.0	15.1	26.0	37.5	24.1	38.3	50.6	72.4	72.1	76.6	83.9	248.7%
Lebanon	5.0	6.0	6.9	6.6	5.5	12.8	14.1	14.5	12.0	15.8	19.3	251.0%
Oman	0.7	0.7	3.1	5.5	10.8	16.8	20.6	26.4	38.0	40.9	37.0	244.2%
Qatar	2.2	5.0	7.7	12.2	13.8	17.5	22.9	36.4	50.9	51.5	52.0	277.4%
Saudi Arabia	17.8	22.8	86.3	119.6	144.6	219.2	247.9	349.1	341.3	361.9	370.4	156.2%
Syrian Arab Republic	7.2	9.0	12.3	21.9	29.6	33.8	40.8	56.3	67.3	68.5	60.7	104.8%
United Arab Emirates	2.4	4.9	18.8	34.7	50.3	67.4	80.1	100.0	120.4	136.4	139.4	176.9%
Yemen	1.9	1.8	3.4	4.8	7.1	9.9	13.9	19.3	20.9	21.2	22.1	208.6%
Middle East	113.3	161.4	311.9	456.1	539.5	758.1	931.3	1 260.9	1 351.8	1 441.8	1 468.7	172.3%
Albania	4.1	4.7	7.9	7.4	6.5	1.9	3.1	4.5	4.1	3.9	2.7	-58.2%
Armenia *	..	..	..	..	20.5	3.4	3.4	4.1	4.8	5.3	4.3	-79.2%
Azerbaijan *	..	..	..	..	68.1	33.9	30.5	34.6	29.1	31.0	27.7	-59.3%
Belarus *	..	..	..	..	127.4	63.0	60.0	63.9	66.2	66.2	64.0	-49.8%
Bosnia and Herzegovina *	..	..	..	..	24.0	3.5	13.7	15.8	18.2	19.7	19.6	-18.4%
Bulgaria	63.8	73.0	84.2	85.1	76.2	57.5	43.4	47.8	52.1	49.8	43.0	-43.6%
Croatia *	..	..	..	..	21.6	16.0	17.9	21.0	22.2	21.2	20.0	-7.4%
Cyprus	1.8	1.7	2.6	2.8	4.1	5.2	6.3	6.6	7.3	7.7	7.4	79.8%
Georgia *	..	..	..	..	30.4	7.2	4.4	4.4	5.8	5.0	5.8	-80.8%
Gibraltar	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.4	0.5	0.5	0.5	181.5%
Kazakhstan *	..	..	..	..	237.0	169.3	116.0	165.4	210.6	220.3	209.1	-11.8%
Kyrgyzstan *	..	..	..	..	22.5	4.4	4.5	5.0	5.6	5.4	6.5	-70.9%
Latvia *	..	..	..	..	18.7	9.1	6.4	6.9	7.9	7.6	6.6	-64.6%
Lithuania *	..	..	..	..	33.7	14.5	10.9	13.6	14.4	14.3	12.3	-63.6%
FYR of Macedonia *	..	..	..	..	8.6	8.2	8.6	9.1	9.5	9.2	8.5	-1.6%
Malta	0.6	0.6	1.0	1.1	2.3	2.2	2.1	2.7	2.7	2.6	2.5	9.2%
Republic of Moldova *	..	..	..	..	30.2	11.4	6.5	8.0	7.5	7.1	5.8	-80.9%
Romania	111.6	138.9	177.8	178.9	171.8	127.2	87.7	91.7	96.1	91.3	77.1	-55.1%
Russian Federation *	..	..	..	..	2 337.2	1 620.4	1 545.2	1 579.8	1 611.3	1 669.5	1 528.6	-34.6%
Serbia *	..	..	..	..	61.6	44.4	41.9	50.8	52.9	52.9	47.3	-23.2%
Tajikistan *	..	..	..	..	11.2	2.4	2.2	2.4	3.2	3.0	2.8	-75.2%
Turkmenistan *	..	..	..	..	52.4	34.7	36.3	46.2	54.4	55.9	48.9	-6.7%
Ukraine *	..	..	..	..	699.1	428.8	325.7	335.4	324.7	323.6	272.8	-61.0%
Uzbekistan *	..	..	..	..	120.6	103.8	122.4	112.7	117.1	120.2	116.7	-3.2%
Former Soviet Union *	2 368.9	2 842.6	3 242.5	3 448.3	..	..	..	..	..	..	..	..
Former Yugoslavia *	65.5	77.1	101.5	127.2	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	2 616.4	3 138.7	3 617.6	3 851.1	4 185.6	2 772.9	2 499.4	2 632.8	2 727.9	2 793.1	2 540.4	-39.3%
Argentina	86.0	89.8	101.2	92.7	106.8	117.6	134.1	147.7	164.1	172.9	165.7	55.2%
Bolivia	2.2	3.4	4.6	4.3	4.8	7.6	7.8	11.4	11.9	12.6	13.2	175.6%
Brazil	93.9	143.9	189.8	180.5	205.0	253.4	311.3	330.0	349.8	368.3	345.1	68.4%
Colombia	27.0	31.9	38.3	42.7	48.9	57.9	57.6	60.2	61.6	65.2	69.4	42.0%
Costa Rica	1.4	1.8	2.3	2.0	2.9	4.0	5.1	5.1	6.5	6.7	6.4	119.0%
Cuba	20.2	23.7	31.3	32.4	32.5	23.3	26.8	25.3	24.9	26.1	28.5	-12.2%
Dominican Republic	3.4	5.6	6.5	7.1	9.3	13.5	19.2	18.1	19.4	19.0	18.7	101.2%
Ecuador	3.4	6.5	10.9	12.3	13.0	16.9	19.0	27.3	27.9	26.5	27.5	111.4%
El Salvador	1.5	2.1	1.8	1.9	2.3	4.8	5.3	6.0	6.4	6.0	5.7	145.0%
Guatemala	2.4	2.7	4.3	3.4	3.7	6.0	9.3	11.5	12.5	11.3	14.5	295.6%
Haiti	0.4	0.4	0.6	0.8	0.9	0.9	1.4	2.0	2.3	2.4	2.2	131.3%
Honduras	1.1	1.3	1.7	1.6	2.2	3.5	4.5	6.9	7.8	7.7	6.9	217.2%
Jamaica	5.2	7.4	6.4	4.5	7.1	8.4	10.0	10.4	13.3	11.6	8.3	16.5%
Netherlands Antilles	13.6	9.6	10.0	4.9	4.0	3.3	3.9	3.7	4.3	3.9	5.2	30.1%
Nicaragua	1.5	1.9	1.9	1.9	1.7	2.6	3.4	4.2	4.3	4.1	4.2	138.6%
Panama	3.7	3.7	2.5	2.7	2.5	3.9	5.2	5.5	6.1	6.3	7.4	198.9%
Paraguay	0.6	0.7	1.4	1.4	1.9	3.5	3.2	3.4	3.7	3.7	4.1	108.9%
Peru	16.1	19.4	21.8	18.4	18.2	22.8	26.1	29.0	29.2	32.9	32.3	77.2%
Trinidad and Tobago	5.0	4.8	8.3	11.0	12.7	12.8	21.4	33.1	40.5	38.9	40.6	219.6%
Uruguay	5.8	5.9	6.0	3.4	4.0	4.7	6.1	5.6	5.9	8.1	7.5	86.3%
Venezuela	43.6	60.3	88.8	99.2	104.9	116.6	125.7	152.5	146.4	153.0	157.0	49.6%
Other Latin America	11.6	15.5	15.1	9.3	12.5	13.4	14.6	16.0	16.8	17.0	15.9	27.2%
Latin America	349.8	442.3	555.4	538.4	601.9	701.5	821.0	915.0	965.6	1 004.3	986.2	63.8%

* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO₂ emissions from international marine bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
World	342.76	328.65	345.10	293.95	357.89	413.73	479.95	556.14	624.45	608.09	592.22	65.5%
<i>Annex I Parties</i>	..	..	..	..	233.63	231.01	250.90	272.05	294.47	277.23	251.96	7.8%
<i>Annex II Parties</i>	202.63	216.81	234.71	171.25	223.39	227.72	245.78	263.51	286.18	268.82	243.97	9.2%
<i>North America</i>	26.41	36.12	93.91	56.43	93.55	93.68	92.24	83.63	97.98	83.62	78.05	-16.6%
<i>Europe</i>	120.20	110.37	97.05	87.88	109.00	112.20	132.89	156.28	166.00	164.07	147.12	35.0%
<i>Asia Oceania</i>	56.02	70.31	43.75	26.94	20.84	21.84	20.65	23.60	22.20	21.13	18.80	-9.8%
<i>Annex I EIT</i>	..	..	..	..	9.78	2.58	1.80	3.14	2.98	3.46	3.56	-63.6%
<i>Non-Annex I Parties</i>	..	..	..	..	124.26	182.71	229.05	284.09	329.98	330.86	340.26	173.8%
<i>Annex I Kyoto Parties</i>	..	..	..	..	142.49	139.78	158.68	184.90	193.21	190.33	170.99	20.0%
Non-OECD Total *	135.85	108.43	106.59	117.35	126.10	159.05	194.87	247.75	295.52	298.15	312.88	148.1%
OECD Total **	206.91	220.22	238.51	176.59	231.79	254.68	285.08	308.38	328.93	309.93	279.33	20.5%
Canada	3.07	2.58	4.71	1.18	2.87	3.17	3.34	1.88	2.02	1.67	1.51	-47.4%
Chile	0.60	0.37	0.27	0.09	0.57	1.12	1.94	3.30	3.76	3.64	2.61	357.2%
Mexico	0.26	0.38	1.00	1.33	..	2.55	3.83	2.70	2.69	3.18	2.39	..
United States	23.34	33.54	89.20	55.26	90.68	90.51	88.90	81.76	95.96	81.94	76.54	-15.6%
OECD Americas	27.27	36.88	95.18	57.85	94.12	97.35	98.02	89.63	104.43	90.44	83.06	-11.8%
Australia	5.10	5.03	3.68	2.28	2.14	2.79	2.96	2.81	2.67	3.05	2.64	23.5%
Israel	..	..	..	0.35	0.38	0.65	0.58	0.87	1.07	1.20	1.10	190.4%
Japan	49.88	64.20	38.90	23.92	17.66	17.92	16.93	19.80	18.54	16.97	15.08	-14.6%
Korea	1.53	0.17	0.31	1.69	5.27	21.35	30.46	33.24	30.90	29.16	26.81	408.9%
New Zealand	1.04	1.08	1.18	0.74	1.04	1.13	0.76	0.99	0.99	1.11	1.09	4.4%
OECD Asia Oceania	57.55	70.48	44.06	28.98	26.49	43.84	51.69	57.72	54.16	51.50	46.72	76.4%
Austria	-	-	-	-	-	-	-	-	-	-	-	-
Belgium	8.06	8.64	7.52	7.30	12.91	12.31	17.02	24.40	29.54	30.49	22.34	73.1%
Czech Republic	-	-	-	-	-	-	-	-	-	-	-	-
Denmark	2.09	1.67	1.32	1.34	3.02	4.96	4.03	2.41	3.33	2.87	1.60	-46.9%
Estonia	..	..	..	..	0.57	0.28	0.33	0.38	0.78	0.79	0.71	24.0%
Finland	0.24	0.30	1.84	1.45	1.78	1.04	2.10	1.59	1.44	1.26	0.78	-56.1%
France	12.71	14.53	12.52	7.52	7.96	7.94	9.42	8.65	9.20	8.04	8.02	0.7%
Germany	12.93	10.52	11.00	10.85	7.79	6.43	6.85	7.83	9.66	9.36	8.57	9.9%
Greece	1.78	2.70	2.63	3.51	7.97	11.17	11.28	9.02	10.05	9.72	8.25	3.5%
Hungary	-	-	-	-	-	-	-	-	-	-	-	-
Iceland	..	..	..	0.02	0.10	0.14	0.21	0.20	0.20	0.19	0.20	106.0%
Ireland	0.24	0.20	0.23	0.09	0.06	0.36	0.47	0.32	0.34	0.27	0.35	523.9%
Italy	22.80	17.97	13.08	10.75	8.37	7.59	5.16	7.06	7.60	7.98	7.43	-11.2%
Luxembourg	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	28.26	32.86	29.39	27.45	34.29	35.59	41.98	53.31	50.40	48.58	44.61	30.1%
Norway	1.90	1.49	0.87	1.03	1.39	2.19	2.56	2.16	2.05	1.49	1.54	10.3%
Poland	1.63	2.21	2.22	1.63	1.24	0.44	0.90	1.01	0.78	0.87	0.78	-36.9%
Portugal	2.32	2.00	1.34	1.48	1.91	1.52	2.08	1.82	1.57	1.68	1.51	-20.8%
Slovak Republic	-	-	-	-	-	-	-	-	-	-	-	-
Slovenia	..	..	..	..	..	..	..	0.07	0.15	0.21	0.10	..
Spain	5.94	3.44	5.07	6.76	11.46	10.00	18.97	25.00	26.71	27.69	27.52	140.2%
Sweden	3.58	3.45	2.66	1.76	2.09	3.30	4.28	6.12	6.54	6.43	6.70	220.0%
Switzerland	..	..	..	..	0.06	0.05	0.03	0.04	0.03	0.03	0.02	-55.6%
Turkey	0.26	0.29	..	0.25	0.37	0.58	1.25	3.31	2.63	2.06	0.85	129.8%
United Kingdom	17.37	10.60	7.57	6.56	7.84	7.62	6.44	6.34	7.32	7.99	7.67	-2.2%
OECD Europe **	122.10	112.87	99.26	89.76	111.18	113.49	135.37	161.04	170.34	168.00	149.56	34.5%
<i>European Union - 27</i>	..	..	..	..	111.49	112.64	134.49	159.93	170.14	169.42	153.14	37.4%

* Includes Estonia and Slovenia prior to 1990.

** Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions from international marine bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Non-OECD Total *	135.85	108.43	106.59	117.35	126.10	159.05	194.87	247.75	295.52	298.15	312.88	148.1%
Algeria	0.61	0.77	1.29	1.16	1.36	1.17	0.77	1.17	1.09	1.01	0.91	-33.0%
Angola	0.77	0.48	0.83	0.10	0.02	0.03	..	0.34	0.04	0.04	0.59	+
Benin	..	..	..	..	..	..	..	..	..	..	..	..
Botswana	..	..	..	..	..	..	..	..	..	..	..	..
Cameroon	..	..	0.12	0.03	0.04	0.09	0.06	0.04	0.16	0.16	0.16	275.8%
Congo	..	..	..	..	..	..	..	..	0.09	0.13	..	..
Dem. Rep. of Congo	0.40	0.22	0.08	0.09	0.10	0.01	..	..	..	..	..	..
Côte d'Ivoire	0.06	0.01	1.35	0.73	0.12	0.27	0.29	0.35	0.34	0.21	0.20	64.3%
Egypt	0.06	1.08	3.19	4.71	5.25	7.73	8.58	4.51	3.08	1.51	0.96	-81.8%
Eritrea	..	..	..	..	..	0.42	..	..	..	..	..	..
Ethiopia	0.07	0.01	0.01	0.03	0.04	0.52	..	..	..	..	..	..
Gabon	0.20	0.14	0.19	0.22	0.08	0.44	0.60	0.71	0.83	0.84	0.57	620.4%
Ghana	0.16	0.14	0.10	..	..	..	0.16	0.12	0.14	0.18	0.23	..
Kenya	1.47	1.05	0.56	0.45	0.55	0.17	0.26	0.06	0.07	0.07	0.09	-84.4%
Libyan Arab Jamahiriya	0.01	0.01	0.02	0.04	0.25	0.28	0.28	0.28	0.28	0.28	0.28	12.5%
Morocco	0.24	0.18	0.21	0.04	0.06	0.04	0.04	0.04	0.04	0.04	0.04	-34.9%
Mozambique	0.76	0.35	0.27	0.10	0.09	0.01	0.00	0.01	..	..	..	..
Namibia	..	..	..	..	..	..	..	..	..	..	..	..
Nigeria	0.02	0.11	0.25	0.34	0.58	1.42	1.15	1.55	1.75	1.86	1.96	237.9%
Senegal	2.99	2.09	0.84	0.33	0.11	0.09	0.30	0.36	0.27	0.23	0.19	69.7%
South Africa	10.81	7.15	5.25	3.41	5.95	10.30	8.51	8.52	8.30	8.61	8.46	42.1%
Sudan	..	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	14.3%
United Rep. of Tanzania	0.05	0.05	0.12	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	-15.5%
Togo	..	..	..	..	..	..	0.01	0.01	0.01	0.01	0.01	..
Tunisia	0.06	0.02	0.02	0.01	0.07	0.06	0.03	0.03	0.03	0.08	0.09	25.5%
Zambia	-	-	-	-	-	-	-	-	-	-	-	-
Zimbabwe	..	..	..	..	..	..	..	..	..	..	..	..
Other Africa	3.02	2.08	1.77	1.82	1.71	1.68	1.99	1.74	1.71	1.83	1.83	6.9%
Africa	21.76	15.95	16.48	13.70	16.49	24.81	23.13	19.94	18.33	17.19	16.65	0.9%
Bangladesh	0.06	0.05	0.19	0.07	0.06	0.11	0.11	0.11	0.11	0.11	0.11	78.6%
Brunei Darussalam	..	..	..	..	..	..	..	..	..	..	..	..
Cambodia	..	..	..	..	..	..	..	..	..	..	..	..
Chinese Taipei	0.39	0.33	0.66	1.62	4.86	7.57	11.02	7.72	6.62	5.71	5.05	4.0%
India	0.71	0.57	0.72	0.34	0.47	0.39	0.27	0.08	0.15	0.45	0.51	7.7%
Indonesia	0.70	1.09	0.79	0.68	1.68	1.28	0.36	0.42	0.47	0.50	0.52	-68.8%
DPR of Korea	..	..	..	..	..	..	..	..	..	..	..	..
Malaysia	0.11	0.22	0.18	0.31	0.28	0.52	0.67	0.26	0.21	0.19	0.14	-52.2%
Mongolia	..	..	..	..	..	..	..	..	..	..	..	..
Myanmar	0.01	0.00	-	-	-	0.01	0.01	0.01	0.01	0.01	0.01	x
Nepal	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	0.29	0.21	0.47	0.08	0.11	0.05	0.08	0.25	0.41	0.54	0.73	583.9%
Philippines	1.27	0.44	0.59	0.49	0.21	0.35	0.68	0.37	0.75	0.83	0.62	201.6%
Singapore	8.89	10.43	14.96	15.14	33.87	35.28	57.58	78.60	97.28	107.72	112.19	231.3%
Sri Lanka	1.19	1.29	1.10	1.01	1.21	1.09	0.50	0.53	0.54	0.63	0.62	-48.4%
Thailand	0.21	0.25	0.50	0.65	1.70	3.02	2.46	5.18	5.15	5.18	4.75	179.1%
Vietnam	..	..	..	0.07	0.09	0.22	0.46	0.79	0.88	0.91	0.92	974.1%
Other Asia	0.57	0.53	0.46	0.20	0.21	0.33	0.32	0.47	0.47	0.46	0.48	132.7%
Asia	14.39	15.42	20.61	20.65	44.74	50.21	74.52	94.81	113.05	123.23	126.66	183.1%
People's Rep. of China	0.30	0.69	1.87	2.47	4.59	6.62	13.02	26.51	36.04	26.22	30.88	572.5%
Hong Kong, China	1.96	1.69	2.83	3.11	4.52	7.16	10.61	17.79	25.99	21.49	32.35	615.2%
China	2.26	2.37	4.70	5.58	9.11	13.78	23.63	44.30	62.04	47.71	63.22	593.7%

* Includes Estonia and Slovenia prior to 1990.

CO₂ emissions from international marine bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Bahrain	0.56	0.55	0.60	0.47	0.25	0.25	0.25	0.24	0.25	0.22	0.20	-20.0%
Islamic Republic of Iran	1.29	1.57	1.55	1.15	1.56	2.34	1.98	1.69	2.80	2.61	9.96	538.3%
Iraq	0.26	0.29	0.37	0.46	0.40	..	..	..	..	..	..	..
Jordan	..	..	..	..	..	0.03	0.13	0.25	0.12	0.10	0.12	..
Kuwait	6.29	6.32	5.60	2.38	0.55	1.82	1.43	2.15	3.00	3.13	1.20	116.3%
Lebanon	0.71	0.03	..	..	..	0.04	0.05	0.06	0.06	0.07	0.07	..
Oman	3.85	2.54	0.71	0.35	0.06	0.08	0.19	0.12	0.06	0.41	0.38	510.0%
Qatar	..	..	..	..	..	..	..	..	..	..	..	..
Saudi Arabia	40.05	25.86	13.62	28.01	5.74	5.96	6.60	7.09	8.66	8.85	8.00	39.5%
Syrian Arab Republic	0.77	1.26	1.97	2.53	2.82	3.43	3.68	3.17	3.27	3.18	3.39	20.4%
United Arab Emirates	..	..	5.53	9.69	18.99	33.16	29.30	37.44	44.22	46.24	38.88	104.7%
Yemen	1.13	0.91	2.13	1.24	1.24	0.31	0.30	0.39	0.39	0.39	0.39	-68.2%
Middle East	54.91	39.34	32.09	46.28	31.61	47.43	43.91	52.59	62.82	65.21	62.59	98.0%
Albania	..	..	..	..	..	..	..	..	..	..	..	..
Armenia *	..	..	..	..	..	..	..	..	..	..	..	..
Azerbaijan *	..	..	..	..	..	..	..	..	..	..	..	..
Belarus *	..	..	..	..	..	..	..	..	..	..	..	..
Bosnia and Herzegovina *	..	..	..	..	..	..	..	..	..	..	..	..
Bulgaria	..	..	..	0.71	0.18	0.85	0.20	0.34	0.16	0.38	0.64	255.8%
Croatia *	..	..	..	..	0.15	0.10	0.06	0.08	0.07	0.07	0.02	-85.2%
Cyprus	0.01	0.06	0.05	0.11	0.18	0.21	0.60	0.90	0.85	0.78	0.68	277.0%
Georgia *	..	..	..	..	..	0.16	..	..	..	..	..	..
Gibraltar	0.55	0.58	0.41	0.88	1.38	2.69	3.22	3.63	3.84	3.92	4.04	193.5%
Kazakhstan *	..	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan *	..	..	..	..	..	..	..	..	..	..	..	..
Latvia *	..	..	..	..	1.48	0.47	0.02	0.81	0.56	0.65	0.86	-42.0%
Lithuania *	..	..	..	..	0.30	0.44	0.29	0.45	0.37	0.28	0.40	34.3%
FYR of Macedonia *	..	..	..	..	..	..	..	..	..	..	..	..
Malta	0.19	0.08	0.09	0.06	0.09	0.14	2.07	2.09	2.67	2.89	3.57	+
Republic of Moldova *	..	..	..	..	..	..	..	..	..	..	..	..
Romania	..	..	..	..	..	..	..	..	0.11	0.22	0.05	..
Russian Federation *	..	..	..	..	5.87	..	..	..	..	..	..	..
Serbia *	..	..	..	..	..	..	..	..	..	..	..	..
Tajikistan *	..	..	..	..	..	..	..	..	..	..	..	..
Turkmenistan *	..	..	..	..	..	..	..	..	..	..	..	..
Ukraine *	..	..	..	..	..	..	..	..	..	..	..	..
Uzbekistan *	..	..	..	..	..	..	..	..	..	..	..	..
Former Soviet Union *	13.17	14.09	14.09	13.79	..	..	..	..	..	..	..	..
Former Yugoslavia *	..	..	..	..	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	13.92	14.81	14.64	15.53	9.62	5.06	6.45	8.30	8.64	9.19	10.26	6.6%
Argentina	0.66	0.28	1.32	2.00	2.22	1.71	1.48	2.19	2.82	3.02	2.99	34.7%
Bolivia	..	..	..	..	..	..	..	..	..	..	..	..
Brazil	1.00	1.17	1.42	1.71	1.72	3.64	9.16	10.92	11.29	14.17	11.75	584.6%
Colombia	0.95	0.49	0.31	0.22	0.33	0.58	0.72	1.05	1.22	1.28	1.32	301.9%
Costa Rica	..	..	..	..	..	..	..	..	..	..	..	..
Cuba	..	..	..	0.13	0.05	0.05	0.06	0.09	0.10	0.10	0.10	76.5%
Dominican Republic	..	..	..	..	..	..	..	..	..	..	..	..
Ecuador	0.28	..	0.34	0.11	0.57	1.05	0.87	0.69	1.94	3.26	3.95	591.5%
El Salvador	..	..	..	..	..	..	..	..	..	..	..	..
Guatemala	0.18	0.27	0.40	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	..
Haiti	..	..	..	..	..	..	..	..	..	..	..	..
Honduras	..	..	..	..	..	..	..	..	..	..	..	..
Jamaica	0.16	0.26	0.10	0.04	0.09	0.09	0.09	0.09	0.09	0.09	0.09	..
Netherlands Antilles	7.71	7.34	7.27	6.13	5.18	5.32	5.20	5.46	5.65	5.76	5.54	6.9%
Nicaragua	..	..	..	..	..	..	..	..	..	..	..	..
Panama	0.03	0.07	0.06	0.08	0.10	0.16	0.17	0.22	0.31	0.31	0.34	234.4%
Paraguay	..	..	..	..	..	..	..	..	..	..	..	..
Peru	0.04	0.05	0.38	0.53	0.03	0.41	0.13	0.71	0.47	0.47	0.23	563.7%
Trinidad and Tobago	5.12	3.54	1.42	0.31	0.11	0.16	1.19	1.47	1.46	1.37	1.38	+
Uruguay	0.27	0.20	0.24	0.33	0.37	1.21	0.92	1.14	1.07	1.43	1.63	342.5%
Venezuela	9.13	4.82	1.99	1.76	2.50	2.30	2.06	2.33	2.75	2.88	2.81	12.5%
Other Latin America	3.08	2.04	2.79	1.87	0.86	0.71	0.79	1.06	1.08	1.08	1.00	15.5%
Latin America	28.60	20.53	18.07	15.60	14.52	17.75	23.22	27.81	30.64	35.62	33.51	130.8%

* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO₂ emissions from international aviation bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
World	167.66	172.04	199.96	222.84	255.93	284.71	345.24	407.83	431.17	439.72	423.44	65.5%
<i>Annex I Parties</i>	..	..	..	..	167.76	177.63	221.39	250.91	259.50	263.40	245.27	46.2%
<i>Annex II Parties</i>	58.57	61.75	70.77	81.47	130.39	158.14	202.37	226.72	233.56	235.63	217.90	67.1%
<i>North America</i>	16.61	17.53	21.18	21.83	41.50	48.54	60.20	70.76	71.96	72.19	65.95	58.9%
<i>Europe</i>	35.96	37.67	42.70	48.59	69.97	85.65	113.65	124.29	131.80	134.56	125.09	78.8%
<i>Asia Oceania</i>	6.01	6.55	6.90	11.05	18.92	23.96	28.52	31.68	29.79	28.88	26.85	41.9%
<i>Annex I EIT</i>	..	..	..	..	36.63	18.50	17.12	20.71	22.25	23.53	22.89	-37.5%
<i>Non-Annex I Parties</i>	..	..	..	..	88.16	107.08	123.85	156.92	171.67	176.32	178.18	102.1%
<i>Annex I Kyoto Parties</i>	..	..	..	..	128.22	130.68	162.37	179.22	185.40	188.58	176.85	37.9%
Non-OECD Total *	104.02	103.87	119.38	130.73	114.81	112.11	125.98	155.88	167.66	171.67	175.29	52.7%
OECD Total **	63.64	68.18	80.58	92.11	141.11	172.60	219.26	251.96	263.51	268.05	248.16	75.9%
Canada	1.25	1.93	1.35	1.22	2.71	2.58	3.08	2.55	1.55	1.61	2.02	-25.3%
Chile	0.43	0.35	0.54	0.49	0.57	0.64	1.04	1.05	1.37	1.59	1.30	130.2%
Mexico	1.39	2.40	4.23	4.53	5.23	6.75	8.05	8.52	9.84	9.42	7.96	52.1%
United States	15.35	15.60	19.83	20.61	38.79	45.96	57.11	68.21	70.41	70.58	63.93	64.8%
OECD Americas	18.43	20.27	25.95	26.85	47.29	55.93	69.29	80.33	83.18	83.20	75.21	59.0%
Australia	1.57	1.89	2.40	2.76	4.29	5.75	7.15	8.10	9.13	9.05	9.24	115.3%
Israel	1.79	1.88	2.21	1.99	1.56	2.10	2.35	2.19	2.46	2.50	2.40	53.6%
Japan	3.80	4.32	3.92	7.63	13.31	16.61	19.57	21.37	18.39	17.55	15.43	15.9%
Korea	-	0.36	0.83	1.69	0.84	2.05	1.70	7.25	9.39	11.28	10.93	+
New Zealand	0.64	0.34	0.57	0.66	1.32	1.60	1.79	2.20	2.28	2.29	2.18	65.4%
OECD Asia Oceania	7.80	8.79	9.93	14.74	21.33	28.10	32.56	41.11	41.64	42.66	40.19	88.4%
Austria	0.28	0.24	0.38	0.65	0.82	1.29	1.63	1.67	1.68	1.78	1.57	92.2%
Belgium	1.21	1.05	1.22	1.62	2.82	2.61	4.37	3.80	3.00	6.05	5.72	103.0%
Czech Republic	0.69	0.58	0.85	0.63	0.65	0.56	0.48	0.94	1.02	0.99	1.00	54.0%
Denmark	1.92	1.56	1.59	1.56	1.70	1.84	2.32	2.55	2.63	2.61	2.30	34.8%
Estonia	..	..	..	..	0.09	0.05	0.06	0.14	0.15	0.08	0.10	3.2%
Finland	0.18	0.40	0.46	0.48	0.97	0.86	1.02	1.24	1.59	1.72	1.51	54.7%
France	4.57	5.71	5.62	6.43	9.32	11.44	15.07	16.10	17.47	17.58	16.19	73.6%
Germany	7.57	8.16	8.22	9.46	12.58	14.13	17.39	19.69	21.45	21.73	21.14	68.1%
Greece	1.29	1.31	2.23	2.33	2.34	2.52	2.41	2.30	2.82	2.94	2.53	7.9%
Hungary	0.15	0.20	0.36	0.44	0.49	0.54	0.69	0.79	0.74	0.82	0.70	43.8%
Iceland	0.22	0.13	0.09	0.18	0.22	0.20	0.39	0.40	0.49	0.35	0.22	-
Ireland	0.96	0.73	0.60	0.57	1.03	1.11	1.73	2.35	2.87	2.69	1.64	59.3%
Italy	3.47	2.44	4.15	4.33	4.50	5.80	8.38	8.88	10.11	9.76	8.88	97.6%
Luxembourg	0.11	0.15	0.19	0.22	0.39	0.56	0.95	1.28	1.29	1.30	1.24	218.0%
Netherlands	2.01	2.26	2.72	3.47	4.29	7.38	9.65	10.67	10.87	11.02	10.25	138.6%
Norway	0.70	0.51	0.67	0.92	1.24	1.09	1.05	1.04	1.12	1.13	1.06	-15.2%
Poland	0.52	0.53	0.67	0.67	0.68	0.82	0.82	0.96	1.33	1.59	1.44	112.6%
Portugal	0.70	0.80	0.88	1.27	1.49	1.49	1.69	2.13	2.50	2.59	2.43	63.0%
Slovak Republic	-	-	-	-	-	0.12	0.08	0.12	0.15	0.19	0.13	x
Slovenia	..	..	..	..	0.08	0.06	0.07	0.07	0.09	0.10	0.08	-
Spain	1.74	2.77	2.58	2.67	3.32	6.01	8.03	9.18	10.07	10.11	9.40	183.0%
Sweden	0.33	0.33	0.49	0.51	1.07	1.76	2.06	1.87	1.93	2.32	2.11	96.6%
Switzerland	1.63	1.80	2.02	2.41	3.00	3.63	4.57	3.48	3.87	4.14	3.98	32.7%
Turkey	0.09	0.14	0.12	0.18	0.53	0.78	1.54	3.21	3.42	3.86	4.22	691.4%
United Kingdom	7.08	7.32	8.59	9.53	18.86	21.92	30.93	35.65	36.04	34.74	32.94	74.7%
OECD Europe **	37.41	39.12	44.70	50.51	72.49	88.57	117.40	130.51	138.69	142.18	132.76	83.1%
<i>European Union - 27</i>	..	..	..	..	70.44	85.61	111.80	124.72	132.24	135.45	125.61	78.3%

* Includes Estonia and Slovenia prior to 1990.

** Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions from international aviation bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Non-OECD Total *	104.02	103.87	119.38	130.73	114.81	112.11	125.98	155.88	167.66	171.67	175.29	52.7%
Algeria	0.29	0.66	0.93	1.31	1.09	0.96	1.17	1.16	1.12	1.25	1.40	28.4%
Angola	0.23	0.31	0.25	0.99	1.03	1.17	1.42	0.56	0.35	0.42	0.61	-40.8%
Benin	0.02	0.01	0.03	0.06	0.05	0.07	0.07	0.03	0.08	0.13	0.27	437.5%
Botswana	..	..	..	0.01	0.03	0.02	0.02	0.03	0.03	0.05	0.05	36.4%
Cameroon	0.17	0.10	0.15	0.15	0.15	0.17	0.18	0.20	0.20	0.21	0.21	36.8%
Congo	-	-	-	-	-	-	-	-	-	-	-	-
Dem. Rep. of Congo	0.28	0.24	0.37	0.40	0.32	0.35	0.24	0.50	0.53	0.05	0.05	-85.3%
Côte d'Ivoire	0.13	0.21	0.27	0.29	0.27	0.26	0.37	0.28	0.15	0.17	0.16	-41.2%
Egypt	0.21	0.27	0.51	0.12	0.44	0.79	1.71	2.23	3.05	2.75	3.00	578.6%
Eritrea	..	..	..	..	..	0.02	0.03	0.03	0.02	0.01	0.00	..
Ethiopia	0.14	0.16	0.20	0.34	0.53	0.20	0.24	0.46	0.69	0.68	0.74	38.8%
Gabon	0.03	0.04	0.07	0.08	0.20	0.19	0.24	0.21	0.16	0.17	0.13	-35.8%
Ghana	0.13	0.15	0.12	0.10	0.14	0.18	0.32	0.39	0.40	0.39	0.41	195.9%
Kenya	0.57	0.89	1.10	0.82	0.83	1.37	1.36	1.76	2.02	1.76	1.80	117.1%
Libyan Arab Jamahiriya	0.27	0.53	0.89	1.05	0.63	0.91	1.33	0.58	0.57	0.59	0.73	15.5%
Morocco	0.35	0.44	0.78	0.70	0.79	0.73	0.90	1.16	1.53	1.53	1.54	96.0%
Mozambique	0.12	0.05	0.08	0.09	0.13	0.06	0.13	0.14	0.20	0.18	0.21	63.4%
Namibia	..	..	..	..	..	-	-	-	-	-	-	..
Nigeria	0.24	0.70	1.14	1.33	0.95	1.25	0.58	0.70	0.73	2.63	2.00	109.3%
Senegal	0.30	0.37	0.58	0.43	0.45	0.45	0.75	0.74	0.98	1.00	0.63	37.6%
South Africa	0.53	0.73	0.87	0.93	1.09	1.58	2.79	2.21	2.57	2.60	2.68	145.3%
Sudan	0.34	0.14	0.20	0.21	0.09	0.10	0.33	0.87	1.01	1.03	1.14	+
United Rep. of Tanzania	0.08	0.20	0.17	0.13	0.22	0.19	0.18	0.26	0.30	0.32	0.34	53.1%
Togo	-	-	-	-	0.10	0.12	0.03	0.15	0.09	0.19	0.19	81.8%
Tunisia	0.39	0.38	0.56	0.30	0.57	0.74	0.85	0.65	0.68	0.70	0.61	8.0%
Zambia	0.04	0.14	0.23	0.12	0.19	0.10	0.13	0.16	0.10	0.12	0.13	-34.9%
Zimbabwe	0.07	0.17	0.19	0.32	0.23	0.33	0.35	0.02	0.02	0.02	0.02	-90.3%
Other Africa	-	-	0.91	0.91	0.84	0.94	1.53	1.77	1.82	1.88	1.88	123.9%
Africa	4.91	6.88	10.60	11.21	11.38	13.23	17.24	17.28	19.40	20.82	20.91	83.8%
Bangladesh	0.06	0.08	0.15	0.22	0.27	0.30	0.38	0.87	0.75	0.65	0.57	109.3%
Brunei Darussalam	0.00	0.06	0.07	0.05	0.11	0.21	0.21	0.25	0.24	0.28	0.27	136.1%
Cambodia	..	..	..	..	..	0.03	0.06	0.06	0.09	0.09	0.09	..
Chinese Taipei	1.48	1.62	1.66	0.92	1.79	4.09	5.38	6.46	6.64	5.72	5.54	209.0%
India	1.68	1.98	2.49	3.21	3.71	4.60	4.97	7.28	10.04	9.85	10.23	175.9%
Indonesia	0.16	0.32	0.73	0.65	0.96	1.17	1.21	1.52	1.71	1.82	1.90	97.0%
DPR of Korea	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia	0.42	0.74	0.80	0.89	1.94	3.44	4.67	5.96	6.39	6.26	6.28	224.1%
Mongolia	..	..	..	-	0.01	0.06	0.06	0.06	0.12	0.10	0.05	275.0%
Myanmar	0.09	0.08	0.13	0.13	0.09	0.14	0.20	0.15	0.20	0.19	0.21	139.3%
Nepal	0.01	0.02	0.04	0.06	0.05	0.11	0.17	0.19	0.18	0.18	0.21	326.7%
Pakistan	1.13	1.08	1.69	1.41	1.39	1.70	2.28	2.84	2.27	2.38	2.54	82.2%
Philippines	0.75	0.88	0.69	1.08	1.08	1.24	1.52	2.26	3.20	3.02	3.09	187.4%
Singapore	0.70	1.32	2.71	3.19	5.63	7.81	9.89	12.44	12.41	12.44	12.43	120.8%
Sri Lanka	-	0.00	0.00	-	-	-	0.32	0.93	0.32	0.30	0.31	x
Thailand	1.26	2.17	2.39	3.12	5.58	7.51	8.27	10.17	11.67	10.97	10.49	87.8%
Vietnam	6.88	2.60	-	-	-	0.12	0.30	0.79	0.81	0.87	1.15	x
Other Asia	0.66	0.52	0.33	0.47	0.51	0.33	0.61	0.96	1.15	0.99	1.03	101.1%
Asia	15.28	13.48	13.86	15.39	23.14	32.88	40.46	53.20	58.20	56.12	56.39	143.7%
People's Rep. of China	-	-	-	0.22	0.50	0.99	2.13	6.19	6.59	6.04	8.00	+
Hong Kong, China	1.41	1.83	2.24	2.55	5.62	9.22	8.31	14.71	14.56	14.15	14.06	150.1%
China	1.41	1.83	2.24	2.77	6.12	10.20	10.43	20.90	21.15	20.19	22.07	260.7%

* Includes Estonia and Slovenia prior to 1990.

CO₂ emissions from international aviation bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Bahrain	0.43	0.84	1.53	1.21	1.43	1.15	1.12	1.72	1.85	1.84	1.82	27.2%
Islamic Republic of Iran	7.02	7.01	2.15	1.64	1.48	1.97	2.71	2.69	3.18	3.23	3.70	149.4%
Iraq	0.24	0.81	1.05	1.12	2.89	1.34	1.80	2.19	1.90	1.99	2.11	-27.0%
Jordan	0.14	0.22	0.62	0.68	0.71	0.77	0.77	0.98	0.92	0.93	1.00	41.7%
Kuwait	0.34	0.34	1.04	0.97	0.51	1.12	1.15	1.82	1.92	2.15	2.41	370.4%
Lebanon	0.28	0.23	0.15	0.32	0.16	0.66	0.40	0.46	0.41	0.53	0.55	250.0%
Oman	0.01	0.15	0.38	0.57	0.93	0.46	0.65	1.24	1.30	1.36	1.41	51.0%
Qatar	-	0.16	0.23	0.24	0.34	0.43	0.57	1.43	2.34	2.71	3.14	811.9%
Saudi Arabia	0.47	1.40	3.45	4.57	4.79	5.69	5.85	5.44	5.73	6.18	6.11	27.5%
Syrian Arab Republic	0.24	0.65	0.72	0.87	0.87	0.62	0.41	0.33	0.28	0.31	0.29	-66.5%
United Arab Emirates	0.02	0.34	0.80	1.80	9.79	10.08	9.87	7.67	9.87	10.29	11.48	17.2%
Yemen	0.09	0.18	0.21	0.46	0.17	0.28	0.38	0.36	0.40	0.36	0.43	147.3%
Middle East	9.29	12.35	12.35	14.44	24.09	24.58	25.67	26.34	30.11	31.86	34.45	43.0%
Albania	-	-	-	-	-	-	0.12	0.15	0.03	0.05	0.05	x
Armenia *	..	..	..	..	0.59	0.10	0.19	0.13	0.17	0.17	0.09	-85.1%
Azerbaijan *	..	..	..	..	0.94	0.24	0.36	1.42	1.16	1.31	0.92	-1.9%
Belarus *	..	..	..	..	-	-	-	-	-	-	-	-
Bosnia and Herzegovina *	..	..	..	..	0.08	-	-	-	-	-	-	..
Bulgaria	0.61	0.61	0.91	1.11	0.71	0.98	0.24	0.56	0.54	0.63	0.45	-36.2%
Croatia *	..	..	..	..	0.15	0.17	0.10	0.12	0.13	0.15	0.13	-10.4%
Cyprus	0.15	0.02	0.23	0.44	0.72	0.79	0.82	0.89	0.87	0.87	0.81	12.3%
Georgia *	..	..	..	..	0.60	0.01	0.05	0.11	0.14	0.12	0.12	-79.7%
Gibraltar	0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	-42.9%
Kazakhstan *	..	..	..	..	2.68	0.78	0.23	0.49	0.70	0.65	0.53	-80.3%
Kyrgyzstan *	..	..	..	..	0.26	0.19	0.12	0.38	0.97	1.20	1.48	466.3%
Latvia *	..	..	..	..	0.22	0.08	0.08	0.17	0.24	0.29	0.30	39.4%
Lithuania *	..	..	..	..	0.40	0.12	0.08	0.14	0.21	0.23	0.11	-73.3%
FYR of Macedonia *	..	..	..	..	0.02	0.09	0.09	0.02	0.02	0.02	0.01	-40.0%
Malta	0.17	0.18	0.23	0.14	0.21	0.22	0.37	0.26	0.27	0.38	0.27	27.1%
Republic of Moldova *	..	..	..	..	0.22	0.03	0.06	0.04	0.04	0.04	0.04	-80.6%
Romania	0.06	0.05	-	-	0.69	0.54	0.37	0.33	0.32	0.36	0.38	-44.5%
Russian Federation *	..	..	..	..	26.37	13.99	13.27	15.27	16.28	17.34	17.36	-34.1%
Serbia *	..	..	..	..	0.43	0.11	0.09	0.15	0.14	-	-	..
Tajikistan *	..	..	..	..	0.05	0.02	0.01	0.01	0.01	0.01	0.01	-73.3%
Turkmenistan *	..	..	..	..	-	-	-	-	-	-	-	-
Ukraine *	..	..	..	..	6.11	0.47	0.78	1.11	1.06	0.77	0.70	-88.6%
Uzbekistan *	..	..	..	..	-	-	-	-	-	-	-	-
Former Soviet Union *	66.66	62.09	70.62	76.70	..	..	..	..	..	..	..	..
Former Yugoslavia *	0.64	0.88	1.00	0.99	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	68.31	63.86	73.00	79.40	41.44	18.96	17.41	21.76	23.33	24.60	23.78	-42.6%
Argentina	-	-	-	-	-	1.58	2.83	2.14	2.25	2.41	2.50	x
Bolivia	-	-	-	-	-	-	-	-	-	-	-	-
Brazil	-	-	0.61	0.74	1.41	2.06	2.00	3.30	4.14	4.72	4.90	246.8%
Colombia	0.77	1.03	1.42	1.39	1.56	2.14	1.89	1.83	1.53	1.72	1.79	14.8%
Costa Rica	-	-	-	-	-	0.31	0.36	0.57	0.54	0.56	0.50	x
Cuba	0.28	0.45	0.68	0.93	1.02	0.56	0.65	0.54	0.55	0.45	0.43	-57.9%
Dominican Republic	0.08	0.10	0.17	0.16	0.11	0.17	0.22	0.30	0.29	0.29	0.29	158.3%
Ecuador	0.27	0.14	0.45	0.45	0.39	0.55	0.66	0.96	1.04	1.05	1.03	164.2%
El Salvador	0.03	0.05	0.05	0.10	0.11	0.15	0.22	0.24	0.36	0.35	0.33	205.9%
Guatemala	0.15	0.11	0.13	0.12	0.13	0.14	0.15	0.23	0.09	0.08	0.07	-43.9%
Haiti	0.02	0.03	0.05	0.04	0.07	0.07	0.09	0.07	0.06	0.07	0.05	-26.1%
Honduras	0.02	0.03	0.06	0.12	0.09	0.07	0.11	0.07	0.08	0.14	0.15	69.0%
Jamaica	0.42	0.33	0.30	0.39	0.46	0.52	0.53	0.60	0.76	0.98	0.52	11.6%
Netherlands Antilles	0.15	0.13	0.16	0.13	0.12	0.20	0.20	0.21	0.21	0.22	0.21	78.4%
Nicaragua	0.05	0.06	0.06	0.04	0.08	0.06	0.08	0.05	0.08	0.08	0.06	-26.8%
Panama	0.43	1.11	0.41	0.26	0.20	0.31	0.54	0.57	0.81	0.94	0.94	367.2%
Paraguay	0.03	0.04	0.06	0.06	0.03	0.03	0.04	0.05	0.07	0.06	0.06	105.6%
Peru	0.51	0.74	0.92	0.71	0.64	1.10	1.06	0.96	0.52	1.78	1.74	170.1%
Trinidad and Tobago	0.21	0.12	0.17	0.22	0.20	0.17	0.39	0.38	0.18	0.19	0.20	3.2%
Uruguay	-	-	-	-	-	-	0.12	0.12	0.22	0.21	0.21	x
Venezuela	0.29	0.37	0.73	0.81	1.02	1.00	0.94	2.03	0.43	0.45	0.48	-53.2%
Other Latin America	1.10	0.63	0.90	0.86	1.01	1.07	1.70	1.18	1.27	1.33	1.23	21.8%
Latin America	4.82	5.47	7.32	7.53	8.66	12.27	14.78	16.40	15.48	18.08	17.69	104.4%

* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO₂ emissions by sector in 2009 *million tonnes of CO₂

	Total CO ₂ emissions from fuel combustion	Electricity and heat production	Other energy industry own use **	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
World ***	28 999.4	11 827.1	1 464.1	5 870.9	6 543.8	4 876.6	3 293.4	1 875.0
<i>Annex I Parties</i>	13 011.7	5 323.2	654.9	1 849.2	3 339.1	2 897.4	1 845.3	1 078.9
<i>Annex II Parties</i>	10 236.0	3 942.0	541.8	1 363.4	2 911.9	2 578.5	1 476.9	816.6
<i>North America</i>	5 715.8	2 292.5	322.9	636.1	1 771.9	1 529.9	692.4	362.8
<i>Europe</i>	3 001.2	985.3	154.2	432.6	824.0	768.3	605.1	387.9
<i>Asia Oceania</i>	1 519.0	664.3	64.7	294.7	316.0	280.4	179.4	65.9
<i>Annex I EIT</i>	2 517.0	1 279.9	101.9	444.9	382.0	279.4	308.3	224.0
<i>Non-Annex I Parties</i>	14 972.0	6 503.9	809.2	4 021.7	2 189.0	1 979.2	1 448.1	796.2
<i>Annex I Kyoto Parties</i>	7 497.2	3 000.7	384.0	1 252.3	1 673.9	1 451.0	1 186.3	709.2
Non-OECD Total	15 939.0	7 102.6	807.5	4 244.1	2 213.5	1 916.0	1 571.2	913.0
OECD Total	12 044.7	4 724.5	656.6	1 626.8	3 314.7	2 960.5	1 722.2	962.1
Canada	520.7	102.2	65.7	91.7	157.6	127.1	103.6	38.5
Chile	64.9	22.6	3.3	13.3	20.5	17.9	5.2	3.4
Mexico	399.7	118.8	50.5	51.8	147.3	143.5	31.3	18.5
United States	5 195.0	2 190.2	257.2	544.4	1 614.3	1 402.8	588.8	324.3
OECD Americas	6 180.4	2 433.8	376.7	701.2	1 939.6	1 691.4	729.0	384.7
Australia	394.9	222.5	21.7	49.8	82.4	70.1	18.4	8.0
Israel	64.6	38.2	2.2	1.2	17.0	17.0	6.0	2.7
Japan	1 092.9	434.4	41.3	238.8	220.1	198.2	158.2	57.4
Korea	515.5	251.1	31.8	88.7	85.2	79.9	58.7	31.4
New Zealand	31.3	7.3	1.7	6.1	13.5	12.1	2.8	0.6
OECD Asia Oceania	2 099.1	953.6	98.8	384.5	418.2	377.3	244.0	100.0
Austria	63.4	13.8	6.0	12.1	21.7	20.7	9.7	7.2
Belgium	100.7	21.5	4.9	21.8	26.4	25.8	26.1	17.1
Czech Republic	109.8	59.4	2.5	18.9	17.7	16.9	11.4	6.9
Denmark	46.8	22.0	2.4	3.8	13.1	12.0	5.5	2.9
Estonia	14.7	11.0	0.1	0.9	2.1	2.0	0.6	0.2
Finland	55.0	25.3	3.5	9.0	12.2	11.2	5.0	2.1
France	354.3	52.3	16.0	57.6	123.9	118.0	104.5	58.9
Germany	750.2	308.7	25.2	101.9	148.7	141.0	165.7	113.8
Greece	90.2	44.5	3.3	7.3	24.6	20.8	10.5	7.3
Hungary	48.2	15.3	1.6	5.6	12.8	12.5	13.0	8.3
Iceland	2.0	0.0	-	0.6	0.9	0.8	0.5	0.0
Ireland	39.5	13.0	0.5	3.9	12.1	11.8	10.0	6.9
Italy	389.3	130.8	16.4	50.2	110.8	104.5	81.2	50.3
Luxembourg	10.0	1.2	-	0.9	6.1	6.1	1.8	1.2
Netherlands	176.1	57.2	10.4	39.0	32.8	32.0	36.6	17.6
Norway	37.3	2.4	11.4	6.6	13.5	9.9	3.4	0.5
Poland	286.8	152.3	7.0	32.7	44.5	43.2	50.2	31.7
Portugal	53.1	19.9	2.4	7.2	18.9	17.7	4.8	2.0
Slovak Republic	33.2	8.3	4.5	7.6	6.0	5.0	6.7	3.1
Slovenia	15.2	6.0	0.0	2.1	5.1	5.0	2.1	1.1
Spain	283.4	87.0	17.5	47.3	100.5	88.5	31.2	17.9
Sweden	41.7	8.1	2.7	6.8	21.1	20.2	3.0	0.4
Switzerland	42.4	2.9	1.0	5.8	17.1	16.8	15.6	10.4
Turkey	256.3	99.4	11.2	40.8	44.8	39.0	60.1	38.3
United Kingdom	465.8	174.7	30.6	50.8	119.7	110.5	90.0	71.2
OECD Europe	3 765.2	1 337.0	181.1	541.0	956.9	891.9	749.2	477.4
<i>European Union - 27</i>	3 576.8	1 305.8	165.5	509.2	912.9	855.6	683.5	436.1

* This table shows CO₂ emissions for the same sectors which are present throughout this publication. In particular, the emissions from electricity and heat production are shown separately and not reallocated as in the table on pages II.28-II.30.

** Includes emissions from own use in petroleum refining, the manufacture of solid fuels, coal mining, oil and gas extraction and other energy-producing industries.

*** World includes international bunkers in the transport sector.

CO₂ emissions by sector in 2009million tonnes of CO₂

	Total CO ₂ emissions from fuel combustion	Electricity and heat production	Other energy industry own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Non-OECD Total	15 939.0	7 102.6	807.5	4 244.1	2 213.5	1 916.0	1 571.2	913.0
Algeria	92.5	24.6	10.7	11.7	29.8	27.8	15.6	15.6
Angola	12.9	1.0	0.3	3.0	5.4	4.7	3.3	1.2
Benin	4.2	0.1	-	0.1	2.8	2.8	1.1	1.1
Botswana	4.2	0.9	-	1.2	1.9	1.9	0.2	0.1
Cameroon	4.8	1.4	0.2	0.4	2.5	2.4	0.4	0.3
Congo	1.7	0.1	-	0.1	1.4	1.2	0.1	0.1
Dem. Rep. of Congo	2.9	0.0	-	1.0	0.7	0.7	1.2	0.3
Côte d'Ivoire	6.1	2.5	0.2	0.5	1.4	1.2	1.5	0.5
Egypt	175.4	64.7	12.4	35.6	40.8	37.6	21.9	15.1
Eritrea	0.5	0.2	-	0.0	0.1	0.1	0.1	0.1
Ethiopia	7.4	0.5	-	1.8	4.2	4.2	0.9	0.9
Gabon	1.7	0.5	0.0	0.6	0.3	0.3	0.2	0.1
Ghana	9.0	1.7	0.0	1.5	4.8	4.4	1.0	0.7
Kenya	10.0	2.7	0.5	1.3	3.9	3.7	1.6	1.1
Libyan Arab Jamahiriya	50.0	26.5	3.0	6.4	12.0	12.0	2.1	2.1
Morocco	41.3	13.7	0.5	6.9	11.4	11.4	8.8	4.0
Mozambique	2.2	0.0	0.0	0.5	1.5	1.4	0.2	0.1
Namibia	3.7	0.4	-	0.3	2.1	1.8	0.9	-
Nigeria	41.2	8.2	4.5	3.1	23.5	23.5	1.8	1.8
Senegal	5.3	1.8	0.0	0.9	1.9	1.8	0.5	0.4
South Africa	369.4	228.5	4.0	51.2	49.9	46.7	35.8	20.2
Sudan	13.3	2.4	0.5	2.0	7.5	7.4	0.9	0.7
United Rep. of Tanzania	6.3	1.3	-	0.8	3.5	3.5	0.7	0.6
Togo	1.1	0.0	-	0.1	0.9	0.9	0.1	0.1
Tunisia	20.8	8.4	0.1	3.5	4.6	4.6	4.1	1.7
Zambia	1.7	0.0	0.0	0.8	0.5	0.4	0.2	-
Zimbabwe	8.7	4.9	0.0	1.4	1.1	1.0	1.3	0.1
Other Africa	29.4	7.9	0.1	5.6	12.0	10.4	3.9	1.7
Africa	927.5	405.1	37.2	142.2	232.5	219.7	110.5	70.8
Bangladesh	50.7	22.2	0.2	11.8	7.5	5.7	9.0	5.3
Brunei Darussalam	8.1	2.7	1.9	2.2	1.1	1.1	0.2	0.1
Cambodia	4.3	1.4	-	0.2	1.1	1.1	1.6	1.2
Chinese Taipei	250.1	143.7	11.7	50.6	34.3	33.2	9.9	4.7
India	1 585.8	855.7	49.7	346.2	150.1	134.1	184.1	76.7
Indonesia	376.3	115.9	27.4	109.1	92.6	82.6	31.3	18.5
DPR of Korea	66.2	10.5	0.0	41.9	0.9	0.9	12.8	0.1
Malaysia	164.2	68.2	16.3	32.9	41.3	40.5	5.5	2.0
Mongolia	12.0	7.4	0.0	1.2	1.4	1.1	1.9	0.9
Myanmar	10.1	1.1	0.5	2.7	2.7	2.6	3.0	0.2
Nepal	3.4	0.0	-	0.8	1.7	1.7	0.9	0.4
Pakistan	136.9	43.7	1.7	43.3	32.0	31.2	16.3	13.1
Philippines	70.5	29.6	0.4	11.1	23.6	21.0	5.8	2.6
Singapore	44.8	21.7	8.4	5.8	8.4	8.2	0.5	0.4
Sri Lanka	12.7	4.5	0.2	1.4	5.6	4.9	0.9	0.3
Thailand	227.8	76.2	6.7	73.0	54.6	54.1	17.3	4.6
Vietnam	114.1	32.0	1.5	40.1	29.0	27.7	11.6	6.6
Other Asia	15.2	5.8	-	3.4	3.7	2.5	2.4	0.5
Asia	3 153.2	1 442.3	126.5	777.8	491.6	454.2	314.9	138.2
People's Rep. of China	6 831.6	3 294.7	264.2	2 275.8	470.2	360.5	526.6	288.3
Hong Kong, China	45.6	29.6	-	7.5	6.0	6.0	2.5	0.8
China	6 877.2	3 324.3	264.2	2 283.3	476.3	366.5	529.2	289.1

CO₂ emissions by sector in 2009million tonnes of CO₂

	Total CO ₂ emissions from fuel combustion	Electricity and heat production	Other energy industry own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Bahrain	22.8	8.0	4.4	6.9	3.3	3.3	0.2	0.2
Islamic Rep. of Iran	533.2	128.0	31.9	122.0	113.9	113.2	137.4	105.0
Iraq	98.8	31.5	4.6	22.2	31.0	31.0	9.4	9.4
Jordan	19.2	8.3	0.7	2.6	5.1	5.1	2.5	1.6
Kuwait	80.7	46.3	10.5	11.9	11.6	11.6	0.5	0.5
Lebanon	19.3	9.9	-	1.3	5.0	5.0	3.1	3.1
Oman	38.9	15.0	7.4	8.0	5.6	5.6	2.9	1.6
Qatar	56.5	12.2	19.1	18.6	6.3	6.3	0.2	0.2
Saudi Arabia	410.5	164.4	64.1	77.3	100.6	98.5	4.1	4.1
Syrian Arab Republic	59.8	27.8	2.0	10.4	15.6	14.9	4.1	2.5
United Arab Emirates	147.0	57.2	1.9	62.1	25.4	25.4	0.5	0.5
Yemen	22.2	4.3	4.0	2.5	5.1	5.1	6.3	2.2
Middle East	1 509.0	512.8	150.6	345.8	328.6	325.1	171.3	130.9
Albania	2.7	0.1	0.1	0.7	1.3	1.2	0.5	0.1
Armenia	4.3	0.6	-	1.0	1.5	1.5	1.1	1.0
Azerbaijan	25.2	10.3	2.4	1.3	4.5	4.0	6.7	5.7
Belarus	60.8	31.1	2.5	11.6	5.7	4.2	10.0	7.1
Bosnia and Herzegovina	19.1	13.4	1.1	0.7	2.7	2.6	1.2	0.4
Bulgaria	42.2	27.6	1.0	4.1	7.9	7.5	1.6	0.7
Croatia	19.8	4.5	2.0	3.6	6.2	5.7	3.4	2.1
Cyprus	7.5	3.9	-	0.8	2.2	2.2	0.6	0.3
Georgia	5.7	1.2	0.2	0.8	2.2	2.0	1.3	0.8
Gibraltar	0.5	0.1	-	0.1	0.3	0.3	-	-
Kazakhstan	189.5	89.9	30.1	28.7	12.2	10.9	28.6	7.3
Kyrgyzstan	7.1	1.1	-	1.9	2.5	2.5	1.5	-
Latvia	6.8	2.0	-	0.9	2.7	2.5	1.2	0.4
Lithuania	12.4	3.1	1.9	2.1	4.1	3.8	1.1	0.6
FYR of Macedonia	8.3	5.9	0.0	0.8	1.3	1.2	0.4	0.1
Malta	2.4	1.8	-	0.1	0.5	0.5	0.1	0.0
Republic of Moldova	5.7	2.6	0.0	0.2	0.9	0.8	2.0	1.7
Romania	78.4	35.1	5.1	14.0	14.8	13.9	9.4	5.9
Russian Federation	1 532.6	812.7	66.0	274.3	226.3	136.8	153.2	117.2
Serbia	46.3	32.0	0.6	4.5	6.4	5.7	2.8	1.4
Tajikistan	2.8	0.5	-	-	0.3	0.3	2.0	-
Turkmenistan	48.8	14.3	7.4	1.5	3.9	2.5	21.7	-
Ukraine	256.4	111.6	7.6	66.6	26.2	20.5	44.4	38.8
Uzbekistan	112.4	35.8	3.9	20.2	9.2	5.4	43.3	32.5
Non-OECD Europe and Eurasia	2 497.4	1 241.1	131.9	440.5	345.8	238.4	338.1	224.1
Argentina	166.6	43.3	16.9	36.3	37.9	35.1	32.2	19.1
Bolivia	12.9	2.4	1.3	1.5	6.2	5.8	1.5	1.1
Brazil	337.8	30.0	28.1	96.0	147.0	132.2	36.7	16.5
Colombia	60.6	10.0	6.9	16.2	20.0	18.8	7.4	4.0
Costa Rica	6.3	0.4	0.1	1.0	4.4	4.4	0.5	0.1
Cuba	26.8	13.3	0.1	9.5	1.5	1.3	2.4	0.9
Dominican Republic	18.1	8.8	0.0	1.6	5.2	4.2	2.4	2.2
Ecuador	28.5	5.0	1.1	4.7	14.4	12.9	3.3	2.9
El Salvador	6.8	1.8	0.0	1.8	2.6	2.6	0.5	0.5
Guatemala	14.5	3.2	0.1	4.7	6.0	6.0	0.6	0.5
Haiti	2.4	0.4	-	0.5	1.3	0.7	0.2	0.2
Honduras	7.1	2.3	-	1.1	3.0	3.0	0.8	0.2
Jamaica	8.3	3.0	-	0.3	3.0	1.5	2.0	0.1
Netherlands Antilles	5.0	0.9	2.0	0.7	1.2	1.2	0.2	0.2
Nicaragua	4.2	1.7	0.0	0.6	1.5	1.5	0.3	0.1
Panama	7.3	2.1	-	1.6	3.0	1.6	0.5	0.3
Paraguay	4.1	-	-	0.1	3.8	3.7	0.2	0.2
Peru	38.6	8.4	2.8	9.5	14.6	14.0	3.4	1.8
Trinidad and Tobago	40.2	5.6	7.0	24.1	2.8	2.8	0.7	0.7
Uruguay	7.7	2.2	0.6	0.9	2.8	2.8	1.2	0.4
Venezuela	154.6	24.5	29.9	41.1	51.7	51.6	7.5	6.6
Other Latin America	16.4	7.7	0.0	1.2	4.8	4.3	2.8	1.1
Latin America	974.6	177.0	97.1	254.6	338.6	312.0	107.2	59.9

CO₂ emissions with electricity and heat allocated to consuming sectors * in 2009million tonnes of CO₂

	Total CO ₂ emissions from fuel combustion	Other energy industry own use **	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
World ***	28 999.4	2 009.7	10 461.4	6 699.5	4 876.6	9 828.7	5 231.4
<i>Annex I Parties</i>	13 011.7	922.4	3 427.3	3 417.6	2 897.4	5 244.4	2 811.0
<i>Annex II Parties</i>	10 236.0	659.2	2 460.3	2 949.9	2 578.5	4 166.6	2 109.0
<i>North America</i>	5 715.8	386.4	1 163.0	1 777.1	1 529.9	2 389.3	1 175.3
<i>Europe</i>	3 001.2	190.5	784.2	845.1	768.3	1 181.4	676.3
<i>Asia Oceania</i>	1 519.0	82.3	513.0	327.7	280.4	596.0	257.4
<i>Annex I EIT</i>	2 517.0	250.8	878.2	422.1	279.4	965.9	640.0
<i>Non-Annex I Parties</i>	14 972.0	1 087.3	7 034.1	2 266.2	1 979.2	4 584.3	2 420.4
<i>Annex I Kyoto Parties</i>	7 497.2	589.8	2 278.7	1 747.0	1 451.0	2 881.8	1 626.7
Non-OECD Total	15 939.0	1 174.8	7 735.9	2 304.4	1 916.0	4 723.9	2 613.8
OECD Total	12 044.7	806.2	3 053.0	3 359.5	2 960.5	4 826.1	2 452.8
Canada	520.7	70.9	125.0	158.3	127.1	166.6	70.6
Chile	64.9	3.5	28.5	20.7	17.9	12.3	7.1
Mexico	399.7	54.7	113.3	147.9	143.5	83.7	46.5
United States	5 195.0	315.5	1 038.0	1 618.8	1 402.8	2 222.7	1 104.8
OECD Americas	6 180.4	444.6	1 304.8	1 945.6	1 691.4	2 485.3	1 229.0
Australia	394.9	32.6	142.7	85.3	70.1	134.3	66.7
Israel	64.6	2.2	10.1	17.0	17.0	35.4	15.4
Japan	1 092.9	48.0	361.7	228.9	198.2	454.3	187.6
Korea	515.5	36.7	213.0	86.3	79.9	179.5	72.1
New Zealand	31.3	1.8	8.6	13.5	12.1	7.4	3.0
OECD Asia Oceania	2 099.1	121.2	736.1	431.0	377.3	810.8	344.8
Austria	63.4	6.3	17.1	22.3	20.7	17.7	11.3
Belgium	100.7	5.9	31.1	26.9	25.8	36.8	22.0
Czech Republic	109.8	7.2	38.3	19.1	16.9	45.3	26.0
Denmark	46.8	2.8	7.5	13.2	12.0	23.3	13.0
Estonia	14.7	0.6	2.9	2.2	2.0	9.0	5.0
Finland	55.0	3.8	19.8	12.4	11.2	19.0	10.2
France	354.3	19.0	69.8	125.2	118.0	140.2	76.8
Germany	750.2	33.9	221.1	156.4	141.0	338.7	205.7
Greece	90.2	4.9	18.2	24.8	20.8	42.3	21.9
Hungary	48.2	2.5	9.4	13.1	12.5	23.1	13.7
Iceland	2.0	0.0	0.6	0.9	0.8	0.5	0.0
Ireland	39.5	0.5	8.2	12.1	11.8	18.6	11.0
Italy	389.3	25.4	108.0	114.7	104.5	141.2	76.3
Luxembourg	10.0	-	1.5	6.1	6.1	2.4	1.4
Netherlands	176.1	14.9	58.9	33.5	32.0	68.7	28.9
Norway	37.3	11.5	7.5	13.5	9.9	4.7	1.3
Poland	286.8	22.1	74.0	46.9	43.2	143.8	88.1
Portugal	53.1	3.1	14.5	19.0	17.7	16.5	7.3
Slovak Republic	33.2	5.0	10.5	6.1	5.0	11.6	5.5
Slovenia	15.2	0.1	4.6	5.1	5.0	5.4	3.0
Spain	283.4	19.4	78.7	101.5	88.5	83.7	41.0
Sweden	41.7	2.8	9.4	21.2	20.2	8.3	3.7
Switzerland	42.4	1.0	6.7	17.2	16.8	17.4	11.3
Turkey	256.3	12.4	88.2	45.2	39.0	110.5	61.3
United Kingdom	465.8	35.2	105.5	124.1	110.5	201.1	133.1
OECD Europe	3 765.2	240.4	1 012.1	982.8	891.9	1 529.9	879.0
<i>European Union - 27</i>	3 576.8	229.6	953.7	939.4	855.6	1 454.0	840.9

* CO₂ emissions from electricity and heat generation have been allocated to final consuming sectors in proportion to the electricity and heat consumed. The detailed unallocated emissions are shown in the table on pages II.25-II.27.

** Includes emissions from own use in petroleum refining, the manufacture of solid fuels, coal mining, oil and gas extraction and other energy-producing industries.

*** World includes international bunkers in the transport sector.

CO₂ emissions with electricity and heat allocated to consuming sectors in 2009million tonnes of CO₂

	Total CO ₂ emissions from fuel combustion	Other energy industry own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Non-OECD Total	15 939.0	1 174.8	7 735.9	2 304.4	1 916.0	4 723.9	2 613.8
Algeria	92.5	11.1	19.9	30.3	27.8	31.2	31.2
Angola	12.9	0.3	3.3	5.4	4.7	4.0	1.8
Benin	4.2	-	0.2	2.8	2.8	1.2	1.2
Botswana	4.2	-	1.6	1.9	1.9	0.7	0.3
Cameroon	4.8	0.2	1.2	2.5	2.4	0.9	0.6
Congo	1.7	-	0.1	1.4	1.2	0.2	0.2
Dem. Rep. of Congo	2.9	-	1.0	0.7	0.7	1.2	0.4
Côte d'Ivoire	6.1	0.2	1.2	1.4	1.2	3.3	1.4
Egypt	175.4	12.4	56.8	40.8	37.6	65.4	40.9
Eritrea	0.5	-	0.1	0.1	0.1	0.3	0.1
Ethiopia	7.4	-	2.0	4.2	4.2	1.2	1.1
Gabon	1.7	0.0	0.8	0.4	0.3	0.6	0.4
Ghana	9.0	0.0	2.2	4.8	4.4	1.9	1.3
Kenya	10.0	0.5	2.9	3.9	3.7	2.7	1.8
Libyan Arab Jamahiriya	50.0	3.0	10.8	12.0	12.0	24.2	9.3
Morocco	41.3	0.9	11.9	12.1	11.4	16.3	8.4
Mozambique	2.2	0.0	0.5	1.5	1.4	0.2	0.1
Namibia	3.7	-	0.4	2.1	1.8	1.3	-
Nigeria	41.2	4.5	4.6	23.5	23.5	8.6	6.5
Senegal	5.3	0.0	1.4	1.9	1.8	1.9	1.1
South Africa	369.4	17.5	178.9	53.8	46.7	119.2	63.8
Sudan	13.3	0.5	2.2	7.5	7.4	3.1	2.0
United Rep. of Tanzania	6.3	0.0	1.4	3.5	3.5	1.4	1.2
Togo	1.1	-	0.1	0.9	0.9	0.2	0.2
Tunisia	20.8	0.1	6.9	4.7	4.6	9.0	4.0
Zambia	1.7	0.0	0.8	0.5	0.4	0.3	0.0
Zimbabwe	8.7	0.0	3.5	1.1	1.0	4.0	1.5
Other Africa	29.4	0.2	7.5	12.0	10.4	9.7	4.7
Africa	927.5	51.7	324.0	237.7	219.7	314.1	185.4
Bangladesh	50.7	0.2	24.3	7.5	5.7	18.7	12.5
Brunei Darussalam	8.1	1.9	2.7	1.1	1.1	2.5	1.2
Cambodia	4.3	-	0.4	1.1	1.1	2.7	1.9
Chinese Taipei	250.1	14.4	127.3	35.1	33.2	73.4	34.9
India	1 585.8	49.7	743.8	165.2	134.1	627.1	254.7
Indonesia	376.3	27.4	148.9	92.6	82.6	107.4	65.9
DPR of Korea	66.2	0.0	47.2	0.9	0.9	18.1	0.1
Malaysia	164.2	16.3	63.5	41.4	40.5	43.0	16.7
Mongolia	12.0	0.0	3.8	1.5	1.1	6.7	3.9
Myanmar	10.1	0.5	3.1	2.7	2.6	3.7	0.7
Nepal	3.4	-	0.8	1.7	1.7	0.9	0.4
Pakistan	136.9	1.7	55.0	32.0	31.2	48.3	33.2
Philippines	70.5	0.4	21.1	23.6	21.0	25.4	12.8
Singapore	44.8	9.5	12.5	8.7	8.2	14.1	4.5
Sri Lanka	12.7	0.2	3.0	5.6	4.9	3.9	2.1
Thailand	227.8	6.7	104.9	54.6	54.1	61.5	21.7
Vietnam	114.1	1.5	56.6	29.2	27.7	26.7	18.7
Other Asia	15.2	0.3	5.9	3.7	2.5	5.3	1.8
Asia	3 153.2	130.7	1 424.8	508.3	454.2	1 089.3	487.5
People's Rep. of China	6 831.6	463.5	4 327.0	497.5	360.5	1 543.6	851.6
Hong Kong, China	45.6	-	9.7	6.0	6.0	29.9	8.5
China	6 877.2	463.5	4 336.7	503.6	366.5	1 573.5	860.2

CO₂ emissions with electricity and heat allocated to consuming sectors in 2009million tonnes of CO₂

	Total CO ₂ emissions from fuel combustion	Other energy industry own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Bahrain	22.8	4.4	7.9	3.3	3.3	7.3	4.5
Islamic Rep. of Iran	533.2	33.2	164.5	114.1	113.2	221.4	146.1
Iraq	98.8	4.6	27.4	31.0	31.0	35.7	22.2
Jordan	19.2	0.7	4.6	5.1	5.1	8.8	4.9
Kuwait	80.7	16.9	11.9	11.6	11.6	40.3	26.4
Lebanon	19.3	-	3.9	5.0	5.0	10.4	6.9
Oman	38.9	7.4	9.8	5.6	5.6	16.2	9.5
Qatar	56.5	19.1	21.9	6.3	6.3	9.2	3.2
Saudi Arabia	410.5	72.7	97.9	100.6	98.5	139.3	89.7
Syrian Arab Republic	59.8	2.0	20.9	15.6	14.9	21.4	16.7
United Arab Emirates	147.0	1.9	68.9	25.4	25.4	50.8	24.9
Yemen	22.2	4.0	2.5	5.1	5.1	10.5	4.9
Middle East	1 509.0	166.9	442.0	328.9	325.1	571.3	359.9
Albania	2.7	0.1	0.7	1.3	1.2	0.5	0.2
Armenia	4.3	-	1.1	1.5	1.5	1.6	1.3
Azerbaijan	25.2	3.5	3.9	4.8	4.0	12.9	9.3
Belarus	60.8	4.7	21.8	6.2	4.2	28.1	17.6
Bosnia and Herzegovina	19.1	1.5	4.4	2.8	2.6	10.3	7.1
Bulgaria	42.2	3.5	13.2	8.2	7.5	17.2	10.4
Croatia	19.8	2.1	4.6	6.2	5.7	6.8	4.1
Cyprus	7.5	0.0	1.3	2.2	2.2	4.0	1.7
Georgia	5.7	0.3	1.1	2.3	2.0	2.0	1.3
Gibraltar	0.5	-	0.1	0.3	0.3	0.1	-
Kazakhstan	189.5	30.1	79.8	15.4	10.9	64.1	24.6
Kyrgyzstan	7.1	0.0	2.3	2.6	2.5	2.1	0.2
Latvia	6.8	-	1.1	2.8	2.5	2.9	1.4
Lithuania	12.4	2.1	2.8	4.1	3.8	3.4	2.0
FYR of Macedonia	8.3	0.3	2.4	1.3	1.2	4.4	2.9
Malta	2.4	-	0.6	0.5	0.5	1.3	0.7
Republic of Moldova	5.7	0.1	0.7	0.9	0.8	4.0	3.0
Romania	78.4	8.7	25.7	15.6	13.9	28.5	19.7
Russian Federation	1 532.6	178.7	548.1	255.5	136.8	550.2	369.8
Serbia	46.3	1.2	13.3	6.9	5.7	25.0	18.1
Tajikistan	2.8	0.0	0.2	0.3	0.3	2.3	0.1
Turkmenistan	48.8	9.2	5.1	4.2	2.5	30.3	2.1
Ukraine	256.4	13.5	121.1	30.9	20.5	90.9	73.8
Uzbekistan	112.4	4.6	28.3	9.9	5.4	69.6	36.3
Non-OECD Europe and Eurasia	2 497.4	264.3	883.9	386.6	238.4	962.7	607.4
Argentina	166.6	16.9	54.8	38.1	35.1	56.7	32.3
Bolivia	12.9	1.3	2.3	6.2	5.8	3.1	2.0
Brazil	337.8	28.1	109.7	147.1	132.2	52.9	24.0
Colombia	60.6	6.9	19.3	20.0	18.8	14.4	8.2
Costa Rica	6.3	0.1	1.1	4.4	4.4	0.8	0.3
Cuba	26.8	0.1	12.9	1.7	1.3	12.1	6.9
Dominican Republic	18.1	0.0	5.2	5.2	4.2	7.6	5.1
Ecuador	28.5	1.1	6.1	14.4	12.9	6.8	4.7
El Salvador	6.8	0.0	2.6	2.6	2.6	1.6	1.1
Guatemala	14.5	0.1	5.9	6.0	6.0	2.4	1.6
Haiti	2.4	-	0.6	1.3	0.7	0.5	0.4
Honduras	7.1	-	1.7	3.0	3.0	2.5	1.1
Jamaica	8.3	-	1.8	3.0	1.5	3.5	0.8
Netherlands Antilles	5.0	2.0	1.2	1.2	1.2	0.6	0.2
Nicaragua	4.2	0.0	0.9	1.5	1.5	1.7	0.6
Panama	7.3	-	1.8	3.0	1.6	2.4	1.0
Paraguay	4.1	-	0.1	3.8	3.7	0.2	0.2
Peru	38.6	2.8	13.8	14.6	14.0	7.3	3.9
Trinidad and Tobago	40.2	7.0	27.4	2.8	2.8	3.0	2.4
Uruguay	7.7	0.6	1.5	2.8	2.8	2.8	1.3
Venezuela	154.6	30.5	51.6	51.7	51.6	20.7	13.4
Other Latin America	16.4	0.0	2.2	4.8	4.3	9.4	2.1
Latin America	974.6	97.7	324.5	339.3	312.0	213.0	113.4

Total primary energy supply

petajoules

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
World *	231 633	259 289	302 344	324 509	367 696	386 906	420 014	480 084	504 633	513 874	508 690	38.3%
<i>Annex I Parties</i>	..	..	..	..	233 728	229 473	241 490	251 035	252 309	249 390	236 417	1.2%
<i>Annex II Parties</i>	130 359	138 423	153 296	154 085	167 910	180 364	194 924	201 508	201 160	197 708	188 265	12.1%
<i>North America</i>	72 382	76 178	83 622	82 358	88 909	96 212	105 708	108 483	109 234	106 494	101 196	13.8%
<i>Europe</i>	44 325	46 579	51 959	53 015	56 461	58 875	62 259	65 532	64 418	64 326	61 091	8.2%
<i>Asia Oceania</i>	13 651	15 666	17 715	18 712	22 540	25 277	26 958	27 493	27 508	26 888	25 978	15.2%
<i>Annex I EIT</i>	..	..	..	..	63 579	46 502	43 341	45 957	46 925	47 523	44 029	-30.7%
<i>Non-Annex I Parties</i>	..	..	..	..	125 630	147 957	167 322	215 972	238 026	250 287	258 508	105.8%
<i>Annex I Kyoto Parties</i>	..	..	..	..	149 406	139 280	142 052	149 255	149 064	148 718	140 617	-5.9%
Intl. marine bunkers	4 506	4 322	4 540	3 871	4 723	5 454	6 324	7 315	8 206	7 984	7 790	64.9%
Intl. aviation bunkers	2 370	2 431	2 825	3 149	3 616	4 023	4 878	5 762	6 092	6 213	5 983	65.5%
Non-OECD Total **	83 565	101 074	124 648	144 856	170 026	173 402	187 241	235 825	257 853	270 208	275 632	62.1%
OECD Total ***	141 192	151 462	170 330	172 633	189 331	204 028	221 572	231 181	232 481	229 469	219 293	15.8%
Canada	5 918	6 948	8 064	8 080	8 732	9 662	10 528	11 397	11 388	11 160	10 639	21.8%
Chile	364	320	397	401	567	749	1 034	1 160	1 195	1 226	1 205	112.4%
Mexico	1 800	2 477	3 982	4 547	5 129	5 435	6 076	7 124	7 366	7 582	7 312	42.6%
United States	66 464	69 231	75 558	74 278	80 177	86 550	95 180	97 086	97 846	95 335	90 557	12.9%
OECD Americas	74 546	78 975	88 001	87 306	94 605	102 396	112 818	116 767	117 795	115 302	109 713	16.0%
Australia	2 161	2 528	2 914	3 049	3 610	3 875	4 526	5 007	5 231	5 418	5 488	52.0%
Israel	240	294	328	317	480	650	764	847	899	934	902	87.8%
Japan	11 201	12 772	14 424	15 194	18 393	20 777	21 727	21 793	21 569	20 748	19 761	7.4%
Korea	711	1 024	1 725	2 241	3 897	6 061	7 874	8 797	9 301	9 502	9 595	146.2%
New Zealand	289	366	376	469	537	625	704	693	708	723	729	35.7%
OECD Asia Oceania	14 602	16 984	19 768	21 270	26 918	31 988	35 596	37 137	37 708	37 324	36 475	35.5%
Austria	788	842	969	967	1 038	1 118	1 196	1 421	1 393	1 402	1 325	27.7%
Belgium	1 660	1 772	1 958	1 846	2 022	2 251	2 450	2 457	2 388	2 453	2 396	18.5%
Czech Republic	1 900	1 828	1 966	2 061	2 075	1 736	1 716	1 880	1 917	1 869	1 758	-15.3%
Denmark	775	732	801	808	727	812	780	791	827	805	779	7.2%
Estonia	..	..	..	..	415	211	197	216	235	228	199	-52.1%
Finland	761	825	1 030	1 082	1 188	1 211	1 350	1 433	1 540	1 477	1 389	16.9%
France	6 639	6 907	8 029	8 533	9 374	9 909	10 545	11 331	11 069	11 187	10 727	14.4%
Germany	12 772	13 126	14 954	14 956	14 713	14 112	14 122	14 181	13 892	14 013	13 336	-9.4%
Greece	364	492	627	735	898	949	1 134	1 266	1 265	1 274	1 233	37.3%
Hungary	797	959	1 187	1 246	1 200	1 083	1 047	1 155	1 119	1 108	1 041	-13.3%
Iceland	38	46	63	74	87	94	130	146	205	220	219	150.2%
Ireland	281	278	345	361	418	445	574	604	630	624	600	43.6%
Italy	4 413	4 889	5 478	5 414	6 136	6 662	7 181	7 698	7 498	7 371	6 893	12.3%
Luxembourg	170	158	149	128	143	132	137	183	175	175	165	15.8%
Netherlands	2 130	2 471	2 695	2 539	2 750	2 962	3 066	3 300	3 322	3 331	3 273	19.0%
Norway	557	611	767	836	879	981	1 083	1 120	1 153	1 248	1 183	34.5%
Poland	3 606	4 314	5 301	5 221	4 317	4 165	3 731	3 868	4 049	4 098	3 935	-8.8%
Portugal	263	322	418	459	701	846	1 033	1 108	1 059	1 023	1 009	43.9%
Slovak Republic	597	702	831	868	893	744	743	788	747	766	700	-21.6%
Slovenia	..	..	..	..	239	254	269	305	306	324	292	22.0%
Spain	1 784	2 408	2 834	2 970	3 772	4 221	5 106	5 938	6 024	5 812	5 297	40.4%
Sweden	1 509	1 634	1 695	1 977	1 976	2 107	1 991	2 159	2 096	2 077	1 901	-3.8%
Switzerland	686	719	839	924	1 018	1 007	1 047	1 085	1 079	1 121	1 128	10.8%
Turkey	818	1 120	1 317	1 646	2 209	2 577	3 197	3 533	4 187	4 124	4 089	85.1%
United Kingdom	8 737	8 347	8 308	8 406	8 621	9 055	9 334	9 310	8 803	8 715	8 238	-4.4%
OECD Europe ***	52 043	55 503	62 561	64 057	67 808	69 645	73 158	77 278	76 979	76 843	73 105	7.8%
<i>European Union - 27</i>	..	..	..	..	68 507	68 552	70 569	74 502	73 569	73 323	69 325	1.2%

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

** Includes Estonia and Slovenia prior to 1990.

*** Excludes Estonia and Slovenia prior to 1990.

Total primary energy supply

petajoules

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Non-OECD Total *	83 565	101 074	124 648	144 856	170 026	173 402	187 241	235 825	257 853	270 208	275 632	62.1%
Algeria	145	231	469	743	929	1 009	1 131	1 351	1 541	1 562	1 665	79.2%
Angola	161	173	191	209	246	268	311	381	445	476	498	102.2%
Benin	46	52	57	65	70	77	83	105	134	137	145	109.2%
Botswana	..	..	..	37	53	63	77	81	86	91	86	62.4%
Cameroon	113	127	153	187	208	230	264	293	265	268	290	38.9%
Congo	21	24	27	33	33	33	36	51	52	54	59	76.0%
Dem. Rep. of Congo	280	313	354	417	494	548	698	836	898	931	960	94.3%
Côte d'Ivoire	103	124	150	155	181	213	282	403	428	430	433	139.5%
Egypt	325	411	635	1 077	1 332	1 478	1 891	2 547	2 816	2 960	3 015	126.3%
Eritrea	..	..	..	..	..	42	30	32	30	28	30	..
Ethiopia	360	395	454	518	622	687	780	899	1 285	1 327	1 368	119.8%
Gabon	45	54	58	57	49	57	61	78	83	83	75	51.9%
Ghana	125	153	168	182	222	271	324	357	398	396	387	74.6%
Kenya	227	259	316	372	458	522	585	684	727	746	784	71.1%
Libyan Arab Jamahiriya	66	153	288	418	474	661	694	735	746	805	854	80.1%
Morocco	102	143	204	234	291	360	429	547	601	627	632	117.3%
Mozambique	289	280	281	267	248	263	300	355	387	393	409	64.9%
Namibia	..	..	..	..	..	38	43	60	67	77	72	..
Nigeria	1 510	1 747	2 196	2 572	2 955	3 350	3 760	4 363	4 434	4 642	4 532	53.4%
Senegal	52	58	65	65	71	78	100	117	118	120	123	74.3%
South Africa	1 890	2 251	2 734	3 710	3 930	4 560	4 789	5 458	5 813	6 281	6 031	53.4%
Sudan	294	313	350	396	445	502	566	633	635	617	662	48.8%
United Rep. of Tanzania	317	321	336	367	407	461	561	718	768	794	821	101.5%
Togo	30	33	37	41	53	66	88	99	103	107	110	107.9%
Tunisia	69	91	137	174	207	243	306	345	370	385	385	86.0%
Zambia	147	163	188	206	226	244	262	302	309	319	329	45.5%
Zimbabwe	228	248	272	310	389	412	414	406	401	398	398	2.3%
Other Africa	1 102	1 201	1 375	1 537	1 754	1 972	2 307	2 686	2 869	2 973	3 045	73.6%
Africa	8 048	9 318	11 496	14 349	16 349	18 706	21 174	24 921	26 809	28 028	28 198	72.5%
Bangladesh	238	282	352	417	533	666	779	1 000	1 109	1 170	1 239	132.4%
Brunei Darussalam	7	31	57	75	74	97	103	106	139	152	131	77.2%
Cambodia	..	..	..	..	..	141	167	199	214	217	217	..
Chinese Taipei	422	602	1 171	1 432	2 020	2 672	3 563	4 295	4 600	4 417	4 232	109.5%
India	6 551	7 441	8 589	10 667	13 261	16 089	19 143	22 521	24 977	25 917	28 296	113.4%
Indonesia	1 468	1 722	2 355	2 789	4 242	5 651	6 518	7 594	7 884	8 030	8 457	99.4%
DPR of Korea	813	932	1 271	1 507	1 391	920	828	898	770	848	807	-42.0%
Malaysia	247	300	498	650	921	1 554	1 979	2 619	2 911	3 057	2 798	203.9%
Mongolia	..	..	..	131	143	113	99	107	127	130	136	-5.2%
Myanmar	330	350	393	459	446	493	523	669	652	655	631	41.3%
Nepal	153	169	191	213	242	281	339	382	389	402	417	72.0%
Pakistan	713	851	1 039	1 351	1 793	2 243	2 660	3 189	3 525	3 466	3 581	99.7%
Philippines	652	773	952	1 005	1 210	1 423	1 692	1 640	1 597	1 658	1 626	34.4%
Singapore	114	155	215	283	480	780	806	779	655	699	774	61.3%
Sri Lanka	159	172	190	209	231	249	349	377	388	376	389	68.3%
Thailand	573	726	921	1 036	1 756	2 592	3 030	4 020	4 279	4 451	4 326	146.3%
Vietnam	730	776	820	906	1 017	1 255	1 546	2 133	2 345	2 476	2 682	163.6%
Other Asia	151	181	265	213	236	235	290	344	340	341	357	51.4%
Asia	13 322	15 463	19 279	23 344	29 996	37 455	44 413	52 873	56 901	58 463	61 093	103.7%
People's Rep. of China	16 400	20 266	25 057	28 973	36 130	43 846	45 840	71 024	82 228	88 655	94 500	161.6%
Hong Kong, China	126	152	194	275	362	446	561	530	600	592	625	72.5%
China	16 526	20 418	25 251	29 248	36 493	44 292	46 401	71 555	82 829	89 247	95 126	160.7%

* Includes Estonia and Slovenia prior to 1990.

Total primary energy supply

petajoules

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Bahrain	59	89	117	174	182	206	246	314	367	387	396	117.7%
Islamic Republic of Iran	692	1 111	1 589	2 249	2 841	3 914	5 412	7 371	8 186	8 664	9 037	218.1%
Iraq	185	237	441	661	757	1 087	1 063	1 406	1 384	1 439	1 347	77.9%
Jordan	20	31	63	109	136	180	203	279	302	296	312	128.6%
Kuwait	256	271	438	587	381	623	787	1 105	1 105	1 167	1 263	231.2%
Lebanon	77	91	104	98	82	185	205	210	176	226	278	239.5%
Oman	9	10	48	88	177	270	346	456	618	688	631	257.1%
Qatar	39	87	139	228	260	335	446	706	949	965	997	284.0%
Saudi Arabia	308	367	1 302	1 926	2 502	3 665	4 242	6 093	6 034	6 451	6 609	164.2%
Syrian Arab Republic	100	128	187	328	438	509	668	896	1 034	1 062	942	115.0%
United Arab Emirates	42	81	302	573	853	1 156	1 439	1 810	2 164	2 445	2 495	192.7%
Yemen	31	29	53	73	105	143	198	276	299	303	317	200.8%
Middle East	1 819	2 533	4 784	7 093	8 715	12 272	15 255	20 923	22 616	24 094	24 624	182.6%
Albania	71	82	128	113	111	55	74	95	89	87	72	-35.5%
Armenia *	..	..	..	..	322	68	84	105	119	125	109	-66.2%
Azerbaijan *	..	..	..	..	1 098	534	479	581	509	558	501	-54.4%
Belarus *	..	..	..	..	1 907	1 036	1 033	1 125	1 175	1 178	1 120	-41.2%
Bosnia and Herzegovina *	..	..	..	..	294	64	182	211	234	250	249	-15.2%
Bulgaria	797	973	1 189	1 283	1 196	967	781	833	842	828	732	-38.8%
Croatia *	..	..	..	..	377	295	326	373	391	380	364	-3.4%
Cyprus	25	24	36	39	57	73	89	93	102	108	105	84.1%
Georgia *	..	..	..	..	520	156	120	119	140	126	134	-74.3%
Gibraltar	1	1	2	2	2	4	5	6	6	7	7	179.9%
Kazakhstan *	..	..	..	..	3 046	2 176	1 490	2 124	2 767	2 899	2 756	-9.5%
Kyrgyzstan *	..	..	..	..	313	100	101	111	124	115	126	-59.8%
Latvia *	..	..	..	..	329	192	156	185	196	188	177	-46.3%
Lithuania *	..	..	..	..	675	366	299	360	387	384	351	-47.9%
FYR of Macedonia *	..	..	..	..	104	105	112	121	127	126	116	12.2%
Malta	9	9	13	14	29	30	28	36	36	34	33	15.1%
Republic of Moldova *	..	..	..	..	413	184	119	148	140	132	103	-75.2%
Romania	1 764	2 169	2 731	2 719	2 606	1 938	1 515	1 601	1 651	1 650	1 441	-44.7%
Russian Federation *	..	..	..	..	36 810	26 655	25 927	27 286	28 160	28 825	27 085	-26.4%
Serbia *	..	..	..	..	810	569	557	672	694	708	605	-25.3%
Tajikistan *	..	..	..	..	222	93	90	98	109	104	97	-56.3%
Turkmenistan *	..	..	..	..	822	582	607	775	918	941	820	-0.2%
Ukraine *	..	..	..	..	10 541	6 859	5 602	5 982	5 750	5 696	4 835	-54.1%
Uzbekistan *	..	..	..	..	1 941	1 782	2 124	1 966	2 039	2 114	2 044	5.3%
Former Soviet Union *	32 169	39 351	46 453	52 248	..	..	..	..	..	..	..	..
Former Yugoslavia *	918	1 068	1 411	1 722	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	35 753	43 678	51 963	58 140	64 547	44 885	41 902	45 007	46 706	47 565	43 981	-31.9%
Argentina	1 409	1 505	1 751	1 731	1 929	2 258	2 552	2 804	3 078	3 197	3 109	61.2%
Bolivia	43	62	102	106	109	156	158	219	227	250	261	138.7%
Brazil	2 921	3 815	4 767	5 416	5 872	6 746	7 920	9 020	9 855	10 409	10 055	71.2%
Colombia	577	645	776	876	1 014	1 192	1 121	1 172	1 233	1 288	1 333	31.4%
Costa Rica	47	55	64	70	85	98	126	170	209	205	205	141.9%
Cuba	495	549	686	717	807	509	565	467	431	442	482	-40.3%
Dominican Republic	98	129	144	153	172	247	327	330	348	341	339	97.4%
Ecuador	96	137	211	242	251	299	336	451	477	462	475	89.3%
El Salvador	73	95	105	110	103	141	166	189	211	214	214	106.7%
Guatemala	115	140	159	158	186	224	297	341	359	343	412	121.9%
Haiti	63	72	87	79	65	71	84	108	116	116	109	66.3%
Honduras	58	64	78	84	100	118	125	167	195	193	185	85.2%
Jamaica	84	112	95	72	117	135	161	158	197	179	136	16.8%
Netherlands Antilles	229	161	164	75	61	55	83	81	90	86	89	45.0%
Nicaragua	52	62	64	81	88	98	114	139	128	128	129	47.4%
Panama	70	70	58	64	61	81	106	107	113	117	130	112.7%
Paraguay	57	62	87	95	129	164	161	172	181	188	199	54.7%
Peru	382	434	471	443	408	459	512	571	600	630	663	62.6%
Trinidad and Tobago	110	96	160	212	250	257	446	702	844	809	848	239.3%
Uruguay	101	102	111	84	94	108	129	123	132	174	171	81.8%
Venezuela	818	1 045	1 482	1 651	1 823	2 159	2 362	2 785	2 686	2 757	2 801	53.6%
Other Latin America	198	251	251	163	204	218	244	269	281	284	266	30.5%
Latin America	8 097	9 664	11 875	12 681	13 927	15 792	18 096	20 547	21 993	22 811	22 609	62.3%

* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

Total primary energy supply

million tonnes of oil equivalent

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
World *	5 532.5	6 193.0	7 221.4	7 750.8	8 782.3	9 241.1	10 031.9	11 466.6	12 053.0	12 273.7	12 149.8	38.3%
<i>Annex I Parties</i>	..	..	..	..	5 582.5	5 480.9	5 767.9	5 995.9	6 026.3	5 956.6	5 646.7	1.2%
<i>Annex II Parties</i>	3 113.6	3 306.2	3 661.4	3 680.2	4 010.5	4 307.9	4 655.7	4 812.9	4 804.6	4 722.2	4 496.6	12.1%
<i>North America</i>	1 728.8	1 819.5	1 997.3	1 967.1	2 123.6	2 298.0	2 524.8	2 591.1	2 609.0	2 543.6	2 417.0	13.8%
<i>Europe</i>	1 058.7	1 112.5	1 241.0	1 266.2	1 348.5	1 406.2	1 487.0	1 565.2	1 538.6	1 536.4	1 459.1	8.2%
<i>Asia Oceania</i>	326.1	374.2	423.1	446.9	538.4	603.7	643.9	656.7	657.0	642.2	620.5	15.2%
<i>Annex I EIT</i>	..	..	..	..	1 518.6	1 110.7	1 035.2	1 097.7	1 120.8	1 135.1	1 051.6	-30.7%
<i>Non-Annex I Parties</i>	..	..	..	..	3 000.6	3 533.9	3 996.4	5 158.4	5 685.2	5 978.0	6 174.4	105.8%
<i>Annex I Kyoto Parties</i>	..	..	..	..	3 568.5	3 326.6	3 392.9	3 564.9	3 560.3	3 552.1	3 358.6	-5.9%
Intl. marine bunkers	107.6	103.2	108.4	92.5	112.8	130.3	151.0	174.7	196.0	190.7	186.1	64.9%
Intl. aviation bunkers	56.6	58.1	67.5	75.2	86.4	96.1	116.5	137.6	145.5	148.4	142.9	65.5%
Non-OECD Total **	1 995.9	2 414.1	2 977.2	3 459.8	4 061.0	4 141.6	4 472.2	5 632.6	6 158.7	6 453.8	6 583.4	62.1%
OECD Total ***	3 372.3	3 617.6	4 068.3	4 123.3	4 522.1	4 873.1	5 292.1	5 521.7	5 552.7	5 480.8	5 237.7	15.8%
Canada	141.3	165.9	192.6	193.0	208.6	230.8	251.4	272.2	272.0	266.5	254.1	21.8%
Chile	8.7	7.6	9.5	9.6	13.6	17.9	24.7	27.7	28.5	29.3	28.8	112.4%
Mexico	43.0	59.2	95.1	108.6	122.5	129.8	145.1	170.2	175.9	181.1	174.6	42.6%
United States	1 587.5	1 653.5	1 804.7	1 774.1	1 915.0	2 067.2	2 273.3	2 318.9	2 337.0	2 277.0	2 162.9	12.9%
OECD Americas	1 780.5	1 886.3	2 101.9	2 085.3	2 259.6	2 445.7	2 694.6	2 788.9	2 813.5	2 754.0	2 620.5	16.0%
Australia	51.6	60.4	69.6	72.8	86.2	92.6	108.1	119.6	124.9	129.4	131.1	52.0%
Israel	5.7	7.0	7.8	7.6	11.5	15.5	18.2	20.2	21.5	22.3	21.5	87.8%
Japan	267.5	305.1	344.5	362.9	439.3	496.2	518.9	520.5	515.2	495.5	472.0	7.4%
Korea	17.0	24.5	41.2	53.5	93.1	144.8	188.1	210.1	222.1	226.9	229.2	146.2%
New Zealand	6.9	8.8	9.0	11.2	12.8	14.9	16.8	16.6	16.9	17.3	17.4	35.7%
OECD Asia Oceania	348.8	405.7	472.1	508.0	642.9	764.0	850.2	887.0	900.6	891.5	871.2	35.5%
Austria	18.8	20.1	23.2	23.1	24.8	26.7	28.6	34.0	33.3	33.5	31.7	27.7%
Belgium	39.7	42.3	46.8	44.1	48.3	53.8	58.5	58.7	57.0	58.6	57.2	18.5%
Czech Republic	45.4	43.7	46.9	49.2	49.6	41.5	41.0	44.9	45.8	44.6	42.0	-15.3%
Denmark	18.5	17.5	19.1	19.3	17.4	19.4	18.6	18.9	19.8	19.2	18.6	7.2%
Estonia	..	..	..	..	9.9	5.0	4.7	5.2	5.6	5.4	4.7	-52.1%
Finland	18.2	19.7	24.6	25.8	28.4	28.9	32.3	34.2	36.8	35.3	33.2	16.9%
France	158.6	165.0	191.8	203.8	223.9	236.7	251.9	270.6	264.4	267.2	256.2	14.4%
Germany	305.0	313.5	357.2	357.2	351.4	337.1	337.3	338.7	331.8	334.7	318.5	-9.4%
Greece	8.7	11.7	15.0	17.6	21.4	22.7	27.1	30.2	30.2	30.4	29.4	37.3%
Hungary	19.0	22.9	28.4	29.8	28.7	25.9	25.0	27.6	26.7	26.5	24.9	-13.3%
Iceland	0.9	1.1	1.5	1.8	2.1	2.3	3.1	3.5	4.9	5.3	5.2	150.2%
Ireland	6.7	6.6	8.2	8.6	10.0	10.6	13.7	14.4	15.0	14.9	14.3	43.6%
Italy	105.4	116.8	130.8	129.3	146.6	159.1	171.5	183.9	179.1	176.1	164.6	12.3%
Luxembourg	4.1	3.8	3.6	3.1	3.4	3.2	3.3	4.4	4.2	4.2	3.9	15.8%
Netherlands	50.9	59.0	64.4	60.6	65.7	70.7	73.2	78.8	79.3	79.6	78.2	19.0%
Norway	13.3	14.6	18.3	20.0	21.0	23.4	25.9	26.8	27.5	29.8	28.2	34.5%
Poland	86.1	103.0	126.6	124.7	103.1	99.5	89.1	92.4	96.7	97.9	94.0	-8.8%
Portugal	6.3	7.7	10.0	11.0	16.7	20.2	24.7	26.5	25.3	24.4	24.1	43.9%
Slovak Republic	14.3	16.8	19.8	20.7	21.3	17.8	17.7	18.8	17.8	18.3	16.7	-21.6%
Slovenia	..	..	..	..	5.7	6.1	6.4	7.3	7.3	7.7	7.0	22.0%
Spain	42.6	57.5	67.7	70.9	90.1	100.8	121.9	141.8	143.9	138.8	126.5	40.4%
Sweden	36.0	39.0	40.5	47.2	47.2	50.3	47.6	51.6	50.1	49.6	45.4	-3.8%
Switzerland	16.4	17.2	20.0	22.1	24.3	24.1	25.0	25.9	25.8	26.8	27.0	10.8%
Turkey	19.5	26.8	31.4	39.3	52.8	61.5	76.3	84.4	100.0	98.5	97.7	85.1%
United Kingdom	208.7	199.4	198.4	200.8	205.9	216.3	222.9	222.4	210.3	208.1	196.8	-4.4%
OECD Europe ***	1 243.0	1 325.7	1 494.2	1 530.0	1 619.6	1 663.4	1 747.3	1 845.7	1 838.6	1 835.4	1 746.1	7.8%
<i>European Union - 27</i>	..	..	..	..	1 636.3	1 637.3	1 685.5	1 779.4	1 757.2	1 751.3	1 655.8	1.2%

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

** Includes Estonia and Slovenia prior to 1990.

*** Excludes Estonia and Slovenia prior to 1990.

Total primary energy supply

million tonnes of oil equivalent

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Non-OECD Total *	1 995.9	2 414.1	2 977.2	3 459.8	4 061.0	4 141.6	4 472.2	5 632.6	6 158.7	6 453.8	6 583.4	62.1%
Algeria	3.5	5.5	11.2	17.7	22.2	24.1	27.0	32.3	36.8	37.3	39.8	79.2%
Angola	3.9	4.1	4.6	5.0	5.9	6.4	7.4	9.1	10.6	11.4	11.9	102.2%
Benin	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.5	3.2	3.3	3.5	109.2%
Botswana	..	..	..	0.9	1.3	1.5	1.8	1.9	2.0	2.2	2.0	62.4%
Cameroon	2.7	3.0	3.7	4.5	5.0	5.5	6.3	7.0	6.3	6.4	6.9	38.9%
Congo	0.5	0.6	0.7	0.8	0.8	0.8	0.8	1.2	1.2	1.3	1.4	75.9%
Dem. Rep. of Congo	6.7	7.5	8.5	10.0	11.8	13.1	16.7	20.0	21.5	22.2	22.9	94.3%
Côte d'Ivoire	2.5	3.0	3.6	3.7	4.3	5.1	6.7	9.6	10.2	10.3	10.4	139.5%
Egypt	7.8	9.8	15.2	25.7	31.8	35.3	45.2	60.8	67.3	70.7	72.0	126.3%
Eritrea	..	..	..	..	..	1.0	0.7	0.8	0.7	0.7	0.7	..
Ethiopia	8.6	9.4	10.8	12.4	14.9	16.4	18.6	21.5	30.7	31.7	32.7	119.8%
Gabon	1.1	1.3	1.4	1.4	1.2	1.4	1.5	1.9	2.0	2.0	1.8	51.9%
Ghana	3.0	3.7	4.0	4.4	5.3	6.5	7.7	8.5	9.5	9.5	9.2	74.6%
Kenya	5.4	6.2	7.5	8.9	10.9	12.5	14.0	16.3	17.4	17.8	18.7	71.1%
Libyan Arab Jamahiriya	1.6	3.7	6.9	10.0	11.3	15.8	16.6	17.6	17.8	19.2	20.4	80.1%
Morocco	2.4	3.4	4.9	5.6	6.9	8.6	10.2	13.1	14.4	15.0	15.1	117.3%
Mozambique	6.9	6.7	6.7	6.4	5.9	6.3	7.2	8.5	9.2	9.4	9.8	64.9%
Namibia	..	..	..	..	..	0.9	1.0	1.4	1.6	1.8	1.7	..
Nigeria	36.1	41.7	52.5	61.4	70.6	80.0	89.8	104.2	105.9	110.9	108.3	53.4%
Senegal	1.2	1.4	1.6	1.6	1.7	1.9	2.4	2.8	2.8	2.9	2.9	74.3%
South Africa	45.1	53.8	65.3	88.6	93.9	108.9	114.4	130.4	138.8	150.0	144.0	53.4%
Sudan	7.0	7.5	8.4	9.5	10.6	12.0	13.5	15.1	15.2	14.7	15.8	48.8%
United Rep. of Tanzania	7.6	7.7	8.0	8.8	9.7	11.0	13.4	17.2	18.3	19.0	19.6	101.5%
Togo	0.7	0.8	0.9	1.0	1.3	1.6	2.1	2.4	2.5	2.6	2.6	107.9%
Tunisia	1.7	2.2	3.3	4.2	4.9	5.8	7.3	8.2	8.8	9.2	9.2	86.0%
Zambia	3.5	3.9	4.5	4.9	5.4	5.8	6.2	7.2	7.4	7.6	7.9	45.5%
Zimbabwe	5.4	5.9	6.5	7.4	9.3	9.8	9.9	9.7	9.6	9.5	9.5	2.3%
Other Africa	26.3	28.7	32.8	36.7	41.9	47.1	55.1	64.1	68.5	71.0	72.7	73.6%
Africa	192.2	222.6	274.6	342.7	390.5	446.8	505.7	595.2	640.3	669.4	673.5	72.5%
Bangladesh	5.7	6.7	8.4	9.9	12.7	15.9	18.6	23.9	26.5	27.9	29.6	132.4%
Brunei Darussalam	0.2	0.7	1.4	1.8	1.8	2.3	2.5	2.5	3.3	3.6	3.1	77.2%
Cambodia	..	..	..	..	..	3.4	4.0	4.8	5.1	5.2	5.2	..
Chinese Taipei	10.1	14.4	28.0	34.2	48.2	63.8	85.1	102.6	109.9	105.5	101.1	109.5%
India	156.5	177.7	205.2	254.8	316.7	384.3	457.2	537.9	596.6	619.0	675.8	113.4%
Indonesia	35.1	41.1	56.3	66.6	101.3	135.0	155.7	181.4	188.3	191.8	202.0	99.4%
DPR of Korea	19.4	22.3	30.4	36.0	33.2	22.0	19.8	21.4	18.4	20.3	19.3	-42.0%
Malaysia	5.9	7.2	11.9	15.5	22.0	37.1	47.3	62.6	69.5	73.0	66.8	203.9%
Mongolia	..	..	..	3.1	3.4	2.7	2.4	2.6	3.0	3.1	3.2	-5.2%
Myanmar	7.9	8.4	9.4	11.0	10.7	11.8	12.5	16.0	15.6	15.6	15.1	41.3%
Nepal	3.7	4.0	4.6	5.1	5.8	6.7	8.1	9.1	9.3	9.6	10.0	72.0%
Pakistan	17.0	20.3	24.8	32.3	42.8	53.6	63.5	76.2	84.2	82.8	85.5	99.7%
Philippines	15.6	18.5	22.7	24.0	28.9	34.0	40.4	39.2	38.1	39.6	38.8	34.4%
Singapore	2.7	3.7	5.1	6.8	11.5	18.6	19.2	18.6	15.7	16.7	18.5	61.3%
Sri Lanka	3.8	4.1	4.5	5.0	5.5	5.9	8.3	9.0	9.3	9.0	9.3	68.3%
Thailand	13.7	17.3	22.0	24.7	41.9	61.9	72.4	96.0	102.2	106.3	103.3	146.3%
Vietnam	17.4	18.5	19.6	21.6	24.3	30.0	36.9	51.0	56.0	59.1	64.0	163.6%
Other Asia	3.6	4.3	6.3	5.1	5.6	5.6	6.9	8.2	8.1	8.2	8.5	51.4%
Asia	318.2	369.3	460.5	557.6	716.4	894.6	1 060.8	1 262.9	1 359.1	1 396.4	1 459.2	103.7%
People's Rep. of China	391.7	484.0	598.5	692.0	863.0	1 047.2	1 094.9	1 696.4	1 964.0	2 117.5	2 257.1	161.6%
Hong Kong, China	3.0	3.6	4.6	6.6	8.7	10.6	13.4	12.7	14.3	14.1	14.9	72.5%
China	394.7	487.7	603.1	698.6	871.6	1 057.9	1 108.3	1 709.1	1 978.3	2 131.6	2 272.0	160.7%

* Includes Estonia and Slovenia prior to 1990.

Total primary energy supply

million tonnes of oil equivalent

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Bahrain	1.4	2.1	2.8	4.2	4.4	4.9	5.9	7.5	8.8	9.2	9.5	117.7%
Islamic Republic of Iran	16.5	26.5	38.0	53.7	67.9	93.5	129.3	176.1	195.5	206.9	215.9	218.1%
Iraq	4.4	5.7	10.5	15.8	18.1	26.0	25.4	33.6	33.1	34.4	32.2	77.9%
Jordan	0.5	0.7	1.5	2.6	3.3	4.3	4.9	6.7	7.2	7.1	7.5	128.6%
Kuwait	6.1	6.5	10.5	14.0	9.1	14.9	18.8	26.4	26.4	27.9	30.2	231.2%
Lebanon	1.8	2.2	2.5	2.3	2.0	4.4	4.9	5.0	4.2	5.4	6.6	239.5%
Oman	0.2	0.2	1.1	2.1	4.2	6.5	8.3	10.9	14.8	16.4	15.1	257.1%
Qatar	0.9	2.1	3.3	5.5	6.2	8.0	10.7	16.9	22.7	23.1	23.8	284.0%
Saudi Arabia	7.4	8.8	31.1	46.0	59.8	87.5	101.3	145.5	144.1	154.1	157.9	164.2%
Syrian Arab Republic	2.4	3.1	4.5	7.8	10.5	12.1	15.9	21.4	24.7	25.4	22.5	115.0%
United Arab Emirates	1.0	1.9	7.2	13.7	20.4	27.6	34.4	43.2	51.7	58.4	59.6	192.7%
Yemen	0.7	0.7	1.3	1.7	2.5	3.4	4.7	6.6	7.1	7.2	7.6	200.8%
Middle East	43.4	60.5	114.3	169.4	208.1	293.1	364.4	499.7	540.2	575.5	588.1	182.6%
Albania	1.7	2.0	3.1	2.7	2.7	1.3	1.8	2.3	2.1	2.1	1.7	-35.5%
Armenia *	..	..	..	..	7.7	1.6	2.0	2.5	2.8	3.0	2.6	-66.2%
Azerbaijan *	..	..	..	..	26.2	12.8	11.4	13.9	12.2	13.3	12.0	-54.4%
Belarus *	..	..	..	..	45.5	24.7	24.7	26.9	28.1	28.1	26.8	-41.2%
Bosnia and Herzegovina *	..	..	..	..	7.0	1.5	4.4	5.0	5.6	6.0	6.0	-15.2%
Bulgaria	19.0	23.2	28.4	30.6	28.6	23.1	18.7	19.9	20.1	19.8	17.5	-38.8%
Croatia *	..	..	..	..	9.0	7.0	7.8	8.9	9.3	9.1	8.7	-3.4%
Cyprus	0.6	0.6	0.9	0.9	1.4	1.7	2.1	2.2	2.4	2.6	2.5	84.1%
Georgia *	..	..	..	..	12.4	3.7	2.9	2.8	3.3	3.0	3.2	-74.3%
Gibraltar	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	179.8%
Kazakhstan *	..	..	..	..	72.7	52.0	35.6	50.7	66.1	69.2	65.8	-9.5%
Kyrgyzstan *	..	..	..	..	7.5	2.4	2.4	2.7	3.0	2.7	3.0	-59.8%
Latvia *	..	..	..	..	7.9	4.6	3.7	4.4	4.7	4.5	4.2	-46.3%
Lithuania *	..	..	..	..	16.1	8.7	7.1	8.6	9.3	9.2	8.4	-47.9%
FYR of Macedonia *	..	..	..	..	2.5	2.5	2.7	2.9	3.0	3.0	2.8	12.2%
Malta	0.2	0.2	0.3	0.3	0.7	0.7	0.7	0.9	0.9	0.8	0.8	15.1%
Republic of Moldova *	..	..	..	..	9.9	4.4	2.8	3.5	3.3	3.1	2.4	-75.2%
Romania	42.1	51.8	65.2	64.9	62.3	46.3	36.2	38.2	39.4	39.4	34.4	-44.7%
Russian Federation *	..	..	..	..	879.2	636.6	619.3	651.7	672.6	688.5	646.9	-26.4%
Serbia *	..	..	..	..	19.3	13.6	13.3	16.0	16.6	16.9	14.4	-25.3%
Tajikistan *	..	..	..	..	5.3	2.2	2.1	2.3	2.6	2.5	2.3	-56.3%
Turkmenistan *	..	..	..	..	19.6	13.9	14.5	18.5	21.9	22.5	19.6	-0.2%
Ukraine *	..	..	..	..	251.8	163.8	133.8	142.9	137.3	136.1	115.5	-54.1%
Uzbekistan *	..	..	..	..	46.4	42.6	50.7	47.0	48.7	50.5	48.8	5.3%
Former Soviet Union *	768.3	939.9	1 109.5	1 247.9	..	..	..	..	..	..	..	..
Former Yugoslavia *	21.9	25.5	33.7	41.1	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	853.9	1 043.2	1 241.1	1 388.7	1 541.7	1 072.1	1 000.8	1 075.0	1 115.5	1 136.1	1 050.5	-31.9%
Argentina	33.7	35.9	41.8	41.3	46.1	53.9	61.0	67.0	73.5	76.4	74.2	61.2%
Bolivia	1.0	1.5	2.4	2.5	2.6	3.7	3.8	5.2	5.4	6.0	6.2	138.7%
Brazil	69.8	91.1	113.9	129.3	140.2	161.1	189.2	215.4	235.4	248.6	240.2	71.2%
Colombia	13.8	15.4	18.5	20.9	24.2	28.5	26.8	28.0	29.5	30.8	31.8	31.4%
Costa Rica	1.1	1.3	1.5	1.7	2.0	2.3	3.0	4.1	5.0	4.9	4.9	141.9%
Cuba	11.8	13.1	16.4	17.1	19.3	12.1	13.5	11.1	10.3	10.5	11.5	-40.3%
Dominican Republic	2.3	3.1	3.4	3.6	4.1	5.9	7.8	7.9	8.3	8.2	8.1	97.4%
Ecuador	2.3	3.3	5.0	5.8	6.0	7.1	8.0	10.8	11.4	11.0	11.4	89.3%
El Salvador	1.8	2.3	2.5	2.6	2.5	3.4	4.0	4.5	5.0	5.1	5.1	106.7%
Guatemala	2.7	3.3	3.8	3.8	4.4	5.4	7.1	8.1	8.6	8.2	9.8	121.9%
Haiti	1.5	1.7	2.1	1.9	1.6	1.7	2.0	2.6	2.8	2.8	2.6	66.3%
Honduras	1.4	1.5	1.9	2.0	2.4	2.8	3.0	4.0	4.6	4.6	4.4	85.2%
Jamaica	2.0	2.7	2.3	1.7	2.8	3.2	3.8	3.8	4.7	4.3	3.3	16.8%
Netherlands Antilles	5.5	3.8	3.9	1.8	1.5	1.3	2.0	1.9	2.2	2.1	2.1	45.0%
Nicaragua	1.2	1.5	1.5	1.9	2.1	2.3	2.7	3.3	3.1	3.0	3.1	47.4%
Panama	1.7	1.7	1.4	1.5	1.5	1.9	2.5	2.5	2.7	2.8	3.1	112.7%
Paraguay	1.4	1.5	2.1	2.3	3.1	3.9	3.9	4.1	4.3	4.5	4.8	54.7%
Peru	9.1	10.4	11.3	10.6	9.7	11.0	12.2	13.6	14.3	15.0	15.8	62.6%
Trinidad and Tobago	2.6	2.3	3.8	5.1	6.0	6.1	10.7	16.8	20.2	19.3	20.3	239.3%
Uruguay	2.4	2.4	2.6	2.0	2.3	2.6	3.1	2.9	3.2	4.1	4.1	81.8%
Venezuela	19.5	25.0	35.4	39.4	43.5	51.6	56.4	66.5	64.2	65.8	66.9	53.6%
Other Latin America	4.7	6.0	6.0	3.9	4.9	5.2	5.8	6.4	6.7	6.8	6.4	30.5%
Latin America	193.4	230.8	283.6	302.9	332.6	377.2	432.2	490.7	525.3	544.8	540.0	62.3%

* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

GDP using exchange rates

billion 2000 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
World	12 815.6	14 845.1	17 967.3	20 529.0	24 257.5	27 196.0	32 174.3	36 896.6	39 885.3	40 470.4	39 674.4	63.6%
<i>Annex I Parties</i>	..	..	..	..	19 919.7	21 657.4	25 250.8	28 008.2	29 555.0	29 583.0	28 494.8	43.0%
<i>Annex II Parties</i>	10 228.8	11 582.9	13 786.0	15 839.5	18 889.8	20 806.0	24 265.0	26 754.9	28 124.0	28 101.0	27 094.8	43.4%
<i>North America</i>	4 155.4	4 634.3	5 554.1	6 500.3	7 607.6	8 594.0	10 623.7	11 972.3	12 534.6	12 536.7	12 203.9	60.4%
<i>Europe</i>	4 091.4	4 599.1	5 344.4	5 797.0	6 802.9	7 375.7	8 509.4	9 252.8	9 797.5	9 828.3	9 415.9	38.4%
<i>Asia Oceania</i>	1 982.0	2 349.5	2 887.5	3 542.3	4 479.3	4 836.3	5 131.8	5 529.9	5 791.9	5 736.1	5 474.9	22.2%
<i>Annex I EIT</i>	..	..	..	..	841.5	630.5	715.3	916.2	1 054.0	1 102.5	1 038.7	23.4%
<i>Non-Annex I Parties</i>	..	..	..	..	4 337.8	5 538.6	6 923.5	8 888.4	10 330.3	10 887.4	11 179.6	157.7%
<i>Annex I Kyoto Parties</i>	..	..	..	..	12 653.0	13 425.1	15 068.8	16 502.8	17 485.3	17 510.7	16 751.7	32.4%
Non-OECD Total *	2 025.2	2 545.4	3 278.5	3 640.1	4 075.5	4 849.5	5 951.2	7 831.0	9 208.2	9 758.8	10 041.1	146.4%
OECD Total **	10 790.4	12 299.7	14 688.8	16 888.8	20 182.0	22 346.5	26 223.1	29 065.7	30 677.1	30 711.6	29 633.4	46.8%
Canada	288.3	343.3	412.0	471.7	543.6	592.1	724.9	821.9	863.7	868.2	846.8	55.8%
Chile	23.0	19.7	28.0	29.3	40.6	61.5	75.4	92.6	101.3	105.1	103.3	154.6%
Mexico	208.0	274.1	378.4	416.5	452.6	488.2	636.7	699.0	759.0	770.6	724.4	60.1%
United States	3 867.1	4 291.0	5 142.1	6 028.6	7 064.0	8 002.0	9 898.8	11 150.4	11 670.8	11 668.5	11 357.1	60.8%
OECD Americas	4 386.5	4 928.2	5 960.5	6 946.1	8 100.7	9 143.8	11 335.8	12 763.9	13 395.0	13 412.4	13 031.5	60.9%
Australia	168.7	187.2	216.9	251.7	289.3	339.8	411.0	485.9	523.1	528.7	535.2	85.0%
Israel	32.4	42.1	48.7	56.8	70.4	97.5	124.7	138.7	154.4	160.9	162.2	130.3%
Japan	1 785.0	2 128.9	2 638.2	3 252.6	4 150.3	4 450.4	4 667.5	4 979.6	5 201.2	5 140.4	4 872.2	17.4%
Korea	52.5	75.3	112.0	172.6	283.3	414.2	533.4	664.4	734.5	751.4	752.8	165.7%
New Zealand	28.3	33.4	32.5	38.0	39.7	46.2	53.4	64.4	67.7	67.0	67.5	69.9%
OECD Asia Oceania	2 066.8	2 466.9	3 048.2	3 771.6	4 833.0	5 348.0	5 789.9	6 332.9	6 680.8	6 648.3	6 389.9	32.2%
Austria	88.6	102.2	120.3	129.3	149.0	165.0	191.2	206.9	222.3	227.2	218.4	46.5%
Belgium	113.8	130.8	152.9	160.2	186.5	201.9	232.4	251.2	265.5	268.2	260.8	39.8%
Czech Republic	38.3	43.7	48.7	51.1	55.3	52.7	56.7	68.1	77.2	79.1	75.9	37.2%
Denmark	83.2	88.1	100.9	115.3	123.9	139.1	160.1	170.4	179.0	177.0	167.7	35.4%
Estonia	..	..	..	..	5.8	4.1	5.7	8.3	9.8	9.3	8.0	37.5%
Finland	51.9	62.9	73.5	84.1	99.3	96.3	121.7	138.5	152.4	153.8	141.2	42.2%
France	630.8	727.7	861.1	929.8	1 091.8	1 156.3	1 328.0	1 442.3	1 509.3	1 512.5	1 472.8	34.9%
Germany	950.5	1 038.9	1 225.9	1 311.9	1 543.2	1 720.5	1 900.2	1 957.4	2 077.1	2 097.7	1 998.7	29.5%
Greece	64.8	76.8	94.2	94.8	100.8	107.3	127.1	154.9	169.9	171.6	168.1	66.7%
Hungary	26.1	33.4	39.8	43.5	44.6	39.6	47.4	57.4	60.0	60.5	56.4	26.4%
Iceland	3.2	3.8	5.2	5.8	6.8	6.9	8.7	10.7	11.9	12.1	11.2	65.9%
Ireland	22.1	27.2	34.0	38.5	48.5	60.8	96.8	126.2	140.4	135.4	125.1	157.9%
Italy	518.2	594.6	739.1	803.5	937.6	998.7	1 097.3	1 146.8	1 187.5	1 171.8	1 110.7	18.5%
Luxembourg	6.1	6.8	7.6	8.6	12.4	15.1	20.3	24.2	27.1	27.5	26.5	113.3%
Netherlands	173.6	196.5	226.2	239.1	282.0	315.8	385.1	411.2	441.8	450.1	432.5	53.4%
Norway	61.0	73.1	91.2	107.5	117.0	140.5	168.3	187.8	197.3	198.8	196.0	67.5%
Poland	89.2	114.1	119.0	120.0	118.2	131.6	171.3	199.4	226.1	237.7	241.7	104.5%
Portugal	42.6	49.5	63.5	66.4	87.5	95.2	117.0	121.8	126.5	126.5	123.4	41.0%
Slovak Republic	12.9	14.7	16.3	17.6	18.9	17.3	20.4	25.9	31.1	32.9	31.3	65.6%
Slovenia	..	..	..	..	16.5	16.1	19.9	23.8	27.0	28.0	25.7	55.3%
Spain	241.9	299.4	330.0	353.6	440.6	474.9	580.7	681.9	734.6	740.9	713.4	61.9%
Sweden	134.1	151.1	161.5	177.0	201.0	208.0	247.3	282.4	304.3	302.4	286.3	42.4%
Switzerland	165.9	166.0	180.4	194.5	224.8	225.9	249.9	266.7	286.4	291.9	286.3	27.4%
Turkey	79.3	99.6	111.9	141.9	186.0	217.8	266.6	333.0	372.6	375.1	357.0	92.0%
United Kingdom	739.1	803.8	876.9	976.9	1 150.3	1 247.8	1 477.5	1 671.5	1 764.2	1 763.0	1 677.1	45.8%
OECD Europe **	4 337.1	4 904.6	5 680.1	6 171.1	7 248.3	7 854.8	9 097.3	9 968.8	10 601.3	10 650.9	10 211.9	40.9%
<i>European Union - 27</i>	..	..	..	..	6 807.2	7 342.1	8 486.3	9 279.5	9 858.4	9 905.3	9 481.6	39.3%

* Includes Estonia and Slovenia prior to 1990.

** Excludes Estonia and Slovenia prior to 1990.

GDP using exchange rates

billion 2000 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Non-OECD Total *	2 025.2	2 545.4	3 278.5	3 640.1	4 075.5	4 849.5	5 951.2	7 831.0	9 208.2	9 758.8	10 041.1	146.4%
Algeria	17.5	26.1	35.3	44.6	46.4	47.0	54.8	69.6	73.1	74.8	76.4	64.8%
Angola	6.7	6.7	6.7	7.2	8.5	6.7	9.1	14.9	21.3	24.1	24.3	187.0%
Benin	0.8	0.9	1.1	1.4	1.4	1.7	2.3	2.7	3.0	3.1	3.2	129.5%
Botswana	..	..	..	1.9	3.4	4.1	5.6	7.3	8.0	8.3	8.0	134.4%
Cameroon	3.5	4.7	6.3	9.9	8.8	8.0	10.1	12.1	12.9	13.3	13.6	54.1%
Congo	1.0	1.4	1.7	2.8	2.8	2.9	3.2	3.9	4.1	4.3	4.7	66.8%
Dem. Rep. of Congo	7.1	7.6	7.0	7.7	7.7	5.3	4.3	5.2	5.8	6.2	6.4	-16.7%
Côte d'Ivoire	5.1	6.3	7.7	7.8	8.3	8.9	10.4	10.4	10.7	10.9	11.3	36.1%
Egypt	21.0	24.1	38.5	53.3	65.6	77.5	99.8	118.7	135.9	145.6	152.4	132.3%
Eritrea	..	..	..	..	..	0.6	0.6	0.7	0.7	0.6	0.8	..
Ethiopia	4.2	4.6	5.1	4.9	6.2	6.6	8.2	11.2	13.8	15.3	16.6	166.7%
Gabon	1.9	3.9	3.6	4.1	4.3	5.0	5.1	5.5	5.9	6.0	6.0	39.1%
Ghana	2.7	2.5	2.6	2.6	3.3	4.0	5.0	6.4	7.2	7.8	8.2	150.4%
Kenya	4.0	5.2	7.1	8.0	10.5	11.4	12.7	15.2	17.3	17.5	18.0	70.6%
Libyan Arab Jamahiriya	34.4	27.8	43.8	37.7	29.8	31.8	34.5	44.0	49.3	51.1	52.0	74.6%
Morocco	12.8	15.4	20.1	23.6	29.3	30.7	37.0	47.2	52.2	55.2	57.9	97.5%
Mozambique	2.8	2.4	2.5	1.9	2.5	3.0	4.2	6.4	7.5	8.0	8.5	239.7%
Namibia	..	..	..	..	..	3.3	3.9	5.0	5.6	5.9	5.8	..
Nigeria	22.6	26.0	31.5	27.0	35.0	39.5	46.0	61.9	70.0	74.2	78.3	123.9%
Senegal	2.3	2.5	2.7	3.1	3.5	3.8	4.7	5.9	6.3	6.5	6.7	93.2%
South Africa	71.5	82.0	95.5	102.2	110.9	115.8	132.9	160.4	178.6	185.2	181.9	64.0%
Sudan	4.0	4.9	5.5	5.7	7.1	9.1	12.4	16.6	20.3	21.7	22.7	221.1%
United Rep. of Tanzania	3.6	4.3	4.9	5.2	6.8	7.4	9.1	12.5	14.3	15.4	16.2	138.8%
Togo	0.6	0.8	1.0	0.9	1.1	1.1	1.3	1.5	1.6	1.6	1.6	52.6%
Tunisia	4.7	6.3	8.6	10.6	12.2	14.8	19.4	24.1	27.1	28.4	29.3	139.2%
Zambia	2.4	2.7	2.7	2.8	3.0	2.8	3.2	4.1	4.6	4.9	5.2	71.3%
Zimbabwe	3.5	4.1	4.4	5.4	6.7	7.1	7.4	5.7	5.2	4.5	4.7	-30.9%
Other Africa	24.0	26.0	30.9	32.6	37.8	38.5	48.8	63.5	71.6	75.7	75.4	99.3%
Africa	264.7	299.1	376.9	414.8	462.9	498.4	596.1	742.6	833.9	876.2	896.0	93.6%
Bangladesh	17.8	16.7	20.5	24.6	29.5	36.6	47.1	61.4	69.7	74.0	78.2	165.3%
Brunei Darussalam	2.9	3.6	5.8	4.8	4.8	5.6	6.0	6.6	7.0	6.9	6.8	41.8%
Cambodia	..	..	..	..	..	2.6	3.7	5.9	7.1	7.6	7.5	..
Chinese Taipei	35.1	47.7	79.4	109.9	170.9	242.4	321.2	376.0	417.1	420.2	412.1	141.1%
India	119.1	135.2	157.6	202.6	270.5	346.6	460.2	644.4	773.1	812.7	874.9	223.5%
Indonesia	29.5	40.2	58.8	77.4	109.2	159.4	165.0	207.9	233.2	247.3	258.5	136.8%
DPR of Korea	3.0	4.7	8.2	13.1	15.6	12.2	10.9	11.3	11.4	11.1	11.5	-25.9%
Malaysia	13.1	17.5	26.4	33.9	47.2	74.2	93.8	118.2	133.2	139.5	137.1	190.5%
Mongolia	..	..	..	0.9	1.1	1.0	1.1	1.5	1.8	1.9	1.9	74.0%
Myanmar	2.6	2.9	4.0	5.0	4.5	5.9	8.9	16.2	18.3	19.0	19.9	343.1%
Nepal	1.7	1.9	2.1	2.7	3.4	4.3	5.5	6.5	6.9	7.3	7.6	126.5%
Pakistan	17.4	20.2	27.3	37.9	50.2	63.0	74.0	94.4	105.9	107.6	111.5	121.8%
Philippines	28.2	35.4	47.6	44.6	56.2	62.6	75.9	94.5	106.6	110.6	111.7	98.7%
Singapore	10.5	14.5	21.8	29.7	44.7	68.2	92.7	121.1	142.8	145.3	143.5	221.2%
Sri Lanka	4.3	5.0	6.5	8.3	9.8	12.8	16.3	19.8	22.8	24.2	25.0	154.8%
Thailand	20.1	25.4	37.3	48.6	79.4	120.0	122.7	157.4	173.6	177.9	173.9	119.2%
Vietnam	8.1	8.2	8.6	11.9	15.0	22.3	31.2	44.8	52.6	55.9	58.8	291.8%
Other Asia	10.6	11.9	13.9	15.8	18.2	22.6	24.3	33.0	40.6	43.6	45.7	150.4%
Asia	324.2	391.0	525.6	671.6	930.2	1 262.3	1 560.5	2 020.9	2 323.8	2 412.5	2 486.4	167.3%
People's Rep. of China	107.1	133.4	182.9	304.5	444.6	792.8	1 198.5	1 908.8	2 456.7	2 692.5	2 937.5	560.7%
Hong Kong, China	25.9	34.6	60.2	79.4	115.2	148.5	169.1	207.1	235.8	241.3	231.3	100.9%
China	133.0	168.0	243.1	383.8	559.8	941.3	1 367.6	2 115.9	2 692.4	2 933.9	3 168.9	466.1%

* Includes Estonia and Slovenia prior to 1990.

GDP using exchange rates

billion 2000 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Bahrain	1.3	2.4	4.0	3.7	4.6	6.5	8.0	10.7	12.5	13.3	13.7	194.1%
Islamic Republic of Iran	46.6	66.1	57.3	69.4	70.3	83.1	101.3	133.0	151.8	155.3	158.1	124.9%
Iraq	50.5	64.2	96.6	61.8	33.0	12.6	25.9	19.8	20.2	22.1	23.0	-30.2%
Jordan	2.1	2.0	4.2	5.4	5.1	7.2	8.5	11.5	13.5	14.5	14.9	189.7%
Kuwait	31.9	26.4	27.9	22.0	25.3	34.3	37.7	56.0	61.4	65.4	63.6	151.1%
Lebanon	13.7	13.4	11.4	15.9	9.0	16.1	17.3	20.8	22.5	24.6	26.8	196.2%
Oman	3.2	4.1	5.4	10.9	12.7	16.8	19.9	23.6	27.4	29.4	31.6	150.0%
Qatar	9.0	9.1	10.6	9.0	8.8	10.2	17.8	26.1	32.2	37.3	40.7	361.5%
Saudi Arabia	52.9	110.0	153.7	121.8	144.1	166.0	188.4	226.9	238.8	249.2	249.5	73.1%
Syrian Arab Republic	4.0	6.9	9.5	10.9	11.8	17.3	19.3	23.8	26.0	27.4	28.5	141.8%
United Arab Emirates	8.8	22.7	47.3	41.3	46.4	54.8	70.6	97.8	113.0	118.9	118.1	154.5%
Yemen	1.3	1.9	3.3	4.7	5.5	7.2	9.4	11.6	12.4	12.8	13.3	141.7%
Middle East	225.2	329.3	431.1	376.7	376.7	432.1	524.0	661.5	731.8	770.1	781.8	107.5%
Albania	1.7	2.1	2.8	3.1	3.2	2.8	3.7	4.8	5.3	5.7	5.9	82.8%
Armenia *	..	..	..	..	2.8	1.5	1.9	3.4	4.4	4.7	4.0	42.0%
Azerbaijan *	..	..	..	..	9.0	3.7	5.3	9.9	16.7	18.5	20.2	125.8%
Belarus *	..	..	..	..	14.4	9.4	12.7	18.0	21.9	24.3	24.7	71.9%
Bosnia and Herzegovina *	..	..	..	..	1.5	1.6	5.5	7.0	8.0	8.4	8.1	442.2%
Bulgaria	6.2	8.5	11.5	13.5	14.6	12.8	12.9	16.8	19.1	20.3	19.3	32.4%
Croatia *	..	..	..	..	25.1	18.2	21.3	26.6	29.4	30.1	28.3	12.9%
Cyprus	2.1	1.9	3.4	4.4	6.2	7.7	9.3	10.9	11.9	12.3	12.1	95.1%
Georgia *	..	..	..	..	8.2	2.3	3.1	4.4	5.4	5.5	5.3	-35.5%
Gibraltar	0.4	0.4	0.4	0.5	0.6	0.6	0.7	0.8	0.9	0.9	0.8	45.3%
Kazakhstan *	..	..	..	..	26.3	16.2	18.3	30.0	36.1	37.3	37.8	43.3%
Kyrgyzstan *	..	..	..	..	2.1	1.0	1.4	1.6	1.8	2.0	2.0	-0.4%
Latvia *	..	..	..	..	10.4	5.9	7.8	11.6	14.3	13.7	11.2	7.6%
Lithuania *	..	..	..	..	15.9	9.2	11.4	16.6	19.7	20.3	17.2	8.5%
FYR of Macedonia *	..	..	..	..	3.9	3.1	3.6	3.8	4.2	4.4	4.4	12.1%
Malta	0.6	0.9	1.6	1.8	2.4	3.1	3.9	4.1	4.3	4.4	4.4	82.2%
Republic of Moldova *	..	..	..	..	3.6	1.5	1.3	1.8	2.0	2.1	2.0	-45.4%
Romania	18.8	28.4	40.9	48.2	44.0	39.5	37.1	48.9	55.9	61.2	56.0	27.3%
Russian Federation *	..	..	..	..	385.8	239.7	259.4	349.4	410.1	431.6	397.5	3.0%
Serbia *	..	..	..	..	9.2	9.0	9.0	11.6	13.1	13.9	9.0	-1.9%
Tajikistan *	..	..	..	..	2.3	0.9	0.9	1.3	1.6	1.7	1.7	-23.4%
Turkmenistan *	..	..	..	..	3.8	2.4	2.9	6.3	7.8	8.6	9.3	144.4%
Ukraine *	..	..	..	..	72.0	34.5	31.3	45.2	52.4	53.5	45.4	-36.9%
Uzbekistan *	..	..	..	..	14.0	11.4	13.8	17.9	21.0	22.9	24.8	76.5%
Former Soviet Union *	404.4	505.6	616.9	685.7	..	..	..	..	..	..	..	..
Former Yugoslavia *	33.7	41.3	55.6	56.6	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	467.9	589.3	733.2	813.8	681.1	438.0	478.4	652.9	767.3	808.3	751.5	10.3%
Argentina	167.5	184.7	212.1	186.6	182.2	250.3	284.2	313.6	369.6	394.6	398.0	118.4%
Bolivia	4.1	5.2	5.7	5.2	5.8	7.1	8.4	10.2	10.7	11.4	11.8	102.6%
Brazil	212.7	311.6	430.4	454.2	501.8	583.6	644.7	739.6	815.7	857.6	856.0	70.6%
Colombia	33.6	41.8	54.3	60.7	77.2	94.5	100.4	119.9	136.8	140.5	141.7	83.5%
Costa Rica	4.6	5.8	7.5	7.5	9.6	12.5	15.9	19.5	22.8	23.4	23.1	141.1%
Cuba	15.5	18.5	21.8	32.8	32.5	22.5	28.2	35.5	42.7	45.8	47.8	47.0%
Dominican Republic	5.9	8.2	10.5	11.6	13.3	17.2	24.0	28.5	34.3	36.1	37.3	180.2%
Ecuador	5.9	8.4	10.9	11.7	13.3	15.2	15.9	20.8	22.4	24.0	24.1	81.0%
El Salvador	7.2	8.7	8.7	7.6	8.4	11.3	13.1	14.7	16.0	16.4	15.8	88.8%
Guatemala	7.2	8.9	11.8	11.2	12.9	15.9	19.3	22.4	25.1	25.9	26.1	102.2%
Haiti	3.2	3.4	4.5	4.3	4.3	3.2	3.7	3.6	3.8	3.8	3.9	-9.1%
Honduras	2.5	2.9	4.0	4.4	5.1	6.1	7.1	8.9	10.1	10.5	10.3	100.4%
Jamaica	6.4	6.8	5.8	5.9	7.6	9.2	9.0	9.9	10.3	10.3	10.0	32.0%
Netherlands Antilles	..	..	1.0	1.0	1.0	1.2	1.2	1.3	1.3	1.3	1.3	22.2%
Nicaragua	3.2	4.0	3.2	3.3	2.8	3.1	3.9	4.6	4.9	5.3	5.0	77.2%
Panama	4.5	5.2	6.2	7.3	7.1	9.3	11.6	14.3	17.5	19.3	19.8	179.1%
Paraguay	2.0	2.7	4.5	4.9	5.9	7.1	7.1	8.0	8.9	9.5	9.1	53.4%
Peru	28.5	34.9	39.1	39.7	36.1	47.1	53.3	65.4	76.8	84.2	85.0	135.4%
Trinidad and Tobago	4.5	5.1	7.5	6.7	6.0	6.4	8.2	12.0	14.2	14.5	14.1	136.3%
Uruguay	12.6	13.6	17.0	14.0	16.9	20.6	22.8	23.9	26.8	29.1	29.9	76.5%
Venezuela	68.3	77.8	87.8	83.8	95.3	112.9	117.1	132.9	157.9	165.5	160.0	68.0%
Other Latin America	10.1	10.4	14.0	15.0	19.7	21.0	25.4	27.6	30.3	28.9	26.6	35.4%
Latin America	610.2	768.7	968.5	979.4	1 064.8	1 277.4	1 424.6	1 637.1	1 858.9	1 957.9	1 956.5	83.7%

* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

GDP using purchasing power parities

billion 2000 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
World	17 449.8	20 540.8	24 976.2	28 661.7	33 340.6	37 834.2	45 799.1	55 547.2	62 111.5	64 095.3	64 244.4	92.7%
<i>Annex I Parties</i>	..	..	..	..	22 395.0	23 530.8	27 503.5	30 927.2	32 898.7	33 070.0	31 792.0	42.0%
<i>Annex II Parties</i>	10 473.5	11 847.4	14 059.6	16 017.8	19 003.1	20 951.4	24 593.1	27 169.7	28 586.1	28 588.2	27 593.7	45.2%
<i>North America</i>	4 214.7	4 705.0	5 638.9	6 597.4	7 719.5	8 715.8	10 772.9	12 141.4	12 712.3	12 715.3	12 378.2	60.3%
<i>Europe</i>	4 750.7	5 362.8	6 248.9	6 766.6	7 952.5	8 619.3	9 948.1	10 823.5	11 460.8	11 495.9	11 016.0	38.5%
<i>Asia Oceania</i>	1 508.0	1 779.6	2 171.8	2 653.9	3 331.1	3 616.3	3 872.1	4 204.7	4 412.9	4 376.9	4 199.5	26.1%
<i>Annex I EIT</i>	..	..	..	..	2 976.7	2 092.4	2 314.2	3 014.1	3 481.3	3 644.8	3 401.5	14.3%
<i>Non-Annex I Parties</i>	..	..	..	..	10 945.6	14 303.4	18 295.6	24 620.0	29 212.8	31 025.3	32 452.4	196.5%
<i>Annex I Kyoto Parties</i>	..	..	..	..	14 861.6	15 006.5	16 960.5	18 965.5	20 313.9	20 472.7	19 545.0	31.5%
Non-OECD Total *	5 896.7	7 328.8	9 237.3	10 713.0	11 991.5	14 139.1	17 740.7	24 268.1	28 975.4	30 853.6	32 130.5	167.9%
OECD Total **	11 553.0	13 212.0	15 738.9	17 948.7	21 349.1	23 695.0	28 058.4	31 279.1	33 136.1	33 241.7	32 113.9	50.4%
Canada	347.7	414.0	496.7	568.8	655.5	713.9	874.1	991.1	1 041.5	1 046.9	1 021.1	55.8%
Chile	43.7	37.5	53.2	55.6	77.0	116.8	143.1	175.8	192.4	199.4	196.0	154.6%
Mexico	322.5	425.0	586.6	645.7	701.6	756.9	987.1	1 083.6	1 176.7	1 194.7	1 122.9	60.1%
United States	3 867.1	4 291.0	5 142.1	6 028.6	7 064.0	8 002.0	9 898.8	11 150.4	11 670.8	11 668.5	11 357.1	60.8%
OECD Americas	4 580.9	5 167.4	6 278.6	7 298.7	8 498.1	9 589.5	11 903.1	13 400.9	14 081.4	14 109.4	13 697.2	61.2%
Australia	221.8	246.2	285.2	331.0	380.4	446.8	540.4	639.0	687.8	695.2	703.8	85.0%
Israel	38.3	49.9	57.7	67.3	83.4	115.5	147.8	164.3	182.9	190.7	192.2	130.3%
Japan	1 243.0	1 482.5	1 837.1	2 265.0	2 890.1	3 099.1	3 250.3	3 467.6	3 621.9	3 579.6	3 392.9	17.4%
Korea	79.5	114.1	169.8	261.6	429.4	627.8	808.4	1 007.0	1 113.2	1 138.8	1 141.0	165.7%
New Zealand	43.2	51.0	49.5	58.0	60.5	70.4	81.4	98.1	103.2	102.1	102.9	69.9%
OECD Asia Oceania	1 625.9	1 943.6	2 399.3	2 982.8	3 843.9	4 359.5	4 828.3	5 376.0	5 709.0	5 706.4	5 532.7	43.9%
Austria	106.8	123.2	145.0	155.8	179.6	199.0	230.5	249.4	268.0	273.9	263.2	46.5%
Belgium	138.7	159.3	186.2	195.1	227.2	245.9	283.0	306.0	323.4	326.7	317.7	39.8%
Czech Republic	104.1	118.7	132.2	138.8	150.2	143.1	154.0	185.0	209.8	214.9	206.0	37.2%
Denmark	80.0	84.7	97.0	110.9	119.1	133.7	153.9	163.8	172.0	170.1	161.2	35.4%
Estonia	..	..	..	..	13.9	9.8	13.5	19.8	23.4	22.2	19.2	37.5%
Finland	56.6	68.6	80.1	91.8	108.3	105.0	132.8	151.1	166.2	167.7	154.0	42.2%
France	729.0	841.0	995.1	1 074.6	1 261.8	1 336.3	1 534.7	1 666.8	1 744.2	1 748.0	1 702.0	34.9%
Germany	1 066.8	1 166.0	1 375.9	1 472.4	1 732.0	1 930.9	2 132.7	2 196.9	2 331.3	2 354.3	2 243.2	29.5%
Greece	102.4	121.4	148.9	149.9	159.5	169.6	201.0	245.0	268.7	271.4	265.9	66.7%
Hungary	68.2	87.4	104.2	113.7	116.7	103.5	123.9	150.1	156.8	158.1	147.5	26.4%
Iceland	2.9	3.6	4.8	5.4	6.3	6.4	8.1	10.0	11.1	11.2	10.5	65.9%
Ireland	25.0	30.7	38.3	43.5	54.7	68.7	109.2	142.3	158.4	152.7	141.2	157.9%
Italy	688.2	789.7	981.6	1 067.1	1 245.2	1 326.4	1 457.4	1 523.1	1 577.2	1 556.3	1 475.1	18.5%
Luxembourg	7.0	7.9	8.8	10.0	14.3	17.4	23.4	27.9	31.3	31.7	30.6	113.3%
Netherlands	211.0	238.9	275.0	290.8	342.8	384.0	468.2	499.9	537.2	547.3	525.8	53.4%
Norway	58.8	70.5	88.0	103.6	112.8	135.4	162.2	181.0	190.2	191.7	188.9	67.5%
Poland	210.5	269.3	280.8	283.3	278.9	310.6	404.3	470.5	533.8	561.1	570.4	104.5%
Portugal	66.1	76.8	98.5	103.0	135.7	147.6	181.5	188.9	196.2	196.2	191.3	41.0%
Slovak Republic	37.4	42.6	47.5	51.3	55.0	50.2	59.3	75.3	90.3	95.6	91.0	65.6%
Slovenia	..	..	..	..	28.9	28.1	34.8	41.6	47.1	48.9	44.9	55.3%
Spain	357.5	442.6	487.8	522.8	651.4	702.0	858.4	1 008.0	1 086.0	1 095.4	1 054.6	61.9%
Sweden	134.5	151.5	162.0	177.5	201.6	208.6	248.0	283.2	305.1	303.2	287.1	42.4%
Switzerland	151.3	151.4	164.6	177.4	205.0	206.0	227.9	243.2	261.3	266.2	261.1	27.4%
Turkey	175.3	220.1	247.4	313.7	411.1	481.4	589.2	736.2	823.7	829.1	789.1	92.0%
United Kingdom	768.0	835.2	911.2	1 015.0	1 195.2	1 296.6	1 535.2	1 736.8	1 833.1	1 831.9	1 742.6	45.8%
OECD Europe **	5 346.2	6 101.0	7 060.9	7 667.3	9 007.1	9 746.0	11 327.1	12 502.2	13 345.7	13 425.9	12 884.0	43.0%
<i>European Union - 27</i>	..	..	..	..	8 566.4	9 163.0	10 591.8	11 667.3	12 445.5	12 537.9	12 007.6	40.2%

* Includes Estonia and Slovenia prior to 1990.

** Excludes Estonia and Slovenia prior to 1990.

GDP using purchasing power parities

billion 2000 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Non-OECD Total *	5 896.7	7 328.8	9 237.3	10 713.0	11 991.5	14 139.1	17 740.7	24 268.1	28 975.4	30 853.6	32 130.5	167.9%
Algeria	51.8	77.4	104.5	132.2	137.3	139.1	162.3	206.0	216.5	221.7	226.3	64.8%
Angola	14.8	14.9	15.0	16.0	18.8	14.9	20.2	33.1	47.2	53.5	53.9	187.0%
Benin	2.5	2.8	3.4	4.2	4.4	5.4	7.0	8.5	9.2	9.7	10.1	129.5%
Botswana	..	..	..	4.6	8.1	9.8	13.4	17.2	19.0	19.6	18.9	134.4%
Cameroon	9.7	12.9	17.6	27.4	24.4	22.1	27.9	33.5	35.8	36.8	37.5	54.1%
Congo	1.1	1.6	2.0	3.2	3.1	3.2	3.6	4.4	4.6	4.9	5.2	66.8%
Dem. Rep. of Congo	49.9	52.9	49.1	53.8	53.6	36.8	30.1	36.6	40.9	43.4	44.6	-16.7%
Côte d'Ivoire	12.9	16.1	19.7	20.0	21.2	22.8	26.6	26.6	27.2	27.8	28.8	36.1%
Egypt	50.0	57.4	91.5	126.8	155.9	184.2	237.3	282.3	323.0	346.1	362.2	132.3%
Eritrea	..	..	..	..	..	3.5	3.6	4.1	4.1	3.7	4.7	..
Ethiopia	28.0	30.6	34.1	32.2	41.3	43.4	54.2	74.1	91.5	101.4	110.2	166.7%
Gabon	2.8	5.7	5.3	6.0	6.3	7.3	7.4	8.1	8.7	8.9	8.8	39.1%
Ghana	20.6	19.3	20.3	19.8	25.1	30.9	38.2	48.8	55.3	60.0	62.8	150.4%
Kenya	10.0	13.0	17.7	20.0	26.3	28.5	31.7	37.9	43.1	43.7	44.9	70.6%
Libyan Arab Jamahiriya	46.7	37.8	59.6	51.2	40.5	43.2	46.9	59.8	66.9	69.5	70.7	74.6%
Morocco	38.6	46.5	60.7	71.3	88.5	92.7	111.8	142.6	157.8	166.6	174.8	97.5%
Mozambique	10.8	9.1	9.3	7.3	9.5	11.2	16.1	24.3	28.3	30.2	32.2	239.7%
Namibia	..	..	..	..	..	10.7	12.7	16.1	18.2	19.0	18.8	..
Nigeria	51.9	59.6	72.2	61.9	80.3	90.8	105.6	142.2	160.7	170.4	179.9	124.0%
Senegal	7.6	8.6	9.1	10.4	11.7	13.0	15.8	19.9	21.4	22.1	22.6	93.2%
South Africa	207.5	238.0	277.2	296.5	322.0	336.1	385.6	465.4	518.5	537.5	528.0	64.0%
Sudan	16.0	19.7	22.1	22.9	28.3	36.3	49.6	66.4	81.4	87.0	90.9	221.1%
United Rep. of Tanzania	6.9	8.3	9.5	10.0	13.2	14.4	17.6	24.3	27.8	29.9	31.5	138.8%
Togo	3.5	4.2	5.3	5.2	5.9	5.9	7.3	8.1	8.6	8.7	9.0	52.6%
Tunisia	14.5	19.6	26.6	32.7	37.8	45.7	60.1	74.5	83.8	87.6	90.4	139.2%
Zambia	6.2	7.0	7.1	7.3	7.9	7.3	8.4	10.6	12.0	12.7	13.5	71.3%
Zimbabwe	14.9	17.3	18.6	22.9	28.6	30.4	31.5	24.2	22.2	19.0	19.8	-30.9%
Other Africa	95.9	102.4	117.5	124.3	140.8	141.9	176.3	219.7	244.6	259.0	264.3	87.8%
Africa	775.2	882.6	1 074.8	1 190.0	1 340.6	1 431.5	1 708.9	2 119.4	2 378.3	2 500.3	2 565.3	91.3%
Bangladesh	75.4	70.4	86.4	103.7	124.6	154.4	199.1	259.3	294.3	312.5	330.5	165.3%
Brunei Darussalam	3.5	4.2	6.9	5.7	5.7	6.7	7.2	7.9	8.3	8.2	8.1	41.7%
Cambodia	..	..	..	..	..	16.0	22.8	35.6	43.5	46.4	45.5	..
Chinese Taipei	53.6	73.0	121.4	168.1	261.4	370.8	491.4	575.1	638.0	642.7	630.4	141.1%
India	621.7	705.5	822.5	1 057.5	1 411.9	1 809.1	2 402.0	3 363.6	4 035.6	4 242.2	4 567.0	223.5%
Indonesia	107.2	145.9	213.6	280.9	396.4	578.8	599.3	754.9	847.0	897.9	938.7	136.8%
DPR of Korea	10.6	16.7	28.7	45.9	54.8	43.0	38.2	39.8	40.0	39.1	40.6	-25.9%
Malaysia	28.7	38.3	57.7	74.0	103.0	162.0	204.7	258.1	290.9	304.6	299.3	190.5%
Mongolia	..	..	..	3.5	4.3	3.7	4.2	5.8	6.9	7.5	7.4	73.9%
Myanmar	15.8	17.6	23.9	30.3	27.2	35.9	53.9	98.2	110.9	114.8	120.4	343.1%
Nepal	10.1	11.2	12.5	15.9	19.9	25.6	32.4	38.2	40.9	43.1	45.1	126.5%
Pakistan	61.5	71.7	96.8	134.3	178.0	223.2	262.0	334.2	375.1	381.1	394.9	121.8%
Philippines	113.6	142.6	191.5	179.6	226.3	251.9	305.5	380.4	428.9	445.0	449.7	98.7%
Singapore	10.8	14.8	22.3	30.4	45.7	69.8	94.8	123.8	146.0	148.6	146.7	221.2%
Sri Lanka	17.5	20.6	26.6	33.9	40.1	52.1	66.7	81.0	93.1	98.6	102.1	154.8%
Thailand	63.8	80.4	118.0	153.8	251.1	379.8	388.4	498.1	549.5	563.0	550.4	119.2%
Vietnam	41.0	41.4	43.8	60.4	76.3	113.2	158.4	227.5	267.0	283.8	298.9	291.8%
Other Asia	36.0	39.0	44.3	51.1	52.8	57.3	62.5	86.0	103.1	109.3	118.0	123.5%
Asia	1 270.8	1 493.3	1 916.9	2 429.1	3 279.5	4 353.4	5 393.3	7 167.5	8 319.1	8 688.5	9 093.8	177.3%
People's Rep. of China	444.5	553.6	759.4	1 263.9	1 845.6	3 291.0	4 975.2	7 923.8	10 198.2	11 177.3	12 194.4	560.7%
Hong Kong, China	26.8	35.9	62.3	82.2	119.2	153.8	175.1	214.4	244.1	249.9	239.5	100.9%
China	471.3	589.5	821.7	1 346.1	1 964.9	3 444.8	5 150.2	8 138.2	10 442.3	11 427.1	12 433.9	532.8%

* Includes Estonia and Slovenia prior to 1990.

GDP using purchasing power parities

billion 2000 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Bahrain	1.7	3.2	5.2	4.9	6.1	8.5	10.4	14.0	16.4	17.4	17.9	194.1%
Islamic Republic of Iran	170.0	241.3	209.1	253.3	256.5	303.2	369.7	485.2	554.0	566.8	577.0	124.9%
Iraq	69.0	87.8	132.0	84.5	45.1	17.2	35.4	27.1	27.6	30.2	31.5	-30.2%
Jordan	4.9	4.8	10.0	12.9	12.2	17.2	20.1	27.4	32.1	34.6	35.4	189.8%
Kuwait	36.3	30.0	31.7	25.0	28.8	39.1	42.9	63.7	69.9	74.4	72.4	151.1%
Lebanon	13.2	12.9	11.0	15.3	8.7	15.5	16.6	20.0	21.7	23.7	25.8	196.2%
Oman	4.9	6.4	8.3	16.8	19.6	26.1	30.8	36.6	42.4	45.6	49.0	150.0%
Qatar	8.1	8.2	9.5	8.0	7.9	9.1	15.9	23.3	28.9	33.4	36.5	361.5%
Saudi Arabia	78.8	164.0	229.1	181.5	214.8	247.4	280.8	338.2	356.0	371.4	371.9	73.1%
Syrian Arab Republic	11.1	18.9	26.1	30.1	32.4	47.5	53.2	65.4	71.6	75.3	78.3	141.8%
United Arab Emirates	8.7	22.4	46.7	40.8	45.8	54.2	69.7	96.7	111.7	117.4	116.6	154.5%
Yemen	2.1	2.9	5.1	7.3	8.6	11.3	14.7	18.1	19.3	20.0	20.8	141.7%
Middle East	408.8	602.8	723.9	680.4	686.6	796.2	960.4	1 215.8	1 351.5	1 410.2	1 433.1	108.7%
Albania	5.3	6.6	8.8	9.7	9.9	8.7	11.4	14.8	16.5	17.7	18.2	82.8%
Armenia *	..	..	..	..	11.0	5.8	7.5	13.3	17.1	18.3	15.6	42.0%
Azerbaijan *	..	..	..	..	33.8	14.2	19.9	37.5	63.1	69.9	76.4	125.8%
Belarus *	..	..	..	..	54.2	35.4	48.1	68.0	82.5	91.9	93.2	71.9%
Bosnia and Herzegovina *	..	..	..	..	6.1	6.6	22.4	28.5	32.4	34.1	33.1	442.3%
Bulgaria	24.2	33.0	44.5	52.4	56.5	49.5	50.1	65.4	74.1	78.7	74.8	32.4%
Croatia *	..	..	..	..	55.9	40.5	47.5	59.3	65.5	67.0	63.1	12.9%
Cyprus	3.1	2.8	4.9	6.4	9.0	11.2	13.6	15.9	17.3	17.9	17.6	95.1%
Georgia *	..	..	..	..	25.1	7.1	9.4	13.4	16.5	16.9	16.2	-35.5%
Gibraltar	0.4	0.4	0.5	0.5	0.6	0.7	0.8	0.9	0.9	0.9	0.9	45.1%
Kazakhstan *	..	..	..	..	93.2	57.2	64.7	105.9	127.7	131.9	133.5	43.3%
Kyrgyzstan *	..	..	..	..	11.0	5.6	7.4	8.9	9.9	10.7	11.0	-0.4%
Latvia *	..	..	..	..	25.2	14.4	18.9	28.0	34.6	33.0	27.1	7.6%
Lithuania *	..	..	..	..	42.4	24.6	30.6	44.5	52.7	54.1	46.0	8.5%
FYR of Macedonia *	..	..	..	..	13.3	10.5	12.2	13.1	14.4	15.1	15.0	12.1%
Malta	1.1	1.7	2.9	3.2	4.2	5.5	6.9	7.2	7.7	7.9	7.7	82.1%
Republic of Moldova *	..	..	..	..	15.9	6.4	5.6	7.9	8.6	9.3	8.7	-45.4%
Romania	67.0	101.4	146.2	172.0	157.0	141.0	132.3	174.6	199.7	218.5	199.9	27.3%
Russian Federation *	..	..	..	..	1 485.0	922.4	998.6	1 344.7	1 578.4	1 661.2	1 530.2	3.0%
Serbia *	..	..	..	..	33.8	33.1	33.0	42.6	48.4	51.1	33.1	-1.9%
Tajikistan *	..	..	..	..	11.5	4.4	4.4	6.9	7.9	8.5	8.8	-23.4%
Turkmenistan *	..	..	..	..	20.6	12.9	15.7	33.9	42.2	46.6	50.4	144.4%
Ukraine *	..	..	..	..	456.9	219.3	198.5	287.2	332.5	339.5	288.2	-36.9%
Uzbekistan *	..	..	..	..	37.7	30.6	36.9	48.0	56.4	61.5	66.5	76.5%
Former Soviet Union *	1 665.5	2 082.2	2 540.8	2 823.8	..	..	..	..	..	..	..	..
Former Yugoslavia *	73.0	89.6	120.6	122.7	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	1 839.6	2 317.8	2 869.1	3 190.8	2 670.0	1 667.6	1 796.1	2 470.3	2 907.0	3 062.3	2 835.2	6.2%
Argentina	263.1	290.0	333.1	292.9	286.1	392.9	446.3	492.4	580.4	619.6	624.9	118.4%
Bolivia	9.7	12.2	13.6	12.3	13.7	16.8	19.9	24.2	25.3	26.9	27.8	102.6%
Brazil	410.5	601.4	830.6	876.7	968.4	1 126.4	1 244.3	1 427.4	1 574.3	1 655.2	1 652.1	70.6%
Colombia	100.0	124.2	161.4	180.3	229.5	281.0	298.3	356.4	406.4	417.5	421.0	83.5%
Costa Rica	9.3	11.7	15.0	15.0	19.3	25.2	32.1	39.2	46.0	47.2	46.5	141.1%
Cuba	35.7	42.8	50.3	75.7	75.0	52.0	65.1	81.8	98.5	105.7	110.3	47.0%
Dominican Republic	16.6	23.1	29.8	32.8	37.7	48.6	67.9	80.7	96.9	102.0	105.5	180.2%
Ecuador	14.7	21.0	27.1	29.0	33.2	37.9	39.7	51.8	55.9	60.0	60.2	81.0%
El Salvador	15.9	19.2	19.1	16.6	18.4	24.8	28.9	32.3	35.2	36.0	34.8	88.9%
Guatemala	16.9	21.0	27.7	26.2	30.2	37.2	45.2	52.5	58.8	60.7	61.1	102.2%
Haiti	10.7	11.4	15.0	14.3	14.4	10.8	12.2	11.9	12.6	12.7	13.1	-9.1%
Honduras	7.7	8.9	12.5	13.7	15.9	19.0	22.0	27.6	31.3	32.5	31.9	100.4%
Jamaica	7.5	7.9	6.7	6.9	8.8	10.6	10.5	11.5	12.0	11.9	11.6	32.0%
Netherlands Antilles	..	..	2.3	2.2	2.4	2.7	2.7	2.8	2.9	3.0	2.9	22.3%
Nicaragua	12.6	15.7	12.7	13.1	11.0	12.1	15.4	18.0	19.3	20.7	19.6	77.2%
Panama	7.0	8.0	9.5	11.3	10.9	14.2	17.8	22.0	26.8	29.7	30.4	179.1%
Paraguay	6.4	8.4	14.2	15.4	18.7	22.5	22.3	25.3	28.1	29.8	28.6	53.4%
Peru	65.6	80.3	89.9	91.4	83.0	108.4	122.6	150.5	176.6	193.8	195.4	135.4%
Trinidad and Tobago	6.5	7.3	10.7	9.6	8.6	9.2	11.7	17.2	20.4	20.8	20.2	136.3%
Uruguay	17.8	19.3	24.1	19.8	24.0	29.1	32.3	33.8	37.9	41.2	42.4	76.5%
Venezuela	81.6	93.0	105.0	100.2	113.8	134.9	140.0	158.8	188.7	197.7	191.2	68.0%
Other Latin America	15.5	16.3	20.7	21.4	27.1	29.4	34.7	38.6	42.9	40.6	38.1	40.6%
Latin America	1 131.0	1 442.9	1 830.9	1 876.7	2 050.0	2 445.7	2 731.7	3 156.9	3 577.1	3 765.2	3 769.3	83.9%

* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

Population

millions

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
World	3 761.7	4 067.2	4 440.6	4 837.5	5 266.9	5 680.5	6 075.5	6 455.4	6 607.2	6 684.0	6 760.7	28.4%
<i>Annex I Parties</i>	..	..	..	..	1 175.3	1 207.7	1 232.1	1 258.1	1 269.6	1 275.8	1 281.4	9.0%
<i>Annex II Parties</i>	705.3	729.4	755.0	775.9	799.3	827.8	853.1	882.0	894.0	899.8	904.9	13.2%
<i>North America</i>	229.7	239.1	252.2	264.3	277.9	295.9	313.1	328.5	335.0	338.2	341.2	22.8%
<i>Europe</i>	354.6	361.4	367.8	371.3	377.3	384.4	389.9	401.1	405.8	408.2	410.0	8.7%
<i>Asia Oceania</i>	121.0	128.8	135.0	140.2	144.2	147.5	150.1	152.5	153.2	153.4	153.8	6.7%
<i>Annex I EIT</i>	..	..	..	..	320.5	319.8	314.4	307.1	305.0	304.5	304.2	-5.1%
<i>Non-Annex I Parties</i>	..	..	..	..	4 091.7	4 472.8	4 843.4	5 197.3	5 337.6	5 408.2	5 479.4	33.9%
<i>Annex I Kyoto Parties</i>	..	..	..	..	859.4	870.8	875.1	883.1	887.2	889.8	891.9	3.8%
Non-OECD Total *	2 867.0	3 132.5	3 460.7	3 817.3	4 202.9	4 569.1	4 923.7	5 262.5	5 397.8	5 466.5	5 535.9	31.7%
OECD Total **	894.7	934.7	980.0	1 020.2	1 064.1	1 111.4	1 151.8	1 193.0	1 209.4	1 217.5	1 224.9	15.1%
Canada	22.0	23.1	24.5	25.8	27.7	29.3	30.7	32.2	32.9	33.3	33.7	21.8%
Chile	9.8	10.4	11.2	12.1	13.2	14.4	15.4	16.3	16.6	16.8	16.9	28.5%
Mexico	49.9	56.7	65.7	73.5	81.3	91.1	98.3	103.8	105.7	106.6	107.4	32.2%
United States	207.7	216.0	227.7	238.5	250.2	266.6	282.4	296.2	302.0	304.8	307.5	22.9%
OECD Americas	289.3	306.3	329.1	350.0	372.3	401.4	426.8	448.6	457.2	461.5	465.6	25.1%
Australia	13.2	14.0	14.8	15.9	17.2	18.2	19.3	20.5	21.2	21.6	22.1	28.7%
Israel	3.1	3.5	3.9	4.3	4.7	5.5	6.3	6.9	7.2	7.3	7.4	59.1%
Japan	105.0	111.8	117.1	121.0	123.6	125.6	126.9	127.8	127.8	127.5	127.3	3.0%
Korea	32.9	35.3	38.1	40.8	42.9	45.1	47.0	48.1	48.5	48.6	48.7	13.7%
New Zealand	2.9	3.1	3.1	3.3	3.4	3.7	3.9	4.1	4.2	4.3	4.3	28.4%
OECD Asia Oceania	157.0	167.6	177.0	185.3	191.7	198.1	203.4	207.5	208.9	209.3	209.9	9.5%
Austria	7.5	7.6	7.5	7.6	7.7	7.9	8.0	8.2	8.3	8.3	8.4	8.9%
Belgium	9.7	9.8	9.9	9.9	10.0	10.1	10.2	10.5	10.6	10.7	10.8	8.2%
Czech Republic	9.8	10.1	10.3	10.3	10.4	10.3	10.3	10.2	10.3	10.4	10.5	1.4%
Denmark	5.0	5.1	5.1	5.1	5.1	5.2	5.3	5.4	5.5	5.5	5.5	7.4%
Estonia	..	..	..	..	1.6	1.4	1.4	1.3	1.3	1.3	1.3	-15.6%
Finland	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.2	5.3	5.3	5.3	7.1%
France	52.4	53.9	55.1	56.6	58.2	59.4	60.7	63.0	63.8	64.1	64.5	10.9%
Germany	78.3	78.7	78.3	77.7	79.4	81.7	82.2	82.5	82.3	82.1	81.9	3.2%
Greece	9.0	9.2	9.8	10.1	10.3	10.6	10.9	11.1	11.2	11.2	11.3	9.2%
Hungary	10.4	10.5	10.7	10.6	10.4	10.3	10.2	10.1	10.1	10.0	10.0	-3.3%
Iceland	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	25.1%
Ireland	3.0	3.2	3.4	3.5	3.5	3.6	3.8	4.2	4.4	4.4	4.5	27.4%
Italy	54.1	55.4	56.4	56.6	56.7	56.8	56.9	58.6	59.4	59.8	60.2	6.1%
Luxembourg	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	30.1%
Netherlands	13.2	13.7	14.1	14.5	14.9	15.5	15.9	16.3	16.4	16.4	16.5	10.6%
Norway	3.9	4.0	4.1	4.2	4.2	4.4	4.5	4.6	4.7	4.8	4.8	13.8%
Poland	32.8	34.0	35.6	37.2	38.0	38.3	38.3	38.2	38.1	38.1	38.2	0.3%
Portugal	8.7	9.2	9.9	10.1	10.0	10.0	10.2	10.5	10.6	10.6	10.6	6.4%
Slovak Republic	4.6	4.7	5.0	5.2	5.3	5.4	5.4	5.4	5.4	5.4	5.4	2.2%
Slovenia	..	..	..	..	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3%
Spain	34.3	35.7	37.7	38.6	39.0	39.4	40.3	43.4	44.9	45.6	45.9	17.7%
Sweden	8.1	8.2	8.3	8.4	8.6	8.8	8.9	9.0	9.1	9.2	9.3	8.6%
Switzerland	6.3	6.4	6.4	6.5	6.8	7.1	7.2	7.5	7.6	7.7	7.8	14.8%
Turkey	36.2	40.1	44.4	50.3	55.1	59.8	64.3	68.6	70.3	71.1	71.9	30.4%
United Kingdom	55.9	56.2	56.3	56.6	57.2	58.0	58.9	60.2	61.0	61.4	61.8	8.0%
OECD Europe **	448.4	460.9	473.8	484.9	500.1	511.9	521.7	536.9	543.3	546.6	549.3	9.9%
<i>European Union - 27</i>	..	..	..	..	472.9	478.7	482.9	492.1	496.4	498.7	500.4	5.8%

* Includes Estonia and Slovenia prior to 1990.

** Excludes Estonia and Slovenia prior to 1990.

Population

millions

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Non-OECD Total *	2 867.0	3 132.5	3 460.7	3 817.3	4 202.9	4 569.1	4 923.7	5 262.5	5 397.8	5 466.5	5 535.9	31.7%
Algeria	14.2	16.0	18.8	22.1	25.3	28.3	30.5	32.9	33.9	34.4	34.9	38.0%
Angola	6.2	6.8	7.9	9.3	10.7	12.5	14.3	16.6	17.6	18.0	18.5	73.5%
Benin	2.8	3.1	3.6	4.1	4.8	5.7	6.7	7.9	8.4	8.7	8.9	86.3%
Botswana	..	..	..	1.2	1.4	1.6	1.7	1.8	1.9	1.9	2.0	44.2%
Cameroon	7.0	7.8	9.1	10.5	12.2	14.1	15.9	17.8	18.7	19.1	19.5	59.6%
Congo	1.4	1.6	1.8	2.1	2.4	2.8	3.0	3.4	3.6	3.6	3.7	50.6%
Dem. Rep. of Congo	20.9	23.4	27.2	31.4	37.0	44.9	50.8	59.1	62.5	64.3	66.0	78.4%
Côte d'Ivoire	5.5	6.6	8.4	10.5	12.6	15.0	17.3	19.2	20.1	20.6	21.1	67.1%
Egypt	36.4	39.6	44.4	50.7	57.8	63.9	70.2	77.2	80.1	81.5	83.0	43.6%
Eritrea	..	..	..	..	..	3.2	3.7	4.5	4.8	4.9	5.1	..
Ethiopia	31.7	35.1	37.9	43.9	51.5	57.0	65.5	74.7	78.6	80.7	82.8	61.0%
Gabon	0.5	0.6	0.7	0.8	0.9	1.1	1.2	1.4	1.4	1.4	1.5	59.3%
Ghana	9.0	10.0	11.0	13.0	15.0	17.2	19.5	21.9	22.9	23.4	23.8	59.3%
Kenya	11.7	13.5	16.3	19.6	23.4	27.5	31.4	35.8	37.8	38.8	39.8	69.9%
Libyan Arab Jamahiriya	2.1	2.5	3.1	3.9	4.4	4.8	5.3	5.9	6.2	6.3	6.4	47.1%
Morocco	15.7	17.3	19.6	22.3	24.8	27.0	28.8	30.5	31.2	31.6	32.0	29.0%
Mozambique	9.7	10.6	12.1	13.3	13.5	15.9	18.2	20.8	21.9	22.4	22.9	69.0%
Namibia	..	..	..	..	..	1.6	1.8	2.0	2.1	2.1	2.2	..
Nigeria	57.8	63.9	74.5	85.2	97.3	110.4	124.8	140.9	147.7	151.2	154.7	59.0%
Senegal	4.3	4.9	5.6	6.5	7.5	8.7	9.9	11.3	11.9	12.2	12.5	66.3%
South Africa	22.6	24.7	27.6	31.3	35.2	39.1	44.0	47.2	48.3	48.8	49.3	40.1%
Sudan	15.5	17.5	20.5	24.1	27.1	30.8	34.9	38.7	40.4	41.3	42.3	56.0%
United Rep. of Tanzania	14.0	16.0	18.7	21.8	25.5	30.0	34.1	39.0	41.3	42.5	43.7	71.8%
Togo	2.2	2.4	2.8	3.3	3.9	4.4	5.2	6.0	6.3	6.5	6.6	68.6%
Tunisia	5.2	5.6	6.4	7.3	8.2	9.0	9.6	10.0	10.2	10.3	10.4	27.9%
Zambia	4.3	4.9	5.8	6.8	7.9	9.1	10.5	11.7	12.3	12.6	12.9	63.5%
Zimbabwe	5.4	6.2	7.3	8.8	10.5	11.7	12.5	12.5	12.4	12.5	12.5	19.7%
Other Africa	70.0	77.0	89.7	100.6	116.3	126.6	147.1	169.5	179.4	184.6	189.9	63.3%
Africa	375.9	417.7	480.6	554.3	637.0	723.9	818.6	920.2	963.7	986.2	1 009.0	58.4%
Bangladesh	71.0	79.0	90.4	103.0	115.6	128.1	140.8	153.1	157.8	160.0	162.2	40.3%
Brunei Darussalam	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	55.6%
Cambodia	..	..	..	..	..	11.4	12.8	13.9	14.3	14.6	14.8	..
Chinese Taipei	14.9	16.1	17.8	19.3	20.3	21.3	22.2	22.7	22.9	22.9	23.0	13.3%
India	560.3	613.5	687.3	765.1	849.5	932.2	1 015.9	1 094.6	1 124.8	1 140.0	1 155.3	36.0%
Indonesia	119.7	131.3	146.6	162.3	177.4	191.5	205.3	219.2	224.7	227.3	230.0	29.6%
DPR of Korea	14.6	16.1	17.2	18.7	20.1	21.7	22.9	23.5	23.7	23.8	23.9	18.7%
Malaysia	11.1	12.3	13.8	15.7	18.1	20.6	23.3	25.6	26.6	27.0	27.5	51.7%
Mongolia	..	..	..	1.9	2.2	2.3	2.4	2.6	2.6	2.6	2.7	20.5%
Myanmar	27.1	29.9	33.6	37.4	40.8	43.9	46.6	48.3	49.1	49.6	50.0	22.5%
Nepal	12.2	13.4	15.1	17.0	19.1	21.6	24.4	27.2	28.3	28.8	29.3	53.5%
Pakistan	62.5	71.0	82.7	94.8	108.0	122.4	138.1	155.8	162.6	166.1	169.7	57.2%
Philippines	37.6	42.0	48.1	55.0	62.4	70.0	77.7	85.5	88.7	90.3	92.0	47.3%
Singapore	2.1	2.3	2.4	2.7	3.0	3.5	4.0	4.3	4.6	4.8	5.0	63.7%
Sri Lanka	12.6	13.7	14.9	16.0	17.1	18.1	18.7	19.7	20.0	20.2	20.3	18.6%
Thailand	38.2	42.2	47.3	52.5	56.7	60.1	62.3	65.9	67.0	67.4	67.8	19.6%
Vietnam	43.7	48.0	53.7	58.9	66.2	73.0	77.6	83.1	85.2	86.2	87.3	31.8%
Other Asia	29.1	31.4	32.9	31.9	35.2	32.8	37.1	42.4	44.4	45.6	46.7	32.4%
Asia	1 056.9	1 162.4	1 304.0	1 452.6	1 612.1	1 774.7	1 932.4	2 087.7	2 147.6	2 177.6	2 207.8	36.9%
People's Rep. of China	841.1	916.4	981.2	1 051.0	1 135.2	1 204.9	1 262.6	1 303.7	1 317.9	1 324.7	1 331.5	17.3%
Hong Kong, China	4.0	4.5	5.1	5.5	5.7	6.2	6.7	6.8	6.9	7.0	7.0	22.8%
China	845.2	920.9	986.3	1 056.5	1 140.9	1 211.0	1 269.3	1 310.5	1 324.8	1 331.6	1 338.5	17.3%

* Includes Estonia and Slovenia prior to 1990.

Population

millions

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Bahrain	0.2	0.3	0.3	0.4	0.5	0.6	0.7	0.7	0.8	0.8	0.8	60.4%
Islamic Republic of Iran	29.4	33.2	39.1	47.1	54.4	59.0	63.9	69.1	71.0	72.0	72.9	34.0%
Iraq	9.7	11.1	13.2	15.7	18.1	19.6	22.7	26.1	27.5	28.2	28.9	59.6%
Jordan	1.6	1.8	2.2	2.6	3.2	4.2	4.8	5.4	5.7	5.8	6.0	87.7%
Kuwait	0.8	1.0	1.4	1.7	2.1	1.8	2.2	2.5	2.7	2.7	2.8	31.5%
Lebanon	2.5	2.7	2.8	2.9	3.0	3.5	3.8	4.1	4.2	4.2	4.2	42.0%
Oman	0.8	0.9	1.2	1.5	1.8	2.2	2.4	2.6	2.7	2.8	2.8	54.4%
Qatar	0.1	0.2	0.2	0.4	0.5	0.5	0.6	0.9	1.1	1.3	1.4	201.7%
Saudi Arabia	6.0	7.3	9.6	12.9	16.3	18.3	20.6	23.1	24.2	24.8	25.4	56.2%
Syrian Arab Republic	6.6	7.5	9.0	10.8	12.7	14.6	16.5	19.1	20.1	20.6	21.1	65.8%
United Arab Emirates	0.3	0.5	1.0	1.4	1.9	2.4	3.2	4.1	4.4	4.5	4.6	146.3%
Yemen	6.5	7.1	8.4	10.1	12.3	15.5	18.2	21.0	22.3	22.9	23.6	91.5%
Middle East	64.4	73.6	88.4	107.6	126.8	142.1	159.6	178.8	186.6	190.5	194.5	53.4%
Albania	2.2	2.4	2.7	3.0	3.3	3.1	3.1	3.1	3.1	3.1	3.2	-4.1%
Armenia *	..	..	..	..	3.5	3.2	3.1	3.1	3.1	3.1	3.1	-13.0%
Azerbaijan *	..	..	..	..	7.2	7.7	8.0	8.4	8.6	8.7	8.8	22.7%
Belarus *	..	..	..	..	10.2	10.2	10.0	9.8	9.7	9.7	9.7	-5.2%
Bosnia and Herzegovina *	..	..	..	..	4.3	3.3	3.7	3.8	3.8	3.8	3.8	-12.6%
Bulgaria	8.5	8.7	8.9	8.9	8.7	8.4	8.1	7.7	7.7	7.6	7.6	-13.0%
Croatia *	..	..	..	..	4.8	4.7	4.4	4.4	4.4	4.4	4.4	-7.3%
Cyprus	0.6	0.5	0.5	0.5	0.6	0.7	0.7	0.8	0.8	0.8	0.8	39.0%
Georgia *	..	..	..	..	5.5	5.1	4.7	4.5	4.4	4.3	4.3	-22.0%
Gibraltar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	..
Kazakhstan *	..	..	..	..	16.3	15.8	14.9	15.1	15.5	15.7	15.9	-2.8%
Kyrgyzstan *	..	..	..	..	4.4	4.6	4.9	5.1	5.2	5.3	5.3	20.3%
Latvia *	..	..	..	..	2.7	2.5	2.4	2.3	2.3	2.3	2.3	-15.6%
Lithuania *	..	..	..	..	3.7	3.6	3.5	3.4	3.4	3.4	3.3	-9.7%
FYR of Macedonia *	..	..	..	..	1.9	2.0	2.0	2.0	2.0	2.0	2.0	7.0%
Malta	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	15.3%
Republic of Moldova *	..	..	..	..	4.4	4.3	4.1	3.8	3.7	3.6	3.6	-17.4%
Romania	20.5	21.2	22.2	22.7	23.2	22.7	22.4	21.6	21.5	21.5	21.5	-7.4%
Russian Federation *	..	..	..	..	147.7	148.5	146.9	143.5	142.2	142.0	141.9	-3.9%
Serbia *	..	..	..	..	10.2	10.4	10.0	7.4	7.4	7.4	7.3	-28.5%
Tajikistan *	..	..	..	..	5.3	5.8	6.2	6.5	6.7	6.8	7.0	31.1%
Turkmenistan *	..	..	..	..	3.7	4.2	4.5	4.8	5.0	5.0	5.1	39.3%
Ukraine *	..	..	..	..	51.9	51.5	49.2	47.1	46.5	46.3	46.0	-11.3%
Uzbekistan *	..	..	..	..	20.5	22.8	24.7	26.2	26.9	27.3	27.8	35.4%
Former Soviet Union *	244.9	254.5	265.9	277.8	..	..	..	..	..	..	..	..
Former Yugoslavia *	20.3	21.0	21.8	22.5	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	297.4	308.7	322.3	335.8	344.3	345.4	341.9	335.0	334.3	334.5	335.0	-2.7%
Argentina	24.4	26.0	28.2	30.2	32.5	34.8	36.9	38.7	39.5	39.9	40.3	23.9%
Bolivia	4.3	4.8	5.4	6.0	6.7	7.5	8.3	9.2	9.5	9.7	9.9	47.8%
Brazil	98.4	108.1	121.6	136.1	149.6	161.7	174.2	186.1	190.1	192.0	193.7	29.5%
Colombia	21.9	24.0	26.9	30.0	33.2	36.5	39.8	43.0	44.4	45.0	45.7	37.5%
Costa Rica	1.9	2.1	2.3	2.7	3.1	3.5	3.9	4.3	4.5	4.5	4.6	48.8%
Cuba	8.9	9.4	9.8	10.1	10.6	10.9	11.1	11.2	11.2	11.2	11.2	5.8%
Dominican Republic	4.7	5.3	5.9	6.6	7.4	8.1	8.8	9.5	9.8	10.0	10.1	36.8%
Ecuador	6.2	6.9	8.0	9.1	10.3	11.4	12.3	13.1	13.3	13.5	13.6	32.6%
El Salvador	3.8	4.2	4.7	5.0	5.3	5.7	5.9	6.1	6.1	6.1	6.2	15.6%
Guatemala	5.6	6.2	7.0	7.9	8.9	10.0	11.2	12.7	13.4	13.7	14.0	57.4%
Haiti	4.8	5.1	5.7	6.4	7.1	7.9	8.6	9.4	9.7	9.9	10.0	41.2%
Honduras	2.8	3.1	3.6	4.2	4.9	5.6	6.2	6.9	7.2	7.3	7.5	52.3%
Jamaica	1.9	2.0	2.1	2.3	2.4	2.5	2.6	2.7	2.7	2.7	2.7	13.0%
Netherlands Antilles	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.7%
Nicaragua	2.5	2.8	3.3	3.7	4.1	4.7	5.1	5.5	5.6	5.7	5.7	38.8%
Panama	1.6	1.7	2.0	2.2	2.4	2.7	3.0	3.2	3.3	3.4	3.5	43.1%
Paraguay	2.5	2.8	3.2	3.7	4.3	4.8	5.4	5.9	6.1	6.2	6.3	49.4%
Peru	13.6	15.2	17.3	19.5	21.8	23.9	26.0	27.8	28.5	28.8	29.2	33.9%
Trinidad and Tobago	1.0	1.0	1.1	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	9.8%
Uruguay	2.8	2.8	2.9	3.0	3.1	3.2	3.3	3.3	3.3	3.3	3.3	7.7%
Venezuela	11.1	12.7	15.1	17.5	19.8	22.0	24.3	26.6	27.5	27.9	28.4	43.7%
Other Latin America	2.6	2.7	2.8	2.9	3.0	3.2	3.3	3.6	3.6	3.7	3.7	22.6%
Latin America	227.2	249.1	279.0	310.6	341.7	372.0	401.8	430.3	440.9	446.0	451.1	32.0%

* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO₂ emissions / TPEStonnes CO₂ / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
World *	60.8	60.5	59.7	57.4	57.0	56.3	55.9	56.6	57.6	57.3	57.0	-0.0%
<i>Annex I Parties</i>	..	..	..	..	59.5	57.4	57.0	56.4	56.5	55.8	55.0	-7.5%
<i>Annex II Parties</i>	66.0	64.2	62.3	59.5	58.4	56.6	56.5	56.2	56.1	55.4	54.4	-6.9%
<i>North America</i>	64.0	62.2	60.9	60.1	59.6	58.2	58.9	58.4	58.0	57.6	56.5	-5.3%
<i>Europe</i>	69.0	66.4	64.5	58.6	55.9	53.3	51.7	51.2	51.2	50.4	49.1	-12.1%
<i>Asia Oceania</i>	67.1	67.2	62.4	59.8	59.8	57.7	57.6	59.8	60.5	58.7	58.5	-2.2%
<i>Annex I EIT</i>	..	..	..	..	62.5	60.6	58.9	56.6	57.5	56.6	57.2	-8.6%
<i>Non-Annex I Parties</i>	..	..	..	..	51.3	53.5	53.2	55.9	57.7	57.9	57.9	12.9%
<i>Annex I Kyoto Parties</i>	..	..	..	..	58.8	56.2	54.9	54.2	54.8	53.8	53.3	-9.3%
Non-OECD Total **	50.3	53.2	54.5	52.9	54.1	54.3	53.6	55.8	57.6	57.8	57.8	6.9%
OECD Total ***	66.4	64.7	62.9	60.5	58.9	57.2	57.0	56.5	56.5	55.8	54.9	-6.8%
Canada	57.4	54.3	52.9	49.8	49.5	48.2	50.6	49.0	49.9	49.4	48.9	-1.1%
Chile	57.2	53.1	53.5	48.5	54.8	52.1	50.8	50.4	55.7	55.2	53.9	-1.6%
Mexico	53.9	56.0	53.3	55.3	51.6	54.6	57.5	54.1	55.6	53.2	54.7	5.8%
United States	64.6	63.0	61.7	61.2	60.7	59.4	59.9	59.4	58.9	58.6	57.4	-5.5%
OECD Americas	63.7	62.0	60.5	59.8	59.2	58.0	58.8	58.0	57.8	57.3	56.3	-4.8%
Australia	66.7	71.2	71.4	72.5	72.0	73.7	74.9	77.7	74.5	72.6	72.0	-0.1%
Israel	60.0	58.0	59.9	77.3	69.0	70.5	71.7	71.0	74.4	71.0	71.6	3.9%
Japan	67.7	67.0	61.1	57.8	57.9	55.2	54.5	56.0	57.6	55.6	55.3	-4.4%
Korea	73.3	75.0	72.1	68.4	58.8	59.2	55.6	53.2	52.7	52.8	53.7	-8.7%
New Zealand	47.5	46.5	43.6	41.8	43.4	41.7	43.4	48.4	45.8	46.6	43.0	-1.0%
OECD Asia Oceania	67.3	67.5	63.2	61.0	59.8	58.3	57.5	58.5	58.9	57.5	57.6	-3.8%
Austria	61.8	59.5	57.4	56.2	54.4	53.1	51.6	52.7	50.2	50.1	47.8	-12.2%
Belgium	70.4	65.2	64.2	55.2	53.4	51.2	48.4	45.8	44.2	45.2	42.0	-21.3%
Czech Republic	79.4	83.5	84.4	84.0	74.8	71.2	71.0	63.6	63.7	62.5	62.5	-16.4%
Denmark	71.0	71.7	78.1	74.9	69.4	71.4	64.9	61.0	62.1	60.2	60.1	-13.4%
Estonia	..	..	..	..	87.0	76.3	74.1	78.0	81.8	77.8	73.8	-15.3%
Finland	52.3	53.8	53.6	44.9	45.8	46.3	40.1	38.6	42.0	38.7	39.6	-13.5%
France	65.1	62.3	57.5	42.2	37.6	35.7	35.7	34.3	33.8	33.1	33.0	-12.1%
Germany	76.6	74.3	70.6	67.8	64.6	61.6	58.6	57.2	57.6	57.4	56.3	-12.9%
Greece	69.2	70.3	72.3	74.3	78.1	79.9	77.1	75.0	77.3	74.0	73.2	-6.3%
Hungary	75.7	73.7	70.5	64.8	55.6	52.9	51.8	48.8	48.4	47.9	46.3	-16.8%
Iceland	37.0	34.7	27.7	21.8	21.5	20.7	16.5	15.0	11.4	10.0	9.1	-57.5%
Ireland	77.2	75.8	75.1	73.0	71.3	72.5	71.2	72.1	69.8	70.3	65.7	-7.8%
Italy	66.4	65.4	65.7	64.2	64.8	61.4	59.3	59.9	59.6	59.0	56.5	-12.8%
Luxembourg	90.7	76.6	80.0	77.4	73.1	61.7	58.5	61.9	60.5	60.0	60.4	-17.4%
Netherlands	60.8	57.0	61.9	60.7	56.7	57.7	56.1	55.3	54.5	54.9	53.8	-5.1%
Norway	42.2	39.4	36.5	32.5	32.2	33.5	31.0	32.4	32.9	30.1	31.6	-1.9%
Poland	79.5	78.4	77.9	80.3	79.3	79.5	78.0	75.7	75.0	72.9	72.9	-8.0%
Portugal	55.0	56.3	56.9	53.7	56.0	57.0	57.5	56.7	52.8	52.1	52.7	-6.0%
Slovak Republic	65.4	62.4	66.6	62.7	63.5	54.9	50.3	48.3	49.2	47.3	47.4	-25.4%
Slovenia	..	..	..	..	52.3	52.4	52.5	51.1	51.7	51.6	51.9	-0.7%
Spain	67.3	65.0	66.3	59.1	54.6	55.3	55.6	57.2	57.1	54.6	53.5	-2.0%
Sweden	54.6	48.6	43.3	29.7	26.7	27.3	26.5	23.3	22.1	21.5	21.9	-17.8%
Switzerland	56.8	51.0	46.8	44.8	40.6	41.3	40.6	41.1	39.2	39.1	37.6	-7.5%
Turkey	50.6	52.9	53.9	57.5	57.5	59.2	62.7	61.2	63.3	63.9	62.7	9.1%
United Kingdom	71.4	69.4	68.7	64.8	63.7	57.1	56.1	57.3	59.2	58.8	56.5	-11.2%
OECD Europe ***	69.9	67.7	66.2	61.3	58.3	55.6	54.1	53.2	53.4	52.6	51.5	-11.6%
<i>European Union - 27</i>	..	..	..	..	59.1	56.1	54.3	53.4	53.6	52.8	51.6	-12.8%

* The ratio for the world has been calculated to include international marine bunkers and international aviation bunkers.

** Includes Estonia and Slovenia prior to 1990.

*** Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions / TPEStonnes CO₂ / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Non-OECD Total *	50.3	53.2	54.5	52.9	54.1	54.3	53.6	55.8	57.6	57.8	57.8	6.9%
Algeria	59.6	60.7	60.6	58.1	55.6	55.1	55.2	58.2	55.6	56.4	55.6	-0.1%
Angola	10.3	11.6	14.0	13.8	16.3	14.8	16.3	18.5	23.4	25.7	25.9	59.3%
Benin	6.5	8.8	6.9	7.2	3.6	2.8	17.0	25.3	27.9	27.6	28.5	682.0%
Botswana	..	..	..	42.5	55.6	53.2	54.5	54.9	51.8	49.7	48.8	-12.3%
Cameroon	6.4	8.2	10.8	13.0	12.8	10.8	10.5	10.0	15.5	15.9	16.5	29.0%
Congo	27.1	27.6	29.2	25.4	20.9	16.0	16.6	18.4	22.7	27.3	28.3	35.3%
Dem. Rep. of Congo	9.0	8.2	8.8	7.7	6.0	3.8	2.4	2.7	2.9	3.0	3.0	-50.1%
Côte d'Ivoire	23.2	24.3	22.5	19.6	14.6	15.1	21.7	14.5	13.2	15.0	14.1	-3.4%
Egypt	62.8	63.0	66.7	60.8	59.4	56.8	58.3	59.6	59.9	58.8	58.2	-2.1%
Eritrea	..	..	..	..	..	18.5	20.4	18.8	16.8	16.0	15.5	..
Ethiopia	3.7	3.0	3.1	2.7	3.6	3.4	4.1	5.4	4.7	5.1	5.4	52.7%
Gabon	10.5	13.8	22.2	29.7	18.2	23.4	22.5	27.7	29.0	27.9	22.6	23.8%
Ghana	15.4	15.3	13.5	11.9	12.2	12.2	15.8	18.0	20.6	18.5	23.3	90.7%
Kenya	14.2	13.4	14.1	12.5	12.0	10.7	11.6	10.6	11.5	11.5	12.8	6.3%
Libyan Arab Jamahiriya	56.8	59.8	64.3	53.9	57.7	53.1	57.2	57.8	57.8	58.4	58.6	1.6%
Morocco	67.2	69.4	68.4	70.5	67.6	70.4	66.0	70.5	67.4	67.1	65.4	-3.2%
Mozambique	10.0	8.4	8.2	5.6	4.4	4.3	4.4	4.3	5.4	5.1	5.5	25.4%
Namibia	..	..	..	..	..	47.7	44.0	48.2	49.4	54.2	51.4	..
Nigeria	3.9	6.7	12.2	12.6	9.9	9.3	10.5	11.5	9.9	10.7	9.1	-7.9%
Senegal	23.3	27.6	30.5	32.3	28.5	31.7	35.8	39.7	42.0	42.4	42.8	50.0%
South Africa	92.0	92.9	78.5	61.7	64.8	60.7	62.3	60.5	61.3	61.8	61.2	-5.5%
Sudan	11.1	10.5	10.6	10.6	12.4	9.1	9.7	15.8	18.9	19.6	20.0	61.9%
United Rep. of Tanzania	4.8	4.7	4.7	4.2	4.2	5.5	4.6	7.2	7.1	7.3	7.6	82.1%
Togo	11.2	9.6	9.8	7.1	10.8	8.8	10.8	9.8	8.7	10.3	10.2	-5.0%
Tunisia	53.1	52.7	57.3	54.9	58.3	58.4	58.9	56.7	55.8	54.3	53.9	-7.6%
Zambia	23.4	26.9	17.8	13.6	11.5	8.4	6.5	6.9	4.6	5.0	5.2	-55.3%
Zimbabwe	31.8	29.0	29.3	30.9	41.1	36.0	30.7	25.5	23.2	22.1	21.7	-47.1%
Other Africa	6.9	7.7	9.6	7.7	8.4	8.6	8.4	9.3	9.7	9.9	9.7	15.5%
Africa	33.0	35.6	35.5	33.2	33.4	32.0	32.3	33.0	33.0	33.6	32.9	-1.4%
Bangladesh	13.4	16.5	20.5	21.2	25.4	30.8	32.5	36.5	37.9	39.7	40.9	60.7%
Brunei Darussalam	53.7	45.4	46.5	39.3	45.6	48.6	45.3	47.9	51.3	49.3	62.1	36.3%
Cambodia	..	..	..	..	..	9.9	14.5	18.8	20.7	21.2	19.6	..
Chinese Taipei	73.4	70.6	61.7	50.1	56.6	58.6	61.0	60.3	59.2	59.2	59.1	4.4%
India	30.6	32.4	33.0	38.5	43.9	48.3	50.8	51.5	54.3	55.2	56.0	27.6%
Indonesia	17.1	22.0	29.2	31.5	33.5	35.8	40.5	44.3	46.4	42.8	44.5	32.8%
DPR of Korea	83.1	82.3	83.0	83.8	82.0	81.3	83.1	82.7	81.0	81.8	82.1	0.1%
Malaysia	51.5	53.7	48.6	51.4	53.1	50.5	56.1	58.3	58.8	59.4	58.7	10.4%
Mongolia	..	..	..	88.5	88.5	88.8	89.0	88.4	87.1	86.4	88.4	-0.1%
Myanmar	13.6	11.3	12.9	12.6	8.9	13.7	15.5	20.0	19.2	18.2	16.1	80.2%
Nepal	1.2	1.9	2.7	2.6	3.6	6.2	9.0	7.9	6.5	7.1	8.2	123.7%
Pakistan	23.3	24.6	25.1	29.0	32.7	35.4	36.6	36.8	39.3	38.4	38.2	17.0%
Philippines	35.4	37.6	34.9	28.4	31.5	40.1	40.1	43.5	43.1	42.8	43.4	37.7%
Singapore	52.1	54.1	59.0	57.4	60.0	48.1	49.9	56.6	69.6	65.9	58.0	-3.5%
Sri Lanka	17.4	15.7	19.6	17.1	16.2	22.2	30.5	35.6	33.5	32.5	32.6	101.0%
Thailand	27.8	28.6	36.0	40.0	45.6	54.1	53.4	54.5	54.2	53.4	52.7	15.5%
Vietnam	22.1	21.5	18.0	18.9	16.9	22.1	28.5	37.9	39.7	41.2	42.5	151.6%
Other Asia	55.3	56.5	62.4	47.6	43.5	39.8	39.1	45.5	43.1	42.6	42.7	-1.7%
Asia	32.6	34.5	36.8	39.3	42.4	45.1	47.7	49.5	51.2	51.1	51.6	21.6%
People's Rep. of China	48.8	51.9	56.1	58.8	61.2	68.1	66.3	71.3	73.3	73.4	72.3	18.1%
Hong Kong, China	72.9	71.1	75.0	79.9	90.6	80.7	71.1	76.9	72.3	71.4	72.9	-19.5%
China	49.0	52.0	56.2	59.0	61.5	68.2	66.3	71.3	73.3	73.4	72.3	17.6%

* Includes Estonia and Slovenia prior to 1990.

CO₂ emissions / TPEStonnes CO₂ / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Bahrain	51.1	59.5	63.0	59.7	64.2	56.3	57.5	57.8	57.8	57.7	57.6	-10.4%
Islamic Republic of Iran	63.2	68.6	58.3	65.4	63.2	64.5	58.5	57.9	61.2	60.3	59.0	-6.6%
Iraq	66.4	65.6	73.2	66.2	69.8	66.0	77.0	59.3	65.0	64.6	73.3	5.1%
Jordan	64.8	67.5	66.9	67.7	67.4	67.5	70.3	64.1	63.6	62.3	61.6	-8.7%
Kuwait	54.8	55.6	60.7	63.2	75.3	58.0	62.4	63.4	63.5	63.3	63.9	-15.1%
Lebanon	58.6	62.3	63.6	67.1	66.7	69.6	68.8	69.0	68.4	69.9	69.6	4.4%
Oman	26.7	71.5	46.3	61.7	56.2	53.3	57.2	61.0	52.5	52.7	61.8	9.9%
Qatar	57.5	56.2	55.2	53.2	54.3	56.1	53.8	53.2	51.9	55.7	56.7	4.3%
Saudi Arabia	41.3	61.3	76.1	63.7	63.5	56.6	59.5	54.6	59.9	59.9	62.1	-2.2%
Syrian Arab Republic	60.5	70.6	70.3	64.3	64.3	64.5	59.7	61.6	64.3	63.7	63.5	-1.2%
United Arab Emirates	57.8	60.2	63.2	62.1	60.8	60.2	59.7	59.7	59.3	59.0	58.9	-3.1%
Yemen	38.7	60.0	64.6	66.1	61.1	65.3	66.6	68.3	69.0	70.6	70.1	14.7%
Middle East	57.1	64.6	65.7	64.0	63.9	61.0	60.7	57.9	60.7	60.4	61.3	-4.1%
Albania	54.5	54.0	59.4	63.5	56.0	33.5	43.0	47.9	45.0	44.6	37.5	-33.1%
Armenia *	..	..	..	..	63.5	50.0	40.6	39.3	40.2	41.9	39.1	-38.4%
Azerbaijan *	..	..	..	..	58.4	59.1	60.8	56.0	53.1	52.7	50.3	-13.9%
Belarus *	..	..	..	..	65.3	59.3	56.8	55.2	54.5	54.5	54.3	-16.9%
Bosnia and Herzegovina *	..	..	..	..	80.5	52.2	74.9	74.1	76.7	78.0	76.6	-4.8%
Bulgaria	78.9	74.2	70.5	63.2	62.6	55.1	53.8	55.2	60.0	59.2	57.7	-7.9%
Croatia *	..	..	..	..	57.2	53.6	54.2	55.6	56.5	55.1	54.3	-5.2%
Cyprus	72.2	70.8	71.9	72.3	67.4	71.5	70.1	75.3	72.0	69.9	71.2	5.6%
Georgia *	..	..	..	..	64.0	51.7	38.4	36.5	39.3	38.0	42.5	-33.6%
Gibraltar	72.1	72.4	73.6	72.8	72.6	72.9	72.9	73.0	73.0	73.0	73.0	0.6%
Kazakhstan *	..	..	..	..	77.6	76.7	75.5	73.7	67.7	71.7	68.8	-11.4%
Kyrgyzstan *	..	..	..	..	71.6	44.3	44.3	45.3	49.6	51.8	56.0	-21.8%
Latvia *	..	..	..	..	56.7	46.0	43.9	40.9	42.6	42.2	38.2	-32.6%
Lithuania *	..	..	..	..	49.1	38.7	37.5	37.6	37.3	37.1	35.3	-28.1%
FYR of Macedonia *	..	..	..	..	82.1	78.1	75.0	72.3	72.0	71.2	71.6	-12.8%
Malta	73.5	73.6	73.9	79.6	78.6	79.2	74.5	74.8	74.9	74.7	73.0	-7.0%
Republic of Moldova *	..	..	..	..	73.1	59.4	54.4	53.1	53.7	53.6	56.0	-23.3%
Romania	65.1	64.8	64.5	63.7	64.1	60.4	56.9	57.4	56.5	55.8	54.4	-15.1%
Russian Federation *	..	..	..	..	59.2	59.1	58.1	55.6	56.1	55.3	56.6	-4.4%
Serbia *	..	..	..	..	75.8	77.4	76.3	73.1	71.8	70.5	76.5	0.8%
Tajikistan *	..	..	..	..	49.0	26.2	24.1	24.1	29.1	29.1	28.5	-41.9%
Turkmenistan *	..	..	..	..	56.7	59.2	59.6	59.4	59.1	59.3	59.5	4.8%
Ukraine *	..	..	..	..	65.3	57.3	52.1	51.1	54.6	54.3	53.0	-18.7%
Uzbekistan *	..	..	..	..	61.7	57.0	55.3	55.1	55.1	54.4	55.0	-10.9%
Former Soviet Union *	62.0	65.3	65.8	61.2	..	..	..	..	..	..	..	..
Former Yugoslavia *	68.9	70.4	62.1	70.7	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	62.7	65.5	65.7	61.7	61.9	59.4	57.6	56.0	56.6	56.3	56.8	-8.3%
Argentina	58.9	57.1	54.8	51.2	52.0	52.3	54.5	53.8	54.2	54.4	53.6	3.0%
Bolivia	50.9	51.9	41.0	40.6	47.1	44.5	46.3	44.0	50.4	49.1	49.3	4.7%
Brazil	31.2	36.0	37.8	31.0	33.1	35.6	38.2	35.7	34.7	34.7	33.6	1.5%
Colombia	45.3	43.9	43.6	43.7	44.3	48.7	52.3	48.6	46.4	45.2	45.4	2.5%
Costa Rica	26.5	31.7	34.1	28.6	30.8	44.7	35.6	31.7	31.6	32.0	30.6	-0.6%
Cuba	42.1	43.2	42.8	43.7	41.7	44.5	46.9	52.7	60.0	57.2	55.7	33.5%
Dominican Republic	35.2	39.9	43.5	40.4	44.6	46.3	53.4	52.8	54.2	56.2	53.3	19.5%
Ecuador	38.2	45.4	50.4	50.1	52.6	54.5	55.1	52.2	54.1	57.4	59.9	14.0%
El Salvador	19.4	21.3	16.6	16.0	21.6	32.9	31.4	33.7	32.9	29.0	31.8	47.2%
Guatemala	19.9	21.8	26.6	20.6	17.8	26.8	29.6	33.6	34.8	32.9	35.2	98.1%
Haiti	5.9	5.7	7.0	10.0	14.5	12.8	16.7	18.3	19.9	20.1	21.8	50.9%
Honduras	19.2	20.4	21.5	19.8	21.4	29.9	35.5	41.5	40.3	39.4	38.7	80.7%
Jamaica	65.5	66.0	68.2	64.3	61.5	62.2	60.6	66.2	67.3	66.2	60.7	-1.4%
Netherlands Antilles	63.0	63.1	53.2	60.9	44.9	51.3	48.9	51.6	49.5	49.7	56.1	24.9%
Nicaragua	28.4	29.4	27.9	22.2	20.9	25.5	30.9	28.9	34.0	32.5	32.7	56.3%
Panama	35.9	45.2	48.9	39.8	38.6	48.8	42.9	51.2	54.6	53.0	55.9	44.6%
Paraguay	9.9	11.2	15.5	14.8	14.9	21.0	20.2	20.0	20.4	19.6	20.4	37.1%
Peru	40.7	42.5	43.6	41.1	47.1	51.7	51.8	50.5	51.5	56.6	58.2	23.4%
Trinidad and Tobago	56.0	60.4	49.7	45.2	45.5	47.8	47.2	48.3	48.1	48.4	47.4	4.1%
Uruguay	51.6	53.3	50.2	37.3	39.8	42.0	40.7	42.9	43.8	44.4	45.2	13.6%
Venezuela	63.6	60.1	62.4	57.6	57.7	54.8	53.6	53.2	57.1	55.7	55.2	-4.3%
Other Latin America	39.5	43.1	40.8	56.4	61.0	61.4	62.0	63.2	62.8	62.7	61.7	1.2%
Latin America	43.0	44.0	44.5	40.1	41.5	43.5	45.0	43.7	43.8	43.6	43.1	3.8%

* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO₂ emissions / GDP using exchange rateskilogrammes CO₂ / US dollar using 2000 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
World *	1.10	1.06	1.00	0.91	0.86	0.80	0.73	0.74	0.73	0.73	0.73	-15.4%
<i>Annex I Parties</i>	..	..	..	..	0.70	0.61	0.55	0.51	0.48	0.47	0.46	-34.6%
<i>Annex II Parties</i>	0.84	0.77	0.69	0.58	0.52	0.49	0.45	0.42	0.40	0.39	0.38	-27.2%
<i>North America</i>	1.11	1.02	0.92	0.76	0.70	0.65	0.59	0.53	0.51	0.49	0.47	-32.8%
<i>Europe</i>	0.75	0.67	0.63	0.54	0.46	0.43	0.38	0.36	0.34	0.33	0.32	-31.3%
<i>Asia Oceania</i>	0.46	0.45	0.38	0.32	0.30	0.30	0.30	0.30	0.29	0.28	0.28	-7.8%
<i>Annex I EIT</i>	..	..	..	..	4.72	4.47	3.57	2.84	2.56	2.44	2.42	-48.7%
<i>Non-Annex I Parties</i>	..	..	..	..	1.49	1.43	1.29	1.36	1.33	1.33	1.34	-9.9%
<i>Annex I Kyoto Parties</i>	..	..	..	..	0.69	0.58	0.52	0.49	0.47	0.46	0.45	-35.6%
Non-OECD Total **	2.07	2.11	2.07	2.11	2.26	1.94	1.69	1.68	1.61	1.60	1.59	-29.6%
OECD Total ***	0.87	0.80	0.73	0.62	0.55	0.52	0.48	0.45	0.43	0.42	0.41	-26.5%
Canada	1.18	1.10	1.04	0.85	0.80	0.79	0.74	0.68	0.66	0.63	0.61	-22.7%
Chile	0.90	0.86	0.76	0.66	0.77	0.63	0.70	0.63	0.66	0.64	0.63	-17.9%
Mexico	0.47	0.51	0.56	0.60	0.59	0.61	0.55	0.55	0.54	0.52	0.55	-5.7%
United States	1.11	1.02	0.91	0.75	0.69	0.64	0.58	0.52	0.49	0.48	0.46	-33.6%
OECD Americas	1.08	0.99	0.89	0.75	0.69	0.65	0.59	0.53	0.51	0.49	0.47	-31.4%
Australia	0.85	0.96	0.96	0.88	0.90	0.84	0.82	0.80	0.74	0.74	0.74	-17.9%
Israel	0.45	0.41	0.40	0.43	0.47	0.47	0.44	0.43	0.43	0.41	0.40	-15.4%
Japan	0.43	0.40	0.33	0.27	0.26	0.26	0.25	0.25	0.24	0.22	0.22	-12.6%
Korea	0.99	1.02	1.11	0.89	0.81	0.87	0.82	0.70	0.67	0.67	0.68	-15.4%
New Zealand	0.48	0.51	0.50	0.52	0.59	0.57	0.57	0.52	0.48	0.50	0.46	-21.0%
OECD Asia Oceania	0.48	0.47	0.41	0.34	0.33	0.35	0.35	0.34	0.33	0.32	0.33	-1.4%
Austria	0.55	0.49	0.46	0.42	0.38	0.36	0.32	0.36	0.31	0.31	0.29	-23.4%
Belgium	1.03	0.88	0.82	0.64	0.58	0.57	0.51	0.45	0.40	0.41	0.39	-33.3%
Czech Republic	3.94	3.49	3.41	3.39	2.81	2.35	2.15	1.75	1.58	1.48	1.45	-48.4%
Denmark	0.66	0.60	0.62	0.52	0.41	0.42	0.32	0.28	0.29	0.27	0.28	-31.5%
Estonia	..	..	..	..	6.18	3.92	2.57	2.03	1.96	1.90	1.82	-70.5%
Finland	0.77	0.71	0.75	0.58	0.55	0.58	0.45	0.40	0.42	0.37	0.39	-28.9%
France	0.68	0.59	0.54	0.39	0.32	0.31	0.28	0.27	0.25	0.25	0.24	-25.4%
Germany	1.03	0.94	0.86	0.77	0.62	0.51	0.44	0.41	0.39	0.38	0.38	-39.0%
Greece	0.39	0.45	0.48	0.58	0.70	0.71	0.69	0.61	0.58	0.55	0.54	-22.8%
Hungary	2.31	2.12	2.10	1.86	1.50	1.45	1.14	0.98	0.90	0.88	0.85	-42.9%
Iceland	0.44	0.42	0.34	0.28	0.28	0.28	0.25	0.20	0.20	0.18	0.18	-36.0%
Ireland	0.98	0.78	0.76	0.68	0.61	0.53	0.42	0.35	0.31	0.32	0.32	-48.7%
Italy	0.57	0.54	0.49	0.43	0.42	0.41	0.39	0.40	0.38	0.37	0.35	-17.3%
Luxembourg	2.54	1.77	1.56	1.15	0.84	0.54	0.40	0.47	0.39	0.38	0.38	-55.2%
Netherlands	0.75	0.72	0.74	0.64	0.55	0.54	0.45	0.44	0.41	0.41	0.41	-26.3%
Norway	0.39	0.33	0.31	0.25	0.24	0.23	0.20	0.19	0.19	0.19	0.19	-21.3%
Poland	3.21	2.96	3.47	3.50	2.90	2.52	1.70	1.47	1.34	1.26	1.19	-59.0%
Portugal	0.34	0.37	0.37	0.37	0.45	0.51	0.51	0.52	0.44	0.42	0.43	-4.1%
Slovak Republic	3.04	2.99	3.39	3.08	3.00	2.37	1.83	1.47	1.18	1.10	1.06	-64.7%
Slovenia	..	..	..	..	0.76	0.83	0.71	0.65	0.59	0.60	0.59	-22.0%
Spain	0.50	0.52	0.57	0.50	0.47	0.49	0.49	0.50	0.47	0.43	0.40	-15.0%
Sweden	0.61	0.53	0.45	0.33	0.26	0.28	0.21	0.18	0.15	0.15	0.15	-44.5%
Switzerland	0.23	0.22	0.22	0.21	0.18	0.18	0.17	0.17	0.15	0.15	0.15	-19.5%
Turkey	0.52	0.59	0.63	0.67	0.68	0.70	0.75	0.65	0.71	0.70	0.72	5.2%
United Kingdom	0.84	0.72	0.65	0.56	0.48	0.41	0.35	0.32	0.30	0.29	0.28	-41.8%
OECD Europe ***	0.84	0.77	0.73	0.64	0.55	0.49	0.43	0.41	0.39	0.38	0.37	-32.3%
<i>European Union - 27</i>	..	..	..	..	0.60	0.52	0.45	0.43	0.40	0.39	0.38	-36.6%

* The ratio for the world has been calculated to include international marine bunkers and international aviation bunkers.

** Includes Estonia and Slovenia prior to 1990.

*** Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions / GDP using exchange rateskilogrammes CO₂ / US dollar using 2000 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Non-OECD Total *	2.07	2.11	2.07	2.11	2.26	1.94	1.69	1.68	1.61	1.60	1.59	-29.6%
Algeria	0.49	0.54	0.81	0.97	1.11	1.18	1.14	1.13	1.17	1.18	1.21	8.7%
Angola	0.25	0.30	0.40	0.40	0.47	0.59	0.56	0.47	0.49	0.51	0.53	12.2%
Benin	0.37	0.52	0.36	0.35	0.18	0.13	0.63	0.97	1.26	1.22	1.28	612.9%
Botswana	..	..	..	0.81	0.86	0.81	0.74	0.61	0.55	0.55	0.53	-39.2%
Cameroon	0.21	0.22	0.26	0.25	0.30	0.31	0.28	0.24	0.32	0.32	0.35	16.3%
Congo	0.57	0.48	0.46	0.30	0.25	0.18	0.18	0.24	0.29	0.34	0.36	42.7%
Dem. Rep. of Congo	0.35	0.34	0.44	0.42	0.39	0.40	0.39	0.43	0.44	0.45	0.45	16.3%
Côte d'Ivoire	0.47	0.48	0.44	0.39	0.32	0.36	0.59	0.56	0.53	0.59	0.54	70.0%
Egypt	0.97	1.07	1.10	1.23	1.21	1.08	1.10	1.28	1.24	1.20	1.15	-4.7%
Eritrea	..	..	..	..	..	1.27	0.95	0.83	0.70	0.71	0.57	..
Ethiopia	0.31	0.26	0.27	0.29	0.35	0.36	0.39	0.43	0.43	0.45	0.45	25.9%
Gabon	0.25	0.19	0.36	0.42	0.21	0.27	0.27	0.39	0.41	0.39	0.28	35.2%
Ghana	0.72	0.93	0.86	0.84	0.83	0.82	1.03	1.01	1.14	0.94	1.10	33.0%
Kenya	0.80	0.67	0.63	0.58	0.52	0.49	0.53	0.48	0.48	0.49	0.56	6.7%
Libyan Arab Jamahiriya	0.11	0.33	0.42	0.60	0.92	1.11	1.15	0.97	0.88	0.92	0.96	4.8%
Morocco	0.54	0.65	0.69	0.70	0.67	0.83	0.76	0.82	0.77	0.76	0.71	6.5%
Mozambique	1.01	0.97	0.94	0.78	0.43	0.39	0.31	0.24	0.28	0.25	0.26	-39.1%
Namibia	..	..	..	..	..	0.55	0.48	0.58	0.59	0.71	0.64	..
Nigeria	0.26	0.45	0.85	1.20	0.83	0.79	0.86	0.81	0.63	0.67	0.53	-36.9%
Senegal	0.53	0.63	0.74	0.69	0.58	0.64	0.77	0.79	0.78	0.77	0.79	35.3%
South Africa	2.43	2.55	2.25	2.24	2.30	2.39	2.24	2.06	2.00	2.10	2.03	-11.6%
Sudan	0.82	0.67	0.67	0.74	0.78	0.50	0.44	0.60	0.59	0.56	0.58	-25.0%
United Rep. of Tanzania	0.43	0.35	0.32	0.30	0.25	0.34	0.28	0.41	0.38	0.38	0.39	53.7%
Togo	0.53	0.41	0.38	0.31	0.53	0.53	0.72	0.66	0.57	0.69	0.69	29.4%
Tunisia	0.79	0.76	0.91	0.90	0.99	0.96	0.93	0.81	0.76	0.74	0.71	-28.1%
Zambia	1.44	1.64	1.23	1.00	0.86	0.73	0.52	0.51	0.31	0.33	0.33	-62.0%
Zimbabwe	2.07	1.77	1.82	1.78	2.38	2.08	1.72	1.82	1.78	1.96	1.86	-21.6%
Other Africa	0.32	0.35	0.43	0.36	0.39	0.44	0.40	0.39	0.39	0.39	0.39	0.6%
Africa	1.00	1.11	1.08	1.15	1.18	1.20	1.15	1.11	1.06	1.07	1.04	-12.2%
Bangladesh	0.18	0.28	0.35	0.36	0.46	0.56	0.54	0.59	0.60	0.63	0.65	40.8%
Brunei Darussalam	0.14	0.40	0.46	0.61	0.70	0.84	0.77	0.77	1.02	1.09	1.19	70.4%
Cambodia	..	..	..	..	..	0.53	0.64	0.64	0.62	0.60	0.57	..
Chinese Taipei	0.88	0.89	0.91	0.65	0.67	0.65	0.68	0.69	0.65	0.62	0.61	-9.3%
India	1.68	1.78	1.80	2.03	2.15	2.24	2.11	1.80	1.76	1.76	1.81	-15.8%
Indonesia	0.85	0.94	1.17	1.14	1.30	1.27	1.60	1.62	1.57	1.39	1.46	11.8%
DPR of Korea	22.35	16.20	12.93	9.67	7.32	6.12	6.34	6.57	5.48	6.24	5.74	-21.6%
Malaysia	0.97	0.92	0.92	0.99	1.04	1.06	1.18	1.29	1.29	1.30	1.20	15.5%
Mongolia	..	..	..	12.75	11.52	10.55	8.09	6.36	6.22	5.77	6.27	-45.6%
Myanmar	1.72	1.35	1.28	1.15	0.89	1.13	0.91	0.82	0.68	0.63	0.51	-42.5%
Nepal	0.11	0.17	0.24	0.20	0.26	0.40	0.56	0.47	0.37	0.39	0.45	70.0%
Pakistan	0.96	1.03	0.96	1.03	1.17	1.26	1.32	1.24	1.31	1.24	1.23	5.3%
Philippines	0.82	0.82	0.70	0.64	0.68	0.91	0.89	0.75	0.65	0.64	0.63	-6.8%
Singapore	0.57	0.58	0.58	0.55	0.64	0.55	0.43	0.36	0.32	0.32	0.31	-51.5%
Sri Lanka	0.64	0.53	0.57	0.43	0.38	0.43	0.65	0.68	0.57	0.51	0.51	32.7%
Thailand	0.79	0.82	0.89	0.85	1.01	1.17	1.32	1.39	1.34	1.34	1.31	29.8%
Vietnam	2.00	2.05	1.72	1.44	1.15	1.25	1.41	1.80	1.77	1.83	1.94	69.3%
Other Asia	0.79	0.86	1.19	0.64	0.56	0.41	0.47	0.47	0.36	0.33	0.33	-40.6%
Asia	1.34	1.36	1.35	1.36	1.37	1.34	1.36	1.29	1.25	1.24	1.27	-7.3%
People's Rep. of China	7.47	7.88	7.68	5.60	4.97	3.77	2.53	2.65	2.45	2.42	2.33	-53.2%
Hong Kong, China	0.35	0.31	0.24	0.28	0.29	0.24	0.24	0.20	0.18	0.18	0.20	-30.8%
China	6.09	6.32	5.84	4.50	4.01	3.21	2.25	2.41	2.26	2.23	2.17	-45.9%

* Includes Estonia and Slovenia prior to 1990.

CO₂ emissions / GDP using exchange rateskilogrammes CO₂ / US dollar using 2000 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Bahrain	2.29	2.18	1.86	2.80	2.52	1.80	1.77	1.69	1.70	1.68	1.67	-33.7%
Islamic Republic of Iran	0.94	1.15	1.62	2.12	2.55	3.04	3.13	3.21	3.30	3.37	3.37	32.0%
Iraq	0.24	0.24	0.33	0.71	1.60	5.69	3.16	4.21	4.46	4.21	4.29	167.7%
Jordan	0.63	1.03	1.00	1.36	1.79	1.68	1.69	1.55	1.42	1.27	1.29	-28.0%
Kuwait	0.44	0.57	0.95	1.69	1.13	1.05	1.30	1.25	1.14	1.13	1.27	11.9%
Lebanon	0.33	0.42	0.58	0.41	0.60	0.80	0.82	0.70	0.53	0.64	0.72	19.6%
Oman	0.08	0.17	0.42	0.50	0.78	0.86	0.99	1.18	1.19	1.23	1.23	56.9%
Qatar	0.25	0.54	0.72	1.36	1.60	1.85	1.35	1.44	1.53	1.44	1.39	-13.2%
Saudi Arabia	0.24	0.20	0.64	1.01	1.10	1.25	1.34	1.47	1.51	1.55	1.64	49.2%
Syrian Arab Republic	1.49	1.32	1.39	1.93	2.39	1.90	2.06	2.32	2.56	2.47	2.10	-12.2%
United Arab Emirates	0.28	0.22	0.40	0.86	1.12	1.27	1.22	1.10	1.14	1.21	1.25	11.5%
Yemen	0.90	0.93	1.05	1.03	1.17	1.29	1.40	1.62	1.67	1.67	1.67	42.7%
Middle East	0.46	0.50	0.73	1.21	1.48	1.73	1.77	1.83	1.88	1.89	1.93	30.6%
Albania	2.27	2.07	2.68	2.29	1.94	0.66	0.86	0.95	0.75	0.67	0.46	-76.4%
Armenia *	..	..	..	..	7.26	2.30	1.78	1.21	1.09	1.12	1.06	-85.3%
Azerbaijan *	..	..	..	..	7.17	8.43	5.52	3.28	1.62	1.59	1.25	-82.6%
Belarus *	..	..	..	..	8.67	6.55	4.61	3.44	2.93	2.64	2.46	-71.6%
Bosnia and Herzegovina *	..	..	..	..	15.75	2.06	2.48	2.23	2.26	2.33	2.34	-85.1%
Bulgaria	10.08	8.48	7.31	6.00	5.15	4.18	3.26	2.73	2.64	2.42	2.19	-57.5%
Croatia *	..	..	..	..	0.86	0.87	0.83	0.78	0.75	0.70	0.70	-18.8%
Cyprus	0.83	0.87	0.77	0.63	0.62	0.68	0.67	0.64	0.62	0.62	0.62	-0.4%
Georgia *	..	..	..	..	4.09	3.51	1.51	1.00	1.03	0.87	1.08	-73.6%
Gibraltar	0.26	0.24	0.26	0.24	0.31	0.51	0.53	0.53	0.53	0.55	0.60	93.8%
Kazakhstan *	..	..	..	..	8.97	10.32	6.15	5.23	5.19	5.57	5.02	-44.0%
Kyrgyzstan *	..	..	..	..	10.92	4.24	3.25	3.06	3.32	2.96	3.45	-68.4%
Latvia *	..	..	..	..	1.79	1.49	0.87	0.65	0.58	0.58	0.60	-66.3%
Lithuania *	..	..	..	..	2.09	1.54	0.98	0.81	0.73	0.70	0.72	-65.5%
FYR of Macedonia *	..	..	..	..	2.17	2.64	2.34	2.28	2.17	2.02	1.89	-12.7%
Malta	1.05	0.68	0.60	0.65	0.96	0.75	0.54	0.67	0.63	0.58	0.56	-41.3%
Republic of Moldova *	..	..	..	..	8.34	7.52	5.03	4.33	3.83	3.35	2.91	-65.1%
Romania	6.12	4.95	4.30	3.60	3.80	2.96	2.33	1.88	1.67	1.51	1.40	-63.2%
Russian Federation *	..	..	..	..	5.65	6.57	5.80	4.34	3.85	3.69	3.86	-31.7%
Serbia *	..	..	..	..	6.70	4.90	4.75	4.24	3.79	3.59	5.14	-23.2%
Tajikistan *	..	..	..	..	4.82	2.84	2.52	1.76	2.04	1.82	1.60	-66.9%
Turkmenistan *	..	..	..	..	12.21	14.45	12.46	7.33	6.93	6.45	5.22	-57.2%
Ukraine *	..	..	..	..	9.56	11.37	9.34	6.76	5.99	5.78	5.65	-40.9%
Uzbekistan *	..	..	..	..	8.53	8.92	8.54	6.05	5.34	5.01	4.53	-46.9%
Former Soviet Union *	4.94	5.08	4.95	4.66	..	..	..	..	..	..	..	..
Former Yugoslavia *	1.88	1.82	1.58	2.15	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	4.79	4.86	4.66	4.41	5.87	6.09	5.04	3.86	3.45	3.31	3.32	-43.4%
Argentina	0.50	0.47	0.45	0.47	0.55	0.47	0.49	0.48	0.45	0.44	0.42	-24.0%
Bolivia	0.53	0.62	0.73	0.82	0.89	0.98	0.87	0.94	1.07	1.08	1.10	23.4%
Brazil	0.43	0.44	0.42	0.37	0.39	0.41	0.47	0.44	0.42	0.42	0.39	1.9%
Colombia	0.78	0.68	0.62	0.63	0.58	0.61	0.58	0.47	0.42	0.41	0.43	-26.6%
Costa Rica	0.27	0.30	0.29	0.27	0.27	0.35	0.28	0.28	0.29	0.28	0.27	-0.3%
Cuba	1.35	1.28	1.35	0.95	1.04	1.00	0.94	0.69	0.61	0.55	0.56	-45.8%
Dominican Republic	0.59	0.63	0.59	0.53	0.58	0.66	0.73	0.61	0.55	0.53	0.48	-15.8%
Ecuador	0.62	0.74	0.98	1.04	0.99	1.07	1.16	1.14	1.15	1.10	1.18	19.2%
El Salvador	0.20	0.23	0.20	0.23	0.27	0.41	0.40	0.44	0.43	0.38	0.43	61.1%
Guatemala	0.32	0.34	0.36	0.29	0.26	0.38	0.46	0.51	0.50	0.44	0.56	117.3%
Haiti	0.12	0.12	0.14	0.18	0.22	0.28	0.38	0.56	0.61	0.62	0.61	176.0%
Honduras	0.45	0.46	0.42	0.38	0.42	0.58	0.62	0.78	0.78	0.72	0.69	67.0%
Jamaica	0.86	1.08	1.12	0.78	0.95	0.91	1.08	1.05	1.28	1.15	0.83	-12.8%
Netherlands Antilles	..	..	8.41	4.61	2.62	2.32	3.37	3.33	3.42	3.20	3.88	48.2%
Nicaragua	0.46	0.46	0.55	0.54	0.65	0.81	0.90	0.87	0.88	0.78	0.84	30.0%
Panama	0.55	0.61	0.46	0.35	0.33	0.43	0.39	0.38	0.35	0.32	0.37	10.2%
Paraguay	0.28	0.26	0.30	0.29	0.32	0.48	0.46	0.43	0.41	0.39	0.45	38.2%
Peru	0.55	0.53	0.53	0.46	0.53	0.50	0.50	0.44	0.40	0.42	0.45	-14.7%
Trinidad and Tobago	1.36	1.14	1.06	1.44	1.90	1.92	2.59	2.83	2.85	2.70	2.85	49.5%
Uruguay	0.41	0.40	0.33	0.22	0.22	0.22	0.23	0.22	0.22	0.26	0.26	17.0%
Venezuela	0.76	0.81	1.05	1.14	1.10	1.05	1.08	1.11	0.97	0.93	0.97	-12.4%
Other Latin America	0.77	1.04	0.73	0.61	0.63	0.64	0.60	0.62	0.58	0.62	0.62	-2.5%
Latin America	0.55	0.54	0.55	0.52	0.54	0.54	0.57	0.55	0.52	0.51	0.50	-8.3%

* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO₂ emissions / GDP using purchasing power paritieskilogrammes CO₂ / US dollar using 2000 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
World *	0.81	0.76	0.72	0.65	0.63	0.58	0.51	0.49	0.47	0.46	0.45	-28.2%
<i>Annex I Parties</i>	..	..	..	..	0.62	0.56	0.50	0.46	0.43	0.42	0.41	-34.1%
<i>Annex II Parties</i>	0.82	0.75	0.68	0.57	0.52	0.49	0.45	0.42	0.40	0.38	0.37	-28.1%
<i>North America</i>	1.10	1.01	0.90	0.75	0.69	0.64	0.58	0.52	0.50	0.48	0.46	-32.8%
<i>Europe</i>	0.64	0.58	0.54	0.46	0.40	0.36	0.32	0.31	0.29	0.28	0.27	-31.3%
<i>Asia Oceania</i>	0.61	0.59	0.51	0.42	0.40	0.40	0.40	0.39	0.38	0.36	0.36	-10.6%
<i>Annex I EIT</i>	..	..	..	..	1.34	1.35	1.10	0.86	0.77	0.74	0.74	-44.6%
<i>Non-Annex I Parties</i>	..	..	..	..	0.59	0.55	0.49	0.49	0.47	0.47	0.46	-21.6%
<i>Annex I Kyoto Parties</i>	..	..	..	..	0.59	0.52	0.46	0.43	0.40	0.39	0.38	-35.1%
Non-OECD Total **	0.71	0.73	0.74	0.72	0.77	0.67	0.57	0.54	0.51	0.51	0.50	-35.3%
OECD Total ***	0.81	0.74	0.68	0.58	0.52	0.49	0.45	0.42	0.40	0.39	0.38	-28.2%
Canada	0.98	0.91	0.86	0.71	0.66	0.65	0.61	0.56	0.55	0.53	0.51	-22.7%
Chile	0.48	0.45	0.40	0.35	0.40	0.33	0.37	0.33	0.35	0.34	0.33	-17.9%
Mexico	0.30	0.33	0.36	0.39	0.38	0.39	0.35	0.36	0.35	0.34	0.36	-5.7%
United States	1.11	1.02	0.91	0.75	0.69	0.64	0.58	0.52	0.49	0.48	0.46	-33.6%
OECD Americas	1.04	0.95	0.85	0.72	0.66	0.62	0.56	0.51	0.48	0.47	0.45	-31.5%
Australia	0.65	0.73	0.73	0.67	0.68	0.64	0.63	0.61	0.57	0.57	0.56	-17.9%
Israel	0.38	0.34	0.34	0.36	0.40	0.40	0.37	0.37	0.37	0.35	0.34	-15.3%
Japan	0.61	0.58	0.48	0.39	0.37	0.37	0.36	0.35	0.34	0.32	0.32	-12.5%
Korea	0.65	0.67	0.73	0.59	0.53	0.57	0.54	0.46	0.44	0.44	0.45	-15.4%
New Zealand	0.32	0.33	0.33	0.34	0.39	0.37	0.38	0.34	0.31	0.33	0.30	-21.0%
OECD Asia Oceania	0.60	0.59	0.52	0.43	0.42	0.43	0.42	0.40	0.39	0.38	0.38	-9.4%
Austria	0.46	0.41	0.38	0.35	0.31	0.30	0.27	0.30	0.26	0.26	0.24	-23.4%
Belgium	0.84	0.73	0.68	0.52	0.48	0.47	0.42	0.37	0.33	0.34	0.32	-33.3%
Czech Republic	1.45	1.29	1.25	1.25	1.03	0.86	0.79	0.65	0.58	0.54	0.53	-48.4%
Denmark	0.69	0.62	0.65	0.55	0.42	0.43	0.33	0.29	0.30	0.28	0.29	-31.5%
Estonia	..	..	..	..	2.59	1.64	1.08	0.85	0.82	0.80	0.77	-70.5%
Finland	0.70	0.65	0.69	0.53	0.50	0.53	0.41	0.37	0.39	0.34	0.36	-28.9%
France	0.59	0.51	0.46	0.34	0.28	0.26	0.25	0.23	0.21	0.21	0.21	-25.4%
Germany	0.92	0.84	0.77	0.69	0.55	0.45	0.39	0.37	0.34	0.34	0.33	-39.1%
Greece	0.25	0.28	0.30	0.36	0.44	0.45	0.44	0.39	0.36	0.35	0.34	-22.9%
Hungary	0.88	0.81	0.80	0.71	0.57	0.55	0.44	0.38	0.35	0.34	0.33	-42.9%
Iceland	0.48	0.45	0.36	0.30	0.30	0.30	0.26	0.22	0.21	0.20	0.19	-36.0%
Ireland	0.87	0.69	0.68	0.61	0.54	0.47	0.37	0.31	0.28	0.29	0.28	-48.7%
Italy	0.43	0.40	0.37	0.33	0.32	0.31	0.29	0.30	0.28	0.28	0.26	-17.3%
Luxembourg	2.20	1.53	1.35	0.99	0.73	0.47	0.34	0.41	0.34	0.33	0.33	-55.2%
Netherlands	0.61	0.59	0.61	0.53	0.45	0.45	0.37	0.37	0.34	0.33	0.33	-26.3%
Norway	0.40	0.34	0.32	0.26	0.25	0.24	0.21	0.20	0.20	0.20	0.20	-21.3%
Poland	1.36	1.26	1.47	1.48	1.23	1.07	0.72	0.62	0.57	0.53	0.50	-59.0%
Portugal	0.22	0.24	0.24	0.24	0.29	0.33	0.33	0.33	0.29	0.27	0.28	-4.1%
Slovak Republic	1.05	1.03	1.17	1.06	1.03	0.81	0.63	0.51	0.41	0.38	0.36	-64.7%
Slovenia	..	..	..	..	0.43	0.47	0.41	0.37	0.34	0.34	0.34	-21.9%
Spain	0.34	0.35	0.39	0.34	0.32	0.33	0.33	0.34	0.32	0.29	0.27	-14.9%
Sweden	0.61	0.52	0.45	0.33	0.26	0.28	0.21	0.18	0.15	0.15	0.15	-44.5%
Switzerland	0.26	0.24	0.24	0.23	0.20	0.20	0.19	0.18	0.16	0.16	0.16	-19.5%
Turkey	0.24	0.27	0.29	0.30	0.31	0.32	0.34	0.29	0.32	0.32	0.32	5.2%
United Kingdom	0.81	0.69	0.63	0.54	0.46	0.40	0.34	0.31	0.28	0.28	0.27	-41.8%
OECD Europe ***	0.68	0.62	0.59	0.51	0.44	0.40	0.35	0.33	0.31	0.30	0.29	-33.4%
<i>European Union - 27</i>	..	..	..	..	0.47	0.42	0.36	0.34	0.32	0.31	0.30	-37.0%

* The ratio for the world has been calculated to include international marine bunkers and international aviation bunkers.

** Includes Estonia and Slovenia prior to 1990.

*** Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions / GDP using purchasing power paritieskilogrammes CO₂ / US dollar using 2000 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Non-OECD Total *	0.71	0.73	0.74	0.72	0.77	0.67	0.57	0.54	0.51	0.51	0.50	-35.3%
Algeria	0.17	0.18	0.27	0.33	0.38	0.40	0.38	0.38	0.40	0.40	0.41	8.6%
Angola	0.11	0.13	0.18	0.18	0.21	0.27	0.25	0.21	0.22	0.23	0.24	12.2%
Benin	0.12	0.17	0.12	0.11	0.06	0.04	0.20	0.31	0.41	0.39	0.41	612.6%
Botswana	..	..	..	0.34	0.36	0.34	0.31	0.26	0.23	0.23	0.22	-39.2%
Cameroon	0.08	0.08	0.09	0.09	0.11	0.11	0.10	0.09	0.11	0.12	0.13	16.2%
Congo	0.51	0.42	0.41	0.26	0.22	0.16	0.16	0.21	0.26	0.30	0.32	42.7%
Dem. Rep. of Congo	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	16.3%
Côte d'Ivoire	0.18	0.19	0.17	0.15	0.12	0.14	0.23	0.22	0.21	0.23	0.21	69.9%
Egypt	0.41	0.45	0.46	0.52	0.51	0.46	0.46	0.54	0.52	0.50	0.48	-4.7%
Eritrea	..	..	..	..	..	0.22	0.17	0.15	0.12	0.12	0.10	..
Ethiopia	0.05	0.04	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.07	0.07	25.8%
Gabon	0.17	0.13	0.24	0.28	0.14	0.18	0.19	0.26	0.28	0.26	0.19	35.2%
Ghana	0.09	0.12	0.11	0.11	0.11	0.11	0.13	0.13	0.15	0.12	0.14	32.9%
Kenya	0.32	0.27	0.25	0.23	0.21	0.20	0.21	0.19	0.19	0.20	0.22	6.7%
Libyan Arab Jamahiriya	0.08	0.24	0.31	0.44	0.68	0.81	0.85	0.71	0.64	0.68	0.71	4.8%
Morocco	0.18	0.21	0.23	0.23	0.22	0.27	0.25	0.27	0.26	0.25	0.24	6.5%
Mozambique	0.27	0.26	0.25	0.20	0.11	0.10	0.08	0.06	0.07	0.07	0.07	-39.2%
Namibia	..	..	..	..	..	0.17	0.15	0.18	0.18	0.22	0.20	..
Nigeria	0.11	0.20	0.37	0.52	0.36	0.34	0.37	0.35	0.27	0.29	0.23	-36.9%
Senegal	0.16	0.19	0.22	0.20	0.17	0.19	0.23	0.23	0.23	0.23	0.23	35.3%
South Africa	0.84	0.88	0.77	0.77	0.79	0.82	0.77	0.71	0.69	0.72	0.70	-11.5%
Sudan	0.20	0.17	0.17	0.18	0.19	0.13	0.11	0.15	0.15	0.14	0.15	-24.9%
United Rep. of Tanzania	0.22	0.18	0.17	0.15	0.13	0.17	0.15	0.21	0.20	0.19	0.20	53.6%
Togo	0.10	0.08	0.07	0.06	0.10	0.10	0.13	0.12	0.10	0.13	0.13	29.5%
Tunisia	0.25	0.24	0.29	0.29	0.32	0.31	0.30	0.26	0.25	0.24	0.23	-28.1%
Zambia	0.55	0.63	0.47	0.39	0.33	0.28	0.20	0.19	0.12	0.13	0.13	-62.0%
Zimbabwe	0.49	0.42	0.43	0.42	0.56	0.49	0.40	0.43	0.42	0.46	0.44	-21.6%
Other Africa	0.08	0.09	0.11	0.10	0.10	0.12	0.11	0.11	0.11	0.11	0.11	6.8%
Africa	0.34	0.38	0.38	0.40	0.41	0.42	0.40	0.39	0.37	0.38	0.36	-11.1%
Bangladesh	0.04	0.07	0.08	0.09	0.11	0.13	0.13	0.14	0.14	0.15	0.15	40.8%
Brunei Darussalam	0.11	0.33	0.38	0.51	0.59	0.70	0.65	0.64	0.86	0.92	1.00	70.4%
Cambodia	..	..	..	..	..	0.09	0.11	0.10	0.10	0.10	0.09	..
Chinese Taipei	0.58	0.58	0.59	0.43	0.44	0.42	0.44	0.45	0.43	0.41	0.40	-9.3%
India	0.32	0.34	0.34	0.39	0.41	0.43	0.40	0.35	0.34	0.34	0.35	-15.8%
Indonesia	0.23	0.26	0.32	0.31	0.36	0.35	0.44	0.45	0.43	0.38	0.40	11.7%
DPR of Korea	6.35	4.61	3.68	2.75	2.08	1.74	1.80	1.87	1.56	1.77	1.63	-21.6%
Malaysia	0.44	0.42	0.42	0.45	0.47	0.48	0.54	0.59	0.59	0.60	0.55	15.5%
Mongolia	..	..	..	3.29	2.97	2.72	2.09	1.64	1.60	1.49	1.62	-45.5%
Myanmar	0.28	0.22	0.21	0.19	0.15	0.19	0.15	0.14	0.11	0.10	0.08	-42.5%
Nepal	0.02	0.03	0.04	0.03	0.04	0.07	0.09	0.08	0.06	0.07	0.08	70.0%
Pakistan	0.27	0.29	0.27	0.29	0.33	0.36	0.37	0.35	0.37	0.35	0.35	5.3%
Philippines	0.20	0.20	0.17	0.16	0.17	0.23	0.22	0.19	0.16	0.16	0.16	-6.8%
Singapore	0.55	0.57	0.57	0.53	0.63	0.54	0.42	0.36	0.31	0.31	0.31	-51.5%
Sri Lanka	0.16	0.13	0.14	0.11	0.09	0.11	0.16	0.17	0.14	0.12	0.12	32.7%
Thailand	0.25	0.26	0.28	0.27	0.32	0.37	0.42	0.44	0.42	0.42	0.41	29.8%
Vietnam	0.39	0.40	0.34	0.28	0.23	0.25	0.28	0.36	0.35	0.36	0.38	69.3%
Other Asia	0.23	0.26	0.37	0.20	0.19	0.16	0.18	0.18	0.14	0.13	0.13	-33.4%
Asia	0.34	0.36	0.37	0.38	0.39	0.39	0.39	0.36	0.35	0.34	0.35	-10.7%
People's Rep. of China	1.80	1.90	1.85	1.35	1.20	0.91	0.61	0.64	0.59	0.58	0.56	-53.2%
Hong Kong, China	0.34	0.30	0.23	0.27	0.28	0.23	0.23	0.19	0.18	0.17	0.19	-30.8%
China	1.72	1.80	1.73	1.28	1.14	0.88	0.60	0.63	0.58	0.57	0.55	-51.6%

* Includes Estonia and Slovenia prior to 1990.

CO₂ emissions / GDP using purchasing power paritieskilogrammes CO₂ / US dollar using 2000 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Bahrain	1.74	1.66	1.42	2.14	1.92	1.37	1.35	1.29	1.29	1.28	1.27	-33.7%
Islamic Republic of Iran	0.26	0.32	0.44	0.58	0.70	0.83	0.86	0.88	0.90	0.92	0.92	32.0%
Iraq	0.18	0.18	0.24	0.52	1.17	4.16	2.31	3.08	3.27	3.08	3.14	167.7%
Jordan	0.27	0.43	0.42	0.57	0.75	0.70	0.71	0.65	0.60	0.53	0.54	-28.0%
Kuwait	0.39	0.50	0.84	1.48	1.00	0.92	1.14	1.10	1.00	0.99	1.11	11.9%
Lebanon	0.34	0.44	0.60	0.43	0.63	0.83	0.85	0.72	0.55	0.67	0.75	19.6%
Oman	0.05	0.11	0.27	0.32	0.51	0.55	0.64	0.76	0.77	0.80	0.79	56.9%
Qatar	0.28	0.60	0.81	1.51	1.79	2.06	1.51	1.61	1.71	1.61	1.55	-13.2%
Saudi Arabia	0.16	0.14	0.43	0.68	0.74	0.84	0.90	0.98	1.02	1.04	1.10	49.2%
Syrian Arab Republic	0.54	0.48	0.50	0.70	0.87	0.69	0.75	0.84	0.93	0.90	0.76	-12.2%
United Arab Emirates	0.28	0.22	0.41	0.87	1.13	1.28	1.23	1.12	1.15	1.23	1.26	11.5%
Yemen	0.58	0.60	0.67	0.66	0.75	0.83	0.90	1.04	1.07	1.07	1.07	42.7%
Middle East	0.25	0.27	0.43	0.67	0.81	0.94	0.96	1.00	1.02	1.03	1.05	29.8%
Albania	0.73	0.67	0.87	0.74	0.63	0.21	0.28	0.31	0.24	0.22	0.15	-76.4%
Armenia *	..	..	..	..	1.86	0.59	0.46	0.31	0.28	0.29	0.27	-85.3%
Azerbaijan *	..	..	..	..	1.90	2.23	1.46	0.87	0.43	0.42	0.33	-82.6%
Belarus *	..	..	..	..	2.30	1.74	1.22	0.91	0.78	0.70	0.65	-71.6%
Bosnia and Herzegovina *	..	..	..	..	3.87	0.51	0.61	0.55	0.55	0.57	0.58	-85.1%
Bulgaria	2.60	2.19	1.88	1.55	1.33	1.08	0.84	0.70	0.68	0.62	0.56	-57.5%
Croatia *	..	..	..	..	0.39	0.39	0.37	0.35	0.34	0.31	0.31	-18.8%
Cyprus	0.57	0.60	0.53	0.43	0.43	0.47	0.46	0.44	0.43	0.42	0.42	-0.4%
Georgia *	..	..	..	..	1.32	1.14	0.49	0.32	0.33	0.28	0.35	-73.6%
Gibraltar	0.25	0.23	0.25	0.23	0.29	0.49	0.51	0.50	0.51	0.53	0.57	94.0%
Kazakhstan *	..	..	..	..	2.54	2.92	1.74	1.48	1.47	1.58	1.42	-44.0%
Kyrgyzstan *	..	..	..	..	2.03	0.79	0.61	0.57	0.62	0.55	0.64	-68.4%
Latvia *	..	..	..	..	0.74	0.62	0.36	0.27	0.24	0.24	0.25	-66.3%
Lithuania *	..	..	..	..	0.78	0.58	0.37	0.30	0.27	0.26	0.27	-65.5%
FYR of Macedonia *	..	..	..	..	0.64	0.78	0.69	0.67	0.64	0.60	0.56	-12.7%
Malta	0.59	0.38	0.34	0.36	0.54	0.42	0.30	0.37	0.35	0.32	0.32	-41.2%
Republic of Moldova *	..	..	..	..	1.90	1.72	1.15	0.99	0.87	0.76	0.66	-65.1%
Romania	1.71	1.39	1.20	1.01	1.06	0.83	0.65	0.53	0.47	0.42	0.39	-63.2%
Russian Federation *	..	..	..	..	1.47	1.71	1.51	1.13	1.00	0.96	1.00	-31.7%
Serbia *	..	..	..	..	1.82	1.33	1.29	1.15	1.03	0.98	1.40	-23.2%
Tajikistan *	..	..	..	..	0.95	0.56	0.49	0.35	0.40	0.36	0.31	-66.9%
Turkmenistan *	..	..	..	..	2.26	2.68	2.31	1.36	1.28	1.20	0.97	-57.2%
Ukraine *	..	..	..	..	1.51	1.79	1.47	1.06	0.94	0.91	0.89	-40.9%
Uzbekistan *	..	..	..	..	3.18	3.32	3.18	2.26	1.99	1.87	1.69	-46.9%
Former Soviet Union *	1.20	1.23	1.20	1.13	..	..	..	..	..	..	..	..
Former Yugoslavia *	0.87	0.84	0.73	0.99	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	1.22	1.24	1.19	1.12	1.50	1.60	1.34	1.02	0.91	0.87	0.88	-41.2%
Argentina	0.32	0.30	0.29	0.30	0.35	0.30	0.31	0.31	0.29	0.28	0.27	-24.0%
Bolivia	0.22	0.26	0.31	0.35	0.38	0.41	0.37	0.40	0.45	0.46	0.46	23.4%
Brazil	0.22	0.23	0.22	0.19	0.20	0.21	0.24	0.23	0.22	0.22	0.20	1.9%
Colombia	0.26	0.23	0.21	0.21	0.20	0.21	0.20	0.16	0.14	0.14	0.14	-26.5%
Costa Rica	0.14	0.15	0.14	0.13	0.14	0.17	0.14	0.14	0.14	0.14	0.14	-0.2%
Cuba	0.58	0.55	0.58	0.41	0.45	0.43	0.41	0.30	0.26	0.24	0.24	-45.8%
Dominican Republic	0.21	0.22	0.21	0.19	0.20	0.24	0.26	0.22	0.19	0.19	0.17	-15.8%
Ecuador	0.25	0.30	0.39	0.42	0.40	0.43	0.47	0.46	0.46	0.44	0.47	19.2%
El Salvador	0.09	0.11	0.09	0.11	0.12	0.19	0.18	0.20	0.20	0.17	0.20	61.1%
Guatemala	0.14	0.15	0.15	0.12	0.11	0.16	0.19	0.22	0.21	0.19	0.24	117.3%
Haiti	0.04	0.04	0.04	0.06	0.07	0.08	0.12	0.17	0.18	0.18	0.18	176.0%
Honduras	0.14	0.15	0.13	0.12	0.13	0.19	0.20	0.25	0.25	0.23	0.22	67.0%
Jamaica	0.74	0.93	0.97	0.68	0.82	0.79	0.93	0.91	1.10	0.99	0.72	-12.8%
Netherlands Antilles	..	..	3.74	2.05	1.16	1.03	1.50	1.48	1.52	1.42	1.72	48.1%
Nicaragua	0.12	0.12	0.14	0.14	0.17	0.21	0.23	0.22	0.23	0.20	0.22	30.0%
Panama	0.36	0.40	0.30	0.23	0.22	0.28	0.25	0.25	0.23	0.21	0.24	10.2%
Paraguay	0.09	0.08	0.10	0.09	0.10	0.15	0.15	0.14	0.13	0.12	0.14	38.2%
Peru	0.24	0.23	0.23	0.20	0.23	0.22	0.22	0.19	0.18	0.18	0.20	-14.7%
Trinidad and Tobago	0.95	0.79	0.74	1.00	1.33	1.34	1.80	1.98	1.99	1.88	1.99	49.5%
Uruguay	0.29	0.28	0.23	0.16	0.16	0.16	0.16	0.16	0.15	0.19	0.18	17.0%
Venezuela	0.64	0.68	0.88	0.95	0.92	0.88	0.91	0.93	0.81	0.78	0.81	-12.4%
Other Latin America	0.50	0.67	0.50	0.43	0.46	0.46	0.44	0.44	0.41	0.44	0.43	-6.1%
Latin America	0.30	0.29	0.29	0.27	0.28	0.28	0.30	0.28	0.27	0.26	0.26	-8.4%

* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO₂ emissions / populationtonnes CO₂ / capita

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
World *	3.74	3.85	4.07	3.85	3.98	3.84	3.87	4.21	4.40	4.41	4.29	7.8%
<i>Annex I Parties</i>	..	..	..	..	11.83	10.91	11.17	11.25	11.23	10.91	10.15	-14.2%
<i>Annex II Parties</i>	12.20	12.18	12.64	11.82	12.26	12.33	12.90	12.84	12.63	12.18	11.31	-7.8%
<i>North America</i>	20.16	19.81	20.17	18.72	19.08	18.94	19.90	19.27	18.90	18.15	16.75	-12.2%
<i>Europe</i>	8.63	8.56	9.11	8.37	8.36	8.17	8.26	8.36	8.12	7.94	7.32	-12.4%
<i>Asia Oceania</i>	7.57	8.18	8.19	7.98	9.35	9.90	10.35	10.78	10.86	10.29	9.88	5.7%
<i>Annex I EIT</i>	..	..	..	..	12.41	8.82	8.12	8.48	8.84	8.84	8.28	-33.3%
<i>Non-Annex I Parties</i>	..	..	..	..	1.58	1.77	1.84	2.32	2.57	2.68	2.73	73.5%
<i>Annex I Kyoto Parties</i>	..	..	..	..	10.22	8.99	8.92	9.17	9.20	8.99	8.41	-17.8%
Non-OECD Total **	1.47	1.72	1.96	2.01	2.19	2.06	2.04	2.50	2.75	2.86	2.88	31.6%
OECD Total ***	10.47	10.48	10.93	10.24	10.49	10.51	10.97	10.94	10.87	10.51	9.83	-6.2%
Canada	15.46	16.30	17.41	15.56	15.61	15.88	17.36	17.33	17.25	16.54	15.43	-1.1%
Chile	2.13	1.63	1.90	1.60	2.36	2.71	3.41	3.60	4.01	4.04	3.84	62.7%
Mexico	1.95	2.45	3.23	3.42	3.26	3.26	3.56	3.71	3.88	3.79	3.72	14.1%
United States	20.66	20.19	20.47	19.06	19.46	19.28	20.18	19.48	19.08	18.33	16.90	-13.2%
OECD Americas	16.41	15.98	16.17	14.91	15.03	14.80	15.54	15.10	14.89	14.32	13.27	-11.7%
Australia	10.92	12.89	14.05	13.90	15.15	15.69	17.58	18.94	18.34	18.17	17.87	18.0%
Israel	4.66	4.91	5.03	5.77	7.09	8.26	8.71	8.69	9.32	9.08	8.69	22.6%
Japan	7.23	7.66	7.52	7.25	8.61	9.14	9.33	9.55	9.72	9.04	8.58	-0.3%
Korea	1.58	2.18	3.26	3.76	5.35	7.95	9.31	9.72	10.12	10.32	10.57	97.7%
New Zealand	4.80	5.52	5.22	5.99	6.91	7.07	7.91	8.09	7.65	7.86	7.23	4.6%
OECD Asia Oceania	6.26	6.85	7.06	7.00	8.40	9.41	10.06	10.46	10.64	10.26	10.00	19.0%
Austria	6.49	6.62	7.37	7.18	7.36	7.47	7.71	9.11	8.43	8.42	7.58	3.0%
Belgium	12.09	11.82	12.75	10.34	10.83	11.37	11.58	10.75	9.95	10.36	9.33	-13.8%
Czech Republic	15.35	15.17	16.06	16.75	14.97	11.97	11.86	11.69	11.82	11.20	10.45	-30.2%
Denmark	11.09	10.37	12.21	11.83	9.81	11.09	9.49	8.91	9.41	8.82	8.47	-13.7%
Estonia	..	..	..	..	22.75	11.12	10.66	12.52	14.35	13.21	10.94	-51.9%
Finland	8.62	9.42	11.54	9.91	10.91	10.97	10.46	10.55	12.23	10.77	10.30	-5.6%
France	8.24	7.99	8.37	6.37	6.06	5.96	6.21	6.17	5.86	5.78	5.49	-9.3%
Germany	12.49	12.40	13.48	13.06	11.98	10.65	10.06	9.84	9.73	9.79	9.16	-23.5%
Greece	2.80	3.75	4.62	5.41	6.78	7.13	8.01	8.56	8.74	8.39	8.00	17.9%
Hungary	5.82	6.72	7.82	7.64	6.44	5.55	5.31	5.59	5.38	5.28	4.81	-25.4%
Iceland	6.79	7.37	7.62	6.71	7.37	7.30	7.60	7.36	7.53	6.89	6.26	-15.1%
Ireland	7.29	6.64	7.62	7.45	8.50	8.97	10.74	10.47	10.07	9.87	8.83	3.9%
Italy	5.42	5.76	6.38	6.14	7.01	7.20	7.48	7.86	7.53	7.27	6.47	-7.7%
Luxembourg	45.11	33.69	32.75	27.03	27.34	19.92	18.42	24.37	22.09	21.55	20.10	-26.5%
Netherlands	9.82	10.31	11.78	10.63	10.43	11.06	10.81	11.19	11.05	11.12	10.66	2.2%
Norway	6.02	6.01	6.85	6.54	6.67	7.53	7.47	7.86	8.07	7.87	7.73	15.9%
Poland	8.74	9.94	11.61	11.28	9.00	8.65	7.60	7.68	7.96	7.83	7.52	-16.4%
Portugal	1.66	1.97	2.41	2.44	3.93	4.81	5.81	5.95	5.27	5.01	5.00	27.2%
Slovak Republic	8.57	9.25	11.10	10.54	10.71	7.61	6.92	7.07	6.82	6.71	6.12	-42.8%
Slovenia	..	..	..	..	6.26	6.69	7.08	7.79	7.84	8.27	7.42	18.5%
Spain	3.49	4.39	4.99	4.55	5.28	5.92	7.05	7.83	7.67	6.97	6.17	17.0%
Sweden	10.18	9.69	8.84	7.04	6.16	6.52	5.95	5.58	5.07	4.84	4.48	-27.2%
Switzerland	6.14	5.73	6.14	6.34	6.09	5.88	5.90	5.95	5.56	5.69	5.44	-10.7%
Turkey	1.14	1.48	1.60	1.88	2.30	2.55	3.12	3.15	3.77	3.71	3.57	54.8%
United Kingdom	11.15	10.31	10.14	9.63	9.60	8.90	8.89	8.85	8.55	8.34	7.54	-21.4%
OECD Europe ***	8.11	8.15	8.74	8.10	7.90	7.57	7.58	7.65	7.57	7.39	6.85	-13.2%
<i>European Union - 27</i>	..	..	..	..	8.57	8.04	7.93	8.09	7.94	7.76	7.15	-16.6%

* The ratio for the world has been calculated to include international marine bunkers and international aviation bunkers.

** Includes Estonia and Slovenia prior to 1990.

*** Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions / populationtonnes CO₂ / capita

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Non-OECD Total *	1.47	1.72	1.96	2.01	2.19	2.06	2.04	2.50	2.75	2.86	2.88	31.6%
Algeria	0.61	0.88	1.51	1.96	2.04	1.97	2.05	2.39	2.53	2.56	2.65	29.7%
Angola	0.27	0.29	0.34	0.31	0.38	0.32	0.36	0.42	0.59	0.68	0.70	85.6%
Benin	0.11	0.15	0.11	0.11	0.05	0.04	0.21	0.34	0.45	0.44	0.46	778.1%
Botswana	..	..	..	1.36	2.17	2.15	2.43	2.41	2.35	2.35	2.14	-1.2%
Cameroon	0.10	0.13	0.18	0.23	0.22	0.18	0.18	0.16	0.22	0.22	0.25	12.3%
Congo	0.42	0.43	0.44	0.40	0.29	0.19	0.19	0.27	0.33	0.41	0.45	58.2%
Dem. Rep. of Congo	0.12	0.11	0.11	0.10	0.08	0.05	0.03	0.04	0.04	0.04	0.04	-45.6%
Côte d'Ivoire	0.43	0.46	0.40	0.29	0.21	0.21	0.35	0.30	0.28	0.31	0.29	38.4%
Egypt	0.56	0.65	0.95	1.29	1.37	1.32	1.57	1.97	2.11	2.13	2.11	54.2%
Eritrea	..	..	..	..	..	0.24	0.17	0.13	0.11	0.09	0.09	..
Ethiopia	0.04	0.03	0.04	0.03	0.04	0.04	0.05	0.06	0.08	0.08	0.09	108.4%
Gabon	0.87	1.26	1.87	2.13	0.97	1.22	1.12	1.57	1.70	1.61	1.15	18.0%
Ghana	0.22	0.23	0.21	0.17	0.18	0.19	0.26	0.29	0.36	0.31	0.38	109.1%
Kenya	0.28	0.26	0.27	0.24	0.24	0.20	0.22	0.20	0.22	0.22	0.25	7.1%
Libyan Arab Jamahiriya	1.79	3.72	6.06	5.84	6.27	7.27	7.42	7.17	6.99	7.47	7.80	24.4%
Morocco	0.44	0.57	0.71	0.74	0.79	0.94	0.98	1.26	1.30	1.33	1.29	63.1%
Mozambique	0.30	0.22	0.19	0.11	0.08	0.07	0.07	0.07	0.10	0.09	0.10	22.3%
Namibia	..	..	..	..	..	1.12	1.03	1.45	1.59	1.96	1.70	..
Nigeria	0.10	0.18	0.36	0.38	0.30	0.28	0.32	0.36	0.30	0.33	0.27	-11.1%
Senegal	0.28	0.33	0.35	0.32	0.27	0.29	0.36	0.41	0.42	0.42	0.42	57.2%
South Africa	7.69	8.46	7.78	7.32	7.24	7.08	6.78	7.00	7.39	7.96	7.49	3.5%
Sudan	0.21	0.19	0.18	0.17	0.20	0.15	0.16	0.26	0.30	0.29	0.31	54.4%
United Rep. of Tanzania	0.11	0.09	0.09	0.07	0.07	0.08	0.08	0.13	0.13	0.14	0.14	113.7%
Togo	0.15	0.13	0.13	0.09	0.15	0.13	0.18	0.16	0.14	0.17	0.17	17.2%
Tunisia	0.71	0.85	1.23	1.32	1.48	1.59	1.88	1.95	2.02	2.02	1.99	34.4%
Zambia	0.80	0.90	0.58	0.41	0.33	0.22	0.16	0.18	0.11	0.13	0.13	-60.2%
Zimbabwe	1.34	1.17	1.09	1.08	1.53	1.27	1.02	0.83	0.75	0.70	0.69	-54.8%
Other Africa	0.11	0.12	0.15	0.12	0.13	0.13	0.13	0.15	0.16	0.16	0.16	22.8%
Africa	0.71	0.80	0.85	0.86	0.86	0.83	0.84	0.89	0.92	0.95	0.92	7.4%
Bangladesh	0.04	0.06	0.08	0.09	0.12	0.16	0.18	0.24	0.27	0.29	0.31	166.2%
Brunei Darussalam	2.93	8.74	13.64	13.16	13.08	15.94	13.96	13.76	18.53	19.11	20.30	55.2%
Cambodia	..	..	..	..	..	0.12	0.19	0.27	0.31	0.32	0.29	..
Chinese Taipei	2.08	2.63	4.04	3.71	5.64	7.35	9.80	11.41	11.91	11.40	10.89	93.1%
India	0.36	0.39	0.41	0.54	0.69	0.83	0.96	1.06	1.21	1.26	1.37	100.2%
Indonesia	0.21	0.29	0.47	0.54	0.80	1.06	1.29	1.53	1.63	1.51	1.64	104.1%
DPR of Korea	4.61	4.77	6.12	6.75	5.66	3.45	3.01	3.16	2.63	2.91	2.77	-51.1%
Malaysia	1.14	1.31	1.76	2.13	2.70	3.81	4.77	5.96	6.45	6.73	5.98	121.2%
Mongolia	..	..	..	6.08	5.71	4.43	3.69	3.72	4.25	4.24	4.49	-21.4%
Myanmar	0.17	0.13	0.15	0.15	0.10	0.15	0.17	0.28	0.25	0.24	0.20	108.0%
Nepal	0.02	0.02	0.03	0.03	0.05	0.08	0.13	0.11	0.09	0.10	0.12	150.5%
Pakistan	0.27	0.29	0.32	0.41	0.54	0.65	0.70	0.75	0.85	0.80	0.81	48.7%
Philippines	0.61	0.69	0.69	0.52	0.61	0.82	0.87	0.83	0.78	0.79	0.77	25.6%
Singapore	2.82	3.71	5.25	5.94	9.45	10.65	9.99	10.34	9.94	9.52	8.99	-4.9%
Sri Lanka	0.22	0.20	0.25	0.22	0.22	0.31	0.57	0.68	0.65	0.61	0.62	185.1%
Thailand	0.42	0.49	0.70	0.79	1.41	2.33	2.60	3.32	3.46	3.53	3.36	137.9%
Vietnam	0.37	0.35	0.28	0.29	0.26	0.38	0.57	0.97	1.09	1.18	1.31	403.0%
Other Asia	0.29	0.32	0.50	0.32	0.29	0.28	0.30	0.37	0.33	0.32	0.33	12.4%
Asia	0.41	0.46	0.54	0.63	0.79	0.95	1.10	1.25	1.36	1.37	1.43	80.9%
People's Rep. of China	0.95	1.15	1.43	1.62	1.95	2.48	2.41	3.88	4.57	4.91	5.13	163.4%
Hong Kong, China	2.27	2.42	2.87	4.03	5.75	5.84	5.98	5.98	6.27	6.05	6.51	13.2%
China	0.96	1.15	1.44	1.63	1.97	2.50	2.42	3.89	4.58	4.92	5.14	161.2%

* Includes Estonia and Slovenia prior to 1990.

CO₂ emissions / populationtonnes CO₂ / capita

	1971	1975	1980	1985	1990	1995	2000	2005	2007	2008	2009	% change 90-09
Bahrain	13.21	19.53	21.31	25.16	23.73	20.11	21.74	24.93	27.88	28.80	28.86	21.6%
Islamic Republic of Iran	1.49	2.30	2.37	3.12	3.30	4.28	4.95	6.18	7.05	7.26	7.31	121.6%
Iraq	1.26	1.40	2.44	2.79	2.91	3.67	3.61	3.20	3.27	3.29	3.41	17.1%
Jordan	0.83	1.15	1.93	2.78	2.90	2.89	2.98	3.31	3.38	3.17	3.23	11.2%
Kuwait	17.64	14.97	19.33	21.67	13.51	20.04	22.43	27.66	26.33	27.08	28.88	113.7%
Lebanon	1.81	2.06	2.36	2.26	1.84	3.68	3.74	3.55	2.89	3.77	4.58	149.4%
Oman	0.33	0.78	1.88	3.57	5.39	6.63	8.23	10.63	11.91	13.04	13.69	154.2%
Qatar	18.26	28.64	33.61	33.65	30.21	35.71	38.91	42.46	43.33	42.01	40.12	32.8%
Saudi Arabia	2.13	3.10	10.32	9.53	9.77	11.35	12.23	14.39	14.92	15.58	16.17	65.4%
Syrian Arab Republic	0.91	1.20	1.46	1.95	2.21	2.25	2.41	2.89	3.31	3.29	2.84	28.1%
United Arab Emirates	9.20	9.22	18.83	25.22	27.77	28.62	26.51	26.44	29.41	32.19	31.97	15.1%
Yemen	0.18	0.24	0.41	0.47	0.52	0.60	0.73	0.90	0.93	0.93	0.94	80.2%
Middle East	1.61	2.22	3.56	4.22	4.39	5.27	5.80	6.77	7.35	7.64	7.76	76.6%
Albania	1.78	1.85	2.84	2.43	1.90	0.59	1.04	1.47	1.28	1.23	0.85	-55.0%
Armenia *	..	..	..	..	5.77	1.06	1.11	1.34	1.56	1.71	1.38	-76.1%
Azerbaijan *	..	..	..	..	8.97	4.11	3.62	3.88	3.15	3.39	2.87	-68.0%
Belarus *	..	..	..	..	12.23	6.03	5.86	6.35	6.60	6.63	6.29	-48.5%
Bosnia and Herzegovina *	..	..	..	..	5.49	1.01	3.70	4.14	4.75	5.17	5.07	-7.7%
Bulgaria	7.36	8.28	9.46	9.07	8.60	6.34	5.21	5.94	6.59	6.43	5.56	-35.3%
Croatia *	..	..	..	..	4.51	3.39	3.99	4.67	4.97	4.73	4.46	-1.2%
Cyprus	2.86	3.39	5.07	5.13	6.62	8.03	9.04	9.23	9.34	9.49	9.26	39.9%
Georgia *	..	..	..	..	6.10	1.59	0.97	0.97	1.26	1.11	1.33	-78.2%
Gibraltar	3.51	3.37	3.99	4.03	6.13	11.97	14.46	15.59	16.21	16.74	17.26	181.5%
Kazakhstan *	..	..	..	..	14.46	10.56	7.56	10.34	12.10	13.26	11.93	-17.5%
Kyrgyzstan *	..	..	..	..	5.08	0.96	0.91	0.98	1.17	1.12	1.33	-73.9%
Latvia *	..	..	..	..	6.98	3.52	2.88	3.29	3.66	3.49	2.99	-57.1%
Lithuania *	..	..	..	..	8.95	3.90	3.20	3.96	4.28	4.24	3.71	-58.6%
FYR of Macedonia *	..	..	..	..	4.46	4.17	4.17	4.31	4.50	4.40	4.08	-8.5%
Malta	2.00	1.97	2.71	3.34	6.35	6.22	5.40	6.68	6.65	6.21	5.89	-7.2%
Republic of Moldova *	..	..	..	..	6.92	2.52	1.58	2.09	2.05	1.95	1.59	-76.9%
Romania	5.61	6.62	7.93	7.63	7.20	5.16	3.84	4.25	4.33	4.28	3.65	-49.3%
Russian Federation *	..	..	..	..	14.75	10.61	10.25	10.57	11.10	11.22	10.80	-26.8%
Serbia *	..	..	..	..	6.01	4.24	4.24	6.59	6.75	6.78	6.32	5.2%
Tajikistan *	..	..	..	..	2.06	0.42	0.35	0.36	0.47	0.45	0.40	-80.6%
Turkmenistan *	..	..	..	..	12.71	8.22	8.04	9.50	10.89	11.06	9.54	-24.9%
Ukraine *	..	..	..	..	13.26	7.63	5.94	6.49	6.75	6.69	5.57	-58.0%
Uzbekistan *	..	..	..	..	5.84	4.46	4.77	4.14	4.18	4.21	4.05	-30.7%
Former Soviet Union *	8.15	10.09	11.49	11.51	..	..	..	..	..	..	..	..
Former Yugoslavia *	3.11	3.58	4.03	5.42	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	7.54	9.27	10.59	10.68	11.61	7.72	7.06	7.52	7.91	8.01	7.46	-35.8%
Argentina	3.41	3.30	3.41	2.93	3.09	3.40	3.76	3.90	4.22	4.36	4.14	33.9%
Bolivia	0.50	0.68	0.78	0.72	0.77	0.93	0.88	1.05	1.20	1.27	1.31	69.1%
Brazil	0.93	1.27	1.48	1.23	1.30	1.49	1.74	1.73	1.80	1.88	1.74	34.2%
Colombia	1.20	1.18	1.26	1.28	1.35	1.59	1.48	1.32	1.29	1.29	1.33	-2.0%
Costa Rica	0.67	0.85	0.93	0.74	0.85	1.26	1.14	1.25	1.48	1.46	1.37	61.7%
Cuba	2.35	2.51	2.99	3.11	3.18	2.07	2.39	2.20	2.31	2.25	2.40	-24.7%
Dominican Republic	0.73	0.98	1.06	0.93	1.04	1.41	1.97	1.83	1.92	1.93	1.79	72.3%
Ecuador	0.60	0.90	1.33	1.33	1.28	1.43	1.51	1.80	1.93	1.97	2.09	62.8%
El Salvador	0.37	0.48	0.38	0.35	0.42	0.81	0.88	1.06	1.13	1.01	1.10	163.1%
Guatemala	0.41	0.49	0.60	0.41	0.37	0.60	0.78	0.90	0.94	0.82	1.03	179.2%
Haiti	0.08	0.08	0.11	0.12	0.13	0.12	0.16	0.21	0.24	0.24	0.24	77.7%
Honduras	0.40	0.42	0.46	0.39	0.44	0.63	0.71	1.01	1.09	1.04	0.96	119.7%
Jamaica	2.91	3.68	3.05	2.01	3.01	3.37	3.76	3.94	4.95	4.41	3.06	1.9%
Netherlands Antilles	89.64	61.14	50.26	25.01	14.37	14.77	22.38	22.60	23.33	21.90	25.10	74.7%
Nicaragua	0.60	0.66	0.55	0.49	0.44	0.54	0.69	0.74	0.78	0.73	0.73	66.0%
Panama	1.62	1.84	1.46	1.17	0.98	1.48	1.53	1.69	1.85	1.83	2.10	114.9%
Paraguay	0.22	0.25	0.42	0.38	0.45	0.72	0.61	0.58	0.60	0.59	0.64	42.0%
Peru	1.15	1.22	1.19	0.93	0.88	0.99	1.02	1.04	1.08	1.24	1.32	49.9%
Trinidad and Tobago	6.26	5.76	7.33	8.17	9.33	9.70	16.28	25.72	30.56	29.41	30.00	221.6%
Uruguay	1.85	1.93	1.91	1.04	1.21	1.41	1.59	1.60	1.75	2.31	2.31	91.7%
Venezuela	4.70	4.93	6.12	5.45	5.32	5.37	5.21	5.57	5.58	5.49	5.45	2.3%
Other Latin America	3.00	4.06	3.69	3.19	4.15	4.20	4.52	4.76	4.87	4.87	4.47	7.7%
Latin America	1.53	1.71	1.90	1.64	1.69	1.85	2.03	2.09	2.19	2.23	2.16	27.6%

* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

Per capita emissions by sector in 2009 *

kg CO₂ / capita

	Total CO ₂ emissions from fuel combustion	Electricity and heat production	Other energy industry own use **	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
World ***	4 289	1 749	217	868	968	721	487	277
<i>Annex I Parties</i>	10 154	4 154	511	1 443	2 606	2 261	1 440	842
<i>Annex II Parties</i>	11 311	4 356	599	1 507	3 218	2 849	1 632	902
<i>North America</i>	16 751	6 718	946	1 864	5 193	4 484	2 029	1 063
<i>Europe</i>	7 321	2 404	376	1 055	2 010	1 874	1 476	946
<i>Asia Oceania</i>	9 879	4 320	421	1 916	2 055	1 823	1 167	429
<i>Annex I EIT</i>	8 275	4 208	335	1 463	1 256	919	1 014	736
<i>Non-Annex I Parties</i>	2 732	1 187	148	734	400	361	264	145
<i>Annex I Kyoto Parties</i>	8 405	3 364	431	1 404	1 877	1 627	1 330	795
Non-OECD Total	2 879	1 283	146	767	400	346	284	165
OECD Total	9 833	3 857	536	1 328	2 706	2 417	1 406	785
Canada	15 434	3 031	1 946	2 718	4 670	3 768	3 070	1 142
Chile	3 836	1 337	195	785	1 211	1 060	307	202
Mexico	3 720	1 105	470	482	1 371	1 336	292	172
United States	16 895	7 123	837	1 771	5 250	4 562	1 915	1 055
OECD Americas	13 274	5 227	809	1 506	4 166	3 633	1 566	826
Australia	17 867	10 069	983	2 252	3 730	3 172	834	360
Israel	8 687	5 137	295	162	2 286	2 286	806	364
Japan	8 583	3 412	325	1 875	1 729	1 557	1 242	450
Korea	10 574	5 152	653	1 819	1 747	1 640	1 203	643
New Zealand	7 228	1 687	387	1 404	3 112	2 785	637	135
OECD Asia Oceania	9 998	4 542	470	1 832	1 992	1 797	1 162	476
Austria	7 578	1 656	723	1 442	2 595	2 474	1 162	859
Belgium	9 333	1 993	453	2 019	2 450	2 389	2 418	1 581
Czech Republic	10 454	5 651	235	1 801	1 680	1 608	1 087	657
Denmark	8 472	3 984	428	696	2 373	2 167	991	525
Estonia	10 942	8 219	90	637	1 573	1 469	424	127
Finland	10 303	4 738	655	1 680	2 288	2 096	943	402
France	5 494	811	248	893	1 921	1 830	1 620	913
Germany	9 163	3 771	308	1 245	1 816	1 722	2 023	1 390
Greece	7 996	3 948	289	647	2 180	1 844	931	651
Hungary	4 805	1 527	155	554	1 273	1 245	1 296	825
Iceland	6 256	26	-	1 910	2 686	2 436	1 634	29
Ireland	8 831	2 904	102	868	2 711	2 635	2 247	1 546
Italy	6 467	2 173	272	833	1 840	1 736	1 348	836
Luxembourg	20 098	2 499	-	1 768	12 276	12 238	3 555	2 505
Netherlands	10 656	3 461	632	2 361	1 986	1 938	2 217	1 067
Norway	7 730	488	2 369	1 376	2 795	2 049	702	105
Poland	7 516	3 991	185	856	1 167	1 132	1 317	832
Portugal	4 998	1 868	227	677	1 773	1 663	453	189
Slovak Republic	6 124	1 541	838	1 397	1 103	923	1 245	564
Slovenia	7 421	2 929	4	1 005	2 478	2 458	1 005	558
Spain	6 170	1 893	381	1 029	2 188	1 928	678	390
Sweden	4 485	875	287	734	2 271	2 172	319	44
Switzerland	5 438	367	133	745	2 187	2 153	2 006	1 336
Turkey	3 565	1 382	156	568	623	543	836	532
United Kingdom	7 538	2 828	495	823	1 936	1 789	1 456	1 152
OECD Europe	6 854	2 434	330	985	1 742	1 624	1 364	869
<i>European Union - 27</i>	7 148	2 610	331	1 018	1 824	1 710	1 366	872

* This table shows per capita emissions for the same sectors which are present throughout this publication. In particular, the emissions from electricity and heat production are shown separately and not reallocated as in the table on pages II.61-II.63.

** Includes emissions from own use in petroleum refining, the manufacture of solid fuels, coal mining, oil and gas extraction and other energy-producing industries.

*** World includes international bunkers in the transport sector.

Per capita emissions by sector in 2009

kg CO₂ / capita

	Total CO ₂ emissions from fuel combustion	Electricity and heat production	Other energy industry own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Non-OECD Total	2 879	1 283	146	767	400	346	284	165
Algeria	2 651	706	307	337	854	796	448	448
Angola	698	54	15	160	293	254	177	63
Benin	465	10	-	17	312	311	126	126
Botswana	2 145	470	-	599	974	954	102	38
Cameroon	245	71	8	20	128	122	18	18
Congo	451	29	-	15	380	315	27	27
Dem. Rep. of Congo	43	-	-	15	10	10	18	5
Côte d'Ivoire	289	119	8	24	69	57	70	24
Egypt	2 113	780	150	429	491	453	264	182
Eritrea	93	39	-	5	22	22	26	10
Ethiopia	90	6	-	22	51	51	11	11
Gabon	1 149	364	21	412	237	237	116	55
Ghana	379	70	2	61	202	186	44	28
Kenya	252	68	13	33	98	94	40	28
Libyan Arab Jamahiriya	7 796	4 132	463	999	1 876	1 875	326	326
Morocco	1 291	427	17	215	358	358	274	125
Mozambique	98	-	1	20	66	60	11	5
Namibia	1 698	190	-	132	949	851	427	-
Nigeria	266	53	29	20	152	152	12	12
Senegal	420	147	2	73	154	147	43	29
South Africa	7 489	4 634	81	1 038	1 011	947	725	409
Sudan	314	57	12	47	177	176	21	16
United Rep. of Tanzania	143	30	-	18	79	79	16	15
Togo	170	4	-	12	132	132	21	21
Tunisia	1 991	809	13	338	436	436	394	166
Zambia	131	3	3	64	42	29	19	-
Zimbabwe	692	389	4	111	86	80	101	7
Other Africa	155	42	-	29	63	55	21	9
Africa	919	402	37	141	230	218	110	70
Bangladesh	312	137	1	73	46	35	55	33
Brunei Darussalam	20 302	6 820	4 650	5 517	2 776	2 776	538	270
Cambodia	288	94	-	11	75	74	108	84
Chinese Taipei	10 886	6 255	507	2 202	1 493	1 446	429	206
India	1 373	741	43	300	130	116	159	66
Indonesia	1 636	504	119	475	403	359	136	81
DPR of Korea	2 769	440	1	1 754	39	39	535	3
Malaysia	5 976	2 481	593	1 199	1 503	1 475	200	72
Mongolia	4 487	2 777	9	456	529	397	716	337
Myanmar	203	23	11	54	54	52	61	4
Nepal	116	-	-	27	59	59	30	12
Pakistan	807	257	10	255	189	184	96	77
Philippines	767	322	4	121	256	228	63	29
Singapore	8 988	4 348	1 685	1 172	1 688	1 637	94	84
Sri Lanka	623	224	8	70	275	242	46	16
Thailand	3 362	1 124	99	1 077	806	799	255	68
Vietnam	1 307	366	17	459	332	317	133	75
Other Asia	327	124	-	72	80	53	52	11
Asia	1 428	653	57	352	223	206	143	63
People's Rep. of China	5 131	2 475	198	1 709	353	271	396	217
Hong Kong, China	6 510	4 219	-	1 065	863	863	363	116
China	5 138	2 484	197	1 706	356	274	395	216

Per capita emissions by sector in 2009

kg CO₂ / capita

	Total CO ₂ emissions from fuel combustion	Electricity and heat production	Other energy industry own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Bahrain	28 856	10 134	5 518	8 701	4 214	4 166	289	289
Islamic Rep. of Iran	7 314	1 756	438	1 673	1 563	1 552	1 885	1 440
Iraq	3 412	1 089	160	766	1 072	1 072	325	325
Jordan	3 227	1 392	112	443	853	849	426	262
Kuwait	28 881	16 557	3 742	4 250	4 153	4 153	179	179
Lebanon	4 577	2 336	-	306	1 194	1 194	741	741
Oman	13 690	5 278	2 592	2 824	1 985	1 985	1 011	546
Qatar	40 117	8 694	13 566	13 193	4 491	4 491	174	174
Saudi Arabia	16 166	6 474	2 526	3 044	3 961	3 881	160	160
Syrian Arab Republic	2 835	1 316	94	492	738	708	196	118
United Arab Emirates	31 973	12 432	422	13 500	5 514	5 514	105	105
Yemen	941	180	169	108	218	218	266	93
Middle East	7 758	2 636	774	1 777	1 689	1 671	880	673
Albania	855	19	40	222	428	379	147	39
Armenia	1 381	208	-	316	487	487	370	340
Azerbaijan	2 872	1 174	268	145	517	461	767	648
Belarus	6 291	3 217	255	1 198	587	431	1 034	731
Bosnia and Herzegovina	5 067	3 545	301	177	713	701	331	96
Bulgaria	5 564	3 633	135	544	1 045	985	207	96
Croatia	4 460	1 018	458	823	1 389	1 290	771	466
Cyprus	9 261	4 827	-	964	2 682	2 678	788	394
Georgia	1 333	273	42	188	515	476	314	184
Gibraltar	17 263	4 437	-	2 256	10 569	10 569	-	-
Kazakhstan	11 930	5 660	1 897	1 807	769	688	1 797	457
Kyrgyzstan	1 326	212	-	358	479	479	278	-
Latvia	2 994	874	-	393	1 214	1 097	513	178
Lithuania	3 709	925	575	632	1 235	1 150	343	172
FYR of Macedonia	4 083	2 873	2	399	613	601	197	70
Malta	5 893	4 441	-	224	1 103	1 103	125	118
Republic of Moldova	1 594	729	1	59	240	222	565	481
Romania	3 648	1 632	239	652	688	645	437	274
Russian Federation	10 800	5 727	465	1 933	1 595	964	1 080	826
Serbia	6 320	4 367	79	615	877	776	382	195
Tajikistan	398	72	-	-	38	38	288	-
Turkmenistan	9 544	2 800	1 440	288	769	482	4 247	-
Ukraine	5 573	2 427	165	1 448	569	446	964	843
Uzbekistan	4 047	1 290	139	729	330	193	1 558	1 170
Non-OECD Europe and Eurasia	7 456	3 705	394	1 315	1 032	712	1 009	669
Argentina	4 137	1 075	420	901	940	872	800	475
Bolivia	1 305	244	130	156	628	589	147	112
Brazil	1 744	155	145	495	759	682	190	85
Colombia	1 326	220	151	354	438	412	163	88
Costa Rica	1 370	81	14	220	953	951	102	28
Cuba	2 396	1 188	9	847	133	120	219	80
Dominican Republic	1 791	877	4	154	520	414	235	215
Ecuador	2 090	366	83	343	1 055	947	243	213
El Salvador	1 102	299	8	292	415	415	88	85
Guatemala	1 034	225	5	332	431	431	40	39
Haiti	236	39	-	47	129	70	21	21
Honduras	957	303	-	147	403	403	104	22
Jamaica	3 064	1 116	-	106	1 094	543	748	45
Netherlands Antilles	25 100	4 634	10 267	3 373	5 961	5 961	865	865
Nicaragua	735	304	8	96	268	268	59	15
Panama	2 100	608	-	470	876	465	147	85
Paraguay	639	-	-	16	594	586	30	30
Peru	1 322	286	96	324	500	479	115	62
Trinidad and Tobago	30 001	4 152	5 242	18 003	2 081	2 081	521	507
Uruguay	2 315	670	192	258	846	841	348	132
Venezuela	5 446	864	1 052	1 447	1 820	1 819	263	233
Other Latin America	4 466	2 079	2	324	1 310	1 159	751	306
Latin America	2 161	392	215	565	751	692	238	133

Per capita emissions with electricity and heat allocated to consuming sectors * in 2009

kg CO₂ / capita

	Total CO ₂ emissions from fuel combustion	Other energy industry own use **	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
World ***	4 289	297	1 547	991	721	1 454	774
<i>Annex I Parties</i>	10 154	737	2 703	2 676	2 261	4 038	2 184
<i>Annex II Parties</i>	11 311	735	2 756	3 268	2 849	4 552	2 320
<i>North America</i>	16 751	1 144	3 458	5 210	4 484	6 938	3 423
<i>Europe</i>	7 321	467	1 890	2 061	1 874	2 903	1 671
<i>Asia Oceania</i>	9 879	513	3 255	2 135	1 823	3 977	1 700
<i>Annex I EIT</i>	8 275	840	2 890	1 393	919	3 153	2 090
<i>Non-Annex I Parties</i>	2 732	189	1 333	409	361	801	418
<i>Annex I Kyoto Parties</i>	8 405	661	2 538	1 959	1 627	3 248	1 834
Non-OECD Total	2 879	222	1 363	419	346	876	492
OECD Total	9 833	661	2 510	2 749	2 417	3 913	1 999
Canada	15 434	2 100	3 706	4 691	3 768	4 937	2 092
Chile	3 836	207	1 683	1 221	1 060	725	420
Mexico	3 720	509	1 055	1 377	1 336	779	433
United States	16 895	1 026	3 376	5 265	4 562	7 229	3 593
OECD Americas	13 274	963	2 840	4 181	3 633	5 291	2 624
Australia	17 867	1 474	6 459	3 858	3 172	6 076	3 019
Israel	8 687	295	1 353	2 286	2 286	4 753	2 073
Japan	8 583	377	2 840	1 798	1 557	3 568	1 473
Korea	10 574	752	4 369	1 771	1 640	3 682	1 478
New Zealand	7 228	408	1 991	3 116	2 785	1 712	699
OECD Asia Oceania	9 998	562	3 456	2 056	1 797	3 924	1 656
Austria	7 578	751	2 045	2 665	2 474	2 116	1 356
Belgium	9 333	551	2 879	2 490	2 389	3 413	2 041
Czech Republic	10 454	685	3 644	1 817	1 608	4 308	2 477
Denmark	8 472	500	1 355	2 399	2 167	4 218	2 356
Estonia	10 942	442	2 186	1 615	1 469	6 699	3 763
Finland	10 303	707	3 715	2 315	2 096	3 567	1 909
France	5 494	295	1 082	1 942	1 830	2 174	1 191
Germany	9 163	414	2 701	1 911	1 722	4 137	2 512
Greece	7 996	435	1 615	2 196	1 844	3 750	1 937
Hungary	4 805	254	940	1 311	1 245	2 300	1 370
Iceland	6 256	-	1 929	2 686	2 436	1 641	33
Ireland	8 831	114	1 832	2 716	2 635	4 170	2 469
Italy	6 467	422	1 794	1 906	1 736	2 346	1 268
Luxembourg	20 098	-	3 041	12 321	12 238	4 736	2 856
Netherlands	10 656	904	3 566	2 027	1 938	4 158	1 746
Norway	7 730	2 391	1 558	2 798	2 049	984	264
Poland	7 516	579	1 940	1 229	1 132	3 768	2 310
Portugal	4 998	288	1 367	1 790	1 663	1 553	689
Slovak Republic	6 124	921	1 931	1 126	923	2 147	1 008
Slovenia	7 421	38	2 248	2 512	2 458	2 624	1 478
Spain	6 170	423	1 712	2 211	1 928	1 823	894
Sweden	4 485	302	1 012	2 283	2 172	889	397
Switzerland	5 438	133	864	2 205	2 153	2 236	1 452
Turkey	3 565	173	1 227	628	543	1 537	852
United Kingdom	7 538	569	1 707	2 008	1 789	3 255	2 155
OECD Europe	6 854	431	1 829	1 791	1 624	2 803	1 608
<i>European Union - 27</i>	7 148	449	1 894	1 878	1 710	2 927	1 683

* Emissions from electricity and heat generation have been allocated to final consuming sectors in proportion to the electricity and heat consumed. The detailed unallocated emissions are shown in the table on pages II.58-II.60.

** Includes emissions from own use in petroleum refining, the manufacture of solid fuels, coal mining, oil and gas extraction and other energy-producing industries.

*** World includes international bunkers in the transport sector.

Per capita emissions with electricity and heat allocated to consuming sectors in 2009

kg CO₂ / capita

	Total CO ₂ emissions from fuel combustion	Other energy industry own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Non-OECD Total	2 879	222	1 363	419	346	876	492
Algeria	2 651	319	571	868	796	894	894
Angola	698	15	177	293	254	214	100
Benin	465	-	18	312	311	135	131
Botswana	2 145	-	805	974	954	366	165
Cameroon	245	8	61	128	122	48	32
Congo	451	-	29	380	315	41	41
Dem. Rep. of Congo	43	-	15	10	10	18	5
Côte d'Ivoire	289	8	55	69	57	158	66
Egypt	2 113	150	684	491	453	788	493
Eritrea	93	-	16	22	22	54	28
Ethiopia	90	-	24	51	51	15	13
Gabon	1 149	29	509	238	237	374	241
Ghana	379	2	94	202	186	81	55
Kenya	252	13	72	98	94	68	46
Libyan Arab Jamahiriya	7 796	463	1 682	1 876	1 875	3 774	1 451
Morocco	1 291	29	373	378	358	510	262
Mozambique	98	1	20	66	60	11	5
Namibia	1 698	-	166	949	851	583	-
Nigeria	266	29	30	152	152	55	42
Senegal	420	2	110	154	147	153	84
South Africa	7 489	355	3 627	1 091	947	2 417	1 293
Sudan	314	12	53	177	176	72	47
United Rep. of Tanzania	143	1	31	79	79	31	28
Togo	170	-	13	132	132	24	23
Tunisia	1 991	13	658	454	436	867	388
Zambia	131	3	66	42	29	20	1
Zimbabwe	692	4	283	86	80	319	123
Other Africa	155	1	40	63	55	51	25
Africa	919	47	313	235	218	324	195
Bangladesh	312	1	150	46	35	115	77
Brunei Darussalam	20 302	4 650	6 699	2 776	2 776	6 176	2 888
Cambodia	288	-	28	75	74	184	128
Chinese Taipei	10 886	625	5 541	1 527	1 446	3 194	1 517
India	1 373	43	644	143	116	543	220
Indonesia	1 636	119	648	403	359	467	286
DPR of Korea	2 769	1	1 974	39	39	755	3
Malaysia	5 976	593	2 312	1 507	1 475	1 564	608
Mongolia	4 487	9	1 408	558	397	2 512	1 474
Myanmar	203	11	63	54	52	75	13
Nepal	116	-	27	59	59	31	13
Pakistan	807	10	324	189	184	285	196
Philippines	767	4	229	257	228	276	140
Singapore	8 988	1 907	2 511	1 741	1 637	2 829	895
Sri Lanka	623	8	147	275	242	193	106
Thailand	3 362	99	1 548	806	799	908	320
Vietnam	1 307	17	649	335	317	306	214
Other Asia	327	7	127	80	53	113	39
Asia	1 428	60	642	229	206	497	229
People's Rep. of China	5 131	348	3 250	374	271	1 159	640
Hong Kong, China	6 510	-	1 380	863	863	4 267	1 217
China	5 138	346	3 238	376	274	1 178	643

Per capita emissions with electricity and heat allocated to consuming sectors in 2009

kg CO₂ / capita

	Total CO ₂ emissions from fuel combustion	Other energy industry own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Bahrain	28 856	5 518	9 933	4 214	4 166	9 190	5 669
Islamic Rep. of Iran	7 314	455	2 257	1 566	1 552	3 036	2 005
Iraq	3 412	160	947	1 072	1 072	1 233	765
Jordan	3 227	124	773	853	849	1 477	818
Kuwait	28 881	6 063	4 250	4 153	4 153	14 415	9 461
Lebanon	4 577	-	919	1 194	1 194	2 464	1 632
Oman	13 690	2 592	3 430	1 985	1 985	5 683	3 326
Qatar	40 117	13 566	15 521	4 491	4 491	6 539	2 283
Saudi Arabia	16 166	2 861	3 856	3 961	3 881	5 487	3 534
Syrian Arab Republic	2 835	94	989	738	708	1 014	790
United Arab Emirates	31 973	422	14 988	5 514	5 514	11 049	5 411
Yemen	941	169	108	218	218	446	209
Middle East	7 758	849	2 296	1 691	1 671	2 922	1 822
Albania	855	41	226	428	379	160	48
Armenia	1 381	-	366	493	487	523	420
Azerbaijan	2 872	403	448	546	461	1 474	1 061
Belarus	6 291	488	2 258	641	431	2 903	1 817
Bosnia and Herzegovina	5 067	408	1 174	744	701	2 742	1 894
Bulgaria	5 564	468	1 743	1 086	985	2 268	1 365
Croatia	4 460	479	1 046	1 404	1 290	1 531	914
Cyprus	9 261	7	1 563	2 682	2 678	5 008	2 141
Georgia	1 333	69	249	540	476	474	302
Gibraltar	17 263	-	2 256	10 569	10 569	4 437	-
Kazakhstan	11 930	1 897	5 023	972	688	4 037	1 548
Kyrgyzstan	1 326	5	441	480	479	400	30
Latvia	2 994	-	506	1 223	1 097	1 265	641
Lithuania	3 709	617	839	1 238	1 150	1 015	586
FYR of Macedonia	4 083	130	1 163	623	601	2 168	1 421
Malta	5 893	-	1 548	1 103	1 103	3 242	1 600
Republic of Moldova	1 594	25	203	246	222	1 120	842
Romania	3 648	403	1 195	724	645	1 326	915
Russian Federation	10 800	1 260	3 863	1 801	964	3 877	2 606
Serbia	6 320	159	1 813	938	776	3 410	2 466
Tajikistan	398	-	30	38	38	329	15
Turkmenistan	9 544	1 799	1 002	820	482	5 924	416
Ukraine	5 573	293	2 632	672	446	1 975	1 604
Uzbekistan	4 047	166	1 018	355	193	2 508	1 307
Non-OECD Europe and Eurasia	7 456	812	2 621	1 156	712	2 866	1 813
Argentina	4 137	420	1 361	947	872	1 408	802
Bolivia	1 305	130	235	628	589	312	200
Brazil	1 744	145	566	759	682	273	124
Colombia	1 326	151	422	439	412	315	179
Costa Rica	1 370	14	237	953	951	166	60
Cuba	2 396	9	1 155	155	120	1 077	614
Dominican Republic	1 791	4	512	520	414	755	504
Ecuador	2 090	83	450	1 055	947	502	346
El Salvador	1 102	8	426	415	415	253	184
Guatemala	1 034	5	423	431	431	174	113
Haiti	236	-	60	129	70	47	35
Honduras	957	-	221	403	403	333	151
Jamaica	3 064	-	662	1 094	543	1 308	286
Netherlands Antilles	25 100	10 267	5 920	5 961	5 961	2 952	865
Nicaragua	735	8	163	268	268	296	112
Panama	2 100	-	530	876	465	695	276
Paraguay	639	-	16	594	586	30	30
Peru	1 322	96	474	500	479	252	132
Trinidad and Tobago	30 001	5 242	20 449	2 081	2 081	2 227	1 807
Uruguay	2 315	192	449	846	841	828	389
Venezuela	5 446	1 074	1 818	1 823	1 819	730	472
Other Latin America	4 466	2	591	1 310	1 159	2 562	567
Latin America	2 161	216	728	752	692	465	243

Electricity and heat output *

terawatt hours

	1990	1995	2000	2002	2003	2004	2005	2006	2007	2008	2009	% change 90-09
World	..	17 081.7	18 788.2	19 560.8	20 301.1	21 135.0	22 042.9	22 900.8	23 574.8	23 853.1	23 653.7	..
<i>Annex I Parties</i>	..	12 742.0	13 148.1	13 270.7	13 495.3	13 726.0	14 010.0	14 226.1	14 195.7	14 137.1	13 534.2	..
<i>Annex II Parties</i>	..	8 194.5	9 168.1	9 298.0	9 469.3	9 697.5	9 942.3	10 054.7	10 098.3	10 089.7	9 686.2	..
<i>North America</i>	..	4 241.0	4 731.4	4 741.2	4 757.6	4 825.0	4 975.7	5 051.9	5 129.0	5 141.6	4 921.4	..
<i>Europe</i>	2 547.0	2 779.4	3 131.6	3 232.5	3 399.1	3 517.6	3 580.8	3 609.9	3 541.7	3 564.4	3 412.5	34.0%
<i>Asia Oceania</i>	1 025.5	1 174.1	1 305.1	1 324.4	1 312.6	1 354.9	1 385.9	1 392.9	1 427.7	1 383.8	1 352.3	31.9%
<i>Annex I EIT</i>	..	4 459.6	3 848.7	3 836.4	3 878.9	3 870.4	3 893.6	3 981.7	3 891.5	3 834.8	3 638.7	..
<i>Non-Annex I Parties</i>	..	4 339.7	5 640.1	6 290.2	6 805.8	7 409.0	8 032.8	8 674.8	9 379.1	9 716.1	10 119.5	..
<i>Annex I Kyoto Parties</i>	..	8 875.3	8 797.4	8 899.2	9 084.4	9 243.1	9 386.5	9 498.1	9 405.6	9 326.2	8 912.1	..
Non-OECD Total	..	7 914.0	8 399.3	8 965.0	9 488.7	10 027.6	10 636.9	11 340.7	11 918.4	12 181.9	12 402.8	..
OECD Total	..	9 167.6	10 388.9	10 595.8	10 812.4	11 107.4	11 406.0	11 560.1	11 656.5	11 671.2	11 250.9	..
Canada	490.0	568.8	615.6	611.7	601.0	611.3	637.4	626.4	651.8	650.3	611.4	24.8%
Chile	18.4	28.0	40.1	43.7	46.8	51.2	52.5	55.3	58.5	59.7	60.7	230.5%
Mexico	115.8	152.2	204.2	215.9	213.7	232.6	243.8	249.5	257.2	261.9	261.0	125.3%
United States	..	3 672.2	4 115.8	4 129.5	4 156.5	4 213.7	4 338.3	4 425.5	4 477.2	4 491.2	4 310.0	..
OECD Americas	..	4 421.3	4 975.7	5 000.7	5 018.1	5 108.8	5 272.0	5 356.7	5 444.8	5 463.1	5 243.1	..
Australia	154.9	172.8	209.9	227.4	226.3	236.3	245.2	247.0	250.8	257.1	260.9	68.4%
Israel	20.9	30.4	42.7	45.5	47.0	47.3	48.6	50.6	53.8	57.0	55.0	163.2%
Japan	837.9	964.8	1 055.5	1 055.6	1 045.0	1 075.5	1 097.1	1 101.7	1 132.7	1 082.4	1 047.5	25.0%
Korea	105.4	190.8	327.4	369.9	382.4	418.1	441.3	454.8	481.1	499.9	504.6	378.9%
New Zealand	32.7	36.4	39.7	41.3	41.4	43.1	43.5	44.1	44.1	44.3	43.9	34.2%
OECD Asia Oceania	1 151.8	1 395.4	1 675.2	1 739.8	1 742.1	1 820.2	1 875.8	1 898.2	1 962.5	1 940.7	1 911.9	66.0%
Austria	57.2	66.1	73.2	73.8	72.3	77.1	80.7	78.5	79.1	82.7	84.8	48.3%
Belgium	73.0	76.3	89.2	87.3	90.0	90.9	91.9	93.9	95.6	92.3	98.7	35.2%
Czech Republic	105.3	109.4	111.6	115.6	123.7	123.9	120.6	120.1	123.6	119.2	115.5	9.6%
Denmark	51.7	69.8	69.2	74.6	82.4	76.5	71.9	81.0	73.9	72.1	72.7	40.7%
Estonia	46.2	17.4	16.0	16.1	17.4	17.8	17.6	17.2	19.4	17.6	15.6	-66.2%
Finland	78.5	91.2	104.8	115.1	131.6	133.1	115.9	137.7	134.6	129.9	123.1	56.9%
France	422.8	497.5	573.7	601.4	607.8	615.8	619.9	614.8	609.6	613.8	581.8	37.6%
Germany	672.2	648.5	660.1	669.8	799.8	810.9	839.8	854.0	759.8	764.5	717.1	6.7%
Greece	34.8	41.3	53.8	54.3	58.4	59.3	60.0	60.8	63.2	63.4	61.7	77.3%
Hungary	49.0	51.1	54.4	53.4	51.9	51.1	53.4	52.9	55.8	55.6	50.7	3.5%
Iceland	6.0	7.2	9.9	11.3	11.2	11.4	11.3	12.8	14.5	19.5	19.9	232.3%
Ireland	14.2	17.6	23.7	24.8	24.9	25.2	25.6	27.1	27.9	29.9	27.9	96.0%
Italy	213.1	237.4	269.9	277.5	286.3	348.4	350.5	365.7	365.0	368.6	338.6	58.8%
Luxembourg	0.6	0.5	0.4	2.8	2.8	3.4	3.4	3.6	3.3	2.8	3.2	418.0%
Netherlands	76.1	110.7	132.7	143.3	143.9	151.4	147.7	137.7	143.9	145.8	152.7	100.6%
Norway	123.4	124.2	141.9	133.2	110.1	113.6	140.8	124.9	140.1	145.3	136.4	10.5%
Poland	339.9	253.9	237.8	240.1	252.3	248.6	250.0	255.5	247.9	241.6	237.8	-30.0%
Portugal	28.7	33.6	44.9	48.0	49.1	47.8	50.0	52.4	50.8	49.2	53.9	88.0%
Slovak Republic	34.8	38.1	41.0	46.4	46.4	45.4	45.9	44.2	39.7	39.8	37.6	8.1%
Slovenia	14.7	15.4	16.2	17.1	16.5	18.0	17.9	17.8	17.5	19.0	18.9	28.5%
Spain	151.2	165.6	222.2	241.6	257.9	277.2	288.9	295.5	301.8	311.1	291.0	92.5%
Sweden	167.7	193.6	189.1	194.9	184.2	201.0	208.7	193.7	198.1	199.2	188.6	12.5%
Switzerland	58.1	65.9	70.2	69.7	69.9	68.5	62.6	67.1	71.2	72.0	71.6	23.2%
Turkey	57.5	86.2	129.4	134.2	144.8	155.9	171.8	187.4	203.6	210.2	207.1	259.9%
United Kingdom	317.8	332.5	402.7	408.9	416.6	406.1	411.3	408.6	409.3	402.4	388.7	22.3%
OECD Europe	3 194.5	3 351.0	3 738.1	3 855.3	4 052.2	4 178.4	4 258.2	4 305.2	4 249.2	4 267.4	4 095.8	28.2%
<i>European Union - 27</i>	..	3 338.3	3 589.2	3 711.3	3 923.2	4 030.9	4 073.5	4 116.3	4 016.6	4 020.8	3 852.9	..

* Includes electricity, CHP and heat from both main activity producer and autoproducer plants. Due to missing data for heat in 1990, the output for some countries and regions is not available.

Electricity and heat output

terawatt hours

	1990	1995	2000	2002	2003	2004	2005	2006	2007	2008	2009	% change 90-09
Non-OECD Total	..	7 914.0	8 399.3	8 965.0	9 488.7	10 027.6	10 636.9	11 340.7	11 918.4	12 181.9	12 402.8	..
Algeria	..	19.7	25.4	27.6	29.6	31.3	33.9	35.2	37.2	40.2	42.8	..
Angola	..	1.0	1.4	1.8	2.0	2.2	2.8	3.3	3.2	3.9	4.2	..
Benin	..	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	..
Botswana	..	1.0	0.9	0.9	0.7	0.8	0.9	0.8	0.7	0.6	0.4	..
Cameroon	..	2.8	3.5	3.3	3.7	4.1	4.0	5.1	5.2	5.6	5.7	..
Congo	..	0.4	0.3	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.5	..
Dem. Rep. of Congo	..	6.2	6.0	6.1	6.2	7.1	7.4	7.5	7.9	7.5	7.8	..
Côte d'Ivoire	..	2.9	4.8	5.3	5.1	5.5	5.7	5.7	5.6	5.8	5.9	..
Egypt	..	52.0	78.1	89.2	95.2	101.3	108.7	115.4	125.1	131.0	139.0	..
Eritrea	..	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	..
Ethiopia	..	1.5	1.7	2.0	2.3	2.5	2.8	3.3	3.5	3.8	4.1	..
Gabon	..	1.1	1.3	1.5	1.5	1.5	1.6	1.7	1.7	1.8	1.7	..
Ghana	..	6.1	7.2	7.3	5.9	6.0	6.8	8.4	7.0	8.3	9.0	..
Kenya	..	4.2	4.1	4.8	5.2	5.6	6.0	6.5	6.7	6.8	6.9	..
Libyan Arab Jamahiriya	..	11.4	15.5	17.5	18.9	20.2	22.3	24.0	25.7	28.7	30.4	..
Morocco	..	12.1	12.9	16.1	17.4	18.5	19.9	20.4	20.5	20.8	21.4	..
Mozambique	..	0.4	9.7	12.7	10.9	11.7	13.3	14.7	16.1	15.1	17.0	..
Namibia	..	1.2	1.3	1.4	1.6	1.6	1.6	1.5	1.7	2.1	1.7	..
Nigeria	..	15.9	14.7	21.5	20.2	24.3	23.5	23.1	23.0	21.1	19.8	..
Senegal	..	1.1	1.9	2.5	2.6	2.7	3.0	2.5	2.8	2.5	3.0	..
South Africa	..	186.6	207.8	215.7	231.2	240.9	242.1	250.9	260.5	255.5	246.8	..
Sudan	..	1.9	2.6	3.1	3.4	3.5	3.8	4.5	5.0	5.5	6.8	..
United Rep. of Tanzania	..	1.9	2.5	2.9	2.7	2.9	3.6	3.5	4.2	4.4	4.6	..
Togo	..	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	..
Tunisia	..	7.7	10.6	11.8	12.4	13.1	13.8	14.1	14.7	15.3	15.7	..
Zambia	..	7.9	7.8	8.2	8.3	8.5	8.9	9.9	9.8	9.7	10.3	..
Zimbabwe	..	7.8	7.0	8.6	8.8	9.7	10.3	8.5	8.5	8.0	7.9	..
Other Africa	..	8.9	11.9	12.7	13.1	13.9	14.3	14.3	15.3	16.0	15.9	..
Africa	..	364.2	441.5	485.4	509.7	540.5	561.9	585.9	612.6	621.3	629.8	..
Bangladesh	..	10.8	15.8	18.7	19.7	24.7	26.5	29.9	31.3	35.0	37.9	..
Brunei Darussalam	..	2.0	2.5	2.7	3.2	3.3	3.3	3.3	3.4	3.4	3.6	..
Cambodia	..	0.2	0.5	0.6	0.6	0.8	0.9	1.1	1.3	1.5	1.2	..
Chinese Taipei	..	129.1	180.6	195.2	205.2	215.1	223.5	231.6	239.2	234.9	226.4	..
India	..	417.6	561.2	597.3	634.0	666.6	698.2	753.2	813.9	843.3	899.4	..
Indonesia	..	59.3	93.4	108.3	114.1	121.3	127.8	132.7	140.9	148.4	155.5	..
DPR of Korea	..	23.0	19.4	19.8	21.0	22.0	22.9	22.4	21.5	23.2	21.1	..
Malaysia	..	45.5	69.2	74.2	78.5	82.0	84.8	89.8	97.5	97.4	105.1	..
Mongolia	..	10.6	11.0	11.2	11.5	12.4	12.6	12.8	12.8	13.2	13.9	..
Myanmar	..	4.1	5.1	5.1	5.4	5.6	6.0	6.2	6.4	6.6	5.9	..
Nepal	..	1.2	1.7	2.1	2.3	2.4	2.5	2.7	2.8	2.8	3.1	..
Pakistan	..	57.0	68.1	75.7	80.8	85.7	93.8	98.4	95.7	91.6	95.4	..
Philippines	..	33.6	45.3	48.5	52.9	56.0	56.6	56.8	59.6	60.8	61.9	..
Singapore	..	22.2	31.7	34.7	35.3	36.8	38.2	39.4	41.1	41.7	41.8	..
Sri Lanka	..	4.8	7.0	7.1	7.7	8.2	9.3	9.5	9.9	9.2	9.9	..
Thailand	..	80.4	96.0	109.0	117.0	125.7	132.2	138.7	143.4	147.4	148.4	..
Vietnam	..	14.6	26.6	35.8	40.9	46.0	53.5	60.5	66.9	73.0	83.2	..
Other Asia	..	8.9	13.4	15.0	15.7	16.1	16.4	18.1	20.2	20.5	21.5	..
Asia	..	924.8	1 248.4	1 360.9	1 445.9	1 530.6	1 609.1	1 707.2	1 807.8	1 854.1	1 935.0	..
People's Rep. of China	..	1 305.6	1 762.2	2 097.5	2 401.0	2 736.0	3 135.5	3 549.9	3 994.6	4 174.8	4 436.9	..
Hong Kong, China	..	27.9	31.3	34.3	35.5	37.1	38.5	38.6	39.0	38.0	38.7	..
China	..	1 333.5	1 793.5	2 131.8	2 436.5	2 773.1	3 173.9	3 588.5	4 033.6	4 212.8	4 475.6	..

Electricity and heat output

terawatt hours

	1990	1995	2000	2002	2003	2004	2005	2006	2007	2008	2009	% change 90-09
Bahrain	..	4.6	6.3	7.3	7.8	8.4	8.9	9.7	10.9	11.9	12.1	..
Islamic Republic of Iran	..	85.0	121.4	141.1	153.9	166.9	175.7	187.2	195.7	199.0	203.2	..
Iraq	..	29.0	31.9	33.9	28.3	32.3	30.4	31.9	33.2	36.8	46.1	..
Jordan	..	5.6	7.4	8.1	8.0	9.0	9.7	11.1	13.0	13.8	14.3	..
Kuwait	..	23.7	32.3	36.4	39.8	41.3	43.7	47.6	48.8	51.7	53.2	..
Lebanon	..	5.3	9.7	11.7	12.7	12.5	12.4	11.6	12.1	13.3	13.8	..
Oman	..	6.5	9.1	10.3	10.7	11.5	12.6	13.3	14.1	15.7	17.8	..
Qatar	..	6.0	9.1	10.9	12.0	13.2	14.4	17.1	19.5	21.6	24.8	..
Saudi Arabia	..	97.8	126.2	141.7	153.0	159.9	176.1	181.4	190.5	204.2	217.1	..
Syrian Arab Republic	..	16.6	25.2	28.0	29.5	32.1	34.9	37.3	38.6	41.0	43.3	..
United Arab Emirates	..	25.0	39.9	46.9	49.5	52.4	60.7	66.8	76.1	86.3	90.6	..
Yemen	..	2.4	3.4	3.8	4.1	4.4	4.8	5.4	6.0	6.5	6.7	..
Middle East	..	307.5	422.0	480.1	509.3	543.8	584.3	620.3	658.5	702.1	742.9	..
Albania	..	4.5	4.8	3.7	5.3	5.6	5.5	5.1	2.9	3.8	5.3	..
Armenia	..	6.5	6.8	6.0	5.9	6.4	6.8	6.5	6.6	6.3	5.9	..
Azerbaijan	..	28.4	23.4	25.6	27.8	28.1	27.5	30.1	27.7	28.4	23.3	..
Belarus	..	106.6	103.6	105.7	107.3	111.1	111.2	112.7	107.1	107.1	102.8	..
Bosnia and Herzegovina	..	4.4	10.8	11.2	11.7	13.2	13.0	13.8	12.3	13.7	17.2	..
Bulgaria	..	78.9	54.7	56.0	57.3	55.5	58.4	59.5	57.4	61.4	59.5	..
Croatia	..	12.5	13.8	15.5	16.2	16.7	16.1	15.6	15.3	15.5	15.9	..
Cyprus	..	2.5	3.4	3.8	4.1	4.2	4.4	4.7	4.9	5.1	5.2	..
Georgia	..	8.9	7.4	8.1	8.1	7.9	8.0	7.7	8.8	9.0	9.1	..
Gibraltar	..	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	..
Kazakhstan	..	163.0	130.2	150.6	163.4	168.8	174.1	168.6	185.2	190.4	187.3	..
Kyrgyzstan	..	17.2	18.7	15.2	17.5	18.4	18.5	19.1	18.4	14.6	13.9	..
Latvia	..	16.8	13.0	13.2	13.3	13.3	13.6	13.2	12.7	12.6	12.9	..
Lithuania	..	32.1	24.5	31.3	33.1	32.5	28.3	26.6	27.1	26.2	27.8	..
FYR of Macedonia	..	7.7	8.9	7.9	8.5	8.3	8.6	8.6	8.0	7.8	8.3	..
Malta	..	1.6	1.9	2.1	2.2	2.2	2.2	2.3	2.3	2.3	2.2	..
Qatar	..	10.2	5.4	5.1	5.3	7.2	7.7	8.0	7.6	7.1	6.6	..
Romania	..	139.0	104.9	98.2	97.0	94.1	94.9	97.0	92.3	92.9	84.6	..
Russian Federation	..	3 095.9	2 678.4	2 638.5	2 665.9	2 665.1	2 683.1	2 780.0	2 720.4	2 684.7	2 560.5	..
Serbia	..	39.8	39.0	40.9	41.3	45.0	50.0	48.8	48.5	46.5	47.0	..
Tajikistan	..	15.7	15.1	16.2	17.5	17.5	18.1	18.0	18.6	17.1	17.1	..
Turkmenistan	..	9.8	11.2	12.1	12.2	13.5	14.5	15.5	16.9	17.1	18.1	..
Ukraine	..	492.5	378.7	389.4	380.5	377.2	382.5	369.2	355.1	341.6	298.5	..
Uzbekistan	..	77.6	76.5	80.2	78.7	78.3	76.8	79.4	77.6	76.8	77.6	..
Non-OECD Europe and Eurasia	..	4 372.2	3 735.2	3 736.7	3 780.4	3 790.5	3 823.9	3 910.1	3 833.9	3 788.2	3 606.7	..
Argentina	..	67.0	88.9	84.5	92.0	100.2	105.5	115.0	115.1	121.4	121.9	..
Bolivia	..	3.0	3.9	4.2	4.3	4.5	4.9	5.3	5.7	5.8	6.1	..
Brazil	..	275.6	350.0	346.9	366.3	389.1	404.6	421.6	447.5	464.1	467.8	..
Colombia	..	42.7	43.2	45.1	46.6	49.8	50.4	53.9	55.3	56.0	57.3	..
Costa Rica	..	4.9	6.9	7.5	7.7	8.5	8.3	8.7	9.1	9.5	9.3	..
Cuba	..	12.5	15.0	15.7	15.8	15.6	15.3	16.5	17.6	17.7	17.7	..
Dominican Republic	..	5.5	8.5	12.5	13.3	11.8	12.6	13.8	14.4	15.2	15.0	..
Ecuador	..	8.4	10.6	11.9	11.5	12.6	12.2	13.9	16.3	18.3	17.2	..
El Salvador	..	3.3	3.4	4.1	4.4	4.4	4.8	5.6	5.8	6.0	5.8	..
Guatemala	..	3.4	6.0	6.2	7.1	7.5	7.8	8.2	8.8	8.7	9.0	..
Haiti	..	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.5	0.5	0.7	..
Honduras	..	2.7	3.7	4.1	4.5	4.9	5.6	6.0	6.3	6.5	6.6	..
Jamaica	..	5.8	6.6	6.9	7.1	7.2	7.4	7.5	7.8	6.0	5.5	..
Netherlands Antilles	..	1.0	1.1	1.1	1.2	1.2	1.2	1.2	1.3	1.2	1.3	..
Nicaragua	..	1.7	2.3	2.6	2.8	2.9	3.1	3.1	3.2	3.4	3.5	..
Panama	..	3.5	4.9	5.3	5.6	5.8	5.8	6.0	6.5	6.4	6.9	..
Paraguay	..	42.2	53.5	48.2	51.8	51.9	51.2	53.8	53.7	55.5	55.0	..
Peru	..	16.1	19.9	22.0	22.9	24.3	25.5	27.4	29.9	32.4	35.4	..
Trinidad and Tobago	..	4.3	5.5	5.6	6.4	6.4	7.1	6.9	7.7	7.7	7.7	..
Uruguay	..	6.3	7.6	9.6	8.6	5.9	7.7	5.6	9.4	8.8	8.9	..
Venezuela	..	73.4	85.3	91.9	91.8	98.6	105.5	112.4	114.3	119.3	123.4	..
Other Latin America	..	27.8	31.3	33.5	34.7	35.7	36.7	35.9	35.8	33.2	30.7	..
Latin America	..	611.8	758.6	770.1	807.0	849.2	883.7	928.6	972.0	1 003.5	1 012.7	..

CO₂ emissions per kWh from electricity and heat generation *grammes CO₂ / kilowatt hour

	1990	1995	2000	2002	2003	2004	2005	2006	2007	2008	2009	Average 07-09
World	..	470	485	486	495	500	500	503	508	504	500	504
<i>Annex I Parties</i>	..	418	427	425	428	421	419	413	420	411	393	408
<i>Annex II Parties</i>	..	459	455	452	454	448	444	434	442	427	407	425
<i>North America</i>	..	526	539	522	528	526	522	500	504	491	466	487
<i>Europe</i>	399	355	326	330	325	319	311	315	321	303	289	304
<i>Asia Oceania</i>	482	460	466	501	519	502	508	502	519	508	491	506
<i>Annex I EIT</i>	..	342	357	356	366	354	355	359	360	362	352	358
<i>Non-Annex I Parties</i>	..	621	621	615	627	645	641	649	642	641	643	642
<i>Annex I Kyoto Parties</i>	..	352	353	359	364	354	351	354	359	350	337	348
Non-OECD Total	..	469	510	517	533	549	553	564	565	570	573	569
OECD Total	..	470	466	460	461	455	451	442	451	436	420	435
Canada	203	184	222	216	229	214	200	201	197	188	167	184
Chile	457	267	349	279	295	322	318	304	408	411	373	398
Mexico	549	539	559	558	571	495	509	482	479	430	455	455
United States	..	579	586	567	571	571	570	542	549	535	508	531
OECD Americas	..	525	538	521	527	522	520	497	502	487	464	485
Australia	815	810	853	929	918	899	910	926	876	856	853	862
Israel	808	805	749	812	805	785	778	758	755	712	695	721
Japan	434	411	401	422	444	427	429	418	452	438	415	435
Korea	520	540	489	451	449	475	460	464	455	460	498	471
New Zealand	107	87	160	173	210	193	234	228	194	213	167	191
OECD Asia Oceania	491	478	478	499	511	503	504	500	510	502	499	503
Austria	245	214	180	197	233	224	219	213	200	185	163	183
Belgium	344	357	284	266	274	281	271	260	250	249	218	239
Czech Republic	596	600	595	560	523	524	524	526	550	537	514	534
Denmark	477	435	348	341	366	317	293	353	324	305	303	311
Estonia	561	679	692	662	717	701	710	652	748	752	704	735
Finland	227	247	211	252	292	253	193	241	230	187	205	207
France	109	76	84	77	81	79	93	87	90	87	90	89
Germany	553	522	494	508	434	436	406	404	468	441	430	447
Greece	990	946	817	814	778	776	776	727	749	745	722	739
Hungary	420	432	401	391	425	392	341	344	346	331	302	326
Iceland	1	2	1	1	1	1	1	1	1	1	0	1
Ireland	740	727	642	635	603	574	582	545	504	478	465	482
Italy	575	545	498	503	511	459	449	468	440	421	386	416
Luxembourg	2 552	1 738	517	401	403	394	389	387	380	382	384	382
Netherlands	588	464	400	401	406	396	387	394	400	392	374	389
Norway	3	4	4	5	8	7	6	7	7	6	17	10
Poland	641	671	671	656	655	656	650	657	659	656	640	652
Portugal	516	572	480	512	413	451	501	418	385	384	368	379
Slovak Republic	376	375	267	215	255	240	229	223	229	218	222	223
Slovenia	360	328	338	371	367	341	345	355	367	329	316	337
Spain	427	453	430	434	378	382	397	369	387	327	299	337
Sweden	48	50	42	52	59	51	44	48	40	40	43	41
Switzerland	35	34	36	39	39	40	46	45	41	40	40	40
Turkey	568	512	519	472	444	419	426	438	478	495	480	484
United Kingdom	672	529	461	460	478	486	485	507	499	490	450	480
OECD Europe	437	394	364	363	358	351	343	348	357	340	326	341
<i>European Union - 27</i>	..	414	381	380	374	366	358	362	373	355	339	356

* CO₂ emissions from fossil fuels consumed for electricity, combined heat and power and main activity heat plants divided by the output of electricity and heat generated from fossil fuels, nuclear, hydro (excl. pumped storage), geothermal, solar and biofuels. Both main activity producers and autoproducers have been included in the calculation of the emissions. Due to missing data for heat in 1990, the ratio for some countries and regions is not available.

CO₂ emissions per kWh from electricity and heat generationgrammes CO₂ / kilowatt hour

	1990	1995	2000	2002	2003	2004	2005	2006	2007	2008	2009	Average 07-09
Non-OECD Total	..	469	510	517	533	549	553	564	565	570	573	569
Algeria	..	633	620	632	632	632	606	621	597	596	576	590
Angola	..	177	382	354	373	213	201	191	221	200	237	220
Benin	..	951	601	1 101	752	740	709	716	671	688	725	695
Botswana	..	1 800	1 876	1 565	2 029	2 190	2 073	2 134	1 748	1 936	2 063	1 916
Cameroon	..	10	10	27	31	28	40	83	223	218	243	228
Congo	..	9	-	-	82	97	103	102	102	108	207	139
Dem. Rep. of Congo	..	4	1	1	1	1	1	2	3	4	3	3
Côte d'Ivoire	..	275	379	409	384	356	457	385	409	449	426	428
Egypt	..	443	412	437	432	473	474	473	450	460	466	459
Eritrea	..	1 463	698	646	694	711	666	679	655	669	672	665
Ethiopia	..	42	11	8	6	6	3	3	44	119	118	94
Gabon	..	255	326	291	315	328	383	348	424	350	322	366
Ghana	..	3	66	255	277	84	147	276	360	215	187	254
Kenya	..	73	445	187	141	216	246	258	247	321	395	321
Libyan Arab Jamahiriya	..	1 131	1 022	971	978	888	907	879	846	885	872	868
Morocco	..	875	763	766	736	754	739	729	714	718	638	690
Mozambique	..	64	5	3	3	3	1	1	1	0	1	0
Namibia	..	37	5	-	13	1	29	95	100	424	237	253
Nigeria	..	371	338	359	330	362	359	385	385	386	416	396
Senegal	..	881	782	645	520	555	634	726	605	563	614	594
South Africa	..	878	893	819	849	871	851	832	827	948	926	900
Sudan	..	465	508	592	603	612	546	559	554	500	356	470
United Rep. of Tanzania	..	284	192	57	51	121	361	431	248	242	281	257
Togo	..	185	561	333	216	442	352	459	404	206	202	271
Tunisia	..	588	574	564	554	532	476	546	557	545	538	547
Zambia	..	7	7	7	7	6	6	5	3	3	3	3
Zimbabwe	..	920	740	717	515	572	572	658	618	619	619	619
Other Africa	..	303	361	439	448	437	449	493	479	495	494	489
Africa	..	685	658	618	633	644	631	625	615	666	643	641
Bangladesh	..	601	556	603	574	546	553	574	567	574	585	575
Brunei Darussalam	..	880	795	818	780	782	762	802	703	755	755	738
Cambodia	..	1 816	1 798	1 970	1 880	1 301	1 205	1 141	1 152	1 160	1 151	1 154
Chinese Taipei	..	533	626	631	651	646	651	659	655	650	635	647
India	..	901	920	907	892	931	923	921	943	954	951	950
Indonesia	..	591	653	678	719	701	716	738	775	752	746	757
DPR of Korea	..	481	584	568	542	528	522	533	469	481	499	483
Malaysia	..	524	476	547	492	538	605	607	611	656	649	638
Mongolia	..	610	587	613	554	526	533	523	563	539	535	546
Myanmar	..	508	457	376	426	414	365	296	280	272	196	249
Nepal	..	26	12	2	1	6	7	5	4	4	4	4
Pakistan	..	405	479	443	371	397	380	413	433	451	458	447
Philippines	..	457	494	449	453	452	495	433	448	487	478	471
Singapore	..	916	762	664	597	566	543	530	528	521	519	523
Sri Lanka	..	51	448	470	488	513	476	335	394	420	460	425
Thailand	..	603	567	548	536	543	535	511	546	529	513	530
Vietnam	..	301	427	430	381	413	412	448	430	413	384	409
Other Asia	..	257	258	325	345	362	353	310	285	268	268	274
Asia	..	699	726	717	704	721	721	722	742	748	745	745
People's Rep. of China	..	803	765	748	776	805	787	787	758	744	743	748
Hong Kong, China	..	855	712	725	795	749	755	754	775	757	763	765
China	..	804	764	748	776	804	787	787	758	744	743	748

CO₂ emissions per kWh from electricity and heat generationgrammes CO₂ / kilowatt hour

	1990	1995	2000	2002	2003	2004	2005	2006	2007	2008	2009	Average 07-09
Bahrain	..	815	868	835	883	881	873	824	837	651	665	718
Islamic Republic of Iran	..	606	574	565	529	542	548	566	570	627	630	609
Iraq	..	698	731	751	787	811	745	694	817	691	684	731
Jordan	..	834	708	740	680	682	660	626	587	589	581	586
Kuwait	..	578	780	849	721	727	799	786	782	778	870	810
Lebanon	..	678	737	726	675	599	591	706	662	715	717	698
Oman	..	830	795	829	853	885	861	887	876	858	842	859
Qatar	..	1 131	771	782	779	649	618	617	565	534	494	531
Saudi Arabia	..	813	805	751	737	754	739	749	726	736	757	740
Syrian Arab Republic	..	586	567	585	565	568	621	637	652	654	641	649
United Arab Emirates	..	737	728	764	805	913	844	820	720	729	631	694
Yemen	..	946	930	919	884	874	841	781	679	636	630	649
Middle East	..	714	707	700	677	693	688	692	679	691	690	687
Albania	..	37	51	57	28	28	32	33	45	14	11	23
Armenia	..	214	236	153	148	120	138	138	163	165	108	145
Azerbaijan	..	504	648	490	523	547	528	557	488	455	443	462
Belarus	..	322	306	297	292	301	296	296	293	303	302	300
Bosnia and Herzegovina	..	176	807	836	860	755	781	833	977	971	776	908
Bulgaria	..	428	431	433	470	473	449	444	519	493	463	492
Croatia	..	272	303	357	380	300	314	320	385	341	283	337
Cyprus	..	822	838	756	833	772	788	758	761	759	744	755
Georgia	..	599	225	75	79	104	110	150	164	88	129	127
Gibraltar	..	766	760	760	755	766	761	771	771	757	740	756
Kazakhstan	..	448	497	477	474	455	449	570	489	485	480	485
Kyrgyzstan	..	127	106	106	94	90	82	79	86	94	81	87
Latvia	..	239	200	188	182	166	162	167	164	162	153	160
Lithuania	..	174	160	123	114	114	136	138	121	115	111	116
FYR of Macedonia	..	776	676	718	705	702	696	693	762	787	710	753
Malta	..	957	819	934	946	913	1 034	954	1 012	849	850	904
Qatar	..	514	739	738	755	515	519	476	507	477	400	461
Romania	..	440	396	412	451	418	403	439	453	440	414	436
Russian Federation	..	292	321	327	329	325	325	329	322	326	317	322
Serbia	..	900	807	795	825	781	646	699	636	668	680	662
Tajikistan	..	36	38	28	29	33	32	33	32	32	29	31
Turkmenistan	..	931	795	795	795	795	795	795	795	844	789	810
Ukraine	..	383	347	325	381	316	331	346	360	386	374	373
Uzbekistan	..	433	480	478	473	468	471	467	482	444	461	462
Non-OECD Europe and Eurasia	..	326	344	345	354	342	343	353	349	353	344	349
Argentina	..	273	338	258	275	308	313	311	352	366	355	358
Bolivia	..	400	314	259	318	295	329	326	334	375	393	368
Brazil	..	55	88	85	79	85	84	81	73	89	64	75
Colombia	..	205	160	154	152	117	131	127	127	107	175	136
Costa Rica	..	155	8	15	19	7	26	47	72	63	40	58
Cuba	..	870	678	772	794	800	813	752	734	719	752	735
Dominican Republic	..	876	759	675	700	704	649	668	675	634	591	633
Ecuador	..	314	215	281	299	313	391	455	345	267	290	301
El Salvador	..	391	324	356	340	316	362	361	319	274	319	304
Guatemala	..	306	392	484	435	323	299	345	369	343	349	354
Haiti	..	327	346	399	320	301	307	305	511	480	547	513
Honduras	..	326	281	287	352	452	412	267	418	409	344	391
Jamaica	..	888	824	806	822	618	572	400	400	491	544	478
Netherlands Antilles	..	714	714	714	714	713	711	710	708	707	707	707
Nicaragua	..	508	614	568	543	536	481	522	533	480	506	506
Panama	..	317	231	270	356	266	275	310	317	273	302	297
Paraguay	..	2	-	-	-	-	-	-	-	-	-	-
Peru	..	186	154	146	152	212	209	183	199	240	236	225
Trinidad and Tobago	..	711	685	767	753	751	759	753	753	704	719	725
Uruguay	..	53	57	4	2	151	103	296	104	307	253	221
Venezuela	..	219	191	266	265	222	208	222	207	203	199	203
Other Latin America	..	213	207	221	224	215	214	222	226	250	249	242
Latin America	..	167	173	179	180	178	178	178	176	184	175	178

CO₂ emissions per kWh from electricity and heat generation using coal/peat *grammes CO₂ / kilowatt hour

	1990	1995	2000	2002	2003	2004	2005	2006	2007	2008	2009	Average 07-09
World	..	881	878	879	888	909	908	911	902	901	901	901
<i>Annex I Parties</i>	..	837	836	848	852	855	864	866	872	854	851	859
<i>Annex II Parties</i>	..	922	905	916	908	911	905	906	911	895	892	899
<i>North America</i>	..	941	917	919	918	922	913	903	917	897	896	903
<i>Europe</i>	858	857	842	863	841	847	846	869	864	854	842	853
<i>Asia Oceania</i>	1 019	972	963	1 002	985	973	967	981	965	949	947	954
<i>Annex I EIT</i>	..	613	612	625	663	658	709	718	723	700	699	707
<i>Non-Annex I Parties</i>	..	982	954	927	939	978	958	958	931	943	940	938
<i>Annex I Kyoto Parties</i>	..	755	761	784	795	797	819	831	827	806	804	813
Non-OECD Total	..	846	856	854	881	919	922	924	906	912	913	910
OECD Total	..	907	895	901	895	899	893	895	898	885	883	889
Canada	1 010	992	934	890	915	958	898	921	851	812	807	824
Chile	1 035	890	1 005	1 180	1 167	850	923	866	875	958	873	902
Mexico	921	1 110	1 046	1 054	1 011	992	974	963	957	1 001	970	976
United States	..	938	916	921	918	921	914	902	920	901	900	907
OECD Americas	..	942	919	921	920	923	914	904	917	898	897	904
Australia	944	933	964	1 092	1 070	1 046	1 053	1 076	1 010	993	993	999
Israel	844	823	827	836	838	830	830	834	836	837	838	837
Japan	1 099	1 006	961	940	930	925	911	917	933	917	912	921
Korea	2 017	1 250	1 005	890	943	987	971	980	902	896	921	906
New Zealand	901	793	1 319	1 234	1 113	1 094	1 045	1 076	1 154	1 054	1 123	1 110
OECD Asia Oceania	1 078	1 001	965	966	967	969	961	973	942	929	934	935
Austria	866	922	845	880	864	925	941	956	1 003	945	963	970
Belgium	990	1 024	992	1 088	1 092	1 136	1 180	1 237	1 301	1 438	1 131	1 290
Czech Republic	733	774	774	778	764	780	769	777	801	794	787	794
Denmark	577	554	519	538	600	556	536	602	588	566	557	570
Estonia	742	913	963	910	928	951	988	907	989	1 031	1 019	1 013
Finland	504	536	546	572	622	613	532	590	578	550	534	554
France	1 053	1 111	938	919	886	905	898	931	938	942	815	899
Germany	826	854	814	871	820	818	805	840	841	827	841	836
Greece	1 137	1 126	986	987	989	1 006	1 000	1 007	983	1 000	991	991
Hungary	867	860	838	940	955	987	962	916	915	925	976	939
Iceland	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	917	923	898	912	908	877	868	866	830	838	882	850
Italy	963	987	974	976	967	967	988	1 161	1 004	1 015	961	993
Luxembourg	3 170	3 701	-	-	-	-	-	-	-	-	-	-
Netherlands	859	817	789	801	798	791	788	756	774	777	753	768
Norway	1 100	574	612	663	664	701	772	783	769	872	843	828
Poland	665	682	689	679	679	683	685	691	697	701	697	698
Portugal	886	854	865	842	838	843	857	859	849	848	853	850
Slovak Republic	745	795	760	788	838	778	786	790	783	786	780	783
Slovenia	863	726	838	877	839	839	826	841	860	843	833	845
Spain	936	911	917	912	910	891	886	901	943	901	920	921
Sweden	467	473	638	608	611	584	637	618	620	599	581	600
Switzerland	495	908	-	-	-	-	-	-	-	-	-	-
Turkey	1 199	1 132	1 080	1 102	1 068	1 045	916	1 015	1 037	1 037	1 021	1 032
United Kingdom	910	880	906	890	901	930	934	926	928	917	910	918
OECD Europe	809	822	816	829	813	819	815	835	838	832	821	830
<i>European Union - 27</i>	..	818	809	823	809	816	815	832	833	825	814	824

* CO₂ emissions from coal consumed for electricity, combined heat and power and main activity heat plants divided by output of electricity and heat generated from coal. Both main activity producers and autoproducers have been included in the calculation of the emissions. Due to missing data for heat in 1990, the ratio for some countries and regions is not available.

CO₂ emissions per kWh from electricity and heat generation using coal/peatgrammes CO₂ / kilowatt hour

	1990	1995	2000	2002	2003	2004	2005	2006	2007	2008	2009	Average 07-09
Non-OECD Total	..	846	856	854	881	919	922	924	906	912	913	910
Algeria	..	-	-	-	-	-	-	-	-	-	-	-
Angola	..	-	-	-	-	-	-	-	-	-	-	-
Benin	..	-	-	-	-	-	-	-	-	-	-	-
Botswana	..	1 815	1 900	1 581	2 068	2 268	2 081	2 142	1 755	1 936	2 063	1 918
Cameroon	..	-	-	-	-	-	-	-	-	-	-	-
Congo	..	-	-	-	-	-	-	-	-	-	-	-
Dem. Rep. of Congo	..	-	-	-	-	-	-	-	-	-	-	-
Côte d'Ivoire	..	-	-	-	-	-	-	-	-	-	-	-
Egypt	..	-	-	-	-	-	-	-	-	-	-	-
Eritrea	..	-	-	-	-	-	-	-	-	-	-	-
Ethiopia	..	-	-	-	-	-	-	-	-	-	-	-
Gabon	..	-	-	-	-	-	-	-	-	-	-	-
Ghana	..	-	-	-	-	-	-	-	-	-	-	-
Kenya	..	-	-	-	-	-	-	-	-	-	-	-
Libyan Arab Jamahiriya	..	-	-	-	-	-	-	-	-	-	-	-
Morocco	..	912	839	821	817	814	822	831	840	862	832	845
Mozambique	..	-	-	-	-	-	-	-	-	-	-	-
Namibia	..	1 346	1 262	-	1 403	2 104	1 503	1 388	1 339	1 333	1 336	1 336
Nigeria	..	-	-	-	-	-	-	-	-	-	-	-
Senegal	..	-	-	-	-	-	-	-	-	-	-	-
South Africa	..	938	960	879	902	927	900	878	870	1 005	984	953
Sudan	..	-	-	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	..	1 116	1 107	1 116	1 114	1 113	1 111	1 106	1 101	1 105	1 110	1 105
Togo	..	-	-	-	-	-	-	-	-	-	-	-
Tunisia	..	-	-	-	-	-	-	-	-	-	-	-
Zambia	..	1 718	1 636	1 527	1 575	1 527	1 575	1 636	2 290	2 290	2 290	2 290
Zimbabwe	..	1 287	1 383	1 287	1 311	1 321	1 321	1 321	1 322	1 321	1 321	1 321
Other Africa	..	956	955	955	955	955	955	955	956	956	956	956
Africa	..	952	966	888	908	932	908	887	878	1 006	984	956
Bangladesh	..	-	-	-	-	-	1 405	1 391	1 390	1 390	1 390	1 390
Brunei Darussalam	..	-	-	-	-	-	-	-	-	-	-	-
Cambodia	..	-	-	-	-	-	-	-	-	-	-	-
Chinese Taipei	..	854	944	923	924	923	929	938	935	949	928	937
India	..	1 177	1 177	1 136	1 145	1 207	1 227	1 230	1 275	1 264	1 246	1 261
Indonesia	..	941	974	966	1 025	983	1 023	998	1 051	1 078	1 068	1 066
DPR of Korea	..	1 253	1 217	1 208	1 208	1 208	1 208	1 208	1 208	1 208	1 208	1 208
Malaysia	..	856	975	856	1 083	1 076	1 076	1 076	1 076	1 196	1 076	1 116
Mongolia	..	613	586	612	552	523	530	519	559	534	530	541
Myanmar	..	-	-	-	-	-	-	-	-	-	-	-
Nepal	..	-	-	-	-	-	-	-	-	-	-	-
Pakistan	..	1 581	1 491	1 628	1 920	2 053	2 316	2 616	2 636	2 137	2 363	2 379
Philippines	..	1 436	970	912	952	917	1 158	1 038	1 008	1 237	1 152	1 132
Singapore	..	-	-	-	-	-	-	-	-	-	-	-
Sri Lanka	..	-	-	-	-	-	-	-	-	-	-	-
Thailand	..	984	964	977	1 006	1 005	988	818	982	951	937	957
Vietnam	..	1 415	1 479	1 240	958	961	991	991	988	988	987	988
Other Asia	..	-	980	982	982	982	980	980	981	980	981	981
Asia	..	1 108	1 107	1 069	1 080	1 115	1 136	1 131	1 168	1 177	1 158	1 168
People's Rep. of China	..	987	911	902	918	969	938	931	893	900	900	898
Hong Kong, China	..	856	869	880	890	881	881	888	891	898	888	892
China	..	984	911	902	917	968	937	930	893	900	900	898

CO₂ emissions per kWh from electricity and heat generation using coal/peatgrammes CO₂ / kilowatt hour

	1990	1995	2000	2002	2003	2004	2005	2006	2007	2008	2009	Average 07-09
Bahrain	..	-	-	-	-	-	-	-	-	-	-	-
Islamic Republic of Iran	..	-	2 650	2 668	2 892	2 779	2 774	2 789	2 904	3 296	3 355	3 185
Iraq	..	-	-	-	-	-	-	-	-	-	-	-
Jordan	..	-	-	-	-	-	-	-	-	-	-	-
Kuwait	..	-	-	-	-	-	-	-	-	-	-	-
Lebanon	..	-	-	-	-	-	-	-	-	-	-	-
Oman	..	-	-	-	-	-	-	-	-	-	-	-
Qatar	..	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	..	-	-	-	-	-	-	-	-	-	-	-
Syrian Arab Republic	..	-	-	-	-	-	-	-	-	-	-	-
United Arab Emirates	..	-	-	-	-	-	-	-	-	-	-	-
Yemen	..	-	-	-	-	-	-	-	-	-	-	-
Middle East	..	-	2 650	2 668	2 892	2 779	2 774	2 789	2 904	3 296	3 355	3 185
Albania	..	-	920	-	-	-	-	-	-	-	-	-
Armenia	..	-	-	-	-	-	-	-	-	-	-	-
Azerbaijan	..	-	-	-	-	-	-	-	-	-	-	-
Belarus	..	474	424	488	499	530	484	488	488	491	488	489
Bosnia and Herzegovina	..	977	1 615	1 686	1 479	1 463	1 532	1 532	1 531	1 531	1 283	1 449
Bulgaria	..	887	853	870	897	941	959	937	897	856	870	874
Croatia	..	1 037	895	908	860	914	894	860	859	858	882	866
Cyprus	..	-	-	-	-	-	-	-	-	-	-	-
Georgia	..	1 300	-	-	-	-	-	-	-	-	-	-
Gibraltar	..	-	-	-	-	-	-	-	-	-	-	-
Kazakhstan	..	450	496	480	480	469	448	585	494	494	488	492
Kyrgyzstan	..	517	527	508	668	608	474	475	470	506	439	472
Latvia	..	520	700	567	528	485	510	460	478	479	529	495
Lithuania	..	526	468	488	517	463	449	473	499	484	469	484
FYR of Macedonia	..	992	950	958	1 005	1 012	997	1 030	1 046	1 041	980	1 022
Malta	..	1 382	-	-	-	-	-	-	-	-	-	-
Qatar	..	804	1 012	1 058	1 013	398	398	455	415	457	560	477
Romania	..	861	824	831	824	845	829	883	920	933	912	922
Russian Federation	..	471	501	523	565	558	632	645	633	597	596	609
Serbia	..	1 568	1 367	1 335	1 277	1 255	1 091	1 125	1 024	1 030	1 038	1 031
Tajikistan	..	-	-	-	-	-	-	-	-	-	-	-
Turkmenistan	..	-	-	-	-	-	-	-	-	-	-	-
Ukraine	..	1 222	1 042	953	1 116	1 084	1 153	1 082	1 082	1 078	1 051	1 070
Uzbekistan	..	1 140	1 121	1 121	1 120	1 120	1 121	1 120	1 121	1 120	1 121	1 121
Non-OECD Europe and Eurasia	..	576	582	595	637	624	674	714	689	665	661	672
Argentina	..	2 026	1 246	1 945	1 709	1 420	1 372	1 229	1 149	1 137	1 130	1 139
Bolivia	..	-	-	-	-	-	-	-	-	-	-	-
Brazil	..	1 542	1 464	1 511	1 566	1 450	1 580	1 611	1 464	1 353	1 456	1 424
Colombia	..	1 167	1 091	1 204	1 200	1 124	1 140	1 063	948	1 048	1 105	1 034
Costa Rica	..	-	-	-	-	-	-	-	-	-	-	-
Cuba	..	-	-	-	-	-	-	-	-	-	-	-
Dominican Republic	..	952	955	954	954	954	954	953	954	953	954	954
Ecuador	..	-	-	-	-	-	-	-	-	-	-	-
El Salvador	..	-	-	-	-	-	-	-	-	-	-	-
Guatemala	..	-	954	954	954	954	953	953	953	954	954	954
Haiti	..	-	-	-	-	-	-	-	-	-	-	-
Honduras	..	-	-	-	-	-	-	-	-	-	-	-
Jamaica	..	-	-	-	-	-	-	-	-	-	-	-
Netherlands Antilles	..	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	..	-	-	-	-	-	-	-	-	-	-	-
Panama	..	-	-	-	-	-	-	-	-	-	-	-
Paraguay	..	-	-	-	-	-	-	-	-	-	-	-
Peru	..	-	1 112	1 112	1 112	1 112	1 112	1 112	1 113	1 112	1 113	1 113
Trinidad and Tobago	..	-	-	-	-	-	-	-	-	-	-	-
Uruguay	..	-	-	-	-	-	-	-	-	-	-	-
Venezuela	..	-	-	-	-	-	-	-	-	-	-	-
Other Latin America	..	-	-	-	-	-	-	-	-	-	-	-
Latin America	..	1 475	1 359	1 407	1 370	1 312	1 395	1 367	1 251	1 220	1 258	1 243

CO₂ emissions per kWh from electricity and heat generation using oil *grammes CO₂ / kilowatt hour

	1990	1995	2000	2002	2003	2004	2005	2006	2007	2008	2009	Average 07-09
World	..	587	655	651	656	654	669	658	659	663	677	666
<i>Annex I Parties</i>	..	488	575	563	577	580	590	551	564	555	531	550
<i>Annex II Parties</i>	..	606	660	633	650	642	656	616	622	608	593	608
<i>North America</i>	..	506	789	743	741	761	738	752	718	691	679	696
<i>Europe</i>	635	611	589	571	591	556	610	552	596	602	580	593
<i>Asia Oceania</i>	633	654	635	622	617	611	616	598	587	569	546	567
<i>Annex I EIT</i>	..	355	403	409	401	405	400	393	390	395	396	393
<i>Non-Annex I Parties</i>	..	746	729	732	733	717	735	735	722	727	756	735
<i>Annex I Kyoto Parties</i>	..	487	527	528	533	525	545	516	537	536	515	529
Non-OECD Total	..	557	649	661	654	671	684	686	686	699	715	700
OECD Total	..	630	662	639	659	633	649	614	616	600	595	604
Canada	701	624	613	688	704	668	685	940	929	984	1 024	979
Chile	849	1 550	938	1 059	1 142	1 110	1 088	1 073	686	618	647	651
Mexico	781	770	780	822	991	744	780	754	761	731	758	750
United States	..	491	811	750	747	777	744	731	693	652	631	659
OECD Americas	..	611	786	775	806	760	755	758	729	697	704	710
Australia	832	898	912	722	749	957	787	781	881	835	832	849
Israel	772	777	578	730	695	707	685	723	705	703	712	707
Japan	630	651	631	620	615	607	613	594	583	563	537	561
Korea	765	682	482	410	400	404	420	415	407	344	412	388
New Zealand	2 343	857	-	-	781	911	781	679	-	734	694	714
OECD Asia Oceania	647	664	592	575	567	552	565	548	547	526	510	528
Austria	500	422	383	378	418	423	401	395	408	434	428	423
Belgium	403	341	729	511	825	828	747	736	719	574	669	654
Czech Republic	430	351	550	456	440	406	398	406	414	433	473	440
Denmark	414	550	624	531	408	401	390	394	425	400	397	407
Estonia	341	349	365	402	402	361	369	372	403	423	373	399
Finland	341	323	322	332	350	341	344	340	334	337	328	333
France	603	506	238	191	275	320	585	521	530	546	480	519
Germany	497	363	438	473	496	376	718	411	606	589	597	597
Greece	746	737	731	743	749	721	714	694	731	753	763	749
Hungary	457	574	599	555	574	779	751	827	904	745	455	701
Iceland	520	490	296	270	270	781	624	781	493	509	744	582
Ireland	756	736	696	759	826	766	740	814	650	650	752	684
Italy	672	663	704	640	690	627	607	609	610	606	547	588
Luxembourg	1 021	1 226	-	-	-	-	-	-	-	-	-	-
Netherlands	693	532	560	391	389	390	383	403	389	381	357	376
Norway	1 640	1 035	400	281	316	346	401	326	448	452	377	426
Poland	385	451	463	456	456	484	454	460	450	447	435	444
Portugal	693	720	594	621	617	597	601	564	557	563	520	547
Slovak Republic	381	753	757	414	410	382	400	403	386	408	398	397
Slovenia	449	973	477	494	436	439	437	396	535	397	399	444
Spain	802	795	630	654	645	660	696	603	723	718	681	707
Sweden	297	301	333	316	324	345	329	333	338	336	411	362
Switzerland	498	542	343	339	336	327	357	352	383	348	342	358
Turkey	899	951	852	672	668	688	654	740	675	714	771	720
United Kingdom	660	672	431	553	641	668	585	527	677	715	1 147	846
OECD Europe	604	609	597	571	588	558	604	553	594	602	578	591
<i>European Union - 27</i>	..	560	572	558	580	554	603	552	598	600	573	590

* CO₂ emissions from oil consumed for electricity, combined heat and power and main activity heat plants divided by output of electricity and heat generated from oil. Both main activity producers and autoproducers have been included in the calculation of the emissions. Due to missing data for heat in 1990, the ratio for some countries and regions is not available.

CO₂ emissions per kWh from electricity and heat generation using oilgrammes CO₂ / kilowatt hour

	1990	1995	2000	2002	2003	2004	2005	2006	2007	2008	2009	Average 07-09
Non-OECD Total	..	557	649	661	654	671	684	686	686	699	715	700
Algeria	..	1 178	863	968	864	869	948	961	916	914	911	914
Angola	..	2 835	1 037	1 004	986	985	986	985	990	989	992	990
Benin	..	951	616	1 137	771	749	716	716	671	688	725	695
Botswana	..	1 054	1 051	1 085	1 085	1 055	1 026	1 026	1 026	-	-	1 026
Cameroon	..	893	919	753	733	600	698	739	705	739	700	715
Congo	..	1 587	-	-	-	-	-	-	-	-	-	-
Dem. Rep. of Congo	..	1 219	1 058	794	907	794	907	1 058	907	747	1 058	904
Côte d'Ivoire	..	692	970	970	1 042	718	933	968	1 037	1 047	907	997
Egypt	..	808	548	693	645	778	810	743	621	632	606	620
Eritrea	..	1 463	702	649	696	713	668	684	659	674	676	670
Ethiopia	..	641	828	756	794	882	794	953	960	959	956	958
Gabon	..	803	777	680	677	681	699	709	689	659	660	670
Ghana	..	836	772	824	811	665	860	827	772	842	803	806
Kenya	..	730	858	889	896	895	895	896	897	896	896	896
Libyan Arab Jamahiriya	..	1 290	1 144	1 089	1 067	943	1 003	1 078	1 077	1 087	1 087	1 084
Morocco	..	932	741	809	797	915	872	832	740	768	731	746
Mozambique	..	907	1 058	1 027	840	814	907	794	1 058	-	-	1 058
Namibia	..	833	-	-	1 666	-	666	740	740	666	740	716
Nigeria	..	729	725	726	727	726	725	725	725	724	725	725
Senegal	..	980	1 045	993	845	876	917	871	709	678	733	706
South Africa	..	819	-	-	-	-	-	-	753	748	771	757
Sudan	..	972	942	1 014	922	899	814	802	779	681	681	714
United Rep. of Tanzania	..	1 495	1 488	1 482	1 459	1 499	924	919	891	924	953	923
Togo	..	1 058	1 309	780	732	799	589	798	842	847	819	836
Tunisia	..	921	907	919	1 000	953	960	839	813	832	849	831
Zambia	..	917	922	896	896	896	847	690	859	967	1 006	944
Zimbabwe	..	-	1 539	3 175	2 963	1 965	2 117	2 117	2 117	2 117	2 117	2 117
Other Africa	..	535	610	769	769	746	752	745	735	761	760	752
Africa	..	931	831	886	882	845	872	851	782	796	783	787
Bangladesh	..	1 004	1 078	1 116	1 079	1 013	1 091	1 091	1 117	1 117	1 118	1 118
Brunei Darussalam	..	847	690	762	762	766	766	819	770	770	772	771
Cambodia	..	1 816	1 798	2 076	2 010	1 350	1 269	1 199	1 201	1 202	1 204	1 202
Chinese Taipei	..	697	689	676	752	793	807	784	832	828	911	857
India	..	1 105	1 036	870	915	930	878	884	819	939	1 282	1 013
Indonesia	..	861	769	775	764	699	710	716	791	738	751	760
DPR of Korea	..	1 379	1 379	1 379	1 379	1 379	1 379	1 378	1 380	1 380	1 379	1 380
Malaysia	..	721	920	808	839	845	831	812	836	917	1 008	920
Mongolia	..	481	606	700	682	726	864	906	844	873	916	878
Myanmar	..	894	868	747	738	736	735	440	470	650	602	574
Nepal	..	827	755	850	850	971	1 062	1 042	1 129	1 129	1 042	1 100
Pakistan	..	757	755	773	675	795	692	749	719	731	762	738
Philippines	..	645	674	705	719	710	740	712	654	711	687	684
Singapore	..	1 115	834	832	832	831	826	828	830	828	828	829
Sri Lanka	..	696	826	761	855	803	758	657	657	763	763	728
Thailand	..	741	749	752	726	715	729	739	764	732	772	756
Vietnam	..	900	914	907	894	891	1 148	1 181	721	690	991	801
Other Asia	..	567	640	738	754	755	770	770	795	812	811	806
Asia	..	796	812	799	811	799	783	784	786	807	885	826
People's Rep. of China	..	619	639	648	669	668	681	646	617	573	523	571
Hong Kong, China	..	825	788	859	769	742	798	805	829	836	983	883
China	..	620	639	648	669	668	681	647	617	574	524	572

CO₂ emissions per kWh from electricity and heat generation using oilgrammes CO₂ / kilowatt hour

	1990	1995	2000	2002	2003	2004	2005	2006	2007	2008	2009	Average 07-09
Bahrain	..	-	-	-	-	-	-	1 312	1 314	1 231	-	1 273
Islamic Republic of Iran	..	750	563	588	490	524	592	669	671	755	782	736
Iraq	..	712	745	763	799	824	928	859	988	763	736	829
Jordan	..	860	717	755	686	753	730	699	675	683	659	672
Kuwait	..	665	917	947	820	845	917	942	939	977	1 008	975
Lebanon	..	784	773	771	756	658	645	751	696	736	754	729
Oman	..	1 056	1 056	1 055	1 055	1 055	1 056	1 055	1 056	1 056	1 055	1 056
Qatar	..	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	..	831	876	831	803	872	840	828	776	795	832	801
Syrian Arab Republic	..	777	730	738	716	753	831	837	806	785	785	792
United Arab Emirates	..	968	953	999	1 052	1 194	1 194	1 194	1 194	1 195	1 053	1 147
Yemen	..	946	930	919	884	874	841	781	679	636	630	649
Middle East	..	779	778	780	736	767	804	812	799	802	823	808
Albania	..	501	1 527	959	1 415	1 228	1 693	1 328	1 218	1 385	1 838	1 481
Armenia	..	306	-	-	-	-	-	-	-	-	-	-
Azerbaijan	..	603	725	725	725	854	815	936	800	765	755	773
Belarus	..	403	359	346	343	370	350	362	328	386	392	369
Bosnia and Herzegovina	..	1 977	1 085	1 059	1 051	1 044	1 043	1 041	1 041	1 045	405	830
Bulgaria	..	321	511	577	595	522	542	570	575	459	339	457
Croatia	..	456	582	630	622	578	531	547	600	568	535	567
Cyprus	..	822	838	756	833	772	789	758	761	761	750	757
Georgia	..	1 817	1 921	3 474	3 474	3 502	3 483	3 450	3 450	5 206	5 286	4 648
Gibraltar	..	766	760	760	755	766	761	771	771	757	740	756
Kazakhstan	..	1 033	919	919	919	918	916	890	889	913	900	901
Kyrgyzstan	..	-	-	-	-	-	-	-	-	-	-	-
Latvia	..	341	373	337	354	372	350	386	409	435	379	408
Lithuania	..	353	376	398	409	439	463	433	450	444	448	447
FYR of Macedonia	..	376	434	382	328	336	324	389	474	430	412	438
Malta	..	932	819	934	946	913	1 034	954	1 012	849	850	904
Qatar	..	760	805	835	815	345	402	379	458	488	469	472
Romania	..	378	374	392	406	411	395	389	428	411	435	425
Russian Federation	..	328	398	407	392	396	392	383	375	382	384	380
Serbia	..	418	394	676	688	626	381	427	350	347	467	388
Tajikistan	..	-	-	-	-	-	-	-	-	-	-	-
Turkmenistan	..	-	-	-	-	-	-	-	-	-	-	-
Ukraine	..	481	372	395	433	771	889	940	914	917	915	915
Uzbekistan	..	606	637	625	621	620	621	621	621	622	625	622
Non-OECD Europe and Eurasia	..	379	439	442	439	445	445	449	444	434	428	435
Argentina	..	632	1 013	1 059	1 132	922	808	767	777	756	845	792
Bolivia	..	948	953	934	947	947	943	938	943	940	946	943
Brazil	..	825	796	695	759	714	762	722	689	661	677	676
Colombia	..	891	864	861	874	877	877	874	871	871	893	878
Costa Rica	..	916	965	936	928	959	807	773	896	888	820	868
Cuba	..	927	751	857	880	897	891	820	801	791	826	806
Dominican Republic	..	995	834	716	751	806	770	766	794	684	628	702
Ecuador	..	810	761	749	739	729	975	1 130	887	737	634	753
El Salvador	..	927	773	741	807	708	880	859	730	733	730	731
Guatemala	..	873	769	774	798	802	813	794	792	795	786	791
Haiti	..	669	716	761	611	573	587	582	761	766	767	765
Honduras	..	842	737	476	578	646	619	423	670	661	627	653
Jamaica	..	923	852	820	839	635	591	415	413	511	565	496
Netherlands Antilles	..	714	714	714	714	713	711	710	708	707	707	707
Nicaragua	..	868	751	753	745	742	736	746	751	745	732	742
Panama	..	1 027	781	764	727	782	769	778	735	721	693	716
Paraguay	..	926	-	-	-	-	-	-	-	-	-	-
Peru	..	965	881	874	841	812	1 142	934	1 425	1 131	1 120	1 225
Trinidad and Tobago	..	-	1 058	1 058	32 034	705	32 254	6 830	9 271	756	2 597	4 208
Uruguay	..	826	860	1 211	1 435	820	824	843	807	785	811	801
Venezuela	..	1 200	890	909	915	936	907	1 000	932	886	874	897
Other Latin America	..	225	202	209	209	201	200	209	213	237	237	229
Latin America	..	665	633	625	645	627	639	635	629	636	648	638

CO₂ emissions per kWh from electricity and heat generation using natural gas *grammes CO₂ / kilowatt hour

	1990	1995	2000	2002	2003	2004	2005	2006	2007	2008	2009	Average 07-09
World	..	364	389	389	385	385	389	384	388	391	392	390
<i>Annex I Parties</i>	..	331	350	348	343	341	345	338	344	346	346	345
<i>Annex II Parties</i>	..	455	415	402	388	389	388	373	379	374	374	376
<i>North America</i>	..	502	459	434	426	436	435	393	398	393	389	393
<i>Europe</i>	401	361	348	340	323	320	320	324	329	329	329	329
<i>Asia Oceania</i>	474	465	442	446	449	449	452	452	452	448	445	449
<i>Annex I EIT</i>	..	265	296	298	302	296	301	299	304	312	310	309
<i>Non-Annex I Parties</i>	..	559	543	535	522	522	524	523	515	512	507	511
<i>Annex I Kyoto Parties</i>	..	293	324	325	325	318	321	322	328	333	332	331
Non-OECD Total	..	324	374	384	386	385	393	394	397	407	409	404
OECD Total	..	451	410	396	383	385	384	372	377	373	372	374
Canada	371	360	407	395	424	392	395	391	409	443	430	427
Chile	777	574	370	359	361	407	465	414	463	501	450	471
Mexico	555	513	489	435	415	419	420	428	420	417	400	412
United States	..	509	462	437	427	438	437	393	398	390	387	392
OECD Americas	..	503	459	433	424	434	434	396	401	395	391	396
Australia	565	558	584	564	606	572	569	573	571	514	515	533
Israel	-	516	541	535	673	526	559	481	499	440	433	457
Japan	465	457	433	432	432	434	437	440	441	442	438	440
Korea	496	389	336	338	325	347	343	349	351	343	339	345
New Zealand	507	509	450	449	435	433	428	415	415	397	402	405
OECD Asia Oceania	475	457	429	430	430	430	431	431	432	425	424	427
Austria	384	404	313	299	292	291	286	287	289	290	281	286
Belgium	454	412	335	310	336	334	348	307	307	306	315	309
Czech Republic	237	227	252	249	245	267	256	260	244	252	253	249
Denmark	222	235	250	250	252	254	249	252	244	243	244	243
Estonia	221	220	224	225	223	222	223	220	217	224	230	223
Finland	241	274	238	242	244	243	233	247	234	232	230	232
France	337	335	250	245	240	233	241	263	265	267	309	281
Germany	367	314	345	326	259	259	260	257	281	278	270	276
Greece	459	435	505	446	434	416	459	416	416	423	385	408
Hungary	343	359	305	315	335	308	305	312	329	319	293	314
Iceland	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	499	480	460	445	421	407	412	405	413	392	395	400
Italy	475	466	431	435	420	367	361	355	354	351	348	351
Luxembourg	662	633	641	399	401	398	399	400	397	406	395	399
Netherlands	434	306	273	282	282	283	282	297	295	299	298	297
Norway	-	302	293	288	283	288	283	283	322	282	354	319
Poland	289	318	304	330	320	332	287	294	292	285	282	286
Portugal	-	-	364	347	347	339	337	330	329	336	337	334
Slovak Republic	442	429	333	239	240	251	241	236	239	239	250	243
Slovenia	229	234	237	271	278	246	260	244	266	268	298	277
Spain	423	469	311	325	316	324	319	356	339	349	357	349
Sweden	217	218	227	252	220	216	219	218	215	229	210	218
Switzerland	241	236	235	237	239	238	238	242	242	244	244	243
Turkey	488	419	346	357	347	355	357	341	347	350	355	351
United Kingdom	521	426	382	379	379	388	386	393	383	380	383	382
OECD Europe	389	360	344	337	323	320	320	323	328	329	329	328
<i>European Union - 27</i>	..	348	339	332	320	316	315	319	324	324	323	323

* CO₂ emissions from natural gas consumed for electricity, combined heat and power and main activity heat plants divided by output of electricity and heat generated from natural gas. Both main activity producers and autoproducers have been included in the calculation of the emissions. Due to missing data for heat in 1990, the ratio for some countries and regions is not available.

CO₂ emissions per kWh from electricity and heat generation using natural gasgrammes CO₂ / kilowatt hour

	1990	1995	2000	2002	2003	2004	2005	2006	2007	2008	2009	Average 07-09
Non-OECD Total	..	324	374	384	386	385	393	394	397	407	409	404
Algeria	..	621	614	625	632	631	609	618	594	594	574	587
Angola	..	-	-	-	-	-	-	-	-	-	-	-
Benin	..	-	-	-	-	-	-	-	-	-	-	-
Botswana	..	-	-	-	-	-	-	-	-	-	-	-
Cameroon	..	-	-	-	-	-	-	-	1 164	1 164	1 164	1 164
Congo	..	-	-	-	573	576	573	572	575	576	574	575
Dem. Rep. of Congo	..	-	-	-	-	-	-	574	573	573	573	573
Côte d'Ivoire	..	736	598	606	600	536	627	539	617	687	687	664
Egypt	..	490	490	490	490	490	490	490	490	490	490	490
Eritrea	..	-	-	-	-	-	-	-	-	-	-	-
Ethiopia	..	-	-	-	-	-	-	-	-	-	-	-
Gabon	..	876	929	916	926	964	1 013	1 007	1 043	719	720	827
Ghana	..	-	-	-	-	-	-	-	-	-	-	-
Kenya	..	-	-	-	-	-	-	-	-	-	-	-
Libyan Arab Jamahiriya	..	591	591	529	632	662	662	591	562	595	562	573
Morocco	..	-	-	-	-	-	397	394	409	350	403	387
Mozambique	..	652	778	1 155	1 674	775	724	684	573	502	711	595
Namibia	..	-	-	-	-	-	-	-	-	-	-	-
Nigeria	..	502	543	502	502	502	502	502	502	502	502	502
Senegal	..	604	628	518	512	517	519	516	513	513	680	569
South Africa	..	-	-	-	-	-	-	-	-	-	-	-
Sudan	..	-	-	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	..	-	-	-	-	484	569	602	579	563	669	604
Togo	..	-	-	-	-	-	-	-	-	-	-	-
Tunisia	..	533	536	529	521	502	440	503	511	513	513	512
Zambia	..	-	-	-	-	-	-	-	-	-	-	-
Zimbabwe	..	-	-	-	-	-	-	-	-	-	-	-
Other Africa	..	-	-	-	-	-	-	-	-	-	-	-
Africa	..	539	536	530	532	531	524	527	525	528	523	525
Bangladesh	..	586	555	603	573	545	546	561	555	554	568	559
Brunei Darussalam	..	881	796	819	780	782	762	802	702	754	755	737
Cambodia	..	-	-	-	-	-	-	-	-	-	-	-
Chinese Taipei	..	505	462	446	432	425	428	429	423	429	422	425
India	..	539	503	538	469	480	480	480	460	445	488	464
Indonesia	..	514	524	510	526	596	539	615	581	566	579	575
DPR of Korea	..	-	-	-	-	-	-	-	-	-	-	-
Malaysia	..	528	472	510	409	418	485	491	463	499	487	483
Mongolia	..	-	-	-	-	-	-	-	-	-	-	-
Myanmar	..	843	686	654	725	725	725	725	725	725	725	725
Nepal	..	-	-	-	-	-	-	-	-	-	-	-
Pakistan	..	594	550	529	536	526	537	536	573	586	562	573
Philippines	..	854	1 202	300	349	356	345	330	338	341	349	342
Singapore	..	447	446	446	446	446	446	446	446	446	446	446
Sri Lanka	..	-	-	-	-	-	-	-	-	-	-	-
Thailand	..	468	492	504	489	480	476	474	473	461	456	463
Vietnam	..	514	591	643	522	546	515	465	444	456	418	439
Other Asia	..	502	502	502	502	503	502	502	502	502	502	502
Asia	..	529	505	512	478	482	485	486	476	476	480	478
People's Rep. of China	..	513	318	290	311	311	334	352	412	407	428	416
Hong Kong, China	..	859	468	448	457	451	454	454	454	454	454	454
China	..	521	378	351	356	355	365	379	419	416	431	422

CO₂ emissions per kWh from electricity and heat generation using natural gasgrammes CO₂ / kilowatt hour

	1990	1995	2000	2002	2003	2004	2005	2006	2007	2008	2009	Average 07-09
Bahrain	..	815	868	835	883	881	873	797	826	650	665	714
Islamic Republic of Iran	..	594	594	593	593	593	598	598	598	598	600	599
Iraq	..	-	-	-	-	-	-	-	-	-	-	-
Jordan	..	681	671	646	666	622	610	600	566	571	574	570
Kuwait	..	502	502	502	418	419	446	446	446	418	529	465
Lebanon	..	-	-	-	-	-	-	-	-	-	502	502
Oman	..	776	741	780	809	847	819	850	836	814	796	815
Qatar	..	1 131	771	782	779	649	618	617	565	534	494	531
Saudi Arabia	..	792	723	687	683	665	661	679	676	673	665	672
Syrian Arab Republic	..	543	543	543	543	543	543	543	543	543	543	543
United Arab Emirates	..	730	721	758	798	906	836	812	711	721	624	685
Yemen	..	-	-	-	-	-	-	-	-	-	-	-
Middle East	..	702	665	665	668	675	666	665	644	636	616	632
Albania	..	-	-	-	-	-	-	-	-	-	-	-
Armenia	..	328	457	454	455	351	404	442	495	511	450	485
Azerbaijan	..	341	582	444	481	496	496	496	494	483	496	491
Belarus	..	276	298	292	289	298	297	297	300	309	295	301
Bosnia and Herzegovina	..	-	287	287	287	287	287	287	287	287	321	298
Bulgaria	..	302	296	288	261	232	235	244	265	246	233	248
Croatia	..	423	338	346	312	318	304	323	356	320	323	333
Cyprus	..	-	-	-	-	-	-	-	-	-	-	-
Georgia	..	934	887	393	348	369	389	459	704	393	597	565
Gibraltar	..	-	-	-	-	-	-	-	-	-	-	-
Kazakhstan	..	559	1 009	870	780	602	778	574	574	574	574	574
Kyrgyzstan	..	309	309	309	309	309	309	309	307	297	214	272
Latvia	..	247	240	239	236	238	236	234	232	242	232	235
Lithuania	..	255	268	257	257	260	264	257	258	264	264	262
FYR of Macedonia	..	-	238	235	248	254	242	242	238	220	221	226
Malta	..	-	-	-	-	-	-	-	-	-	-	-
Qatar	..	402	734	744	752	525	527	483	509	479	395	461
Romania	..	322	295	309	349	313	311	315	308	310	285	301
Russian Federation	..	259	293	301	297	297	305	305	309	315	315	313
Serbia	..	241	260	258	268	268	226	229	235	238	248	240
Tajikistan	..	515	517	428	422	501	498	459	405	405	378	396
Turkmenistan	..	931	795	795	795	795	795	795	795	844	790	810
Ukraine	..	273	317	294	348	293	284	267	276	312	295	295
Uzbekistan	..	422	474	475	481	487	491	489	490	484	491	488
Non-OECD Europe and Eurasia	..	273	309	312	315	309	315	313	318	326	325	323
Argentina	..	437	514	482	474	450	460	467	468	468	469	468
Bolivia	..	696	642	552	593	566	552	550	560	624	632	605
Brazil	..	742	496	478	445	472	473	451	450	436	438	441
Colombia	..	646	534	495	502	492	496	485	544	462	464	490
Costa Rica	..	-	-	-	-	-	-	-	-	-	-	-
Cuba	..	502	502	502	502	502	502	502	502	502	502	502
Dominican Republic	..	-	-	-	502	502	502	502	502	502	502	502
Ecuador	..	-	-	937	976	903	630	723	767	796	754	773
El Salvador	..	-	-	-	-	-	-	-	-	-	-	-
Guatemala	..	-	-	-	-	-	-	-	-	-	-	-
Haiti	..	-	-	-	-	-	-	-	-	-	-	-
Honduras	..	-	-	-	-	-	-	-	-	-	-	-
Jamaica	..	-	-	-	-	-	-	-	-	-	-	-
Netherlands Antilles	..	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	..	-	-	-	-	-	-	-	-	-	-	-
Panama	..	-	-	-	-	-	-	-	-	-	-	-
Paraguay	..	-	-	-	-	-	-	-	-	-	-	-
Peru	..	670	670	648	648	610	548	534	462	472	472	469
Trinidad and Tobago	..	716	688	771	725	754	708	742	735	705	715	718
Uruguay	..	-	-	-	-	578	469	536	578	466	505	516
Venezuela	..	675	644	654	652	638	658	654	630	625	607	621
Other Latin America	..	448	452	452	452	452	452	452	452	452	452	452
Latin America	..	568	551	541	526	510	512	515	513	499	505	506

GLOBAL AND REGIONAL TOTALS

World

Figure 1. CO₂ emissions by fuel

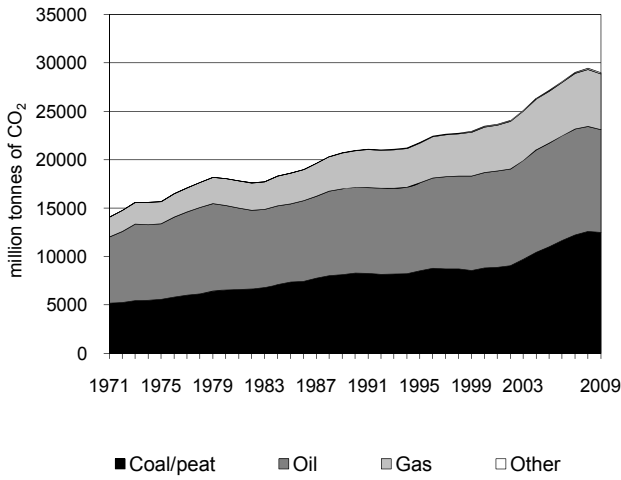


Figure 2. CO₂ emissions by sector

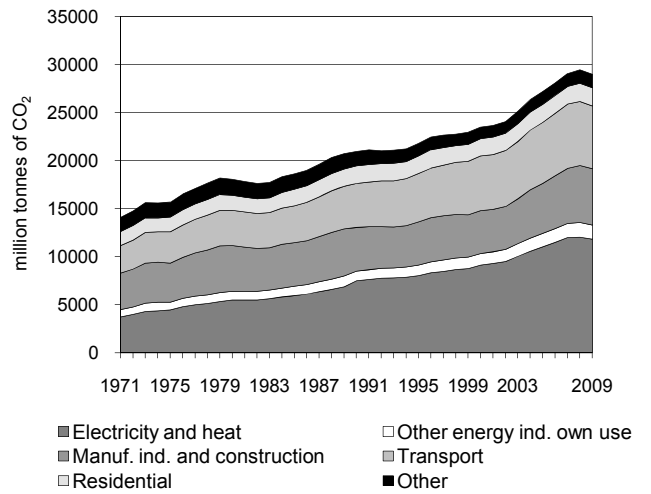


Figure 3. CO₂ emissions by sector

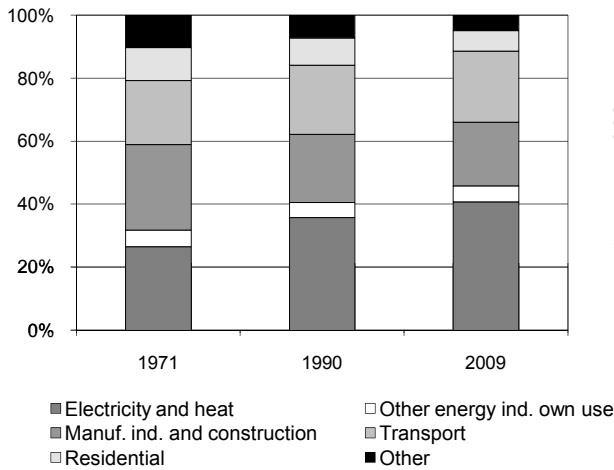


Figure 4. Reference vs Sectoral Approach

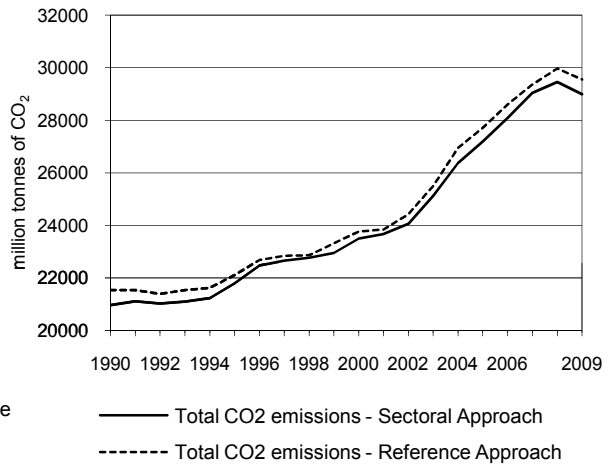


Figure 5. Electricity generation by fuel

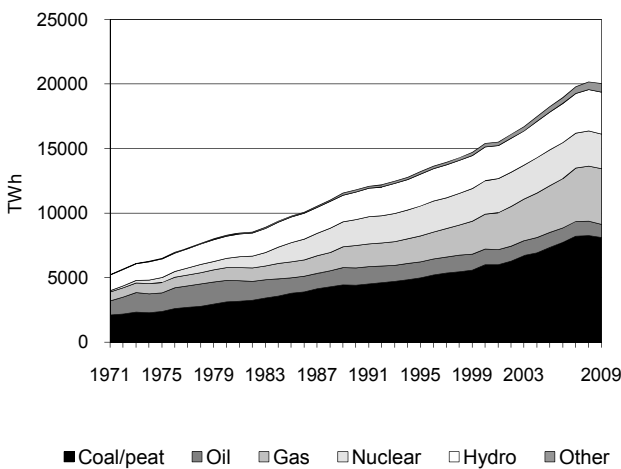
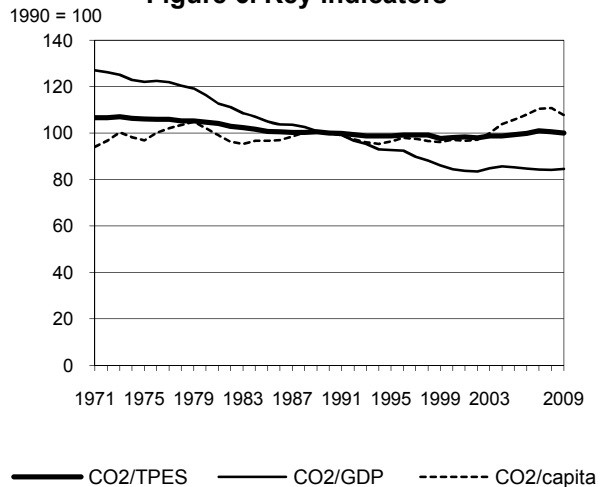


Figure 6. Key indicators



World

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	20 966.3	21 791.6	23 492.9	27 188.3	29 047.9	29 454.0	28 999.4	38.3%
CO ₂ Reference Approach (Mt of CO ₂)	21 536.2	22 110.9	23 763.5	27 708.5	29 354.8	29 967.1	29 549.3	37.2%
TPES (PJ)	367 696	386 906	420 014	480 084	504 633	513 874	508 690	38.3%
TPES (Mtoe)	8 782.3	9 241.1	10 031.9	11 466.6	12 053.0	12 273.7	12 149.8	38.3%
GDP (billion 2000 USD)	24 257.5	27 196.0	32 174.3	36 896.6	39 885.3	40 470.4	39 674.4	63.6%
GDP PPP (billion 2000 USD)	33 340.6	37 834.2	45 799.1	55 547.2	62 111.5	64 095.3	64 244.4	92.7%
Population (millions)	5 266.9	5 680.5	6 075.5	6 455.4	6 607.2	6 684.0	6 760.7	28.4%
CO ₂ / TPES (t CO ₂ per TJ)	57.0	56.3	55.9	56.6	57.6	57.3	57.0	0.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.86	0.80	0.73	0.74	0.73	0.73	0.73	-15.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.63	0.58	0.51	0.49	0.47	0.46	0.45	-28.2%
CO ₂ / population (t CO ₂ per capita)	3.98	3.84	3.87	4.21	4.40	4.41	4.29	7.8%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	12 493.1	10 630.8	5 762.3	113.1	28 999.4	38.3%
Main activity producer elec. and heat	8 091.3	695.1	1 972.2	37.6	10 796.1	63.1%
Unallocated autoproducers	453.5	150.4	386.8	40.3	1 031.0	16.2%
Other energy industry own use	273.5	641.8	548.0	0.8	1 464.1	45.6%
Manufacturing industries and construction	3 093.1	1 500.2	1 247.3	30.3	5 870.9	29.5%
Transport	13.0	6 366.7	164.1	-	6 543.8	42.5%
<i>of which: road</i>	-	4 835.4	41.2	-	4 876.6	48.3%
Other	568.7	1 276.6	1 443.9	4.2	3 293.4	-1.1%
<i>of which: residential</i>	305.8	597.2	972.1	0.0	1 875.0	2.9%
Reference Approach	12 848.8	10 753.8	5 833.6	113.1	29 549.3	37.2%
Diff. due to losses and/or transformation	256.5	85.6	56.6	0.0	398.8	
Statistical differences	99.2	37.4	14.6	-0.0	151.2	
<i>Memo: international marine bunkers **</i>	-	592.2	-	-	592.2	65.5%
<i>Memo: international aviation bunkers **</i>	-	423.4	-	-	423.4	65.5%

* Other includes industrial waste and non-renewable municipal waste.

** World includes international marine bunkers and international aviation bunkers.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	8 091.3	77.7%	19.1	19.1
Road - oil	4 835.4	47.2%	11.4	30.4
Manufacturing industries - coal/peat	3 093.1	41.0%	7.3	37.7
Main activity prod. elec. and heat - gas	1 972.2	91.7%	4.6	42.4
Other transport - oil	1 531.4	36.0%	3.6	46.0
Manufacturing industries - oil	1 500.2	11.0%	3.5	49.5
Manufacturing industries - gas	1 247.3	27.1%	2.9	52.4
Residential - gas	972.1	51.8%	2.3	54.7
Main activity prod. elec. and heat - oil	695.1	-32.8%	1.6	56.4
Non-specified other - oil	679.5	-6.3%	1.6	58.0
Other energy industry own use - oil	641.8	15.6%	1.5	59.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>28 999.4</i>	<i>38.3%</i>	<i>68.3</i>	<i>68.3</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Annex I Parties

Figure 1. CO₂ emissions by fuel

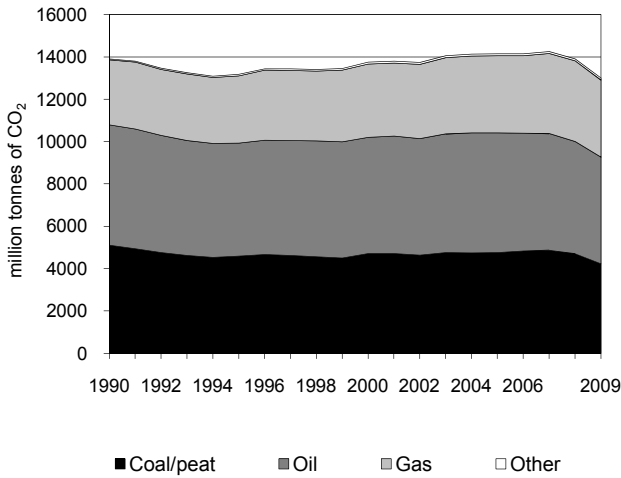


Figure 2. CO₂ emissions by sector

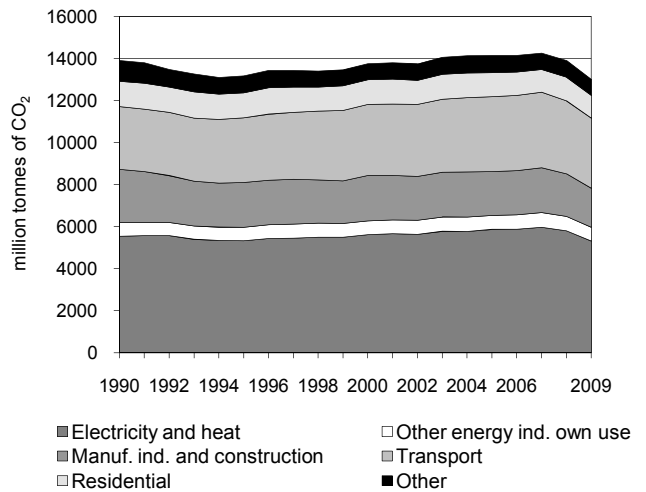


Figure 3. CO₂ emissions by sector

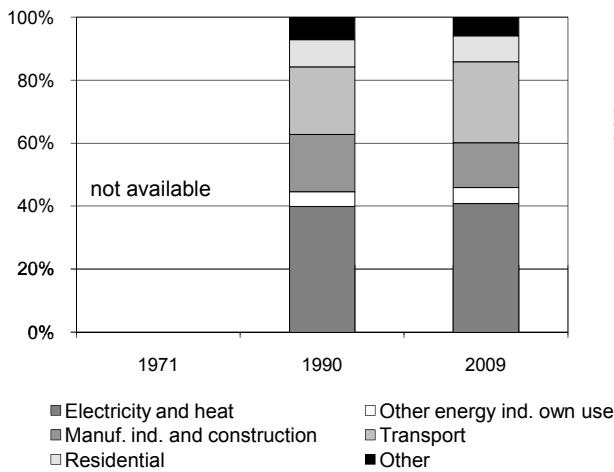


Figure 4. Reference vs Sectoral Approach

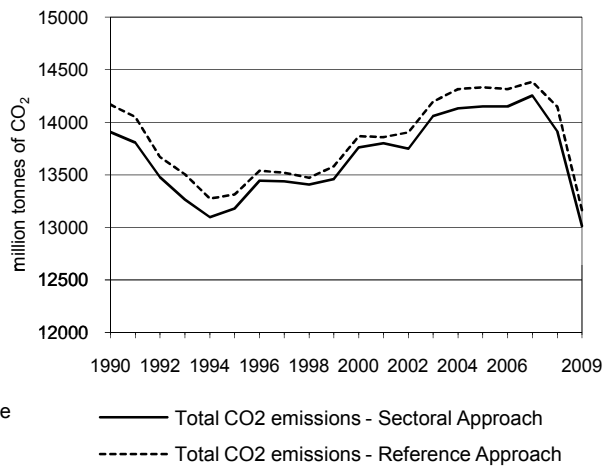


Figure 5. Electricity generation by fuel

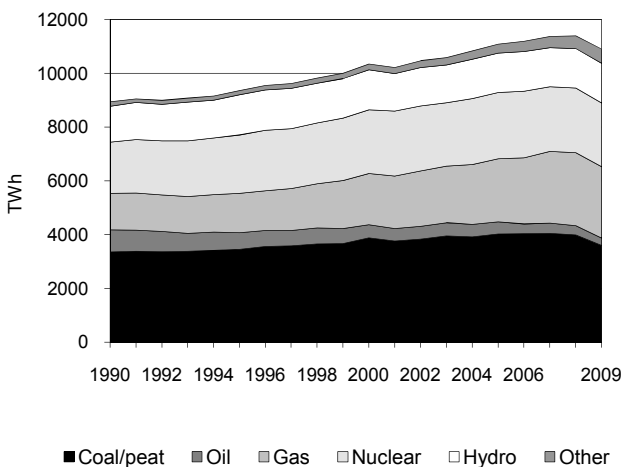
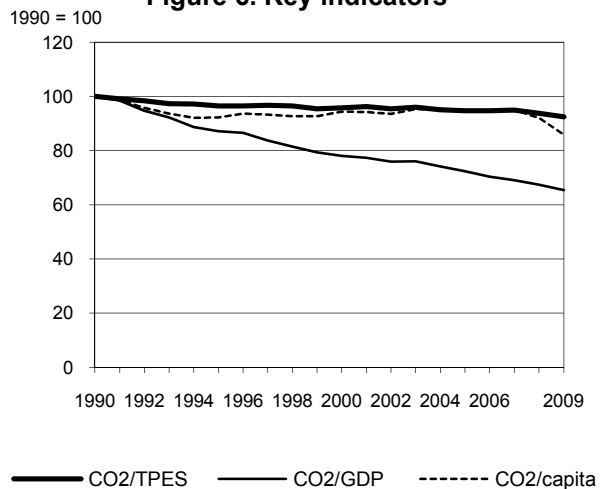


Figure 6. Key indicators



Annex I Parties

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	13 908.1	13 179.2	13 761.9	14 149.8	14 255.7	13 912.9	13 011.7	-6.4%
CO ₂ Reference Approach (Mt of CO ₂)	14 168.2	13 311.7	13 867.5	14 334.3	14 386.8	14 149.2	13 159.8	-7.1%
TPES (PJ)	233 728	229 473	241 490	251 035	252 309	249 390	236 417	1.2%
TPES (Mtoe)	5 582.5	5 480.9	5 767.9	5 995.9	6 026.3	5 956.6	5 646.7	1.2%
GDP (billion 2000 USD)	19 919.7	21 657.4	25 250.8	28 008.2	29 555.0	29 583.0	28 494.8	43.0%
GDP PPP (billion 2000 USD)	22 395.0	23 530.8	27 503.5	30 927.2	32 898.7	33 070.0	31 792.0	42.0%
Population (millions)	1 175.3	1 207.7	1 232.1	1 258.1	1 269.6	1 275.8	1 281.4	9.0%
CO ₂ / TPES (t CO ₂ per TJ)	59.5	57.4	57.0	56.4	56.5	55.8	55.0	-7.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.70	0.61	0.55	0.51	0.48	0.47	0.46	-34.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.62	0.56	0.50	0.46	0.43	0.42	0.41	-34.1%
CO ₂ / population (t CO ₂ per capita)	11.83	10.91	11.17	11.25	11.23	10.91	10.15	-14.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-09
Sectoral Approach	4 231.4	5 035.3	3 643.2	101.9	13 011.7	-6.4%
Main activity producer elec. and heat	3 320.4	152.6	1 182.8	37.5	4 693.3	-1.8%
Unallocated autoproducers	212.4	80.5	299.8	37.2	629.9	-18.0%
Other energy industry own use	64.3	364.2	225.6	0.8	654.9	0.6%
Manufacturing industries and construction	523.4	598.5	704.3	23.0	1 849.2	-26.9%
Transport	0.5	3 221.2	117.4	-	3 339.1	11.7%
<i>of which: road</i>	-	2 893.0	4.4	-	2 897.4	19.0%
Other	110.4	618.3	1 113.3	3.4	1 845.3	-15.8%
<i>of which: residential</i>	74.5	267.2	737.1	0.0	1 078.9	-10.1%
Reference Approach	4 299.3	5 085.5	3 673.2	101.9	13 159.8	-7.1%
Diff. due to losses and/or transformation	27.3	- 6.4	25.3	0.0	46.3	
Statistical differences	40.6	56.6	4.7	- 0.0	101.9	
<i>Memo: international marine bunkers</i>	-	252.0	-	-	252.0	7.8%
<i>Memo: international aviation bunkers</i>	-	245.3	-	-	245.3	46.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	3 320.4	-0.5%	19.5	19.5
Road - oil	2 893.0	19.0%	17.0	36.5
Main activity prod. elec. and heat - gas	1 182.8	46.1%	6.9	43.4
Residential - gas	737.1	22.9%	4.3	47.8
Manufacturing industries - gas	704.3	-8.2%	4.1	51.9
Manufacturing industries - oil	598.5	-26.6%	3.5	55.4
Manufacturing industries - coal/peat	523.4	-44.4%	3.1	58.5
Non-specified other - gas	376.1	29.8%	2.2	60.7
Other energy industry own use - oil	364.2	-8.6%	2.1	62.8
Non-specified other - oil	351.1	-26.7%	2.1	64.9
Other transport - oil	328.2	-24.2%	1.9	66.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>13 011.7</i>	<i>-6.4%</i>	<i>76.4</i>	<i>76.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Annex II Parties

Figure 1. CO₂ emissions by fuel

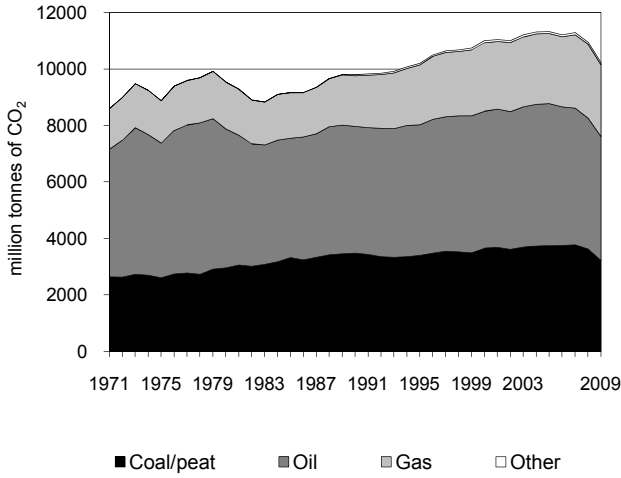


Figure 2. CO₂ emissions by sector

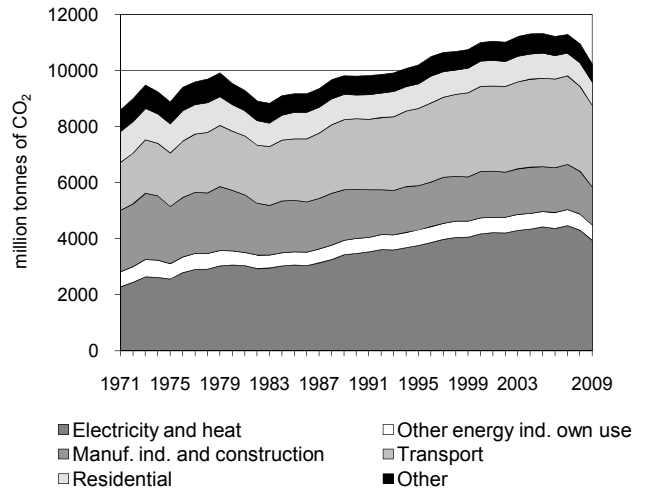


Figure 3. CO₂ emissions by sector

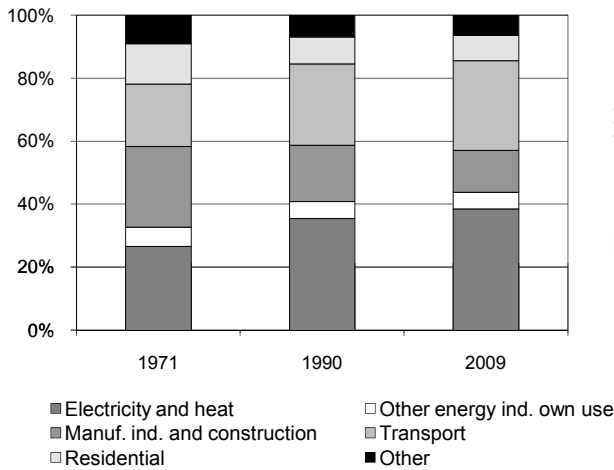


Figure 4. Reference vs Sectoral Approach

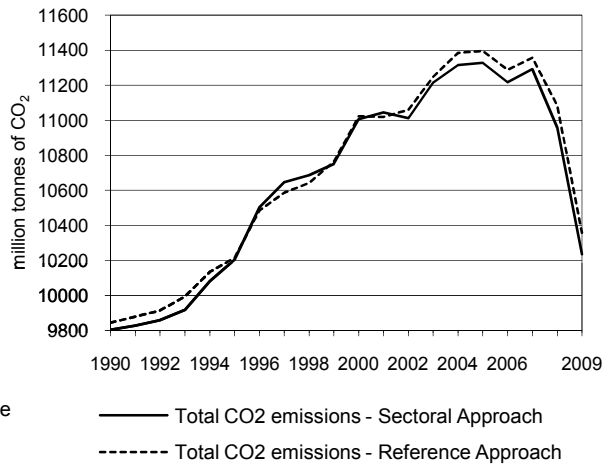


Figure 5. Electricity generation by fuel

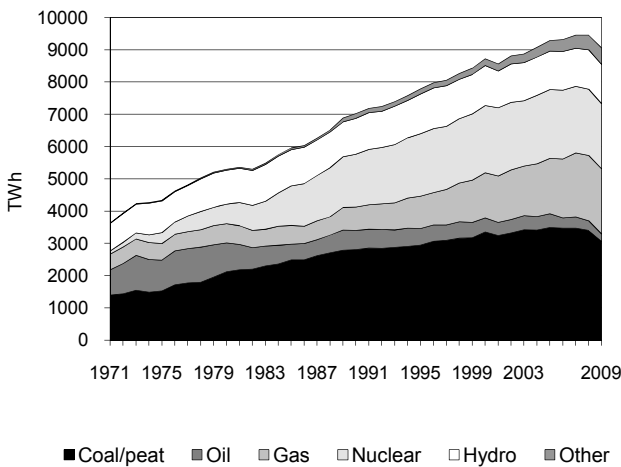
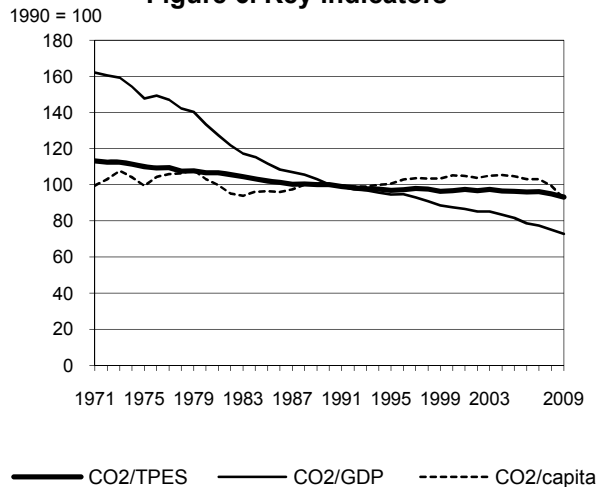


Figure 6. Key indicators



Annex II Parties

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	9 803.0	10 204.0	11 006.0	11 327.7	11 291.4	10 956.6	10 236.0	4.4%
CO ₂ Reference Approach (Mt of CO ₂)	9 843.9	10 214.8	11 022.2	11 395.9	11 357.9	11 083.8	10 358.0	5.2%
TPES (PJ)	167 910	180 364	194 924	201 508	201 160	197 708	188 265	12.1%
TPES (Mtoe)	4 010.5	4 307.9	4 655.7	4 812.9	4 804.6	4 722.2	4 496.6	12.1%
GDP (billion 2000 USD)	18 889.8	20 806.0	24 265.0	26 754.9	28 124.0	28 101.0	27 094.8	43.4%
GDP PPP (billion 2000 USD)	19 003.1	20 951.4	24 593.1	27 169.7	28 586.1	28 588.2	27 593.7	45.2%
Population (millions)	799.3	827.8	853.1	882.0	894.0	899.8	904.9	13.2%
CO ₂ / TPES (t CO ₂ per TJ)	58.4	56.6	56.5	56.2	56.1	55.4	54.4	-6.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.52	0.49	0.45	0.42	0.40	0.39	0.38	-27.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.52	0.49	0.45	0.42	0.40	0.38	0.37	-28.1%
CO ₂ / population (t CO ₂ per capita)	12.26	12.33	12.90	12.84	12.63	12.18	11.31	-7.8%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	3 224.5	4 387.7	2 543.9	79.9	10 236.0	4.4%
Main activity producer elec. and heat	2 747.8	122.3	769.9	36.8	3 676.7	15.5%
Unallocated autoproducers	93.3	47.3	101.6	23.1	265.3	-9.3%
Other energy industry own use	44.6	306.0	191.2	0.0	541.8	2.3%
Manufacturing industries and construction	315.8	503.8	526.6	17.3	1 363.4	-22.2%
Transport	0.4	2 867.2	44.3	-	2 911.9	15.3%
of which: road	-	2 574.7	3.8	-	2 578.5	20.8%
Other	22.7	541.0	910.4	2.7	1 476.9	-2.8%
of which: residential	11.9	239.8	564.9	0.0	816.6	-3.0%
Reference Approach	3 296.2	4 426.9	2 555.0	79.9	10 358.0	5.2%
Diff. due to losses and/or transformation	24.0	- 24.2	6.2	-	6.0	
Statistical differences	47.7	63.4	4.8	0.0	116.0	
<i>Memo: international marine bunkers</i>	-	244.0	-	-	244.0	9.2%
<i>Memo: international aviation bunkers</i>	-	217.9	-	-	217.9	67.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	2 747.8	8.8%	21.3	21.3
Road - oil	2 574.7	20.7%	20.0	41.2
Main activity prod. elec. and heat - gas	769.9	154.6%	6.0	47.2
Residential - gas	564.9	26.8%	4.4	51.6
Manufacturing industries - gas	526.6	0.5%	4.1	55.7
Manufacturing industries - oil	503.8	-16.4%	3.9	59.6
Non-specified other - gas	345.6	39.1%	2.7	62.3
Manufacturing industries - coal/peat	315.8	-49.3%	2.4	64.7
Other energy industry own use - oil	306.0	-7.3%	2.4	67.1
Non-specified other - oil	301.2	-16.1%	2.3	69.4
Other transport - oil	292.5	-16.1%	2.3	71.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>10 236.0</i>	<i>4.4%</i>	<i>79.3</i>	<i>79.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Annex II: North America

Figure 1. CO₂ emissions by fuel

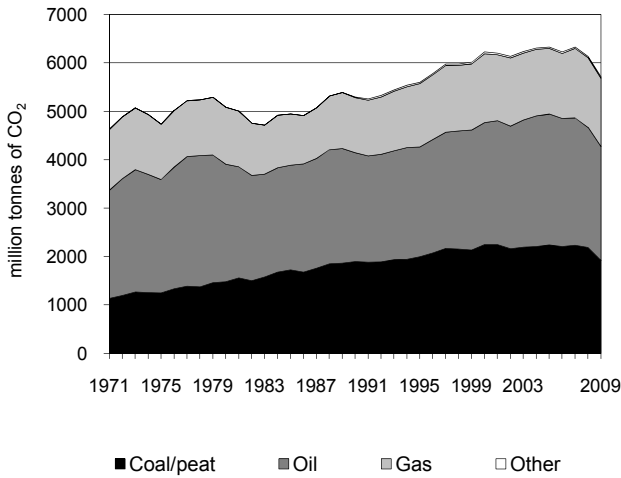


Figure 2. CO₂ emissions by sector

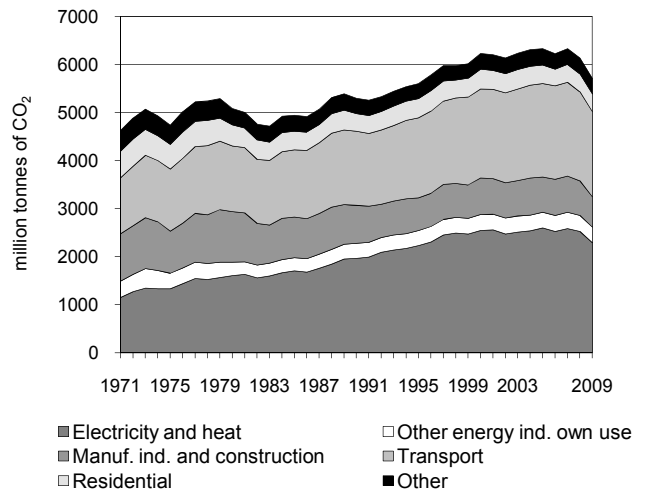


Figure 3. CO₂ emissions by sector

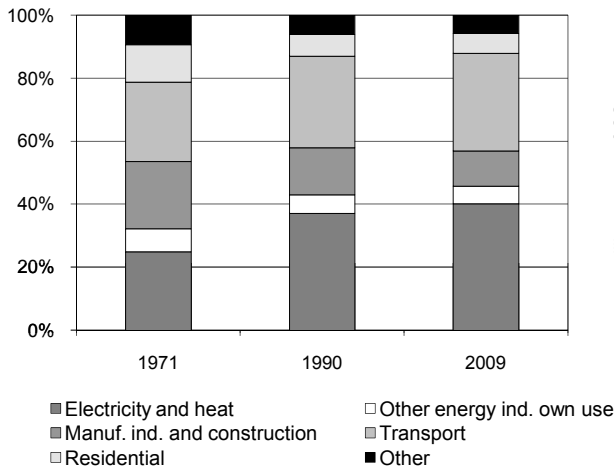


Figure 4. Reference vs Sectoral Approach

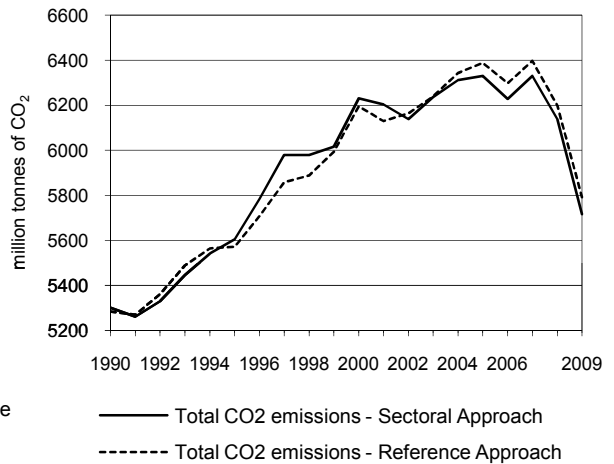


Figure 5. Electricity generation by fuel

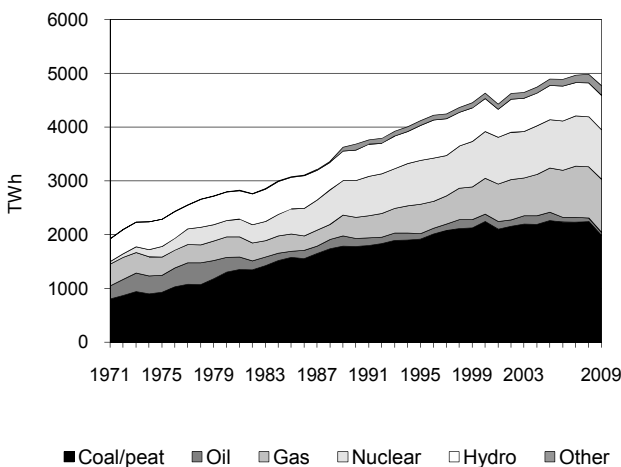
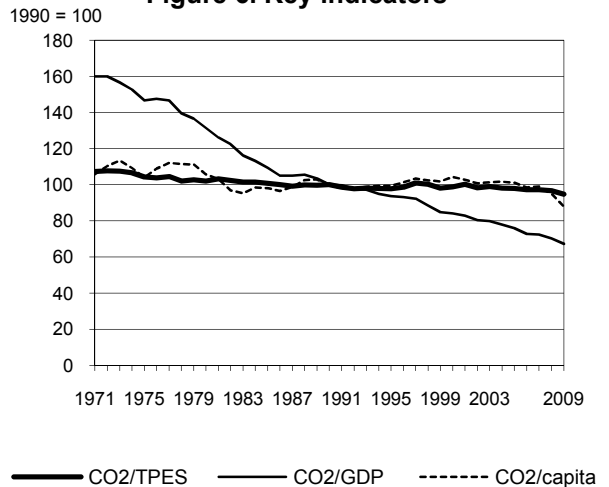


Figure 6. Key indicators



Annex II: North America

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	5 301.0	5 604.0	6 230.9	6 330.5	6 330.8	6 137.9	5 715.8	7.8%
CO ₂ Reference Approach (Mt of CO ₂)	5 283.9	5 571.2	6 195.0	6 389.3	6 397.3	6 199.8	5 791.3	9.6%
TPES (PJ)	88 909	96 212	105 708	108 483	109 234	106 494	101 196	13.8%
TPES (Mtoe)	2 123.6	2 298.0	2 524.8	2 591.1	2 609.0	2 543.6	2 417.0	13.8%
GDP (billion 2000 USD)	7 607.6	8 594.0	10 623.7	11 972.3	12 534.6	12 536.7	12 203.9	60.4%
GDP PPP (billion 2000 USD)	7 719.5	8 715.8	10 772.9	12 141.4	12 712.3	12 715.3	12 378.2	60.3%
Population (millions)	277.9	295.9	313.1	328.5	335.0	338.2	341.2	22.8%
CO ₂ / TPES (t CO ₂ per TJ)	59.6	58.2	58.9	58.4	58.0	57.6	56.5	-5.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.70	0.65	0.59	0.53	0.51	0.49	0.47	-32.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.69	0.64	0.58	0.52	0.50	0.48	0.46	-32.8%
CO ₂ / population (t CO ₂ per capita)	19.08	18.94	19.90	19.27	18.90	18.15	16.75	-12.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	1 918.9	2 354.9	1 413.9	28.0	5 715.8	7.8%
Main activity producer elec. and heat	1 788.2	40.0	389.4	13.4	2 231.1	19.3%
Unallocated autoproducers	15.0	7.4	33.3	5.6	61.4	-35.6%
Other energy industry own use	6.6	174.2	142.1	-	322.9	2.4%
Manufacturing industries and construction	102.8	203.8	321.6	8.0	636.1	-19.3%
Transport	-	1 731.4	40.4	-	1 771.9	14.8%
<i>of which: road</i>	-	1 528.2	1.7	-	1 529.9	24.0%
Other	6.3	198.1	487.0	1.0	692.4	0.6%
<i>of which: residential</i>	0.1	70.0	292.7	-	362.8	-0.5%
Reference Approach	1 993.2	2 345.7	1 424.4	28.0	5 791.3	9.6%
Diff. due to losses and/or transformation	14.4	-35.6	3.2	-	-18.0	
Statistical differences	59.9	26.4	7.2	-0.0	93.5	
<i>Memo: international marine bunkers</i>	-	78.1	-	-	78.1	-16.6%
<i>Memo: international aviation bunkers</i>	-	65.9	-	-	65.9	58.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	1 788.2	10.6%	24.9	24.9
Road - oil	1 528.2	23.9%	21.3	46.2
Main activity prod. elec. and heat - gas	389.4	150.3%	5.4	51.6
Manufacturing industries - gas	321.6	-0.5%	4.5	56.1
Residential - gas	292.7	10.0%	4.1	60.2
Manufacturing industries - oil	203.8	-16.0%	2.8	63.0
Other transport - oil	203.2	-24.1%	2.8	65.8
Non-specified other - gas	194.3	18.6%	2.7	68.6
Other energy industry own use - oil	174.2	-7.0%	2.4	71.0
Other energy industry own use - gas	142.1	13.6%	2.0	73.0
Non-specified other - oil	128.1	0.1%	1.8	74.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>5 715.8</i>	<i>7.8%</i>	<i>79.6</i>	<i>79.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Annex II: Europe

Figure 1. CO₂ emissions by fuel

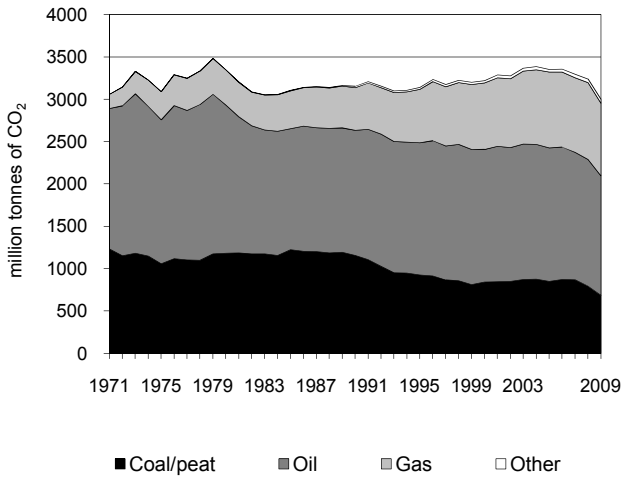


Figure 2. CO₂ emissions by sector

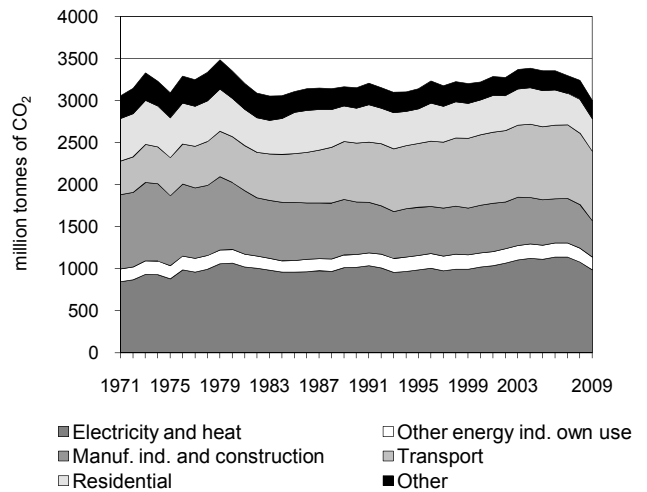


Figure 3. CO₂ emissions by sector

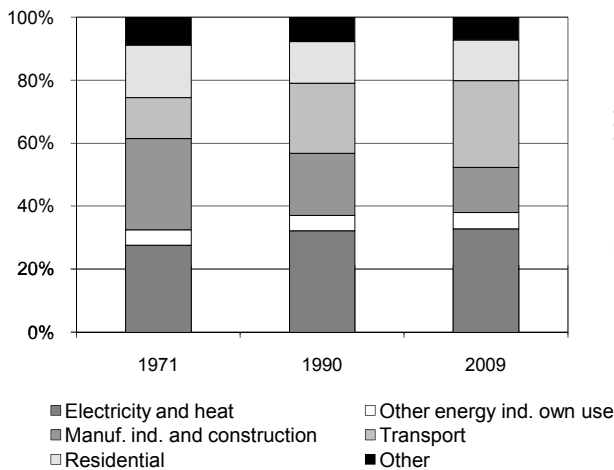


Figure 4. Reference vs Sectoral Approach

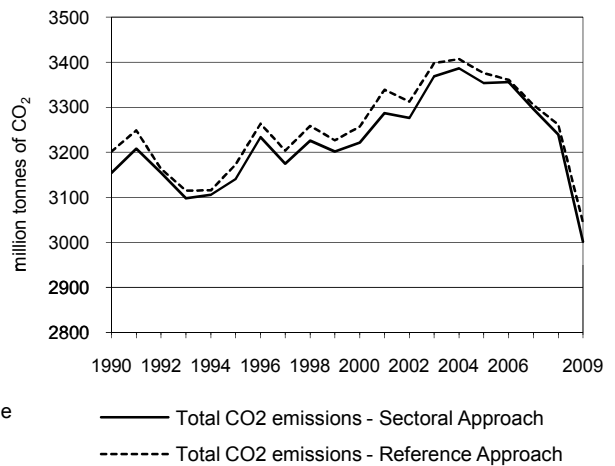


Figure 5. Electricity generation by fuel

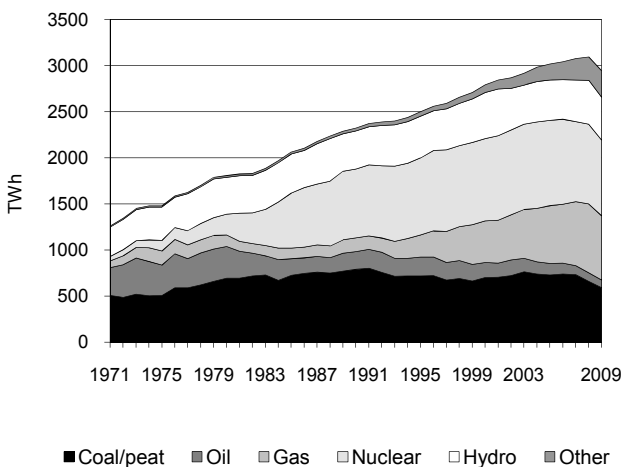
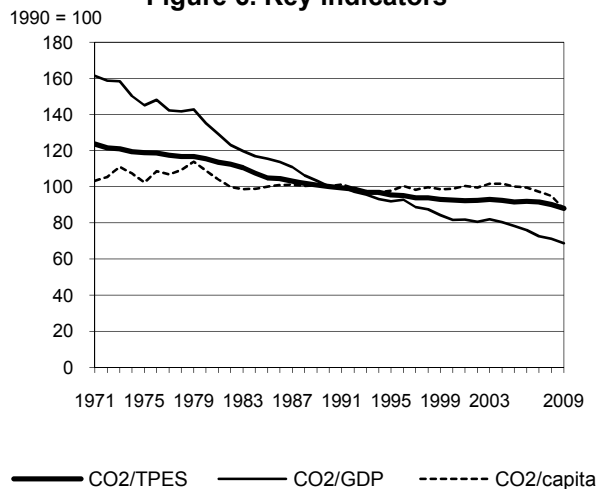


Figure 6. Key indicators



Annex II: Europe

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	3 154.2	3 140.6	3 221.7	3 353.9	3 296.4	3 239.3	3 001.2	-4.9%
CO ₂ Reference Approach (Mt of CO ₂)	3 201.6	3 172.2	3 257.2	3 376.0	3 305.5	3 261.1	3 043.6	-4.9%
TPES (PJ)	56 461	58 875	62 259	65 532	64 418	64 326	61 091	8.2%
TPES (Mtoe)	1 348.5	1 406.2	1 487.0	1 565.2	1 538.6	1 536.4	1 459.1	8.2%
GDP (billion 2000 USD)	6 802.9	7 375.7	8 509.4	9 252.8	9 797.5	9 828.3	9 415.9	38.4%
GDP PPP (billion 2000 USD)	7 952.5	8 619.3	9 948.1	10 823.5	11 460.8	11 495.9	11 016.0	38.5%
Population (millions)	377.3	384.4	389.9	401.1	405.8	408.2	410.0	8.7%
CO ₂ / TPES (t CO ₂ per TJ)	55.9	53.3	51.7	51.2	51.2	50.4	49.1	-12.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.46	0.43	0.38	0.36	0.34	0.33	0.32	-31.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.40	0.36	0.32	0.31	0.29	0.28	0.27	-31.3%
CO ₂ / population (t CO ₂ per capita)	8.36	8.17	8.26	8.36	8.12	7.94	7.32	-12.4%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	686.2	1 410.0	858.0	46.9	3 001.2	-4.9%
Main activity producer elec. and heat	544.9	46.6	243.4	22.1	856.9	-2.7%
Unallocated autoproducers	32.6	24.1	56.6	15.1	128.4	-5.5%
Other energy industry own use	18.3	101.2	34.7	0.0	154.2	0.3%
Manufacturing industries and construction	76.6	183.6	164.4	8.1	432.6	-30.6%
Transport	0.0	821.1	2.9	-	824.0	17.4%
<i>of which: road</i>	-	766.2	2.0	-	768.3	17.9%
Other	13.9	233.5	356.0	1.7	605.1	-8.2%
<i>of which: residential</i>	11.6	132.5	243.7	0.0	387.9	-6.7%
Reference Approach	685.9	1 441.7	869.1	46.9	3 043.6	-4.9%
Diff. due to losses and/or transformation	7.0	19.6	5.7	-	32.3	
Statistical differences	- 7.3	12.0	5.4	0.0	10.2	
<i>Memo: international marine bunkers</i>	-	147.1	-	-	147.1	35.0%
<i>Memo: international aviation bunkers</i>	-	125.1	-	-	125.1	78.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	766.2	17.7%	19.8	19.8
Main activity prod. elec. and heat - coal/peat	544.9	-21.9%	14.1	33.9
Residential - gas	243.7	54.8%	6.3	40.2
Main activity prod. elec. and heat - gas	243.4	309.1%	6.3	46.4
Manufacturing industries - oil	183.6	-13.7%	4.7	51.2
Manufacturing industries - gas	164.4	-5.6%	4.2	55.4
Residential - oil	132.5	-28.1%	3.4	58.9
Non-specified other - gas	112.3	52.7%	2.9	61.8
Other energy industry own use - oil	101.2	-4.7%	2.6	64.4
Non-specified other - oil	101.0	-25.7%	2.6	67.0
Manufacturing industries - coal/peat	76.6	-67.3%	2.0	69.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>3 001.2</i>	<i>-4.9%</i>	<i>77.5</i>	<i>77.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Annex II: Asia Oceania

Figure 1. CO₂ emissions by fuel

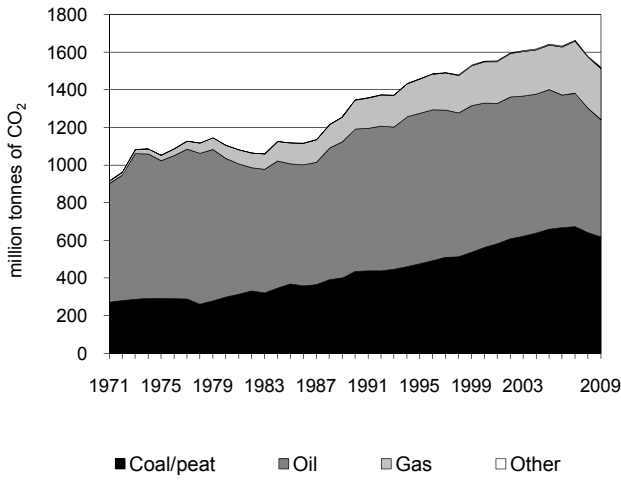


Figure 2. CO₂ emissions by sector

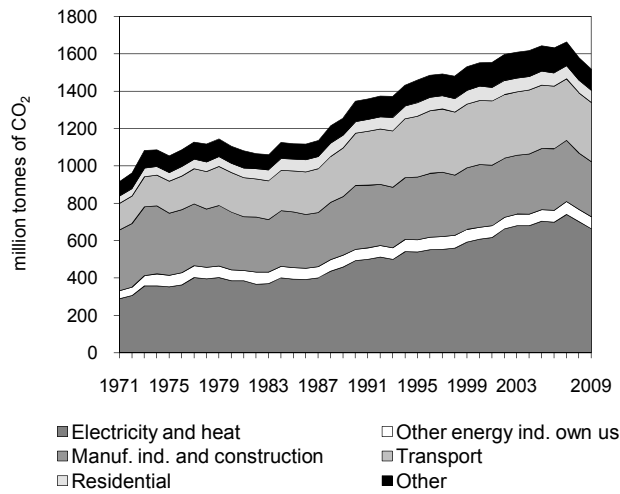


Figure 3. CO₂ emissions by sector

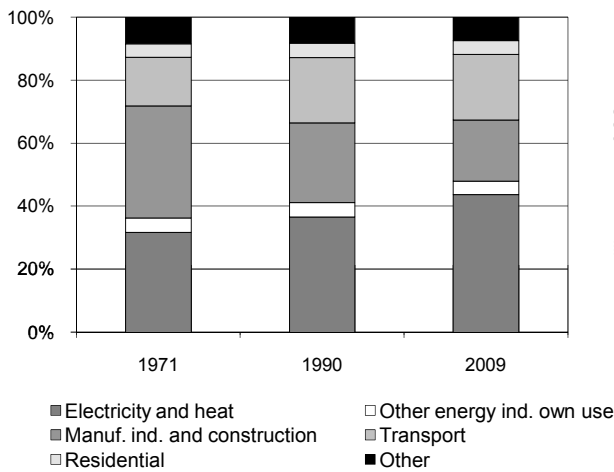


Figure 4. Reference vs Sectoral Approach

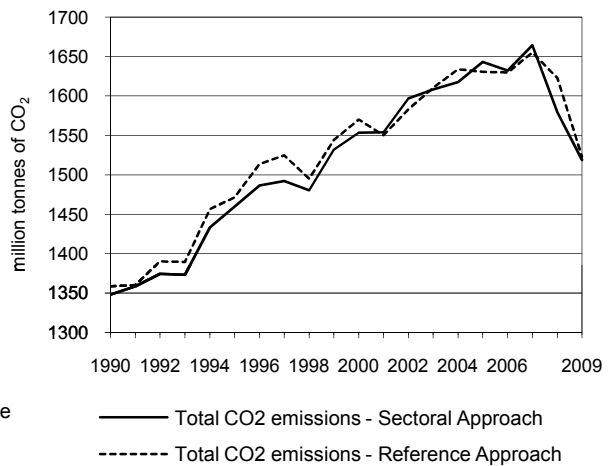


Figure 5. Electricity generation by fuel

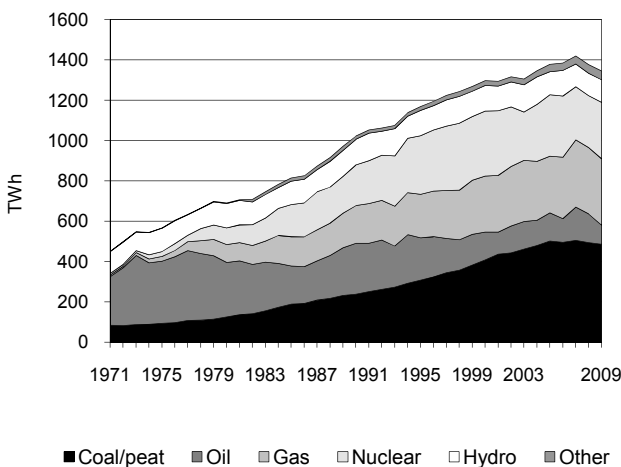
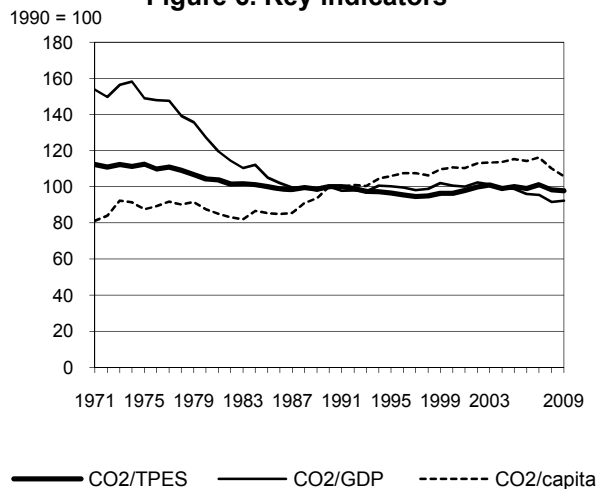


Figure 6. Key indicators



Annex II: Asia Oceania

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	1 347.8	1 459.5	1 553.4	1 643.3	1 664.2	1 579.4	1 519.0	12.7%
CO ₂ Reference Approach (Mt of CO ₂)	1 358.4	1 471.3	1 570.0	1 630.7	1 655.2	1 622.9	1 523.1	12.1%
TPES (PJ)	22 540	25 277	26 958	27 493	27 508	26 888	25 978	15.2%
TPES (Mtoe)	538.4	603.7	643.9	656.7	657.0	642.2	620.5	15.2%
GDP (billion 2000 USD)	4 479.3	4 836.3	5 131.8	5 529.9	5 791.9	5 736.1	5 474.9	22.2%
GDP PPP (billion 2000 USD)	3 331.1	3 616.3	3 872.1	4 204.7	4 412.9	4 376.9	4 199.5	26.1%
Population (millions)	144.2	147.5	150.1	152.5	153.2	153.4	153.8	6.7%
CO ₂ / TPES (t CO ₂ per TJ)	59.8	57.7	57.6	59.8	60.5	58.7	58.5	-2.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.30	0.30	0.30	0.30	0.29	0.28	0.28	-7.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.40	0.40	0.40	0.39	0.38	0.36	0.36	-10.6%
CO ₂ / population (t CO ₂ per capita)	9.35	9.90	10.35	10.78	10.86	10.29	9.88	5.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	619.4	622.7	272.1	4.9	1 519.0	12.7%
Main activity producer elec. and heat	414.7	35.7	137.1	1.2	588.7	36.2%
Unallocated autoproducers	45.7	15.8	11.6	2.4	75.6	22.9%
Other energy industry own use	19.7	30.6	14.4	-	64.7	7.2%
Manufacturing industries and construction	136.4	116.4	40.5	1.2	294.7	-13.6%
Transport	0.4	314.7	1.0	-	316.0	13.0%
<i>of which: road</i>	-	280.3	0.1	-	280.4	12.7%
Other	2.5	109.4	67.4	-	179.4	3.9%
<i>of which: residential</i>	0.1	37.3	28.5	-	65.9	6.4%
Reference Approach	617.1	639.5	261.6	4.9	1 523.1	12.1%
Diff. due to losses and/or transformation	2.5	- 8.2	- 2.7	-	- 8.3	
Statistical differences	- 4.9	25.0	- 7.8	0.0	12.3	
<i>Memo: international marine bunkers</i>	-	18.8	-	-	18.8	-9.8%
<i>Memo: international aviation bunkers</i>	-	26.9	-	-	26.9	41.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	414.7	96.1%	22.4	22.4
Road - oil	280.3	12.8%	15.1	37.5
Main activity prod. elec. and heat - gas	137.1	57.1%	7.4	44.9
Manufacturing industries - coal/peat	136.4	-18.3%	7.4	52.3
Manufacturing industries - oil	116.4	-20.8%	6.3	58.5
Non-specified other - oil	72.1	-24.1%	3.9	62.4
Unallocated autoproducers - coal/peat	45.7	39.4%	2.5	64.9
Manufacturing industries - gas	40.5	54.6%	2.2	67.1
Non-specified other - gas	38.9	251.8%	2.1	69.2
Residential - oil	37.3	-5.4%	2.0	71.2
Main activity prod. elec. and heat - oil	35.7	-73.2%	1.9	73.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>1 519.0</i>	<i>12.7%</i>	<i>82.0</i>	<i>82.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Economies in Transition

Figure 1. CO₂ emissions by fuel

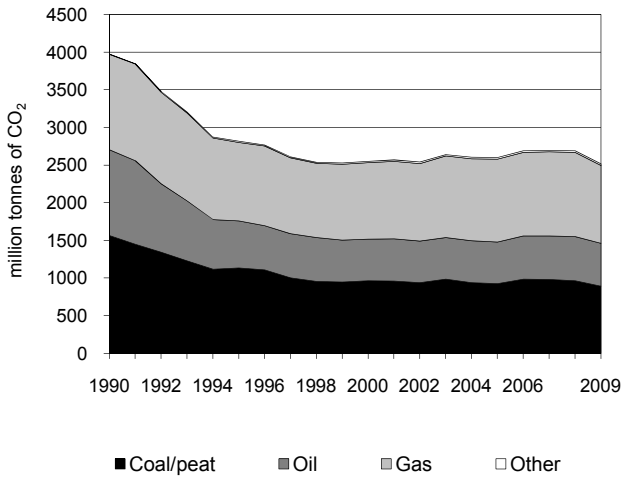


Figure 2. CO₂ emissions by sector

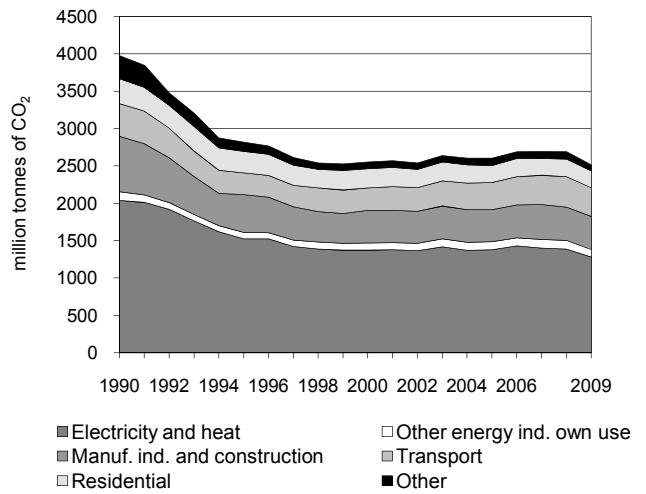


Figure 3. CO₂ emissions by sector

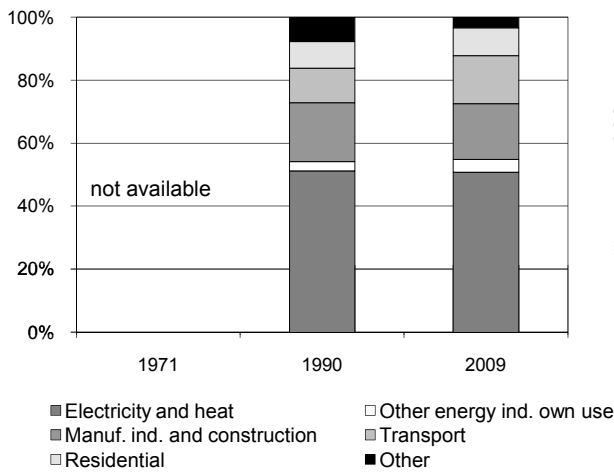


Figure 4. Reference vs Sectoral Approach

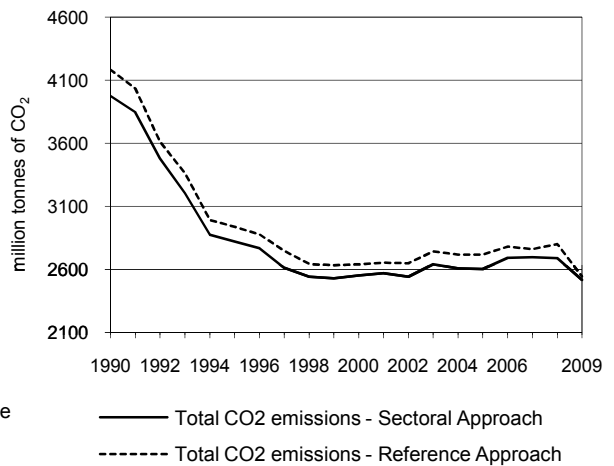


Figure 5. Electricity generation by fuel

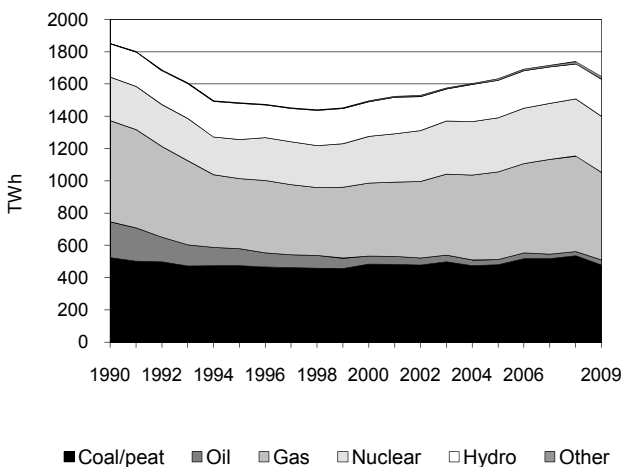
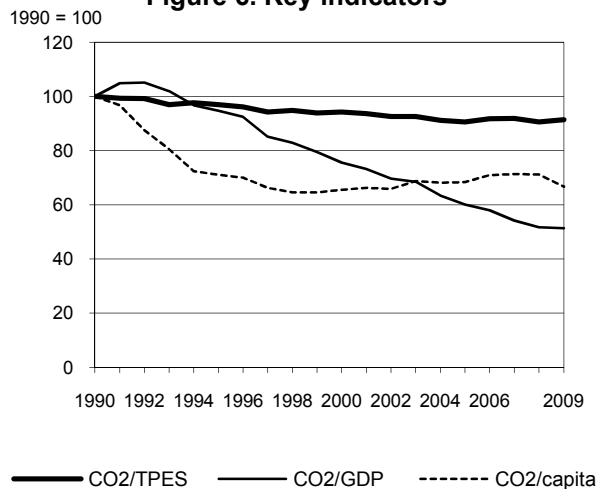


Figure 6. Key indicators



Economies in Transition

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	3 975.9	2 820.2	2 553.2	2 603.0	2 696.6	2 690.2	2 517.0	-36.7%
CO ₂ Reference Approach (Mt of CO ₂)	4 183.7	2 937.4	2 639.7	2 716.1	2 760.3	2 799.9	2 543.2	-39.2%
TPES (PJ)	63 579	46 502	43 341	45 957	46 925	47 523	44 029	-30.7%
TPES (Mtoe)	1 518.6	1 110.7	1 035.2	1 097.7	1 120.8	1 135.1	1 051.6	-30.7%
GDP (billion 2000 USD)	841.5	630.5	715.3	916.2	1 054.0	1 102.5	1 038.7	23.4%
GDP PPP (billion 2000 USD)	2 976.7	2 092.4	2 314.2	3 014.1	3 481.3	3 644.8	3 401.5	14.3%
Population (millions)	320.5	319.8	314.4	307.1	305.0	304.5	304.2	-5.1%
CO ₂ / TPES (t CO ₂ per TJ)	62.5	60.6	58.9	56.6	57.5	56.6	57.2	-8.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	4.72	4.47	3.57	2.84	2.56	2.44	2.42	-48.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.34	1.35	1.10	0.86	0.77	0.74	0.74	-44.6%
CO ₂ / population (t CO ₂ per capita)	12.41	8.82	8.12	8.48	8.84	8.84	8.28	-33.3%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	894.6	568.7	1 031.8	21.9	2 517.0	-36.7%
Main activity producer elec. and heat	521.6	26.0	378.4	0.7	926.7	-40.9%
Unallocated autoproducers	113.1	31.7	194.4	14.0	353.2	-24.7%
Other energy industry own use	16.0	53.6	31.5	0.8	101.9	-11.9%
Manufacturing industries and construction	183.5	88.5	167.2	5.7	444.9	-40.1%
Transport	0.1	309.2	72.7	-	382.0	-12.3%
<i>of which: road</i>	-	278.9	0.5	-	279.4	1.5%
Other	60.3	59.6	187.6	0.7	308.3	-52.1%
<i>of which: residential</i>	39.1	22.9	162.0	-	224.0	-33.4%
Reference Approach	884.1	586.5	1 050.7	21.9	2 543.2	-39.2%
Diff. due to losses and/or transformation	0.9	18.3	19.1	0.0	38.3	
Statistical differences	- 11.4	- 0.6	- 0.2	- 0.0	- 12.1	
<i>Memo: international marine bunkers</i>	-	3.6	-	-	3.6	-63.6%
<i>Memo: international aviation bunkers</i>	-	22.9	-	-	22.9	-37.5%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	521.6	-34.1%	13.8	13.8
Main activity prod. elec. and heat - gas	378.4	-24.6%	10.0	23.9
Road - oil	278.9	2.3%	7.4	31.3
Unallocated autoproducers - gas	194.4	-11.9%	5.2	36.4
Manufacturing industries - coal/peat	183.5	-38.5%	4.9	41.3
Manufacturing industries - gas	167.2	-30.9%	4.4	45.7
Residential - gas	162.0	5.0%	4.3	50.0
Unallocated autoproducers - coal/peat	113.1	-31.1%	3.0	53.0
Manufacturing industries - oil	88.5	-55.7%	2.3	55.4
Other transport - gas	72.2	-6.5%	1.9	57.3
Other energy industry own use - oil	53.6	-17.0%	1.4	58.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>2 517.0</i>	<i>-36.7%</i>	<i>66.8</i>	<i>66.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Non-Annex I Parties

Figure 1. CO₂ emissions by fuel

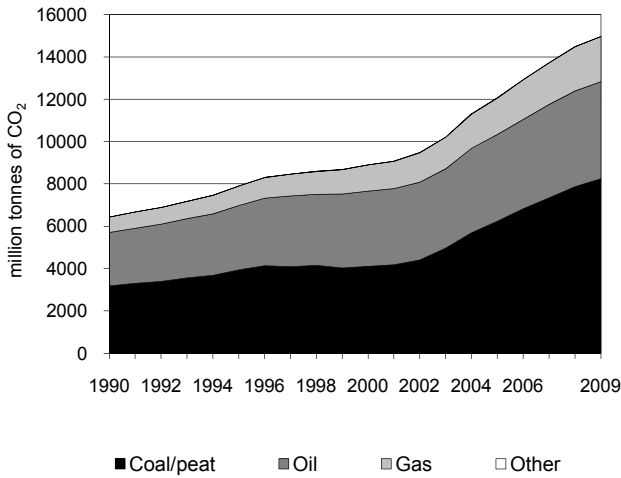


Figure 2. CO₂ emissions by sector

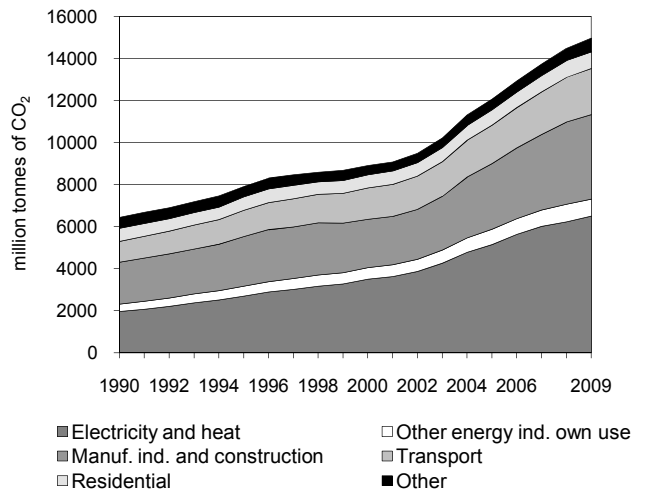


Figure 3. CO₂ emissions by sector

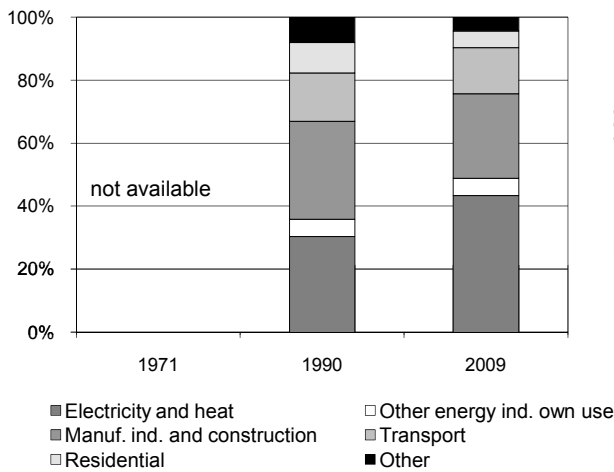


Figure 4. Reference vs Sectoral Approach

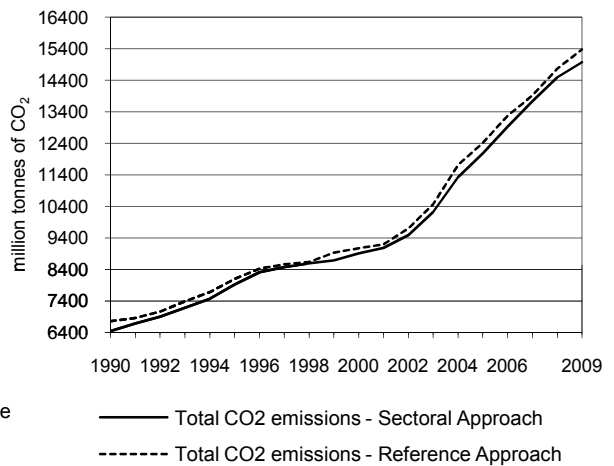


Figure 5. Electricity generation by fuel

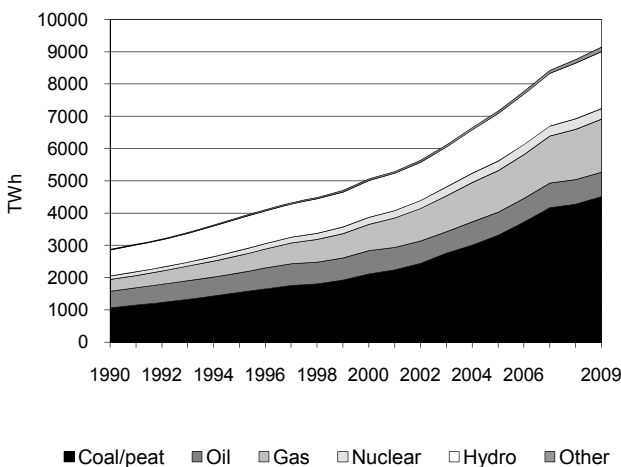
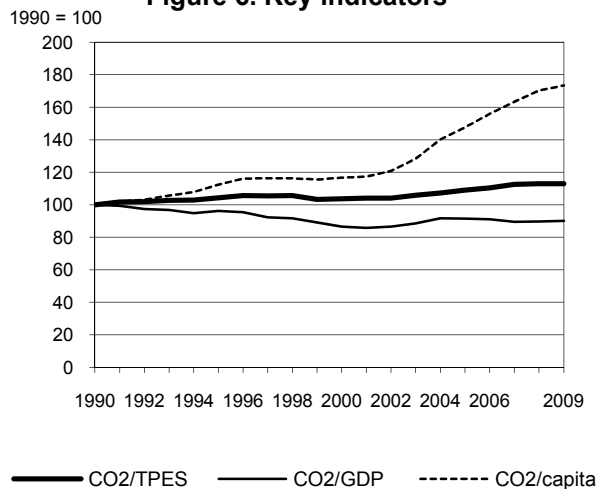


Figure 6. Key indicators



Non-Annex I Parties

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	6 444.4	7 913.9	8 905.9	12 074.5	13 736.6	14 493.3	14 972.0	132.3%
CO ₂ Reference Approach (Mt of CO ₂)	6 754.2	8 100.7	9 070.8	12 410.2	13 912.4	14 770.1	15 373.8	127.6%
TPES (PJ)	125 630	147 957	167 322	215 972	238 026	250 287	258 508	105.8%
TPES (Mtoe)	3 000.6	3 533.9	3 996.4	5 158.4	5 685.2	5 978.0	6 174.4	105.8%
GDP (billion 2000 USD)	4 337.8	5 538.6	6 923.5	8 888.4	10 330.3	10 887.4	11 179.6	157.7%
GDP PPP (billion 2000 USD)	10 945.6	14 303.4	18 295.6	24 620.0	29 212.8	31 025.3	32 452.4	196.5%
Population (millions)	4 091.7	4 472.8	4 843.4	5 197.3	5 337.6	5 408.2	5 479.4	33.9%
CO ₂ / TPES (t CO ₂ per TJ)	51.3	53.5	53.2	55.9	57.7	57.9	57.9	12.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.49	1.43	1.29	1.36	1.33	1.33	1.34	-9.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.59	0.55	0.49	0.49	0.47	0.47	0.46	-21.6%
CO ₂ / population (t CO ₂ per capita)	1.58	1.77	1.84	2.32	2.57	2.68	2.73	73.5%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	8 261.7	4 579.8	2 119.2	11.3	14 972.0	132.3%
Main activity producer elec. and heat	4 770.9	542.5	789.4	0.1	6 102.8	231.7%
Unallocated autoproducers	241.1	69.9	87.0	3.1	401.1	236.4%
Other energy industry own use	209.2	277.5	322.4	-	809.2	128.1%
Manufacturing industries and construction	2 569.7	901.7	543.0	7.3	4 021.7	100.6%
Transport	12.5	2 129.9	46.7	-	2 189.0	121.5%
<i>of which: road</i>	-	1 942.4	36.8	-	1 979.2	132.0%
Other	458.3	658.3	330.7	0.8	1 448.1	27.3%
<i>of which: residential</i>	231.2	330.0	235.0	-	796.2	28.2%
Reference Approach	8 549.5	4 652.6	2 160.4	11.3	15 373.8	127.6%
Diff. due to losses and/or transformation	229.2	92.0	31.3	-	352.5	
Statistical differences	58.6	- 19.2	9.9	0.0	49.3	
<i>Memo: international marine bunkers</i>	-	340.3	-	-	340.3	173.8%
<i>Memo: international aviation bunkers</i>	-	178.2	-	-	178.2	102.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	4 770.9	292.7%	19.5	19.5
Manufacturing industries - coal/peat	2 569.7	105.0%	10.5	30.1
Road - oil	1 942.4	127.8%	8.0	38.0
Manufacturing industries - oil	901.7	68.1%	3.7	41.7
Main activity prod. elec. and heat - gas	789.4	259.6%	3.2	44.9
Manufacturing industries - gas	543.0	153.9%	2.2	47.2
Main activity prod. elec. and heat - oil	542.5	33.9%	2.2	49.4
Residential - oil	330.0	59.5%	1.4	50.7
Non-specified other - oil	328.4	33.1%	1.3	52.1
Other energy industry own use - gas	322.4	148.7%	1.3	53.4
Other energy industry own use - oil	277.5	76.7%	1.1	54.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>14 972.0</i>	<i>132.3%</i>	<i>61.3</i>	<i>61.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Annex I Kyoto Parties

Figure 1. CO₂ emissions by fuel

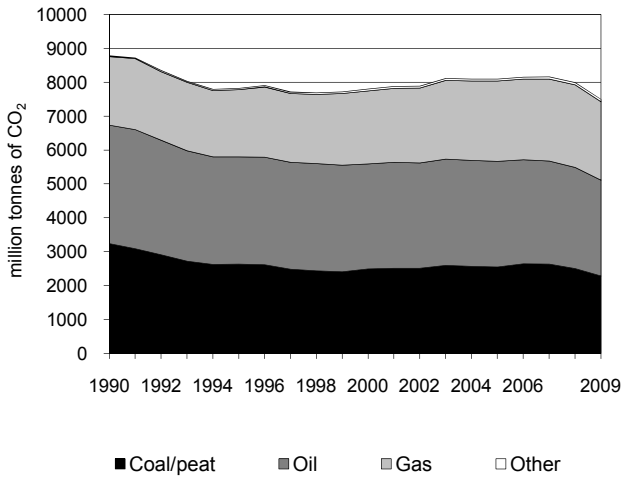


Figure 2. CO₂ emissions by sector

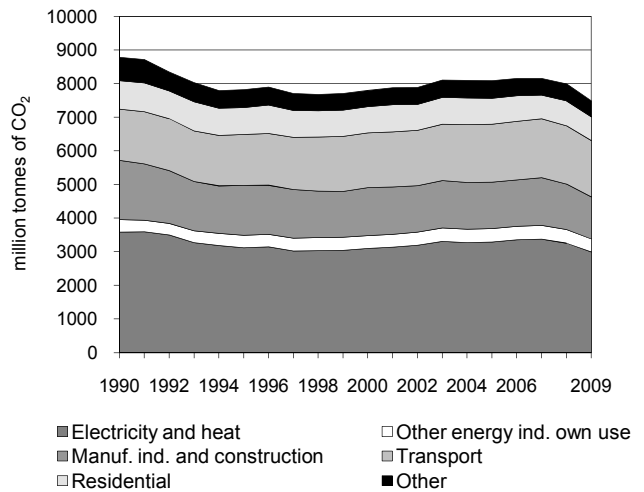


Figure 3. CO₂ emissions by sector

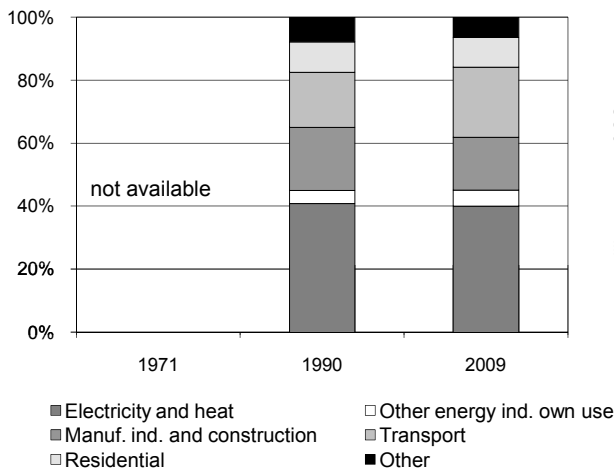


Figure 4. Reference vs Sectoral Approach

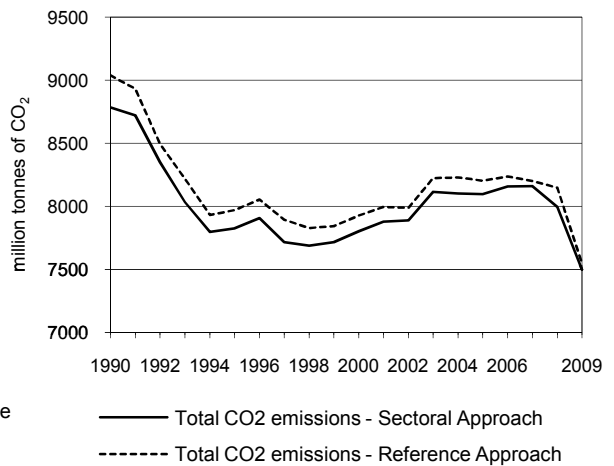


Figure 5. Electricity generation by fuel

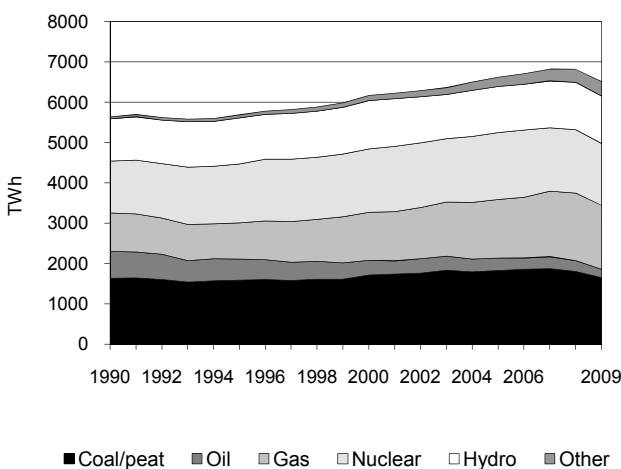
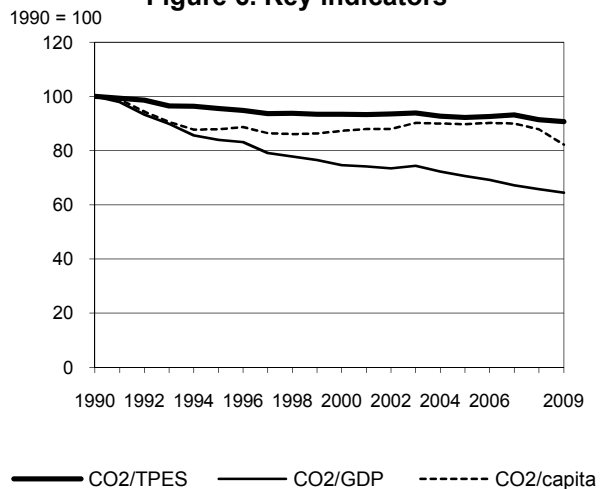


Figure 6. Key indicators



Annex I Kyoto Parties

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	8 785.6	7 824.1	7 802.4	8 097.0	8 161.3	7 995.8	7 497.2	-14.7%
CO ₂ Reference Approach (Mt of CO ₂)	9 039.9	7 970.7	7 925.8	8 204.1	8 199.7	8 148.9	7 547.2	-16.5%
TPES (PJ)	149 406	139 280	142 052	149 255	149 064	148 718	140 617	-5.9%
TPES (Mtoe)	3 568.5	3 326.6	3 392.9	3 564.9	3 560.3	3 552.1	3 358.6	-5.9%
GDP (billion 2000 USD)	12 653.0	13 425.1	15 068.8	16 502.8	17 485.3	17 510.7	16 751.7	32.4%
GDP PPP (billion 2000 USD)	14 861.6	15 006.5	16 960.5	18 965.5	20 313.9	20 472.7	19 545.0	31.5%
Population (millions)	859.4	870.8	875.1	883.1	887.2	889.8	891.9	3.8%
CO ₂ / TPES (t CO ₂ per TJ)	58.8	56.2	54.9	54.2	54.8	53.8	53.3	-9.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.69	0.58	0.52	0.49	0.47	0.46	0.45	-35.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.59	0.52	0.46	0.43	0.40	0.39	0.38	-35.1%
CO ₂ / population (t CO ₂ per capita)	10.22	8.99	8.92	9.17	9.20	8.99	8.41	-17.8%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	2 285.1	2 830.7	2 308.1	73.2	7 497.2	-14.7%
Main activity producer elec. and heat	1 554.9	109.6	756.2	24.0	2 444.7	-16.8%
Unallocated autoproducers	191.1	72.0	261.3	31.5	555.9	-15.0%
Other energy industry own use	54.1	214.5	114.7	0.7	384.0	4.5%
Manufacturing industries and construction	408.6	402.9	426.2	14.6	1 252.3	-28.8%
Transport	0.5	1 591.4	82.0	-	1 673.9	9.3%
<i>of which: road</i>	-	1 448.3	2.7	-	1 451.0	14.9%
Other	75.9	440.3	667.7	2.4	1 186.3	-22.8%
<i>of which: residential</i>	50.3	194.6	464.3	0.0	709.2	-16.3%
Reference Approach	2 279.0	2 865.0	2 330.0	73.2	7 547.2	-16.5%
Diff. due to losses and/or transformation	10.9	4.8	27.8	0.0	43.6	
Statistical differences	- 17.0	29.4	- 5.9	- 0.0	6.5	
<i>Memo: international marine bunkers</i>	-	171.0	-	-	171.0	20.0%
<i>Memo: international aviation bunkers</i>	-	176.9	-	-	176.9	37.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	1 554.9	-12.8%	15.4	15.4
Road - oil	1 448.3	15.0%	14.3	29.7
Main activity prod. elec. and heat - gas	756.2	19.0%	7.5	37.1
Residential - gas	464.3	29.6%	4.6	41.7
Manufacturing industries - gas	426.2	-11.7%	4.2	45.9
Manufacturing industries - coal/peat	408.6	-42.8%	4.0	50.0
Manufacturing industries - oil	402.9	-27.7%	4.0	54.0
Unallocated autoproducers - gas	261.3	8.7%	2.6	56.5
Non-specified other - oil	245.7	-31.2%	2.4	59.0
Other energy industry own use - oil	214.5	-4.1%	2.1	61.1
Non-specified other - gas	203.4	41.2%	2.0	63.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>7 497.2</i>	<i>-14.7%</i>	<i>74.1</i>	<i>74.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

OECD Total

Figure 1. CO₂ emissions by fuel

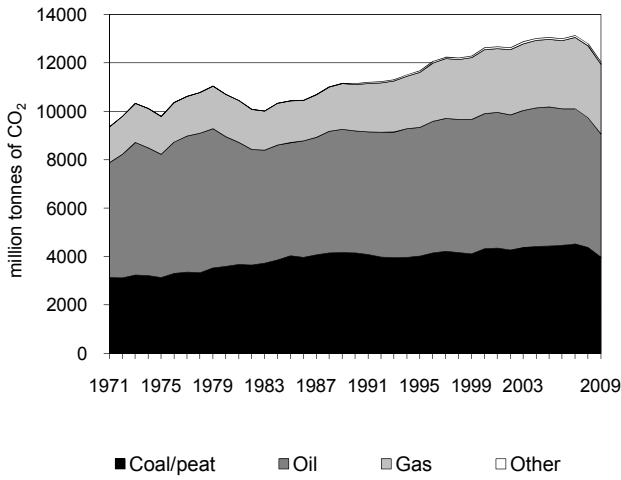


Figure 2. CO₂ emissions by sector

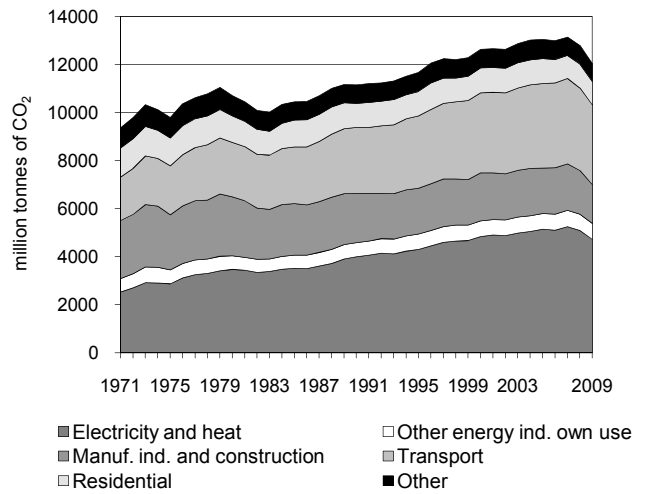


Figure 3. CO₂ emissions by sector

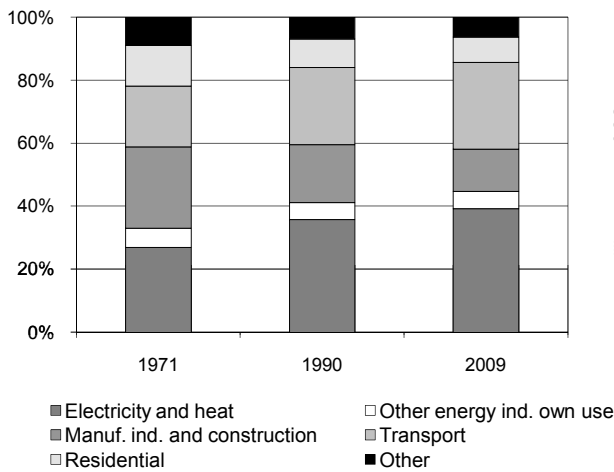


Figure 4. Reference vs Sectoral Approach

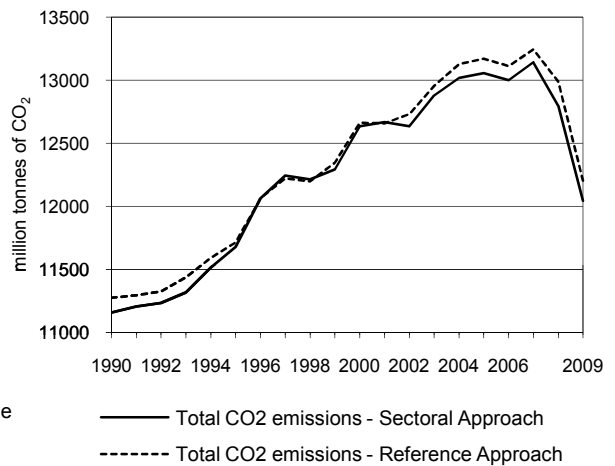


Figure 5. Electricity generation by fuel

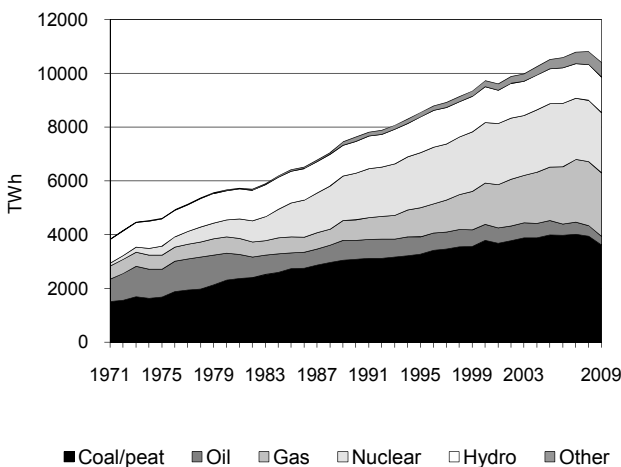
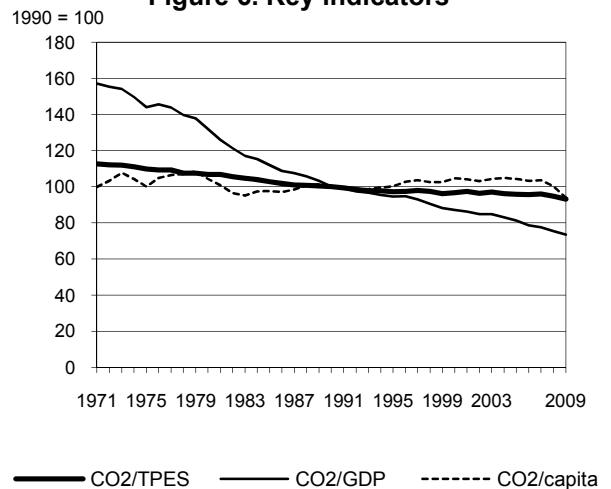


Figure 6. Key indicators



OECD Total *

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	11 157.6	11 679.0	12 633.9	13 055.6	13 141.6	12 798.7	12 044.7	8.0%
CO ₂ Reference Approach (Mt of CO ₂)	11 274.8	11 714.5	12 662.4	13 171.3	13 245.0	12 988.0	12 203.6	8.2%
TPES (PJ)	189 331	204 028	221 572	231 181	232 481	229 469	219 293	15.8%
TPES (Mtoe)	4 522.1	4 873.1	5 292.1	5 521.7	5 552.7	5 480.8	5 237.7	15.8%
GDP (billion 2000 USD)	20 182.0	22 346.5	26 223.1	29 065.7	30 677.1	30 711.6	29 633.4	46.8%
GDP PPP (billion 2000 USD)	21 349.1	23 695.0	28 058.4	31 279.1	33 136.1	33 241.7	32 113.9	50.4%
Population (millions)	1 064.1	1 111.4	1 151.8	1 193.0	1 209.4	1 217.5	1 224.9	15.1%
CO ₂ / TPES (t CO ₂ per TJ)	58.9	57.2	57.0	56.5	56.5	55.8	54.9	-6.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.55	0.52	0.48	0.45	0.43	0.42	0.41	-26.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.52	0.49	0.45	0.42	0.40	0.39	0.38	-28.2%
CO ₂ / population (t CO ₂ per capita)	10.49	10.51	10.97	10.94	10.87	10.51	9.83	-6.2%

Ratios are based on the Sectoral Approach.

*Excludes Estonia and Slovenia prior to 1990.

2009 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Natural gas	Other **	Total	% change 90-09
Sectoral Approach	3 971.3	5 097.2	2 882.7	93.5	12 044.7	8.0%
Main activity producer elec. and heat	3 266.4	177.3	903.9	37.5	4 385.0	21.8%
Unallocated autoproducers	140.5	60.1	114.5	24.4	339.5	-14.6%
Other energy industry own use	71.0	357.2	228.3	0.0	656.6	10.6%
Manufacturing industries and construction	405.1	597.9	595.7	28.1	1 626.8	-20.6%
Transport	0.4	3 265.6	48.7	-	3 314.7	21.0%
<i>of which: road</i>	-	2 954.5	6.1	-	2 960.5	27.3%
Other	87.9	639.1	991.6	3.6	1 722.2	-3.1%
<i>of which: residential</i>	63.8	278.4	619.9	0.0	962.1	-4.3%
Reference Approach	4 055.4	5 157.3	2 897.3	93.5	12 203.6	8.2%
Diff. due to losses and/or transformation	44.0	- 3.3	6.2	0.0	46.8	
Statistical differences	40.2	63.4	8.4	0.0	112.0	
<i>Memo: international marine bunkers</i>	-	279.3	-	-	279.3	20.5%
<i>Memo: international aviation bunkers</i>	-	248.2	-	-	248.2	75.9%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	3 266.4	15.2%	21.3	21.3
Road - oil	2 954.5	27.1%	19.3	40.7
Main activity prod. elec. and heat - gas	903.9	174.5%	5.9	46.6
Residential - gas	619.9	33.5%	4.1	50.6
Manufacturing industries - oil	597.9	-16.6%	3.9	54.5
Manufacturing industries - gas	595.7	2.0%	3.9	58.4
Manufacturing industries - coal/peat	405.1	-45.4%	2.6	61.1
Non-specified other - gas	371.7	44.4%	2.4	63.5
Non-specified other - oil	360.7	-13.3%	2.4	65.9
Other energy industry own use - oil	357.2	-1.4%	2.3	68.2
Other transport - oil	311.2	-15.9%	2.0	70.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>12 044.7</i>	<i>8.0%</i>	<i>78.7</i>	<i>78.7</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

OECD Americas

Figure 1. CO₂ emissions by fuel

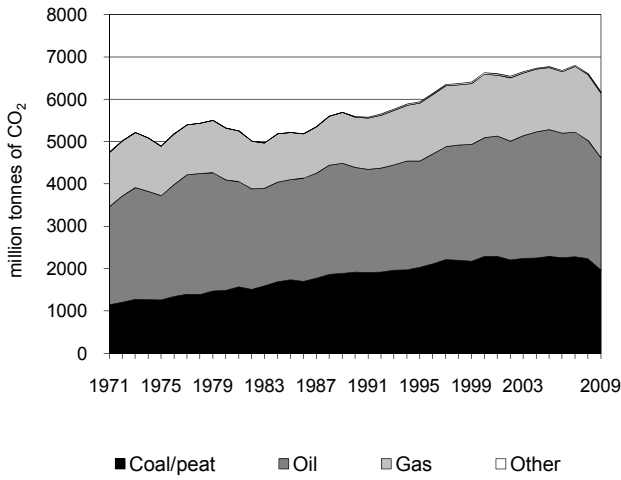


Figure 2. CO₂ emissions by sector

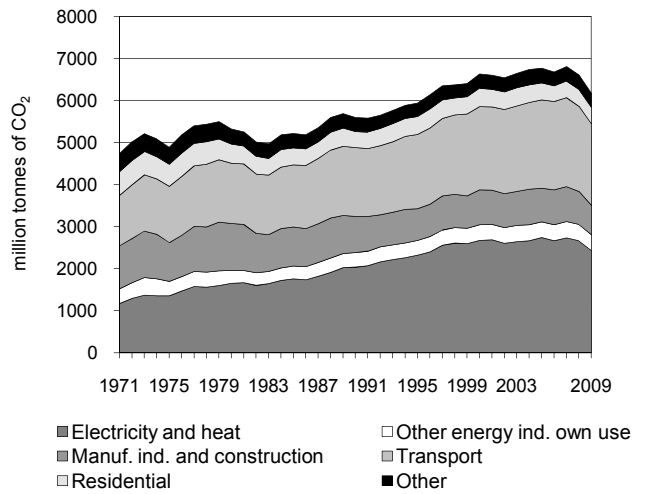


Figure 3. CO₂ emissions by sector

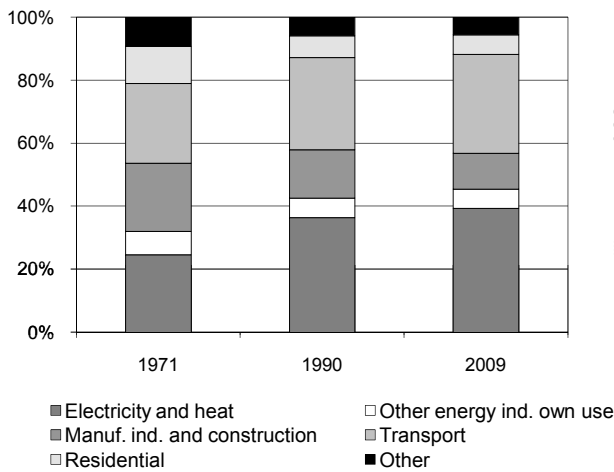


Figure 4. Reference vs Sectoral Approach

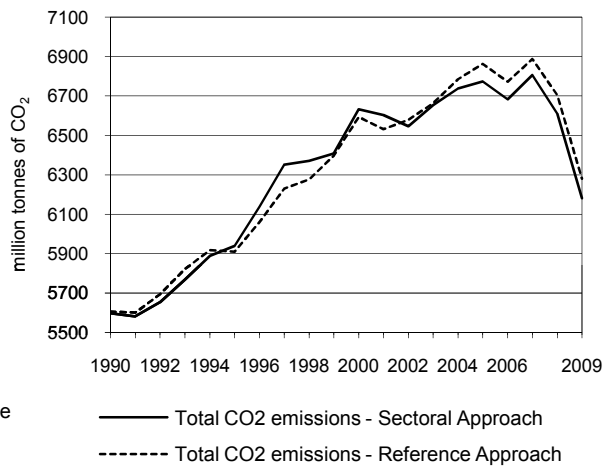


Figure 5. Electricity generation by fuel

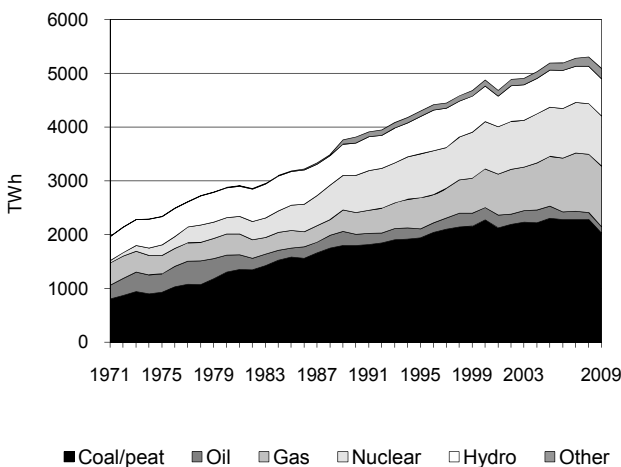
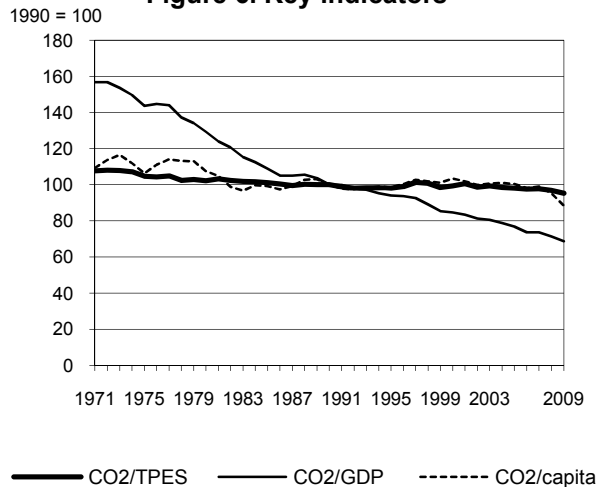


Figure 6. Key indicators



OECD Americas

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	5 596.9	5 939.6	6 632.8	6 774.5	6 807.1	6 609.3	6 180.4	10.4%
CO ₂ Reference Approach (Mt of CO ₂)	5 604.9	5 909.4	6 593.0	6 863.0	6 888.1	6 704.8	6 279.7	12.0%
TPES (PJ)	94 605	102 396	112 818	116 767	117 795	115 302	109 713	16.0%
TPES (Mtoe)	2 259.6	2 445.7	2 694.6	2 788.9	2 813.5	2 754.0	2 620.5	16.0%
GDP (billion 2000 USD)	8 100.7	9 143.8	11 335.8	12 763.9	13 395.0	13 412.4	13 031.5	60.9%
GDP PPP (billion 2000 USD)	8 498.1	9 589.5	11 903.1	13 400.9	14 081.4	14 109.4	13 697.2	61.2%
Population (millions)	372.3	401.4	426.8	448.6	457.2	461.5	465.6	25.1%
CO ₂ / TPES (t CO ₂ per TJ)	59.2	58.0	58.8	58.0	57.8	57.3	56.3	-4.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.69	0.65	0.59	0.53	0.51	0.49	0.47	-31.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.66	0.62	0.56	0.51	0.48	0.47	0.45	-31.5%
CO ₂ / population (t CO ₂ per capita)	15.03	14.80	15.54	15.10	14.89	14.32	13.27	-11.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	1 967.5	2 654.7	1 530.2	28.0	6 180.4	10.4%
Main activity producer elec. and heat	1 829.0	77.3	440.0	13.4	2 359.7	21.7%
Unallocated autoproducers	15.9	12.6	40.1	5.6	74.2	-24.5%
Other energy industry own use	7.7	196.2	172.8	-	376.7	8.7%
Manufacturing industries and construction	108.6	238.1	346.6	8.0	701.2	-18.4%
Transport	-	1 899.1	40.5	-	1 939.6	18.5%
<i>of which: road</i>	-	1 689.6	1.8	-	1 691.4	28.0%
Other	6.4	231.3	490.3	1.0	729.0	1.7%
<i>of which: residential</i>	0.1	89.4	295.2	-	384.7	-0.4%
Reference Approach	2 037.5	2 673.8	1 540.3	28.0	6 279.7	12.0%
Diff. due to losses and/or transformation	14.9	- 17.0	1.7	-	- 0.4	
Statistical differences	55.1	36.1	8.5	- 0.0	99.7	
<i>Memo: international marine bunkers</i>	-	83.1	-	-	83.1	-11.8%
<i>Memo: international aviation bunkers</i>	-	75.2	-	-	75.2	59.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	1 829.0	12.3%	23.2	23.2
Road - oil	1 689.6	27.9%	21.5	44.7
Main activity prod. elec. and heat - gas	440.0	168.7%	5.6	50.3
Manufacturing industries - gas	346.6	-2.0%	4.4	54.7
Residential - gas	295.2	10.0%	3.7	58.4
Manufacturing industries - oil	238.1	-13.2%	3.0	61.5
Other transport - oil	209.5	-23.0%	2.7	64.1
Other energy industry own use - oil	196.2	-4.1%	2.5	66.6
Non-specified other - gas	195.1	19.1%	2.5	69.1
Other energy industry own use - gas	172.8	24.9%	2.2	71.3
Non-specified other - oil	141.9	5.0%	1.8	73.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>6 180.4</i>	<i>10.4%</i>	<i>78.5</i>	<i>78.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

OECD Asia Oceania

Figure 1. CO₂ emissions by fuel

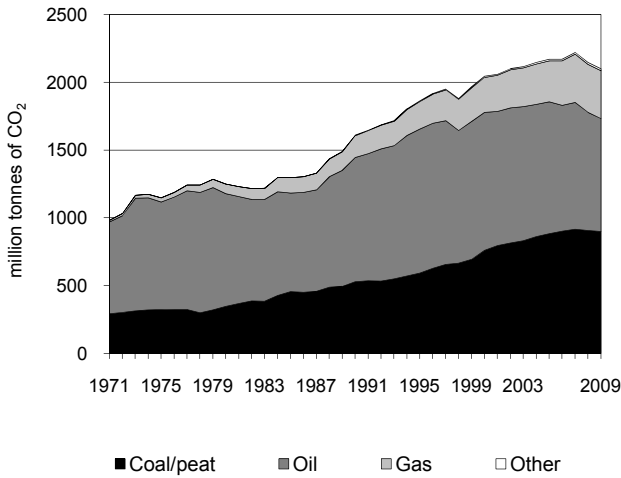


Figure 2. CO₂ emissions by sector

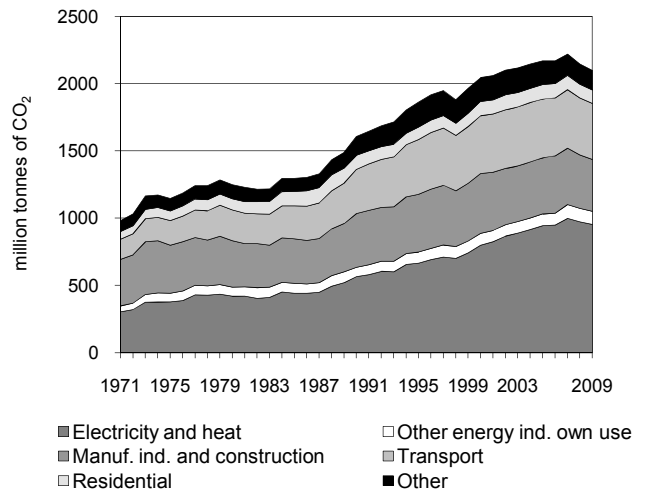


Figure 3. CO₂ emissions by sector

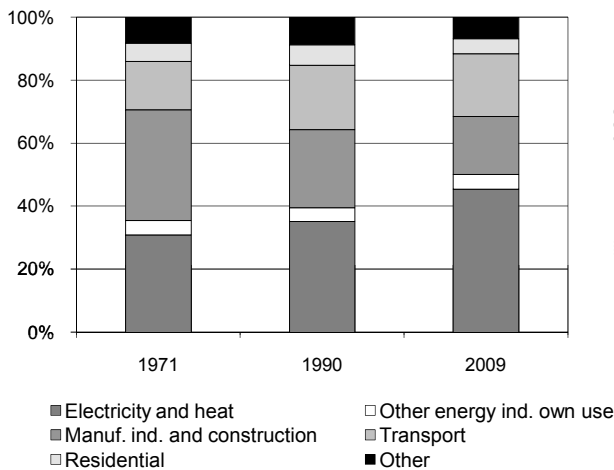


Figure 4. Reference vs Sectoral Approach

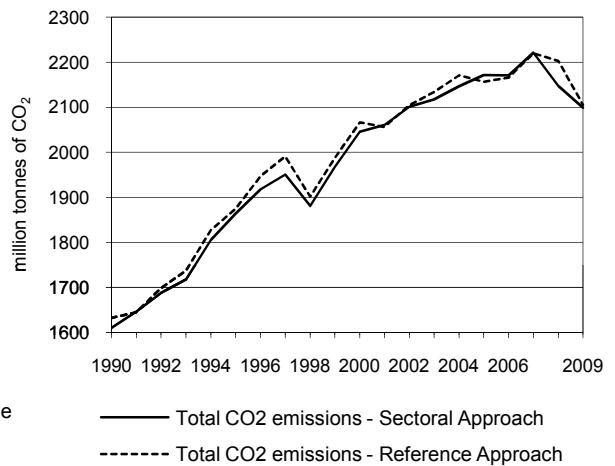


Figure 5. Electricity generation by fuel

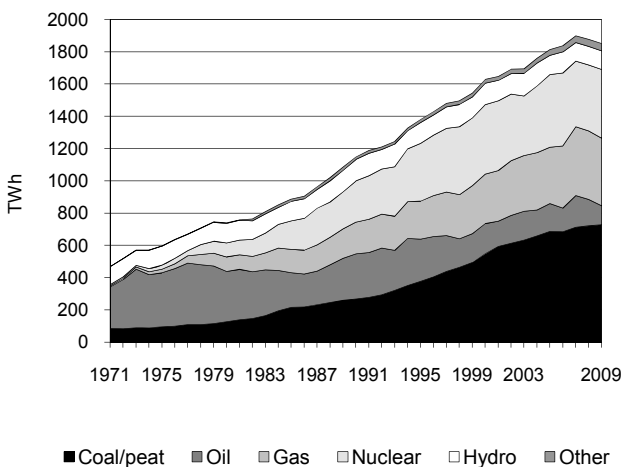
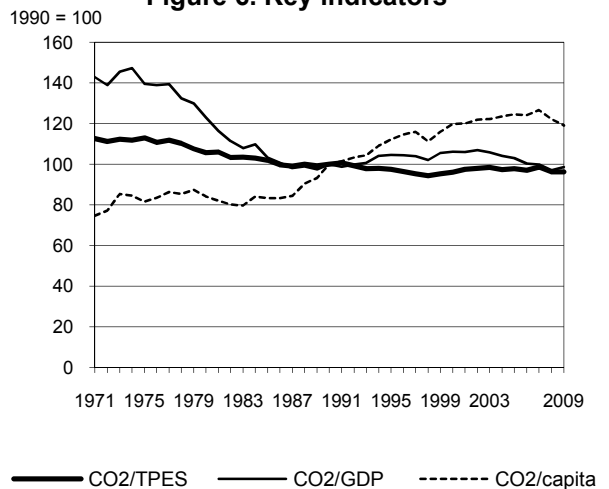


Figure 6. Key indicators



OECD Asia Oceania

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	1 610.2	1 863.9	2 045.8	2 171.4	2 221.5	2 147.4	2 099.1	30.4%
CO ₂ Reference Approach (Mt of CO ₂)	1 631.9	1 874.7	2 066.2	2 156.7	2 220.1	2 202.8	2 105.2	29.0%
TPES (PJ)	26 918	31 988	35 596	37 137	37 708	37 324	36 475	35.5%
TPES (Mtoe)	642.9	764.0	850.2	887.0	900.6	891.5	871.2	35.5%
GDP (billion 2000 USD)	4 833.0	5 348.0	5 789.9	6 332.9	6 680.8	6 648.3	6 389.9	32.2%
GDP PPP (billion 2000 USD)	3 843.9	4 359.5	4 828.3	5 376.0	5 709.0	5 706.4	5 532.7	43.9%
Population (millions)	191.7	198.1	203.4	207.5	208.9	209.3	209.9	9.5%
CO ₂ / TPES (t CO ₂ per TJ)	59.8	58.3	57.5	58.5	58.9	57.5	57.6	-3.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.33	0.35	0.35	0.34	0.33	0.32	0.33	-1.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.42	0.43	0.42	0.40	0.39	0.38	0.38	-9.4%
CO ₂ / population (t CO ₂ per capita)	8.40	9.41	10.06	10.46	10.64	10.26	10.00	19.0%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	900.8	832.1	352.5	13.7	2 099.1	30.4%
Main activity producer elec. and heat	619.9	48.5	172.5	1.2	842.1	74.3%
Unallocated autoproducers	74.9	20.4	12.9	3.2	111.5	35.5%
Other energy industry own use	35.0	48.4	15.4	-	98.8	39.9%
Manufacturing industries and construction	164.6	157.3	54.1	8.5	384.5	-3.6%
Transport	0.4	414.8	3.1	-	418.2	27.0%
<i>of which: road</i>	-	375.1	2.2	-	377.3	31.6%
Other	6.0	142.7	94.5	0.8	244.0	-0.6%
<i>of which: residential</i>	3.6	48.6	47.8	-	100.0	-4.0%
Reference Approach	897.5	850.4	343.6	13.7	2 105.2	29.0%
Diff. due to losses and/or transformation	10.6	- 3.5	- 3.2	-	3.9	
Statistical differences	- 13.9	21.8	- 5.7	0.0	2.2	
<i>Memo: international marine bunkers</i>	-	46.7	-	-	46.7	76.4%
<i>Memo: international aviation bunkers</i>	-	40.2	-	-	40.2	88.4%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	619.9	163.2%	24.5	24.5
Road - oil	375.1	30.9%	14.8	39.3
Main activity prod. elec. and heat - gas	172.5	87.5%	6.8	46.1
Manufacturing industries - coal/peat	164.6	-9.2%	6.5	52.6
Manufacturing industries - oil	157.3	-16.9%	6.2	58.8
Non-specified other - oil	94.2	-24.9%	3.7	62.5
Unallocated autoproducers - coal/peat	74.9	40.8%	3.0	65.5
Manufacturing industries - gas	54.1	104.5%	2.1	67.6
Residential - oil	48.6	3.4%	1.9	69.5
Main activity prod. elec. and heat - oil	48.5	-68.8%	1.9	71.4
Other energy industry own use - oil	48.4	10.4%	1.9	73.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>2 099.1</i>	<i>30.4%</i>	<i>82.9</i>	<i>82.9</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

OECD Europe

Figure 1. CO₂ emissions by fuel

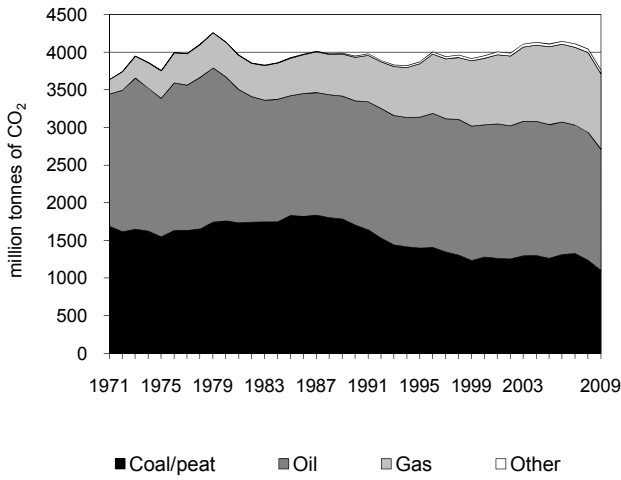


Figure 2. CO₂ emissions by sector

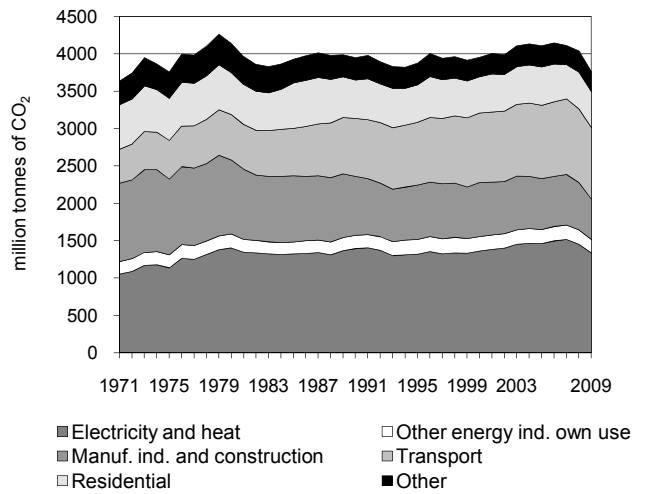


Figure 3. CO₂ emissions by sector

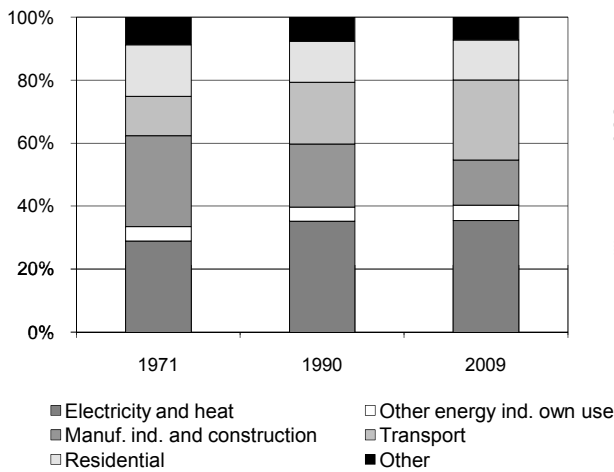


Figure 4. Reference vs Sectoral Approach

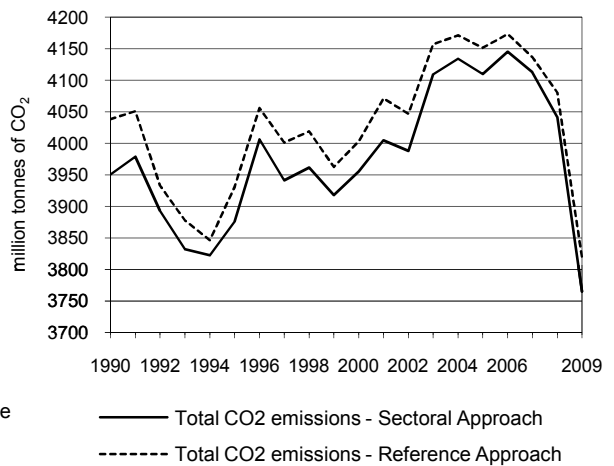


Figure 5. Electricity generation by fuel

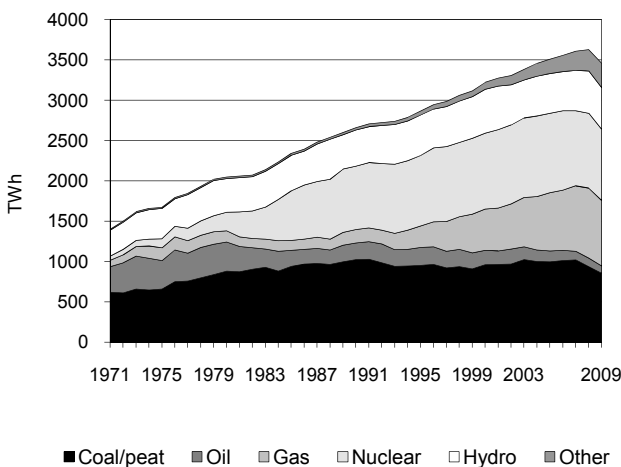
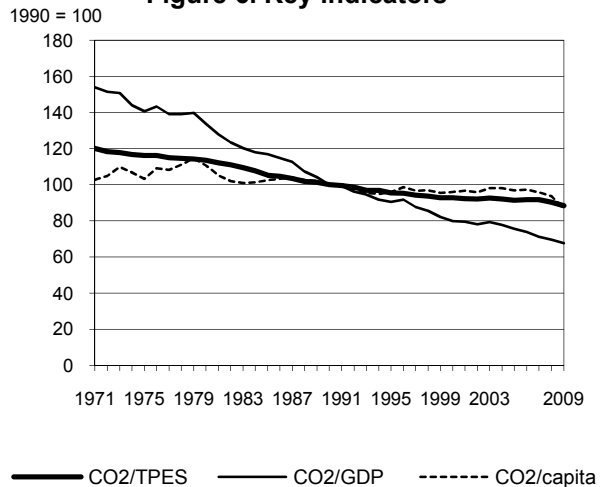


Figure 6. Key indicators



OECD Europe *

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	3 950.5	3 875.6	3 955.3	4 109.7	4 113.0	4 041.9	3 765.2	-4.7%
CO ₂ Reference Approach (Mt of CO ₂)	4 038.0	3 930.4	4 003.2	4 151.6	4 136.7	4 080.5	3 818.7	-5.4%
TPES (PJ)	67 808	69 645	73 158	77 278	76 979	76 843	73 105	7.8%
TPES (Mtoe)	1 619.6	1 663.4	1 747.3	1 845.7	1 838.6	1 835.4	1 746.1	7.8%
GDP (billion 2000 USD)	7 248.3	7 854.8	9 097.3	9 968.8	10 601.3	10 650.9	10 211.9	40.9%
GDP PPP (billion 2000 USD)	9 007.1	9 746.0	11 327.1	12 502.2	13 345.7	13 425.9	12 884.0	43.0%
Population (millions)	500.1	511.9	521.7	536.9	543.3	546.6	549.3	9.9%
CO ₂ / TPES (t CO ₂ per TJ)	58.3	55.6	54.1	53.2	53.4	52.6	51.5	-11.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.55	0.49	0.43	0.41	0.39	0.38	0.37	-32.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.44	0.40	0.35	0.33	0.31	0.30	0.29	-33.4%
CO ₂ / population (t CO ₂ per capita)	7.90	7.57	7.58	7.65	7.57	7.39	6.85	-13.2%

Ratios are based on the Sectoral Approach.

*Excludes Estonia and Slovenia prior to 1990.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other **		
Sectoral Approach	1 103.0	1 610.4	1 000.0	51.8	3 765.2	-4.7%
Main activity producer elec. and heat	817.5	51.5	291.4	22.9	1 183.2	0.5%
Unallocated autoproducers	49.7	27.0	61.6	15.5	153.8	-29.1%
Other energy industry own use	28.3	112.6	40.1	0.0	181.1	2.7%
Manufacturing industries and construction	131.9	202.5	195.0	11.6	541.0	-31.5%
Transport	0.0	951.8	5.1	-	956.9	23.6%
of which: road	-	889.7	2.1	-	891.9	24.3%
Other	75.6	265.0	406.8	1.8	749.2	-8.1%
of which: residential	60.1	140.4	276.9	0.0	477.4	-7.3%
Reference Approach	1 120.5	1 633.0	1 013.4	51.8	3 818.7	-5.4%
Diff. due to losses and/or transformation	18.5	17.2	7.7	0.0	43.4	
Statistical differences	- 1.0	5.5	5.6	0.0	10.1	
Memo: international marine bunkers	-	149.6	-	-	149.6	34.5%
Memo: international aviation bunkers	-	132.8	-	-	132.8	83.1%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) ***	Cumulative total (%)
Road - oil	889.7	24.1%	18.2	18.2
Main activity prod. elec. and heat - coal/peat	817.5	-15.8%	16.7	34.9
Main activity prod. elec. and heat - gas	291.4	296.2%	6.0	40.8
Residential - gas	276.9	60.0%	5.7	46.5
Manufacturing industries - oil	202.5	-20.0%	4.1	50.6
Manufacturing industries - gas	195.0	-4.3%	4.0	54.6
Residential - oil	140.4	-29.2%	2.9	57.5
Manufacturing industries - coal/peat	131.9	-59.9%	2.7	60.2
Non-specified other - gas	129.9	58.1%	2.7	62.9
Non-specified other - oil	124.6	-20.0%	2.5	65.4
Other energy industry own use - oil	112.6	-1.2%	2.3	67.7
Memo: total CO₂ from fuel combustion	3 765.2	-4.7%	77.0	77.0

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

European Union - 27

Figure 1. CO₂ emissions by fuel

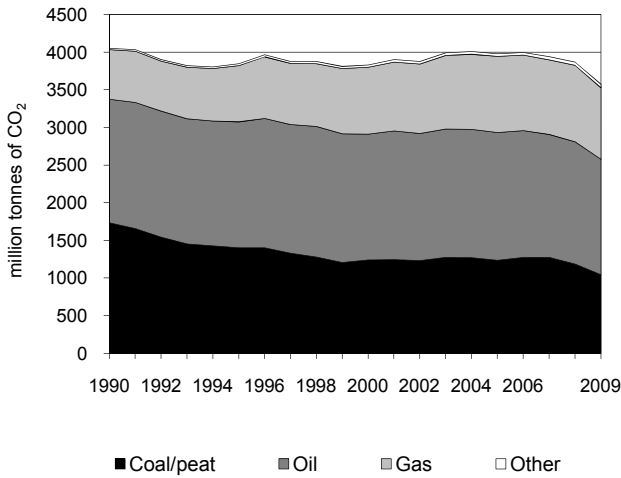


Figure 2. CO₂ emissions by sector

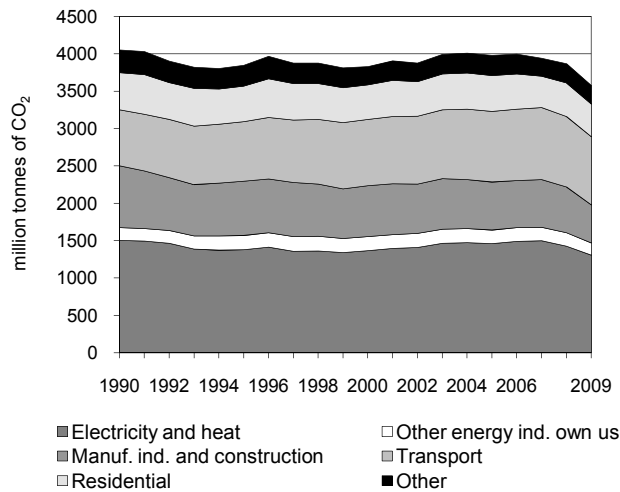


Figure 3. CO₂ emissions by sector

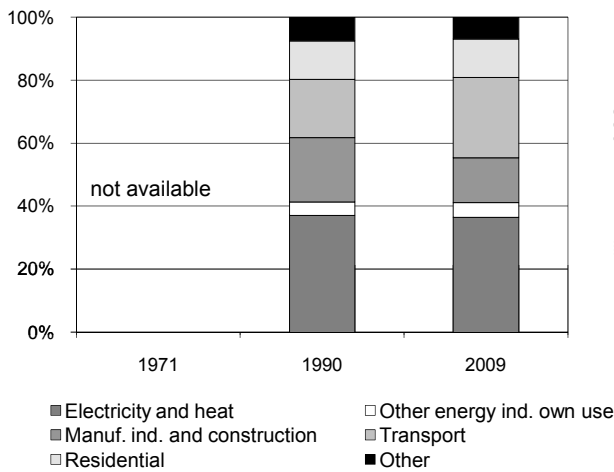


Figure 4. Reference vs Sectoral Approach

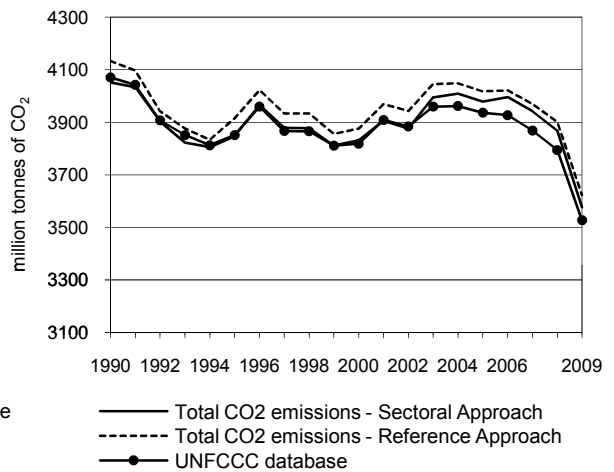


Figure 5. Electricity generation by fuel

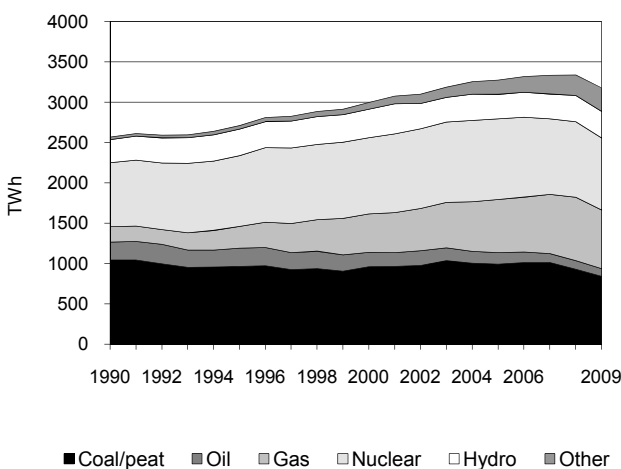
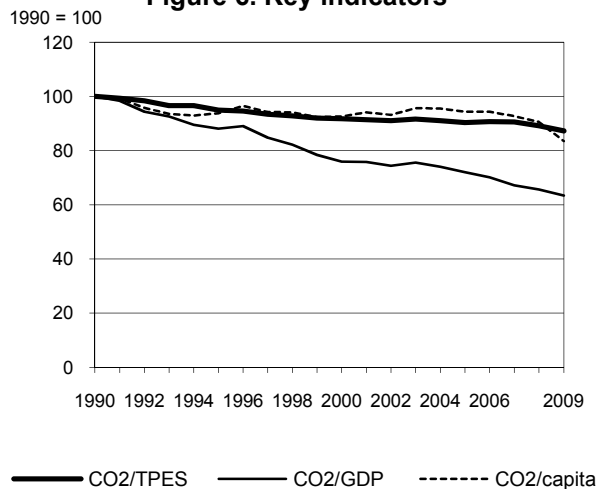


Figure 6. Key indicators



European Union - 27

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	4 051.9	3 847.5	3 831.2	3 978.9	3 941.9	3 868.2	3 576.8	-11.7%
CO ₂ Reference Approach (Mt of CO ₂)	4 133.3	3 915.0	3 876.4	4 018.0	3 969.5	3 900.8	3 623.4	-12.3%
TPES (PJ)	68 507	68 552	70 569	74 502	73 569	73 323	69 325	1.2%
TPES (Mtoe)	1 636.3	1 637.3	1 685.5	1 779.4	1 757.2	1 751.3	1 655.8	1.2%
GDP (billion 2000 USD)	6 807.2	7 342.1	8 486.3	9 279.5	9 858.4	9 905.3	9 481.6	39.3%
GDP PPP (billion 2000 USD)	8 566.4	9 163.0	10 591.8	11 667.3	12 445.5	12 537.9	12 007.6	40.2%
Population (millions)	472.9	478.7	482.9	492.1	496.4	498.7	500.4	5.8%
CO ₂ / TPES (t CO ₂ per TJ)	59.2	56.1	54.3	53.4	53.6	52.8	51.6	-12.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.60	0.52	0.45	0.43	0.40	0.39	0.38	-36.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.47	0.42	0.36	0.34	0.32	0.31	0.30	-37.0%
CO ₂ / population (t CO ₂ per capita)	8.57	8.04	7.93	8.09	7.94	7.76	7.15	-16.6%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	1 045.2	1 533.4	950.3	47.8	3 576.8	-11.7%
Main activity producer elec. and heat	815.9	57.1	268.3	22.3	1 163.6	-8.7%
Unallocated autoproducers	45.5	25.9	57.7	13.1	142.2	-38.2%
Other energy industry own use	24.8	110.5	30.1	0.0	165.5	-3.9%
Manufacturing industries and construction	109.7	196.1	192.7	10.7	509.2	-38.4%
Transport	0.0	907.7	5.1	-	912.9	21.8%
<i>of which: road</i>	-	853.5	2.1	-	855.6	23.0%
Other	49.3	236.1	396.4	1.7	683.5	-14.5%
<i>of which: residential</i>	37.3	128.8	270.0	0.0	436.1	-12.0%
Reference Approach	1 056.3	1 555.6	963.7	47.8	3 623.4	-12.3%
Diff. due to losses and/or transformation	16.7	16.8	8.5	0.0	42.0	
Statistical differences	- 5.6	5.3	4.9	- 0.0	4.6	
<i>Memo: international marine bunkers</i>	-	153.1	-	-	153.1	37.4%
<i>Memo: international aviation bunkers</i>	-	125.6	-	-	125.6	78.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	853.5	22.8%	18.3	18.3
Main activity prod. elec. and heat - coal/peat	815.9	-18.8%	17.5	35.8
Residential - gas	270.0	52.1%	5.8	41.6
Main activity prod. elec. and heat - gas	268.3	158.3%	5.8	47.3
Manufacturing industries - oil	196.1	-21.7%	4.2	51.5
Manufacturing industries - gas	192.7	-22.8%	4.1	55.7
Residential - oil	128.8	-28.3%	2.8	58.4
Non-specified other - gas	126.4	49.4%	2.7	61.1
Other energy industry own use - oil	110.5	-4.8%	2.4	63.5
Manufacturing industries - coal/peat	109.7	-66.1%	2.4	65.8
Non-specified other - oil	107.2	-30.1%	2.3	68.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>3 576.8</i>	<i>-11.7%</i>	<i>76.7</i>	<i>76.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Africa

Figure 1. CO₂ emissions by fuel

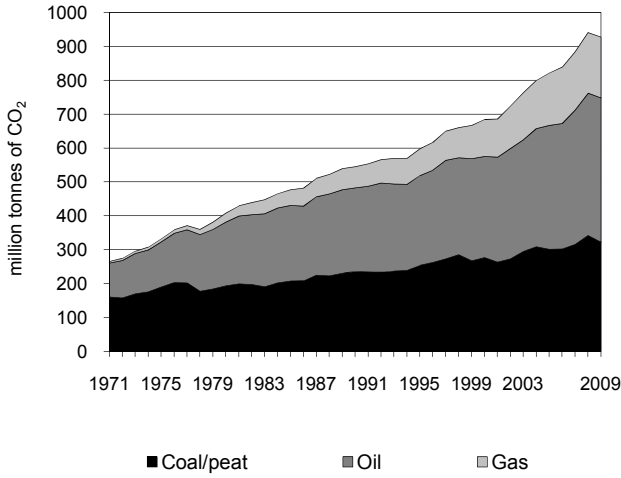


Figure 2. CO₂ emissions by sector

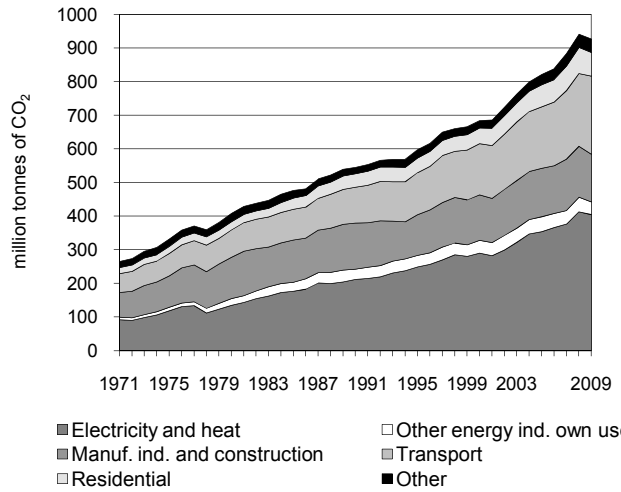


Figure 3. CO₂ emissions by sector

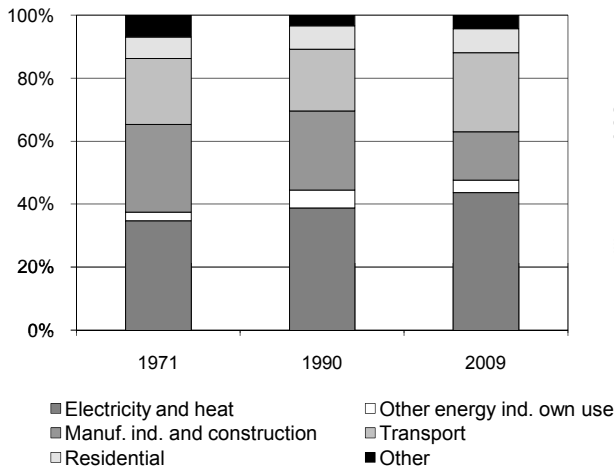


Figure 4. Reference vs Sectoral Approach

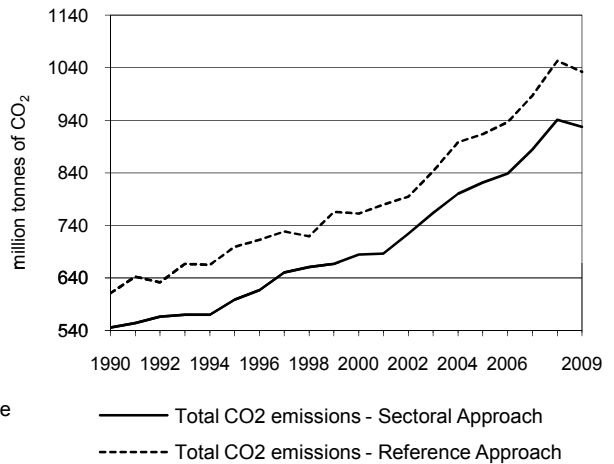


Figure 5. Electricity generation by fuel

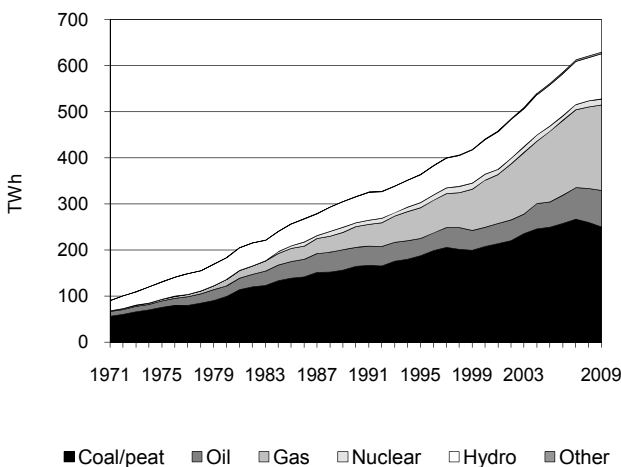
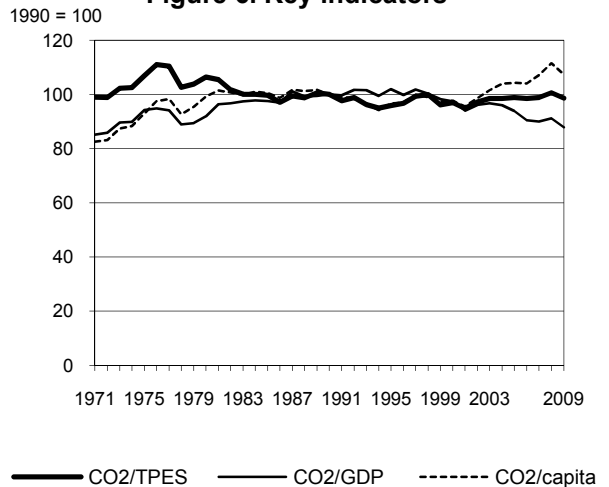


Figure 6. Key indicators



Africa

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	545.4	598.4	684.6	821.7	884.2	941.2	927.5	70.1%
CO ₂ Reference Approach (Mt of CO ₂)	610.5	698.9	762.6	913.5	986.4	1 053.0	1 032.4	69.1%
TPES (PJ)	16 349	18 706	21 174	24 921	26 809	28 028	28 198	72.5%
TPES (Mtoe)	390.5	446.8	505.7	595.2	640.3	669.4	673.5	72.5%
GDP (billion 2000 USD)	462.9	498.4	596.1	742.6	833.9	876.2	896.0	93.6%
GDP PPP (billion 2000 USD)	1 340.6	1 431.5	1 708.9	2 119.4	2 378.3	2 500.3	2 565.3	91.3%
Population (millions)	637.0	723.9	818.6	920.2	963.7	986.2	1 009.0	58.4%
CO ₂ / TPES (t CO ₂ per TJ)	33.4	32.0	32.3	33.0	33.0	33.6	32.9	-1.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.18	1.20	1.15	1.11	1.06	1.07	1.04	-12.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.41	0.42	0.40	0.39	0.37	0.38	0.36	-11.1%
CO ₂ / population (t CO ₂ per capita)	0.86	0.83	0.84	0.89	0.92	0.95	0.92	7.4%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	322.2	426.0	179.3	-	927.5	70.1%
Main activity producer elec. and heat	236.9	56.7	96.7	-	390.3	95.6%
Unallocated autoproducers	9.3	5.3	0.3	-	14.9	19.8%
Other energy industry own use	0.1	14.7	22.4	-	37.2	19.7%
Manufacturing industries and construction	46.0	53.4	42.8	-	142.2	4.0%
Transport	0.0	229.6	2.9	-	232.5	117.7%
<i>of which: road</i>	-	218.9	0.8	-	219.7	116.4%
Other	30.0	66.2	14.3	-	110.5	87.6%
<i>of which: residential</i>	18.7	38.7	13.4	-	70.8	75.1%
Reference Approach	410.4	432.8	189.3	-	1 032.4	69.1%
Diff. due to losses and/or transformation	86.3	4.3	10.5	-	101.1	
Statistical differences	1.9	2.5	-0.5	-	3.8	
<i>Memo: international marine bunkers</i>	-	16.6	-	-	16.6	0.9%
<i>Memo: international aviation bunkers</i>	-	20.9	-	-	20.9	83.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	236.9	65.2%	8.8	8.8
Road - oil	218.9	115.6%	8.1	17.0
Main activity prod. elec. and heat - gas	96.7	287.4%	3.6	20.6
Main activity prod. elec. and heat - oil	56.7	82.1%	2.1	22.7
Manufacturing industries - oil	53.4	3.8%	2.0	24.7
Manufacturing industries - coal/peat	46.0	-34.8%	1.7	26.4
Manufacturing industries - gas	42.8	190.9%	1.6	28.0
Residential - oil	38.7	22.5%	1.4	29.4
Non-specified other - oil	27.5	110.9%	1.0	30.4
Other energy industry own use - gas	22.4	16.2%	0.8	31.3
Residential - coal/peat	18.7	203.5%	0.7	32.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>927.5</i>	<i>70.1%</i>	<i>34.5</i>	<i>34.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Middle East

Figure 1. CO₂ emissions by fuel

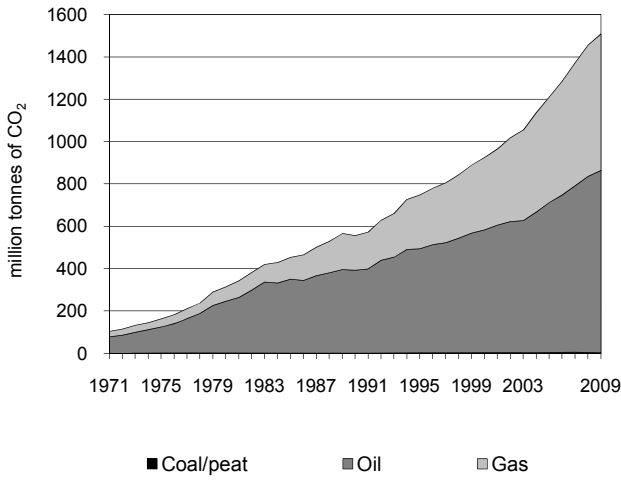


Figure 2. CO₂ emissions by sector

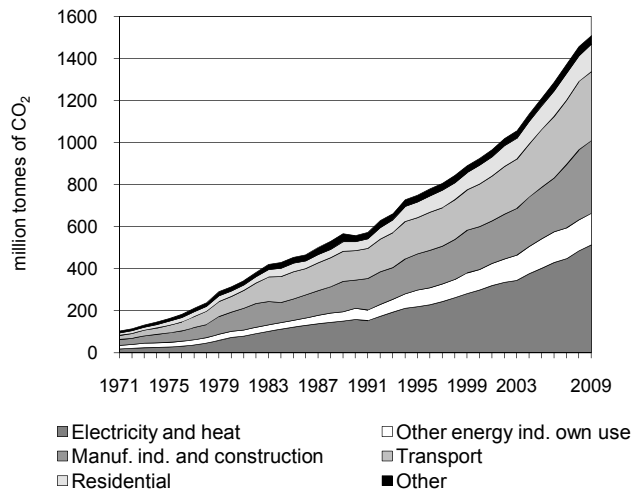


Figure 3. CO₂ emissions by sector

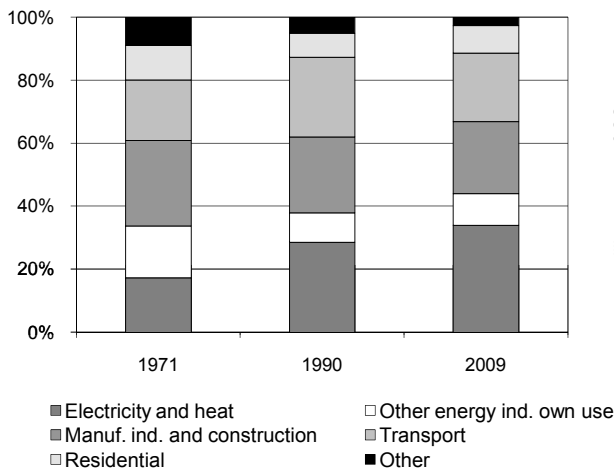


Figure 4. Reference vs Sectoral Approach

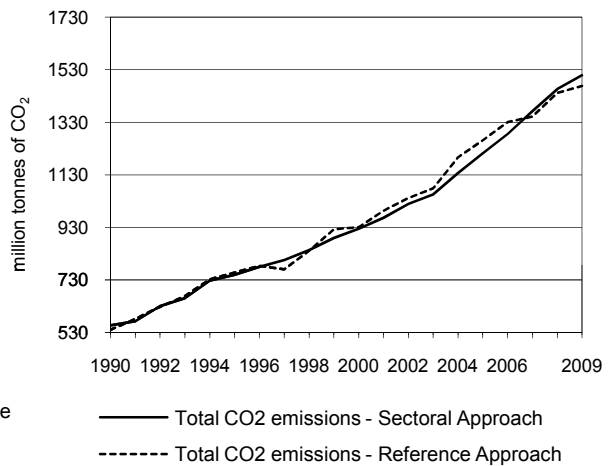


Figure 5. Electricity generation by fuel

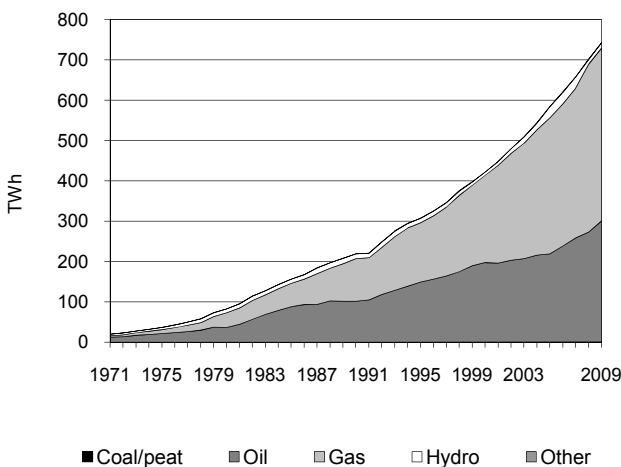
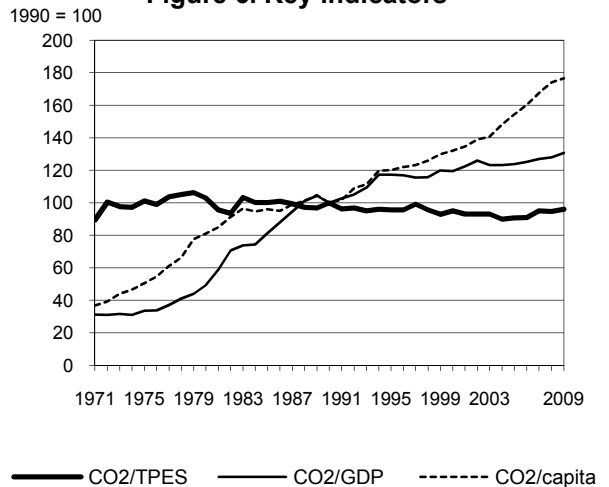


Figure 6. Key indicators



Middle East

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	556.8	749.1	925.3	1 211.1	1 372.0	1 456.3	1 509.0	171.0%
CO ₂ Reference Approach (Mt of CO ₂)	539.5	758.1	931.3	1 260.9	1 351.8	1 441.8	1 468.7	172.3%
TPES (PJ)	8 715	12 272	15 255	20 923	22 616	24 094	24 624	182.6%
TPES (Mtoe)	208.1	293.1	364.4	499.7	540.2	575.5	588.1	182.6%
GDP (billion 2000 USD)	376.7	432.1	524.0	661.5	731.8	770.1	781.8	107.5%
GDP PPP (billion 2000 USD)	686.6	796.2	960.4	1 215.8	1 351.5	1 410.2	1 433.1	108.7%
Population (millions)	126.8	142.1	159.6	178.8	186.6	190.5	194.5	53.4%
CO ₂ / TPES (t CO ₂ per TJ)	63.9	61.0	60.7	57.9	60.7	60.4	61.3	-4.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.48	1.73	1.77	1.83	1.88	1.89	1.93	30.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.81	0.94	0.96	1.00	1.02	1.03	1.05	29.8%
CO ₂ / population (t CO ₂ per capita)	4.39	5.27	5.80	6.77	7.35	7.64	7.76	76.6%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	3.7	861.5	643.8	-	1 509.0	171.0%
Main activity producer elec. and heat	-	239.8	227.7	-	467.6	252.1%
Unallocated autoproducers	1.3	7.7	36.3	-	45.2	72.9%
Other energy industry own use	1.0	43.0	106.5	-	150.6	188.8%
Manufacturing industries and construction	1.4	173.2	171.2	-	345.8	157.6%
Transport	-	321.1	7.6	-	328.6	133.8%
<i>of which: road</i>	-	318.3	6.8	-	325.1	134.0%
Other	0.0	76.8	94.5	-	171.3	141.4%
<i>of which: residential</i>	0.0	49.0	81.8	-	130.9	206.8%
Reference Approach	5.4	818.0	645.4	-	1 468.7	172.3%
Diff. due to losses and/or transformation	0.7	- 11.2	2.8	-	- 7.7	
Statistical differences	1.0	- 32.3	- 1.2	-	- 32.6	
<i>Memo: international marine bunkers</i>	-	62.6	-	-	62.6	98.0%
<i>Memo: international aviation bunkers</i>	-	34.4	-	-	34.4	43.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	318.3	129.1%	16.1	16.1
Main activity prod. elec. and heat - oil	239.8	198.3%	12.2	28.3
Main activity prod. elec. and heat - gas	227.7	334.6%	11.5	39.8
Manufacturing industries - oil	173.2	122.4%	8.8	48.6
Manufacturing industries - gas	171.2	208.2%	8.7	57.3
Other energy industry own use - gas	106.5	317.0%	5.4	62.7
Residential - gas	81.8	+	4.1	66.8
Residential - oil	49.0	34.0%	2.5	69.3
Other energy industry own use - oil	43.0	65.4%	2.2	71.5
Unallocated autoproducers - gas	36.3	67.6%	1.8	73.3
Non-specified other - oil	27.8	5.3%	1.4	74.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>1 509.0</i>	<i>171.0%</i>	<i>76.5</i>	<i>76.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Non-OECD Europe and Eurasia

Figure 1. CO₂ emissions by fuel

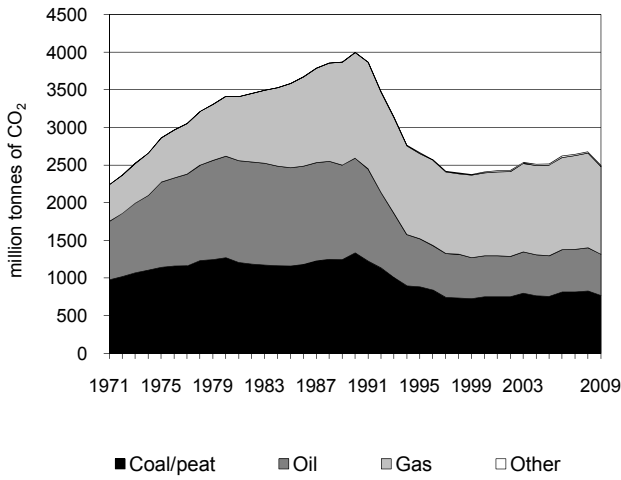


Figure 2. CO₂ emissions by sector

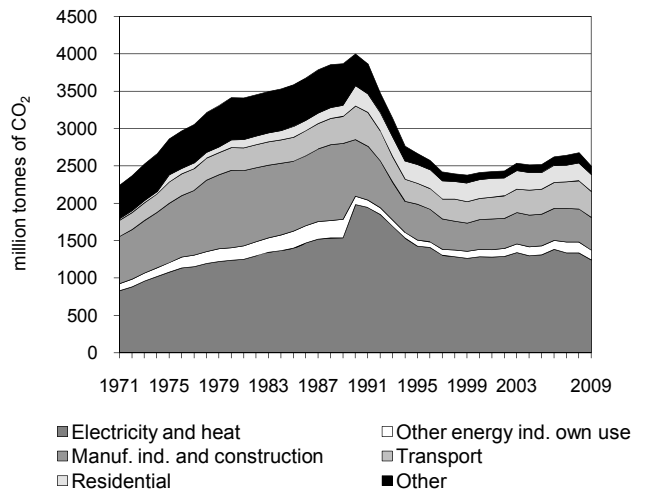


Figure 3. CO₂ emissions by sector

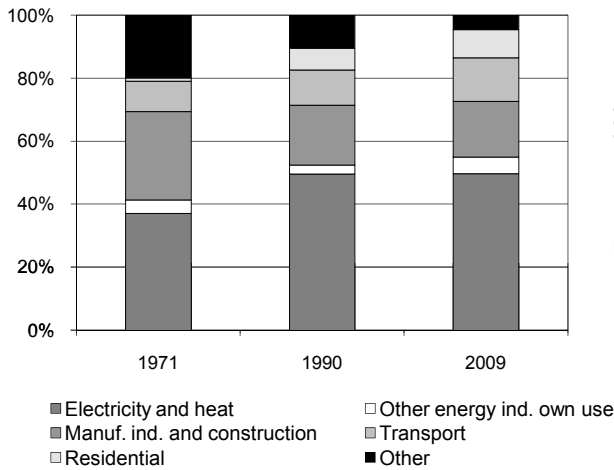


Figure 4. Reference vs Sectoral Approach

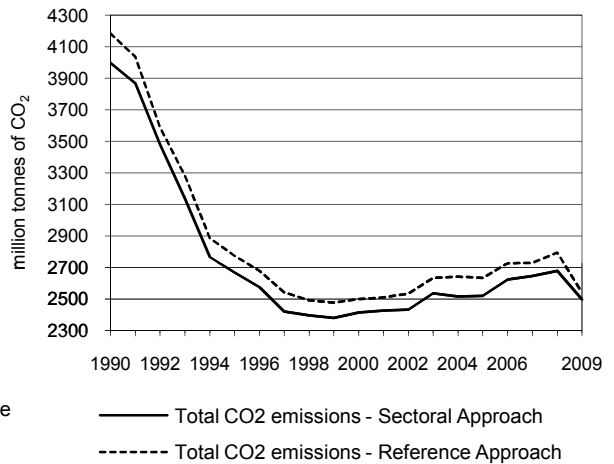


Figure 5. Electricity generation by fuel

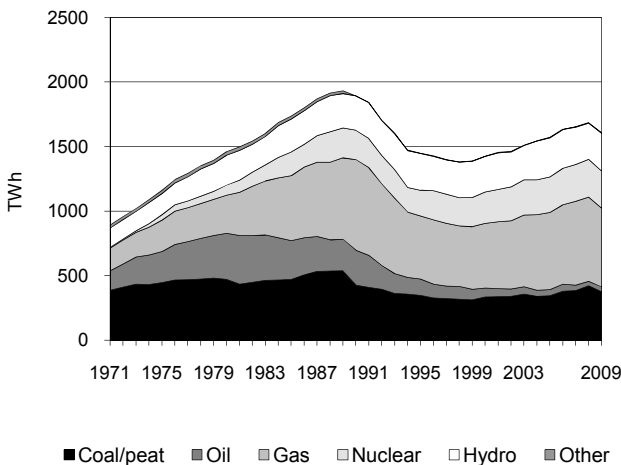
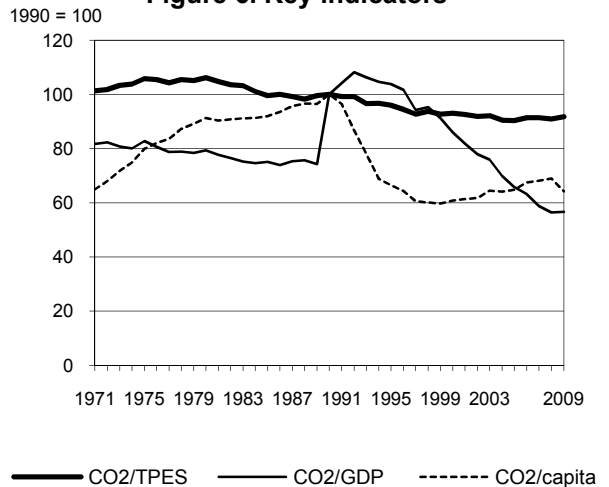


Figure 6. Key indicators



Non-OECD Europe and Eurasia *

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	3 997.1	2 667.1	2 413.2	2 519.1	2 644.5	2 678.1	2 497.4	-37.5%
CO ₂ Reference Approach (Mt of CO ₂)	4 185.6	2 772.9	2 499.4	2 632.8	2 727.9	2 793.1	2 540.4	-39.3%
TPES (PJ)	64 547	44 885	41 902	45 007	46 706	47 565	43 981	-31.9%
TPES (Mtoe)	1 541.7	1 072.1	1 000.8	1 075.0	1 115.5	1 136.1	1 050.5	-31.9%
GDP (billion 2000 USD)	681.1	438.0	478.4	652.9	767.3	808.3	751.5	10.3%
GDP PPP (billion 2000 USD)	2 670.0	1 667.6	1 796.1	2 470.3	2 907.0	3 062.3	2 835.2	6.2%
Population (millions)	344.3	345.4	341.9	335.0	334.3	334.5	335.0	-2.7%
CO ₂ / TPES (t CO ₂ per TJ)	61.9	59.4	57.6	56.0	56.6	56.3	56.8	-8.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	5.87	6.09	5.04	3.86	3.45	3.31	3.32	-43.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.50	1.60	1.34	1.02	0.91	0.87	0.88	-41.2%
CO ₂ / population (t CO ₂ per capita)	11.61	7.72	7.06	7.52	7.91	8.01	7.46	-35.8%

Ratios are based on the Sectoral Approach.

*Includes Estonia and Slovenia prior to 1990.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other **		
Sectoral Approach	769.5	547.1	1 163.6	17.3	2 497.4	-37.5%
Main activity producer elec. and heat	431.8	34.7	431.0	0.0	897.6	-43.4%
Unallocated autoproducers	103.6	31.5	194.8	13.7	343.6	-13.1%
Other energy industry own use	17.5	55.8	57.9	0.8	131.9	14.9%
Manufacturing industries and construction	180.8	86.8	170.7	2.2	440.5	-41.8%
Transport	0.3	269.3	76.2	-	345.8	-22.8%
of which: road	-	237.1	1.3	-	238.4	-15.6%
Other	35.6	68.8	233.1	0.6	338.1	-51.4%
of which: residential	19.9	22.3	181.9	-	224.1	-18.6%
Reference Approach	754.1	582.3	1 186.7	17.3	2 540.4	-39.3%
Diff. due to losses and/or transformation	- 1.6	23.5	23.4	-	45.3	
Statistical differences	- 13.8	11.7	- 0.3	- 0.0	- 2.4	
<i>Memo: international marine bunkers</i>	-	10.3	-	-	10.3	6.6%
<i>Memo: international aviation bunkers</i>	-	23.8	-	-	23.8	-42.6%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	431.8	-38.3%	11.1	11.1
Main activity prod. elec. and heat - gas	431.0	-23.0%	11.1	22.2
Road - oil	237.1	-15.2%	6.1	28.3
Unallocated autoproducers - gas	194.8	-10.6%	5.0	33.3
Residential - gas	181.9	22.0%	4.7	38.0
Manufacturing industries - coal/peat	180.8	-39.7%	4.7	42.6
Manufacturing industries - gas	170.7	-28.4%	4.4	47.0
Unallocated autoproducers - coal/peat	103.6	4.8%	2.7	49.7
Manufacturing industries - oil	86.8	-60.4%	2.2	51.9
Other transport - gas	74.9	-9.9%	1.9	53.9
Other energy industry own use - gas	57.9	63.3%	1.5	55.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>2 497.4</i>	<i>-37.5%</i>	<i>64.3</i>	<i>64.3</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Latin America

Figure 1. CO₂ emissions by fuel

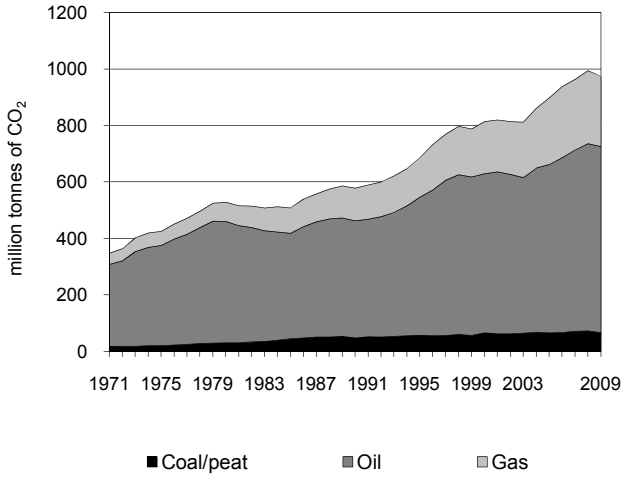


Figure 2. CO₂ emissions by sector

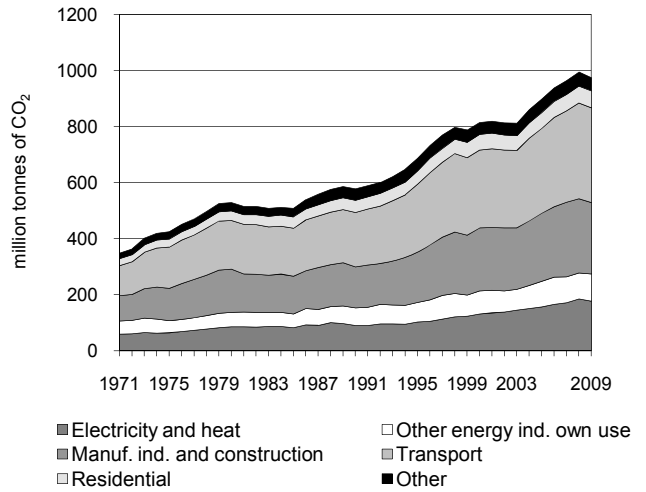


Figure 3. CO₂ emissions by sector

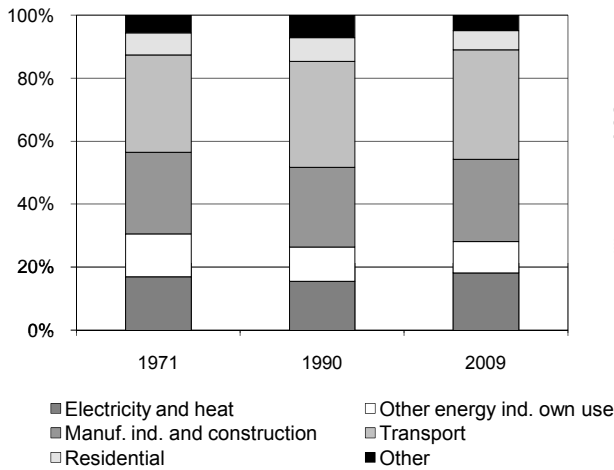


Figure 4. Reference vs Sectoral Approach

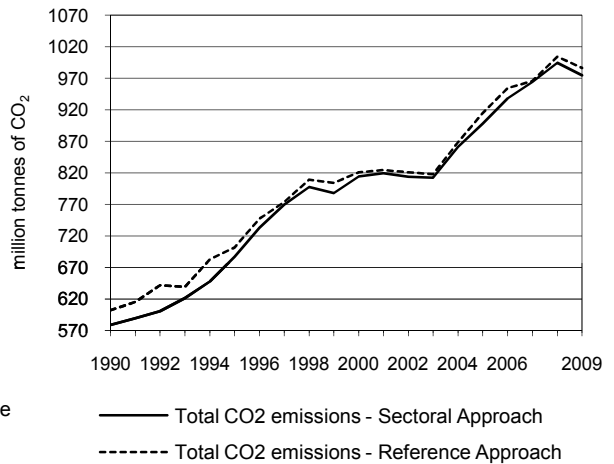


Figure 5. Electricity generation by fuel

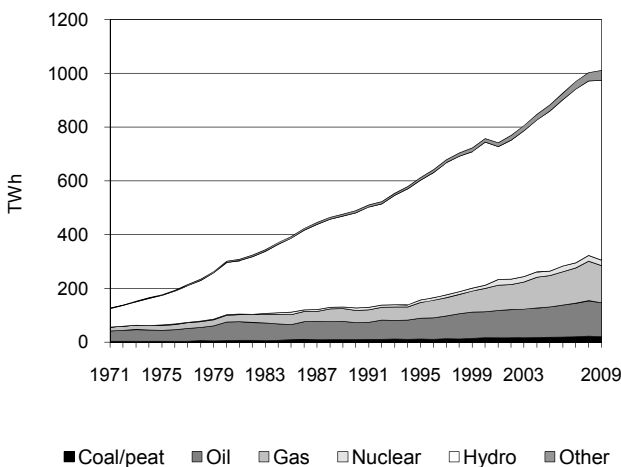
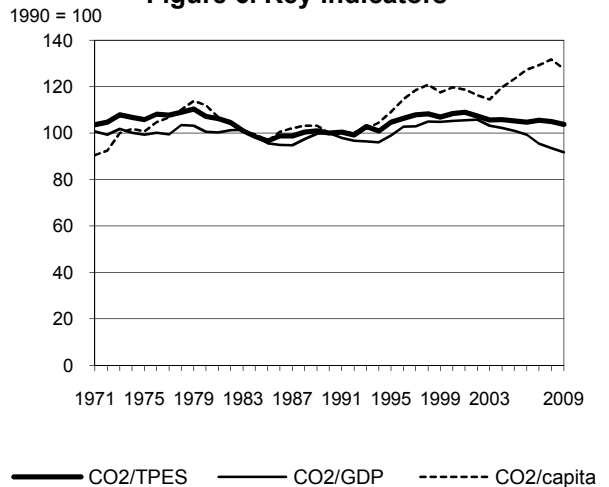


Figure 6. Key indicators



Latin America

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	578.4	686.7	814.4	898.2	964.2	994.7	974.6	68.5%
CO ₂ Reference Approach (Mt of CO ₂)	601.9	701.5	821.0	915.0	965.6	1 004.3	986.2	63.8%
TPES (PJ)	13 927	15 792	18 096	20 547	21 993	22 811	22 609	62.3%
TPES (Mtoe)	332.6	377.2	432.2	490.7	525.3	544.8	540.0	62.3%
GDP (billion 2000 USD)	1 064.8	1 277.4	1 424.6	1 637.1	1 858.9	1 957.9	1 956.5	83.7%
GDP PPP (billion 2000 USD)	2 050.0	2 445.7	2 731.7	3 156.9	3 577.1	3 765.2	3 769.3	83.9%
Population (millions)	341.7	372.0	401.8	430.3	440.9	446.0	451.1	32.0%
CO ₂ / TPES (t CO ₂ per TJ)	41.5	43.5	45.0	43.7	43.8	43.6	43.1	3.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.54	0.54	0.57	0.55	0.52	0.51	0.50	-8.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.28	0.28	0.30	0.28	0.27	0.26	0.26	-8.4%
CO ₂ / population (t CO ₂ per capita)	1.69	1.85	2.03	2.09	2.19	2.23	2.16	27.6%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	67.3	658.4	248.9	-	974.6	68.5%
Main activity producer elec. and heat	15.0	69.3	60.1	-	144.4	110.4%
Unallocated autoproducers	10.7	12.7	9.3	-	32.6	52.6%
Other energy industry own use	2.7	44.4	50.0	-	97.1	54.6%
Manufacturing industries and construction	38.3	126.7	89.7	-	254.6	73.6%
Transport	0.0	325.9	12.7	-	338.6	74.4%
<i>of which: road</i>	-	300.8	11.2	-	312.0	77.9%
Other	0.6	79.5	27.1	-	107.2	26.4%
<i>of which: residential</i>	0.5	36.6	22.8	-	59.9	36.3%
Reference Approach	68.9	662.0	255.2	-	986.2	63.8%
Diff. due to losses and/or transformation	1.8	9.9	0.9	-	12.6	
Statistical differences	- 0.1	- 6.3	5.5	-	- 1.0	
<i>Memo: international marine bunkers</i>	-	33.5	-	-	33.5	130.8%
<i>Memo: international aviation bunkers</i>	-	17.7	-	-	17.7	104.4%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	300.8	72.0%	13.6	13.6
Manufacturing industries - oil	126.7	60.7%	5.7	19.4
Manufacturing industries - gas	89.7	126.4%	4.1	23.4
Main activity prod. elec. and heat - oil	69.3	94.1%	3.1	26.6
Main activity prod. elec. and heat - gas	60.1	132.4%	2.7	29.3
Other energy industry own use - gas	50.0	63.2%	2.3	31.5
Other energy industry own use - oil	44.4	52.1%	2.0	33.6
Non-specified other - oil	42.9	18.7%	1.9	35.5
Manufacturing industries - coal/peat	38.3	35.6%	1.7	37.2
Residential - oil	36.6	8.4%	1.7	38.9
Other transport - oil	25.1	33.7%	1.1	40.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>974.6</i>	<i>68.5%</i>	<i>44.1</i>	<i>44.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Asia (excluding China)

Figure 1. CO₂ emissions by fuel

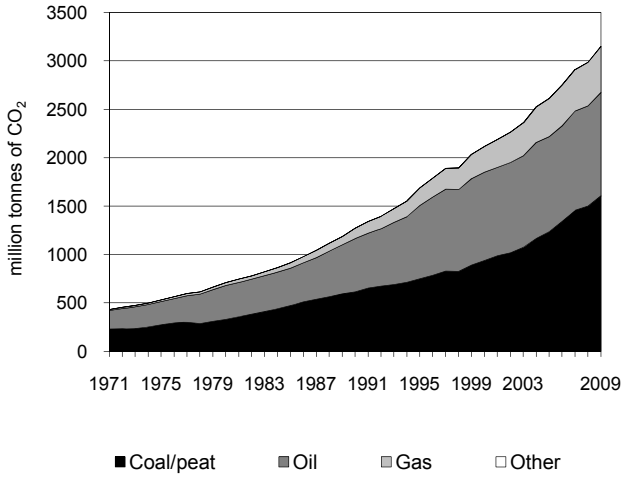


Figure 2. CO₂ emissions by sector

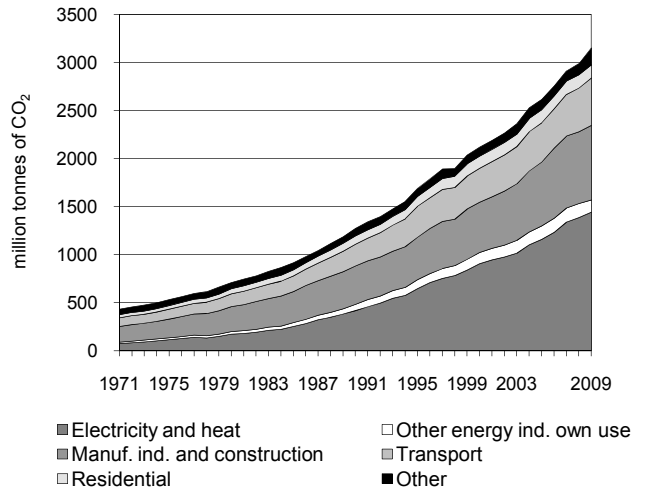


Figure 3. CO₂ emissions by sector

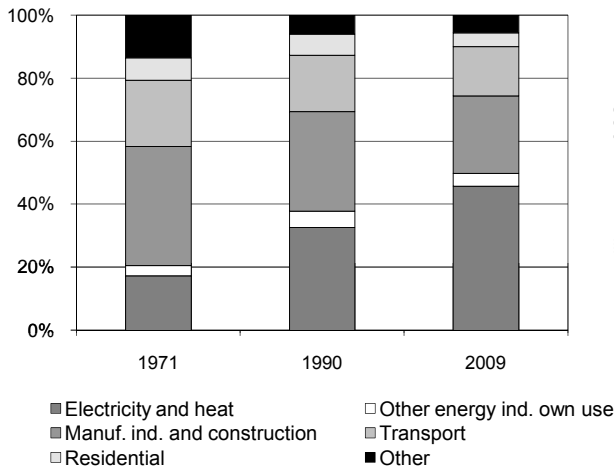


Figure 4. Reference vs Sectoral Approach

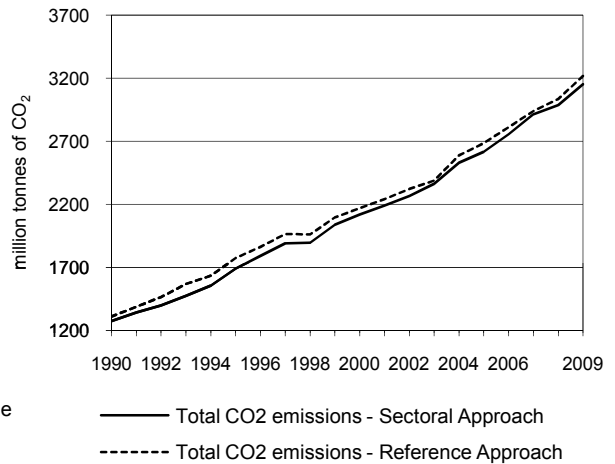


Figure 5. Electricity generation by fuel

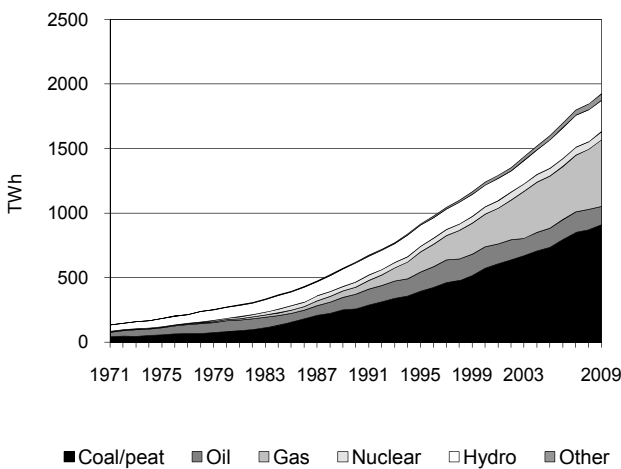
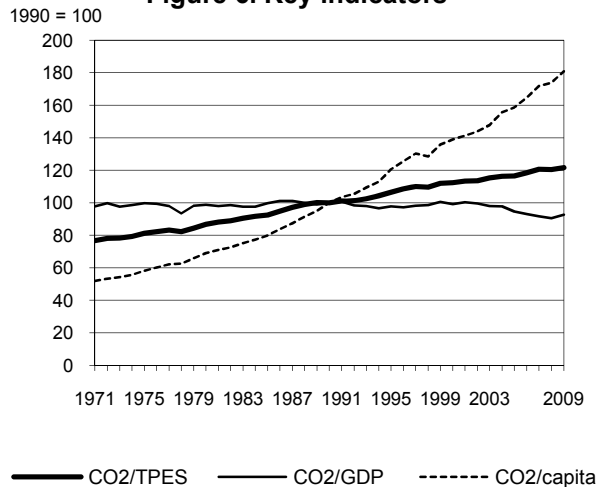


Figure 6. Key indicators



Asia (excluding China)

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	1 273.0	1 690.7	2 119.2	2 615.5	2 914.0	2 988.3	3 153.2	147.7%
CO ₂ Reference Approach (Mt of CO ₂)	1 308.1	1 773.7	2 170.1	2 685.9	2 939.7	3 036.4	3 217.4	146.0%
TPES (PJ)	29 996	37 455	44 413	52 873	56 901	58 463	61 093	103.7%
TPES (Mtoe)	716.4	894.6	1 060.8	1 262.9	1 359.1	1 396.4	1 459.2	103.7%
GDP (billion 2000 USD)	930.2	1 262.3	1 560.5	2 020.9	2 323.8	2 412.5	2 486.4	167.3%
GDP PPP (billion 2000 USD)	3 279.5	4 353.4	5 393.3	7 167.5	8 319.1	8 688.5	9 093.8	177.3%
Population (millions)	1 612.1	1 774.7	1 932.4	2 087.7	2 147.6	2 177.6	2 207.8	36.9%
CO ₂ / TPES (t CO ₂ per TJ)	42.4	45.1	47.7	49.5	51.2	51.1	51.6	21.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.37	1.34	1.36	1.29	1.25	1.24	1.27	-7.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.39	0.39	0.39	0.36	0.35	0.34	0.35	-10.7%
CO ₂ / population (t CO ₂ per capita)	0.79	0.95	1.10	1.25	1.36	1.37	1.43	80.9%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	1 608.2	1 067.3	475.3	2.3	3 153.2	147.7%
Main activity producer elec. and heat	916.1	104.3	216.3	0.1	1 236.7	215.0%
Unallocated autoproducers	150.9	20.7	31.6	2.3	205.6	816.1%
Other energy industry own use	7.7	57.8	61.1	-	126.5	89.6%
Manufacturing industries and construction	416.7	234.2	127.0	-	777.8	93.6%
Transport	0.1	476.5	15.1	-	491.6	116.5%
<i>of which: road</i>	-	439.8	14.4	-	454.2	129.0%
Other	116.8	173.9	24.3	-	314.9	94.1%
<i>of which: residential</i>	16.5	104.1	17.6	-	138.2	61.6%
Reference Approach	1 644.5	1 085.7	484.9	2.3	3 217.4	146.0%
Diff. due to losses and/or transformation	17.3	24.9	7.7	-	49.9	
Statistical differences	19.0	- 6.5	1.8	-	14.3	
<i>Memo: international marine bunkers</i>	-	126.7	-	-	126.7	183.1%
<i>Memo: international aviation bunkers</i>	-	56.4	-	-	56.4	143.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	916.1	237.5%	16.7	16.7
Road - oil	439.8	121.8%	8.0	24.7
Manufacturing industries - coal/peat	416.7	67.9%	7.6	32.3
Manufacturing industries - oil	234.2	98.4%	4.3	36.6
Main activity prod. elec. and heat - gas	216.3	530.8%	3.9	40.5
Unallocated autoproducers - coal/peat	150.9	815.9%	2.7	43.2
Manufacturing industries - gas	127.0	257.1%	2.3	45.6
Main activity prod. elec. and heat - oil	104.3	20.0%	1.9	47.5
Residential - oil	104.1	55.4%	1.9	49.4
Non-specified other sectors - coal/peat	100.3	112.0%	1.8	51.2
Non-specified other - oil	69.7	151.9%	1.3	52.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>3 153.2</i>	<i>147.7%</i>	<i>57.4</i>	<i>57.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

China (incl. Hong Kong)

Figure 1. CO₂ emissions by fuel

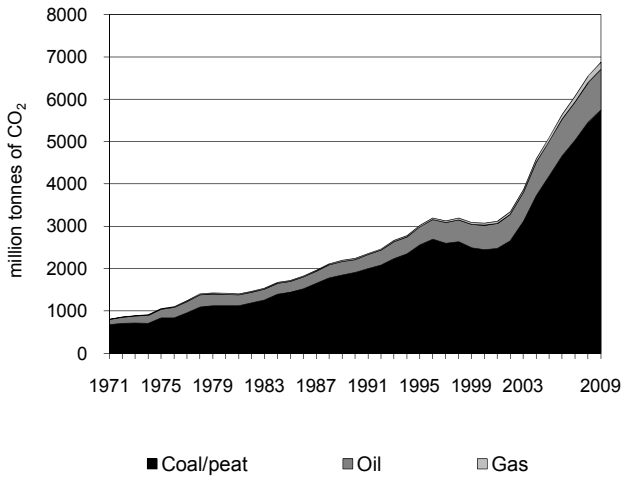


Figure 2. CO₂ emissions by sector

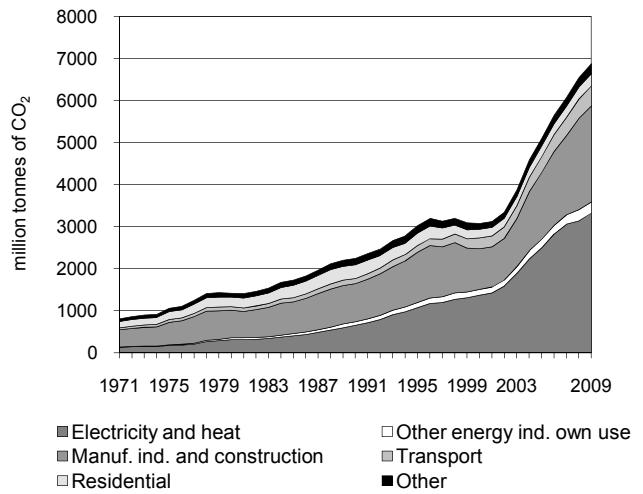


Figure 3. CO₂ emissions by sector

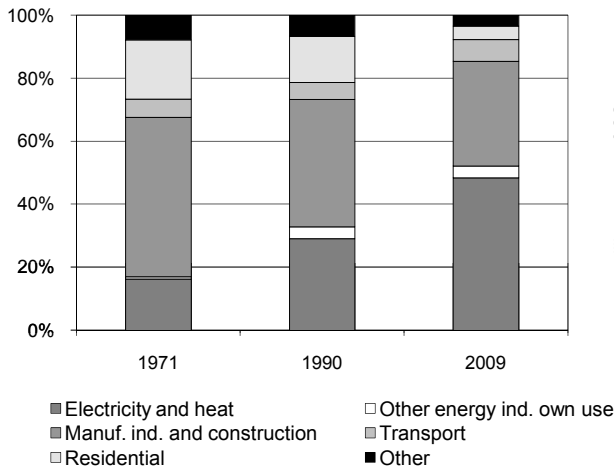


Figure 4. Reference vs Sectoral Approach

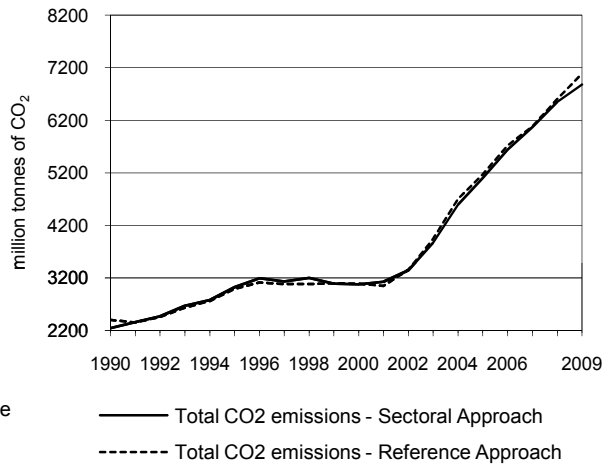


Figure 5. Electricity generation by fuel

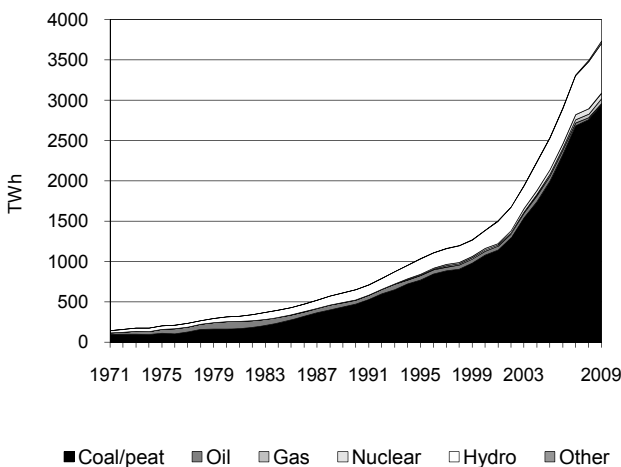
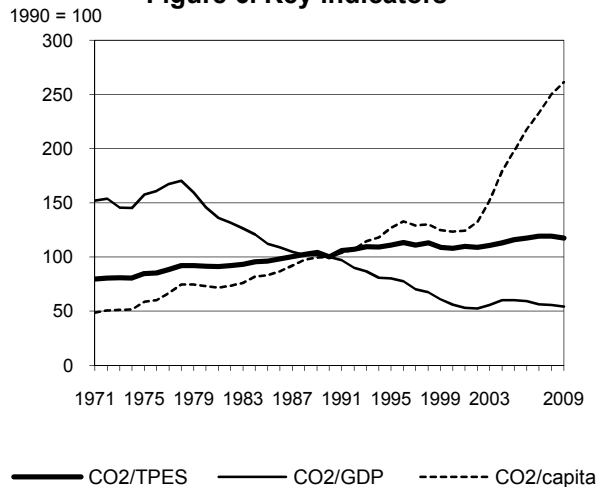


Figure 6. Key indicators



China (incl. Hong Kong)

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2 244.1	3 022.1	3 077.2	5 103.1	6 071.8	6 549.0	6 877.2	206.5%
CO ₂ Reference Approach (Mt of CO ₂)	2 402.0	2 992.7	3 091.4	5 165.1	6 082.9	6 602.7	7 085.0	195.0%
TPES (PJ)	36 493	44 292	46 401	71 555	82 829	89 247	95 126	160.7%
TPES (Mtoe)	871.6	1 057.9	1 108.3	1 709.1	1 978.3	2 131.6	2 272.0	160.7%
GDP (billion 2000 USD)	559.8	941.3	1 367.6	2 115.9	2 692.4	2 933.9	3 168.9	466.1%
GDP PPP (billion 2000 USD)	1 964.9	3 444.8	5 150.2	8 138.2	10 442.3	11 427.1	12 433.9	532.8%
Population (millions)	1 140.9	1 211.0	1 269.3	1 310.5	1 324.8	1 331.6	1 338.5	17.3%
CO ₂ / TPES (t CO ₂ per TJ)	61.5	68.2	66.3	71.3	73.3	73.4	72.3	17.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	4.01	3.21	2.25	2.41	2.26	2.23	2.17	-45.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.14	0.88	0.60	0.63	0.58	0.57	0.55	-51.6%
CO ₂ / population (t CO ₂ per capita)	1.97	2.50	2.42	3.89	4.58	4.92	5.14	161.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	5 750.8	957.6	168.8	-	6 877.2	206.5%
Main activity producer elec. and heat	3 225.1	13.0	36.4	-	3 274.5	411.1%
Unallocated autoproducers	37.4	12.4	-	-	49.7	324.6%
Other energy industry own use	173.5	68.9	21.9	-	264.2	213.2%
Manufacturing industries and construction	2 004.9	227.9	50.4	-	2 283.3	151.6%
Transport	12.3	463.1	0.9	-	476.3	293.4%
<i>of which: road</i>	-	365.9	0.6	-	366.5	459.3%
Other	297.7	172.4	59.1	-	529.2	10.6%
<i>of which: residential</i>	186.4	68.0	34.7	-	289.1	-11.9%
Reference Approach	5 910.0	1 000.2	174.8	-	7 085.0	195.0%
Diff. due to losses and/or transformation	108.1	37.7	5.1	-	150.9	
Statistical differences	51.1	4.9	0.9	-	56.9	
<i>Memo: international marine bunkers</i>	-	63.2	-	-	63.2	593.7%
<i>Memo: international aviation bunkers</i>	-	22.1	-	-	22.1	260.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	3 225.1	441.3%	32.6	32.6
Manufacturing industries - coal/peat	2 004.9	149.0%	20.2	52.8
Road - oil	365.9	458.3%	3.7	56.5
Manufacturing industries - oil	227.9	156.1%	2.3	58.8
Residential - coal/peat	186.4	-41.2%	1.9	60.7
Other energy industry - coal/peat	173.5	240.1%	1.8	62.4
Non-specified other sectors - coal/peat	111.3	6.9%	1.1	63.5
Non-specified other - oil	104.3	127.2%	1.1	64.6
Other transport - oil	97.2	470.0%	1.0	65.6
Other energy industry own use - oil	68.9	154.6%	0.7	66.3
Residential - oil	68.0	767.0%	0.7	67.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>6 877.2</i>	<i>206.5%</i>	<i>69.4</i>	<i>69.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

COUNTRY TABLES

Albania

Figure 1. CO₂ emissions by fuel

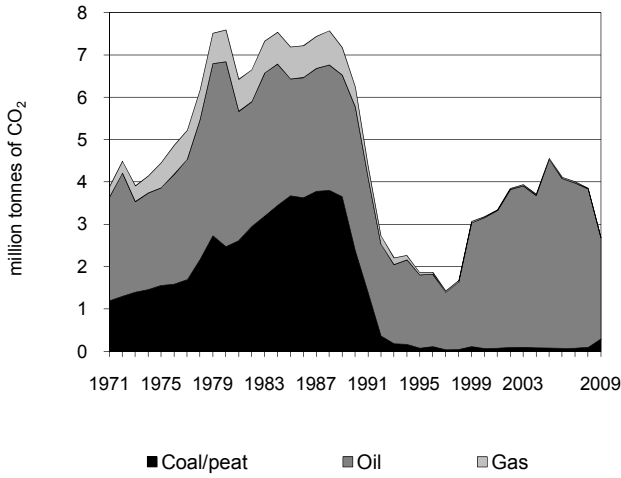


Figure 2. CO₂ emissions by sector

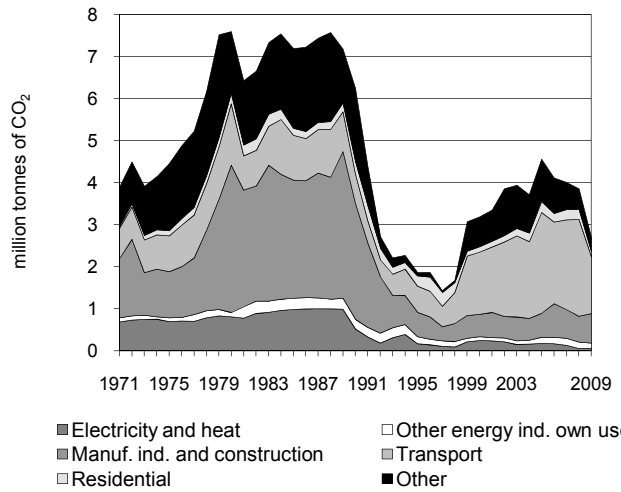


Figure 3. CO₂ emissions by sector

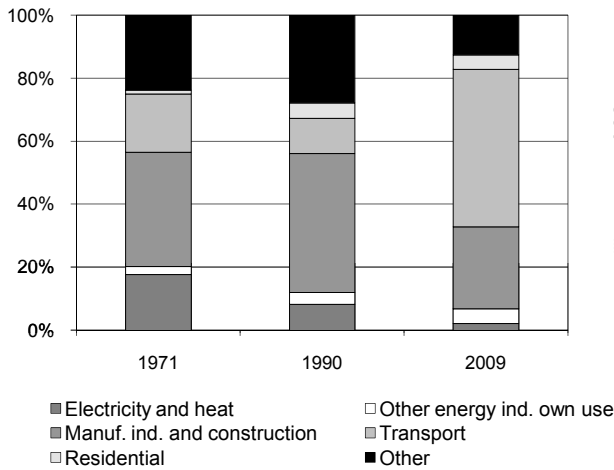


Figure 4. Reference vs Sectoral Approach

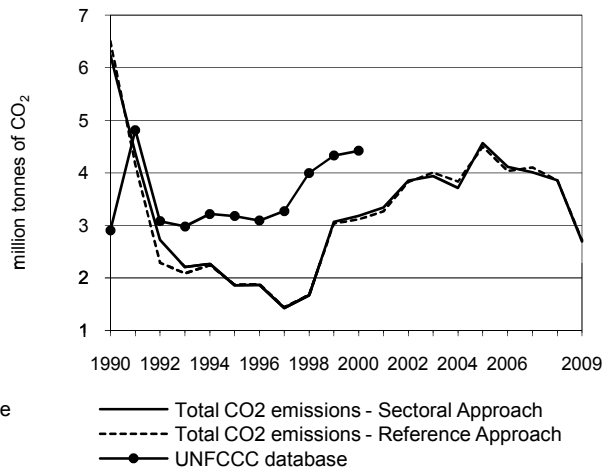


Figure 5. Electricity generation by fuel

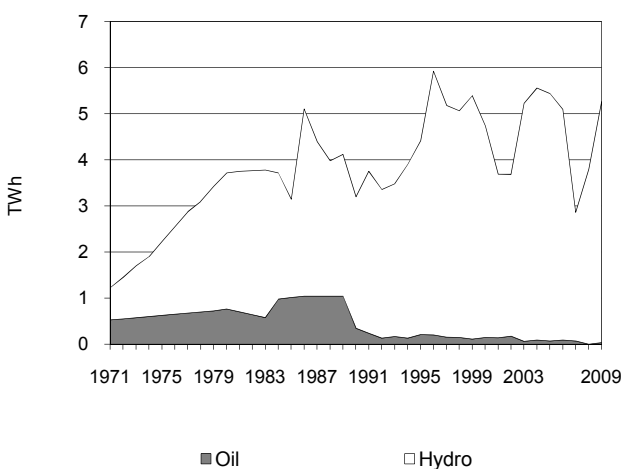
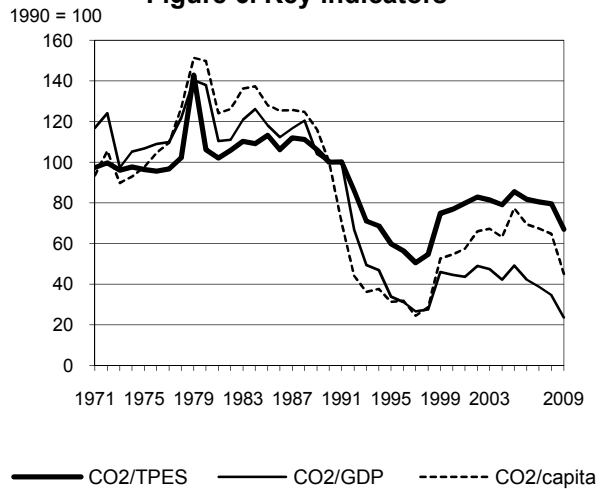


Figure 6. Key indicators



Albania

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	6.25	1.86	3.18	4.56	4.01	3.86	2.70	-56.8%
CO ₂ Reference Approach (Mt of CO ₂)	6.51	1.87	3.12	4.50	4.10	3.86	2.72	-58.2%
TPES (PJ)	111	55	74	95	89	87	72	-35.5%
TPES (Mtoe)	2.66	1.32	1.77	2.28	2.13	2.07	1.72	-35.5%
GDP (billion 2000 USD)	3.22	2.83	3.69	4.79	5.34	5.74	5.88	82.8%
GDP PPP (billion 2000 USD)	9.93	8.73	11.39	14.80	16.48	17.71	18.16	82.8%
Population (millions)	3.29	3.13	3.07	3.11	3.13	3.14	3.16	-4.1%
CO ₂ / TPES (t CO ₂ per TJ)	56.0	33.5	43.0	47.9	45.0	44.6	37.5	-33.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.94	0.66	0.86	0.95	0.75	0.67	0.46	-76.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.63	0.21	0.28	0.31	0.24	0.22	0.15	-76.4%
CO ₂ / population (t CO ₂ per capita)	1.90	0.59	1.04	1.47	1.28	1.23	0.85	-55.0%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.30	2.38	0.02	-	2.70	-56.8%
Main activity producer elec. and heat	-	0.01	-	-	0.01	-98.8%
Unallocated autoproducers	-	0.05	-	-	0.05	x
Other energy industry own use	0.00	0.11	0.01	-	0.13	-45.2%
Manufacturing industries and construction	0.30	0.40	0.00	-	0.70	-74.6%
Transport	-	1.35	0.00	-	1.35	92.8%
<i>of which: road</i>	-	1.19	-	-	1.19	70.8%
Other	-	0.46	-	-	0.46	-77.3%
<i>of which: residential</i>	-	0.12	-	-	0.12	-59.5%
Reference Approach	0.30	2.41	0.02	-	2.72	-58.2%
Diff. due to losses and/or transformation	-	0.02	0.00	-	0.02	
Statistical differences	-	0.00	-	-	0.00	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.05	-	-	0.05	x

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	1.19	70.8%	17.6	17.6
Manufacturing industries - oil	0.40	-75.9%	5.9	23.6
Non-specified other - oil	0.34	x	5.0	28.6
Manufacturing industries - coal/peat	0.30	-58.0%	4.4	32.9
Other transport - oil	0.15	x	2.2	35.2
Residential - oil	0.12	-56.5%	1.8	37.0
Other energy industry own use - oil	0.11	-51.1%	1.7	38.7
Unallocated autoproducers - oil	0.05	x	0.8	39.4
Other energy industry own use - gas	0.01	x	0.2	39.6
Main activity prod. elec. and heat - oil	0.01	-98.8%	0.1	39.7
Other transport - gas	0.00	x	0.0	39.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>2.70</i>	<i>-56.8%</i>	<i>39.8</i>	<i>39.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Algeria

Figure 1. CO₂ emissions by fuel

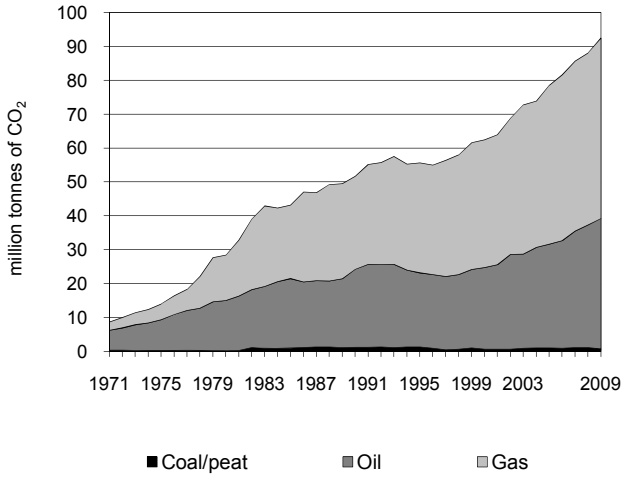


Figure 2. CO₂ emissions by sector

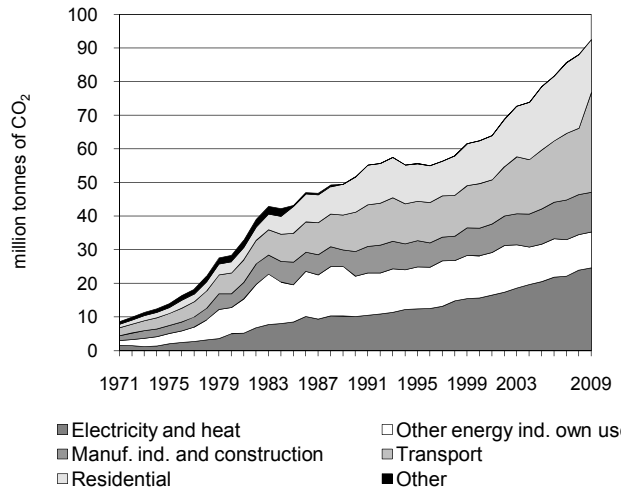


Figure 3. CO₂ emissions by sector

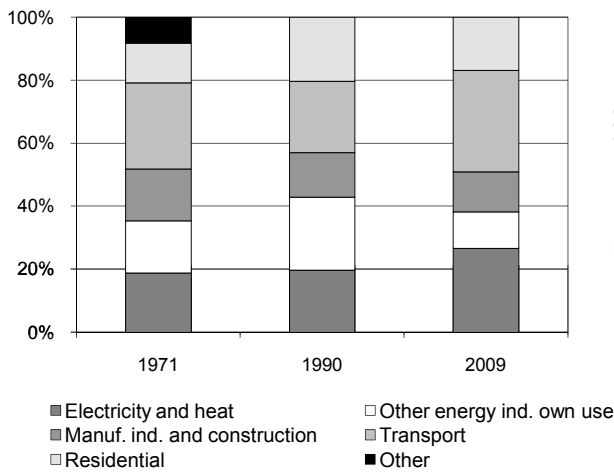


Figure 4. Reference vs Sectoral Approach

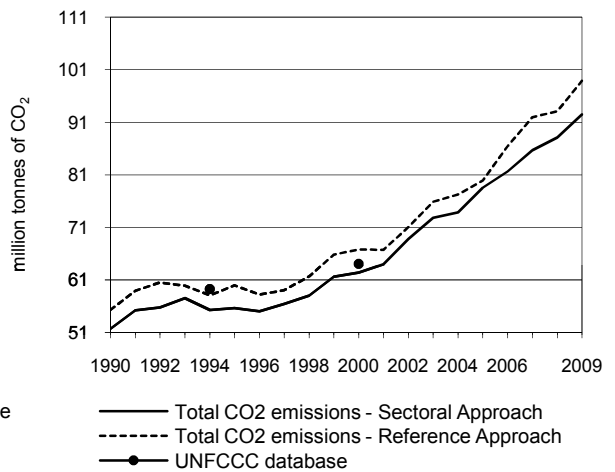


Figure 5. Electricity generation by fuel

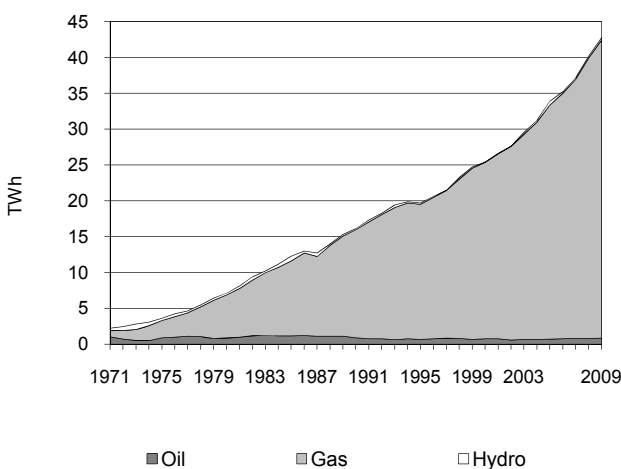
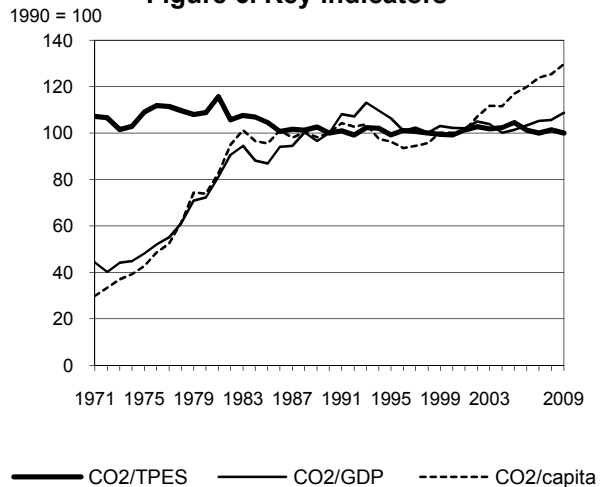


Figure 6. Key indicators



Algeria

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	51.67	55.65	62.42	78.55	85.69	88.09	92.52	79.1%
CO ₂ Reference Approach (Mt of CO ₂)	55.29	59.95	66.78	79.86	91.93	93.12	98.92	78.9%
TPES (PJ)	929	1 009	1 131	1 351	1 541	1 562	1 665	79.2%
TPES (Mtoe)	22.19	24.11	27.02	32.26	36.80	37.30	39.76	79.2%
GDP (billion 2000 USD)	46.37	46.96	54.79	69.57	73.09	74.84	76.41	64.8%
GDP PPP (billion 2000 USD)	137.32	139.09	162.27	206.03	216.46	221.65	226.31	64.8%
Population (millions)	25.28	28.27	30.51	32.86	33.86	34.37	34.90	38.0%
CO ₂ / TPES (t CO ₂ per TJ)	55.6	55.1	55.2	58.2	55.6	56.4	55.6	-0.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.11	1.18	1.14	1.13	1.17	1.18	1.21	8.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.38	0.40	0.38	0.38	0.40	0.40	0.41	8.6%
CO ₂ / population (t CO ₂ per capita)	2.04	1.97	2.05	2.39	2.53	2.56	2.65	29.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.72	38.55	53.26	-	92.52	79.1%
Main activity producer elec. and heat	-	0.30	23.85	-	24.15	155.7%
Unallocated autoproducers	-	0.49	-	-	0.49	-32.9%
Other energy industry own use	-	1.53	9.18	-	10.71	-10.8%
Manufacturing industries and construction	0.72	3.87	7.15	-	11.74	60.7%
Transport	-	27.78	2.02	-	29.80	154.7%
<i>of which: road</i>	-	27.78	-	-	27.78	152.2%
Other	-	4.58	11.06	-	15.63	49.1%
<i>of which: residential</i>	-	4.58	11.06	-	15.63	49.1%
Reference Approach	1.71	43.91	53.30	-	98.92	78.9%
Diff. due to losses and/or transformation	1.00	2.50	0.46	-	3.96	
Statistical differences	-0.00	2.86	-0.42	-	2.44	
<i>Memo: international marine bunkers</i>	-	0.91	-	-	0.91	-33.0%
<i>Memo: international aviation bunkers</i>	-	1.40	-	-	1.40	28.4%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	27.78	152.2%	16.9	16.9
Main activity prod. elec. and heat - gas	23.85	157.8%	14.5	31.4
Residential - gas	11.06	352.7%	6.7	38.1
Other energy industry own use - gas	9.18	-16.6%	5.6	43.7
Manufacturing industries - gas	7.15	76.8%	4.4	48.1
Residential - oil	4.58	-43.1%	2.8	50.8
Manufacturing industries - oil	3.87	92.9%	2.4	53.2
Other transport - gas	2.02	193.9%	1.2	54.4
Other energy industry own use - oil	1.53	52.5%	0.9	55.4
Manufacturing industries - coal/peat	0.72	-42.9%	0.4	55.8
Unallocated autoproducers - oil	0.49	-32.9%	0.3	56.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>92.52</i>	<i>79.1%</i>	<i>56.3</i>	<i>56.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Angola

Figure 1. CO₂ emissions by fuel

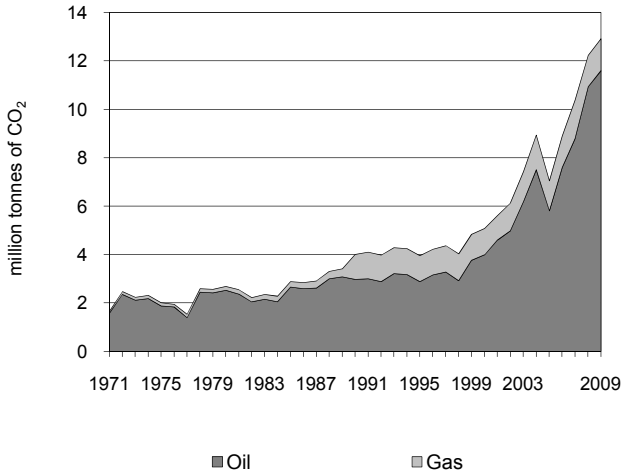


Figure 2. CO₂ emissions by sector

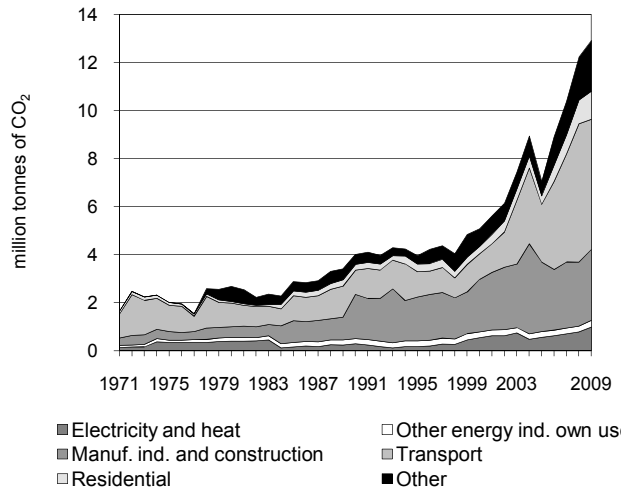


Figure 3. CO₂ emissions by sector

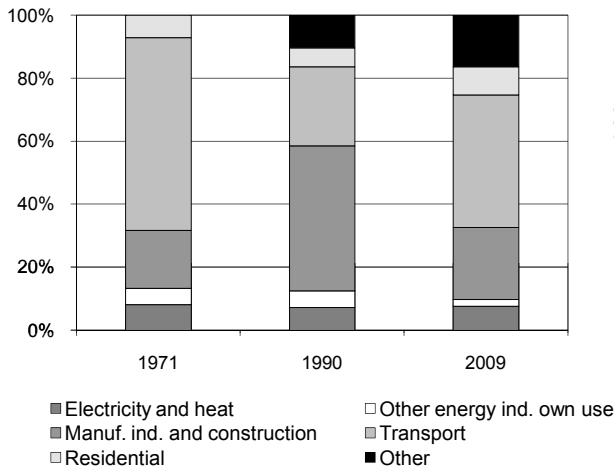


Figure 4. Reference vs Sectoral Approach

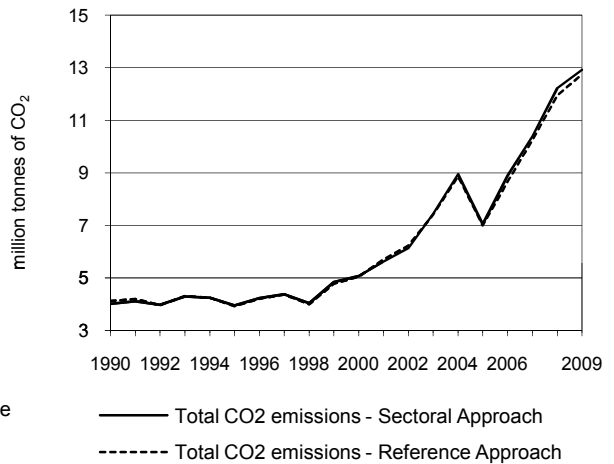


Figure 5. Electricity generation by fuel

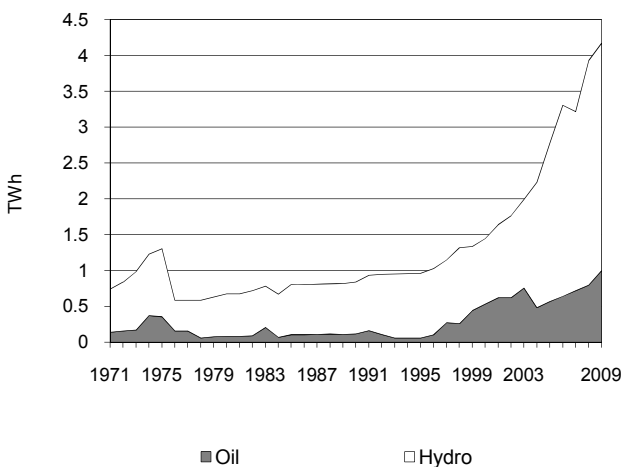
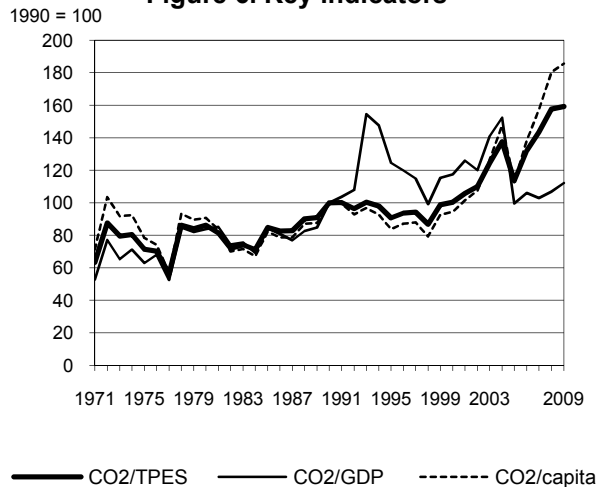


Figure 6. Key indicators



Angola

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	4.01	3.96	5.08	7.05	10.38	12.23	12.92	222.1%
CO ₂ Reference Approach (Mt of CO ₂)	4.12	3.93	5.05	7.00	10.24	11.95	12.75	209.1%
TPES (PJ)	246	268	311	381	445	476	498	102.2%
TPES (Mtoe)	5.88	6.40	7.43	9.10	10.62	11.38	11.90	102.2%
GDP (billion 2000 USD)	8.46	6.70	9.13	14.94	21.30	24.14	24.30	187.0%
GDP PPP (billion 2000 USD)	18.77	14.85	20.24	33.11	47.22	53.51	53.87	187.0%
Population (millions)	10.66	12.54	14.28	16.62	17.56	18.02	18.50	73.5%
CO ₂ / TPES (t CO ₂ per TJ)	16.3	14.8	16.3	18.5	23.4	25.7	25.9	59.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.47	0.59	0.56	0.47	0.49	0.51	0.53	12.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.21	0.27	0.25	0.21	0.22	0.23	0.24	12.2%
CO ₂ / population (t CO ₂ per capita)	0.38	0.32	0.36	0.42	0.59	0.68	0.70	85.6%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	11.60	1.32	-	12.92	222.1%
Main activity producer elec. and heat	-	0.89	-	-	0.89	312.5%
Unallocated autoproducers	-	0.10	-	-	0.10	39.1%
Other energy industry own use	-	0.27	-	-	0.27	28.4%
Manufacturing industries and construction	-	1.64	1.32	-	2.96	60.1%
Transport	-	5.42	-	-	5.42	439.0%
<i>of which: road</i>	-	4.71	-	-	4.71	367.8%
Other	-	3.28	-	-	3.28	399.0%
<i>of which: residential</i>	-	1.16	-	-	1.16	384.3%
Reference Approach	-	11.43	1.32	-	12.75	209.1%
Diff. due to losses and/or transformation	-	-0.28	-	-	-0.28	
Statistical differences	-	0.11	-	-	0.11	
<i>Memo: international marine bunkers</i>	-	0.59	-	-	0.59	+
<i>Memo: international aviation bunkers</i>	-	0.61	-	-	0.61	-40.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	4.71	367.8%	11.6	11.6
Non-specified other - oil	2.12	407.5%	5.2	16.9
Manufacturing industries - oil	1.64	101.0%	4.0	20.9
Manufacturing industries - gas	1.32	27.8%	3.3	24.2
Residential - oil	1.16	384.3%	2.9	27.0
Main activity prod. elec. and heat - oil	0.89	312.5%	2.2	29.2
Other transport - oil	0.72	x	1.8	31.0
Other energy industry own use - oil	0.27	28.4%	0.7	31.7
Unallocated autoproducers - oil	0.10	39.1%	0.3	31.9
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>12.92</i>	<i>222.1%</i>	<i>31.9</i>	<i>31.9</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Argentina

Figure 1. CO₂ emissions by fuel

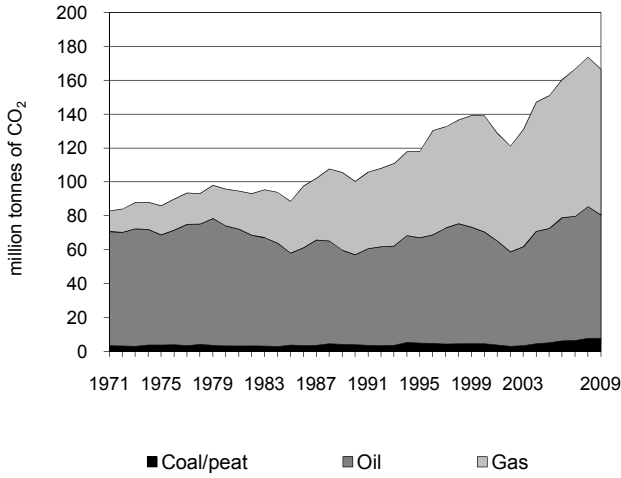


Figure 2. CO₂ emissions by sector

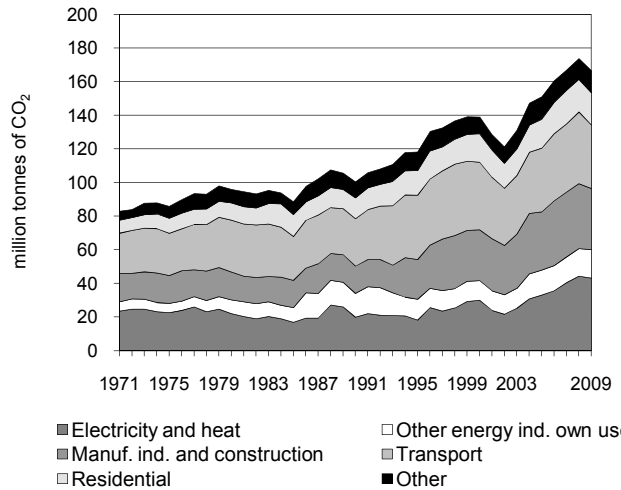


Figure 3. CO₂ emissions by sector

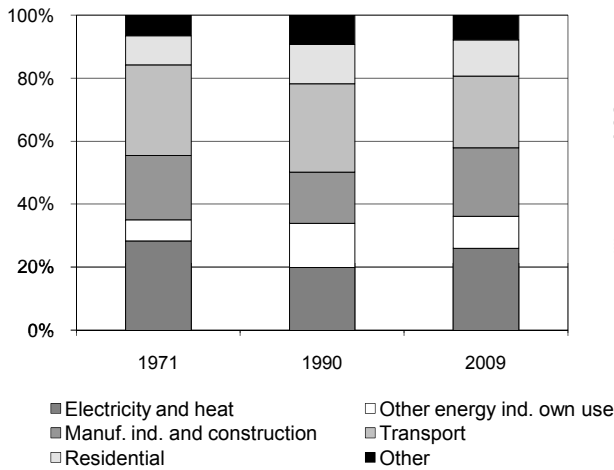


Figure 4. Reference vs Sectoral Approach

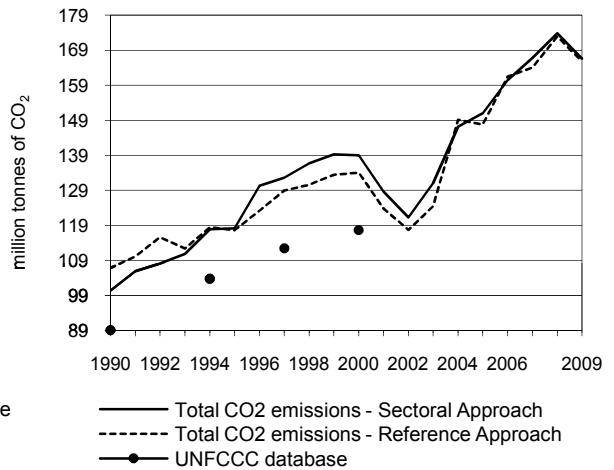


Figure 5. Electricity generation by fuel

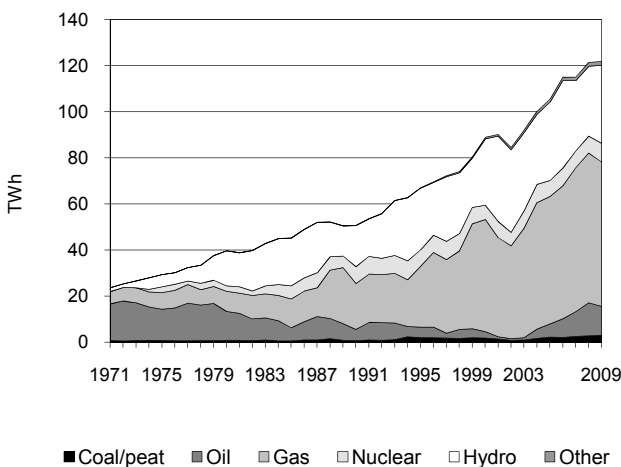
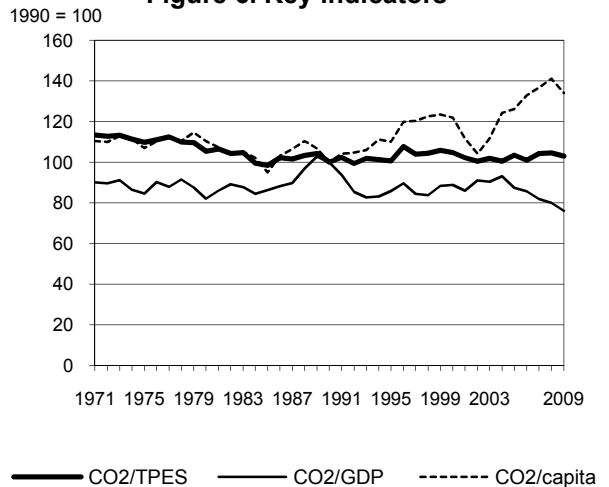


Figure 6. Key indicators



Argentina

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	100.38	118.20	139.03	150.96	166.77	173.78	166.61	66.0%
CO ₂ Reference Approach (Mt of CO ₂)	106.81	117.60	134.07	147.74	164.06	172.94	165.74	55.2%
TPES (PJ)	1 929	2 258	2 552	2 804	3 078	3 197	3 109	61.2%
TPES (Mtoe)	46.07	53.94	60.95	66.97	73.51	76.36	74.25	61.2%
GDP (billion 2000 USD)	182.21	250.26	284.20	313.63	369.62	394.60	397.95	118.4%
GDP PPP (billion 2000 USD)	286.10	392.95	446.25	492.45	580.36	619.58	624.85	118.4%
Population (millions)	32.50	34.77	36.94	38.73	39.49	39.88	40.28	23.9%
CO ₂ / TPES (t CO ₂ per TJ)	52.0	52.3	54.5	53.8	54.2	54.4	53.6	3.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.55	0.47	0.49	0.48	0.45	0.44	0.42	-24.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.35	0.30	0.31	0.31	0.29	0.28	0.27	-24.0%
CO ₂ / population (t CO ₂ per capita)	3.09	3.40	3.76	3.90	4.22	4.36	4.14	33.9%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	7.76	72.79	86.06	-	166.61	66.0%
Main activity producer elec. and heat	1.37	9.72	24.33	-	35.43	131.3%
Unallocated autoproducers	1.84	1.06	4.97	-	7.87	67.7%
Other energy industry own use	0.00	2.50	14.43	-	16.94	20.3%
Manufacturing industries and construction	4.54	14.56	17.18	-	36.28	122.7%
Transport	-	31.80	6.06	-	37.87	34.5%
<i>of which: road</i>	-	29.98	5.15	-	35.13	34.6%
Other	-	13.14	19.08	-	32.23	47.5%
<i>of which: residential</i>	-	2.56	16.59	-	19.14	53.0%
Reference Approach	4.78	71.76	89.20	-	165.74	55.2%
Diff. due to losses and/or transformation	- 3.31	2.32	0.36	-	- 0.63	
Statistical differences	0.33	- 3.34	2.79	-	- 0.23	
<i>Memo: international marine bunkers</i>	-	2.99	-	-	2.99	34.7%
<i>Memo: international aviation bunkers</i>	-	2.50	-	-	2.50	x

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	29.98	16.8%	9.2	9.2
Main activity prod. elec. and heat - gas	24.33	133.8%	7.5	16.7
Manufacturing industries - gas	17.18	72.7%	5.3	21.9
Residential - gas	16.59	96.8%	5.1	27.0
Manufacturing industries - oil	14.56	198.8%	4.5	31.5
Other energy industry own use - gas	14.43	62.3%	4.4	35.9
Non-specified other - oil	10.59	80.1%	3.2	39.1
Main activity prod. elec. and heat - oil	9.72	113.5%	3.0	42.1
Road - gas	5.15	+	1.6	43.7
Unallocated autoproducers - gas	4.97	175.8%	1.5	45.2
Manufacturing industries - coal/peat	4.54	209.2%	1.4	46.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>166.61</i>	<i>66.0%</i>	<i>51.1</i>	<i>51.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Armenia

Figure 1. CO₂ emissions by fuel

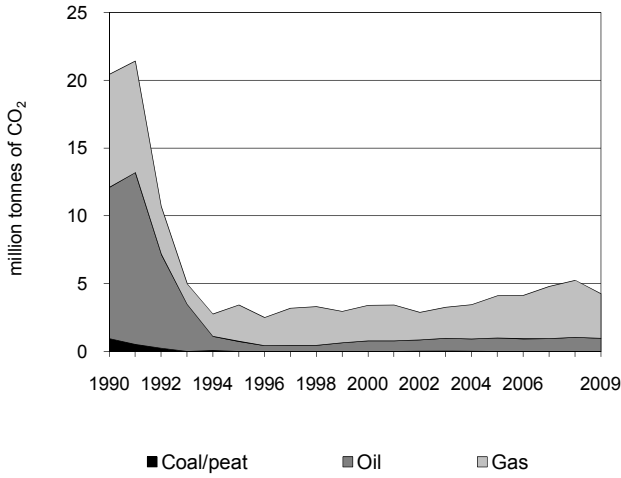


Figure 2. CO₂ emissions by sector

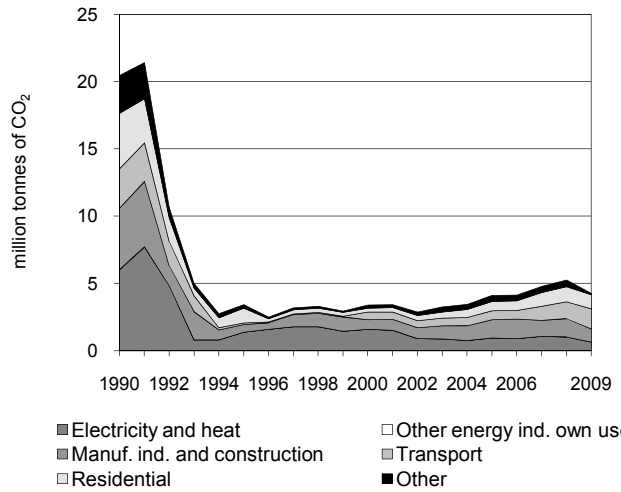


Figure 3. CO₂ emissions by sector

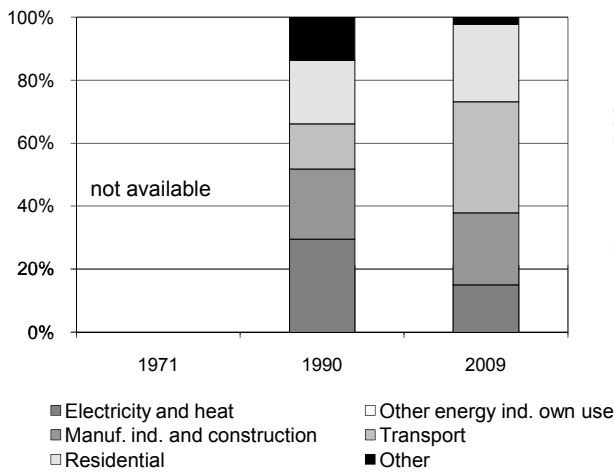


Figure 4. Reference vs Sectoral Approach

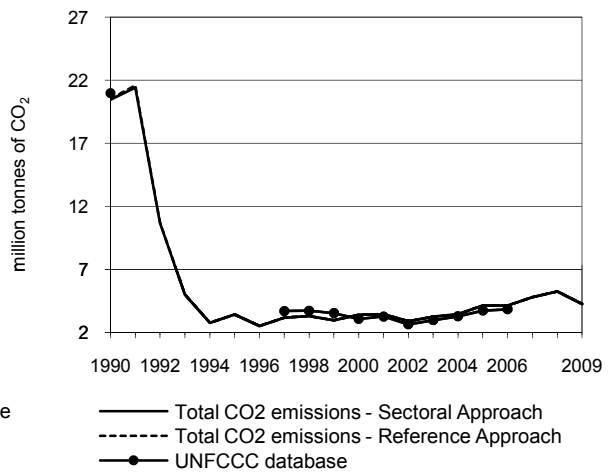


Figure 5. Electricity generation by fuel

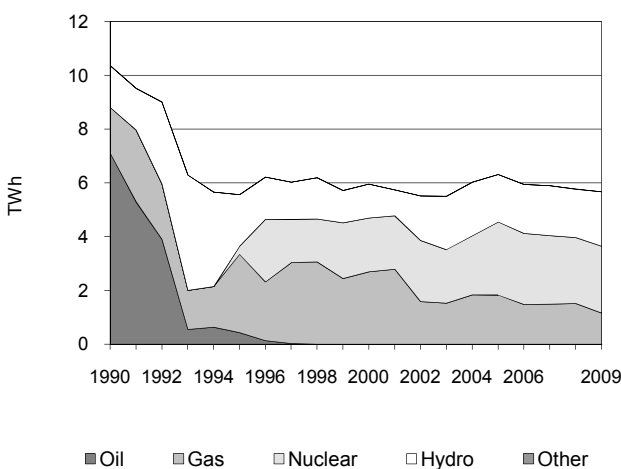
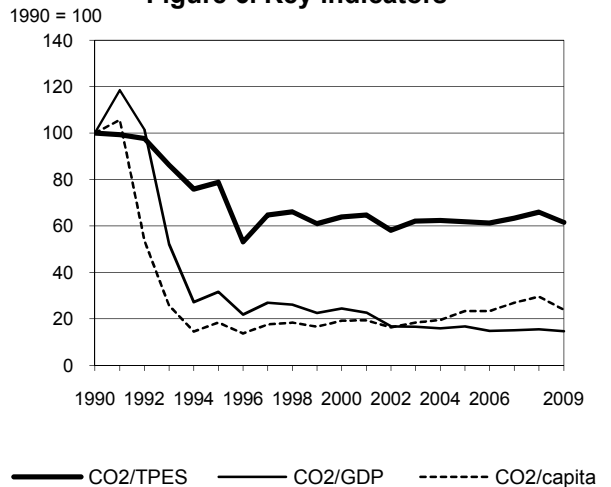


Figure 6. Key indicators



Armenia

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	20.46	3.42	3.40	4.12	4.79	5.26	4.26	-79.2%
CO ₂ Reference Approach (Mt of CO ₂)	20.52	3.42	3.40	4.12	4.79	5.26	4.26	-79.2%
TPES (PJ)	322	68	84	105	119	125	109	-66.2%
TPES (Mtoe)	7.70	1.63	2.00	2.51	2.85	3.00	2.60	-66.2%
GDP (billion 2000 USD)	2.82	1.49	1.91	3.40	4.38	4.68	4.00	42.0%
GDP PPP (billion 2000 USD)	11.01	5.81	7.46	13.28	17.10	18.26	15.63	42.0%
Population (millions)	3.55	3.22	3.08	3.07	3.07	3.08	3.08	-13.0%
CO ₂ / TPES (t CO ₂ per TJ)	63.5	50.0	40.6	39.3	40.2	41.9	39.1	-38.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	7.26	2.30	1.78	1.21	1.09	1.12	1.06	-85.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.86	0.59	0.46	0.31	0.28	0.29	0.27	-85.3%
CO ₂ / population (t CO ₂ per capita)	5.77	1.06	1.11	1.34	1.56	1.71	1.38	-76.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	0.97	3.29	-	4.26	-79.2%
Main activity producer elec. and heat	-	-	0.64	-	0.64	-89.4%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.02	0.96	-	0.97	-78.7%
Transport	-	0.92	0.58	-	1.50	-48.8%
<i>of which: road</i>	-	0.92	0.58	-	1.50	-48.8%
Other	-	0.03	1.12	-	1.14	-83.5%
<i>of which: residential</i>	-	-	1.05	-	1.05	-74.5%
Reference Approach	-	0.97	3.29	-	4.26	-79.2%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.09	-	-	0.09	-85.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Residential - gas	1.05	-60.3%	11.6	11.6
Manufacturing industries - gas	0.96	-57.8%	10.6	22.2
Road - oil	0.92	-68.5%	10.2	32.4
Main activity prod. elec. and heat - gas	0.64	-66.6%	7.1	39.6
Road - gas	0.58	x	6.4	46.0
Non-specified other - gas	0.07	-95.5%	0.7	46.7
Non-specified other - oil	0.03	-98.0%	0.3	47.0
Manufacturing industries - oil	0.02	-99.3%	0.2	47.2
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	4.26	-79.2%	47.2	47.2

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Australia

Figure 1. CO₂ emissions by fuel

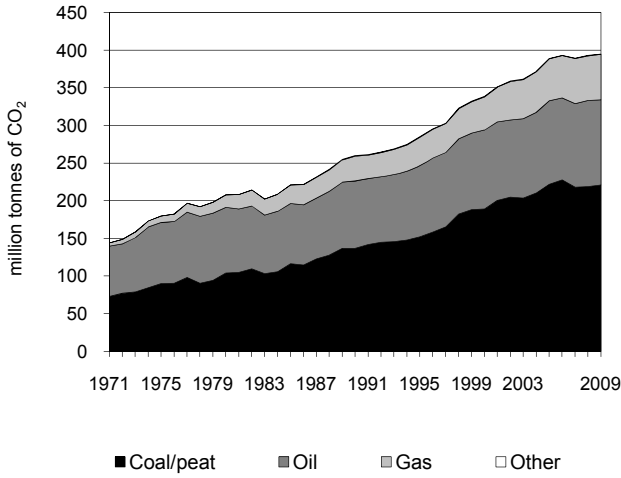


Figure 2. CO₂ emissions by sector

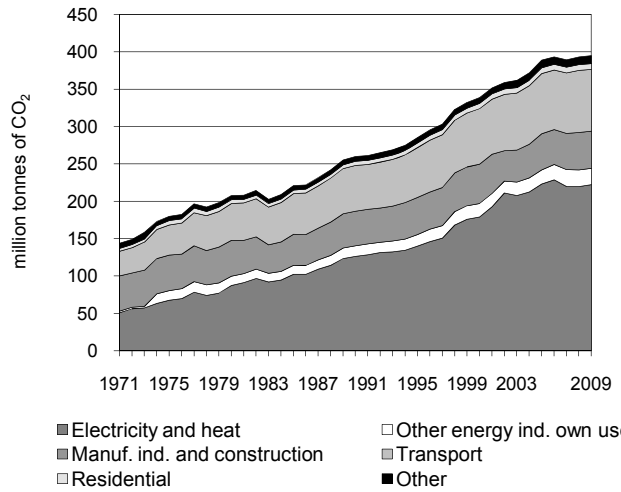


Figure 3. CO₂ emissions by sector

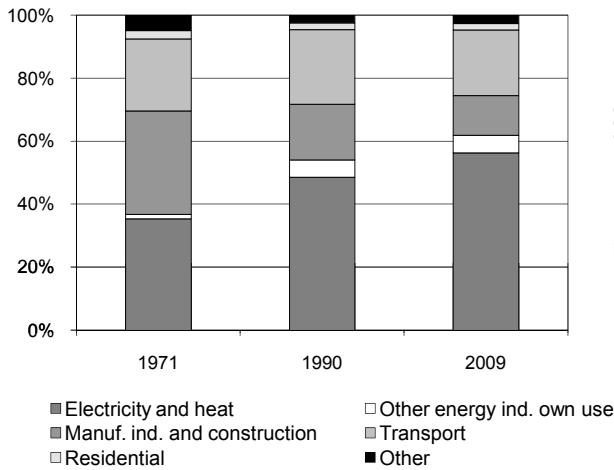


Figure 4. Reference vs Sectoral Approach

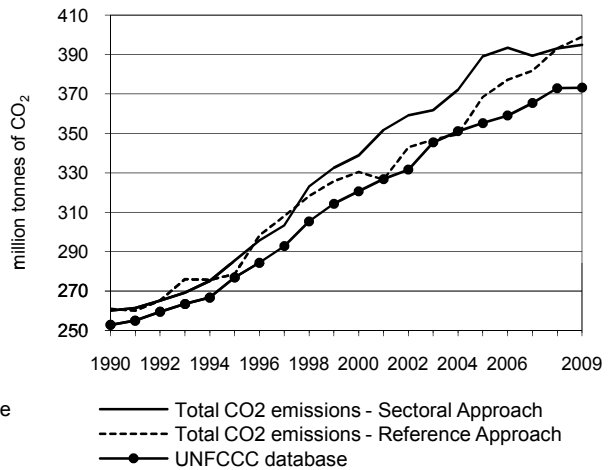


Figure 5. Electricity generation by fuel

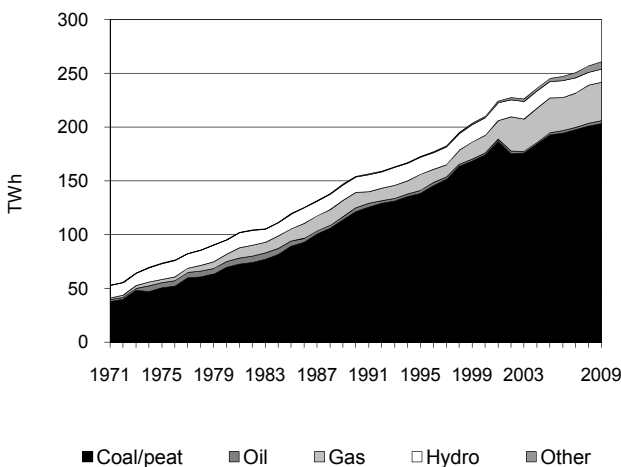
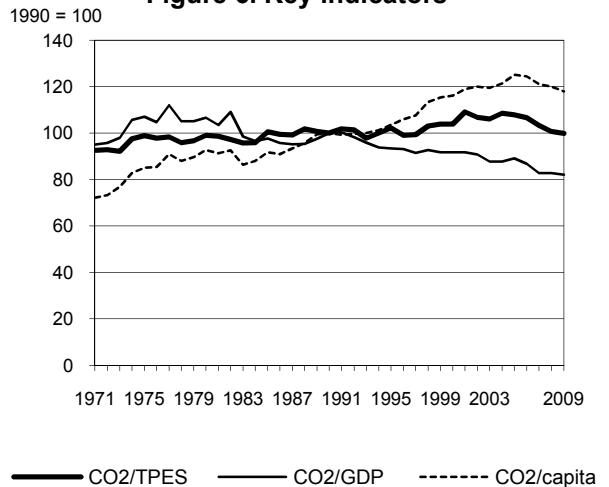


Figure 6. Key indicators



Australia

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	260.08	285.46	338.80	389.08	389.49	393.15	394.88	51.8%
CO ₂ Reference Approach (Mt of CO ₂)	260.93	278.55	330.40	368.48	381.71	393.19	399.00	52.9%
TPES (PJ)	3 610	3 875	4 526	5 007	5 231	5 418	5 488	52.0%
TPES (Mtoe)	86.23	92.56	108.11	119.59	124.94	129.40	131.07	52.0%
GDP (billion 2000 USD)	289.29	339.78	410.99	485.94	523.06	528.71	535.23	85.0%
GDP PPP (billion 2000 USD)	380.40	446.80	540.44	638.99	687.81	695.23	703.82	85.0%
Population (millions)	17.17	18.19	19.27	20.54	21.24	21.64	22.10	28.7%
CO ₂ / TPES (t CO ₂ per TJ)	72.0	73.7	74.9	77.7	74.5	72.6	72.0	-0.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.90	0.84	0.82	0.80	0.74	0.74	0.74	-17.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.68	0.64	0.63	0.61	0.57	0.57	0.56	-17.9%
CO ₂ / population (t CO ₂ per capita)	15.15	15.69	17.58	18.94	18.34	18.17	17.87	18.0%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	220.94	113.15	60.37	0.42	394.88	51.8%
Main activity producer elec. and heat	201.71	1.57	12.13	-	215.42	77.9%
Unallocated autoproducers	0.16	0.62	6.33	-	7.11	37.0%
Other energy industry own use	3.45	6.66	11.61	-	21.72	51.0%
Manufacturing industries and construction	15.11	14.31	19.92	0.42	49.77	8.1%
Transport	0.35	81.11	0.97	-	82.43	34.3%
<i>of which: road</i>	-	70.03	0.09	-	70.11	28.6%
Other	0.16	8.88	9.39	-	18.43	53.8%
<i>of which: residential</i>	0.02	0.91	7.02	-	7.95	41.3%
Reference Approach	218.52	114.45	65.61	0.42	399.00	52.9%
Diff. due to losses and/or transformation	0.11	- 14.42	0.74	-	- 13.57	
Statistical differences	- 2.53	15.72	4.50	-	17.69	
<i>Memo: international marine bunkers</i>	-	2.64	-	-	2.64	23.5%
<i>Memo: international aviation bunkers</i>	-	9.24	-	-	9.24	115.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	201.71	79.1%	35.5	35.5
Road - oil	70.03	28.5%	12.3	47.9
Manufacturing industries - gas	19.92	45.2%	3.5	51.4
Manufacturing industries - coal/peat	15.11	-18.7%	2.7	54.1
Manufacturing industries - oil	14.31	11.1%	2.5	56.6
Main activity prod. elec. and heat - gas	12.13	71.5%	2.1	58.7
Other energy industry own use - gas	11.61	140.9%	2.0	60.8
Other transport - oil	11.08	68.4%	2.0	62.7
Non-specified other - oil	7.96	94.0%	1.4	64.1
Residential - gas	7.02	59.1%	1.2	65.4
Other energy industry own use - oil	6.66	-7.6%	1.2	66.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>394.88</i>	<i>51.8%</i>	<i>69.6</i>	<i>69.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Austria

Figure 1. CO₂ emissions by fuel

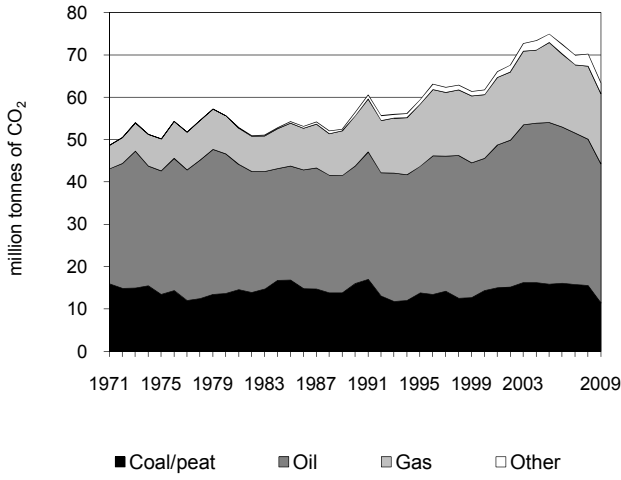


Figure 2. CO₂ emissions by sector

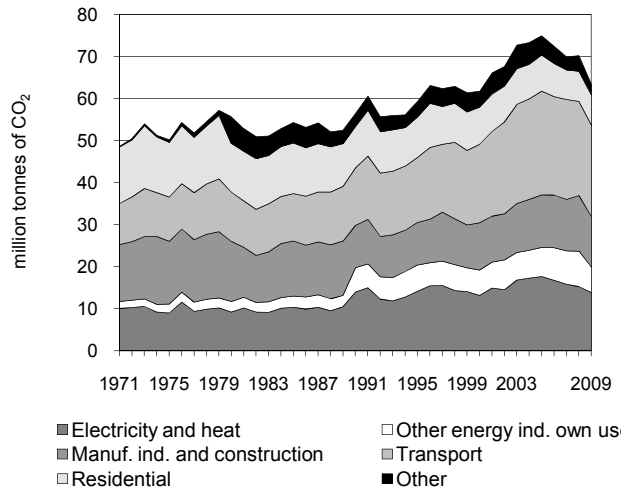


Figure 3. CO₂ emissions by sector

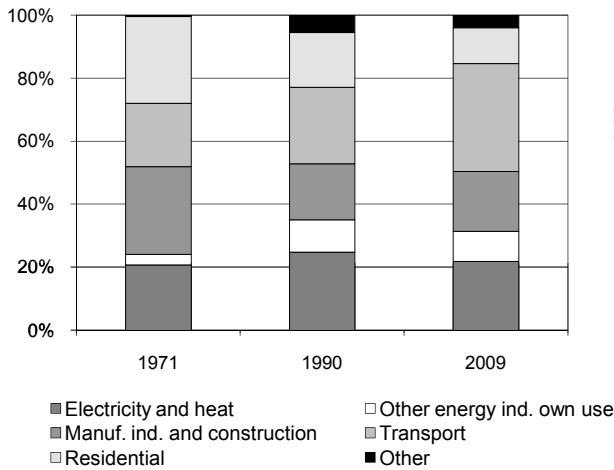


Figure 4. Reference vs Sectoral Approach

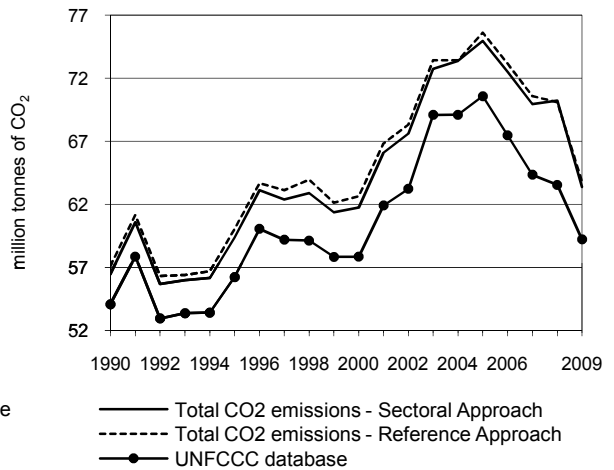


Figure 5. Electricity generation by fuel

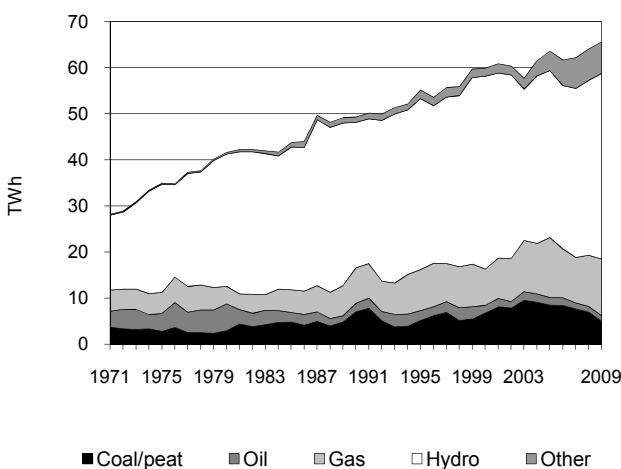
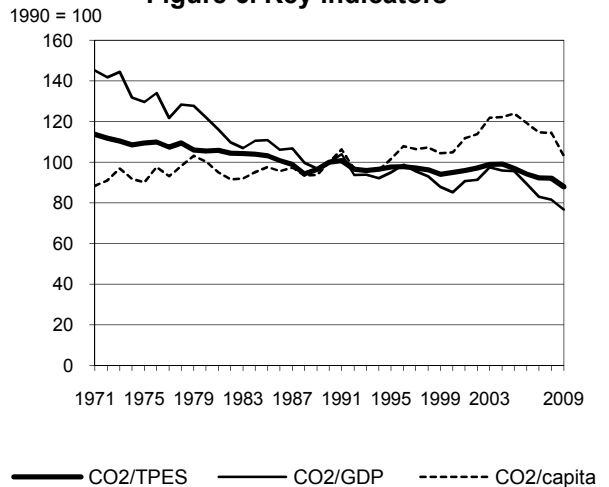


Figure 6. Key indicators



Austria

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	56.47	59.37	61.76	74.95	69.96	70.23	63.37	12.2%
CO ₂ Reference Approach (Mt of CO ₂)	57.12	60.06	62.65	75.61	70.59	70.11	63.80	11.7%
TPES (PJ)	1 038	1 118	1 196	1 421	1 393	1 402	1 325	27.7%
TPES (Mtoe)	24.78	26.70	28.57	33.95	33.27	33.49	31.66	27.7%
GDP (billion 2000 USD)	149.00	165.04	191.20	206.90	222.34	227.19	218.36	46.5%
GDP PPP (billion 2000 USD)	179.62	198.96	230.49	249.42	268.03	273.87	263.22	46.5%
Population (millions)	7.68	7.95	8.01	8.23	8.30	8.34	8.36	8.9%
CO ₂ / TPES (t CO ₂ per TJ)	54.4	53.1	51.6	52.7	50.2	50.1	47.8	-12.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.38	0.36	0.32	0.36	0.31	0.31	0.29	-23.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.31	0.30	0.27	0.30	0.26	0.26	0.24	-23.4%
CO ₂ / population (t CO ₂ per capita)	7.36	7.47	7.71	9.11	8.43	8.42	7.58	3.0%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	11.41	32.88	16.55	2.53	63.37	12.2%
Main activity producer elec. and heat	3.02	0.63	4.87	0.59	9.11	-12.8%
Unallocated autoproducers	2.66	0.69	0.97	0.42	4.74	33.9%
Other energy industry own use	3.37	1.77	0.90	-	6.05	4.4%
Manufacturing industries and construction	2.00	2.85	5.69	1.52	12.06	19.7%
Transport	-	21.26	0.43	-	21.70	58.6%
<i>of which: road</i>	-	20.68	0.01	-	20.69	58.4%
Other	0.36	5.67	3.69	0.00	9.72	-24.9%
<i>of which: residential</i>	0.33	4.12	2.74	-	7.19	-26.9%
Reference Approach	11.40	33.31	16.56	2.53	63.80	11.7%
Diff. due to losses and/or transformation	- 0.28	0.40	-	-	0.12	
Statistical differences	0.27	0.03	0.00	0.00	0.30	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	1.57	-	-	1.57	92.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	20.68	58.3%	24.6	24.6
Manufacturing industries - gas	5.69	30.4%	6.8	31.3
Main activity prod. elec. and heat - gas	4.87	48.1%	5.8	37.1
Residential - oil	4.12	-22.2%	4.9	42.0
Other energy industry - coal/peat	3.37	11.8%	4.0	46.0
Main activity prod. elec. and heat - coal/peat	3.02	-48.2%	3.6	49.6
Manufacturing industries - oil	2.85	10.1%	3.4	53.0
Residential - gas	2.74	53.4%	3.3	56.2
Unallocated autoproducers - coal/peat	2.66	81.3%	3.2	59.4
Manufacturing industries - coal/peat	2.00	-28.7%	2.4	61.7
Other energy industry own use - oil	1.77	-6.9%	2.1	63.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>63.37</i>	<i>12.2%</i>	<i>75.2</i>	<i>75.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Azerbaijan

Figure 1. CO₂ emissions by fuel

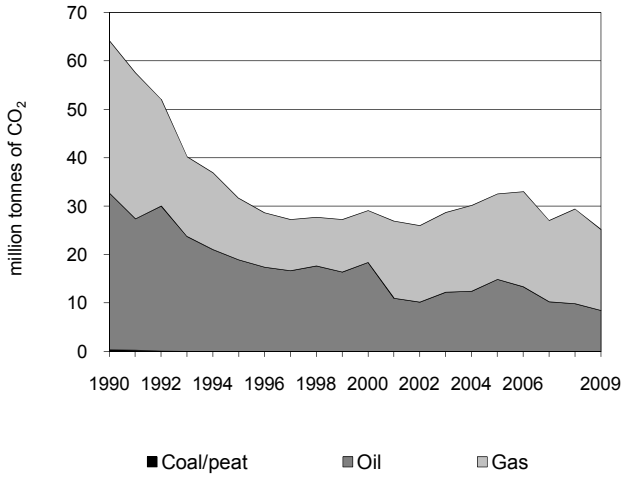


Figure 2. CO₂ emissions by sector

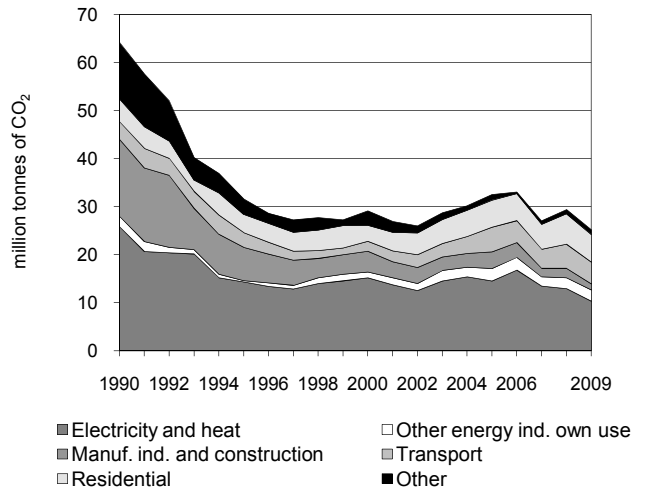


Figure 3. CO₂ emissions by sector

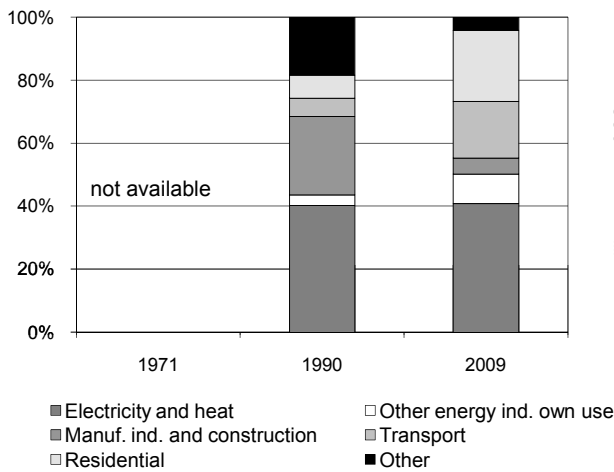


Figure 4. Reference vs Sectoral Approach

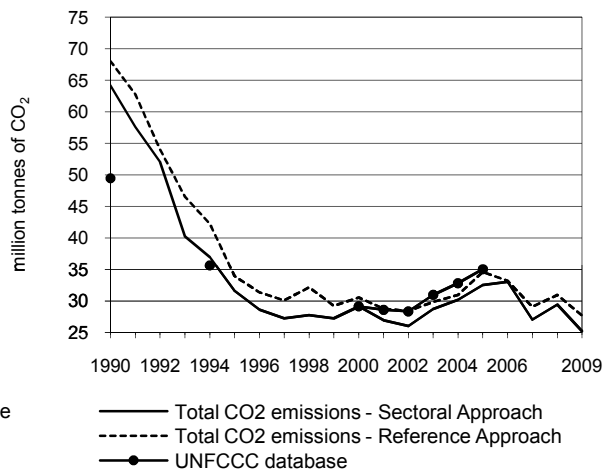


Figure 5. Electricity generation by fuel

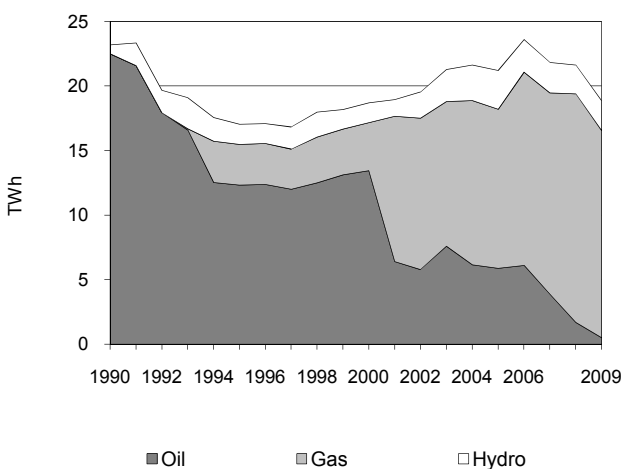
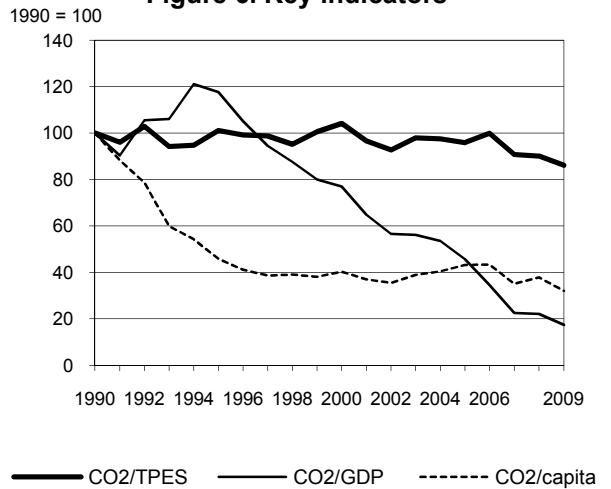


Figure 6. Key indicators



Azerbaijan

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	64.20	31.60	29.13	32.54	27.03	29.41	25.22	-60.7%
CO ₂ Reference Approach (Mt of CO ₂)	68.08	33.94	30.53	34.62	29.08	30.96	27.68	-59.3%
TPES (PJ)	1 098	534	479	581	509	558	501	-54.4%
TPES (Mtoe)	26.24	12.76	11.43	13.87	12.17	13.34	11.97	-54.4%
GDP (billion 2000 USD)	8.95	3.75	5.27	9.93	16.70	18.50	20.22	125.8%
GDP PPP (billion 2000 USD)	33.83	14.16	19.92	37.51	63.09	69.90	76.40	125.8%
Population (millions)	7.16	7.69	8.05	8.39	8.58	8.68	8.78	22.7%
CO ₂ / TPES (t CO ₂ per TJ)	58.5	59.1	60.8	56.0	53.1	52.7	50.3	-13.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	7.17	8.43	5.52	3.28	1.62	1.59	1.25	-82.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.90	2.23	1.46	0.87	0.43	0.42	0.33	-82.6%
CO ₂ / population (t CO ₂ per capita)	8.97	4.11	3.62	3.88	3.15	3.39	2.87	-68.0%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Coal/peat	Oil	Natural		Total	% change 90-09
			gas	Other *		
Sectoral Approach	-	8.48	16.74	-	25.22	-60.7%
Main activity producer elec. and heat	-	0.40	8.81	-	9.21	-64.4%
Unallocated autoproducers	-	0.02	1.08	-	1.11	x
Other energy industry own use	-	1.74	0.61	-	2.35	9.8%
Manufacturing industries and construction	-	0.59	0.68	-	1.27	-92.0%
Transport	-	4.54	-	-	4.54	23.1%
<i>of which: road</i>	-	4.04	-	-	4.04	26.0%
Other	-	1.18	5.56	-	6.73	-59.2%
<i>of which: residential</i>	-	0.21	5.47	-	5.69	21.3%
Reference Approach	-	8.48	19.20	-	27.68	-59.3%
Diff. due to losses and/or transformation	-	-0.50	2.41	-	1.91	
Statistical differences	-	0.50	0.05	-	0.55	
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	0.92	-	-	0.92	-1.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	8.81	-15.0%	18.8	18.8
Residential - gas	5.47	19.6%	11.7	30.5
Road - oil	4.04	31.0%	8.6	39.1
Other energy industry own use - oil	1.74	-18.6%	3.7	42.9
Unallocated autoproducers - gas	1.08	x	2.3	45.2
Non-specified other - oil	0.96	-89.8%	2.1	47.2
Manufacturing industries - gas	0.68	-95.2%	1.5	48.7
Other energy industry own use - gas	0.61	x	1.3	50.0
Manufacturing industries - oil	0.59	-69.3%	1.3	51.2
Other transport - oil	0.50	154.1%	1.1	52.3
Main activity prod. elec. and heat - oil	0.40	-97.4%	0.8	53.1
<i>Memo: total CO₂ from fuel combustion</i>	25.22	-60.7%	53.8	53.8

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Bahrain

Figure 1. CO₂ emissions by fuel

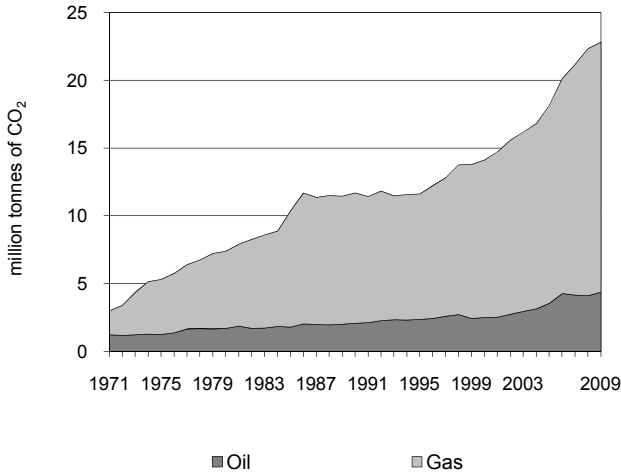


Figure 2. CO₂ emissions by sector

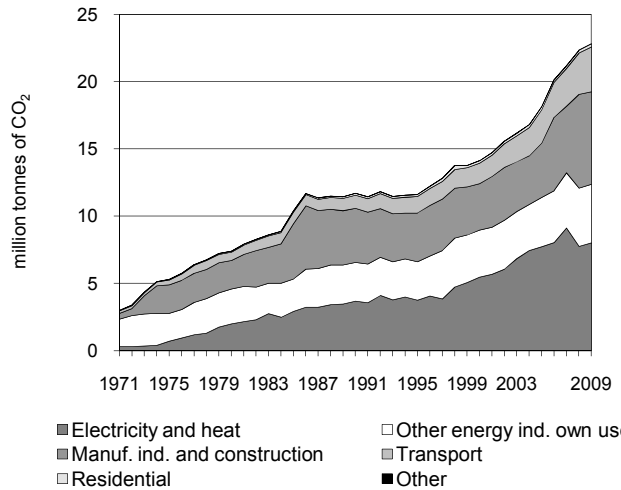


Figure 3. CO₂ emissions by sector

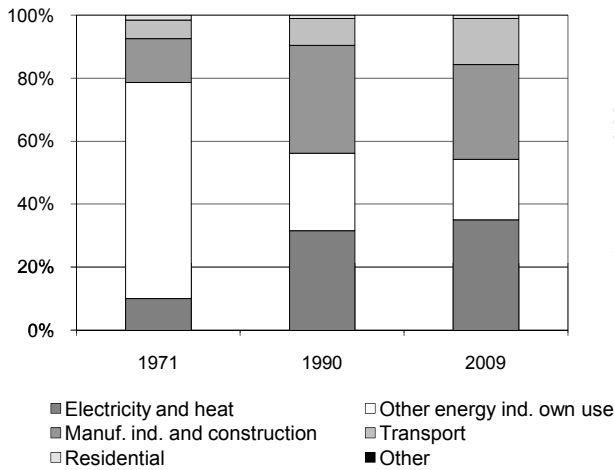


Figure 4. Reference vs Sectoral Approach

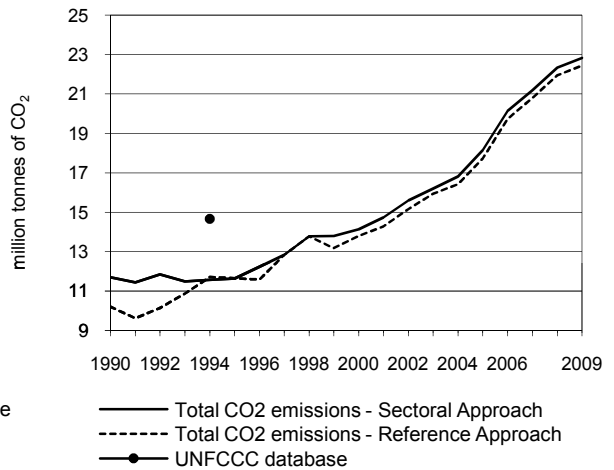


Figure 5. Electricity generation by fuel

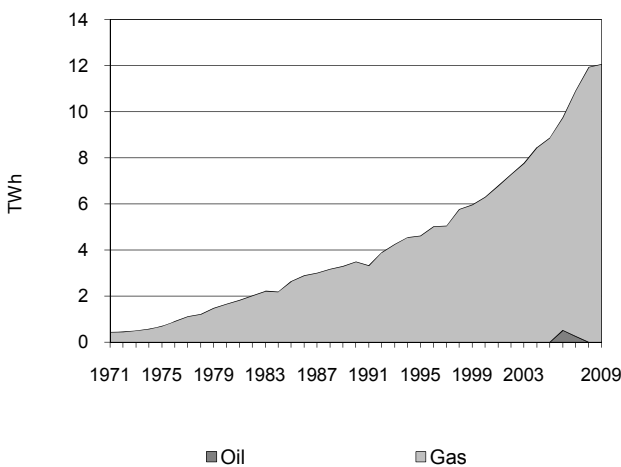
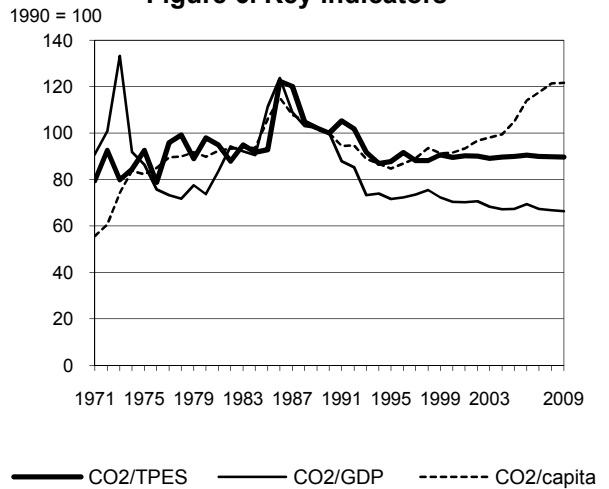


Figure 6. Key indicators



Bahrain

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	11.70	11.63	14.13	18.15	21.19	22.35	22.82	95.1%
CO ₂ Reference Approach (Mt of CO ₂)	10.20	11.65	13.79	17.73	20.80	21.95	22.43	120.0%
TPES (PJ)	182	206	246	314	367	387	396	117.7%
TPES (Mtoe)	4.35	4.93	5.86	7.50	8.75	9.24	9.47	117.7%
GDP (billion 2000 USD)	4.65	6.45	7.97	10.71	12.50	13.28	13.67	194.1%
GDP PPP (billion 2000 USD)	6.09	8.46	10.45	14.04	16.38	17.41	17.91	194.1%
Population (millions)	0.49	0.58	0.65	0.73	0.76	0.78	0.79	60.4%
CO ₂ / TPES (t CO ₂ per TJ)	64.2	56.3	57.5	57.8	57.8	57.7	57.6	-10.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.52	1.80	1.77	1.69	1.70	1.68	1.67	-33.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.92	1.37	1.35	1.29	1.29	1.28	1.27	-33.7%
CO ₂ / population (t CO ₂ per capita)	23.73	20.11	21.74	24.93	27.88	28.80	28.86	21.6%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	4.38	18.45	-	22.82	95.1%
Main activity producer elec. and heat	-	-	8.02	-	8.02	117.0%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.82	3.55	-	4.36	51.3%
Manufacturing industries and construction	-	-	6.88	-	6.88	71.8%
Transport	-	3.33	-	-	3.33	236.7%
<i>of which: road</i>	-	3.30	-	-	3.30	232.9%
Other	-	0.23	-	-	0.23	83.7%
<i>of which: residential</i>	-	0.23	-	-	0.23	83.7%
Reference Approach	-	3.99	18.45	-	22.43	120.0%
Diff. due to losses and/or transformation	-	-0.39	-	-	-0.39	
Statistical differences	-	-0.00	-	-	-0.00	
<i>Memo: international marine bunkers</i>	-	0.20	-	-	0.20	-20.0%
<i>Memo: international aviation bunkers</i>	-	1.82	-	-	1.82	27.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	8.02	117.0%	30.1	30.1
Manufacturing industries - gas	6.88	71.8%	25.9	56.0
Other energy industry own use - gas	3.55	84.8%	13.3	69.3
Road - oil	3.30	232.9%	12.4	81.7
Other energy industry own use - oil	0.82	-15.5%	3.1	84.8
Residential - oil	0.23	83.7%	0.9	85.6
Other transport - oil	0.04	x	0.1	85.8
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	22.82	95.1%	85.8	85.8

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Bangladesh

Figure 1. CO₂ emissions by fuel

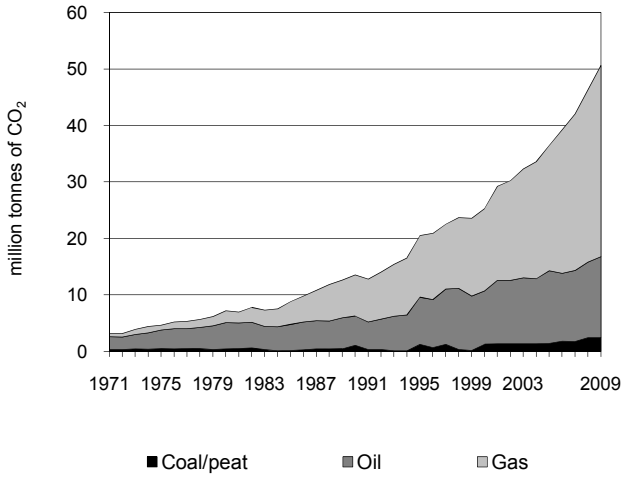


Figure 2. CO₂ emissions by sector

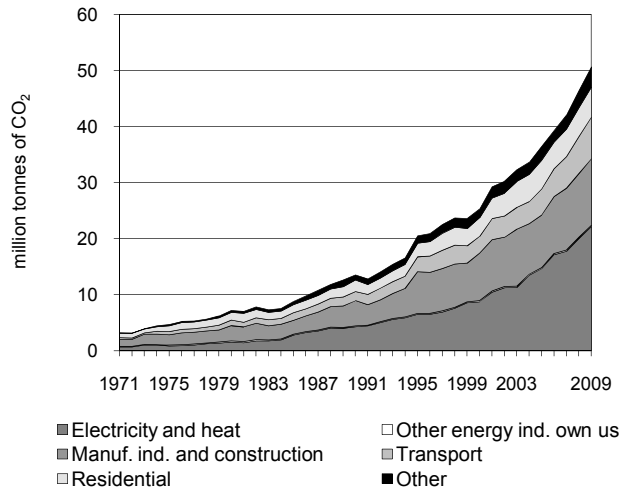


Figure 3. CO₂ emissions by sector

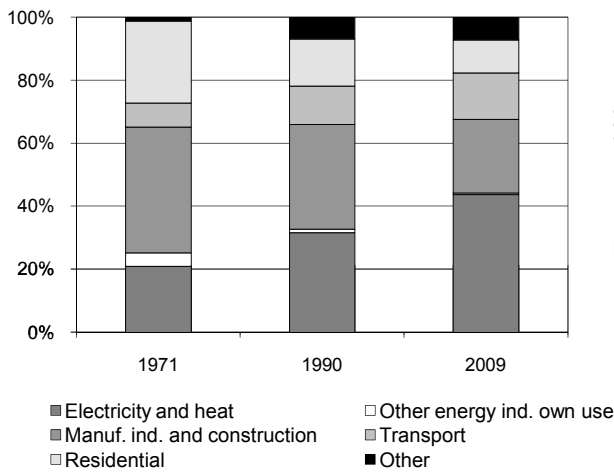


Figure 4. Reference vs Sectoral Approach

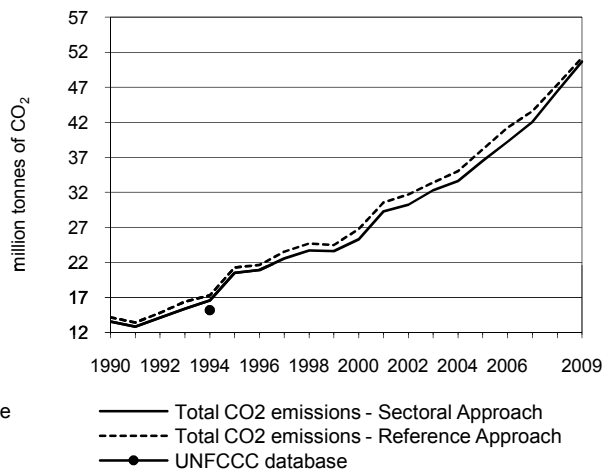


Figure 5. Electricity generation by fuel

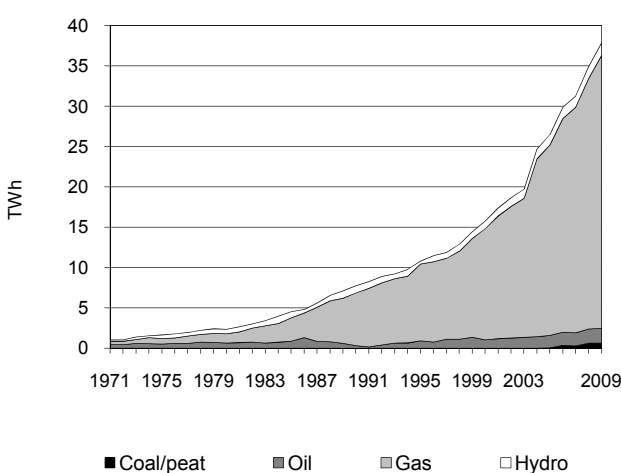
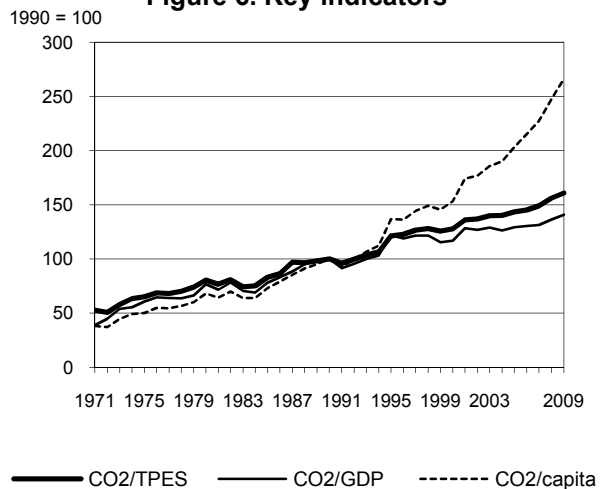


Figure 6. Key indicators



Bangladesh

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	13.56	20.51	25.30	36.49	42.04	46.43	50.66	273.5%
CO ₂ Reference Approach (Mt of CO ₂)	14.13	21.27	26.74	38.12	43.56	47.37	51.23	262.4%
TPES (PJ)	533	666	779	1 000	1 109	1 170	1 239	132.4%
TPES (Mtoe)	12.74	15.90	18.60	23.88	26.49	27.94	29.60	132.4%
GDP (billion 2000 USD)	29.49	36.56	47.13	61.39	69.67	73.98	78.23	165.3%
GDP PPP (billion 2000 USD)	124.58	154.44	199.07	259.35	294.32	312.54	330.48	165.3%
Population (millions)	115.63	128.09	140.77	153.12	157.75	160.00	162.22	40.3%
CO ₂ / TPES (t CO ₂ per TJ)	25.4	30.8	32.5	36.5	37.9	39.7	40.9	60.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.46	0.56	0.54	0.59	0.60	0.63	0.65	40.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.11	0.13	0.13	0.14	0.14	0.15	0.15	40.8%
CO ₂ / population (t CO ₂ per capita)	0.12	0.16	0.18	0.24	0.27	0.29	0.31	166.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	2.44	14.35	33.87	-	50.66	273.5%
Main activity producer elec. and heat	0.03	2.05	14.04	-	16.12	276.1%
Unallocated autoproducers	0.85	-	5.19	-	6.04	x
Other energy industry own use	-	0.24	-	-	0.24	58.4%
Manufacturing industries and construction	1.55	1.83	8.46	-	11.84	162.8%
Transport	-	5.76	1.70	-	7.46	351.7%
<i>of which: road</i>	-	4.03	1.70	-	5.73	381.3%
Other	-	4.48	4.49	-	8.96	202.0%
<i>of which: residential</i>	-	1.26	4.04	-	5.30	160.5%
Reference Approach	2.44	14.34	34.45	-	51.23	262.4%
Diff. due to losses and/or transformation	-	0.04	0.59	-	0.63	
Statistical differences	-	-0.06	-	-	-0.06	
<i>Memo: international marine bunkers</i>	-	0.11	-	-	0.11	78.6%
<i>Memo: international aviation bunkers</i>	-	0.57	-	-	0.57	109.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	14.04	258.1%	8.1	8.1
Manufacturing industries - gas	8.46	215.2%	4.9	13.0
Unallocated autoproducers - gas	5.19	x	3.0	16.0
Residential - gas	4.04	664.0%	2.3	18.3
Road - oil	4.03	238.6%	2.3	20.7
Non-specified other - oil	3.22	316.9%	1.9	22.5
Main activity prod. elec. and heat - oil	2.05	458.9%	1.2	23.7
Manufacturing industries - oil	1.83	150.4%	1.1	24.8
Other transport - oil	1.73	275.2%	1.0	25.8
Road - gas	1.70	x	1.0	26.8
Manufacturing industries - coal/peat	1.55	42.1%	0.9	27.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>50.66</i>	<i>273.5%</i>	<i>29.3</i>	<i>29.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Belarus

Figure 1. CO₂ emissions by fuel

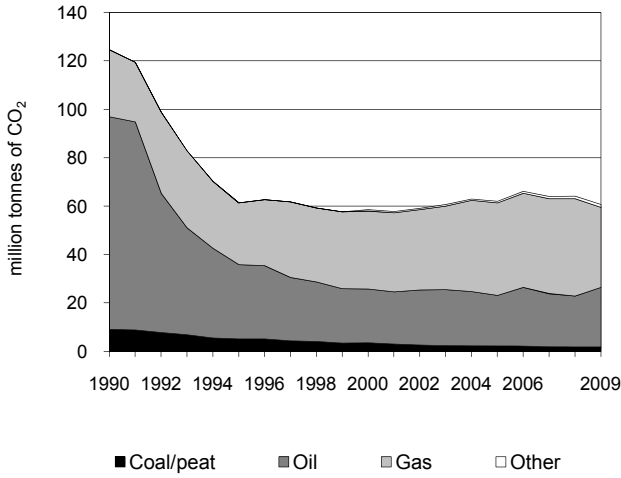


Figure 2. CO₂ emissions by sector

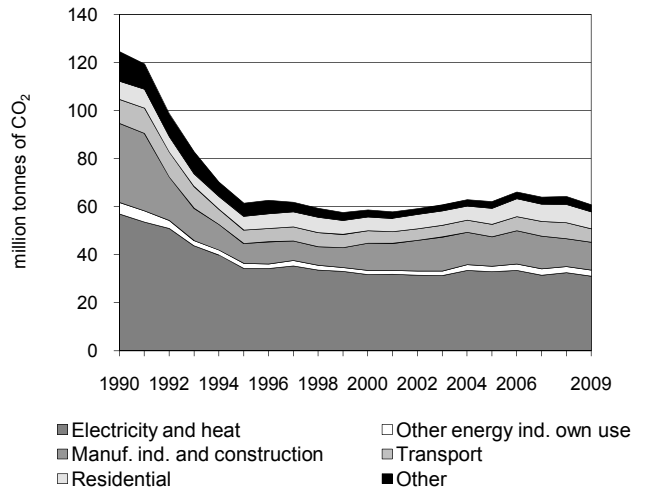


Figure 3. CO₂ emissions by sector

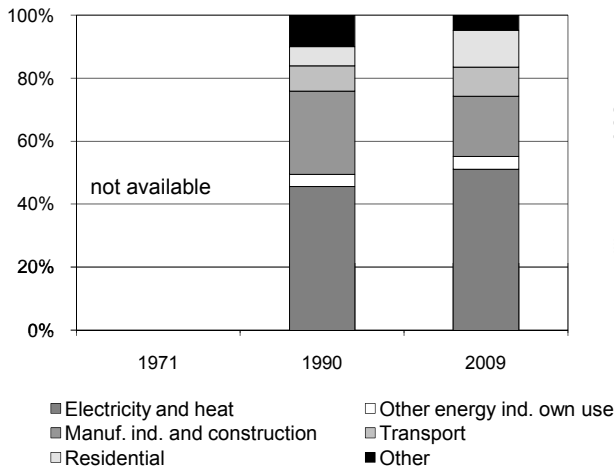


Figure 4. Reference vs Sectoral Approach

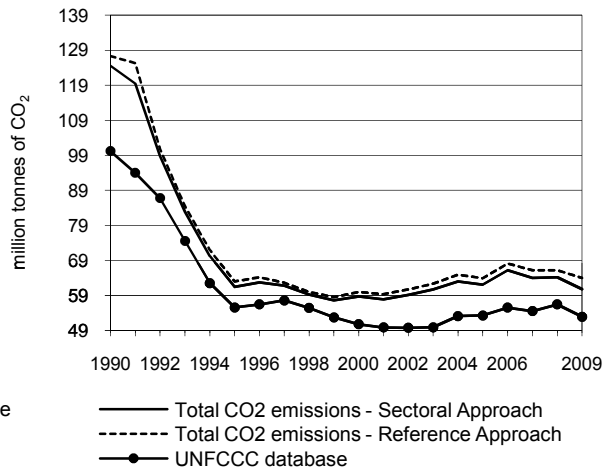


Figure 5. Electricity generation by fuel

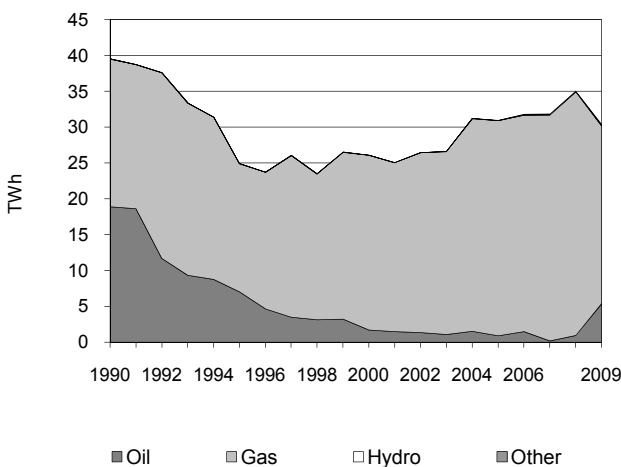
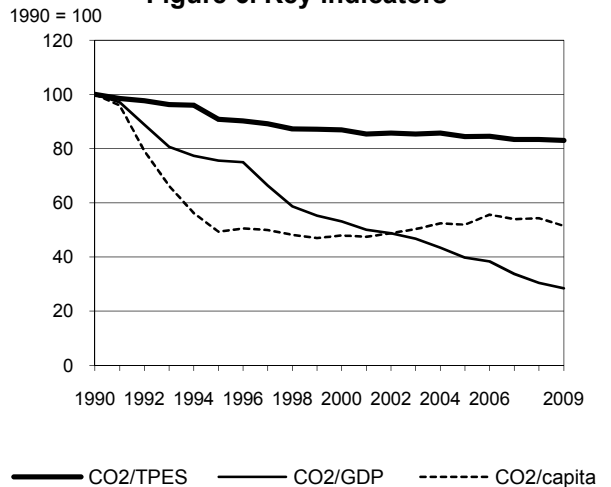


Figure 6. Key indicators



Belarus

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	124.57	61.42	58.66	62.07	64.00	64.20	60.79	-51.2%
CO ₂ Reference Approach (Mt of CO ₂)	127.35	63.02	59.96	63.93	66.15	66.22	63.98	-49.8%
TPES (PJ)	1 907	1 036	1 033	1 125	1 175	1 178	1 120	-41.2%
TPES (Mtoe)	45.55	24.75	24.68	26.87	28.06	28.15	26.76	-41.2%
GDP (billion 2000 USD)	14.36	9.38	12.74	18.02	21.88	24.35	24.70	71.9%
GDP PPP (billion 2000 USD)	54.19	35.38	48.05	67.99	82.53	91.86	93.18	71.9%
Population (millions)	10.19	10.19	10.01	9.78	9.70	9.68	9.66	-5.2%
CO ₂ / TPES (t CO ₂ per TJ)	65.3	59.3	56.8	55.2	54.5	54.5	54.3	-16.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	8.67	6.55	4.61	3.44	2.93	2.64	2.46	-71.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	2.30	1.74	1.22	0.91	0.78	0.70	0.65	-71.6%
CO ₂ / population (t CO ₂ per capita)	12.23	6.03	5.86	6.35	6.60	6.63	6.29	-48.5%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	1.85	24.56	33.15	1.23	60.79	-51.2%
Main activity producer elec. and heat	0.15	6.10	18.79	-	25.04	-39.5%
Unallocated autoproducers	0.39	0.97	4.52	0.18	6.05	-60.9%
Other energy industry own use	0.06	2.27	-	0.14	2.47	-48.7%
Manufacturing industries and construction	0.28	4.72	5.66	0.92	11.58	-64.8%
Transport	0.03	4.77	0.87	-	5.67	-43.4%
<i>of which: road</i>	-	4.13	0.03	-	4.16	-48.9%
Other	0.94	5.73	3.32	-	9.99	-50.0%
<i>of which: residential</i>	0.70	3.34	3.03	-	7.07	-7.0%
Reference Approach	2.32	27.01	33.42	1.23	63.98	-49.8%
Diff. due to losses and/or transformation	0.47	2.37	0.27	-	3.11	
Statistical differences	-0.00	0.08	-	-0.00	0.07	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	18.79	14.4%	19.6	19.6
Main activity prod. elec. and heat - oil	6.10	-75.4%	6.4	26.0
Manufacturing industries - gas	5.66	28.4%	5.9	31.9
Manufacturing industries - oil	4.72	-83.2%	4.9	36.8
Unallocated autoproducers - gas	4.52	106.0%	4.7	41.5
Road - oil	4.13	-49.3%	4.3	45.9
Residential - oil	3.34	73.4%	3.5	49.3
Residential - gas	3.03	72.1%	3.2	52.5
Non-specified other - oil	2.39	-67.7%	2.5	55.0
Other energy industry own use - oil	2.27	-52.4%	2.4	57.4
Unallocated autoproducers - oil	0.97	-91.2%	1.0	58.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>60.79</i>	<i>-51.2%</i>	<i>63.5</i>	<i>63.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Belgium

Figure 1. CO₂ emissions by fuel

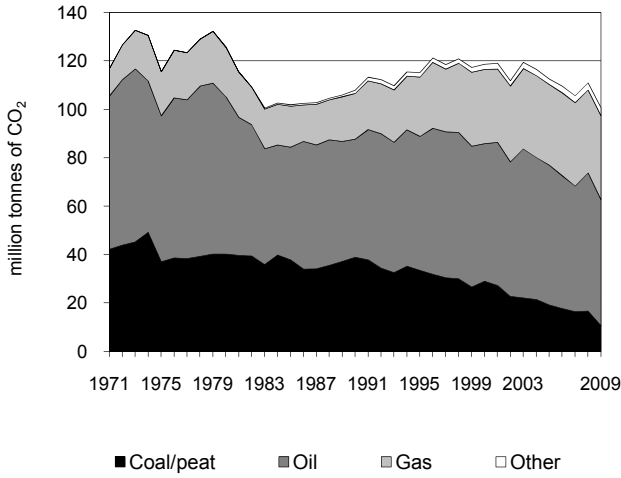


Figure 2. CO₂ emissions by sector

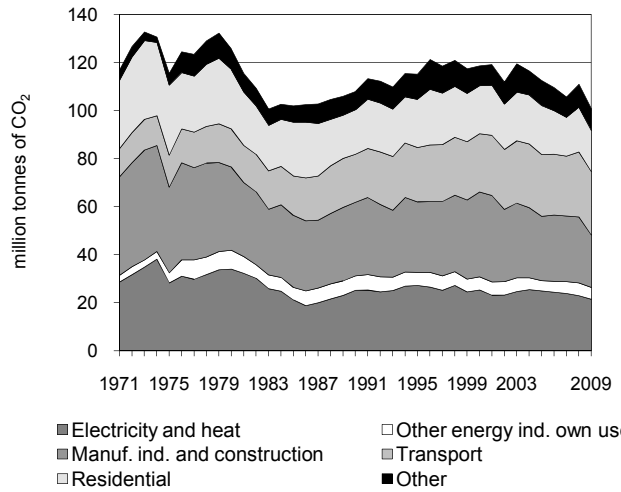


Figure 3. CO₂ emissions by sector

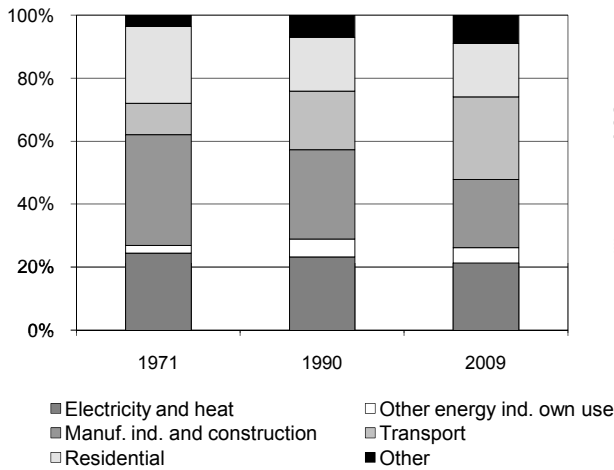


Figure 4. Reference vs Sectoral Approach

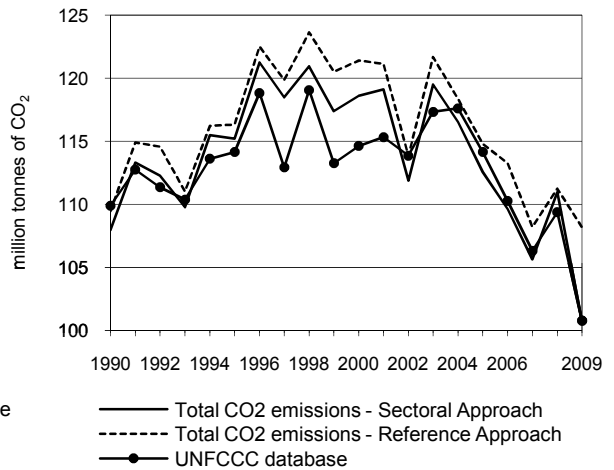


Figure 5. Electricity generation by fuel

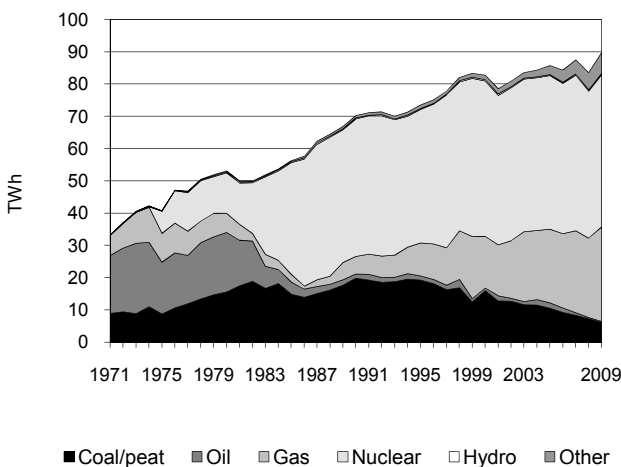
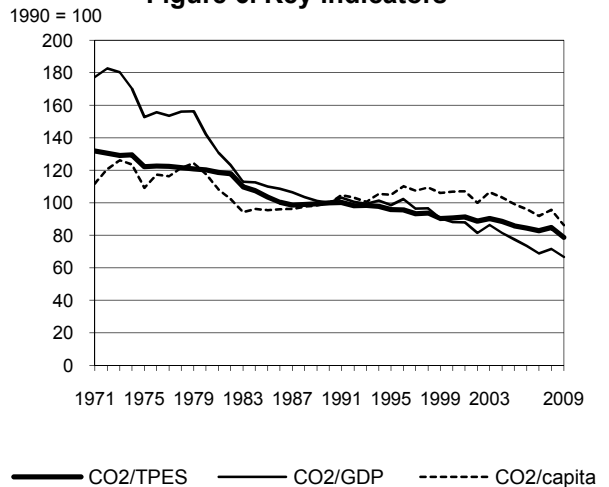


Figure 6. Key indicators



Belgium

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	107.95	115.21	118.60	112.57	105.65	110.96	100.70	-6.7%
CO ₂ Reference Approach (Mt of CO ₂)	109.45	116.31	121.40	114.80	108.19	111.26	108.18	-1.2%
TPES (PJ)	2 022	2 251	2 450	2 457	2 388	2 453	2 396	18.5%
TPES (Mtoe)	48.28	53.77	58.51	58.68	57.03	58.58	57.22	18.5%
GDP (billion 2000 USD)	186.52	201.85	232.37	251.24	265.54	268.21	260.83	39.8%
GDP PPP (billion 2000 USD)	227.19	245.87	283.04	306.02	323.44	326.69	317.71	39.8%
Population (millions)	9.97	10.14	10.25	10.47	10.62	10.71	10.79	8.2%
CO ₂ / TPES (t CO ₂ per TJ)	53.4	51.2	48.4	45.8	44.2	45.2	42.0	-21.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.58	0.57	0.51	0.45	0.40	0.41	0.39	-33.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.48	0.47	0.42	0.37	0.33	0.34	0.32	-33.3%
CO ₂ / population (t CO ₂ per capita)	10.83	11.37	11.58	10.75	9.95	10.36	9.33	-13.8%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	10.58	52.23	34.65	3.24	100.70	-6.7%
Main activity producer elec. and heat	6.60	0.12	11.06	2.73	20.51	-6.6%
Unallocated autoproducers	0.35	0.07	0.57	-	0.99	-68.7%
Other energy industry own use	0.18	4.68	0.03	-	4.89	-19.5%
Manufacturing industries and construction	2.51	8.10	10.67	0.51	21.78	-29.0%
Transport	-	26.43	-	-	26.43	32.1%
<i>of which: road</i>	-	25.78	-	-	25.78	33.8%
Other	0.95	12.83	12.31	-	26.09	0.1%
<i>of which: residential</i>	0.92	8.40	7.74	-	17.06	-7.6%
Reference Approach	11.31	58.98	34.65	3.24	108.18	-1.2%
Diff. due to losses and/or transformation	0.64	5.63	-	-	6.27	
Statistical differences	0.09	1.11	0.00	-	1.20	
<i>Memo: international marine bunkers</i>	-	22.34	-	-	22.34	73.1%
<i>Memo: international aviation bunkers</i>	-	5.72	-	-	5.72	103.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	25.78	33.8%	20.7	20.7
Main activity prod. elec. and heat - gas	11.06	309.0%	8.9	29.6
Manufacturing industries - gas	10.67	44.3%	8.6	38.2
Residential - oil	8.40	-20.9%	6.8	45.0
Manufacturing industries - oil	8.10	2.9%	6.5	51.5
Residential - gas	7.74	33.4%	6.2	57.7
Main activity prod. elec. and heat - coal/peat	6.60	-63.1%	5.3	63.0
Other energy industry own use - oil	4.68	11.1%	3.8	66.8
Non-specified other - gas	4.57	89.2%	3.7	70.4
Non-specified other - oil	4.43	-14.4%	3.6	74.0
Main activity prod. elec. and heat - other	2.73	249.9%	2.2	76.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>100.70</i>	<i>-6.7%</i>	<i>81.0</i>	<i>81.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Benin

Figure 1. CO₂ emissions by fuel

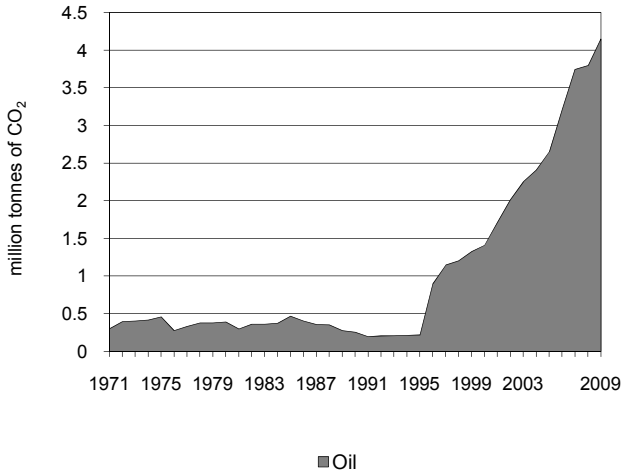


Figure 2. CO₂ emissions by sector

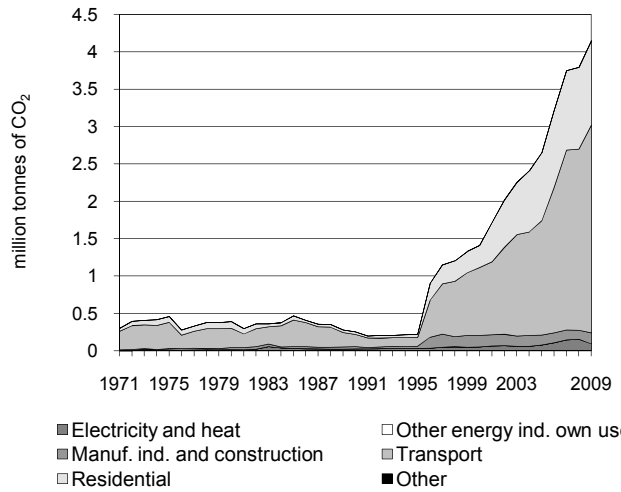


Figure 3. CO₂ emissions by sector

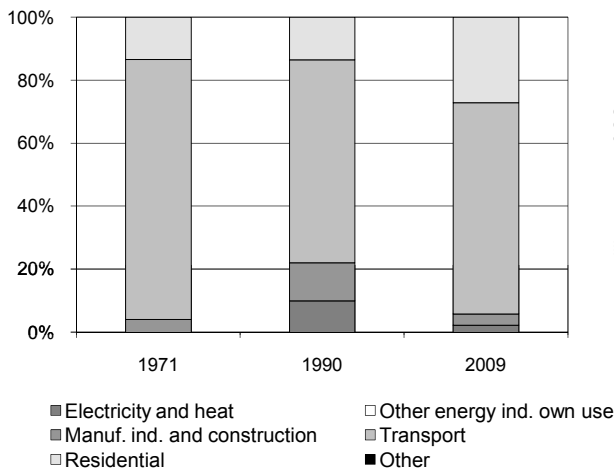


Figure 4. Reference vs Sectoral Approach

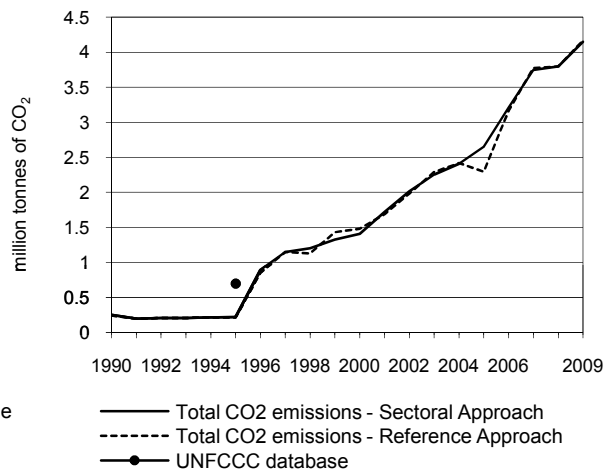


Figure 5. Electricity generation by fuel

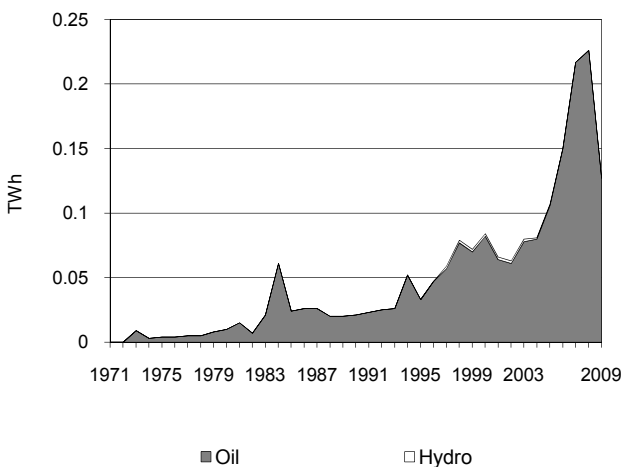
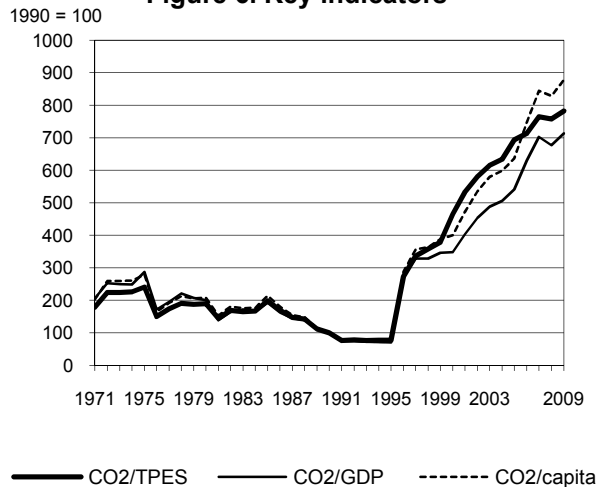


Figure 6. Key indicators



Benin

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	0.25	0.22	1.41	2.65	3.75	3.80	4.15	+
CO ₂ Reference Approach (Mt of CO ₂)	0.24	0.21	1.48	2.29	3.77	3.80	4.17	+
TPES (PJ)	70	77	83	105	134	137	145	109.2%
TPES (Mtoe)	1.66	1.85	1.98	2.50	3.21	3.28	3.47	109.2%
GDP (billion 2000 USD)	1.41	1.74	2.26	2.73	2.97	3.12	3.24	129.5%
GDP PPP (billion 2000 USD)	4.39	5.41	7.02	8.48	9.24	9.71	10.08	129.5%
Population (millions)	4.80	5.72	6.66	7.87	8.39	8.66	8.94	86.3%
CO ₂ / TPES (t CO ₂ per TJ)	3.7	2.8	17.0	25.3	27.9	27.6	28.5	682.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.18	0.13	0.63	0.97	1.26	1.22	1.28	612.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.06	0.04	0.20	0.31	0.41	0.39	0.41	612.6%
CO ₂ / population (t CO ₂ per capita)	0.05	0.04	0.21	0.34	0.45	0.44	0.46	778.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	4.15	-	-	4.15	+
Main activity producer elec. and heat	-	0.08	-	-	0.08	214.9%
Unallocated autoproducers	-	0.01	-	-	0.01	x
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.15	-	-	0.15	381.2%
Transport	-	2.78	-	-	2.78	+
<i>of which: road</i>	-	2.78	-	-	2.78	+
Other	-	1.13	-	-	1.13	+
<i>of which: residential</i>	-	1.13	-	-	1.13	+
Reference Approach	-	4.17	-	-	4.17	+
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.01	-	-	0.01	-
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	0.27	-	-	0.27	437.5%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	2.78	+	16.3	16.3
Residential - oil	1.13	+	6.6	23.0
Manufacturing industries - oil	0.15	381.2%	0.9	23.8
Main activity prod. elec. and heat - oil	0.08	214.9%	0.5	24.3
Unallocated autoproducers - oil	0.01	x	0.1	24.4
Other transport - oil	0.00	x	0.0	24.4
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	4.15	+	24.4	24.4

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Bolivia

Figure 1. CO₂ emissions by fuel

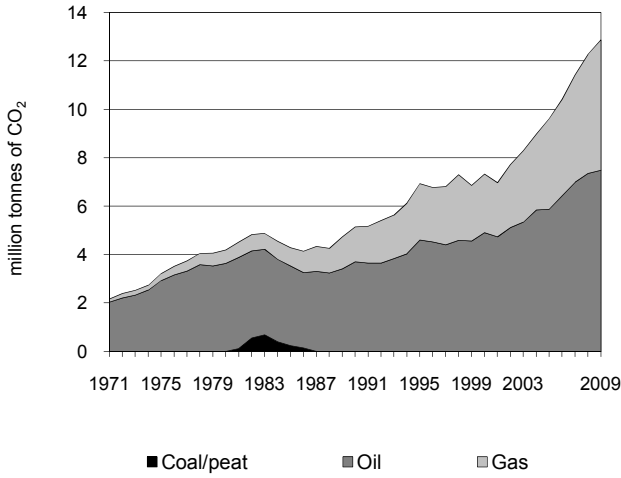


Figure 2. CO₂ emissions by sector

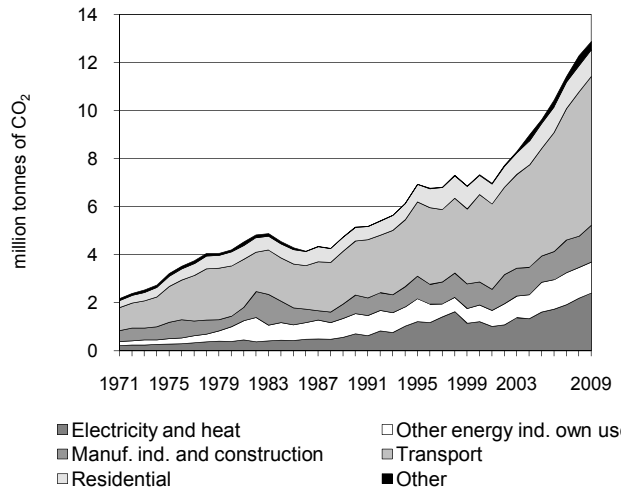


Figure 3. CO₂ emissions by sector

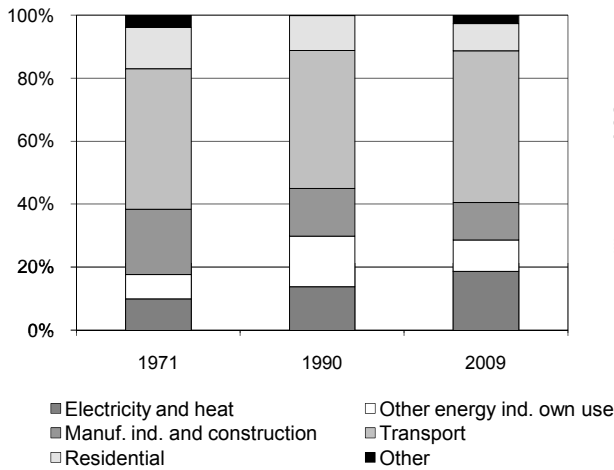


Figure 4. Reference vs Sectoral Approach

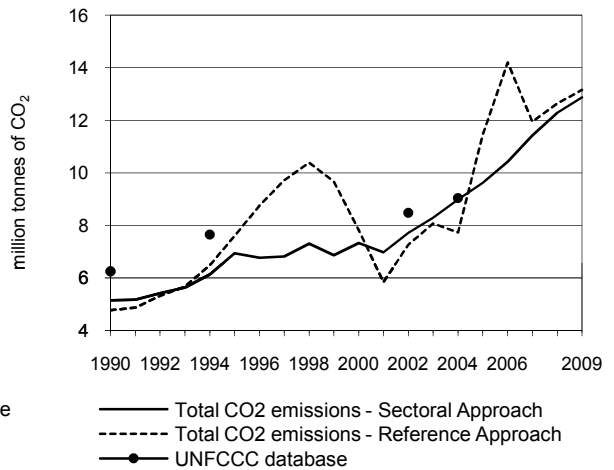


Figure 5. Electricity generation by fuel

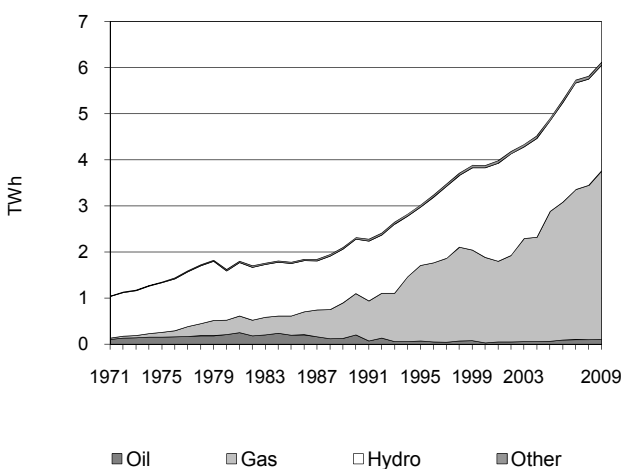
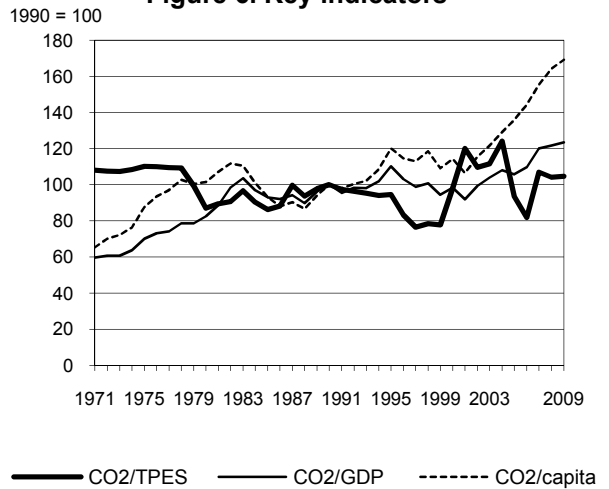


Figure 6. Key indicators



Bolivia

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	5.15	6.93	7.33	9.62	11.42	12.29	12.87	150.0%
CO ₂ Reference Approach (Mt of CO ₂)	4.77	7.60	7.82	11.44	11.94	12.64	13.15	175.6%
TPES (PJ)	109	156	158	219	227	250	261	138.7%
TPES (Mtoe)	2.61	3.72	3.78	5.22	5.41	5.98	6.23	138.7%
GDP (billion 2000 USD)	5.80	7.09	8.40	10.25	10.72	11.37	11.76	102.6%
GDP PPP (billion 2000 USD)	13.72	16.77	19.86	24.23	25.33	26.89	27.79	102.6%
Population (millions)	6.67	7.48	8.32	9.18	9.52	9.69	9.86	47.8%
CO ₂ / TPES (t CO ₂ per TJ)	47.1	44.5	46.3	44.0	50.4	49.1	49.3	4.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.89	0.98	0.87	0.94	1.07	1.08	1.10	23.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.38	0.41	0.37	0.40	0.45	0.46	0.46	23.4%
CO ₂ / population (t CO ₂ per capita)	0.77	0.93	0.88	1.05	1.20	1.27	1.31	69.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Coal/peat	Oil	Natural		Total	% change 90-09
			gas	Other *		
Sectoral Approach	-	7.49	5.39	-	12.87	150.0%
Main activity producer elec. and heat	-	0.10	2.31	-	2.41	275.6%
Unallocated autoproducers
Other energy industry own use	-	0.35	0.93	-	1.28	54.6%
Manufacturing industries and construction	-	0.22	1.31	-	1.54	97.4%
Transport	-	5.47	0.73	-	6.20	174.6%
<i>of which: road</i>	-	5.08	0.73	-	5.81	204.2%
Other	-	1.34	0.11	-	1.45	152.8%
<i>of which: residential</i>	-	1.05	0.05	-	1.10	94.3%
Reference Approach	-	7.66	5.49	-	13.15	175.6%
Diff. due to losses and/or transformation	-	0.39	0.02	-	0.41	
Statistical differences	-	-0.21	0.08	-	-0.13	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	5.08	166.1%	11.7	11.7
Main activity prod. elec. and heat - gas	2.31	341.1%	5.3	17.0
Manufacturing industries - gas	1.31	240.6%	3.0	20.0
Residential - oil	1.05	84.8%	2.4	22.4
Other energy industry own use - gas	0.93	73.4%	2.1	24.6
Road - gas	0.73	x	1.7	26.3
Other transport - oil	0.39	11.8%	0.9	27.1
Other energy industry own use - oil	0.35	20.4%	0.8	28.0
Non-specified other - oil	0.29	+	0.7	28.6
Manufacturing industries - oil	0.22	-43.3%	0.5	29.2
Main activity prod. elec. and heat - oil	0.10	-16.2%	0.2	29.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>12.87</i>	<i>150.0%</i>	<i>29.6</i>	<i>29.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Bosnia and Herzegovina

Figure 1. CO₂ emissions by fuel

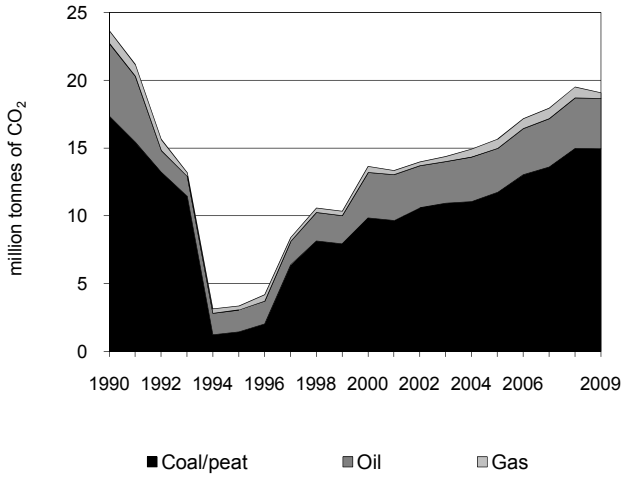


Figure 2. CO₂ emissions by sector

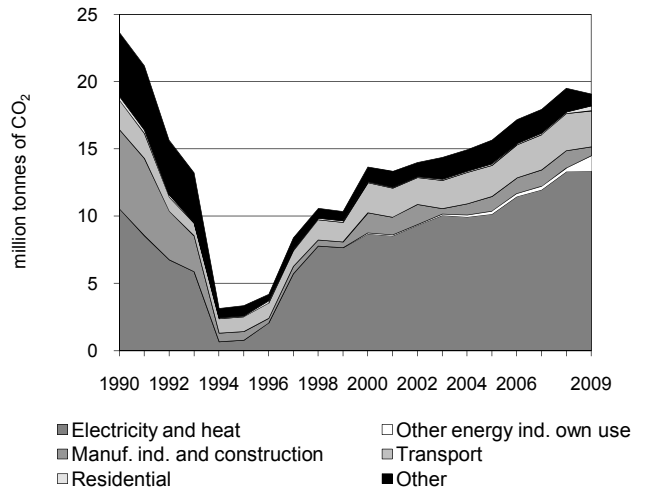


Figure 3. CO₂ emissions by sector

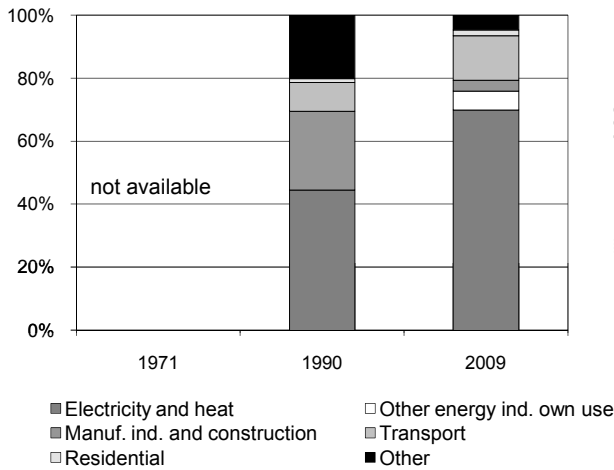


Figure 4. Reference vs Sectoral Approach

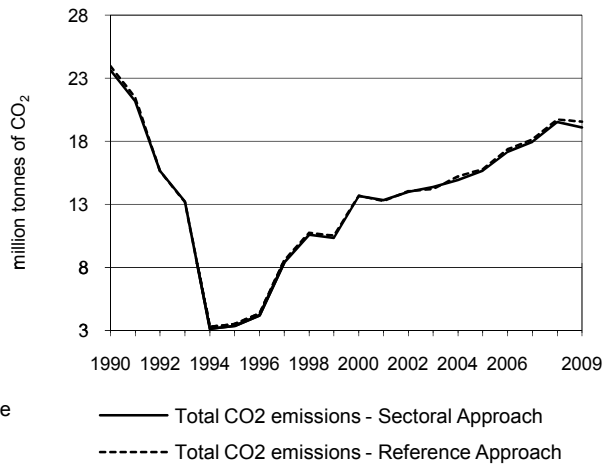


Figure 5. Electricity generation by fuel

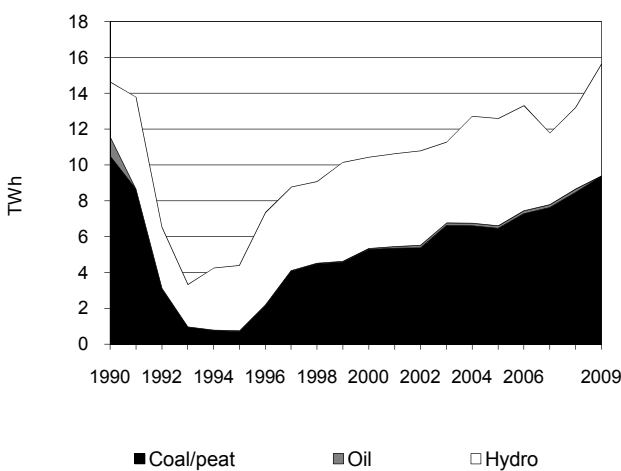
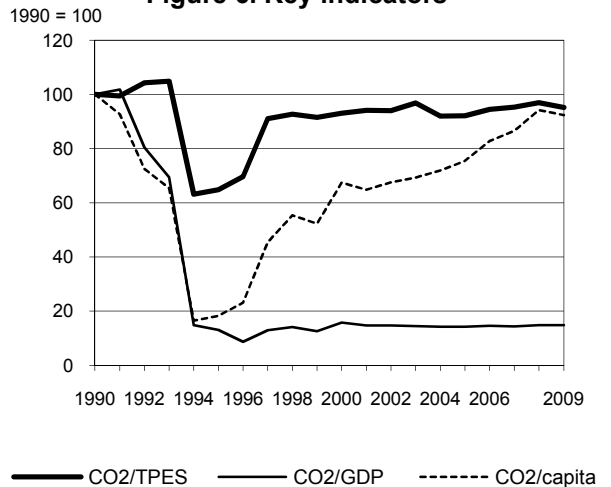


Figure 6. Key indicators



Bosnia and Herzegovina

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	23.65	3.35	13.66	15.66	17.95	19.52	19.09	-19.3%
CO ₂ Reference Approach (Mt of CO ₂)	23.96	3.50	13.69	15.80	18.15	19.74	19.56	-18.4%
TPES (PJ)	294	64	182	211	234	250	249	-15.2%
TPES (Mtoe)	7.02	1.53	4.36	5.05	5.59	5.98	5.95	-15.2%
GDP (billion 2000 USD)	1.50	1.62	5.51	7.01	7.96	8.39	8.14	442.2%
GDP PPP (billion 2000 USD)	6.11	6.60	22.39	28.52	32.36	34.12	33.13	442.3%
Population (millions)	4.31	3.33	3.69	3.78	3.78	3.77	3.77	-12.6%
CO ₂ / TPES (t CO ₂ per TJ)	80.5	52.2	74.9	74.1	76.7	78.0	76.6	-4.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	15.75	2.06	2.48	2.23	2.26	2.33	2.34	-85.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	3.87	0.51	0.61	0.55	0.55	0.57	0.58	-85.1%
CO ₂ / population (t CO ₂ per capita)	5.49	1.01	3.70	4.14	4.75	5.17	5.07	-7.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	14.96	3.70	0.43	-	19.09	-19.3%
Main activity producer elec. and heat	12.33	0.12	0.09	-	12.55	31.8%
Unallocated autoproducers	0.76	0.01	0.04	-	0.81	-20.6%
Other energy industry own use	1.06	0.08	-	-	1.13	x
Manufacturing industries and construction	0.38	0.13	0.15	-	0.67	-88.7%
Transport	-	2.69	-	-	2.69	23.8%
<i>of which: road</i>	-	2.64	-	-	2.64	21.8%
Other	0.43	0.67	0.15	-	1.25	-75.3%
<i>of which: residential</i>	0.27	-	0.09	-	0.36	24.3%
Reference Approach	15.29	3.83	0.43	-	19.56	-18.4%
Diff. due to losses and/or transformation	0.29	0.14	0.00	-	0.43	
Statistical differences	0.04	0.00	0.00	-	0.04	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-100.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	12.33	31.0%	49.6	49.6
Road - oil	2.64	21.8%	10.6	60.2
Other energy industry - coal/peat	1.06	x	4.2	64.5
Unallocated autoproducers - coal/peat	0.76	x	3.0	67.5
Non-specified other - oil	0.67	x	2.7	70.2
Manufacturing industries - coal/peat	0.38	-88.0%	1.5	71.7
Residential - coal/peat	0.27	x	1.1	72.8
Non-specified other sectors - coal/peat	0.16	-96.6%	0.6	73.5
Manufacturing industries - gas	0.15	-79.5%	0.6	74.1
Manufacturing industries - oil	0.13	-93.3%	0.5	74.6
Main activity prod. elec. and heat - oil	0.12	x	0.5	75.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>19.09</i>	<i>-19.3%</i>	<i>76.8</i>	<i>76.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Botswana

Figure 1. CO₂ emissions by fuel

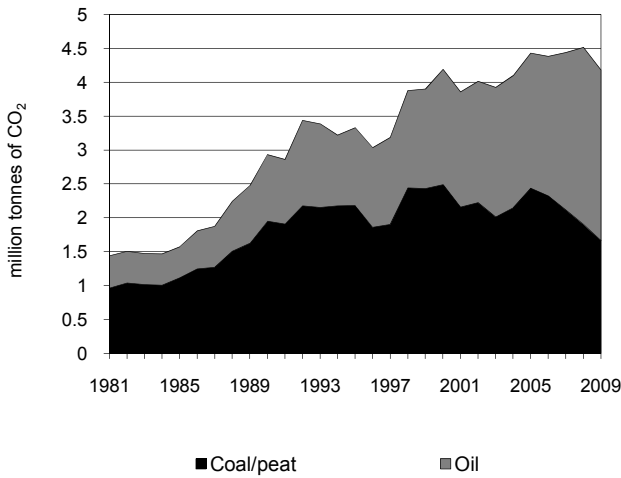


Figure 2. CO₂ emissions by sector

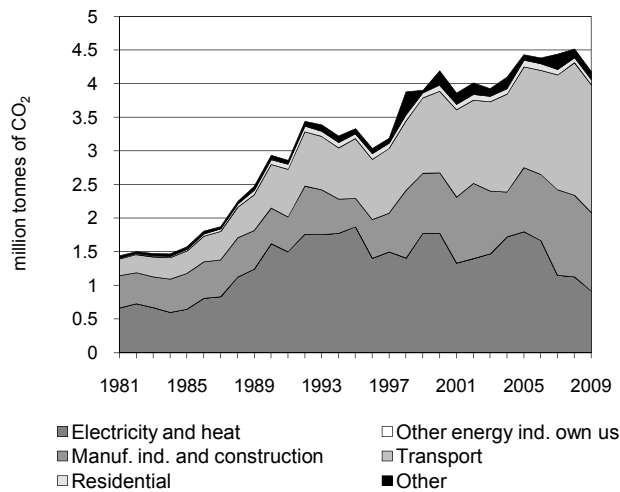


Figure 3. CO₂ emissions by sector

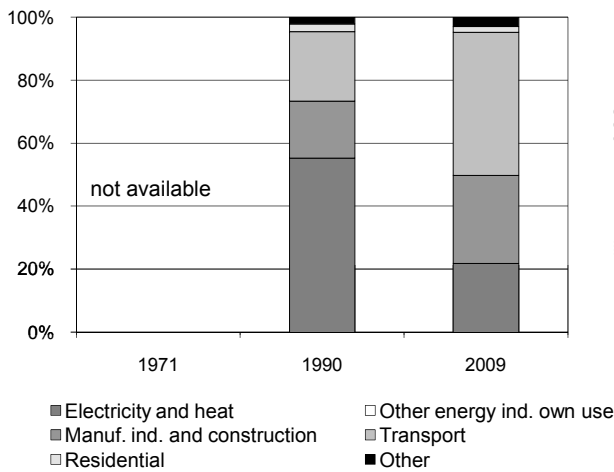


Figure 4. Reference vs Sectoral Approach

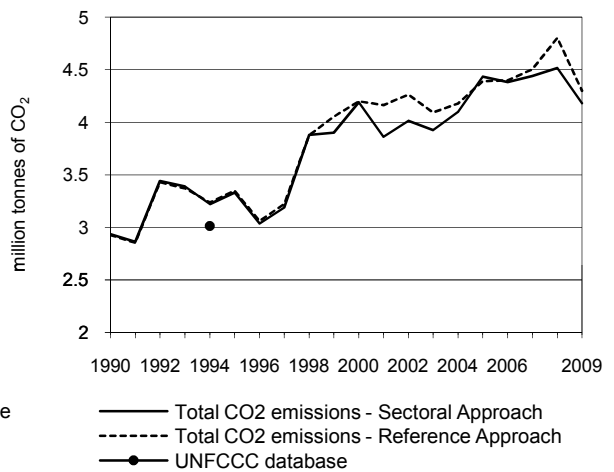


Figure 5. Electricity generation by fuel

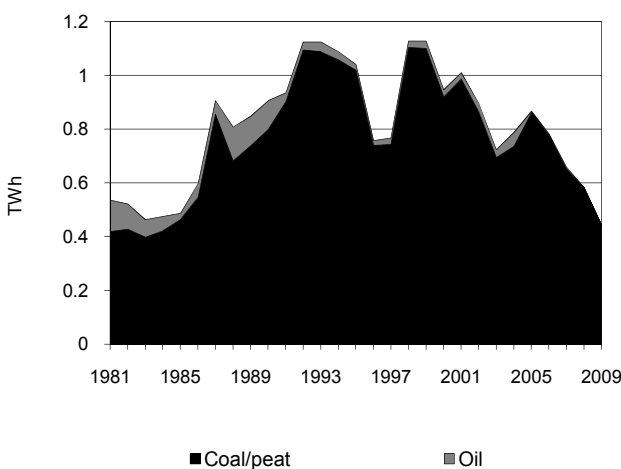
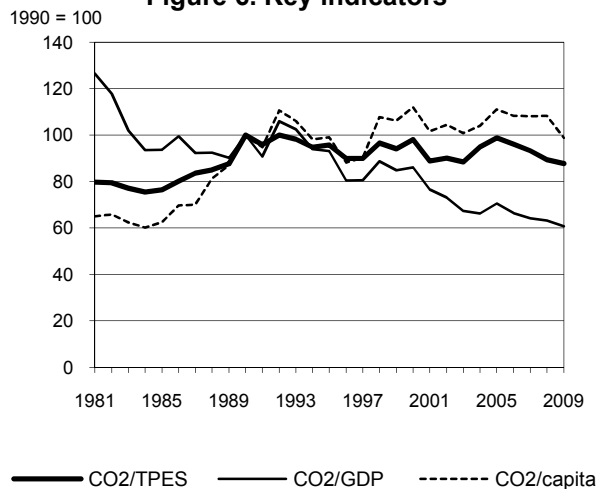


Figure 6. Key indicators



Botswana

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2.93	3.33	4.19	4.43	4.44	4.52	4.18	42.5%
CO ₂ Reference Approach (Mt of CO ₂)	2.93	3.35	4.20	4.39	4.50	4.80	4.30	46.9%
TPES (PJ)	53	63	77	81	86	91	86	62.4%
TPES (Mtoe)	1.26	1.50	1.84	1.93	2.05	2.17	2.05	62.4%
GDP (billion 2000 USD)	3.40	4.14	5.63	7.27	8.01	8.26	7.96	134.4%
GDP PPP (billion 2000 USD)	8.05	9.82	13.36	17.25	19.00	19.59	18.88	134.4%
Population (millions)	1.35	1.55	1.72	1.84	1.89	1.92	1.95	44.2%
CO ₂ / TPES (t CO ₂ per TJ)	55.6	53.2	54.5	54.9	51.8	49.7	48.8	-12.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.86	0.81	0.74	0.61	0.55	0.55	0.53	-39.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.36	0.34	0.31	0.26	0.23	0.23	0.22	-39.2%
CO ₂ / population (t CO ₂ per capita)	2.17	2.15	2.43	2.41	2.35	2.35	2.14	-1.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	1.66	2.52	-	-	4.18	42.5%
Main activity producer elec. and heat	0.92	-	-	-	0.92	-28.6%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.71	0.46	-	-	1.17	120.4%
Transport	-	1.90	-	-	1.90	193.4%
<i>of which: road</i>	-	1.86	-	-	1.86	210.0%
Other	0.04	0.16	-	-	0.20	46.8%
<i>of which: residential</i>	-	0.07	-	-	0.07	2.2%
Reference Approach	1.77	2.53	-	-	4.30	46.9%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	0.11	0.01	-	-	0.12	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.05	-	-	0.05	36.4%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	1.86	210.0%	18.3	18.3
Main activity prod. elec. and heat - coal/peat	0.92	-21.4%	9.0	27.3
Manufacturing industries - coal/peat	0.71	65.6%	7.0	34.3
Manufacturing industries - oil	0.46	357.8%	4.5	38.8
Non-specified other - oil	0.09	53.5%	0.9	39.6
Residential - oil	0.07	17.5%	0.7	40.4
Other transport - oil	0.04	-16.9%	0.4	40.8
Non-specified other sectors - coal/peat	0.04	650.3%	0.4	41.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>4.18</i>	<i>42.5%</i>	<i>41.1</i>	<i>41.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Brazil

Figure 1. CO₂ emissions by fuel

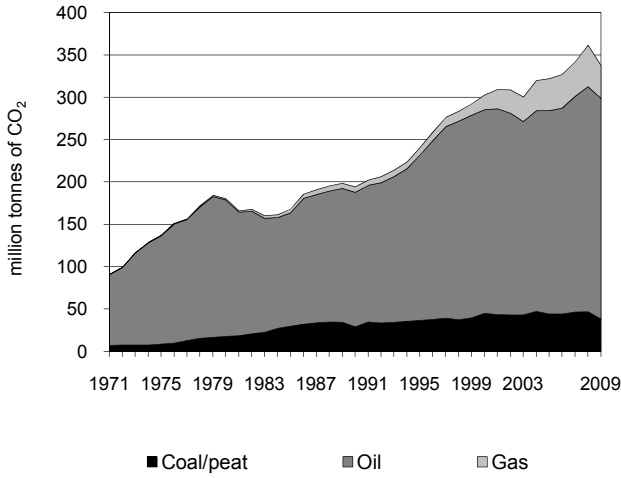


Figure 2. CO₂ emissions by sector

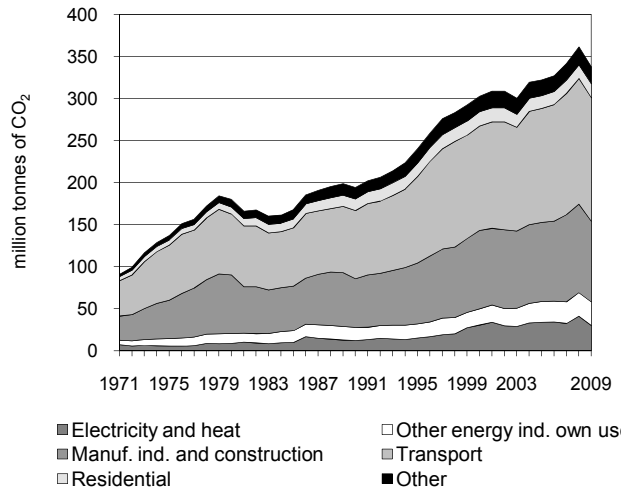


Figure 3. CO₂ emissions by sector

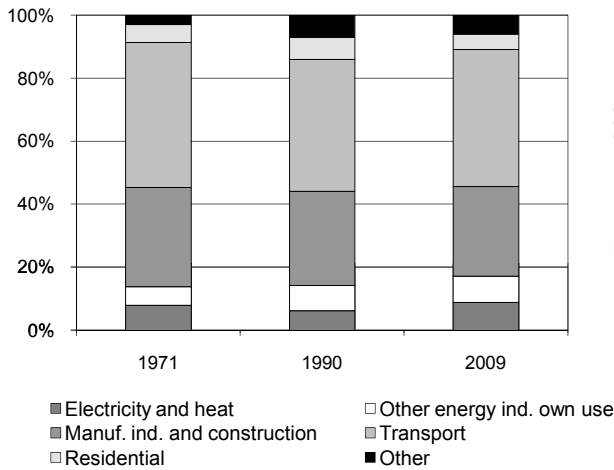


Figure 4. Reference vs Sectoral Approach

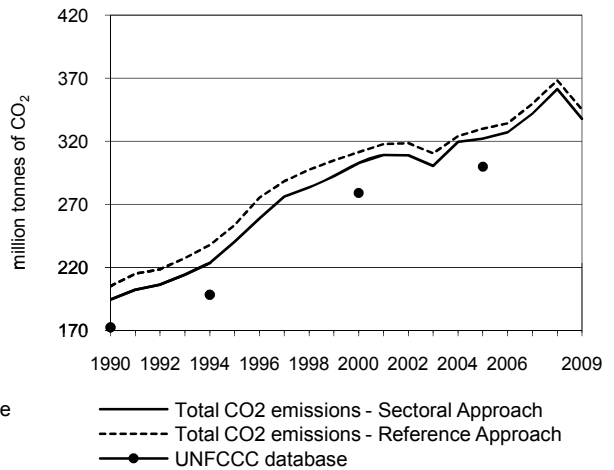


Figure 5. Electricity generation by fuel

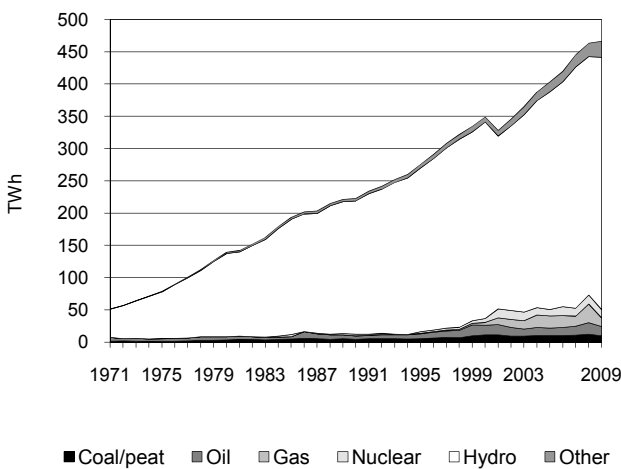
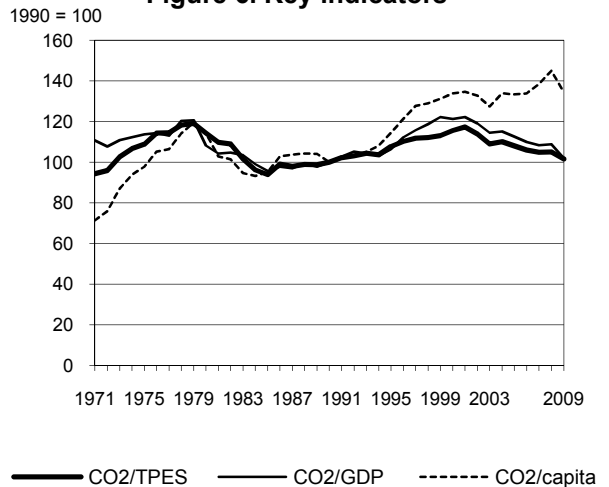


Figure 6. Key indicators



Brazil

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	194.27	240.42	302.76	322.20	341.88	361.49	337.80	73.9%
CO ₂ Reference Approach (Mt of CO ₂)	204.99	253.44	311.31	330.04	349.81	368.30	345.11	68.4%
TPES (PJ)	5 872	6 746	7 920	9 020	9 855	10 409	10 055	71.2%
TPES (Mtoe)	140.25	161.12	189.16	215.44	235.39	248.61	240.16	71.2%
GDP (billion 2000 USD)	501.77	583.63	644.70	739.61	815.70	857.61	856.02	70.6%
GDP PPP (billion 2000 USD)	968.41	1 126.39	1 244.26	1 427.44	1 574.29	1 655.17	1 652.10	70.6%
Population (millions)	149.57	161.69	174.17	186.08	190.12	191.97	193.73	29.5%
CO ₂ / TPES (t CO ₂ per TJ)	33.1	35.6	38.2	35.7	34.7	34.7	33.6	1.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.39	0.41	0.47	0.44	0.42	0.42	0.39	1.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.20	0.21	0.24	0.23	0.22	0.22	0.20	1.9%
CO ₂ / population (t CO ₂ per capita)	1.30	1.49	1.74	1.73	1.80	1.88	1.74	34.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	38.19	260.56	39.05	-	337.80	73.9%
Main activity producer elec. and heat	6.05	6.87	3.48	-	16.40	156.9%
Unallocated autoproducers	8.20	3.04	2.36	-	13.60	135.1%
Other energy industry own use	2.67	14.12	11.31	-	28.10	81.5%
Manufacturing industries and construction	21.15	57.95	16.87	-	95.98	65.6%
Transport	-	142.88	4.10	-	146.98	80.7%
<i>of which: road</i>	-	128.11	4.10	-	132.21	87.7%
Other	0.12	35.69	0.93	-	36.74	34.4%
<i>of which: residential</i>	-	16.01	0.53	-	16.54	20.3%
Reference Approach	42.65	263.25	39.21	-	345.11	68.4%
Diff. due to losses and/or transformation	4.13	1.82	0.27	-	6.21	
Statistical differences	0.33	0.87	-0.11	-	1.09	
<i>Memo: international marine bunkers</i>	-	11.75	-	-	11.75	584.6%
<i>Memo: international aviation bunkers</i>	-	4.90	-	-	4.90	246.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	128.11	81.9%	12.9	12.9
Manufacturing industries - oil	57.95	62.0%	5.9	18.8
Manufacturing industries - coal/peat	21.15	18.7%	2.1	20.9
Non-specified other - oil	19.68	47.3%	2.0	22.9
Manufacturing industries - gas	16.87	286.0%	1.7	24.6
Residential - oil	16.01	19.2%	1.6	26.2
Other transport - oil	14.77	35.8%	1.5	27.7
Other energy industry own use - oil	14.12	30.5%	1.4	29.2
Other energy industry own use - gas	11.31	527.5%	1.1	30.3
Unallocated autoproducers - coal/peat	8.20	113.4%	0.8	31.1
Main activity prod. elec. and heat - oil	6.87	196.9%	0.7	31.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>337.80</i>	<i>73.9%</i>	<i>34.1</i>	<i>34.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Brunei Darussalam

Figure 1. CO₂ emissions by fuel

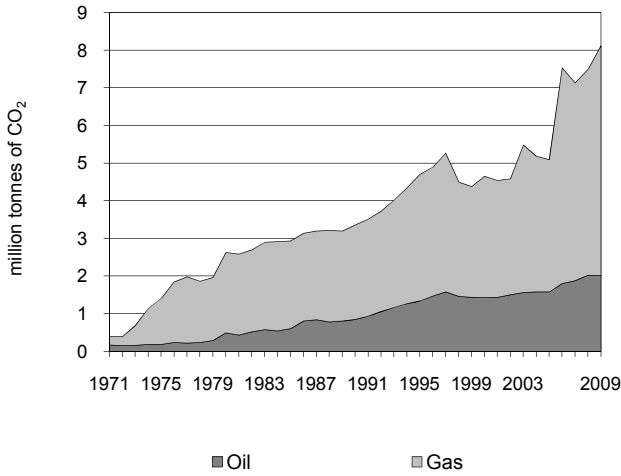


Figure 2. CO₂ emissions by sector

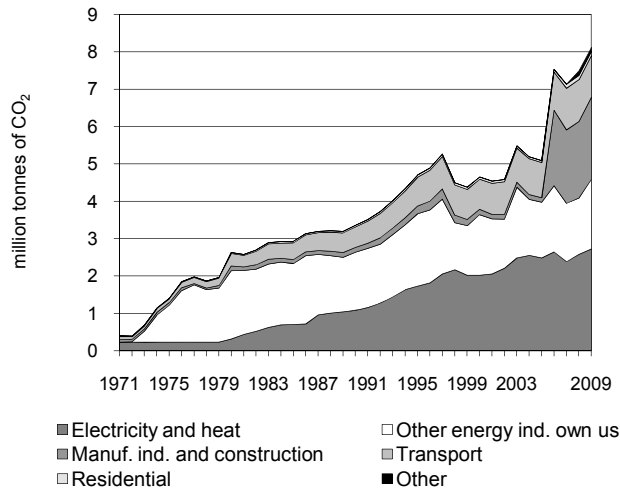


Figure 3. CO₂ emissions by sector

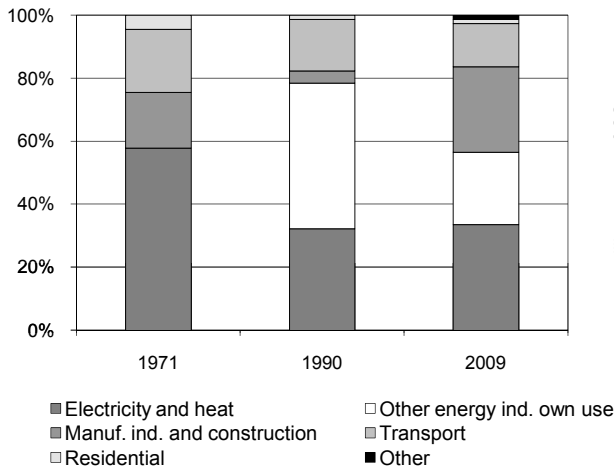


Figure 4. Reference vs Sectoral Approach

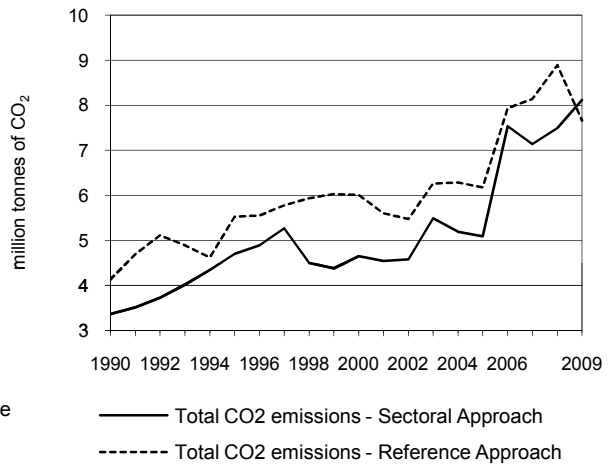


Figure 5. Electricity generation by fuel

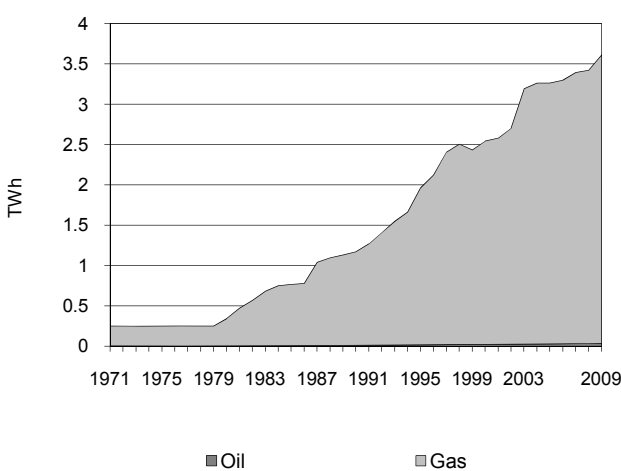
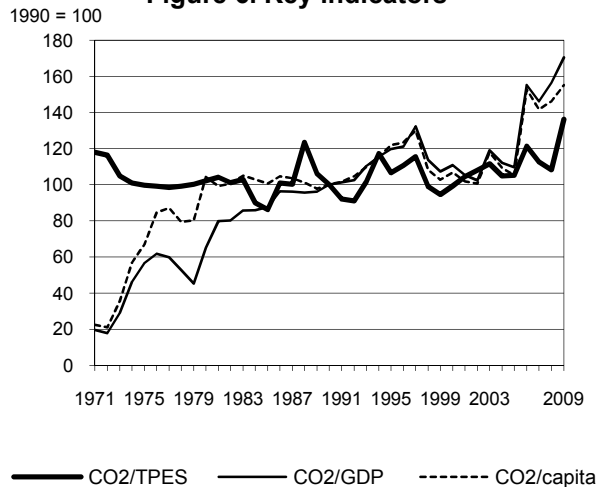


Figure 6. Key indicators



Brunei Darussalam

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	3.36	4.70	4.65	5.09	7.13	7.49	8.12	141.5%
CO ₂ Reference Approach (Mt of CO ₂)	4.13	5.52	6.01	6.18	8.14	8.89	7.66	85.6%
TPES (PJ)	74	97	103	106	139	152	131	77.2%
TPES (Mtoe)	1.76	2.31	2.45	2.54	3.32	3.63	3.12	77.2%
GDP (billion 2000 USD)	4.81	5.62	6.00	6.65	6.99	6.85	6.82	41.8%
GDP PPP (billion 2000 USD)	5.74	6.71	7.16	7.94	8.34	8.18	8.14	41.7%
Population (millions)	0.26	0.30	0.33	0.37	0.39	0.39	0.40	55.6%
CO ₂ / TPES (t CO ₂ per TJ)	45.6	48.6	45.3	47.9	51.3	49.3	62.1	36.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.70	0.84	0.77	0.77	1.02	1.09	1.19	70.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.59	0.70	0.65	0.64	0.86	0.92	1.00	70.4%
CO ₂ / population (t CO ₂ per capita)	13.08	15.94	13.96	13.76	18.53	19.11	20.30	55.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	2.01	6.11	-	8.12	141.5%
Main activity producer elec. and heat	-	0.03	2.51	-	2.54	134.8%
Unallocated autoproducers	-	-	0.19	-	0.19	x
Other energy industry own use	-	0.30	1.56	-	1.86	19.7%
Manufacturing industries and construction	-	0.42	1.79	-	2.21	+
Transport	-	1.11	-	-	1.11	102.7%
<i>of which: road</i>	-	<i>1.11</i>	-	-	<i>1.11</i>	102.7%
Other	-	0.15	0.06	-	0.22	375.6%
<i>of which: residential</i>	-	<i>0.05</i>	<i>0.06</i>	-	<i>0.11</i>	138.3%
Reference Approach	-	1.95	5.71	-	7.66	85.6%
Diff. due to losses and/or transformation	-	0.01	0.05	-	0.05	
Statistical differences	-	-0.07	-0.44	-	-0.51	
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	0.27	-	-	0.27	136.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	2.51	134.2%	17.8	17.8
Manufacturing industries - gas	1.79	x	12.7	30.5
Other energy industry own use - gas	1.56	8.5%	11.1	41.5
Road - oil	1.11	102.7%	7.9	49.4
Manufacturing industries - oil	0.42	218.0%	3.0	52.4
Other energy industry own use - oil	0.30	156.1%	2.1	54.5
Unallocated autoproducers - gas	0.19	x	1.3	55.8
Non-specified other - oil	0.11	x	0.8	56.6
Residential - gas	0.06	x	0.4	57.0
Residential - oil	0.05	4.7%	0.3	57.4
Main activity prod. elec. and heat - oil	0.03	200.0%	0.2	57.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>8.12</i>	<i>141.5%</i>	<i>57.6</i>	<i>57.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Bulgaria

Figure 1. CO₂ emissions by fuel

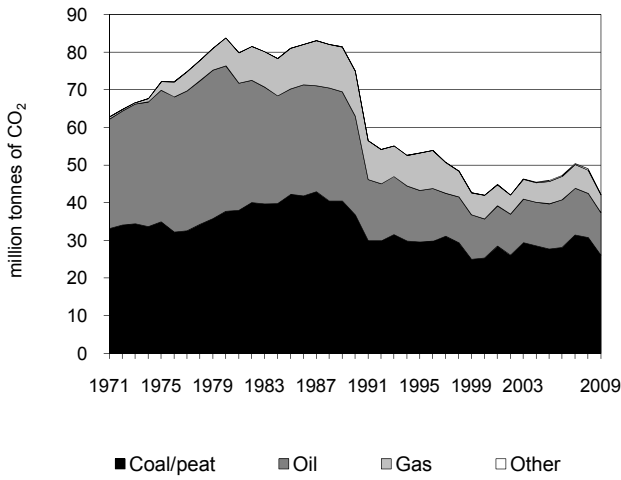


Figure 2. CO₂ emissions by sector

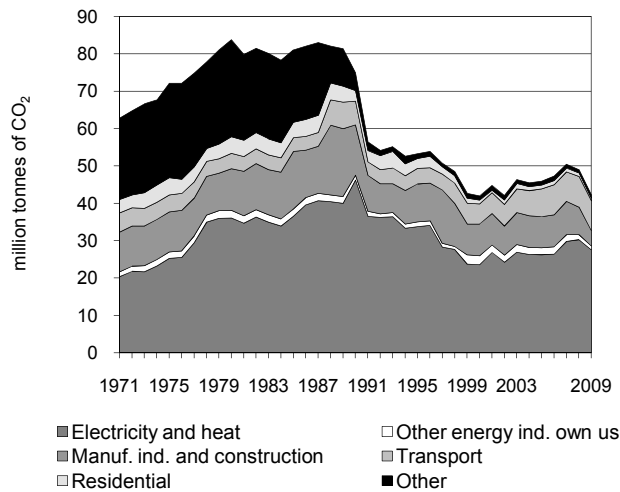


Figure 3. CO₂ emissions by sector

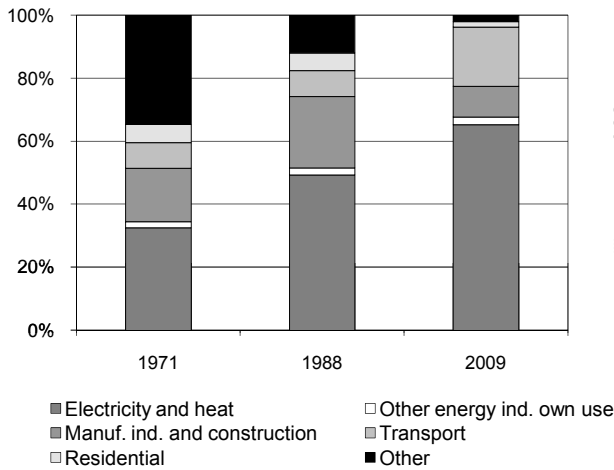


Figure 4. Reference vs Sectoral Approach

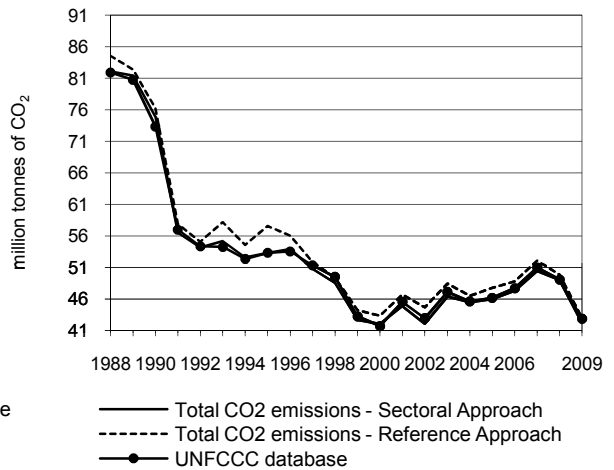


Figure 5. Electricity generation by fuel

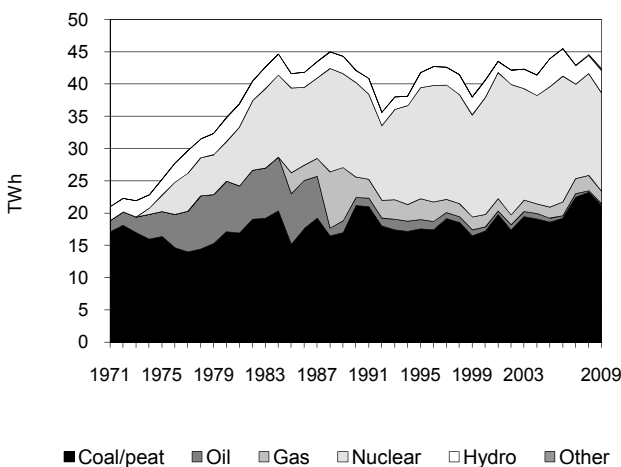
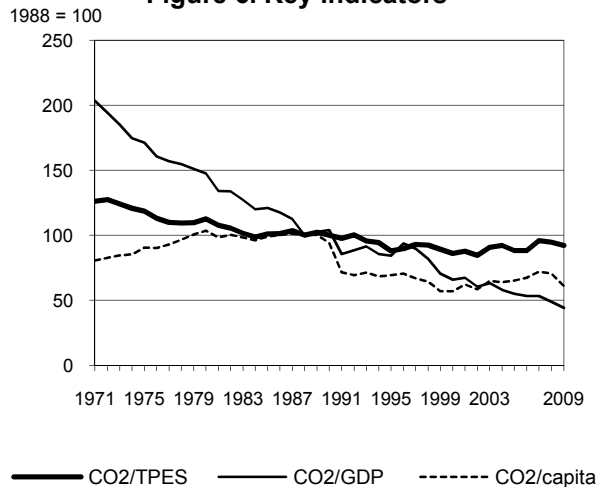


Figure 6. Key indicators



Bulgaria *

Key indicators

	1988	1990	1995	2005	2007	2008	2009	% change 88-09
CO ₂ Sectoral Approach (Mt of CO ₂)	82.07	74.94	53.27	45.97	50.47	49.05	42.21	-48.6%
CO ₂ Reference Approach (Mt of CO ₂)	84.56	76.17	57.54	47.75	52.08	49.85	43.00	-49.2%
TPES (PJ)	1 312	1 196	967	833	842	828	732	-44.2%
TPES (Mtoe)	31.33	28.57	23.10	19.89	20.10	19.78	17.48	-44.2%
GDP (billion 2000 USD)	16.57	14.56	12.76	16.85	19.10	20.29	19.29	16.4%
GDP PPP (billion 2000 USD)	64.31	56.52	49.51	65.38	74.13	78.74	74.84	16.4%
Population (millions)	8.98	8.72	8.40	7.74	7.66	7.62	7.59	-15.5%
CO ₂ / TPES (t CO ₂ per TJ)	62.6	62.6	55.1	55.2	60.0	59.2	57.7	-7.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	4.95	5.15	4.18	2.73	2.64	2.42	2.19	-55.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.28	1.33	1.08	0.70	0.68	0.62	0.56	-55.8%
CO ₂ / population (t CO ₂ per capita)	9.14	8.60	6.34	5.94	6.59	6.43	5.56	-39.1%

Ratios are based on the Sectoral Approach.

* According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, Bulgaria is allowed to use 1988 as the base year.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 88-09
	Coal/peat	Oil	gas	Other **		
Sectoral Approach	26.09	11.31	4.74	0.07	42.21	-48.6%
Main activity producer elec. and heat	24.65	0.75	2.07	-	27.48	-28.9%
Unallocated autoproducers	0.02	-	0.06	-	0.07	-95.8%
Other energy industry own use	0.00	0.93	0.09	-	1.03	-44.2%
Manufacturing industries and construction	0.84	1.48	1.74	0.07	4.12	-77.9%
Transport	-	7.49	0.44	-	7.93	16.9%
<i>of which: road</i>	-	7.36	0.11	-	7.47	10.1%
Other	0.58	0.66	0.33	-	1.57	-89.1%
<i>of which: residential</i>	0.54	0.07	0.12	-	0.73	-83.9%
Reference Approach	26.25	11.80	4.88	0.07	43.00	-49.2%
Diff. due to losses and/or transformation	0.19	0.21	0.09	-	0.49	
Statistical differences	-0.03	0.27	0.06	-	0.30	
<i>Memo: international marine bunkers</i>	-	0.64	-	-	0.64	-31.5%
<i>Memo: international aviation bunkers</i>	-	0.45	-	-	0.45	-64.4%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 88-09	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	24.65	3.1%	41.9	41.9
Road - oil	7.36	8.4%	12.5	54.4
Main activity prod. elec. and heat - gas	2.07	-68.5%	3.5	57.9
Manufacturing industries - gas	1.74	x	3.0	60.9
Manufacturing industries - oil	1.48	-80.6%	2.5	63.4
Other energy industry own use - oil	0.93	-49.4%	1.6	65.0
Manufacturing industries - coal/peat	0.84	-92.4%	1.4	66.4
Main activity prod. elec. and heat - oil	0.75	-90.7%	1.3	67.7
Non-specified other - oil	0.59	-86.6%	1.0	68.7
Residential - coal/peat	0.54	-84.0%	0.9	69.6
Other transport - gas	0.33	x	0.6	70.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>42.21</i>	<i>-48.6%</i>	<i>71.7</i>	<i>71.7</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Cambodia

Figure 1. CO₂ emissions by fuel

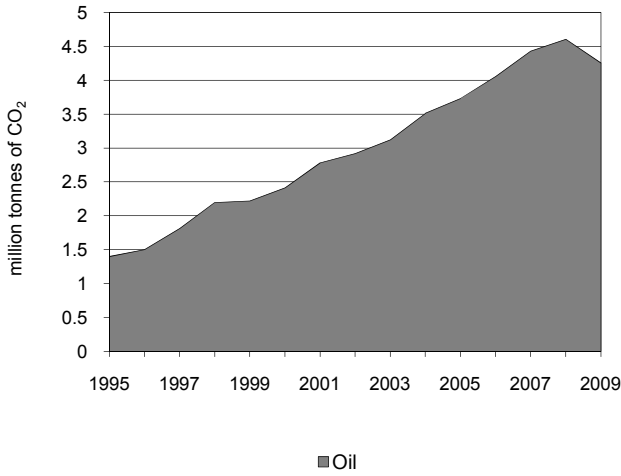


Figure 2. CO₂ emissions by sector

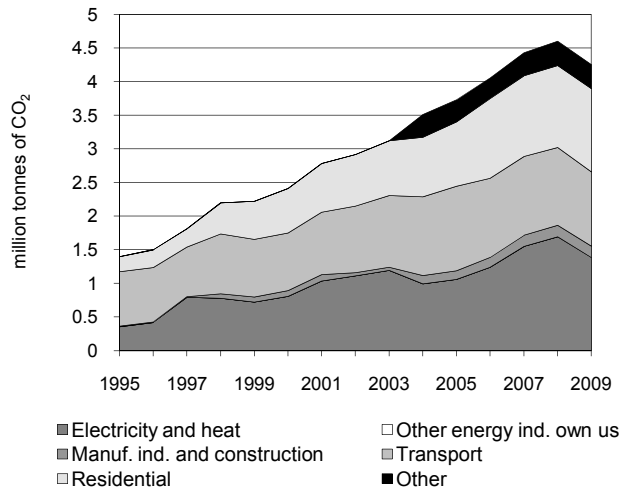


Figure 3. CO₂ emissions by sector

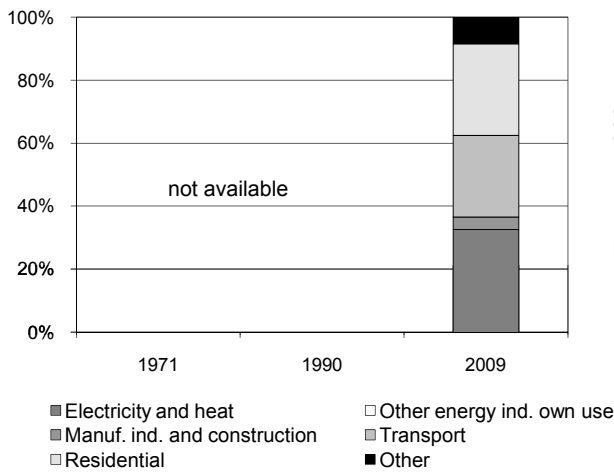


Figure 4. Reference vs Sectoral Approach

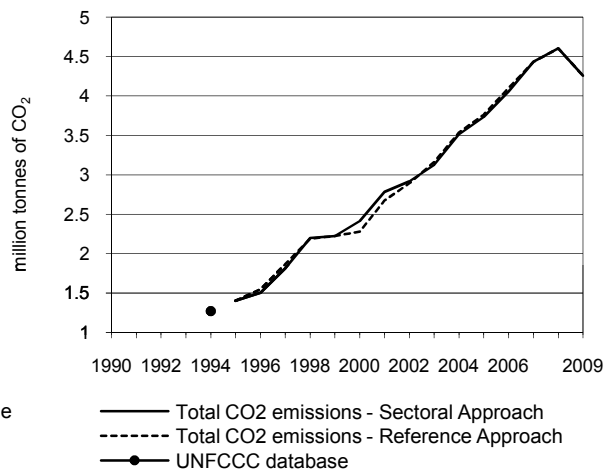


Figure 5. Electricity generation by fuel

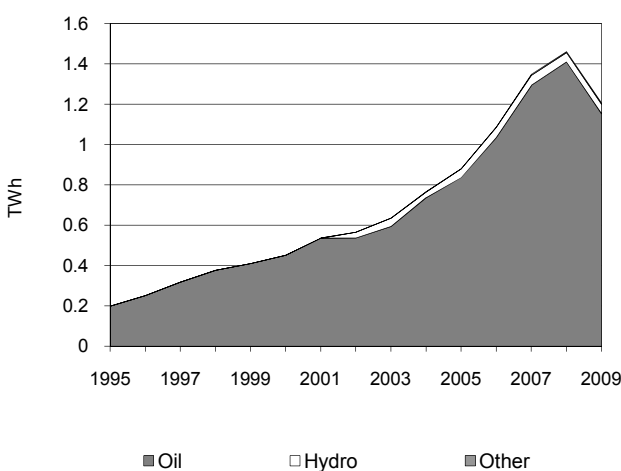
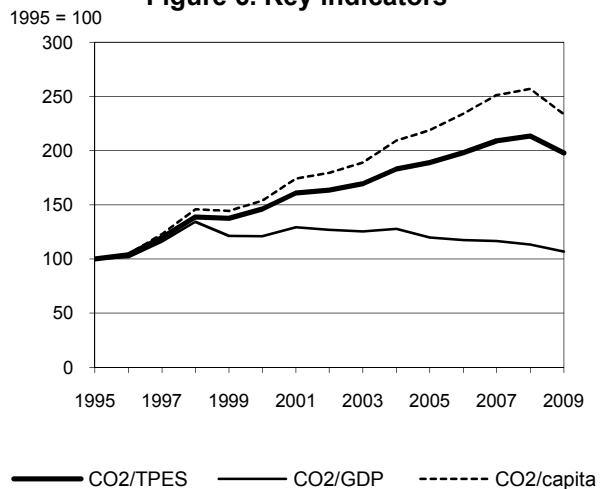


Figure 6. Key indicators



Cambodia *

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	..	1.40	2.42	3.73	4.43	4.61	4.26	..
CO ₂ Reference Approach (Mt of CO ₂)	..	1.40	2.28	3.76	4.43	4.61	4.26	..
TPES (PJ)	..	141	167	199	214	217	217	..
TPES (Mtoe)	..	3.37	3.98	4.76	5.10	5.19	5.18	..
GDP (billion 2000 USD)	..	2.63	3.75	5.85	7.15	7.63	7.48	..
GDP PPP (billion 2000 USD)	..	16.02	22.80	35.63	43.50	46.41	45.54	..
Population (millions)	..	11.38	12.76	13.87	14.32	14.56	14.81	..
CO ₂ / TPES (t CO ₂ per TJ)	..	9.9	14.5	18.8	20.7	21.2	19.6	..
CO ₂ / GDP (kg CO ₂ per 2000 USD)	..	0.53	0.64	0.64	0.62	0.60	0.57	..
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	..	0.09	0.11	0.10	0.10	0.10	0.09	..
CO ₂ / population (t CO ₂ per capita)	..	0.12	0.19	0.27	0.31	0.32	0.29	..

Ratios are based on the Sectoral Approach.

* Prior to 1995, data for Cambodia were included in Other Asia.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Coal/peat	Oil	Natural gas		Other **	Total	% change 90-09
Sectoral Approach	-	4.26	-	-	-	4.26	..
Main activity producer elec. and heat	-	1.39	-	-	-	1.39	..
Unallocated autoproducers	-	-	-	-	-	-	..
Other energy industry own use	-	-	-	-	-	-	..
Manufacturing industries and construction	-	0.17	-	-	-	0.17	..
Transport	-	1.10	-	-	-	1.10	..
<i>of which: road</i>	-	1.09	-	-	-	1.09	..
Other	-	1.60	-	-	-	1.60	..
<i>of which: residential</i>	-	1.24	-	-	-	1.24	..
Reference Approach	-	4.26	-	-	-	4.26	..
Diff. due to losses and/or transformation	-	-	-	-	-	-	..
Statistical differences	-	0.00	-	-	-	0.00	..
<i>Memo: international marine bunkers</i>	-	..	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.09	-	-	-	0.09	..

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - oil	1.39	..	2.7	2.7
Residential - oil	1.24	..	2.4	5.0
Road - oil	1.09	..	2.1	7.1
Non-specified other - oil	0.36	..	0.7	7.8
Manufacturing industries - oil	0.17	..	0.3	8.1
Other transport - oil	0.01	..	0.0	8.2
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
<i>Memo: total CO₂ from fuel combustion</i>	4.26	..	8.2	8.2

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Cameroon

Figure 1. CO₂ emissions by fuel

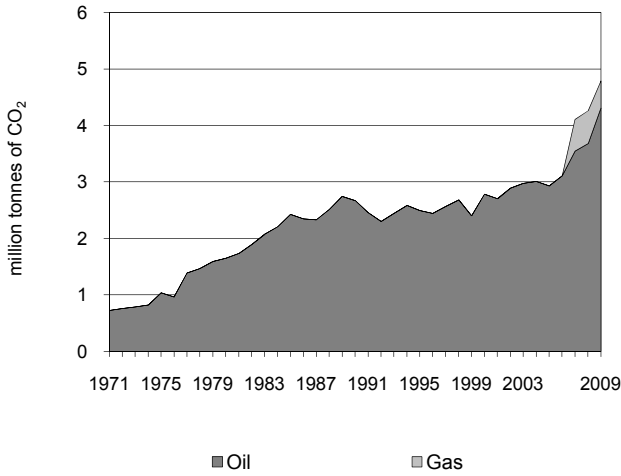


Figure 2. CO₂ emissions by sector

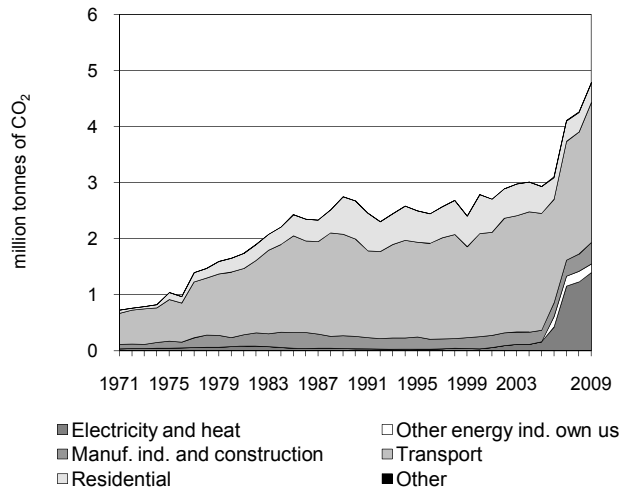


Figure 3. CO₂ emissions by sector

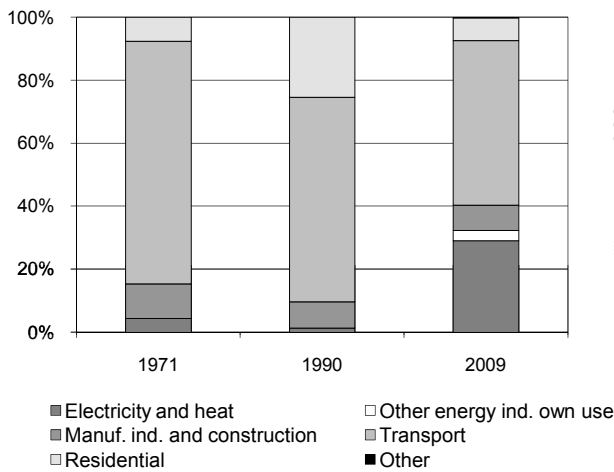


Figure 4. Reference vs Sectoral Approach

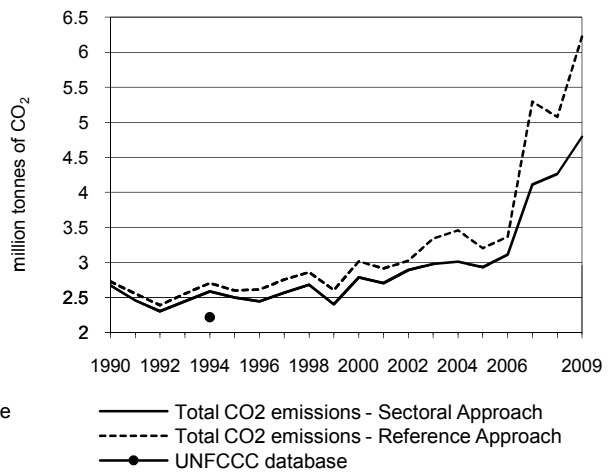


Figure 5. Electricity generation by fuel

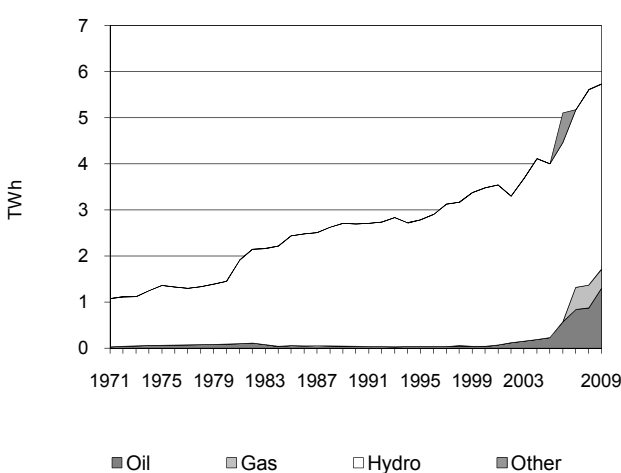
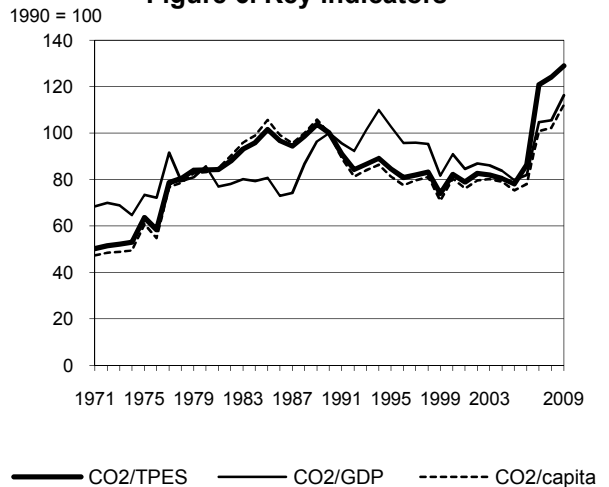


Figure 6. Key indicators



Cameroon

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2.67	2.50	2.79	2.93	4.11	4.26	4.79	79.2%
CO ₂ Reference Approach (Mt of CO ₂)	2.73	2.60	3.01	3.20	5.29	5.07	6.22	128.1%
TPES (PJ)	208	230	264	293	265	268	290	38.9%
TPES (Mtoe)	4.98	5.50	6.31	6.99	6.34	6.40	6.92	38.9%
GDP (billion 2000 USD)	8.79	7.99	10.08	12.09	12.91	13.29	13.55	54.1%
GDP PPP (billion 2000 USD)	24.35	22.13	27.90	33.47	35.76	36.80	37.54	54.1%
Population (millions)	12.23	14.05	15.87	17.82	18.66	19.09	19.52	59.6%
CO ₂ / TPES (t CO ₂ per TJ)	12.8	10.8	10.5	10.0	15.5	15.9	16.5	29.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.30	0.31	0.28	0.24	0.32	0.32	0.35	16.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.11	0.11	0.10	0.09	0.11	0.12	0.13	16.2%
CO ₂ / population (t CO ₂ per capita)	0.22	0.18	0.18	0.16	0.22	0.22	0.25	12.3%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	4.31	0.48	-	4.79	79.2%
Main activity producer elec. and heat	-	0.24	0.26	-	0.49	+
Unallocated autoproducers	-	0.68	0.22	-	0.90	x
Other energy industry own use	-	0.16	-	-	0.16	x
Manufacturing industries and construction	-	0.38	-	-	0.38	71.4%
Transport	-	2.50	-	-	2.50	44.1%
<i>of which: road</i>	-	2.38	-	-	2.38	36.9%
Other	-	0.36	-	-	0.36	-47.4%
<i>of which: residential</i>	-	0.35	-	-	0.35	-48.7%
Reference Approach	-	5.62	0.60	-	6.22	128.1%
Diff. due to losses and/or transformation	-	0.19	0.12	-	0.31	
Statistical differences	-	1.12	-	-	1.12	
<i>Memo: international marine bunkers</i>	-	0.16	-	-	0.16	275.8%
<i>Memo: international aviation bunkers</i>	-	0.21	-	-	0.21	36.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	2.38	36.9%	5.5	5.5
Unallocated autoproducers - oil	0.68	x	1.6	7.1
Manufacturing industries - oil	0.38	71.4%	0.9	8.0
Residential - oil	0.35	-48.7%	0.8	8.8
Main activity prod. elec. and heat - gas	0.26	x	0.6	9.4
Main activity prod. elec. and heat - oil	0.24	576.4%	0.5	10.0
Unallocated autoproducers - gas	0.22	x	0.5	10.5
Other energy industry own use - oil	0.16	x	0.4	10.8
Other transport - oil	0.12	x	0.3	11.1
Non-specified other - oil	0.01	x	0.0	11.2
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>4.79</i>	<i>79.2%</i>	<i>11.2</i>	<i>11.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Canada

Figure 1. CO₂ emissions by fuel

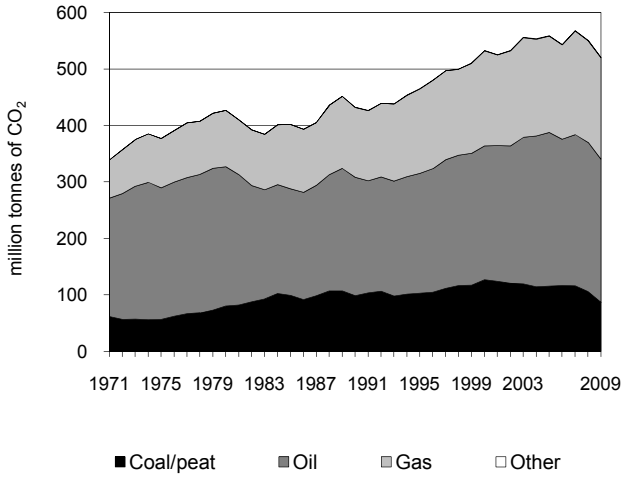


Figure 2. CO₂ emissions by sector

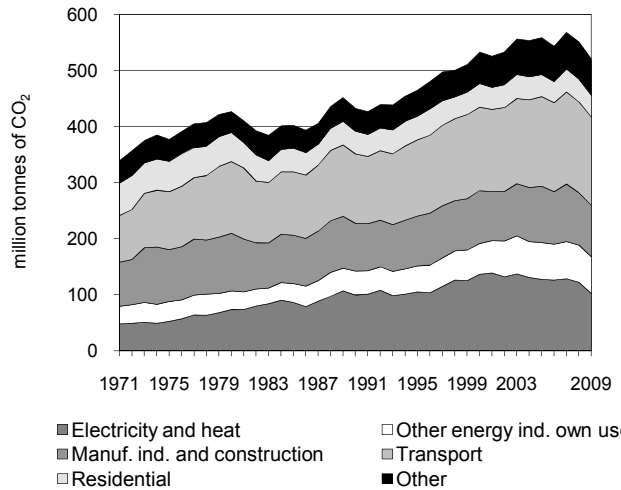


Figure 3. CO₂ emissions by sector

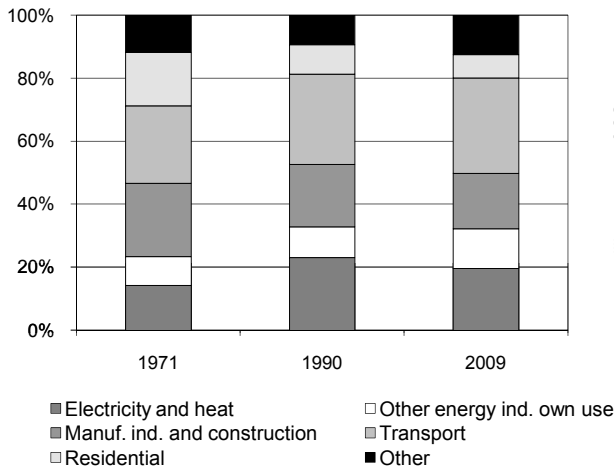


Figure 4. Reference vs Sectoral Approach

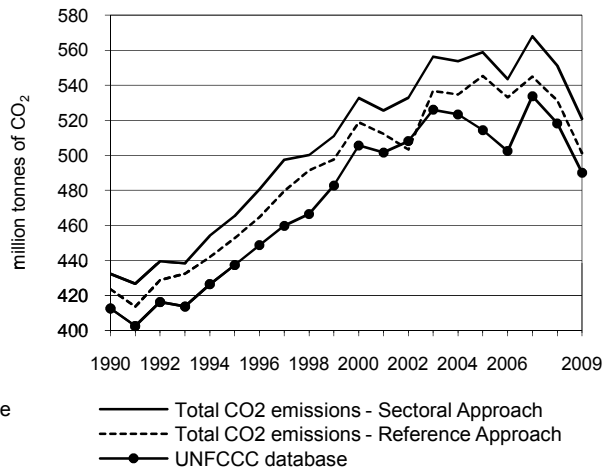


Figure 5. Electricity generation by fuel

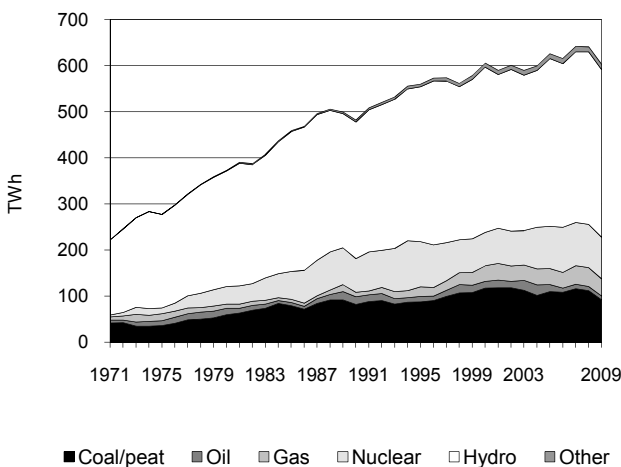
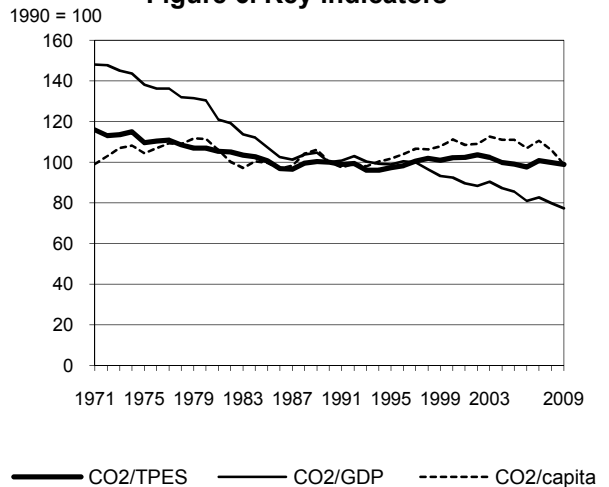


Figure 6. Key indicators



Canada

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	432.35	465.23	532.78	558.82	568.04	551.09	520.75	20.4%
CO ₂ Reference Approach (Mt of CO ₂)	423.56	452.70	518.79	545.38	544.87	531.23	501.29	18.4%
TPES (PJ)	8 732	9 662	10 528	11 397	11 388	11 160	10 639	21.8%
TPES (Mtoe)	208.57	230.77	251.45	272.21	272.00	266.54	254.12	21.8%
GDP (billion 2000 USD)	543.64	592.05	724.91	821.94	863.73	868.21	846.83	55.8%
GDP PPP (billion 2000 USD)	655.51	713.88	874.08	991.07	1 041.47	1 046.86	1 021.09	55.8%
Population (millions)	27.69	29.30	30.69	32.25	32.93	33.33	33.74	21.8%
CO ₂ / TPES (t CO ₂ per TJ)	49.5	48.2	50.6	49.0	49.9	49.4	48.9	-1.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.80	0.79	0.74	0.68	0.66	0.63	0.61	-22.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.66	0.65	0.61	0.56	0.55	0.53	0.51	-22.7%
CO ₂ / population (t CO ₂ per capita)	15.61	15.88	17.36	17.33	17.25	16.54	15.43	-1.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	86.74	253.90	179.41	0.69	520.75	20.4%
Main activity producer elec. and heat	73.90	7.36	16.20	-	97.46	1.0%
Unallocated autoproducers	0.10	1.37	3.12	0.20	4.79	51.2%
Other energy industry own use	0.21	31.37	34.07	-	65.65	55.0%
Manufacturing industries and construction	12.41	19.06	59.74	0.49	91.70	7.4%
Transport	-	151.19	6.36	-	157.55	27.2%
<i>of which: road</i>	-	127.02	0.09	-	127.12	32.9%
Other	0.12	43.55	59.92	-	103.59	27.8%
<i>of which: residential</i>	0.12	5.23	33.17	-	38.51	-5.6%
Reference Approach	94.25	224.33	182.02	0.69	501.29	18.4%
Diff. due to losses and/or transformation	0.97	-22.56	5.96	-	-15.63	
Statistical differences	6.54	-7.01	-3.35	-	-3.82	
<i>Memo: international marine bunkers</i>	-	1.51	-	-	1.51	-47.4%
<i>Memo: international aviation bunkers</i>	-	2.02	-	-	2.02	-25.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	127.02	32.9%	17.6	17.6
Main activity prod. elec. and heat - coal/peat	73.90	-10.9%	10.3	27.9
Manufacturing industries - gas	59.74	33.7%	8.3	36.2
Non-specified other - oil	38.33	95.1%	5.3	41.5
Other energy industry own use - gas	34.07	63.7%	4.7	46.2
Residential - gas	33.17	25.0%	4.6	50.8
Other energy industry own use - oil	31.37	48.2%	4.4	55.2
Non-specified other - gas	26.75	29.8%	3.7	58.9
Other transport - oil	24.17	12.4%	3.4	62.2
Manufacturing industries - oil	19.06	-24.8%	2.6	64.9
Main activity prod. elec. and heat - gas	16.20	449.8%	2.2	67.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>520.75</i>	<i>20.4%</i>	<i>72.3</i>	<i>72.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Chile

Figure 1. CO₂ emissions by fuel

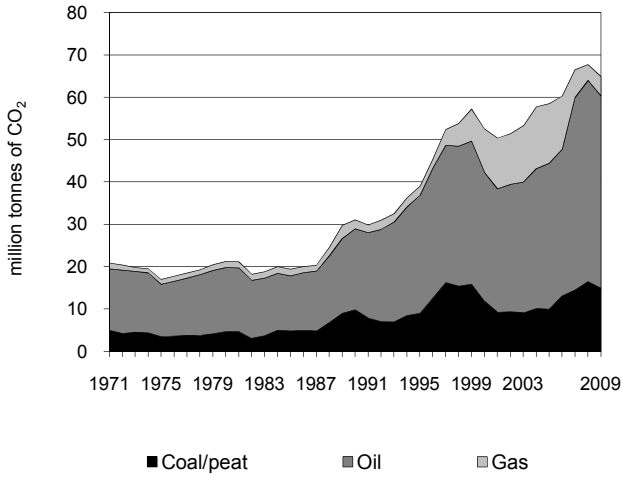


Figure 2. CO₂ emissions by sector

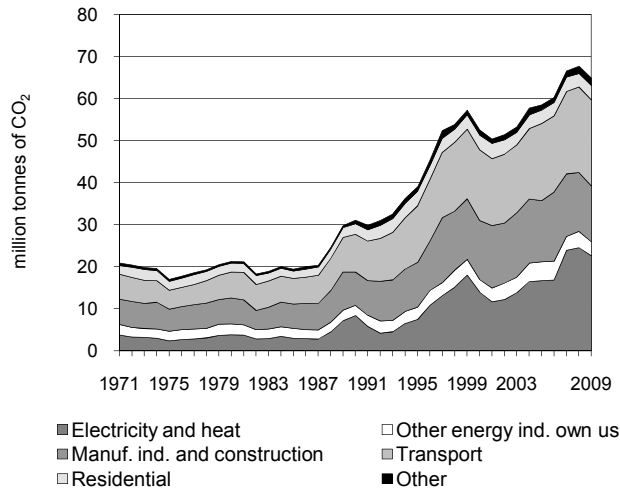


Figure 3. CO₂ emissions by sector

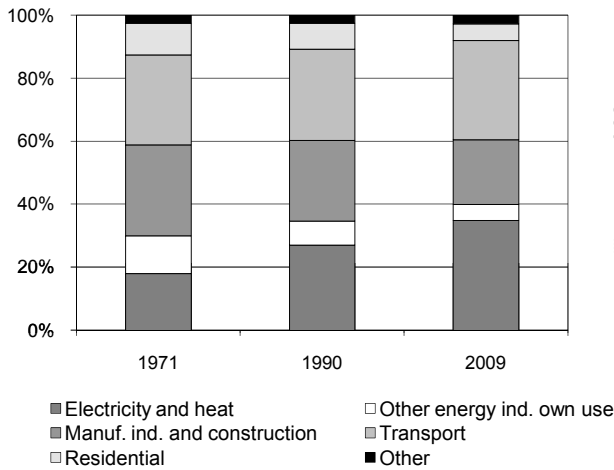


Figure 4. Reference vs Sectoral Approach

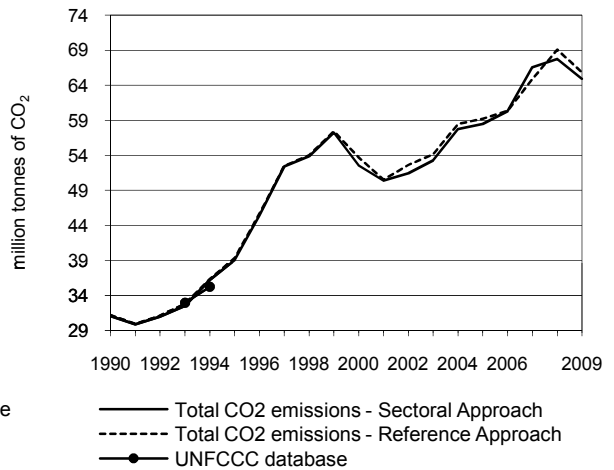


Figure 5. Electricity generation by fuel

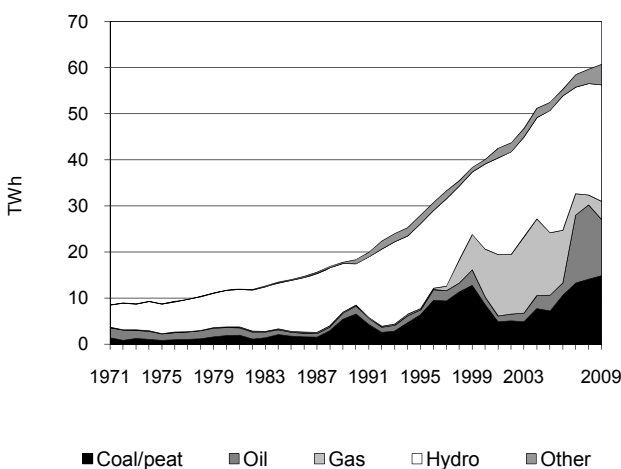
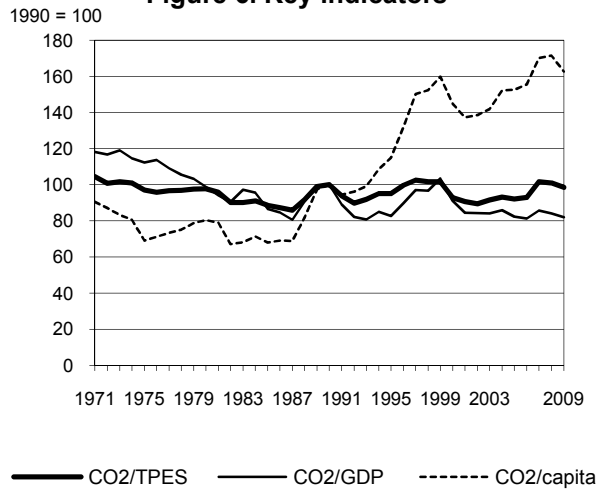


Figure 6. Key indicators



Chile

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	31.08	38.99	52.53	58.49	66.55	67.75	64.93	108.9%
CO ₂ Reference Approach (Mt of CO ₂)	31.21	39.34	53.67	59.23	64.87	69.10	65.83	110.9%
TPES (PJ)	567	749	1 034	1 160	1 195	1 226	1 205	112.4%
TPES (Mtoe)	13.55	17.89	24.70	27.71	28.53	29.29	28.78	112.4%
GDP (billion 2000 USD)	40.56	61.52	75.39	92.63	101.34	105.05	103.28	154.6%
GDP PPP (billion 2000 USD)	76.99	116.77	143.10	175.83	192.36	199.40	196.05	154.6%
Population (millions)	13.18	14.40	15.40	16.27	16.60	16.76	16.93	28.5%
CO ₂ / TPES (t CO ₂ per TJ)	54.8	52.1	50.8	50.4	55.7	55.2	53.9	-1.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.77	0.63	0.70	0.63	0.66	0.64	0.63	-17.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.40	0.33	0.37	0.33	0.35	0.34	0.33	-17.9%
CO ₂ / population (t CO ₂ per capita)	2.36	2.71	3.41	3.60	4.01	4.04	3.84	62.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	14.90	45.47	4.56	-	64.93	108.9%
Main activity producer elec. and heat	13.01	7.29	1.69	-	21.99	299.2%
Unallocated autoproducers	-	0.57	0.07	-	0.65	-77.6%
Other energy industry own use	0.78	2.52	0.00	-	3.30	38.6%
Manufacturing industries and construction	1.02	10.71	1.56	-	13.29	67.1%
Transport	-	20.45	0.05	-	20.50	128.0%
<i>of which: road</i>	-	17.89	0.05	-	17.94	131.3%
Other	0.09	3.93	1.18	-	5.20	55.5%
<i>of which: residential</i>	0.02	2.53	0.86	-	3.42	34.7%
Reference Approach	14.05	47.15	4.62	-	65.83	110.9%
Diff. due to losses and/or transformation	0.19	5.16	-0.14	-	5.22	
Statistical differences	-1.04	-3.49	0.20	-	-4.32	
<i>Memo: international marine bunkers</i>	-	2.61	-	-	2.61	357.2%
<i>Memo: international aviation bunkers</i>	-	1.30	-	-	1.30	130.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	17.89	131.1%	18.7	18.7
Main activity prod. elec. and heat - coal/peat	13.01	182.7%	13.6	32.3
Manufacturing industries - oil	10.71	127.6%	11.2	43.5
Main activity prod. elec. and heat - oil	7.29	792.3%	7.6	51.1
Other transport - oil	2.56	106.9%	2.7	53.8
Residential - oil	2.53	21.8%	2.6	56.4
Other energy industry own use - oil	2.52	92.6%	2.6	59.1
Main activity prod. elec. and heat - gas	1.69	+	1.8	60.8
Manufacturing industries - gas	1.56	33.4%	1.6	62.5
Non-specified other - oil	1.40	141.7%	1.5	63.9
Manufacturing industries - coal/peat	1.02	-50.8%	1.1	65.0
<i>Memo: total CO₂ from fuel combustion</i>	64.93	108.9%	67.9	67.9

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

People's Republic of China

Figure 1. CO₂ emissions by fuel

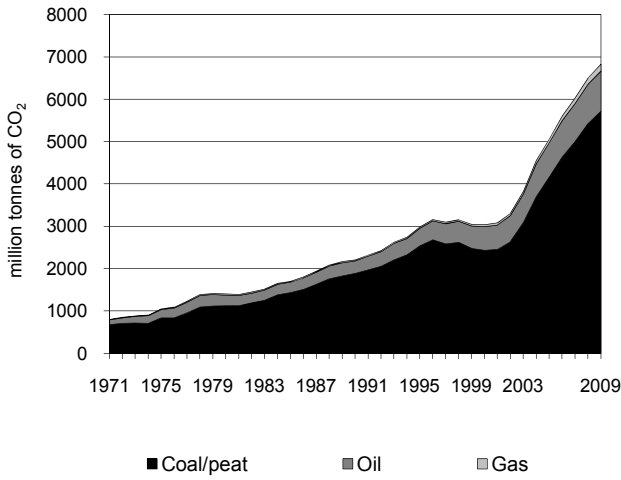


Figure 2. CO₂ emissions by sector

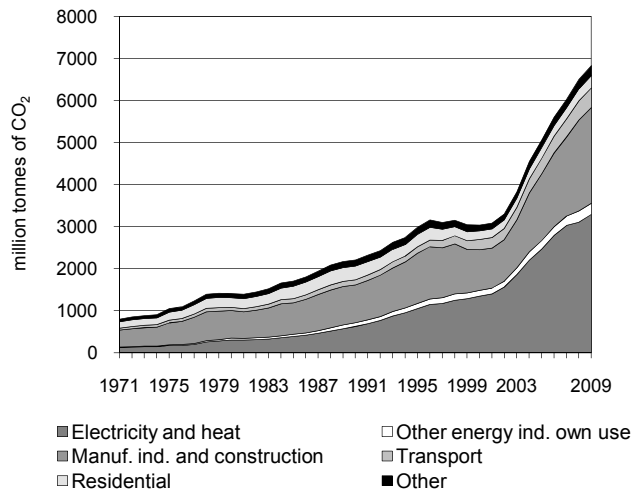


Figure 3. CO₂ emissions by sector

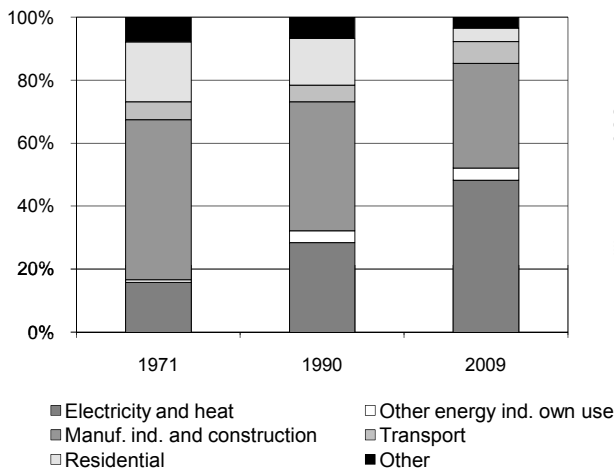


Figure 4. Reference vs Sectoral Approach

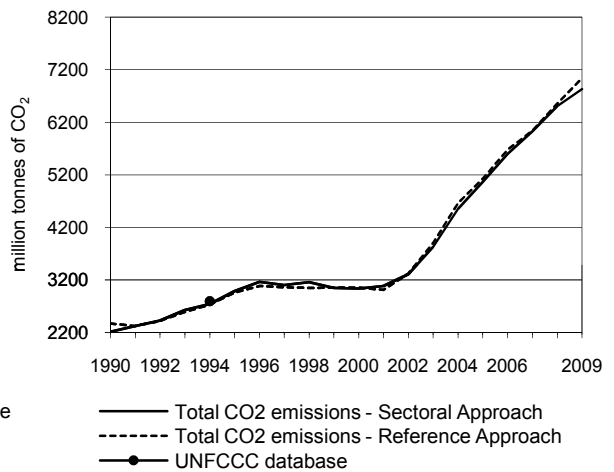


Figure 5. Electricity generation by fuel

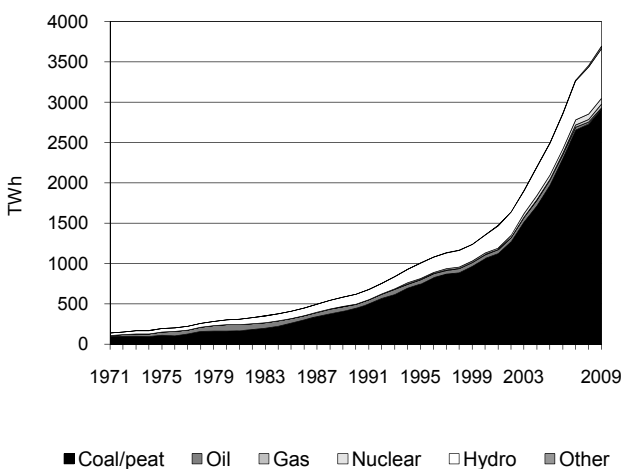
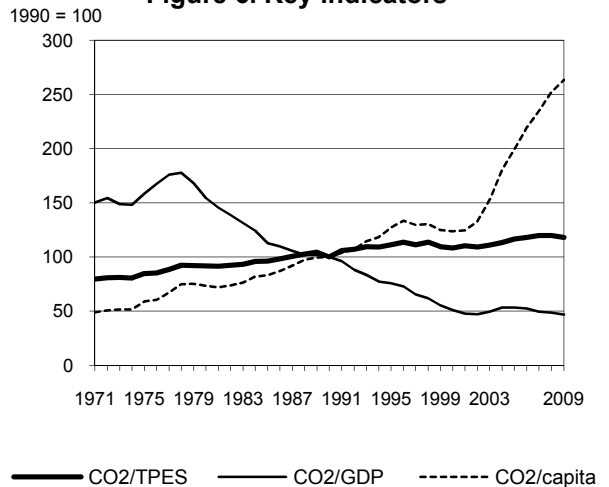


Figure 6. Key indicators



People's Republic of China

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2 211.3	2 986.1	3 037.3	5 062.4	6 028.4	6 506.8	6 831.6	208.9%
CO ₂ Reference Approach (Mt of CO ₂)	2 371.1	2 957.8	3 052.2	5 125.0	6 037.2	6 558.4	7 037.9	196.8%
TPES (PJ)	36 130	43 846	45 840	71 024	82 228	88 655	94 500	161.6%
TPES (Mtoe)	863.0	1 047.2	1 094.9	1 696.4	1 964.0	2 117.5	2 257.1	161.6%
GDP (billion 2000 USD)	444.6	792.8	1 198.5	1 908.8	2 456.7	2 692.5	2 937.5	560.7%
GDP PPP (billion 2000 USD)	1 845.6	3 291.0	4 975.2	7 923.8	10 198.2	11 177.3	12 194.4	560.7%
Population (millions)	1 135.2	1 204.9	1 262.6	1 303.7	1 317.9	1 324.7	1 331.5	17.3%
CO ₂ / TPES (t CO ₂ per TJ)	61.2	68.1	66.3	71.3	73.3	73.4	72.3	18.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	4.97	3.77	2.53	2.65	2.45	2.42	2.33	-53.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.20	0.91	0.61	0.64	0.59	0.58	0.56	-53.2%
CO ₂ / population (t CO ₂ per capita)	1.95	2.48	2.41	3.88	4.57	4.91	5.13	163.4%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	5 720.0	947.9	163.7	-	6 831.6	208.9%
Main activity producer elec. and heat	3 200.8	12.8	31.4	-	3 245.0	426.2%
Unallocated autoproducers	37.4	12.4	-	-	49.7	324.6%
Other energy industry own use	173.5	68.9	21.9	-	264.2	213.2%
Manufacturing industries and construction	1 999.7	225.7	50.4	-	2 275.8	151.6%
Transport	12.3	457.0	0.9	-	470.2	303.4%
<i>of which: road</i>	-	359.8	0.6	-	360.5	490.5%
Other	296.4	171.1	59.1	-	526.6	10.3%
<i>of which: residential</i>	185.6	68.0	34.7	-	288.3	-12.1%
Reference Approach	5 880.6	988.4	168.9	-	7 037.9	196.8%
Diff. due to losses and/or transformation	109.5	36.2	4.3	-	149.9	
Statistical differences	51.1	4.4	0.9	-	56.4	
<i>Memo: international marine bunkers</i>	-	30.9	-	-	30.9	572.5%
<i>Memo: international aviation bunkers</i>	-	8.0	-	-	8.0	+

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	3 200.8	459.4%	32.5	32.5
Manufacturing industries - coal/peat	1 999.7	148.4%	20.3	52.8
Road - oil	359.8	489.5%	3.7	56.4
Manufacturing industries - oil	225.7	162.7%	2.3	58.7
Residential - coal/peat	185.6	-41.3%	1.9	60.6
Other energy industry - coal/peat	173.5	240.1%	1.8	62.4
Non-specified other sectors - coal/peat	110.7	6.7%	1.1	63.5
Non-specified other - oil	103.2	127.3%	1.0	64.5
Other transport - oil	97.2	470.2%	1.0	65.5
Other energy industry own use - oil	68.9	154.6%	0.7	66.2
Residential - oil	68.0	766.3%	0.7	66.9
<i>Memo: total CO₂ from fuel combustion</i>	6 831.6	208.9%	69.3	69.3

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Chinese Taipei

Figure 1. CO₂ emissions by fuel

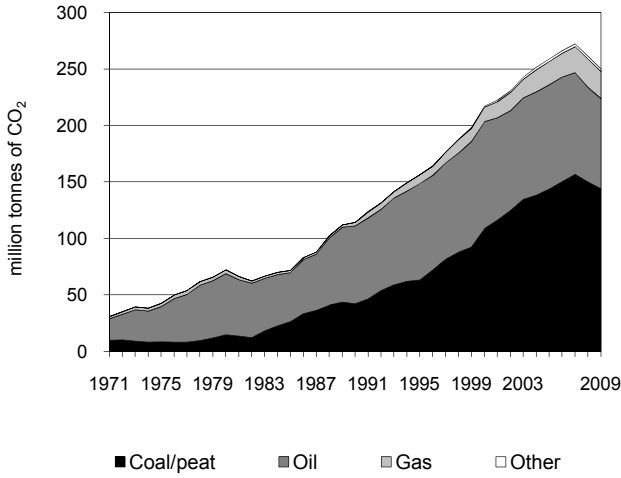


Figure 2. CO₂ emissions by sector

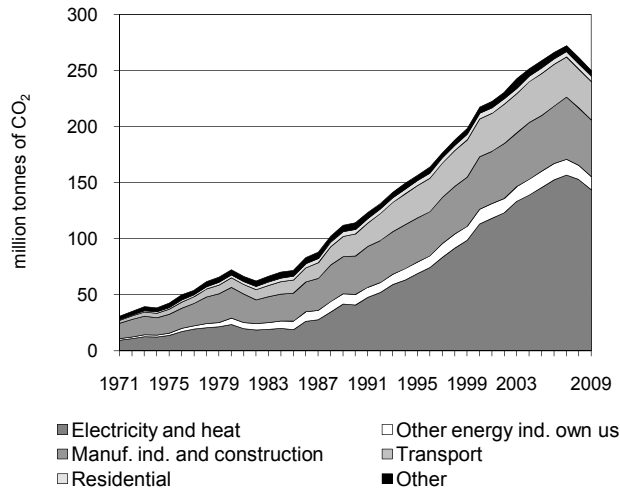


Figure 3. CO₂ emissions by sector

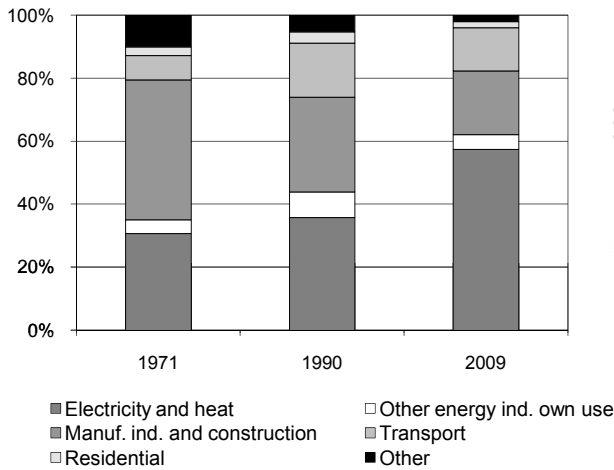


Figure 4. Reference vs Sectoral Approach

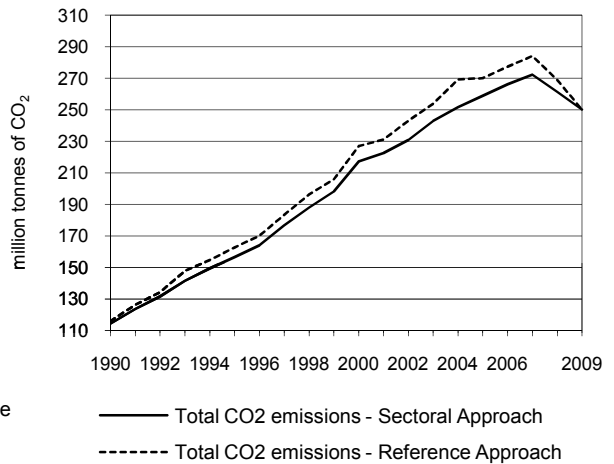


Figure 5. Electricity generation by fuel

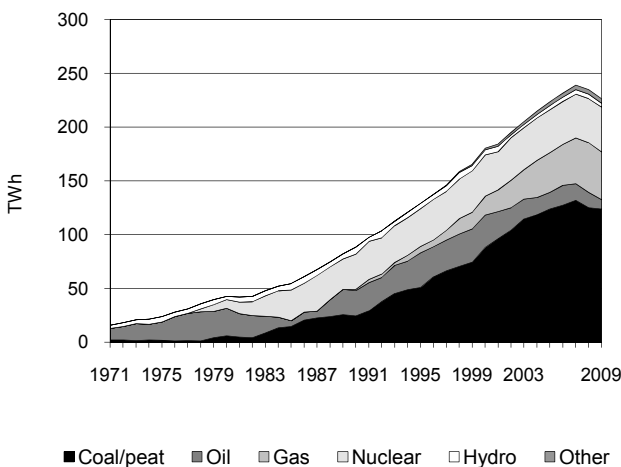
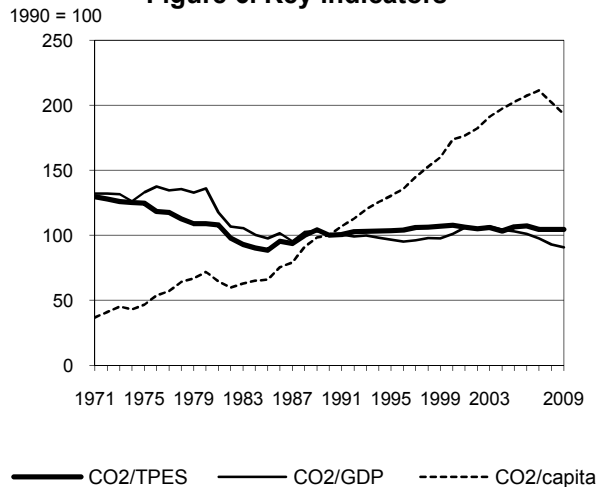


Figure 6. Key indicators



Chinese Taipei

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	114.31	156.52	217.28	258.95	272.31	261.30	250.11	118.8%
CO ₂ Reference Approach (Mt of CO ₂)	115.91	162.66	226.92	270.03	284.03	268.74	250.24	115.9%
TPES (PJ)	2 020	2 672	3 563	4 295	4 600	4 417	4 232	109.5%
TPES (Mtoe)	48.24	63.83	85.10	102.60	109.86	105.50	101.09	109.5%
GDP (billion 2000 USD)	170.92	242.44	321.23	375.99	417.12	420.16	412.14	141.1%
GDP PPP (billion 2000 USD)	261.44	370.83	491.35	575.11	638.02	642.68	630.41	141.1%
Population (millions)	20.28	21.29	22.18	22.70	22.86	22.92	22.97	13.3%
CO ₂ / TPES (t CO ₂ per TJ)	56.6	58.6	61.0	60.3	59.2	59.2	59.1	4.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.67	0.65	0.68	0.69	0.65	0.62	0.61	-9.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.44	0.42	0.44	0.45	0.43	0.41	0.40	-9.3%
CO ₂ / population (t CO ₂ per capita)	5.64	7.35	9.80	11.41	11.91	11.40	10.89	93.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	144.17	79.75	23.94	2.26	250.11	118.8%
Main activity producer elec. and heat	86.98	4.50	18.49	-	109.97	207.0%
Unallocated autoproducers	27.81	3.41	0.27	2.26	33.74	564.1%
Other energy industry own use	5.38	5.36	0.91	-	11.65	25.0%
Manufacturing industries and construction	24.00	24.77	1.81	-	50.58	47.2%
Transport	-	34.30	-	-	34.30	74.6%
<i>of which: road</i>	-	33.22	-	-	33.22	79.1%
Other	-	7.39	2.46	-	9.86	-2.2%
<i>of which: residential</i>	-	3.01	1.73	-	4.74	16.6%
Reference Approach	147.84	76.53	23.61	2.26	250.24	115.9%
Diff. due to losses and/or transformation	3.37	15.86	-	-	19.23	
Statistical differences	0.30	-19.07	-0.32	-	-19.09	
<i>Memo: international marine bunkers</i>	-	5.05	-	-	5.05	4.0%
<i>Memo: international aviation bunkers</i>	-	5.54	-	-	5.54	209.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	86.98	339.6%	30.9	30.9
Road - oil	33.22	79.1%	11.8	42.7
Unallocated autoproducers - coal/peat	27.81	548.0%	9.9	52.5
Manufacturing industries - oil	24.77	28.3%	8.8	61.3
Manufacturing industries - coal/peat	24.00	66.9%	8.5	69.9
Main activity prod. elec. and heat - gas	18.49	+	6.6	76.4
Other energy industry - coal/peat	5.38	40.9%	1.9	78.3
Other energy industry own use - oil	5.36	12.2%	1.9	80.2
Main activity prod. elec. and heat - oil	4.50	-70.9%	1.6	81.8
Non-specified other - oil	4.39	-24.1%	1.6	83.4
Unallocated autoproducers - oil	3.41	366.7%	1.2	84.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>250.11</i>	<i>118.8%</i>	<i>88.8</i>	<i>88.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Colombia

Figure 1. CO₂ emissions by fuel

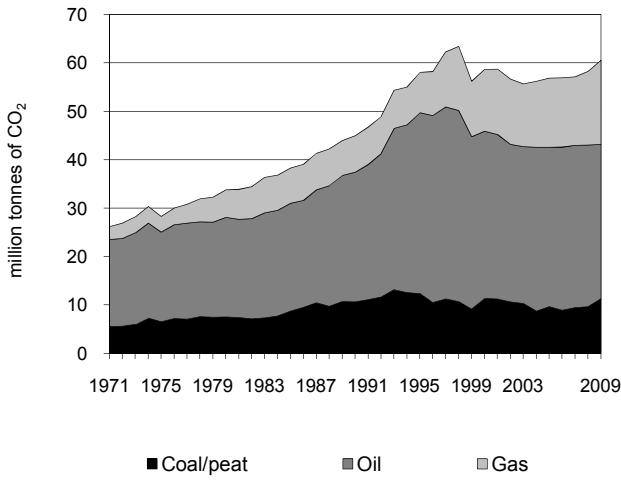


Figure 2. CO₂ emissions by sector

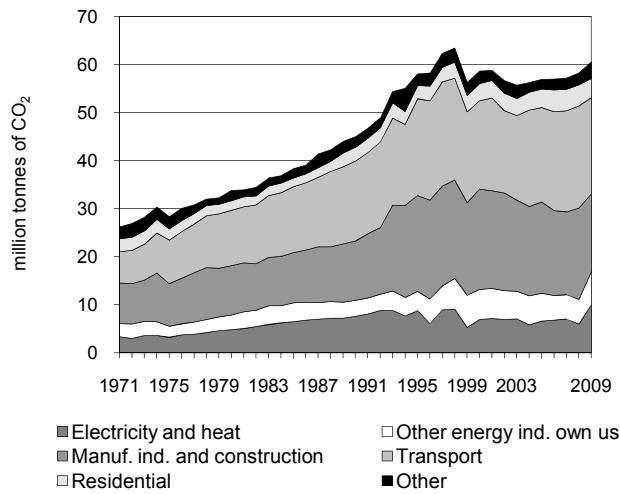


Figure 3. CO₂ emissions by sector

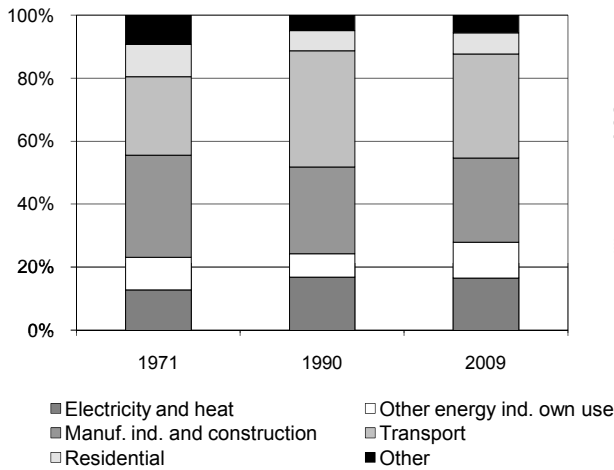


Figure 4. Reference vs Sectoral Approach

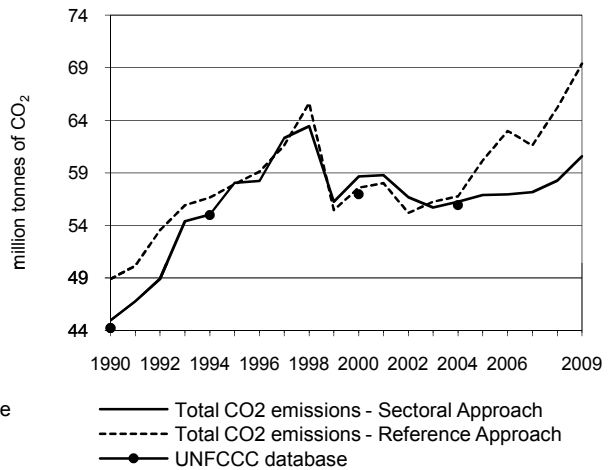


Figure 5. Electricity generation by fuel

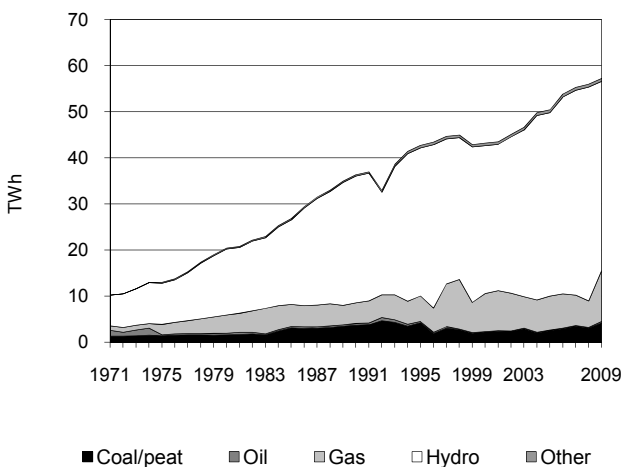
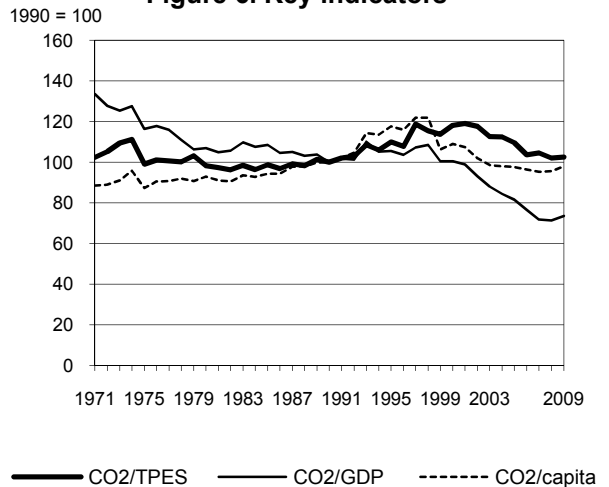


Figure 6. Key indicators



Colombia

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	44.96	58.05	58.67	56.90	57.17	58.26	60.56	34.7%
CO ₂ Reference Approach (Mt of CO ₂)	48.87	57.93	57.59	60.17	61.61	65.21	69.37	42.0%
TPES (PJ)	1 014	1 192	1 121	1 172	1 233	1 288	1 333	31.4%
TPES (Mtoe)	24.22	28.46	26.78	27.99	29.46	30.75	31.83	31.4%
GDP (billion 2000 USD)	77.21	94.54	100.36	119.92	136.75	140.49	141.65	83.5%
GDP PPP (billion 2000 USD)	229.47	280.96	298.28	356.39	406.42	417.51	420.98	83.5%
Population (millions)	33.20	36.46	39.77	43.05	44.36	45.01	45.66	37.5%
CO ₂ / TPES (t CO ₂ per TJ)	44.3	48.7	52.3	48.6	46.4	45.2	45.4	2.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.58	0.61	0.58	0.47	0.42	0.41	0.43	-26.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.20	0.21	0.20	0.16	0.14	0.14	0.14	-26.5%
CO ₂ / population (t CO ₂ per capita)	1.35	1.59	1.48	1.32	1.29	1.29	1.33	-2.0%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	11.33	31.85	17.39	-	60.56	34.7%
Main activity producer elec. and heat	3.99	0.26	4.89	-	9.13	56.8%
Unallocated autoproducers	0.63	0.03	0.25	-	0.91	-48.5%
Other energy industry own use	0.06	2.39	4.43	-	6.89	104.8%
Manufacturing industries and construction	6.33	5.78	4.06	-	16.17	31.1%
Transport	0.00	18.80	1.22	-	20.02	20.5%
<i>of which: road</i>	-	17.57	1.22	-	18.79	20.0%
Other	0.32	4.59	2.54	-	7.44	47.0%
<i>of which: residential</i>	0.32	1.55	2.16	-	4.02	40.8%
Reference Approach	11.75	40.07	17.55	-	69.37	42.0%
Diff. due to losses and/or transformation	1.13	4.52	-	-	5.65	
Statistical differences	-0.70	3.70	0.16	-	3.16	
<i>Memo: international marine bunkers</i>	-	1.32	-	-	1.32	301.9%
<i>Memo: international aviation bunkers</i>	-	1.79	-	-	1.79	14.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	17.57	12.2%	11.4	11.4
Manufacturing industries - coal/peat	6.33	9.5%	4.1	15.6
Manufacturing industries - oil	5.78	23.0%	3.8	19.3
Main activity prod. elec. and heat - gas	4.89	68.2%	3.2	22.5
Other energy industry own use - gas	4.43	79.0%	2.9	25.4
Manufacturing industries - gas	4.06	119.1%	2.6	28.0
Main activity prod. elec. and heat - coal/peat	3.99	53.1%	2.6	30.6
Non-specified other - oil	3.04	40.2%	2.0	32.6
Other energy industry own use - oil	2.39	194.3%	1.6	34.2
Residential - gas	2.16	914.8%	1.4	35.6
Residential - oil	1.55	-28.5%	1.0	36.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>60.56</i>	<i>34.7%</i>	<i>39.4</i>	<i>39.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Congo

Figure 1. CO₂ emissions by fuel

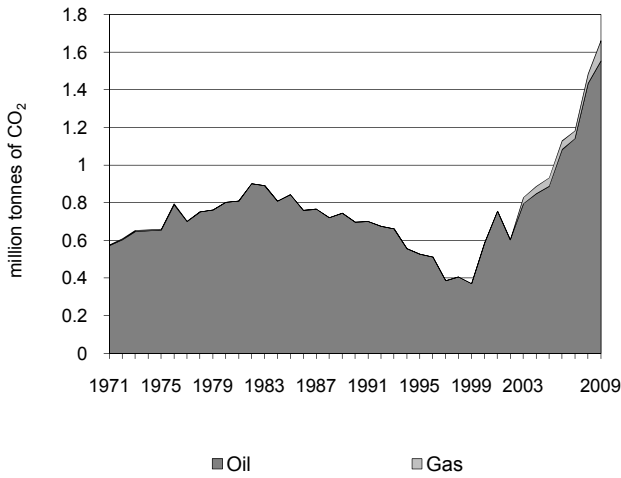


Figure 2. CO₂ emissions by sector

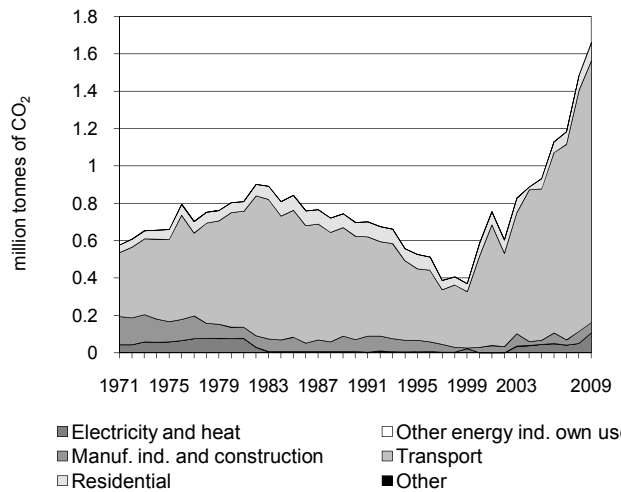


Figure 3. CO₂ emissions by sector

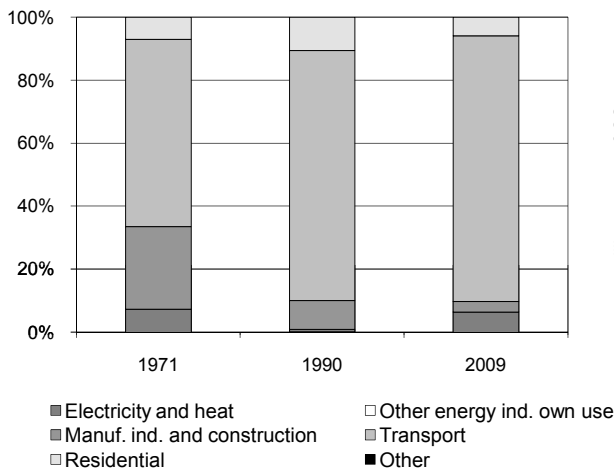


Figure 4. Reference vs Sectoral Approach

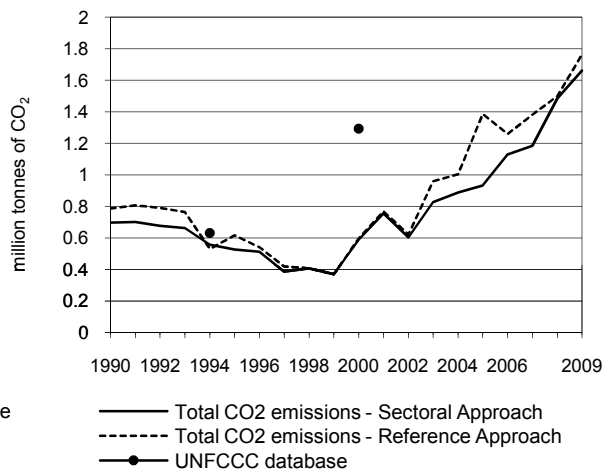


Figure 5. Electricity generation by fuel

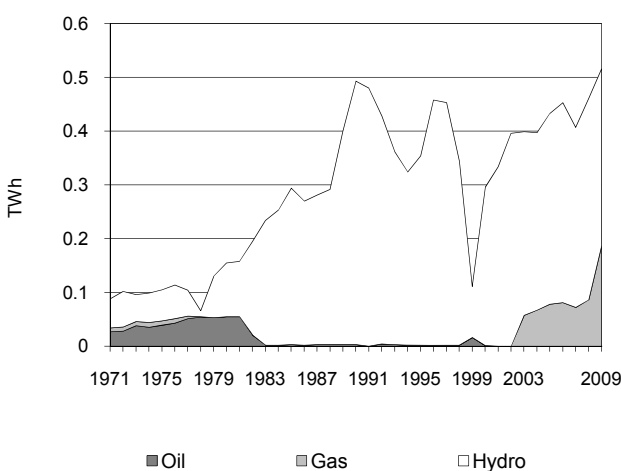
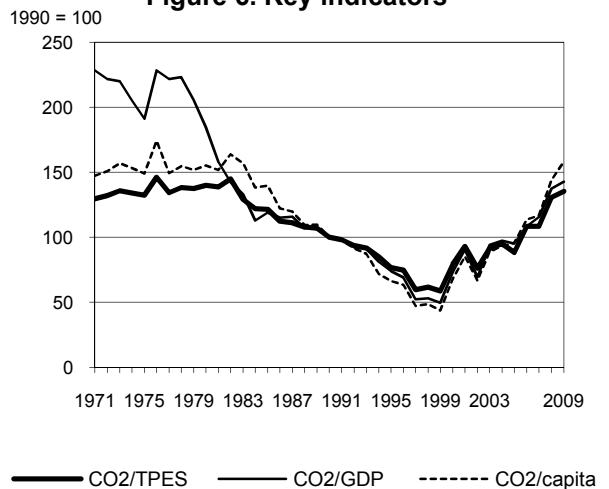


Figure 6. Key indicators



Congo

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	0.70	0.53	0.59	0.93	1.18	1.48	1.66	138.1%
CO ₂ Reference Approach (Mt of CO ₂)	0.79	0.62	0.60	1.38	1.38	1.50	1.76	124.0%
TPES (PJ)	33	33	36	51	52	54	59	76.0%
TPES (Mtoe)	0.80	0.79	0.85	1.21	1.25	1.30	1.40	75.9%
GDP (billion 2000 USD)	2.80	2.86	3.22	3.93	4.11	4.34	4.67	66.8%
GDP PPP (billion 2000 USD)	3.15	3.22	3.62	4.42	4.62	4.88	5.25	66.8%
Population (millions)	2.45	2.78	3.04	3.42	3.55	3.62	3.68	50.6%
CO ₂ / TPES (t CO ₂ per TJ)	20.9	16.0	16.6	18.4	22.7	27.3	28.3	35.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.25	0.18	0.18	0.24	0.29	0.34	0.36	42.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.22	0.16	0.16	0.21	0.26	0.30	0.32	42.7%
CO ₂ / population (t CO ₂ per capita)	0.29	0.19	0.19	0.27	0.33	0.41	0.45	58.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	1.55	0.11	-	1.66	138.1%
Main activity producer elec. and heat	-	-	0.11	-	0.11	+
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	-	0.06	-	-	0.06	-13.1%
Transport	-	1.40	-	-	1.40	153.2%
<i>of which: road</i>	-	1.16	-	-	1.16	156.6%
Other	-	0.10	-	-	0.10	32.1%
<i>of which: residential</i>	-	0.10	-	-	0.10	32.1%
Reference Approach	-	1.66	0.11	-	1.76	124.0%
Diff. due to losses and/or transformation	-	0.10	-	-	0.10	
Statistical differences	-	-0.00	-	-	-0.00	
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	1.16	156.6%	8.4	8.4
Other transport - oil	0.24	137.7%	1.7	10.1
Main activity prod. elec. and heat - gas	0.11	x	0.8	10.9
Residential - oil	0.10	32.1%	0.7	11.6
Manufacturing industries - oil	0.06	-13.1%	0.4	12.0
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	1.66	138.1%	12.0	12.0

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Democratic Republic of Congo

Figure 1. CO₂ emissions by fuel

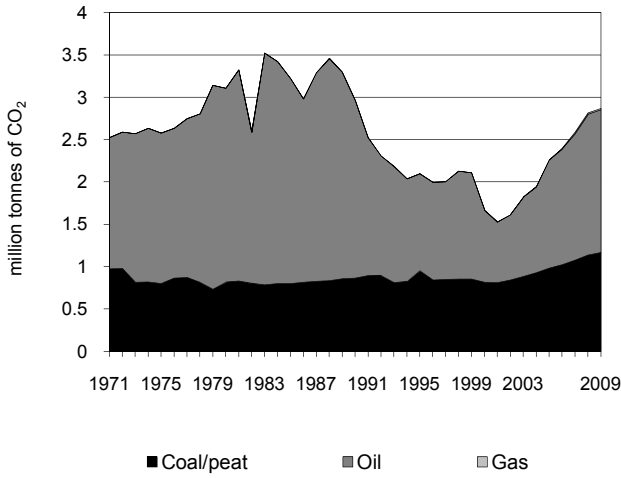


Figure 2. CO₂ emissions by sector

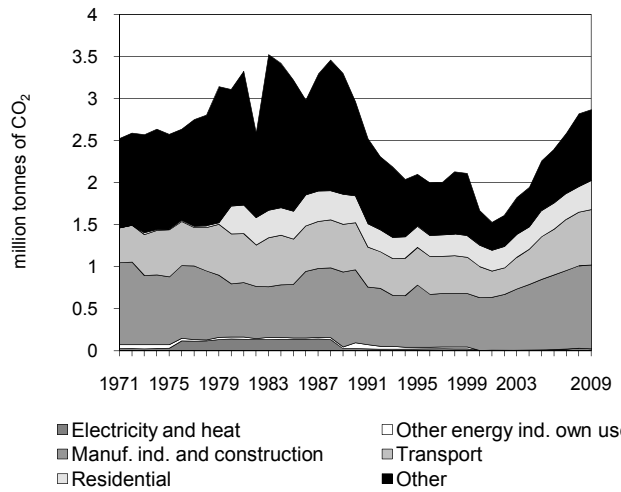


Figure 3. CO₂ emissions by sector

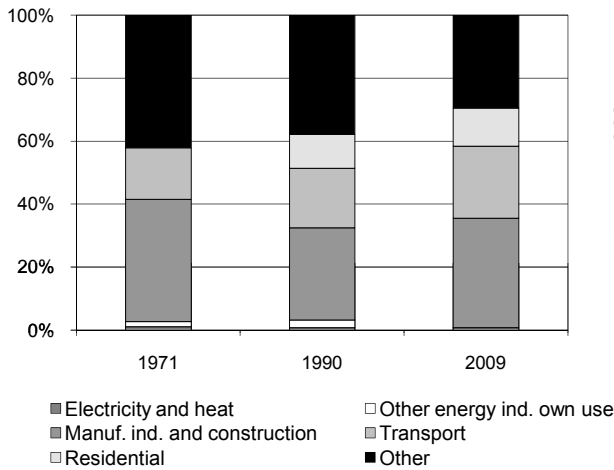


Figure 4. Reference vs Sectoral Approach

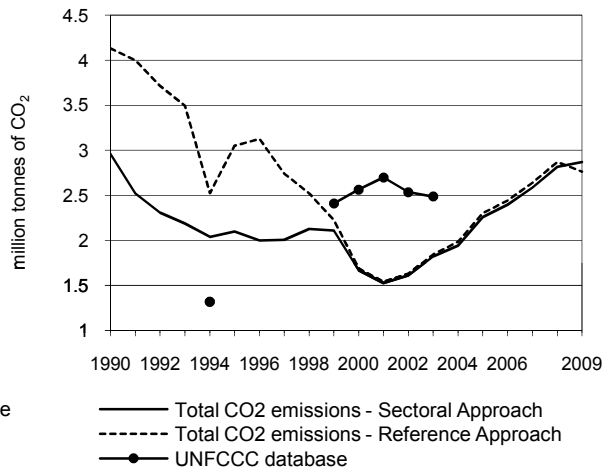


Figure 5. Electricity generation by fuel

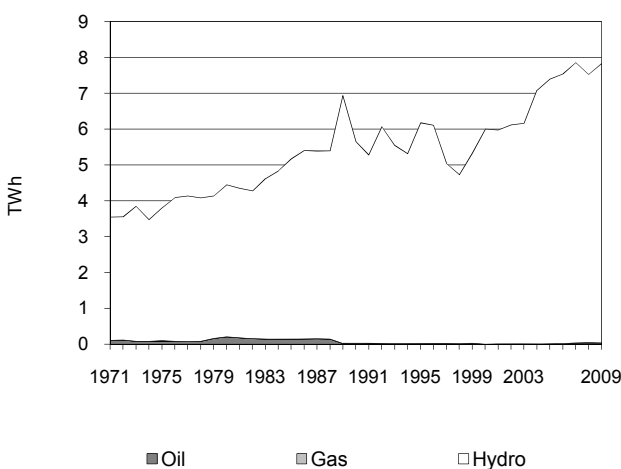
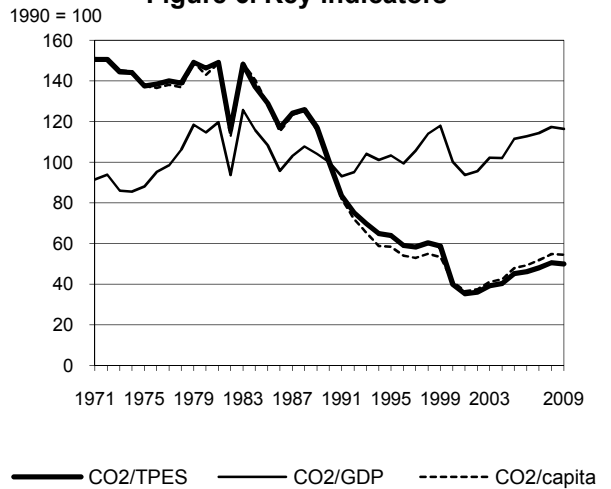


Figure 6. Key indicators



Democratic Republic of Congo

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2.96	2.10	1.67	2.26	2.59	2.82	2.87	-3.1%
CO ₂ Reference Approach (Mt of CO ₂)	4.13	3.05	1.69	2.30	2.64	2.87	2.76	-33.1%
TPES (PJ)	494	548	698	836	898	931	960	94.3%
TPES (Mtoe)	11.80	13.08	16.68	19.97	21.46	22.24	22.92	94.3%
GDP (billion 2000 USD)	7.66	5.26	4.31	5.24	5.85	6.21	6.38	-16.7%
GDP PPP (billion 2000 USD)	53.57	36.76	30.11	36.64	40.91	43.44	44.61	-16.7%
Population (millions)	37.02	44.92	50.83	59.08	62.52	64.26	66.02	78.4%
CO ₂ / TPES (t CO ₂ per TJ)	6.0	3.8	2.4	2.7	2.9	3.0	3.0	-50.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.39	0.40	0.39	0.43	0.44	0.45	0.45	16.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	16.3%
CO ₂ / population (t CO ₂ per capita)	0.08	0.05	0.03	0.04	0.04	0.04	0.04	-45.6%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	1.17	1.68	0.02	-	2.87	-3.1%
Main activity producer elec. and heat	-	0.01	-	-	0.01	-74.9%
Unallocated autoproducers	-	-	0.02	-	0.02	x
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.86	0.14	-	-	1.00	15.2%
Transport	-	0.66	-	-	0.66	16.9%
<i>of which: road</i>	-	0.66	-	-	0.66	16.9%
Other	0.31	0.88	-	-	1.19	-17.1%
<i>of which: residential</i>	0.31	0.04	-	-	0.35	9.0%
Reference Approach	1.21	1.54	0.02	-	2.76	-33.1%
Diff. due to losses and/or transformation	0.04	-	-	-	0.04	
Statistical differences	-0.01	-0.14	-	-	-0.15	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.05	-	-	0.05	-85.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - coal/peat	0.86	30.9%	0.6	0.6
Non-specified other - oil	0.84	-24.5%	0.6	1.2
Road - oil	0.66	16.9%	0.5	1.7
Residential - coal/peat	0.31	47.4%	0.2	2.0
Manufacturing industries - oil	0.14	-33.7%	0.1	2.1
Residential - oil	0.04	-65.5%	0.0	2.1
Unallocated autoproducers - gas	0.02	x	0.0	2.1
Main activity prod. elec. and heat - oil	0.01	-74.9%	0.0	2.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>2.87</i>	<i>-3.1%</i>	<i>2.1</i>	<i>2.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Costa Rica

Figure 1. CO₂ emissions by fuel

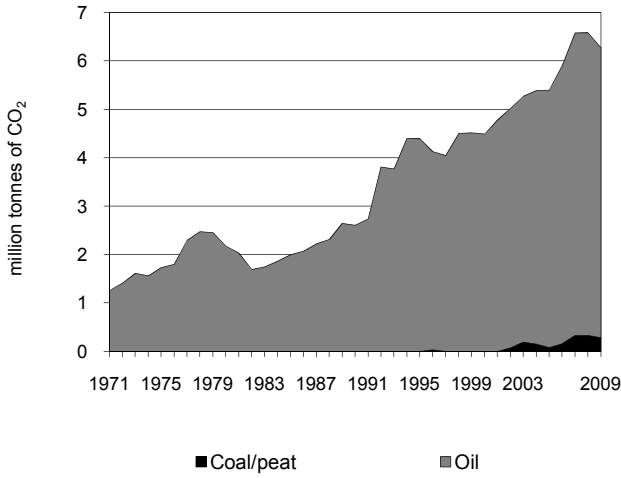


Figure 2. CO₂ emissions by sector

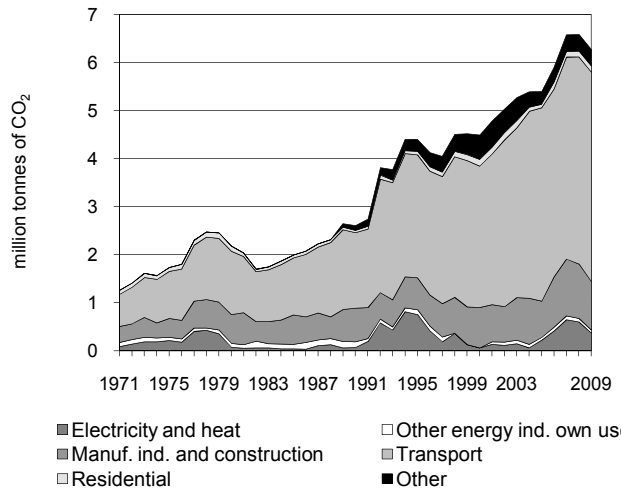


Figure 3. CO₂ emissions by sector

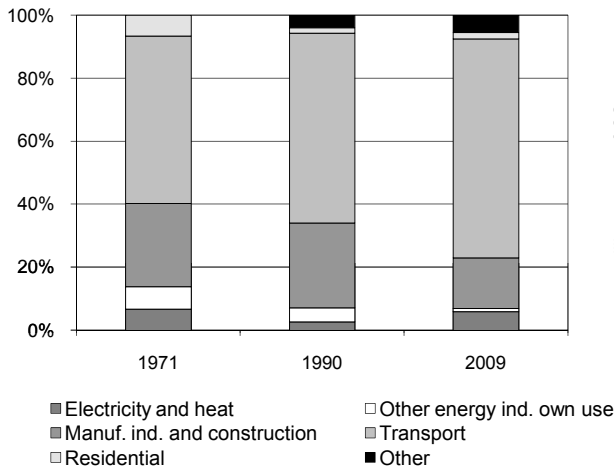


Figure 4. Reference vs Sectoral Approach

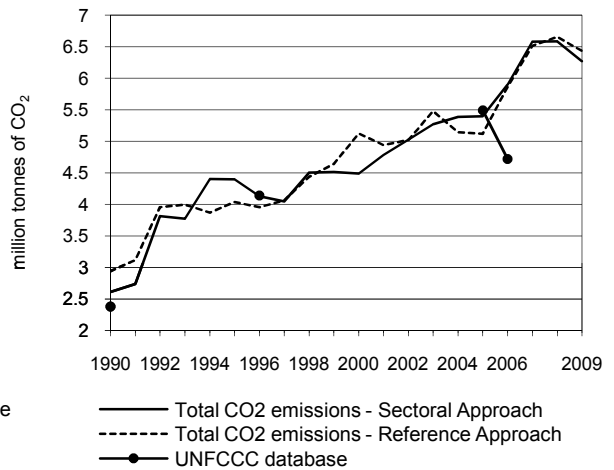


Figure 5. Electricity generation by fuel

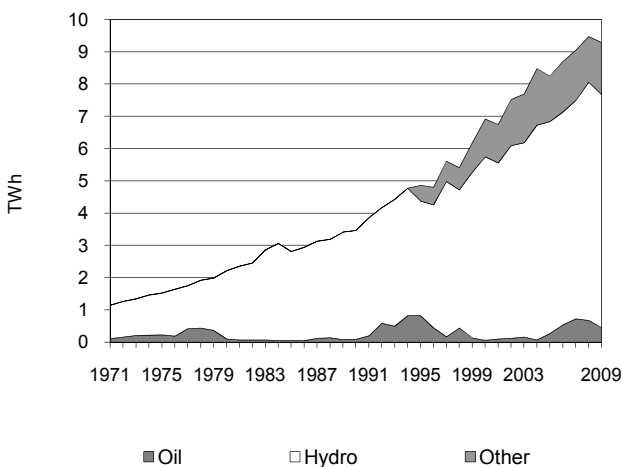
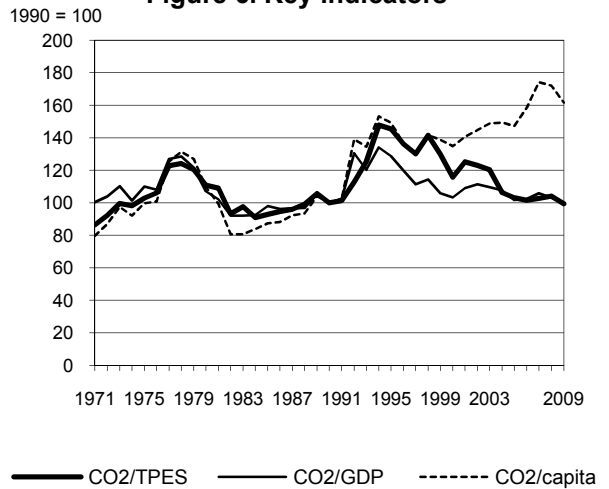


Figure 6. Key indicators



Costa Rica

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2.61	4.40	4.49	5.40	6.58	6.58	6.27	140.5%
CO ₂ Reference Approach (Mt of CO ₂)	2.94	4.04	5.12	5.12	6.52	6.66	6.43	119.0%
TPES (PJ)	85	98	126	170	209	205	205	141.9%
TPES (Mtoe)	2.03	2.35	3.02	4.07	4.98	4.91	4.90	141.9%
GDP (billion 2000 USD)	9.58	12.54	15.95	19.48	22.85	23.44	23.09	141.1%
GDP PPP (billion 2000 USD)	19.28	25.23	32.10	39.22	45.98	47.18	46.48	141.1%
Population (millions)	3.08	3.48	3.93	4.33	4.46	4.52	4.58	48.8%
CO ₂ / TPES (t CO ₂ per TJ)	30.8	44.7	35.6	31.7	31.6	32.0	30.6	-0.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.27	0.35	0.28	0.28	0.29	0.28	0.27	-0.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.14	0.17	0.14	0.14	0.14	0.14	0.14	-0.2%
CO ₂ / population (t CO ₂ per capita)	0.85	1.26	1.14	1.25	1.48	1.46	1.37	61.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.29	5.98	-	-	6.27	140.5%
Main activity producer elec. and heat	-	0.37	-	-	0.37	806.5%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	0.06	-	-	0.06	-44.8%
Manufacturing industries and construction	0.29	0.72	-	-	1.01	43.2%
Transport	-	4.36	-	-	4.36	177.7%
<i>of which: road</i>	-	4.35	-	-	4.35	633.8%
Other	-	0.47	-	-	0.47	218.2%
<i>of which: residential</i>	-	0.13	-	-	0.13	185.7%
Reference Approach	0.31	6.12	-	-	6.43	119.0%
Diff. due to losses and/or transformation	0.03	0.02	-	-	0.05	
Statistical differences	-	0.11	-	-	0.11	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.50	-	-	0.50	x

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	4.35	633.8%	41.5	41.5
Manufacturing industries - oil	0.72	3.4%	6.8	48.3
Main activity prod. elec. and heat - oil	0.37	806.5%	3.5	51.9
Non-specified other - oil	0.34	232.3%	3.3	55.1
Manufacturing industries - coal/peat	0.29	+	2.7	57.9
Residential - oil	0.13	185.7%	1.2	59.1
Other energy industry own use - oil	0.06	-44.8%	0.6	59.7
Other transport - oil	0.01	-99.0%	0.1	59.8
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>6.27</i>	<i>140.5%</i>	<i>59.8</i>	<i>59.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Côte d'Ivoire

Figure 1. CO₂ emissions by fuel

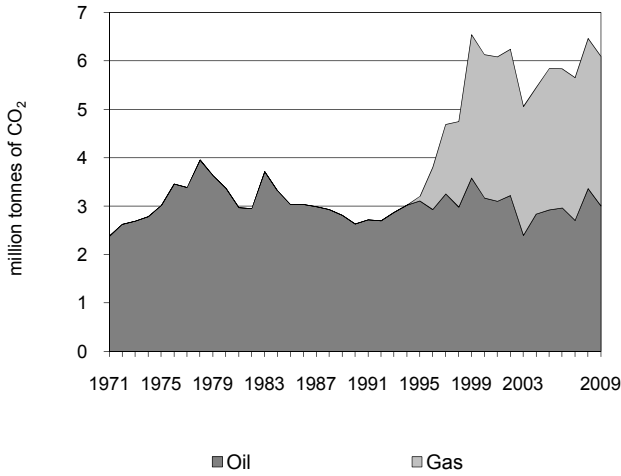


Figure 2. CO₂ emissions by sector

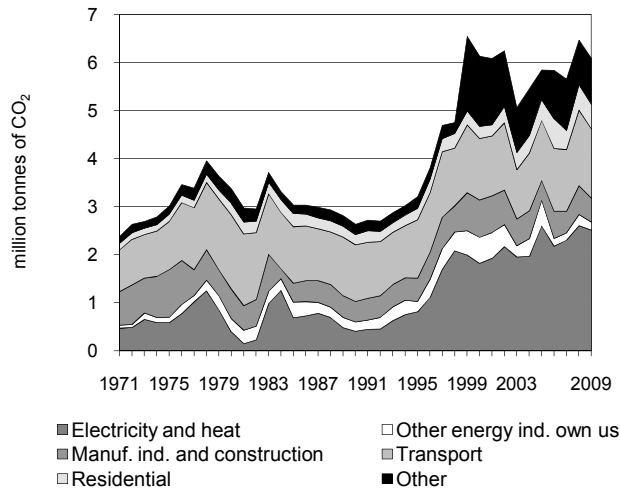


Figure 3. CO₂ emissions by sector

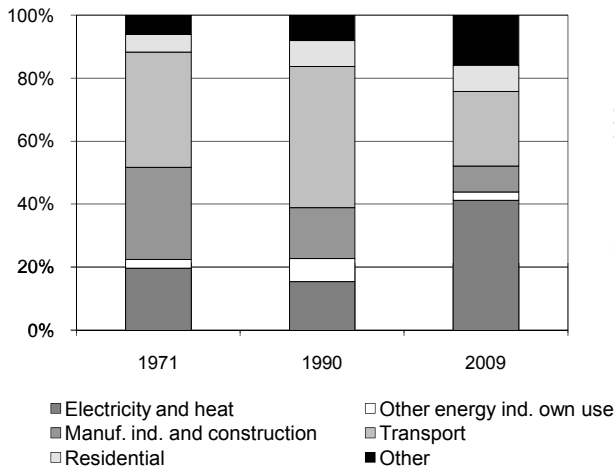


Figure 4. Reference vs Sectoral Approach

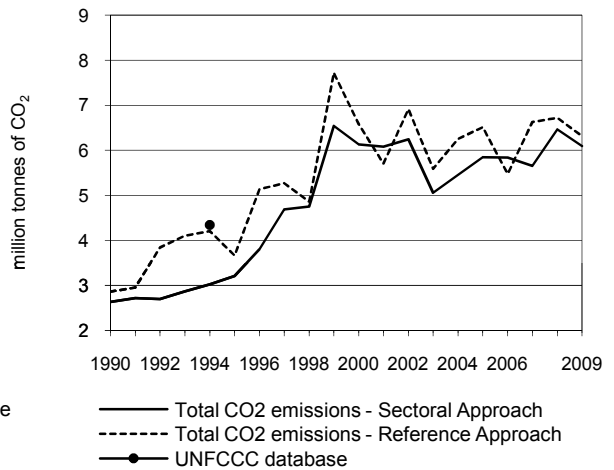


Figure 5. Electricity generation by fuel

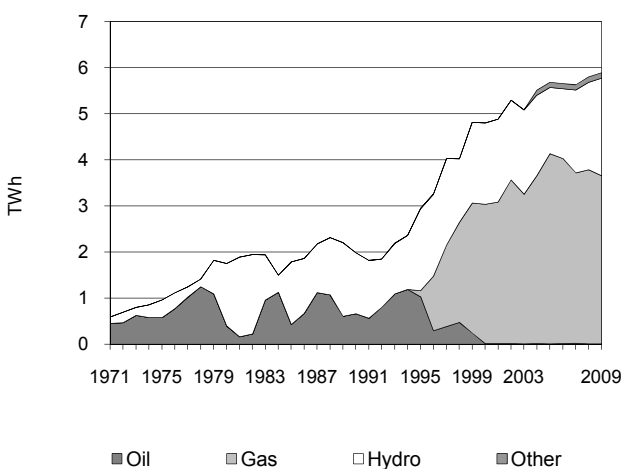
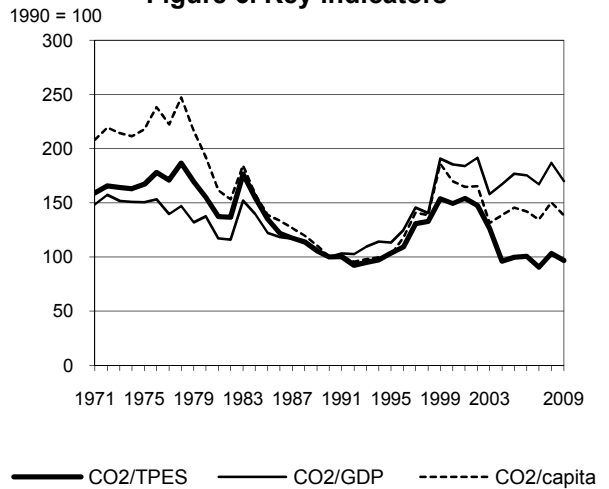


Figure 6. Key indicators



Côte d'Ivoire

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2.63	3.21	6.13	5.85	5.65	6.47	6.09	131.4%
CO ₂ Reference Approach (Mt of CO ₂)	2.86	3.67	6.58	6.51	6.63	6.72	6.31	120.6%
TPES (PJ)	181	213	282	403	428	430	433	139.5%
TPES (Mtoe)	4.32	5.08	6.73	9.63	10.23	10.28	10.35	139.5%
GDP (billion 2000 USD)	8.30	8.93	10.42	10.42	10.67	10.90	11.30	36.1%
GDP PPP (billion 2000 USD)	21.17	22.77	26.58	26.58	27.22	27.82	28.82	36.1%
Population (millions)	12.61	14.98	17.28	19.25	20.12	20.59	21.08	67.1%
CO ₂ / TPES (t CO ₂ per TJ)	14.6	15.1	21.7	14.5	13.2	15.0	14.1	-3.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.32	0.36	0.59	0.56	0.53	0.59	0.54	70.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.12	0.14	0.23	0.22	0.21	0.23	0.21	69.9%
CO ₂ / population (t CO ₂ per capita)	0.21	0.21	0.35	0.30	0.28	0.31	0.29	38.4%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	3.01	3.09	-	6.09	131.4%
Main activity producer elec. and heat	-	0.01	2.51	-	2.51	526.7%
Unallocated autoproducers
Other energy industry own use	-	0.14	0.03	-	0.17	-14.0%
Manufacturing industries and construction	-	0.50	-	-	0.50	16.9%
Transport	-	1.44	-	-	1.44	22.5%
<i>of which: road</i>	-	1.20	-	-	1.20	17.5%
Other	-	0.92	0.55	-	1.47	243.8%
<i>of which: residential</i>	-	0.51	-	-	0.51	135.8%
Reference Approach	-	3.23	3.09	-	6.31	120.6%
Diff. due to losses and/or transformation	-	0.27	-	-	0.27	
Statistical differences	-	-0.05	-	-	-0.05	
<i>Memo: international marine bunkers</i>	-	0.20	-	-	0.20	64.3%
<i>Memo: international aviation bunkers</i>	-	0.16	-	-	0.16	-41.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	2.51	x	8.4	8.4
Road - oil	1.20	17.5%	4.0	12.5
Non-specified other - gas	0.55	x	1.9	14.3
Residential - oil	0.51	135.8%	1.7	16.0
Manufacturing industries - oil	0.50	16.9%	1.7	17.7
Non-specified other - oil	0.41	92.8%	1.4	19.1
Other transport - oil	0.24	55.1%	0.8	19.9
Other energy industry own use - oil	0.14	-28.0%	0.5	20.3
Other energy industry own use - gas	0.03	x	0.1	20.4
Main activity prod. elec. and heat - oil	0.01	-98.4%	0.0	20.4
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>6.09</i>	<i>131.4%</i>	<i>20.4</i>	<i>20.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Croatia

Figure 1. CO₂ emissions by fuel

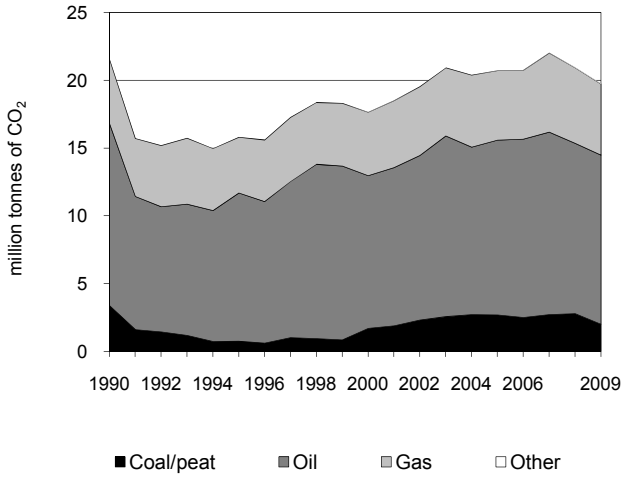


Figure 2. CO₂ emissions by sector

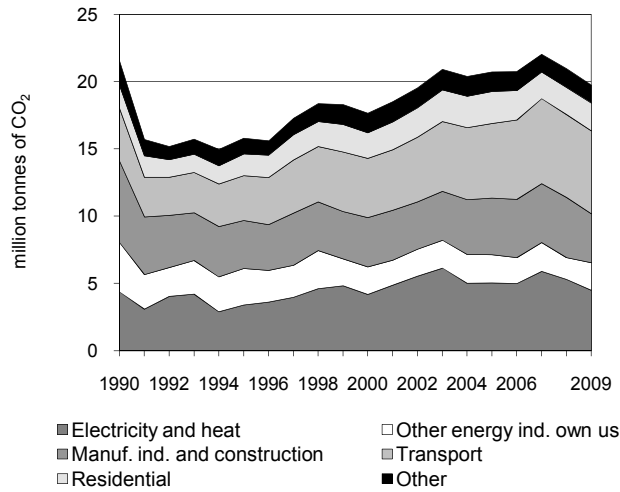


Figure 3. CO₂ emissions by sector

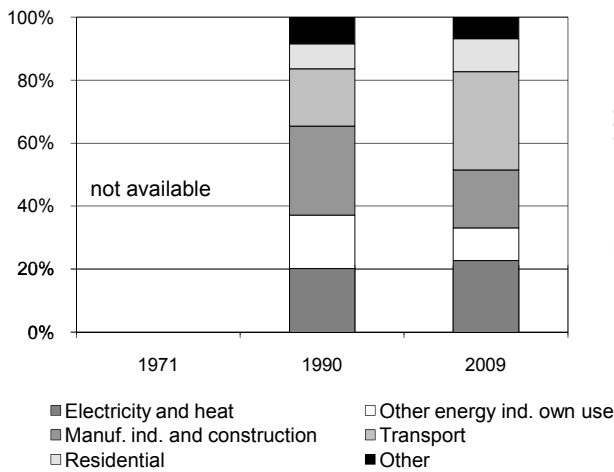


Figure 4. Reference vs Sectoral Approach

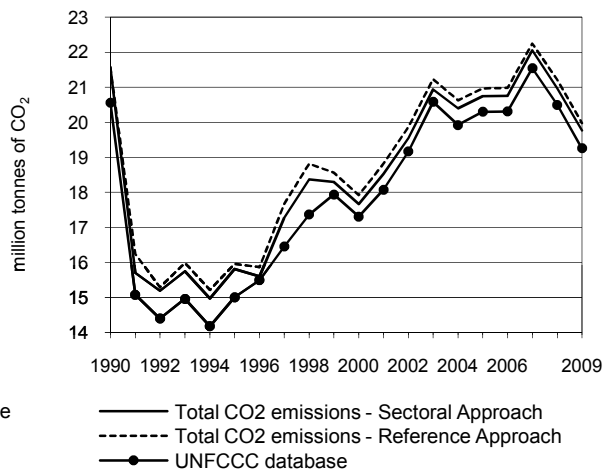


Figure 5. Electricity generation by fuel

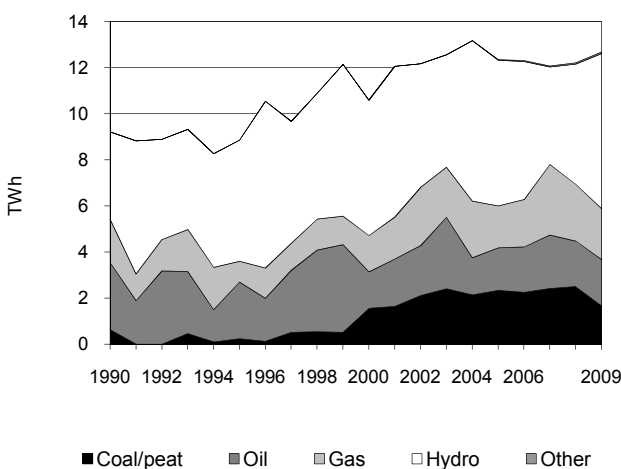
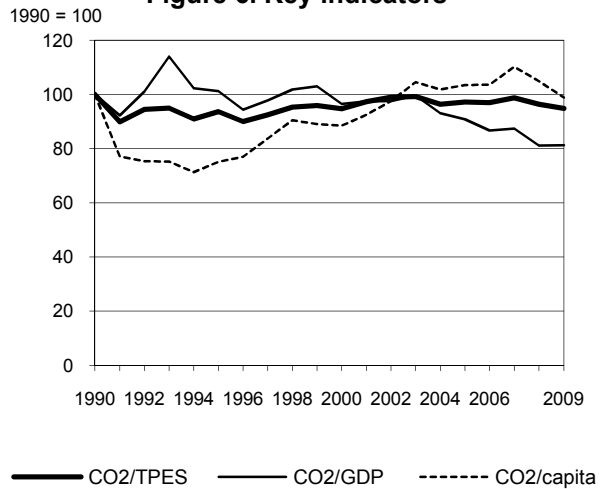


Figure 6. Key indicators



Croatia

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	21.57	15.81	17.66	20.74	22.05	20.97	19.77	-8.4%
CO ₂ Reference Approach (Mt of CO ₂)	21.57	15.96	17.92	20.96	22.25	21.21	19.98	-7.4%
TPES (PJ)	377	295	326	373	391	380	364	-3.4%
TPES (Mtoe)	9.00	7.05	7.79	8.91	9.33	9.08	8.70	-3.4%
GDP (billion 2000 USD)	25.12	18.20	21.32	26.62	29.40	30.10	28.35	12.9%
GDP PPP (billion 2000 USD)	55.95	40.54	47.49	59.28	65.49	67.04	63.14	12.9%
Population (millions)	4.78	4.67	4.43	4.44	4.44	4.43	4.43	-7.3%
CO ₂ / TPES (t CO ₂ per TJ)	57.2	53.6	54.2	55.6	56.5	55.1	54.3	-5.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.86	0.87	0.83	0.78	0.75	0.70	0.70	-18.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.39	0.39	0.37	0.35	0.34	0.31	0.31	-18.8%
CO ₂ / population (t CO ₂ per capita)	4.51	3.39	3.99	4.67	4.97	4.73	4.46	-1.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	2.00	12.48	5.25	0.04	19.77	-8.4%
Main activity producer elec. and heat	1.46	1.55	1.31	-	4.32	9.4%
Unallocated autoproducers	0.00	0.07	0.12	-	0.19	-54.6%
Other energy industry own use	-	1.60	0.43	-	2.03	-44.6%
Manufacturing industries and construction	0.51	1.39	1.72	0.04	3.65	-40.0%
Transport	-	6.16	0.00	-	6.16	57.3%
<i>of which: road</i>	-	5.72	0.00	-	5.72	81.7%
Other	0.03	1.71	1.67	-	3.42	-3.4%
<i>of which: residential</i>	0.02	0.72	1.33	-	2.07	20.0%
Reference Approach	1.99	12.59	5.35	0.04	19.98	-7.4%
Diff. due to losses and/or transformation	- 0.01	0.10	0.10	-	0.19	
Statistical differences	- 0.00	0.02	0.00	-	0.02	
<i>Memo: international marine bunkers</i>	-	0.02	-	-	0.02	-85.2%
<i>Memo: international aviation bunkers</i>	-	0.13	-	-	0.13	-10.4%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	5.72	81.6%	19.5	19.5
Manufacturing industries - gas	1.72	-15.7%	5.8	25.3
Other energy industry own use - oil	1.60	-35.4%	5.5	30.7
Main activity prod. elec. and heat - oil	1.55	-30.8%	5.3	36.0
Main activity prod. elec. and heat - coal/peat	1.46	129.1%	5.0	41.0
Manufacturing industries - oil	1.39	-36.9%	4.7	45.7
Residential - gas	1.33	247.7%	4.5	50.2
Main activity prod. elec. and heat - gas	1.31	22.3%	4.5	54.7
Non-specified other - oil	1.00	-34.9%	3.4	58.1
Residential - oil	0.72	-17.8%	2.4	60.5
Manufacturing industries - coal/peat	0.51	-72.6%	1.7	62.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>19.77</i>	<i>-8.4%</i>	<i>67.3</i>	<i>67.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Cuba

Figure 1. CO₂ emissions by fuel

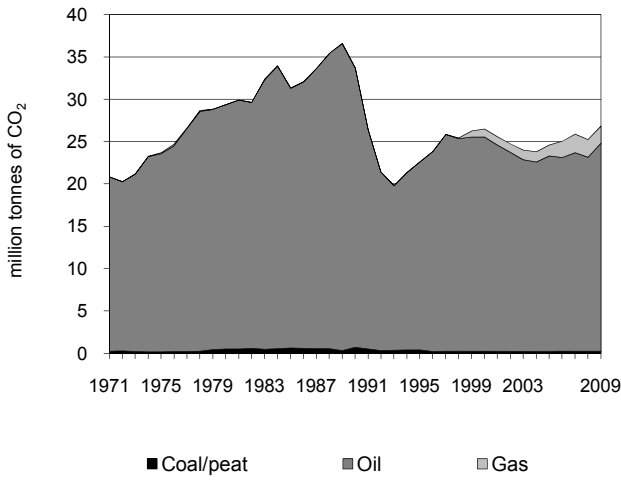


Figure 2. CO₂ emissions by sector

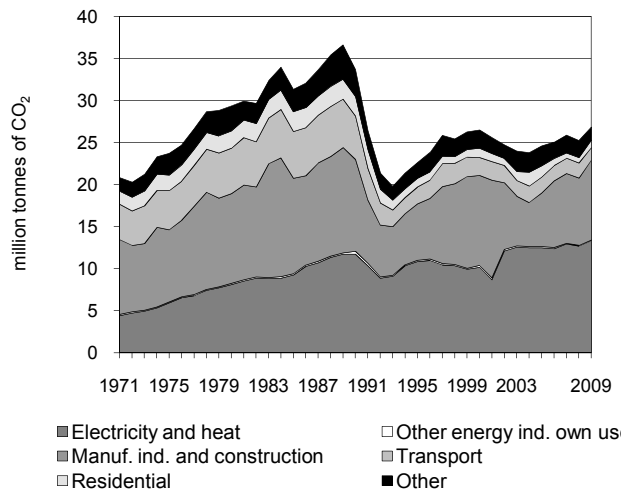


Figure 3. CO₂ emissions by sector

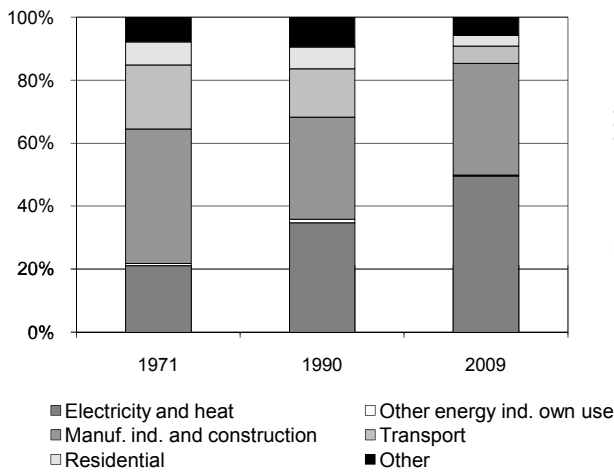


Figure 4. Reference vs Sectoral Approach

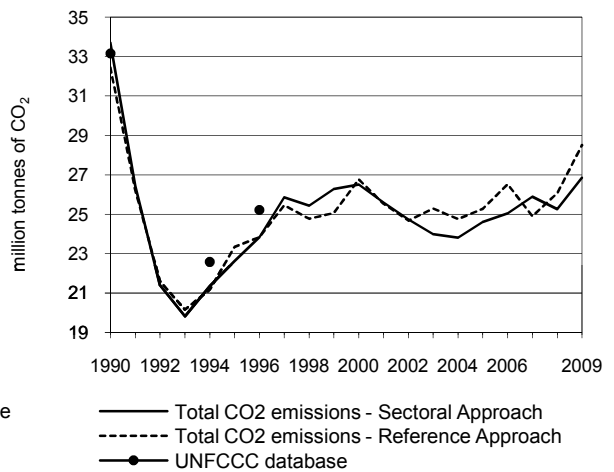


Figure 5. Electricity generation by fuel

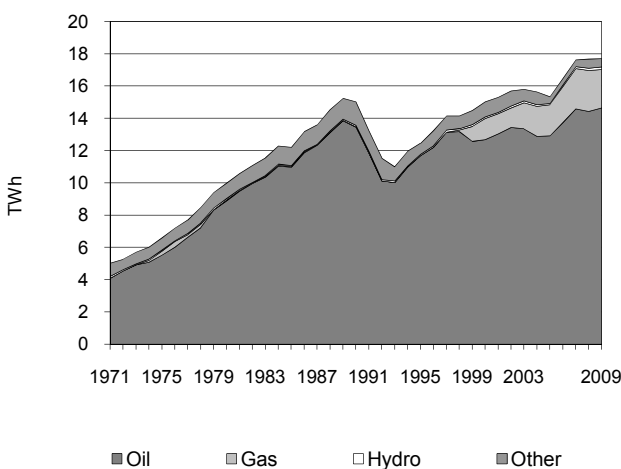
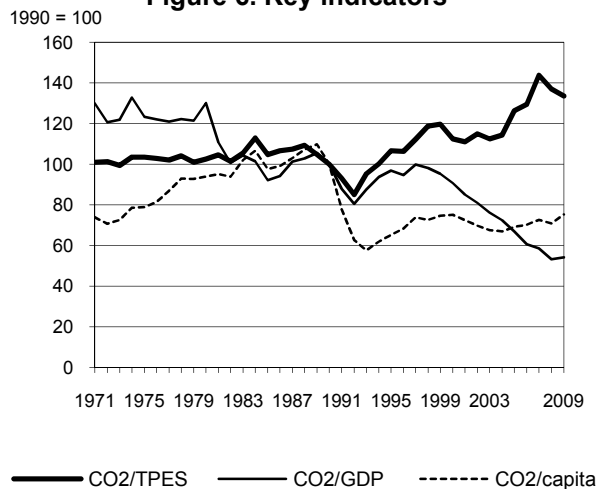


Figure 6. Key indicators



Cuba

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	33.70	22.62	26.50	24.60	25.88	25.25	26.84	-20.4%
CO ₂ Reference Approach (Mt of CO ₂)	32.46	23.34	26.76	25.27	24.89	26.06	28.50	-12.2%
TPES (PJ)	807	509	565	467	431	442	482	-40.3%
TPES (Mtoe)	19.28	12.15	13.49	11.15	10.30	10.55	11.51	-40.3%
GDP (billion 2000 USD)	32.49	22.54	28.21	35.46	42.69	45.81	47.78	47.0%
GDP PPP (billion 2000 USD)	74.98	52.01	65.09	81.84	98.51	105.71	110.25	47.0%
Population (millions)	10.59	10.91	11.09	11.19	11.20	11.21	11.20	5.8%
CO ₂ / TPES (t CO ₂ per TJ)	41.8	44.5	46.9	52.7	60.0	57.2	55.7	33.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.04	1.00	0.94	0.69	0.61	0.55	0.56	-45.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.45	0.43	0.41	0.30	0.26	0.24	0.24	-45.8%
CO ₂ / population (t CO ₂ per capita)	3.18	2.07	2.39	2.20	2.31	2.25	2.40	-24.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.27	24.55	2.02	-	26.84	-20.4%
Main activity producer elec. and heat	-	11.16	1.20	-	12.36	14.7%
Unallocated autoproducers	-	0.95	-	-	0.95	0.4%
Other energy industry own use	-	0.10	-	-	0.10	-72.3%
Manufacturing industries and construction	0.12	8.82	0.56	-	9.49	-13.2%
Transport	-	1.49	-	-	1.49	-71.1%
<i>of which: road</i>	-	1.35	-	-	1.35	-69.8%
Other	0.15	2.03	0.27	-	2.45	-55.7%
<i>of which: residential</i>	0.14	0.49	0.27	-	0.89	-61.9%
Reference Approach	0.08	26.22	2.20	-	28.50	-12.2%
Diff. due to losses and/or transformation	- 0.19	0.47	0.19	-	0.46	
Statistical differences	- 0.00	1.20	-	-	1.20	
<i>Memo: international marine bunkers</i>	-	0.10	-	-	0.10	76.5%
<i>Memo: international aviation bunkers</i>	-	0.43	-	-	0.43	-57.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	11.16	3.7%	25.3	25.3
Manufacturing industries - oil	8.82	-14.5%	19.9	45.2
Non-specified other - oil	1.55	-51.0%	3.5	48.7
Road - oil	1.35	-69.8%	3.0	51.8
Main activity prod. elec. and heat - gas	1.20	+	2.7	54.5
Unallocated autoproducers - oil	0.95	0.4%	2.1	56.6
Manufacturing industries - gas	0.56	+	1.3	57.9
Residential - oil	0.49	-78.3%	1.1	59.0
Residential - gas	0.27	x	0.6	59.6
Other transport - oil	0.14	-79.5%	0.3	59.9
Residential - coal/peat	0.14	34.0%	0.3	60.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>26.84</i>	<i>-20.4%</i>	<i>60.7</i>	<i>60.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Cyprus

Figure 1. CO₂ emissions by fuel

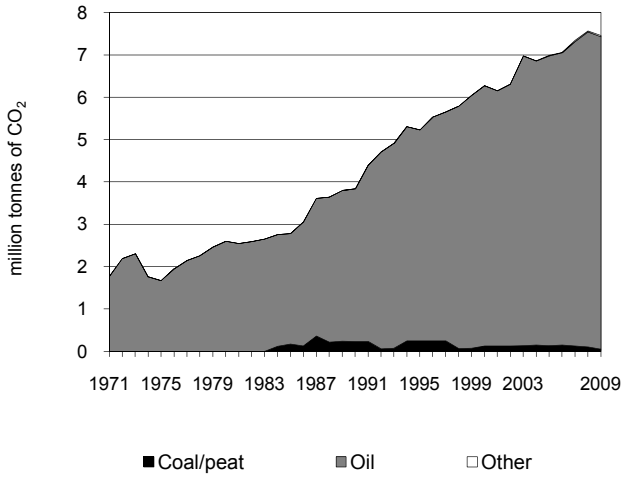


Figure 2. CO₂ emissions by sector

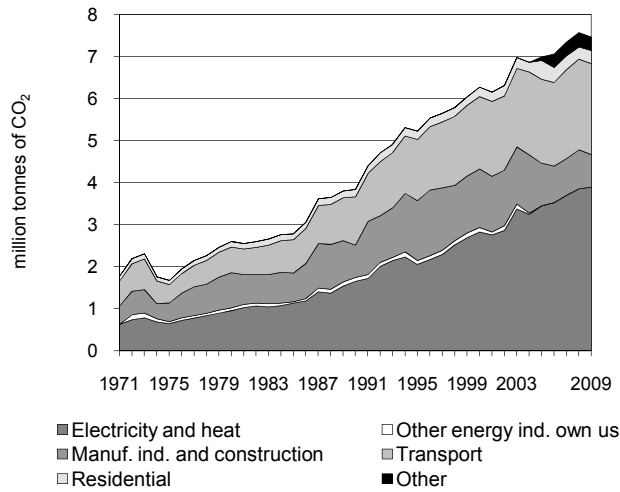


Figure 3. CO₂ emissions by sector

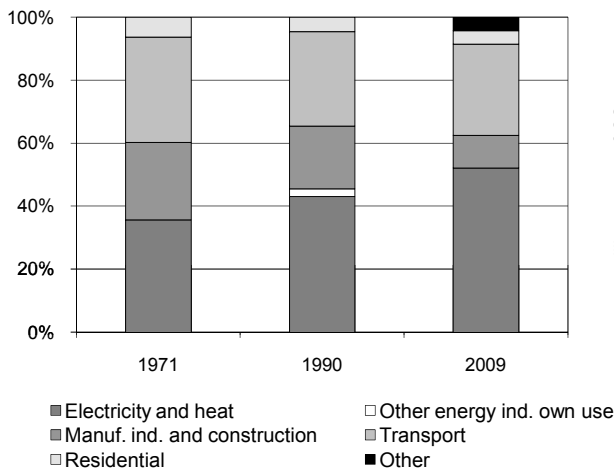


Figure 4. Reference vs Sectoral Approach

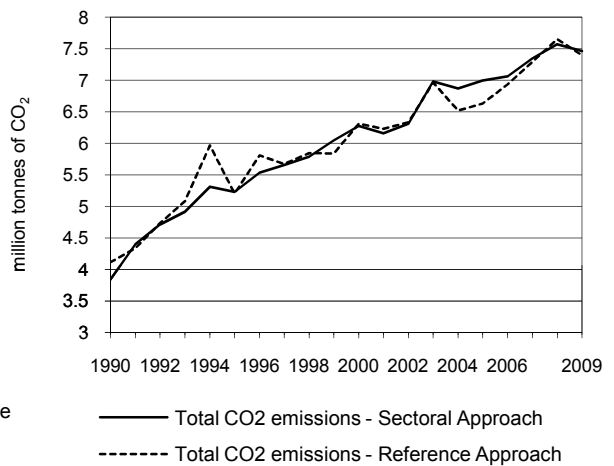


Figure 5. Electricity generation by fuel

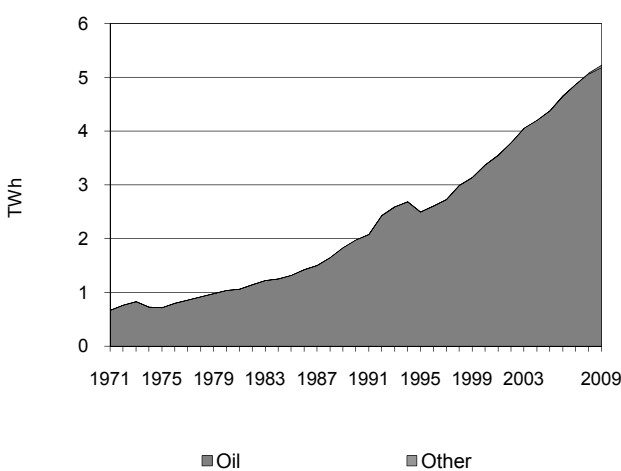
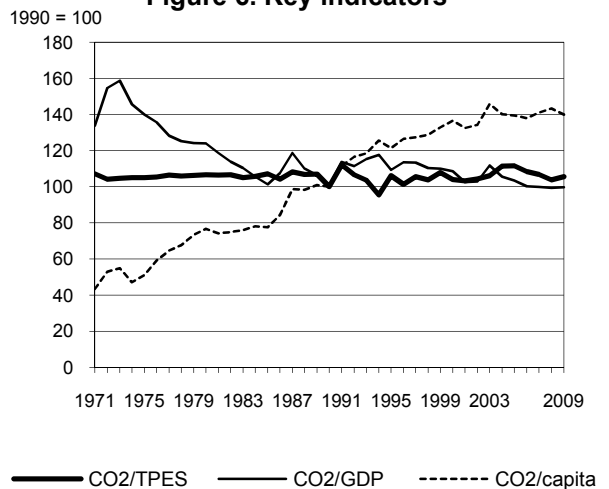


Figure 6. Key indicators



Cyprus

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	3.84	5.23	6.27	6.99	7.35	7.57	7.46	94.4%
CO ₂ Reference Approach (Mt of CO ₂)	4.11	5.20	6.31	6.63	7.29	7.65	7.40	79.8%
TPES (PJ)	57	73	89	93	102	108	105	84.1%
TPES (Mtoe)	1.36	1.75	2.14	2.22	2.44	2.59	2.51	84.1%
GDP (billion 2000 USD)	6.20	7.73	9.32	10.92	11.88	12.30	12.09	95.1%
GDP PPP (billion 2000 USD)	9.01	11.24	13.55	15.88	17.28	17.89	17.58	95.1%
Population (millions)	0.58	0.65	0.69	0.76	0.79	0.80	0.81	39.0%
CO ₂ / TPES (t CO ₂ per TJ)	67.4	71.5	70.1	75.3	72.0	69.9	71.2	5.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.62	0.68	0.67	0.64	0.62	0.62	0.62	-0.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.43	0.47	0.46	0.44	0.43	0.42	0.42	-0.4%
CO ₂ / population (t CO ₂ per capita)	6.62	8.03	9.04	9.23	9.34	9.49	9.26	39.9%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.06	7.38	-	0.03	7.46	94.4%
Main activity producer elec. and heat	-	3.85	-	-	3.85	132.7%
Unallocated autoproducers	-	0.04	-	-	0.04	x
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.06	0.69	-	0.03	0.78	1.2%
Transport	-	2.16	-	-	2.16	88.3%
<i>of which: road</i>	-	2.16	-	-	2.16	88.1%
Other	0.00	0.63	-	-	0.63	257.9%
<i>of which: residential</i>	-	0.32	-	-	0.32	78.9%
Reference Approach	0.06	7.31	-	0.03	7.40	79.8%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	0.00	-0.07	-	-	-0.07	-
<i>Memo: international marine bunkers</i>	-	0.68	-	-	0.68	277.0%
<i>Memo: international aviation bunkers</i>	-	0.81	-	-	0.81	12.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	3.85	132.7%	41.2	41.2
Road - oil	2.16	88.1%	23.1	64.4
Manufacturing industries - oil	0.69	29.0%	7.4	71.8
Residential - oil	0.32	78.9%	3.4	75.2
Non-specified other - oil	0.32	x	3.4	78.6
Manufacturing industries - coal/peat	0.06	-75.9%	0.6	79.2
Unallocated autoproducers - oil	0.04	x	0.4	79.6
Manufacturing industries -other	0.03	x	0.3	79.9
Other transport - oil	0.00	x	0.0	79.9
Non-specified other sectors - coal/peat	0.00	x	0.0	80.0
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>7.46</i>	<i>94.4%</i>	<i>80.0</i>	<i>80.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Czech Republic

Figure 1. CO₂ emissions by fuel

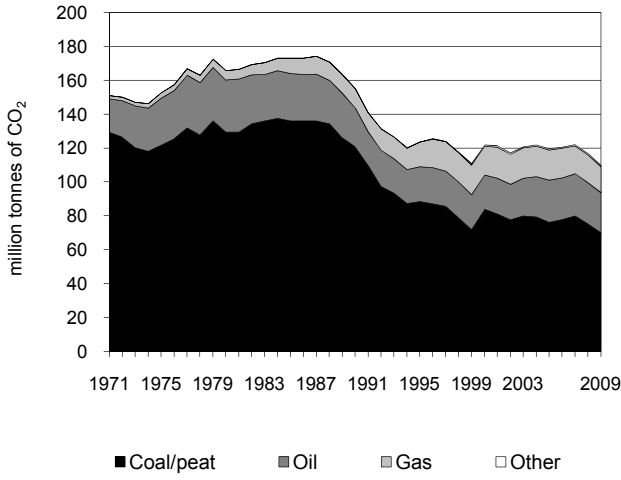


Figure 2. CO₂ emissions by sector

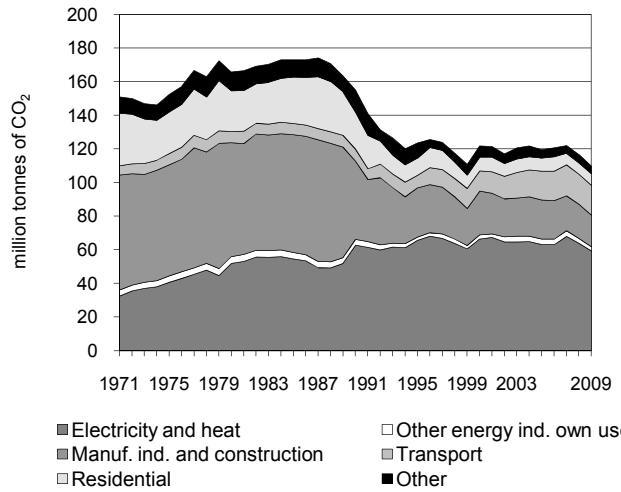


Figure 3. CO₂ emissions by sector

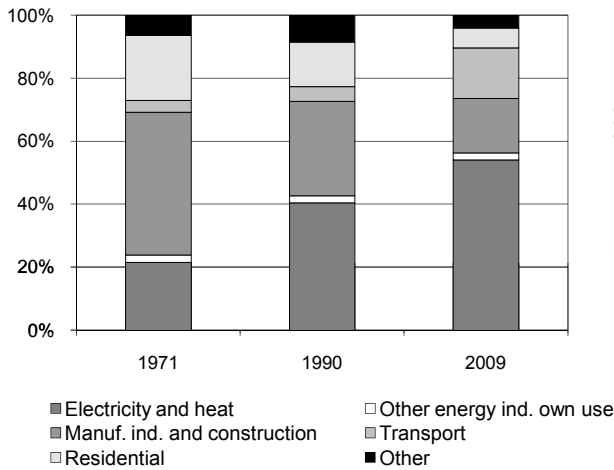


Figure 4. Reference vs Sectoral Approach

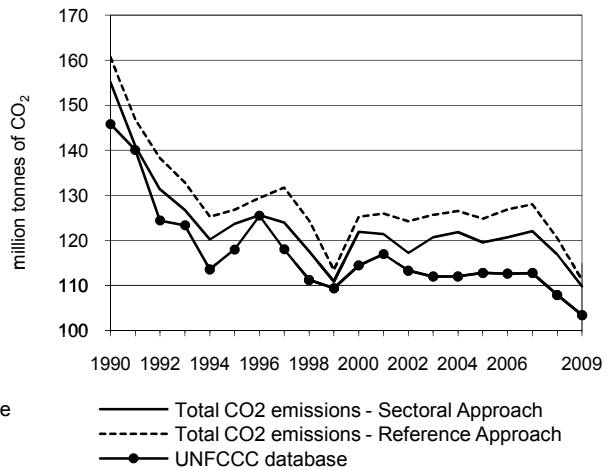


Figure 5. Electricity generation by fuel

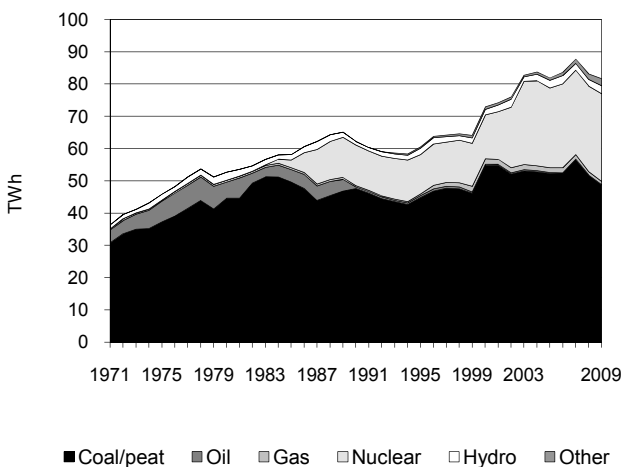
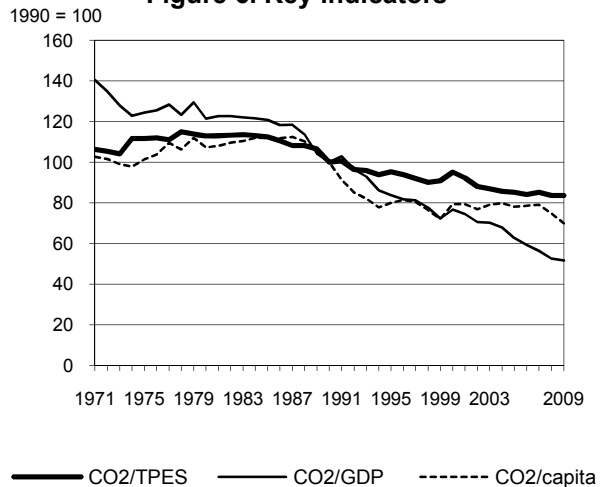


Figure 6. Key indicators



Czech Republic

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	155.14	123.68	121.88	119.59	122.02	116.82	109.84	-29.2%
CO ₂ Reference Approach (Mt of CO ₂)	160.72	126.78	125.25	124.81	128.03	120.46	111.21	-30.8%
TPES (PJ)	2 075	1 736	1 716	1 880	1 917	1 869	1 758	-15.3%
TPES (Mtoe)	49.56	41.47	40.98	44.90	45.78	44.63	41.99	-15.3%
GDP (billion 2000 USD)	55.30	52.69	56.72	68.15	77.25	79.15	75.87	37.2%
GDP PPP (billion 2000 USD)	150.15	143.07	154.01	185.04	209.76	214.92	206.01	37.2%
Population (millions)	10.36	10.33	10.27	10.23	10.32	10.43	10.51	1.4%
CO ₂ / TPES (t CO ₂ per TJ)	74.8	71.2	71.0	63.6	63.7	62.5	62.5	-16.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.81	2.35	2.15	1.75	1.58	1.48	1.45	-48.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.03	0.86	0.79	0.65	0.58	0.54	0.53	-48.4%
CO ₂ / population (t CO ₂ per capita)	14.97	11.97	11.86	11.69	11.82	11.20	10.45	-30.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	69.97	23.77	15.22	0.87	109.84	-29.2%
Main activity producer elec. and heat	50.06	0.32	1.76	0.04	52.17	-1.1%
Unallocated autoproducers	6.46	0.13	0.49	0.13	7.20	-27.9%
Other energy industry own use	1.43	0.77	0.26	-	2.46	-29.2%
Manufacturing industries and construction	9.76	3.95	4.58	0.63	18.92	-59.3%
Transport	0.00	17.48	0.17	-	17.65	145.8%
<i>of which: road</i>	-	16.88	0.02	-	16.89	145.6%
Other	2.25	1.12	7.97	0.08	11.42	-67.5%
<i>of which: residential</i>	2.07	0.02	4.81	-	6.90	-68.5%
Reference Approach	71.01	23.66	15.67	0.87	111.21	-30.8%
Diff. due to losses and/or transformation	2.20	-0.00	0.39	-	2.59	
Statistical differences	-1.16	-0.11	0.06	-0.00	-1.21	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	1.00	-	-	1.00	54.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	50.06	-0.9%	35.9	35.9
Road - oil	16.88	145.4%	12.1	48.0
Manufacturing industries - coal/peat	9.76	-68.5%	7.0	55.0
Unallocated autoproducers - coal/peat	6.46	-28.6%	4.6	59.7
Residential - gas	4.81	124.2%	3.5	63.1
Manufacturing industries - gas	4.58	-18.9%	3.3	66.4
Manufacturing industries - oil	3.95	-60.0%	2.8	69.2
Non-specified other - gas	3.16	49.0%	2.3	71.5
Residential - coal/peat	2.07	-89.4%	1.5	73.0
Main activity prod. elec. and heat - gas	1.76	68.6%	1.3	74.3
Other energy industry - coal/peat	1.43	-53.9%	1.0	75.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>109.84</i>	<i>-29.2%</i>	<i>78.8</i>	<i>78.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Denmark

Figure 1. CO₂ emissions by fuel

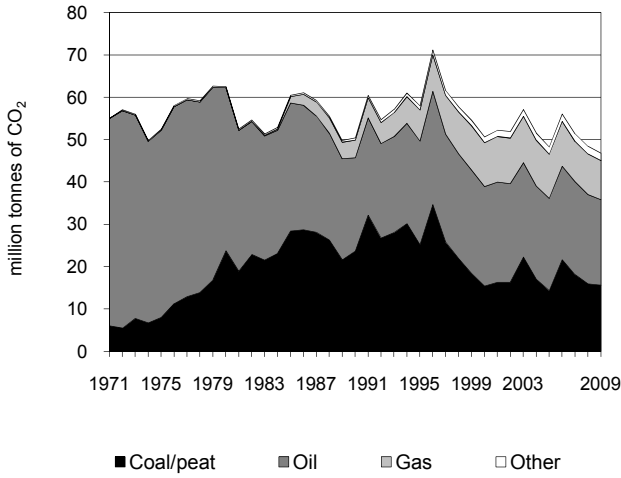


Figure 2. CO₂ emissions by sector

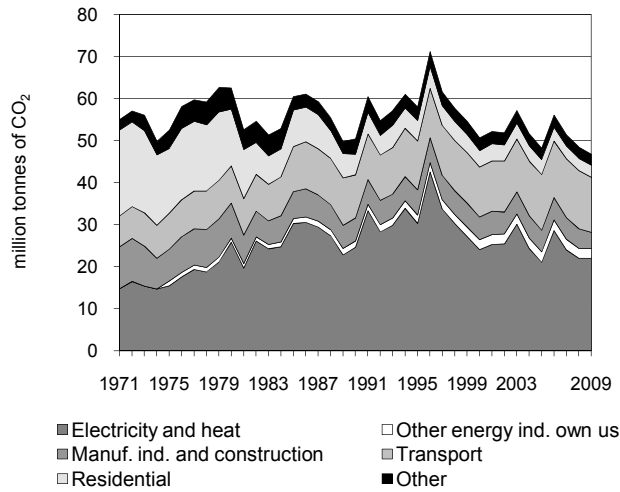


Figure 3. CO₂ emissions by sector

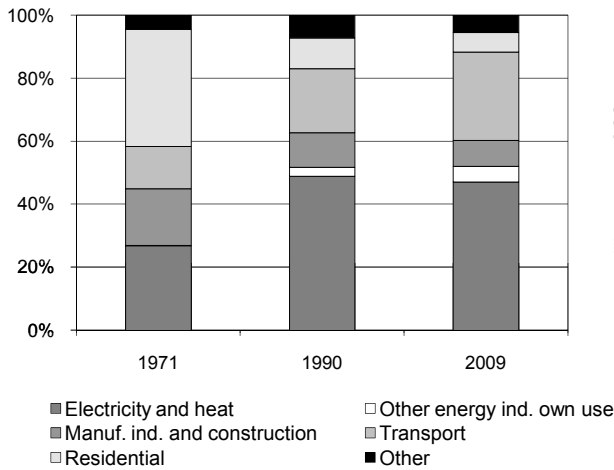


Figure 4. Reference vs Sectoral Approach

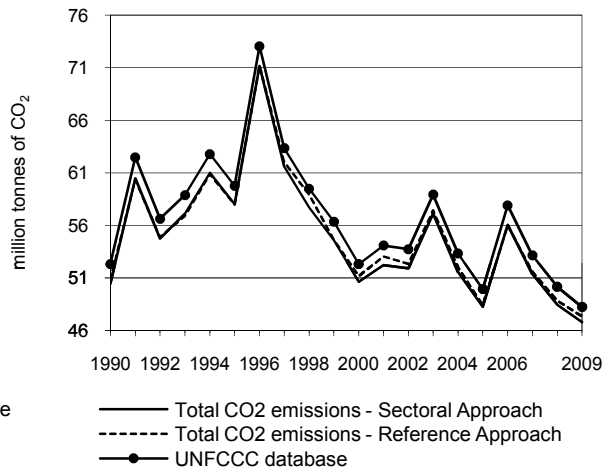


Figure 5. Electricity generation by fuel

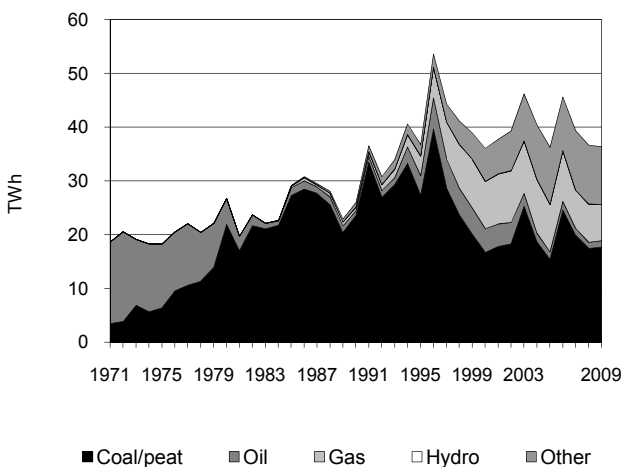
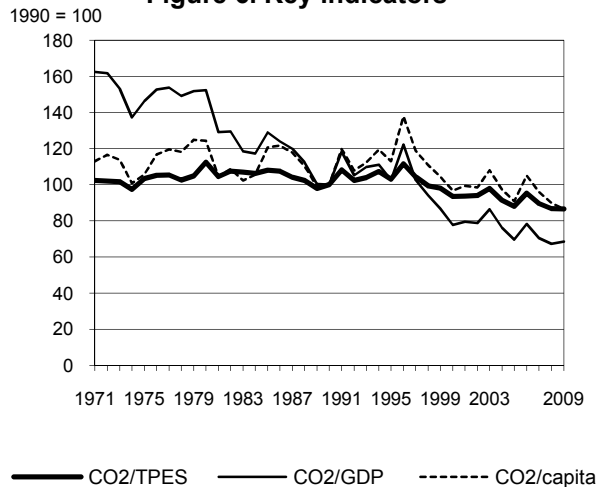


Figure 6. Key indicators



Denmark

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	50.44	58.01	50.64	48.26	51.37	48.44	46.78	-7.2%
CO ₂ Reference Approach (Mt of CO ₂)	50.78	57.99	51.20	48.37	51.58	48.83	47.34	-6.8%
TPES (PJ)	727	812	780	791	827	805	779	7.2%
TPES (Mtoe)	17.36	19.39	18.63	18.89	19.76	19.22	18.61	7.2%
GDP (billion 2000 USD)	123.89	139.06	160.08	170.38	178.96	176.95	167.73	35.4%
GDP PPP (billion 2000 USD)	119.07	133.65	153.85	163.75	171.99	170.07	161.21	35.4%
Population (millions)	5.14	5.23	5.34	5.42	5.46	5.49	5.52	7.4%
CO ₂ / TPES (t CO ₂ per TJ)	69.4	71.4	64.9	61.0	62.1	60.2	60.1	-13.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.41	0.42	0.32	0.28	0.29	0.27	0.28	-31.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.42	0.43	0.33	0.29	0.30	0.28	0.29	-31.5%
CO ₂ / population (t CO ₂ per capita)	9.81	11.09	9.49	8.91	9.41	8.82	8.47	-13.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	15.67	20.20	9.19	1.73	46.78	-7.2%
Main activity producer elec. and heat	15.12	0.96	3.72	0.51	20.30	-15.0%
Unallocated autoproducers	0.01	0.16	0.36	1.16	1.69	121.2%
Other energy industry own use	-	0.88	1.49	-	2.37	62.3%
Manufacturing industries and construction	0.39	1.87	1.54	0.04	3.84	-30.2%
Transport	-	13.10	-	-	13.10	27.8%
<i>of which: road</i>	-	11.97	-	-	11.97	31.4%
Other	0.14	3.22	2.08	0.02	5.47	-36.2%
<i>of which: residential</i>	0.02	1.40	1.48	-	2.90	-41.2%
Reference Approach	15.57	20.92	9.12	1.73	47.34	-6.8%
Diff. due to losses and/or transformation	-0.03	1.18	0.04	-	1.20	
Statistical differences	-0.07	-0.46	-0.11	0.00	-0.63	
<i>Memo: international marine bunkers</i>	-	1.60	-	-	1.60	-46.9%
<i>Memo: international aviation bunkers</i>	-	2.30	-	-	2.30	34.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	15.12	-31.0%	24.9	24.9
Road - oil	11.97	31.4%	19.7	44.5
Main activity prod. elec. and heat - gas	3.72	279.1%	6.1	50.6
Manufacturing industries - oil	1.87	-37.2%	3.1	53.7
Non-specified other - oil	1.83	-37.3%	3.0	56.7
Manufacturing industries - gas	1.54	23.0%	2.5	59.2
Other energy industry own use - gas	1.49	191.7%	2.4	61.7
Residential - gas	1.48	64.4%	2.4	64.1
Residential - oil	1.40	-64.0%	2.3	66.4
Unallocated autoproducers - other	1.16	159.4%	1.9	68.3
Other transport - oil	1.14	-0.5%	1.9	70.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>46.78</i>	<i>-7.2%</i>	<i>76.9</i>	<i>76.9</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Dominican Republic

Figure 1. CO₂ emissions by fuel

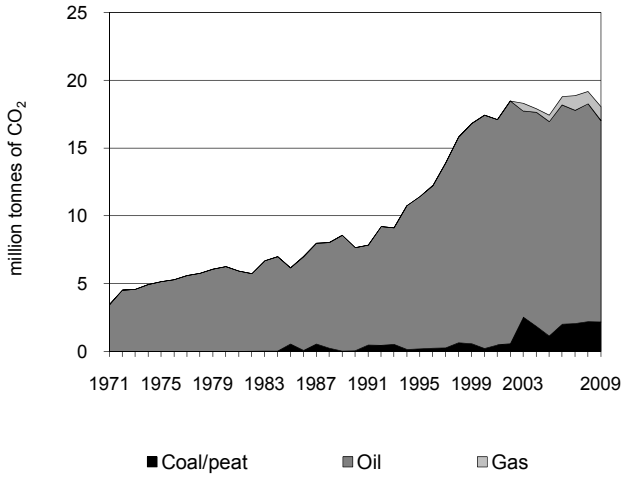


Figure 2. CO₂ emissions by sector

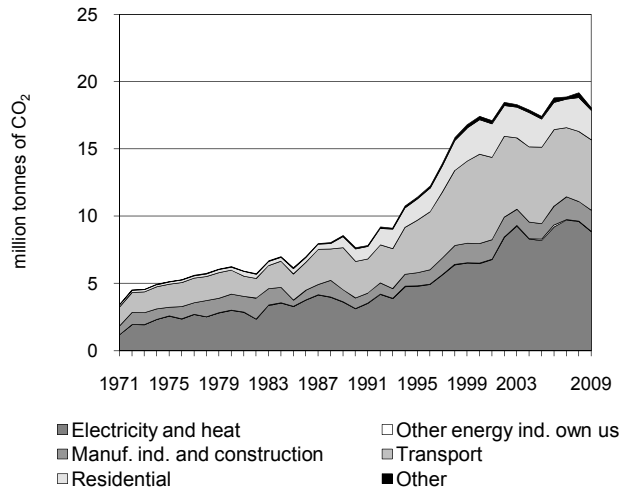


Figure 3. CO₂ emissions by sector

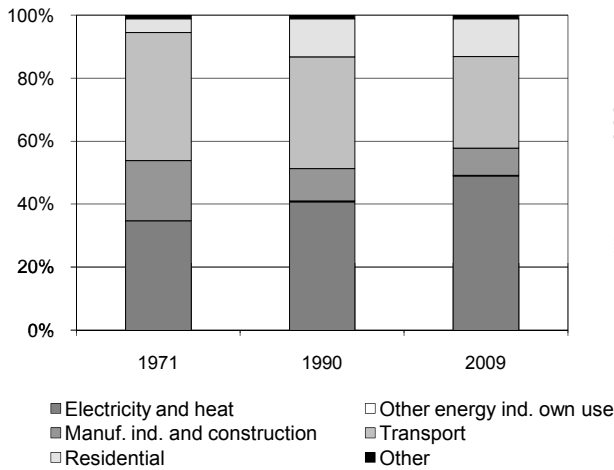


Figure 4. Reference vs Sectoral Approach

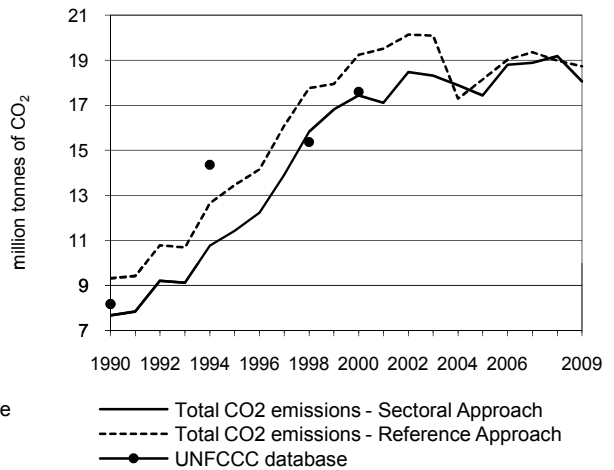


Figure 5. Electricity generation by fuel

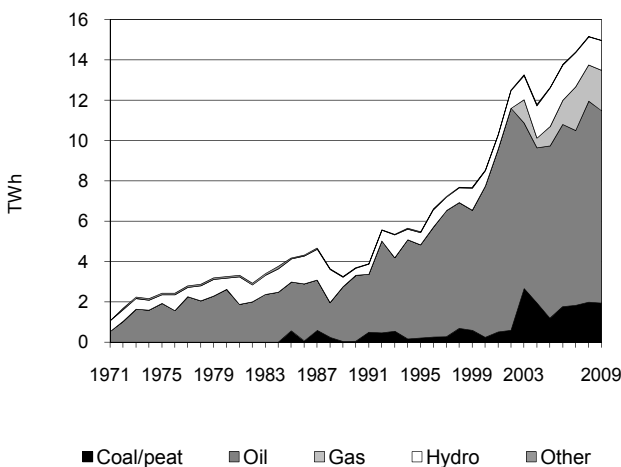
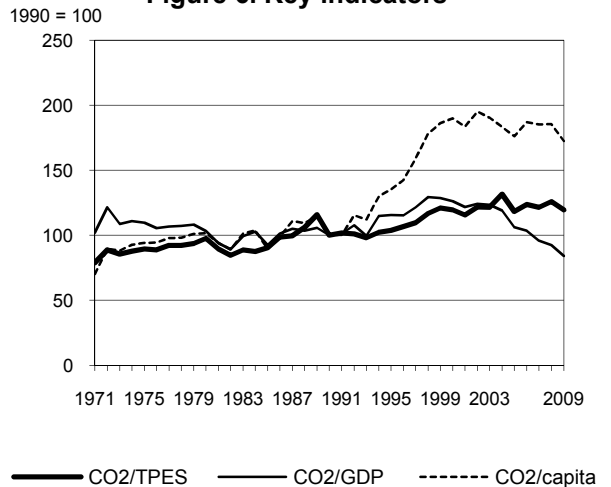


Figure 6. Key indicators



Dominican Republic

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	7.66	11.42	17.44	17.44	18.88	19.18	18.07	135.8%
CO ₂ Reference Approach (Mt of CO ₂)	9.31	13.46	19.25	18.14	19.36	18.99	18.74	101.2%
TPES (PJ)	172	247	327	330	348	341	339	97.4%
TPES (Mtoe)	4.10	5.89	7.80	7.89	8.32	8.16	8.09	97.4%
GDP (billion 2000 USD)	13.32	17.19	24.00	28.54	34.26	36.06	37.31	180.2%
GDP PPP (billion 2000 USD)	37.65	48.61	67.86	80.70	96.88	101.97	105.49	180.2%
Population (millions)	7.37	8.12	8.83	9.53	9.81	9.95	10.09	36.8%
CO ₂ / TPES (t CO ₂ per TJ)	44.6	46.3	53.4	52.8	54.2	56.2	53.3	19.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.58	0.66	0.73	0.61	0.55	0.53	0.48	-15.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.20	0.24	0.26	0.22	0.19	0.19	0.17	-15.8%
CO ₂ / population (t CO ₂ per capita)	1.04	1.41	1.97	1.83	1.92	1.93	1.79	72.3%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	2.17	14.87	1.04	-	18.07	135.8%
Main activity producer elec. and heat	1.85	3.45	1.01	-	6.31	255.4%
Unallocated autoproducers	-	2.54	-	-	2.54	88.1%
Other energy industry own use	-	0.04	-	-	0.04	71.4%
Manufacturing industries and construction	0.32	1.22	0.02	-	1.56	97.8%
Transport	-	5.25	-	-	5.25	93.1%
<i>of which: road</i>	-	4.18	-	-	4.18	58.6%
Other	-	2.37	-	-	2.37	134.9%
<i>of which: residential</i>	-	2.17	-	-	2.17	134.0%
Reference Approach	2.10	15.60	1.04	-	18.74	101.2%
Diff. due to losses and/or transformation	-	0.36	-	-	0.36	
Statistical differences	-0.06	0.37	-	-	0.31	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.29	-	-	0.29	158.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	4.18	58.6%	14.5	14.5
Main activity prod. elec. and heat - oil	3.45	98.8%	12.0	26.5
Unallocated autoproducers - oil	2.54	88.1%	8.8	35.4
Residential - oil	2.17	134.0%	7.6	42.9
Main activity prod. elec. and heat - coal/peat	1.85	+	6.4	49.3
Manufacturing industries - oil	1.22	54.8%	4.2	53.6
Other transport - oil	1.07	+	3.7	57.3
Main activity prod. elec. and heat - gas	1.01	x	3.5	60.8
Manufacturing industries - coal/peat	0.32	x	1.1	61.9
Non-specified other - oil	0.20	145.6%	0.7	62.6
Other energy industry own use - oil	0.04	71.4%	0.1	62.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>18.07</i>	<i>135.8%</i>	<i>62.8</i>	<i>62.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Ecuador

Figure 1. CO₂ emissions by fuel

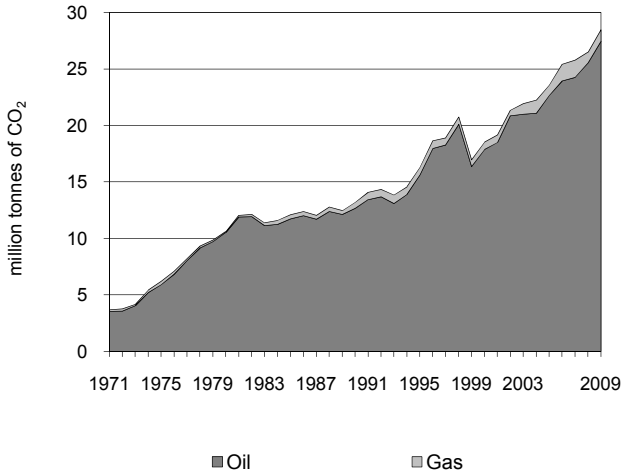


Figure 2. CO₂ emissions by sector

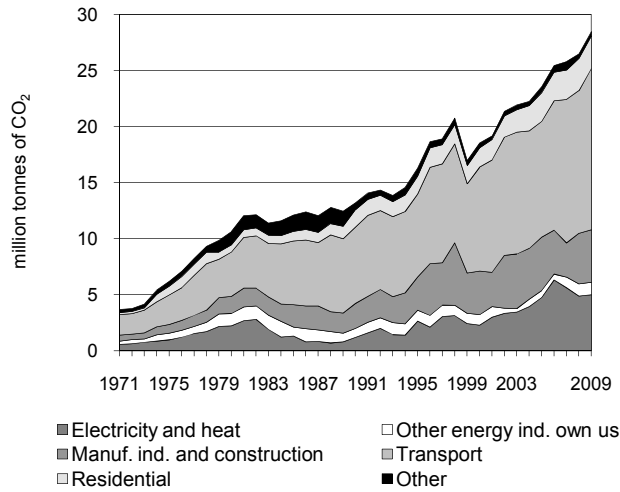


Figure 3. CO₂ emissions by sector

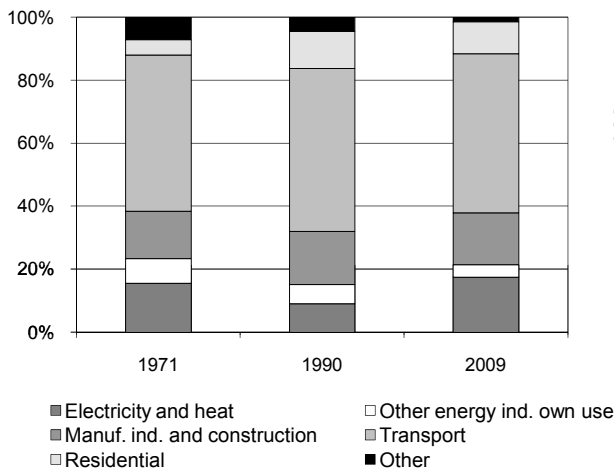


Figure 4. Reference vs Sectoral Approach

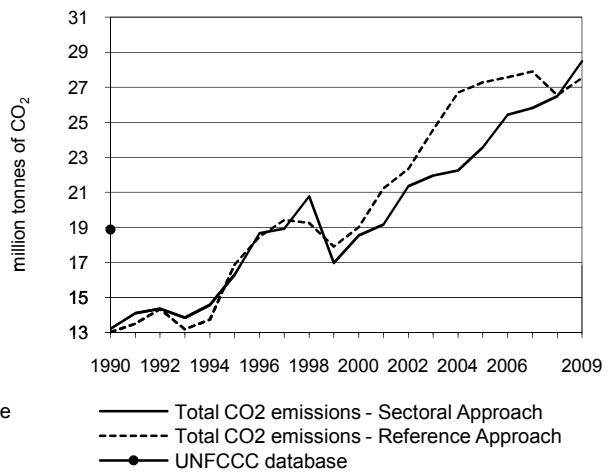


Figure 5. Electricity generation by fuel

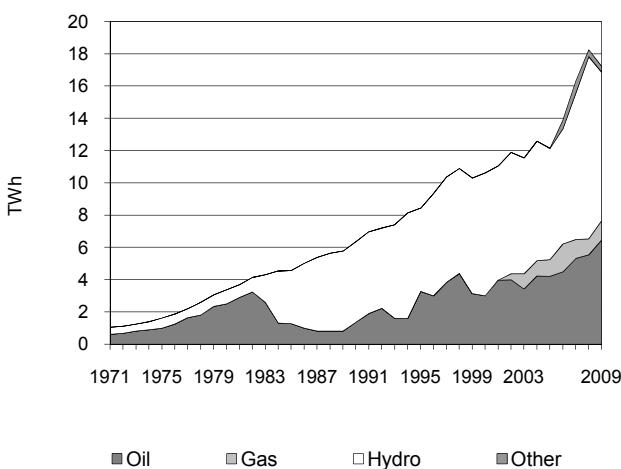
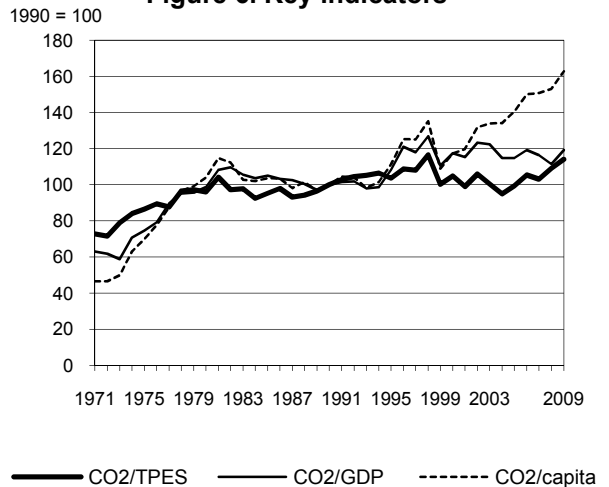


Figure 6. Key indicators



Ecuador

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	13.19	16.29	18.54	23.57	25.81	26.50	28.48	115.8%
CO ₂ Reference Approach (Mt of CO ₂)	13.03	16.87	19.02	27.27	27.90	26.55	27.54	111.4%
TPES (PJ)	251	299	336	451	477	462	475	89.3%
TPES (Mtoe)	6.00	7.14	8.03	10.78	11.38	11.03	11.35	89.3%
GDP (billion 2000 USD)	13.33	15.21	15.94	20.76	22.42	24.05	24.13	81.0%
GDP PPP (billion 2000 USD)	33.24	37.93	39.75	51.76	55.90	59.95	60.17	81.0%
Population (millions)	10.28	11.41	12.31	13.06	13.34	13.48	13.63	32.6%
CO ₂ / TPES (t CO ₂ per TJ)	52.6	54.5	55.1	52.2	54.1	57.4	59.9	14.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.99	1.07	1.16	1.14	1.15	1.10	1.18	19.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.40	0.43	0.47	0.46	0.46	0.44	0.47	19.2%
CO ₂ / population (t CO ₂ per capita)	1.28	1.43	1.51	1.80	1.93	1.97	2.09	62.8%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	27.46	1.02	-	28.48	115.8%
Main activity producer elec. and heat	-	2.69	0.52	-	3.20	169.4%
Unallocated autoproducers	-	1.41	0.38	-	1.79	x
Other energy industry own use	-	1.00	0.13	-	1.13	38.7%
Manufacturing industries and construction	-	4.67	-	-	4.67	109.8%
Transport	-	14.38	-	-	14.38	111.0%
<i>of which: road</i>	-	12.90	-	-	12.90	121.1%
Other	-	3.31	-	-	3.31	53.8%
<i>of which: residential</i>	-	2.90	-	-	2.90	86.0%
Reference Approach	-	26.54	1.00	-	27.54	111.4%
Diff. due to losses and/or transformation	-	0.24	-	-	0.24	
Statistical differences	-	-1.16	-0.02	-	-1.17	
<i>Memo: international marine bunkers</i>	-	3.95	-	-	3.95	591.5%
<i>Memo: international aviation bunkers</i>	-	1.03	-	-	1.03	164.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	12.90	121.1%	24.8	24.8
Manufacturing industries - oil	4.67	109.8%	9.0	33.8
Residential - oil	2.90	86.0%	5.6	39.4
Main activity prod. elec. and heat - oil	2.69	126.0%	5.2	44.5
Other transport - oil	1.48	50.8%	2.8	47.4
Unallocated autoproducers - oil	1.41	x	2.7	50.1
Other energy industry own use - oil	1.00	248.8%	1.9	52.0
Main activity prod. elec. and heat - gas	0.52	x	1.0	53.0
Non-specified other - oil	0.41	-31.1%	0.8	53.8
Unallocated autoproducers - gas	0.38	x	0.7	54.5
Other energy industry own use - gas	0.13	-76.2%	0.2	54.8
<i>Memo: total CO₂ from fuel combustion</i>	28.48	115.8%	54.8	54.8

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Egypt

Figure 1. CO₂ emissions by fuel

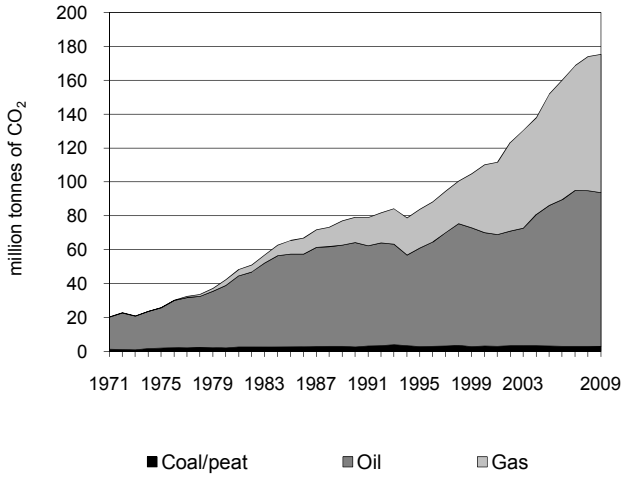


Figure 2. CO₂ emissions by sector

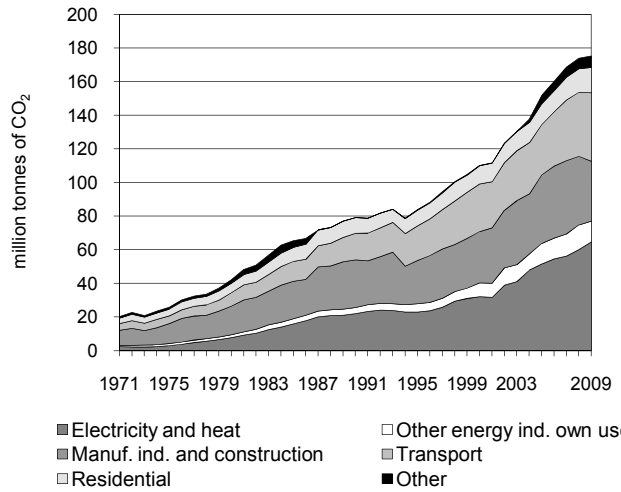


Figure 3. CO₂ emissions by sector

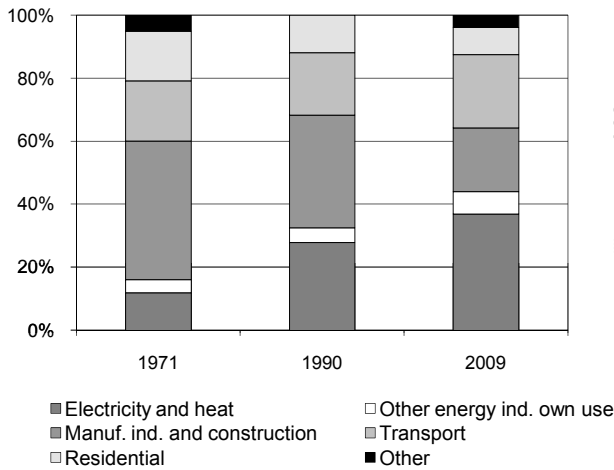


Figure 4. Reference vs Sectoral Approach

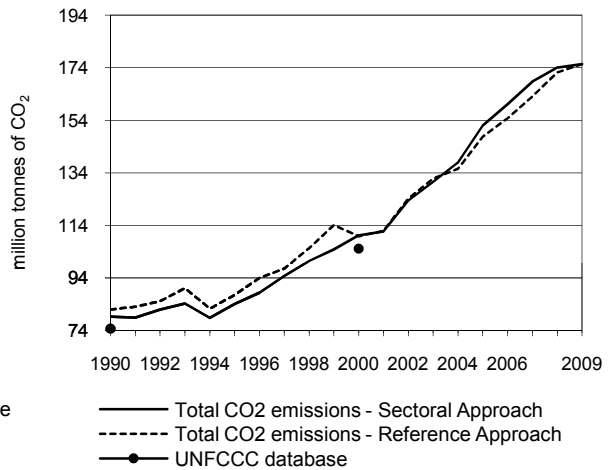


Figure 5. Electricity generation by fuel

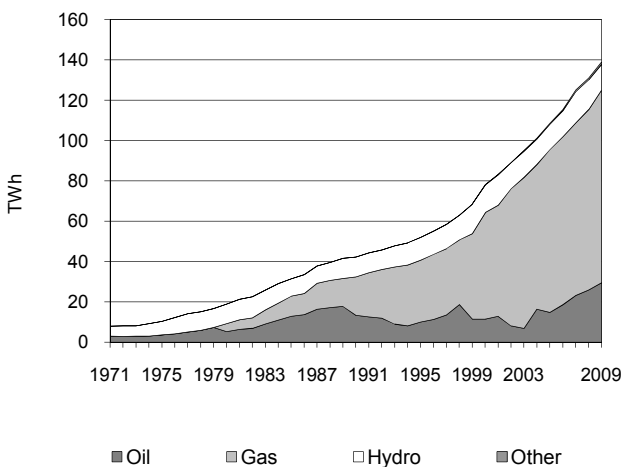
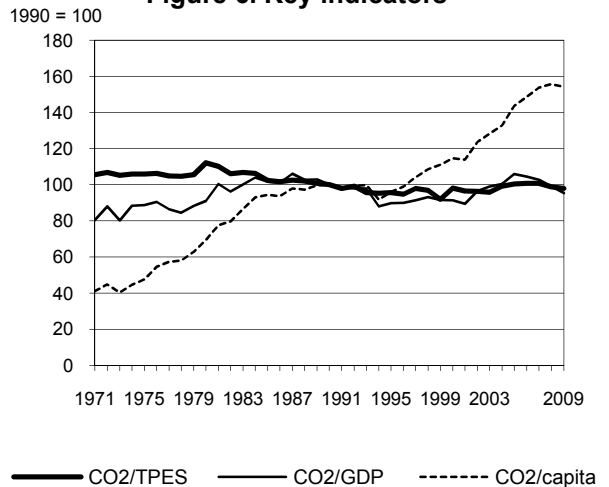


Figure 6. Key indicators



Egypt

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	79.21	83.99	110.24	151.94	168.70	174.03	175.41	121.4%
CO ₂ Reference Approach (Mt of CO ₂)	81.97	87.57	109.83	147.67	163.09	172.18	175.42	114.0%
TPES (PJ)	1 332	1 478	1 891	2 547	2 816	2 960	3 015	126.3%
TPES (Mtoe)	31.83	35.30	45.17	60.84	67.25	70.71	72.02	126.3%
GDP (billion 2000 USD)	65.58	77.50	99.84	118.75	135.87	145.59	152.36	132.3%
GDP PPP (billion 2000 USD)	155.89	184.23	237.33	282.28	322.98	346.09	362.18	132.3%
Population (millions)	57.79	63.86	70.17	77.15	80.06	81.53	83.00	43.6%
CO ₂ / TPES (t CO ₂ per TJ)	59.5	56.8	58.3	59.6	59.9	58.8	58.2	-2.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.21	1.08	1.10	1.28	1.24	1.20	1.15	-4.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.51	0.46	0.46	0.54	0.52	0.50	0.48	-4.7%
CO ₂ / population (t CO ₂ per capita)	1.37	1.32	1.57	1.97	2.11	2.13	2.11	54.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	2.94	90.86	81.60	-	175.41	121.4%
Main activity producer elec. and heat	-	17.92	46.79	-	64.71	193.7%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	3.46	8.99	-	12.44	231.8%
Manufacturing industries and construction	2.92	9.56	23.10	-	35.59	25.7%
Transport	-	39.93	0.84	-	40.77	159.5%
<i>of which: road</i>	-	36.77	0.84	-	37.61	149.5%
Other	0.02	20.00	1.88	-	21.90	133.1%
<i>of which: residential</i>	0.02	13.22	1.88	-	15.12	60.9%
Reference Approach	2.88	90.93	81.60	-	175.42	114.0%
Diff. due to losses and/or transformation	0.15	- 1.47	-	-	- 1.32	
Statistical differences	- 0.20	1.54	-	-	1.34	
<i>Memo: international marine bunkers</i>	-	0.96	-	-	0.96	-81.8%
<i>Memo: international aviation bunkers</i>	-	3.00	-	-	3.00	578.6%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	46.79	404.2%	17.0	17.0
Road - oil	36.77	143.9%	13.3	30.3
Manufacturing industries - gas	23.10	391.5%	8.4	38.7
Main activity prod. elec. and heat - oil	17.92	40.5%	6.5	45.2
Residential - oil	13.22	43.2%	4.8	50.0
Manufacturing industries - oil	9.56	-54.3%	3.5	53.4
Other energy industry own use - gas	8.99	+	3.3	56.7
Non-specified other - oil	6.78	x	2.5	59.2
Other energy industry own use - oil	3.46	17.2%	1.3	60.4
Other transport - oil	3.16	397.3%	1.1	61.6
Manufacturing industries - coal/peat	2.92	8.4%	1.1	62.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>175.41</i>	<i>121.4%</i>	<i>63.6</i>	<i>63.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

El Salvador

Figure 1. CO₂ emissions by fuel

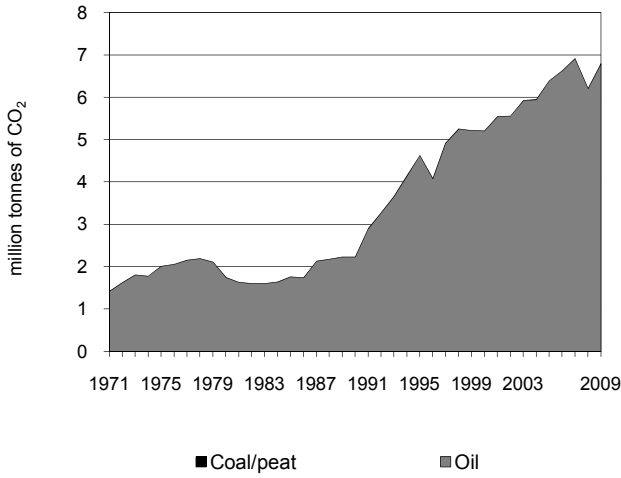


Figure 2. CO₂ emissions by sector

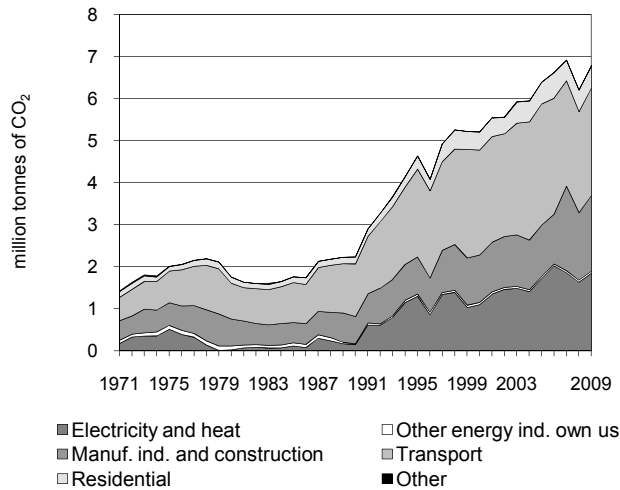


Figure 3. CO₂ emissions by sector

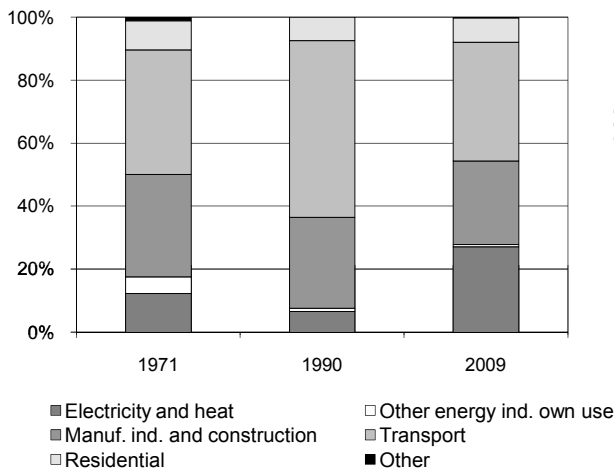


Figure 4. Reference vs Sectoral Approach

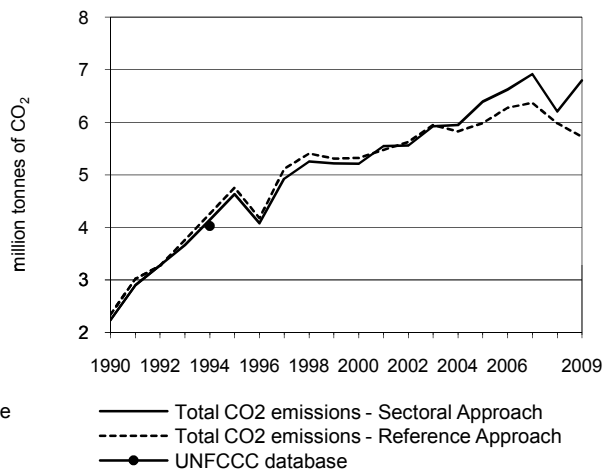


Figure 5. Electricity generation by fuel

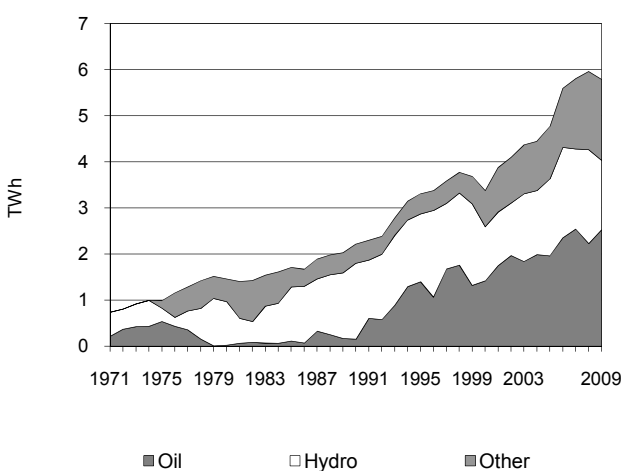
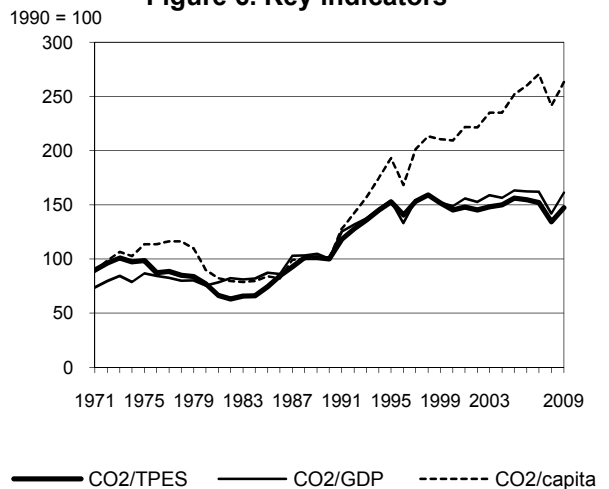


Figure 6. Key indicators



El Salvador

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2.23	4.63	5.21	6.39	6.92	6.21	6.79	204.2%
CO ₂ Reference Approach (Mt of CO ₂)	2.34	4.76	5.32	5.98	6.37	5.98	5.73	145.0%
TPES (PJ)	103	141	166	189	211	214	214	106.7%
TPES (Mtoe)	2.47	3.36	3.96	4.53	5.03	5.11	5.10	106.7%
GDP (billion 2000 USD)	8.37	11.30	13.13	14.68	16.00	16.39	15.81	88.8%
GDP PPP (billion 2000 USD)	18.40	24.84	28.87	32.28	35.18	36.03	34.76	88.9%
Population (millions)	5.33	5.73	5.95	6.06	6.11	6.13	6.16	15.6%
CO ₂ / TPES (t CO ₂ per TJ)	21.6	32.9	31.4	33.7	32.9	29.0	31.8	47.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.27	0.41	0.40	0.44	0.43	0.38	0.43	61.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.12	0.19	0.18	0.20	0.20	0.17	0.20	61.1%
CO ₂ / population (t CO ₂ per capita)	0.42	0.81	0.88	1.06	1.13	1.01	1.10	163.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	6.79	-	-	6.79	204.2%
Main activity producer elec. and heat	-	1.53	-	-	1.53	928.5%
Unallocated autoproducers	-	0.32	-	-	0.32	x
Other energy industry own use	-	0.05	-	-	0.05	114.3%
Manufacturing industries and construction	-	1.80	-	-	1.80	179.4%
Transport	-	2.56	-	-	2.56	104.2%
<i>of which: road</i>	-	2.56	-	-	2.56	104.2%
Other	-	0.54	-	-	0.54	228.1%
<i>of which: residential</i>	-	0.53	-	-	0.53	218.7%
Reference Approach	-	5.73	-	-	5.73	145.0%
Diff. due to losses and/or transformation	-	0.06	-	-	0.06	
Statistical differences	-	- 1.13	-	-	- 1.13	
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	0.33	-	-	0.33	205.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	2.56	104.2%	21.3	21.3
Manufacturing industries - oil	1.80	179.4%	15.0	36.3
Main activity prod. elec. and heat - oil	1.53	928.5%	12.7	49.0
Residential - oil	0.53	218.7%	4.4	53.3
Unallocated autoproducers - oil	0.32	x	2.6	56.0
Other energy industry own use - oil	0.05	114.3%	0.4	56.4
Non-specified other - oil	0.02	x	0.1	56.5
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	6.79	204.2%	56.5	56.5

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Eritrea

Figure 1. CO₂ emissions by fuel

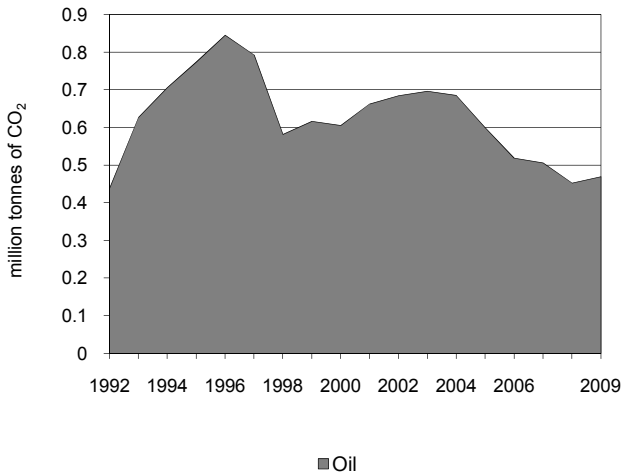


Figure 2. CO₂ emissions by sector

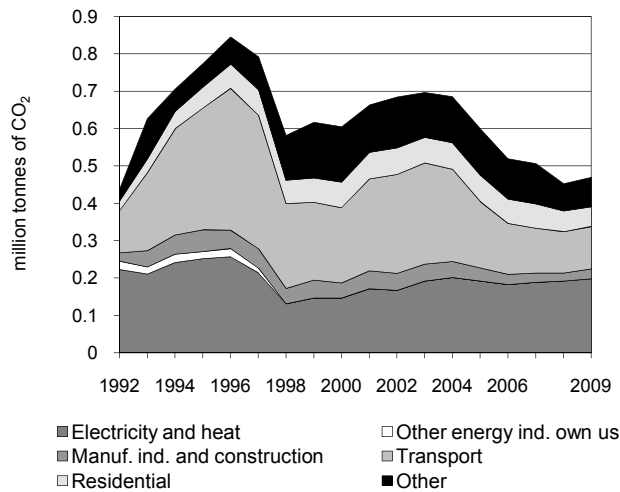


Figure 3. CO₂ emissions by sector

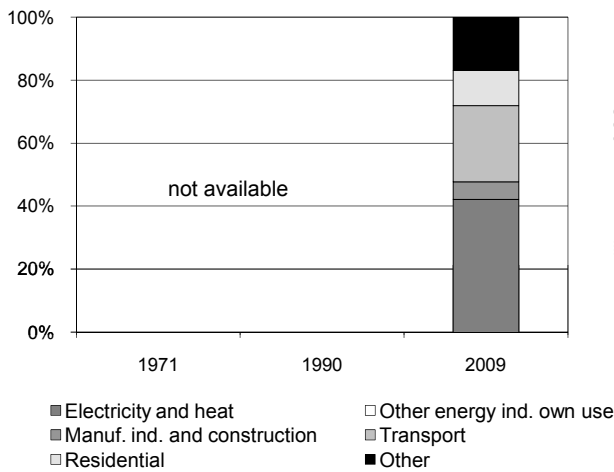


Figure 4. Reference vs Sectoral Approach

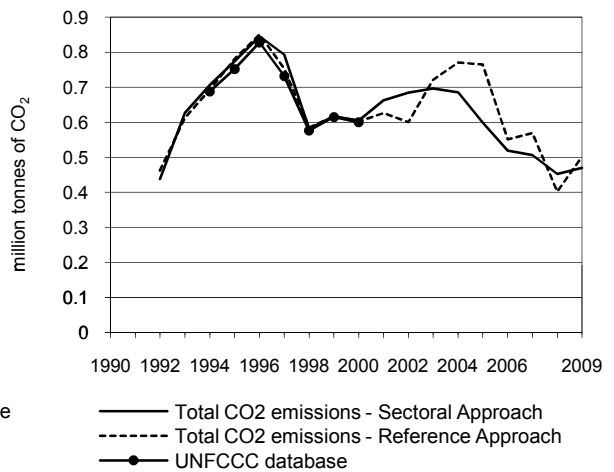


Figure 5. Electricity generation by fuel

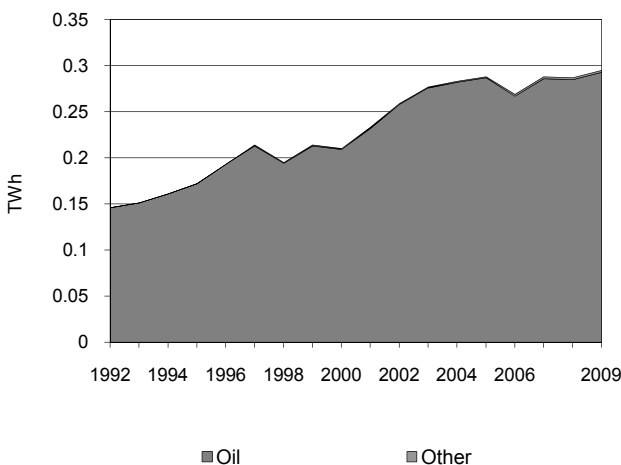
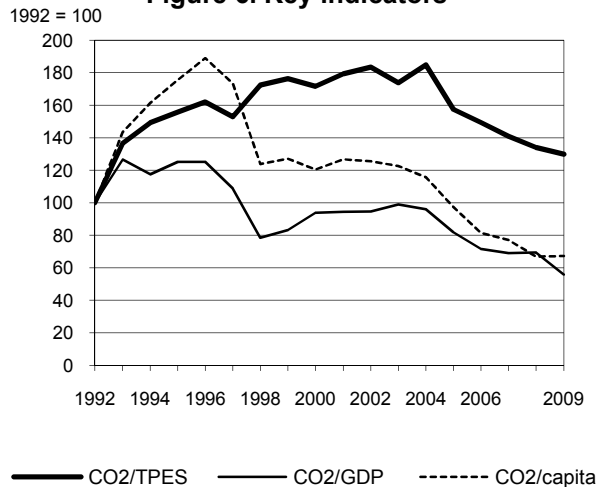


Figure 6. Key indicators



Eritrea *
Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	..	0.77	0.61	0.60	0.51	0.45	0.47	..
CO ₂ Reference Approach (Mt of CO ₂)	..	0.78	0.60	0.77	0.57	0.40	0.50	..
TPES (PJ)	..	42	30	32	30	28	30	..
TPES (Mtoe)	..	1.00	0.71	0.76	0.72	0.68	0.73	..
GDP (billion 2000 USD)	..	0.61	0.63	0.72	0.72	0.64	0.83	..
GDP PPP (billion 2000 USD)	..	3.49	3.64	4.13	4.14	3.68	4.75	..
Population (millions)	..	3.21	3.66	4.47	4.78	4.93	5.07	..
CO ₂ / TPES (t CO ₂ per TJ)	..	18.5	20.4	18.8	16.8	16.0	15.5	..
CO ₂ / GDP (kg CO ₂ per 2000 USD)	..	1.27	0.95	0.83	0.70	0.71	0.57	..
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	..	0.22	0.17	0.15	0.12	0.12	0.10	..
CO ₂ / population (t CO ₂ per capita)	..	0.24	0.17	0.13	0.11	0.09	0.09	..

Ratios are based on the Sectoral Approach.

* Prior to 1992, data for Eritrea were included in Ethiopia.

2009 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Natural gas	Other **	Total	% change 90-09
Sectoral Approach	-	0.47	-	-	0.47	..
Main activity producer elec. and heat	-	0.19	-	-	0.19	..
Unallocated autoproducers	-	0.01	-	-	0.01	..
Other energy industry own use	-	-	-	-	-	..
Manufacturing industries and construction	-	0.03	-	-	0.03	..
Transport	-	0.11	-	-	0.11	..
<i>of which: road</i>	-	0.11	-	-	0.11	..
Other	-	0.13	-	-	0.13	..
<i>of which: residential</i>	-	0.05	-	-	0.05	..
Reference Approach	-	0.50	-	-	0.50	..
Diff. due to losses and/or transformation	-	-	-	-	-	..
Statistical differences	-	0.03	-	-	0.03	..
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	0.00	-	-	0.00	..

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - oil	0.19	..	4.2	4.2
Road - oil	0.11	..	2.5	6.8
Non-specified other - oil	0.08	..	1.8	8.5
Residential - oil	0.05	..	1.2	9.7
Manufacturing industries - oil	0.03	..	0.6	10.3
Unallocated autoproducers - oil	0.01	..	0.2	10.5
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>0.47</i>	..	<i>10.5</i>	<i>10.5</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Estonia

Figure 1. CO₂ emissions by fuel

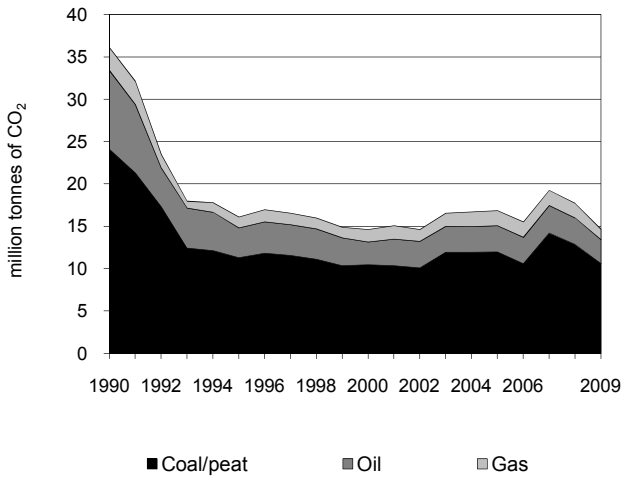


Figure 2. CO₂ emissions by sector

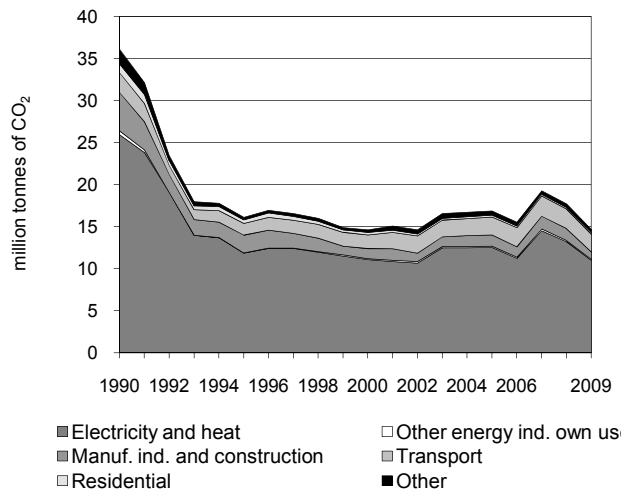


Figure 3. CO₂ emissions by sector

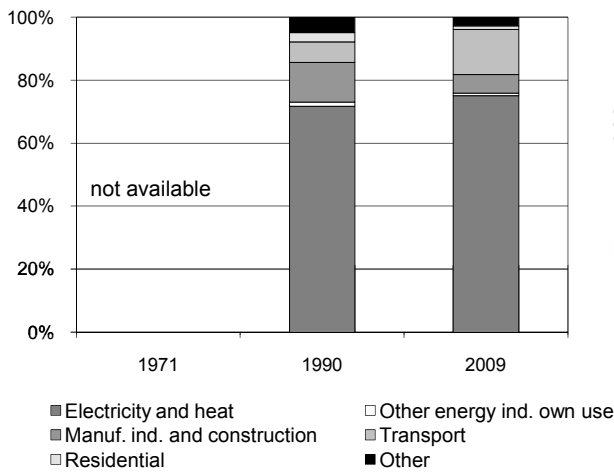


Figure 4. Reference vs Sectoral Approach

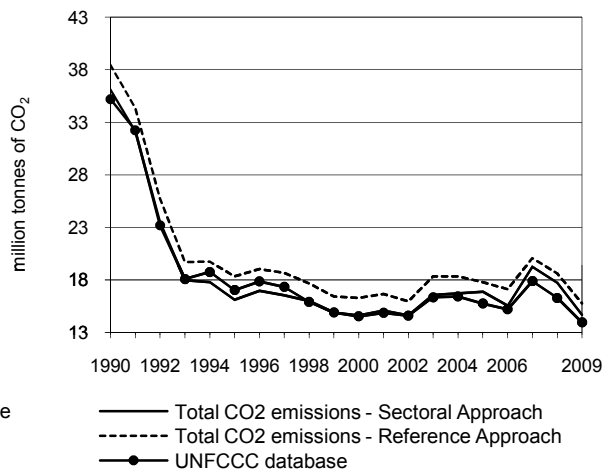


Figure 5. Electricity generation by fuel

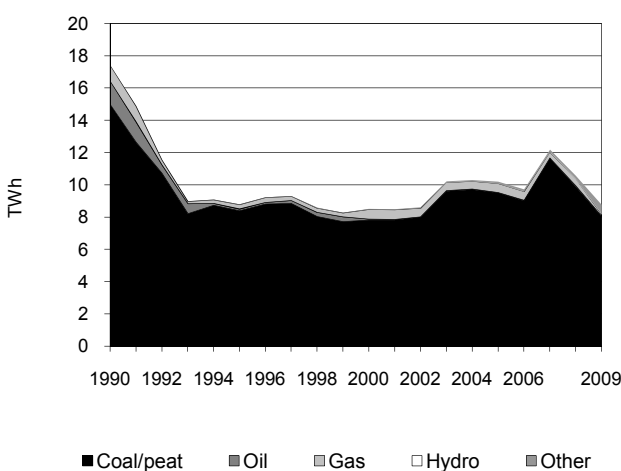
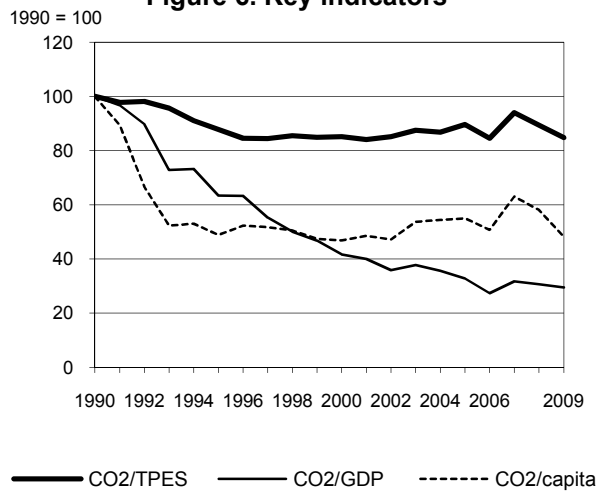


Figure 6. Key indicators



Estonia

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	36.12	16.10	14.62	16.87	19.26	17.71	14.66	-59.4%
CO ₂ Reference Approach (Mt of CO ₂)	38.47	18.35	16.30	17.78	20.06	18.61	15.76	-59.0%
TPES (PJ)	415	211	197	216	235	228	199	-52.1%
TPES (Mtoe)	9.91	5.04	4.71	5.16	5.62	5.44	4.75	-52.1%
GDP (billion 2000 USD)	5.85	4.11	5.68	8.32	9.84	9.34	8.04	37.5%
GDP PPP (billion 2000 USD)	13.93	9.79	13.53	19.82	23.43	22.24	19.15	37.5%
Population (millions)	1.59	1.45	1.37	1.35	1.34	1.34	1.34	-15.6%
CO ₂ / TPES (t CO ₂ per TJ)	87.1	76.3	74.1	78.0	81.8	77.8	73.8	-15.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	6.18	3.92	2.57	2.03	1.96	1.90	1.82	-70.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	2.59	1.64	1.08	0.85	0.82	0.80	0.77	-70.5%
CO ₂ / population (t CO ₂ per capita)	22.75	11.12	10.66	12.52	14.35	13.21	10.94	-51.9%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	10.61	2.84	1.22	-	14.66	-59.4%
Main activity producer elec. and heat	10.02	0.17	0.61	-	10.80	-57.5%
Unallocated autoproducers	0.07	0.02	0.13	-	0.21	-58.9%
Other energy industry own use	0.05	0.04	0.02	-	0.12	-73.8%
Manufacturing industries and construction	0.43	0.17	0.25	-	0.85	-81.3%
Transport	-	2.11	-	-	2.11	-10.7%
<i>of which: road</i>	-	1.97	-	-	1.97	-8.2%
Other	0.04	0.33	0.20	-	0.57	-79.9%
<i>of which: residential</i>	0.03	0.02	0.12	-	0.17	-83.8%
Reference Approach	13.11	1.43	1.22	-	15.76	-59.0%
Diff. due to losses and/or transformation	3.89	-1.41	-	-	2.48	
Statistical differences	-1.39	0.01	0.00	-	-1.38	
<i>Memo: international marine bunkers</i>	-	0.71	-	-	0.71	24.0%
<i>Memo: international aviation bunkers</i>	-	0.10	-	-	0.10	3.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	10.02	-51.4%	57.1	57.1
Road - oil	1.97	-8.2%	11.2	68.3
Main activity prod. elec. and heat - gas	0.61	-65.7%	3.5	71.8
Manufacturing industries - coal/peat	0.43	-72.8%	2.5	74.2
Non-specified other - oil	0.31	-72.2%	1.7	76.0
Manufacturing industries - gas	0.25	-65.8%	1.4	77.4
Main activity prod. elec. and heat - oil	0.17	-94.3%	1.0	78.4
Manufacturing industries - oil	0.17	-92.4%	1.0	79.4
Other transport - oil	0.14	-28.7%	0.8	80.1
Unallocated autoproducers - gas	0.13	170.0%	0.8	80.9
Residential - gas	0.12	-11.0%	0.7	81.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>14.66</i>	<i>-59.4%</i>	<i>83.6</i>	<i>83.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Ethiopia

Figure 1. CO₂ emissions by fuel

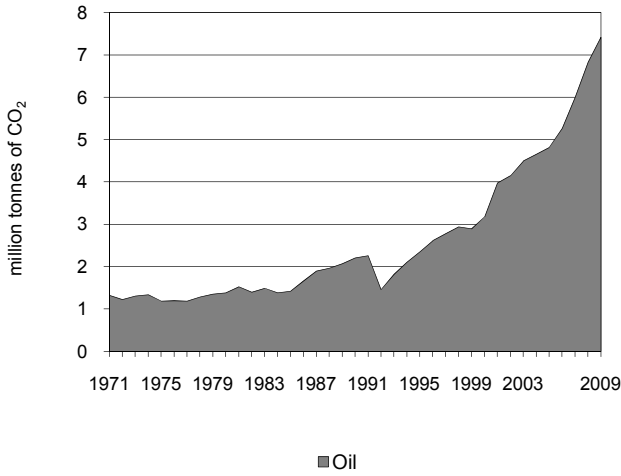


Figure 2. CO₂ emissions by sector

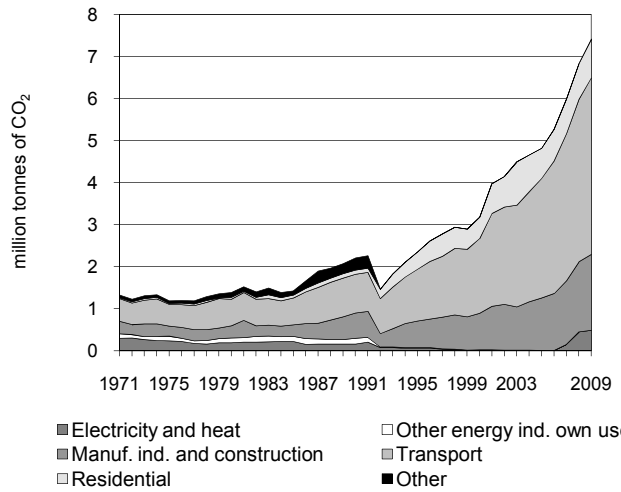


Figure 3. CO₂ emissions by sector

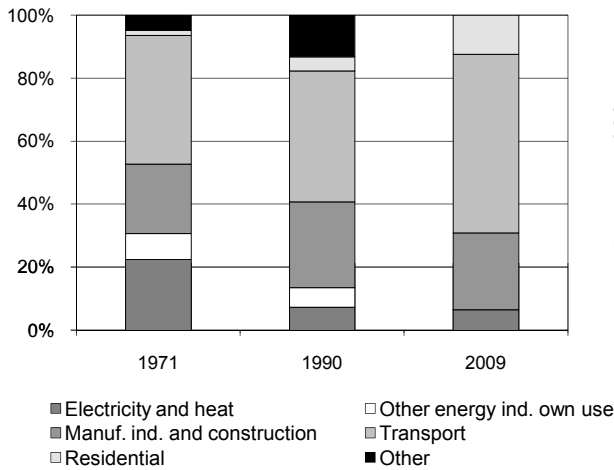


Figure 4. Reference vs Sectoral Approach

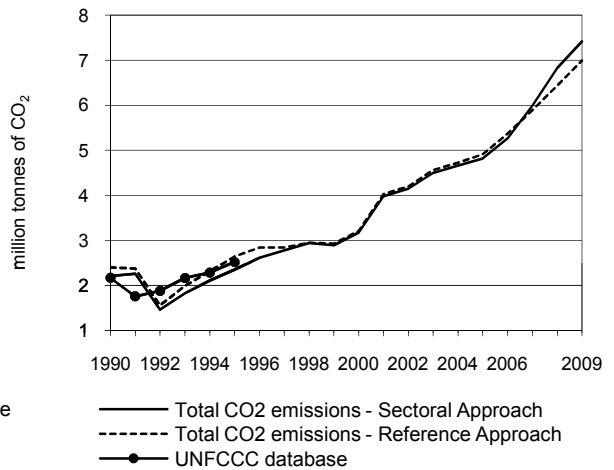


Figure 5. Electricity generation by fuel

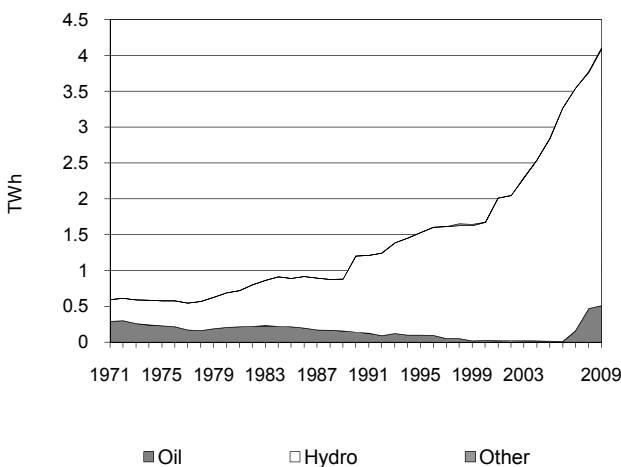
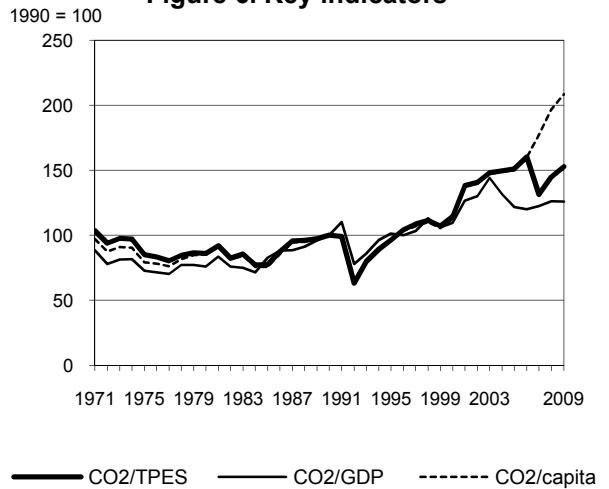


Figure 6. Key indicators



Ethiopia

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2.21	2.35	3.18	4.82	5.99	6.83	7.42	235.7%
CO ₂ Reference Approach (Mt of CO ₂)	2.40	2.64	3.21	4.91	5.89	6.44	7.00	191.0%
TPES (PJ)	622	687	780	899	1 285	1 327	1 368	119.8%
TPES (Mtoe)	14.87	16.40	18.64	21.48	30.70	31.70	32.68	119.8%
GDP (billion 2000 USD)	6.23	6.55	8.18	11.17	13.80	15.29	16.62	166.7%
GDP PPP (billion 2000 USD)	41.33	43.43	54.23	74.08	91.51	101.37	110.21	166.7%
Population (millions)	51.45	56.98	65.52	74.66	78.65	80.71	82.83	61.0%
CO ₂ / TPES (t CO ₂ per TJ)	3.6	3.4	4.1	5.4	4.7	5.1	5.4	52.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.35	0.36	0.39	0.43	0.43	0.45	0.45	25.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.05	0.05	0.06	0.07	0.07	0.07	0.07	25.8%
CO ₂ / population (t CO ₂ per capita)	0.04	0.04	0.05	0.06	0.08	0.08	0.09	108.4%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	7.42	-	-	7.42	235.7%
Main activity producer elec. and heat	-	0.49	-	-	0.49	440.0%
Unallocated autoproducers
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	-	1.81	-	-	1.81	200.0%
Transport	-	4.20	-	-	4.20	357.8%
<i>of which: road</i>	-	4.20	-	-	4.20	357.8%
Other	-	0.92	-	-	0.92	136.3%
<i>of which: residential</i>	-	0.92	-	-	0.92	838.7%
Reference Approach	-	7.00	-	-	7.00	191.0%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-0.42	-	-	-0.42	-
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	0.74	-	-	0.74	38.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	4.20	357.8%	4.0	4.0
Manufacturing industries - oil	1.81	200.0%	1.7	5.7
Residential - oil	0.92	838.7%	0.9	6.6
Main activity prod. elec. and heat - oil	0.49	440.0%	0.5	7.0
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>7.42</i>	<i>235.7%</i>	<i>7.0</i>	<i>7.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Finland

Figure 1. CO₂ emissions by fuel

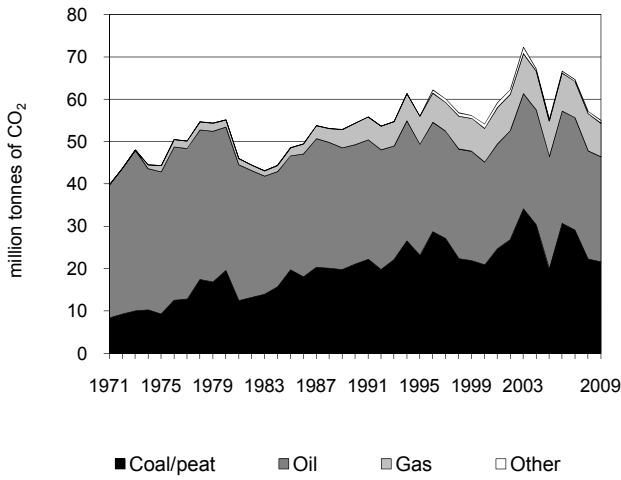


Figure 2. CO₂ emissions by sector

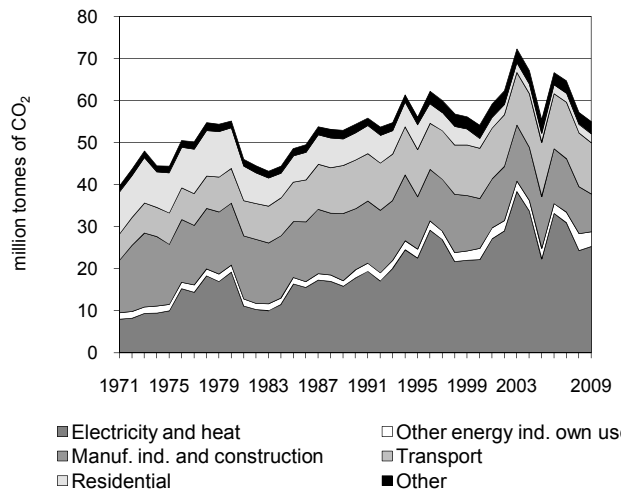


Figure 3. CO₂ emissions by sector

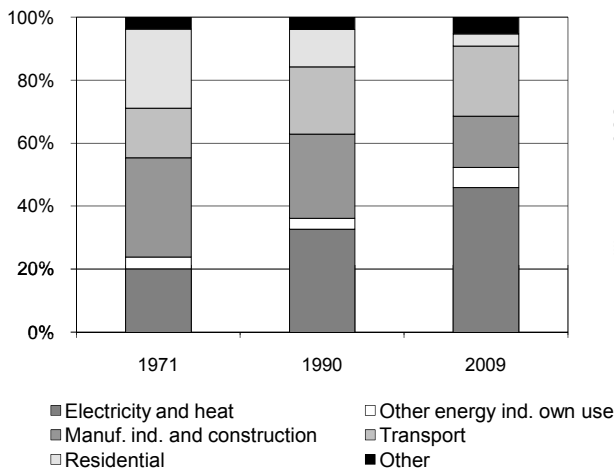


Figure 4. Reference vs Sectoral Approach

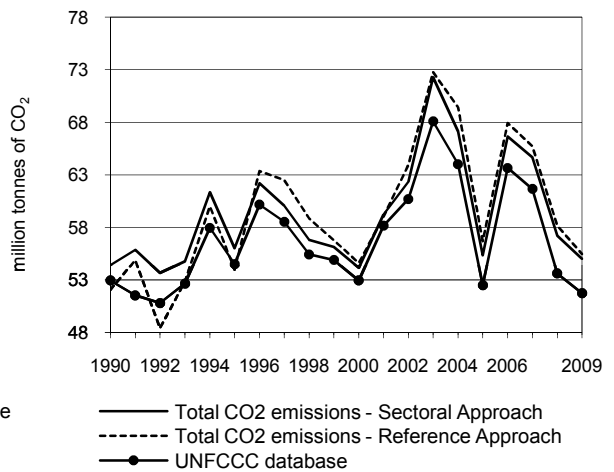


Figure 5. Electricity generation by fuel

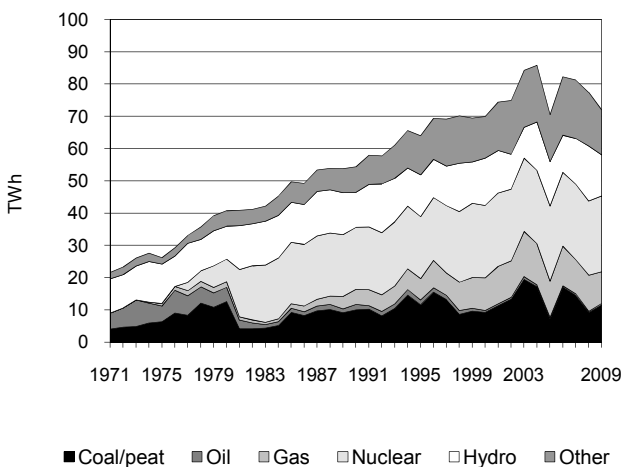
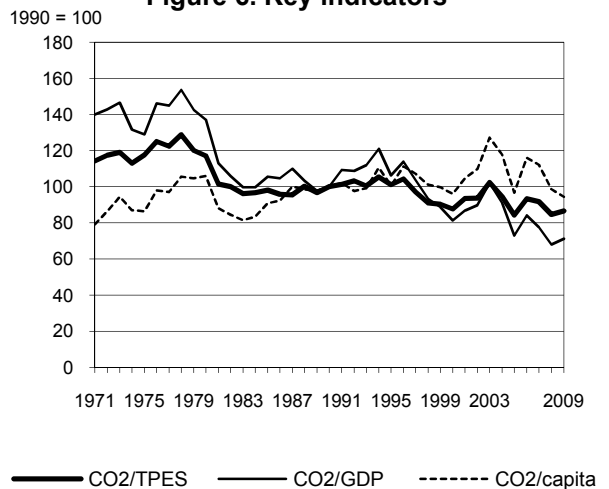


Figure 6. Key indicators



Finland

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	54.40	56.02	54.16	55.33	64.66	57.20	55.01	1.1%
CO ₂ Reference Approach (Mt of CO ₂)	52.06	53.98	54.61	56.67	65.73	58.13	55.46	6.5%
TPES (PJ)	1 188	1 211	1 350	1 433	1 540	1 477	1 389	16.9%
TPES (Mtoe)	28.38	28.92	32.25	34.22	36.78	35.28	33.17	16.9%
GDP (billion 2000 USD)	99.30	96.25	121.72	138.55	152.37	153.78	141.16	42.2%
GDP PPP (billion 2000 USD)	108.32	105.00	132.77	151.13	166.21	167.74	153.98	42.2%
Population (millions)	4.99	5.11	5.18	5.25	5.29	5.31	5.34	7.1%
CO ₂ / TPES (t CO ₂ per TJ)	45.8	46.3	40.1	38.6	42.0	38.7	39.6	-13.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.55	0.58	0.45	0.40	0.42	0.37	0.39	-28.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.50	0.53	0.41	0.37	0.39	0.34	0.36	-28.9%
CO ₂ / population (t CO ₂ per capita)	10.91	10.97	10.46	10.55	12.23	10.77	10.30	-5.6%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	21.63	24.80	7.93	0.65	55.01	1.1%
Main activity producer elec. and heat	16.63	1.23	4.41	0.32	22.59	44.1%
Unallocated autoproducers	1.47	0.21	0.81	0.21	2.71	26.0%
Other energy industry own use	0.94	1.87	0.69	-	3.50	85.9%
Manufacturing industries and construction	2.44	4.61	1.80	0.12	8.97	-38.3%
Transport	-	12.18	0.03	-	12.22	5.3%
<i>of which: road</i>	-	11.18	0.01	-	11.19	5.1%
Other	0.16	4.69	0.18	0.01	5.03	-41.2%
<i>of which: residential</i>	0.07	1.98	0.10	-	2.15	-66.8%
Reference Approach	21.14	25.74	7.93	0.65	55.46	6.5%
Diff. due to losses and/or transformation	0.22	0.69	-	-	0.91	
Statistical differences	-0.72	0.25	0.00	-0.00	-0.47	
<i>Memo: international marine bunkers</i>	-	0.78	-	-	0.78	-56.1%
<i>Memo: international aviation bunkers</i>	-	1.51	-	-	1.51	54.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	16.63	33.8%	23.9	23.9
Road - oil	11.18	5.0%	16.1	40.0
Manufacturing industries - oil	4.61	-9.6%	6.6	46.6
Main activity prod. elec. and heat - gas	4.41	126.7%	6.3	52.9
Non-specified other - oil	2.71	31.3%	3.9	56.8
Manufacturing industries - coal/peat	2.44	-66.4%	3.5	60.3
Residential - oil	1.98	-68.5%	2.8	63.2
Other energy industry own use - oil	1.87	38.1%	2.7	65.9
Manufacturing industries - gas	1.80	-17.3%	2.6	68.4
Unallocated autoproducers - coal/peat	1.47	9.7%	2.1	70.6
Main activity prod. elec. and heat - oil	1.23	-2.9%	1.8	72.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>55.01</i>	<i>1.1%</i>	<i>79.0</i>	<i>79.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

France

Figure 1. CO₂ emissions by fuel

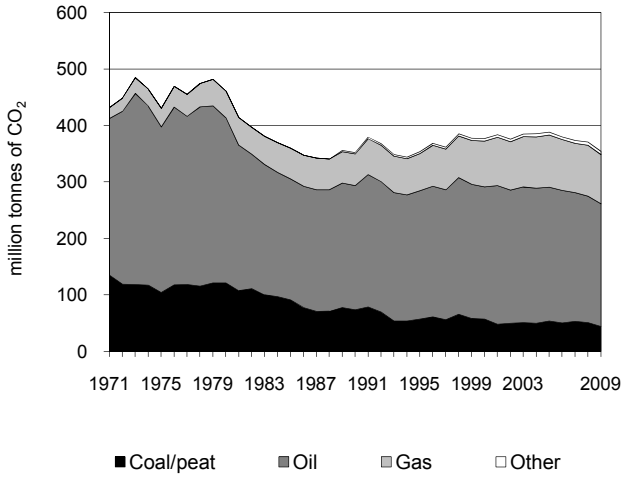


Figure 2. CO₂ emissions by sector

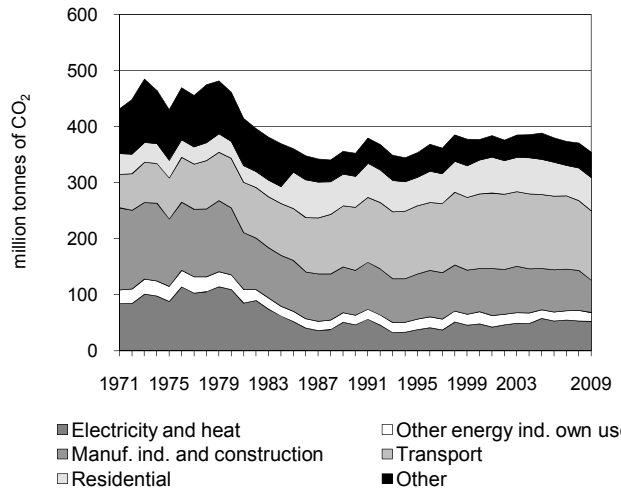


Figure 3. CO₂ emissions by sector

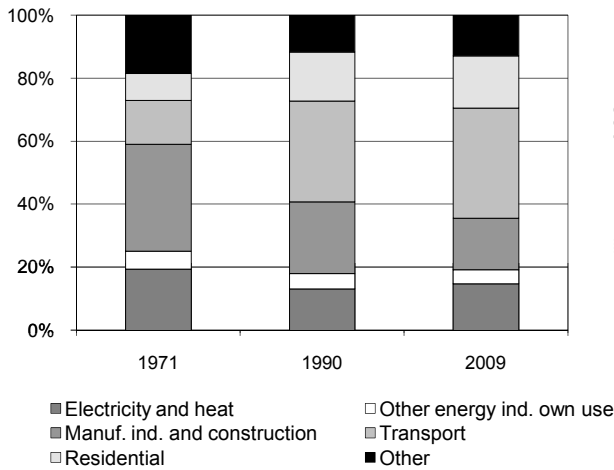


Figure 4. Reference vs Sectoral Approach

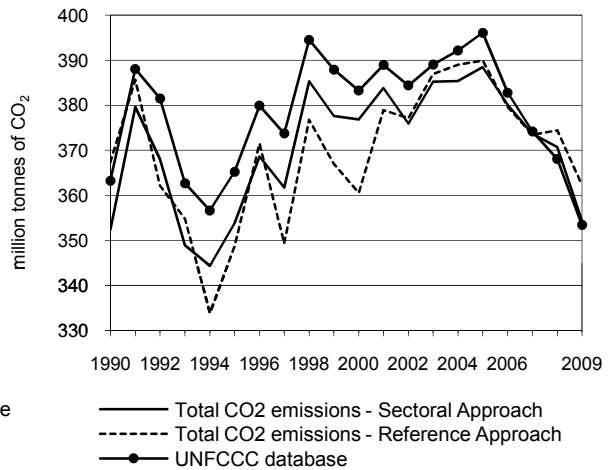


Figure 5. Electricity generation by fuel

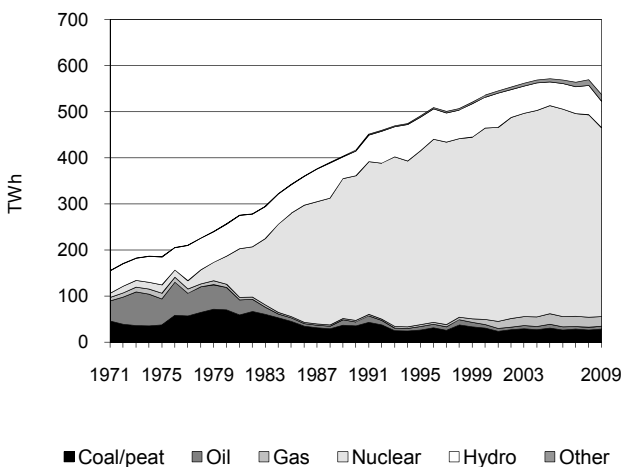
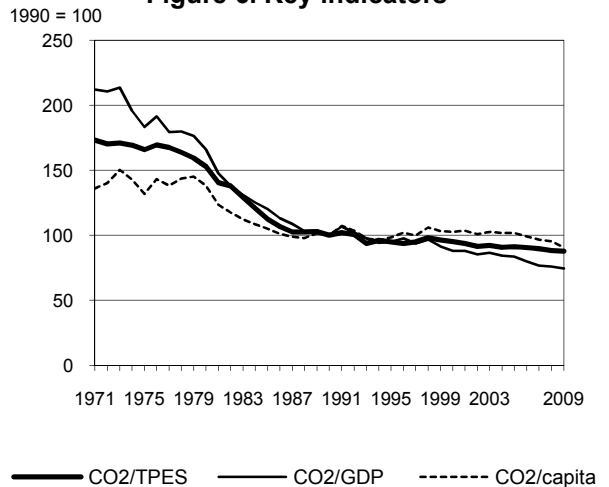


Figure 6. Key indicators



France

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	352.32	353.85	376.87	388.43	373.62	370.64	354.30	0.6%
CO ₂ Reference Approach (Mt of CO ₂)	367.32	348.67	360.60	389.91	373.44	374.44	362.24	-1.4%
TPES (PJ)	9 374	9 909	10 545	11 331	11 069	11 187	10 727	14.4%
TPES (Mtoe)	223.89	236.66	251.87	270.63	264.39	267.20	256.22	14.4%
GDP (billion 2000 USD)	1 091.83	1 156.28	1 327.96	1 442.29	1 509.27	1 512.55	1 472.79	34.9%
GDP PPP (billion 2000 USD)	1 261.77	1 336.27	1 534.67	1 666.79	1 744.20	1 747.98	1 702.03	34.9%
Population (millions)	58.17	59.42	60.73	62.96	63.78	64.14	64.49	10.9%
CO ₂ / TPES (t CO ₂ per TJ)	37.6	35.7	35.7	34.3	33.8	33.1	33.0	-12.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.32	0.31	0.28	0.27	0.25	0.25	0.24	-25.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.28	0.26	0.25	0.23	0.21	0.21	0.21	-25.4%
CO ₂ / population (t CO ₂ per capita)	6.06	5.96	6.21	6.17	5.86	5.78	5.49	-9.3%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	44.20	217.00	87.62	5.49	354.30	0.6%
Main activity producer elec. and heat	23.86	2.64	6.09	0.54	33.15	34.5%
Unallocated autoproducers	3.11	3.65	8.83	3.53	19.13	-11.0%
Other energy industry own use	2.48	13.03	0.48	-	15.98	-8.4%
Manufacturing industries and construction	13.21	27.14	17.26	-	57.61	-28.0%
Transport	-	123.65	0.28	-	123.92	10.1%
<i>of which: road</i>	-	117.90	0.14	-	118.04	9.6%
Other	1.54	46.89	54.67	1.41	104.50	8.7%
<i>of which: residential</i>	1.32	23.46	34.11	-	58.88	7.2%
Reference Approach	43.73	224.06	88.96	5.49	362.24	-1.4%
Diff. due to losses and/or transformation	2.29	-2.01	1.35	-	1.63	
Statistical differences	-2.76	9.07	0.00	-0.00	6.31	
<i>Memo: international marine bunkers</i>	-	8.02	-	-	8.02	0.7%
<i>Memo: international aviation bunkers</i>	-	16.19	-	-	16.19	73.6%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	117.90	9.4%	22.5	22.5
Residential - gas ***	34.11	121.6%	6.5	29.0
Manufacturing industries - oil	27.14	-2.2%	5.2	34.2
Main activity prod. elec. and heat - coal/peat	23.86	14.2%	4.6	38.8
Residential - oil	23.46	-28.9%	4.5	43.3
Non-specified other - oil	23.43	-11.3%	4.5	47.8
Non-specified other - gas	20.57	41.1%	3.9	51.7
Manufacturing industries - gas	17.26	-29.4%	3.3	55.0
Manufacturing industries - coal/peat	13.21	-52.6%	2.5	57.5
Other energy industry own use - oil	13.03	-14.2%	2.5	60.0
Unallocated autoproducers - gas ***	8.83	864.5%	1.7	61.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>354.30</i>	<i>0.6%</i>	<i>67.7</i>	<i>67.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

*** The high growth in gas is due to changes in methodology in 2000.

Gabon

Figure 1. CO₂ emissions by fuel

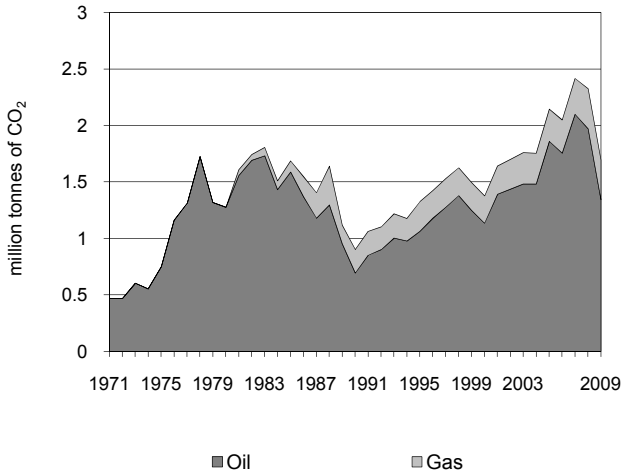


Figure 2. CO₂ emissions by sector

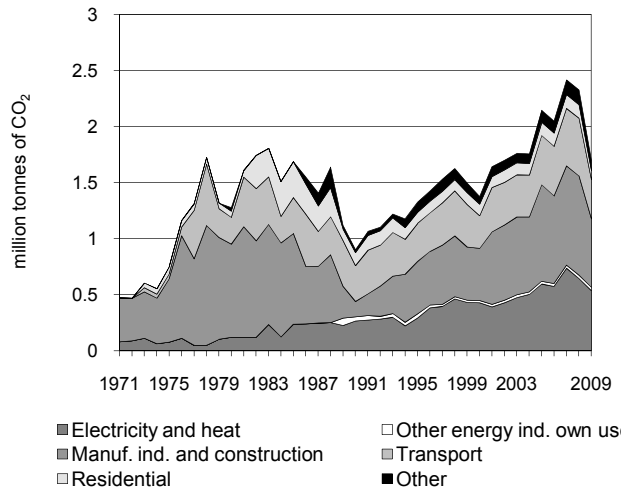


Figure 3. CO₂ emissions by sector

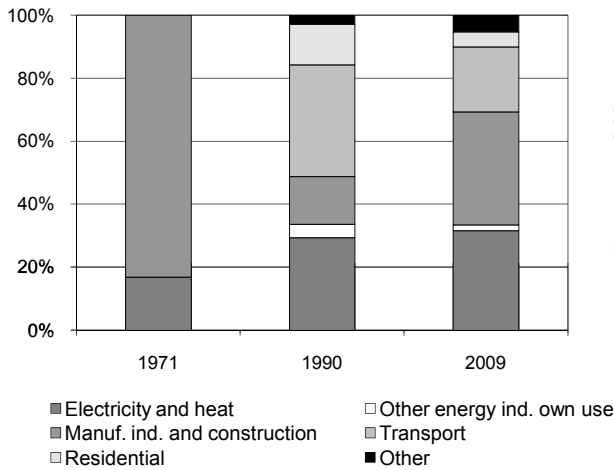


Figure 4. Reference vs Sectoral Approach

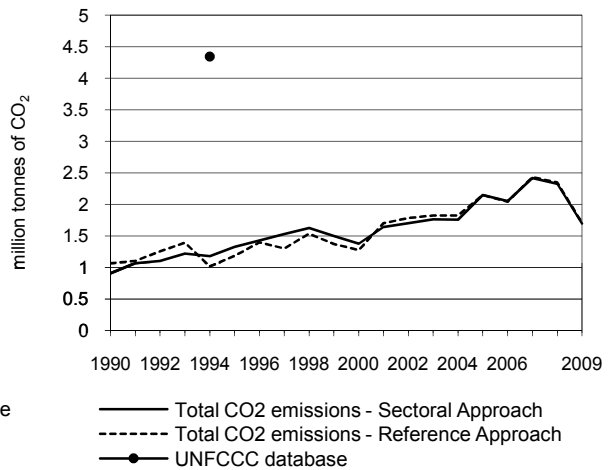


Figure 5. Electricity generation by fuel

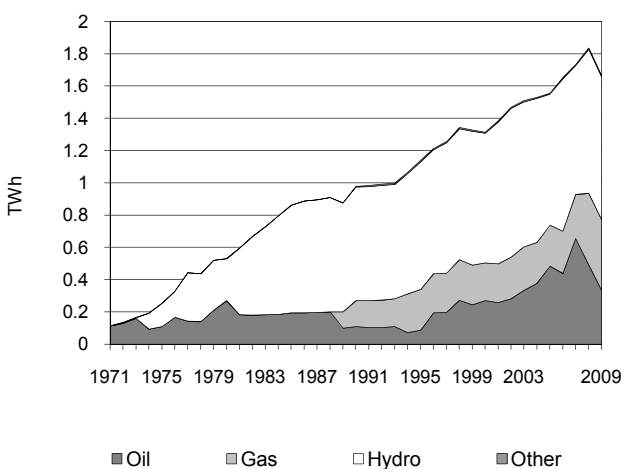
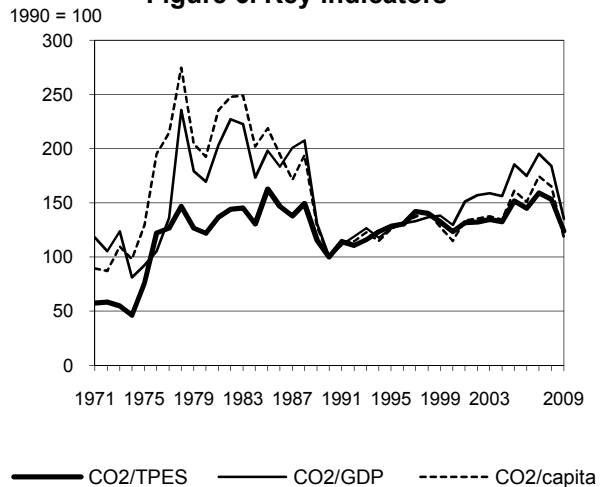


Figure 6. Key indicators



Gabon

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	0.90	1.33	1.38	2.15	2.42	2.33	1.70	88.0%
CO ₂ Reference Approach (Mt of CO ₂)	1.06	1.18	1.28	2.15	2.43	2.35	1.71	60.3%
TPES (PJ)	49	57	61	78	83	83	75	51.9%
TPES (Mtoe)	1.18	1.35	1.46	1.85	1.99	1.99	1.79	51.9%
GDP (billion 2000 USD)	4.30	5.00	5.07	5.52	5.90	6.04	5.98	39.1%
GDP PPP (billion 2000 USD)	6.31	7.34	7.44	8.11	8.66	8.86	8.77	39.1%
Population (millions)	0.93	1.08	1.23	1.37	1.42	1.45	1.48	59.3%
CO ₂ / TPES (t CO ₂ per TJ)	18.2	23.4	22.5	27.7	29.0	27.9	22.6	23.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.21	0.27	0.27	0.39	0.41	0.39	0.28	35.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.14	0.18	0.19	0.26	0.28	0.26	0.19	35.2%
CO ₂ / population (t CO ₂ per capita)	0.97	1.22	1.12	1.57	1.70	1.61	1.15	18.0%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	1.34	0.35	-	1.70	88.0%
Main activity producer elec. and heat	-	0.16	0.24	-	0.40	94.9%
Unallocated autoproducers	-	0.06	0.07	-	0.13	131.7%
Other energy industry own use	-	-	0.03	-	0.03	-20.5%
Manufacturing industries and construction	-	0.60	0.00	-	0.61	346.3%
Transport	-	0.35	-	-	0.35	9.2%
<i>of which: road</i>	-	0.35	-	-	0.35	9.2%
Other	-	0.17	-	-	0.17	20.0%
<i>of which: residential</i>	-	0.08	-	-	0.08	-30.0%
Reference Approach	-	1.35	0.35	-	1.71	60.3%
Diff. due to losses and/or transformation	-	0.01	-	-	0.01	
Statistical differences	-	-0.00	-0.00	-	-0.00	
<i>Memo: international marine bunkers</i>	-	0.57	-	-	0.57	620.4%
<i>Memo: international aviation bunkers</i>	-	0.13	-	-	0.13	-35.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - oil	0.60	352.9%	5.2	5.2
Road - oil	0.35	9.2%	3.0	8.2
Main activity prod. elec. and heat - gas	0.24	95.4%	2.1	10.3
Main activity prod. elec. and heat - oil	0.16	94.1%	1.4	11.7
Non-specified other - oil	0.09	250.0%	0.8	12.5
Residential - oil	0.08	-30.0%	0.7	13.2
Unallocated autoproducers - gas	0.07	75.8%	0.6	13.8
Unallocated autoproducers - oil	0.06	280.0%	0.5	14.4
Other energy industry own use - gas	0.03	-20.5%	0.3	14.6
Manufacturing industries - gas	0.00	43.2%	0.0	14.7
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>1.70</i>	<i>88.0%</i>	<i>14.7</i>	<i>14.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Georgia

Figure 1. CO₂ emissions by fuel

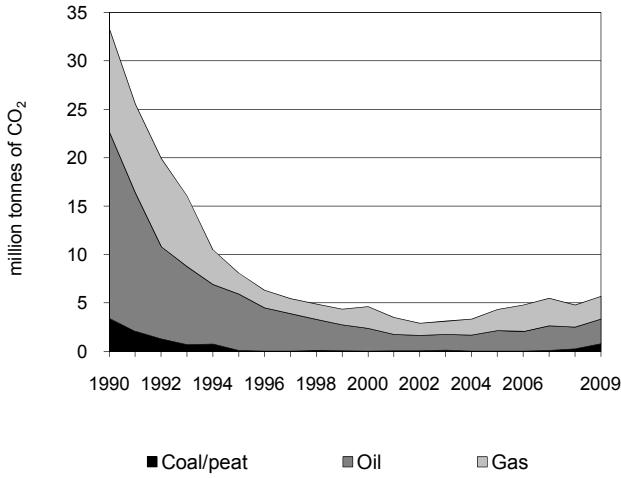


Figure 2. CO₂ emissions by sector

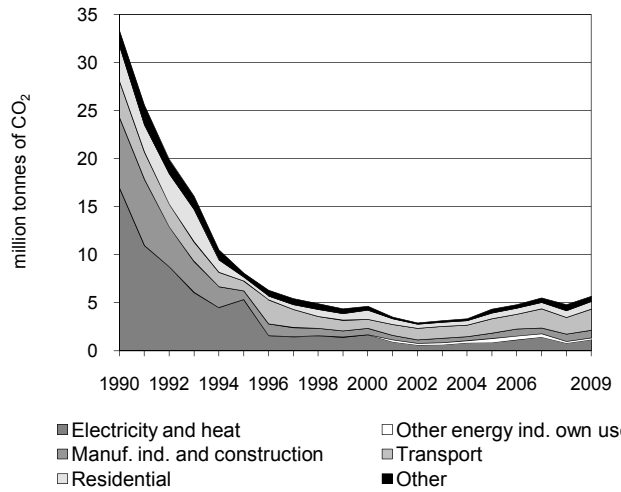


Figure 3. CO₂ emissions by sector

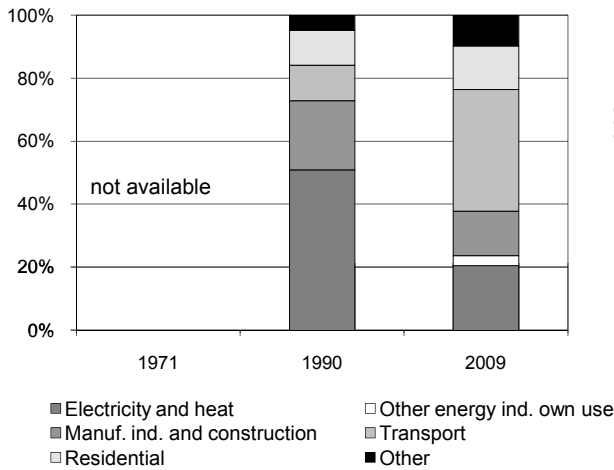


Figure 4. Reference vs Sectoral Approach

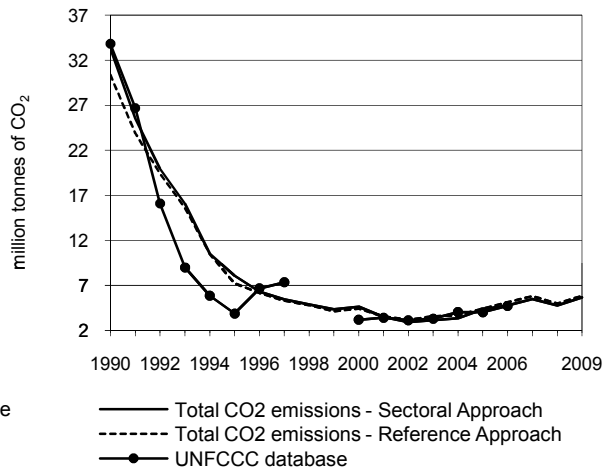


Figure 5. Electricity generation by fuel

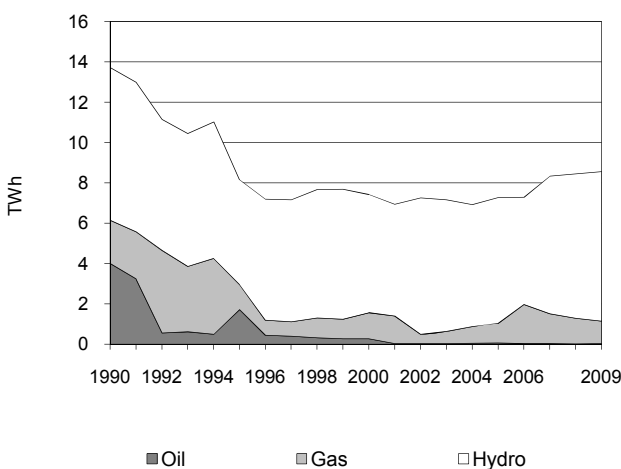
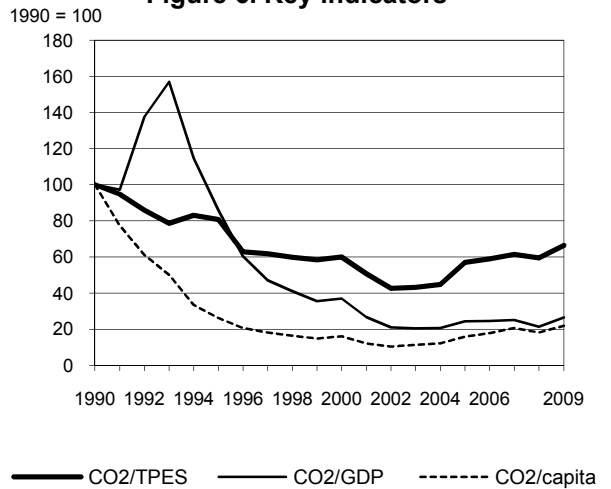


Figure 6. Key indicators



Georgia

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	33.31	8.08	4.62	4.34	5.50	4.79	5.68	-83.0%
CO ₂ Reference Approach (Mt of CO ₂)	30.36	7.21	4.41	4.42	5.80	4.97	5.83	-80.8%
TPES (PJ)	520	156	120	119	140	126	134	-74.3%
TPES (Mtoe)	12.42	3.73	2.87	2.84	3.34	3.01	3.19	-74.3%
GDP (billion 2000 USD)	8.15	2.30	3.06	4.36	5.35	5.48	5.26	-35.5%
GDP PPP (billion 2000 USD)	25.15	7.11	9.43	13.44	16.51	16.89	16.23	-35.5%
Population (millions)	5.46	5.07	4.75	4.47	4.36	4.31	4.26	-22.0%
CO ₂ / TPES (t CO ₂ per TJ)	64.0	51.7	38.4	36.5	39.3	38.0	42.5	-33.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	4.09	3.51	1.51	1.00	1.03	0.87	1.08	-73.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.32	1.14	0.49	0.32	0.33	0.28	0.35	-73.6%
CO ₂ / population (t CO ₂ per capita)	6.10	1.59	0.97	0.97	1.26	1.11	1.33	-78.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.78	2.55	2.35	-	5.68	-83.0%
Main activity producer elec. and heat	-	0.21	0.96	-	1.17	-93.1%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	0.18	-	0.18	x
Manufacturing industries and construction	0.17	0.09	0.54	-	0.80	-89.0%
Transport	0.14	2.01	0.05	-	2.19	-41.7%
<i>of which: road</i>	-	2.01	0.02	-	2.03	-41.3%
Other	0.47	0.25	0.62	-	1.34	-74.6%
<i>of which: residential</i>	0.07	0.25	0.47	-	0.78	-78.8%
Reference Approach	0.78	2.57	2.48	-	5.83	-80.8%
Diff. due to losses and/or transformation	-	0.01	0.14	-	0.14	
Statistical differences	-	0.02	0.00	-	0.02	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.12	-	-	0.12	-79.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	2.01	-42.0%	15.7	15.7
Main activity prod. elec. and heat - gas	0.96	-79.1%	7.5	23.2
Manufacturing industries - gas	0.54	-82.5%	4.2	27.4
Residential - gas	0.47	-82.1%	3.7	31.1
Non-specified other sectors - coal/peat	0.40	134.4%	3.1	34.2
Residential - oil	0.25	-74.9%	1.9	36.1
Main activity prod. elec. and heat - oil	0.21	-98.2%	1.6	37.8
Other energy industry own use - gas	0.18	x	1.4	39.2
Manufacturing industries - coal/peat	0.17	-92.1%	1.4	40.5
Non-specified other - gas	0.15	-48.3%	1.2	41.7
Other transport - coal/peat	0.14	230.9%	1.1	42.8
<i>Memo: total CO₂ from fuel combustion</i>	5.68	-83.0%	44.4	44.4

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Germany

Figure 1. CO₂ emissions by fuel

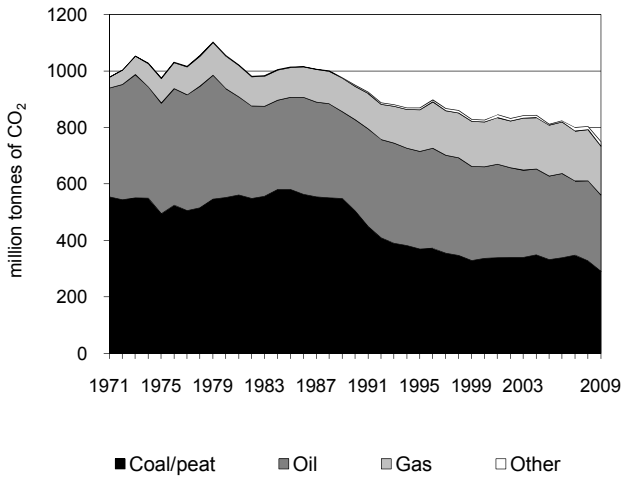


Figure 2. CO₂ emissions by sector

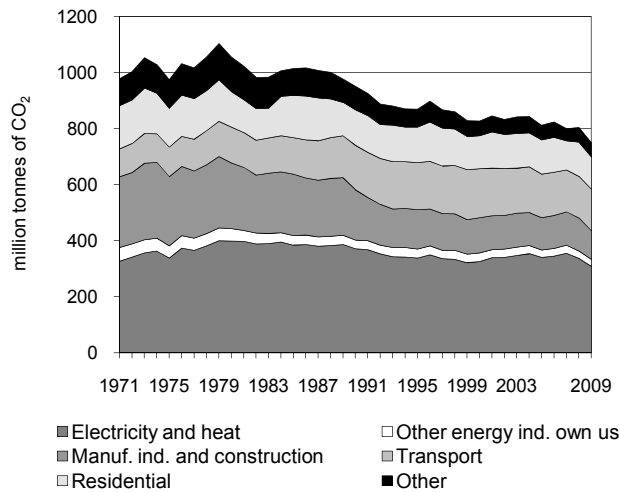


Figure 3. CO₂ emissions by sector

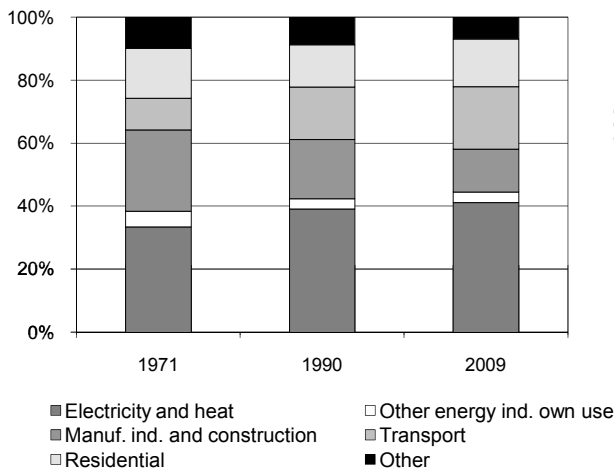


Figure 4. Reference vs Sectoral Approach

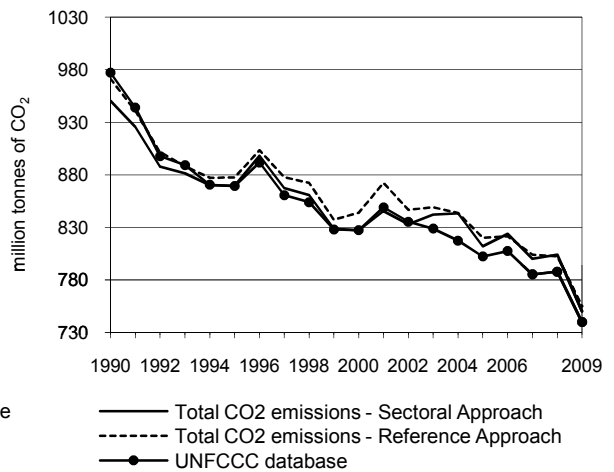


Figure 5. Electricity generation by fuel

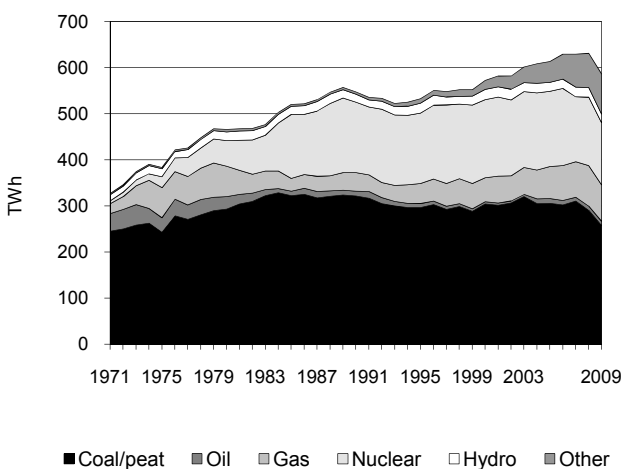
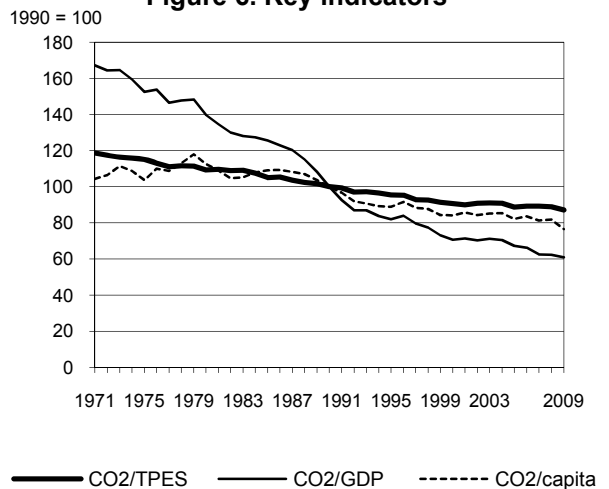


Figure 6. Key indicators



Germany

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	950.42	869.44	827.14	811.82	800.08	804.10	750.19	-21.1%
CO ₂ Reference Approach (Mt of CO ₂)	971.70	877.47	843.88	820.05	804.09	802.55	755.14	-22.3%
TPES (PJ)	14 713	14 112	14 122	14 181	13 892	14 013	13 336	-9.4%
TPES (Mtoe)	351.40	337.05	337.29	338.70	331.79	334.70	318.53	-9.4%
GDP (billion 2000 USD)	1 543.20	1 720.46	1 900.22	1 957.42	2 077.13	2 097.65	1 998.65	29.5%
GDP PPP (billion 2000 USD)	1 732.00	1 930.95	2 132.70	2 196.90	2 331.26	2 354.29	2 243.18	29.5%
Population (millions)	79.36	81.66	82.19	82.46	82.26	82.12	81.88	3.2%
CO ₂ / TPES (t CO ₂ per TJ)	64.6	61.6	58.6	57.2	57.6	57.4	56.3	-12.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.62	0.51	0.44	0.41	0.39	0.38	0.38	-39.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.55	0.45	0.39	0.37	0.34	0.34	0.33	-39.1%
CO ₂ / population (t CO ₂ per capita)	11.98	10.65	10.06	9.84	9.73	9.79	9.16	-23.5%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	290.13	270.97	172.97	16.11	750.19	-21.1%
Main activity producer elec. and heat	237.43	3.32	31.94	11.42	284.10	-8.1%
Unallocated autoproducers	13.93	3.62	6.80	0.26	24.61	-60.5%
Other energy industry own use	4.33	19.11	1.74	0.02	25.20	-19.1%
Manufacturing industries and construction	29.74	29.61	38.16	4.42	101.93	-43.1%
Transport	-	148.37	0.31	-	148.68	-6.1%
of which: road	-	140.69	0.31	-	141.00	-5.2%
Other	4.70	66.95	94.02	-	165.66	-21.2%
of which: residential	3.75	42.75	67.30	-	113.81	-10.5%
Reference Approach	287.42	274.03	177.57	16.11	755.14	-22.3%
Diff. due to losses and/or transformation	- 0.57	7.14	0.11	-	6.67	
Statistical differences	- 2.14	- 4.08	4.49	- 0.00	- 1.72	
<i>Memo: international marine bunkers</i>	-	8.57	-	-	8.57	9.9%
<i>Memo: international aviation bunkers</i>	-	21.14	-	-	21.14	68.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	237.43	-15.3%	25.5	25.5
Road - oil	140.69	-5.4%	15.1	40.7
Residential - gas	67.30	114.8%	7.2	47.9
Residential - oil	42.75	-22.6%	4.6	52.5
Manufacturing industries - gas	38.16	-12.0%	4.1	56.6
Main activity prod. elec. and heat - gas	31.94	73.0%	3.4	60.0
Manufacturing industries - coal/peat	29.74	-68.3%	3.2	63.2
Manufacturing industries - oil	29.61	-29.5%	3.2	66.4
Non-specified other - gas	26.72	80.0%	2.9	69.3
Non-specified other - oil	24.19	-38.9%	2.6	71.9
Other energy industry own use - oil	19.11	9.2%	2.1	73.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>750.19</i>	<i>-21.1%</i>	<i>80.7</i>	<i>80.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Ghana

Figure 1. CO₂ emissions by fuel

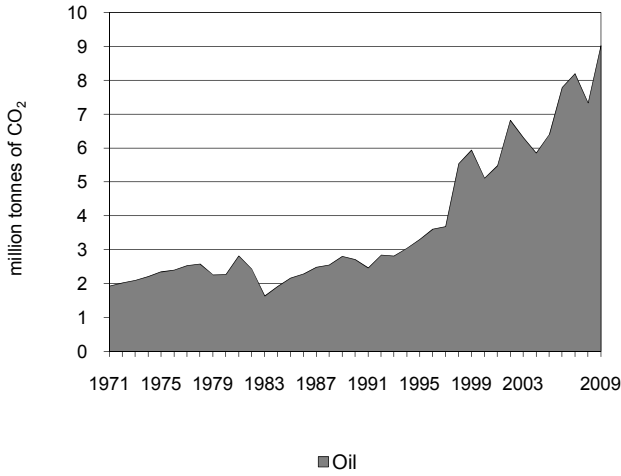


Figure 2. CO₂ emissions by sector

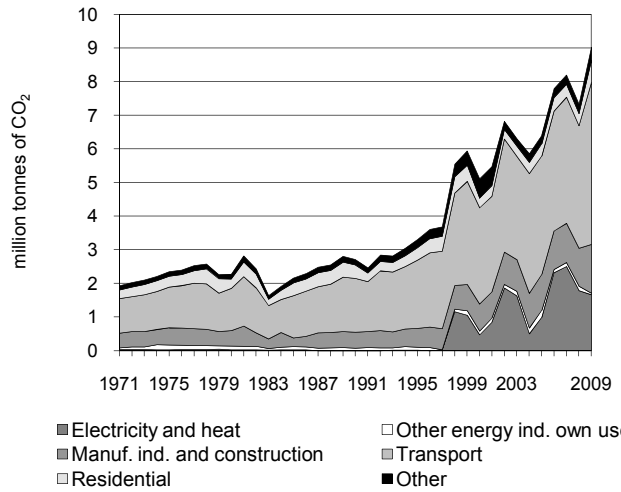


Figure 3. CO₂ emissions by sector

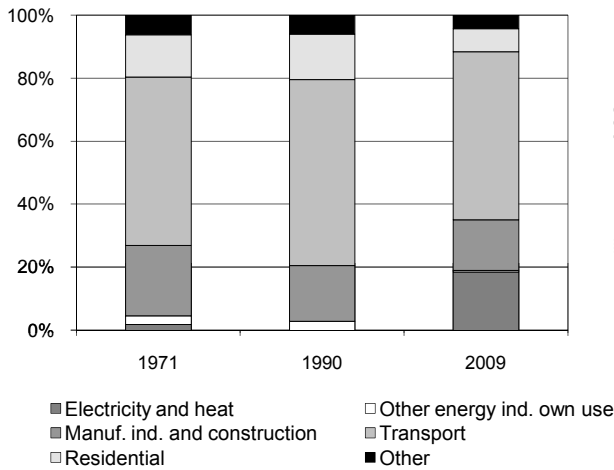


Figure 4. Reference vs Sectoral Approach

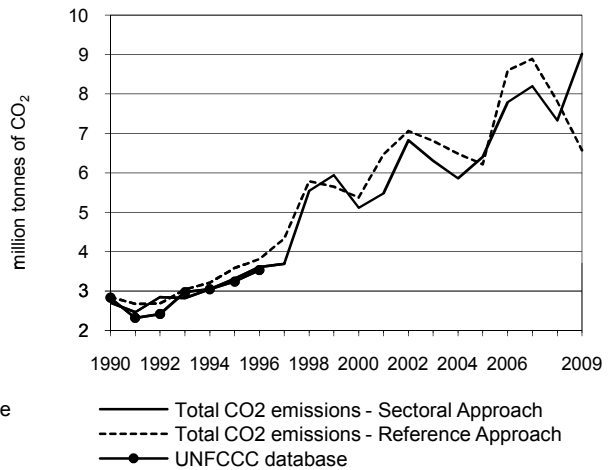


Figure 5. Electricity generation by fuel

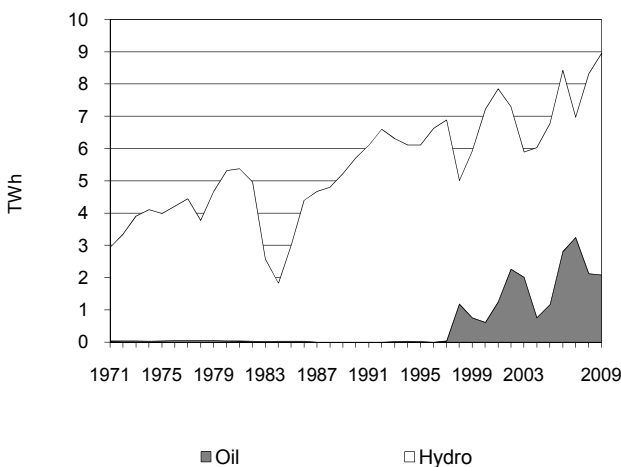
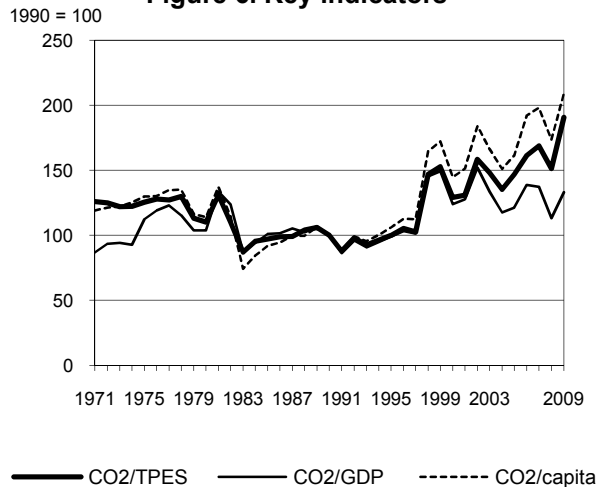


Figure 6. Key indicators



Ghana

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2.71	3.31	5.11	6.40	8.20	7.33	9.02	233.0%
CO ₂ Reference Approach (Mt of CO ₂)	2.85	3.59	5.37	6.22	8.89	7.81	6.57	130.7%
TPES (PJ)	222	271	324	357	398	396	387	74.6%
TPES (Mtoe)	5.29	6.47	7.74	8.52	9.49	9.46	9.24	74.6%
GDP (billion 2000 USD)	3.27	4.03	4.98	6.36	7.21	7.82	8.18	150.4%
GDP PPP (billion 2000 USD)	25.07	30.91	38.19	48.83	55.31	59.98	62.77	150.4%
Population (millions)	14.97	17.25	19.53	21.92	22.87	23.35	23.84	59.3%
CO ₂ / TPES (t CO ₂ per TJ)	12.2	12.2	15.8	18.0	20.6	18.5	23.3	90.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.83	0.82	1.03	1.01	1.14	0.94	1.10	33.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.11	0.11	0.13	0.13	0.15	0.12	0.14	32.9%
CO ₂ / population (t CO ₂ per capita)	0.18	0.19	0.26	0.29	0.36	0.31	0.38	109.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	9.02	-	-	9.02	233.0%
Main activity producer elec. and heat	-	1.67	-	-	1.67	x
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.04	-	-	0.04	-45.8%
Manufacturing industries and construction	-	1.45	-	-	1.45	202.3%
Transport	-	4.82	-	-	4.82	201.2%
<i>of which: road</i>	-	4.43	-	-	4.43	191.9%
Other	-	1.04	-	-	1.04	88.0%
<i>of which: residential</i>	-	0.66	-	-	0.66	68.1%
Reference Approach	-	6.57	-	-	6.57	130.7%
Diff. due to losses and/or transformation	-	0.06	-	-	0.06	
Statistical differences	-	-2.51	-	-	-2.51	
<i>Memo: international marine bunkers</i>	-	0.23	-	-	0.23	..
<i>Memo: international aviation bunkers</i>	-	0.41	-	-	0.41	195.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	4.43	191.9%	8.5	8.5
Main activity prod. elec. and heat - oil	1.67	x	3.2	11.7
Manufacturing industries - oil	1.45	202.3%	2.8	14.5
Residential - oil	0.66	68.1%	1.3	15.8
Other transport - oil	0.39	373.1%	0.8	16.5
Non-specified other - oil	0.38	136.3%	0.7	17.3
Other energy industry own use - oil	0.04	-45.8%	0.1	17.3
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>9.02</i>	<i>233.0%</i>	<i>17.3</i>	<i>17.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Gibraltar

Figure 1. CO₂ emissions by fuel

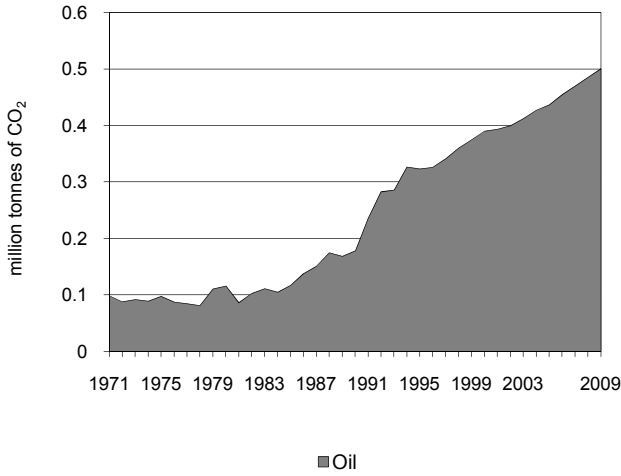


Figure 2. CO₂ emissions by sector

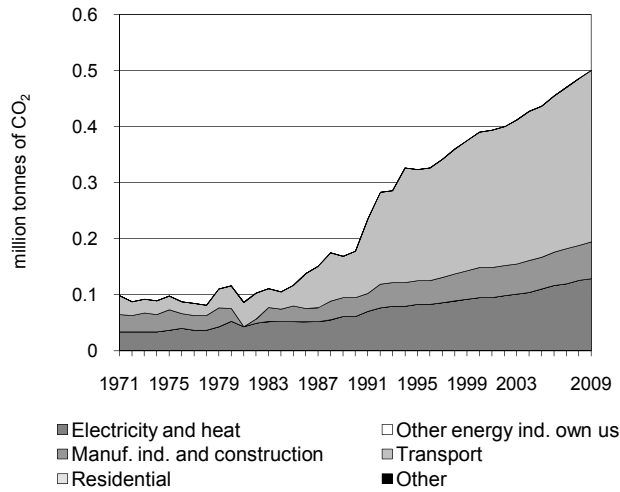


Figure 3. CO₂ emissions by sector

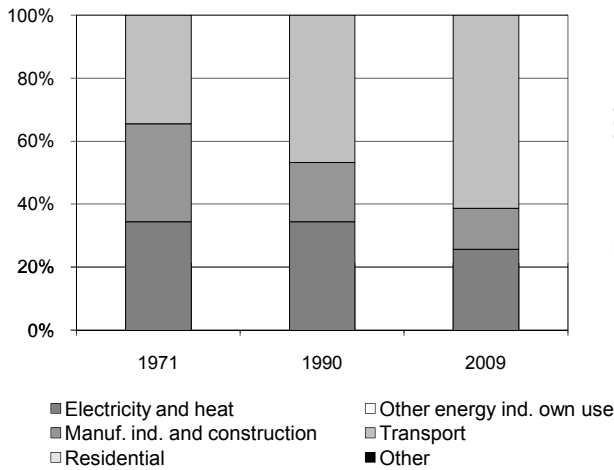


Figure 4. Reference vs Sectoral Approach

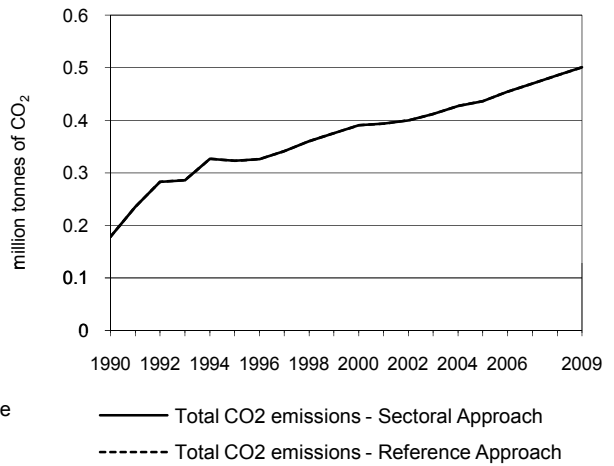


Figure 5. Electricity generation by fuel

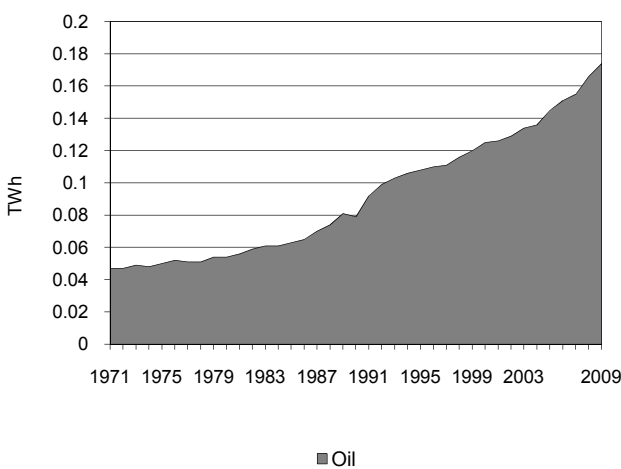
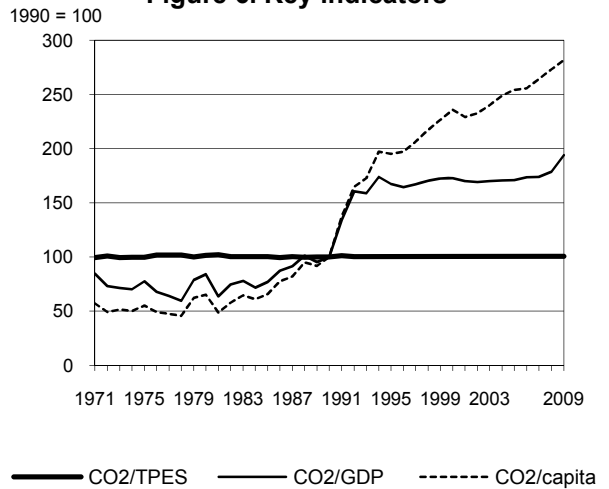


Figure 6. Key indicators



Gibraltar

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	0.18	0.32	0.39	0.44	0.47	0.49	0.50	181.5%
CO ₂ Reference Approach (Mt of CO ₂)	0.18	0.32	0.39	0.44	0.47	0.49	0.50	181.5%
TPES (PJ)	2	4	5	6	6	7	7	179.9%
TPES (Mtoe)	0.06	0.11	0.13	0.14	0.15	0.16	0.16	179.8%
GDP (billion 2000 USD)	0.58	0.63	0.74	0.83	0.88	0.89	0.84	45.3%
GDP PPP (billion 2000 USD)	0.61	0.66	0.77	0.87	0.92	0.92	0.88	45.1%
Population (millions)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.0%
CO ₂ / TPES (t CO ₂ per TJ)	72.6	72.9	72.9	73.0	73.0	73.0	73.0	0.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.31	0.51	0.53	0.53	0.53	0.55	0.60	93.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.29	0.49	0.51	0.50	0.51	0.53	0.57	94.0%
CO ₂ / population (t CO ₂ per capita)	6.13	11.97	14.46	15.59	16.21	16.74	17.26	181.5%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	0.50	-	-	0.50	181.5%
Main activity producer elec. and heat	-	0.13	-	-	0.13	110.0%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.07	-	-	0.07	95.4%
Transport	-	0.31	-	-	0.31	268.9%
<i>of which: road</i>	-	0.31	-	-	0.31	268.9%
Other	-	-	-	-	-	-
<i>of which: residential</i>	-	-	-	-	-	-
Reference Approach	-	0.50	-	-	0.50	181.5%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	4.04	-	-	4.04	193.5%
<i>Memo: international aviation bunkers</i>	-	0.01	-	-	0.01	-42.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	0.31	268.9%	59.3	59.3
Main activity prod. elec. and heat - oil	0.13	110.0%	24.9	84.3
Manufacturing industries - oil	0.07	95.4%	12.7	96.9
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>0.50</i>	<i>181.5%</i>	<i>96.9</i>	<i>96.9</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Greece

Figure 1. CO₂ emissions by fuel

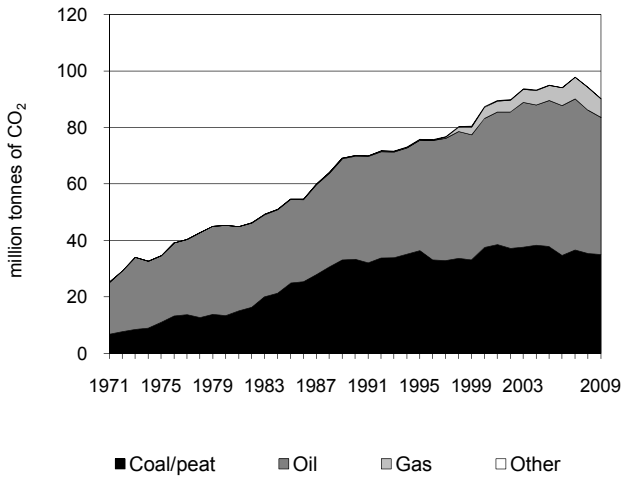


Figure 2. CO₂ emissions by sector

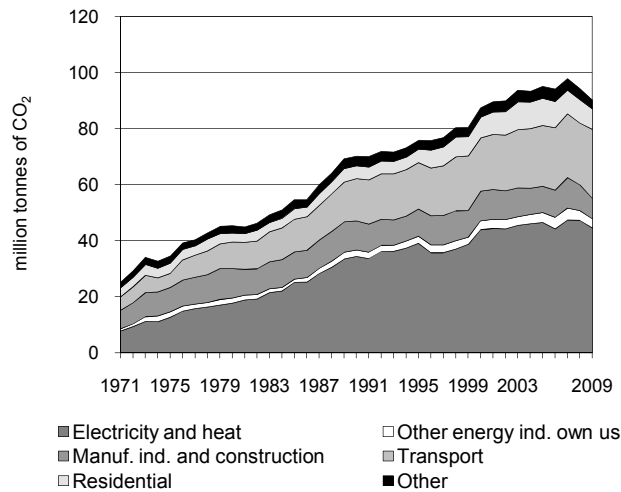


Figure 3. CO₂ emissions by sector

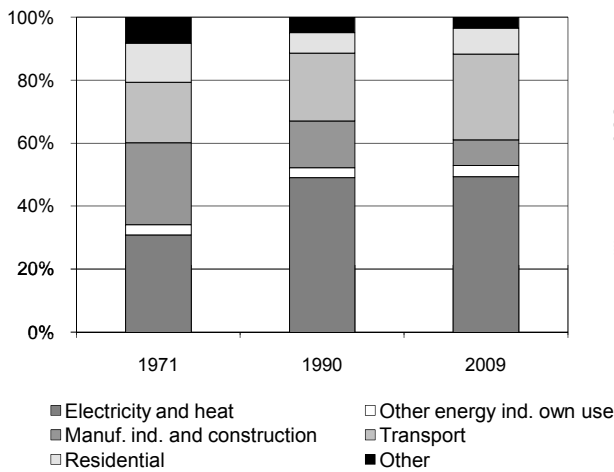


Figure 4. Reference vs Sectoral Approach

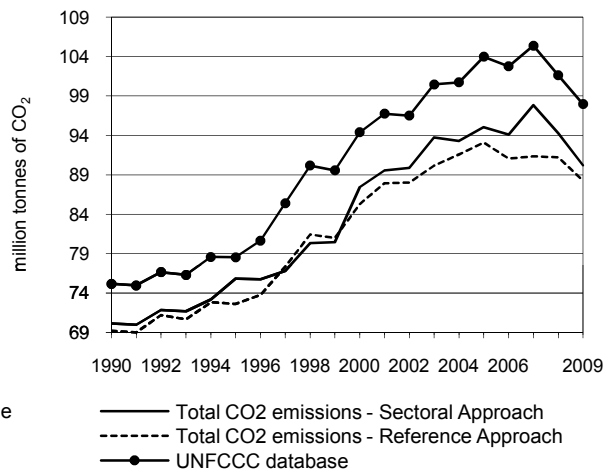


Figure 5. Electricity generation by fuel

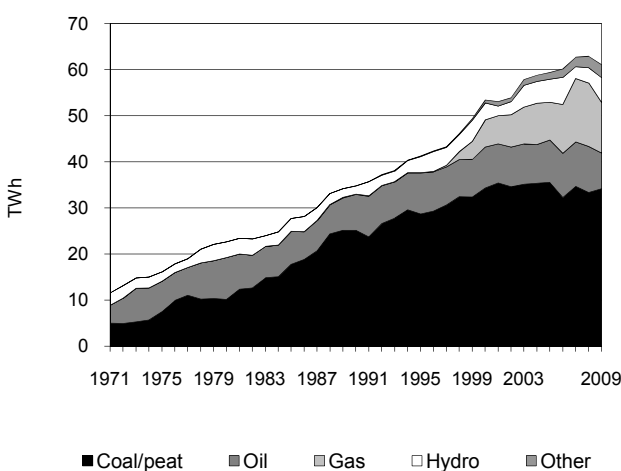
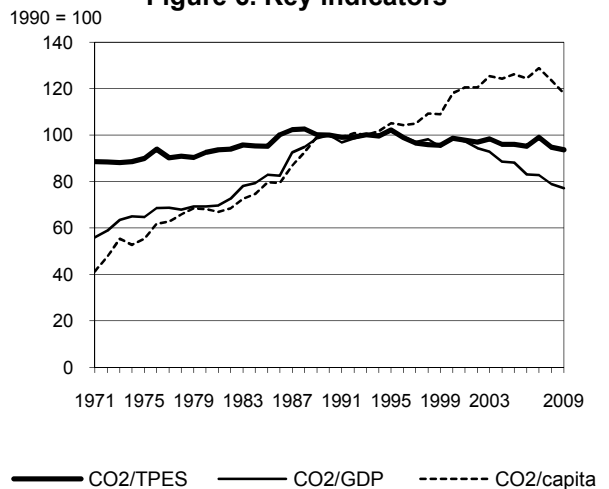


Figure 6. Key indicators



Greece

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	70.13	75.82	87.43	95.04	97.84	94.26	90.22	28.6%
CO ₂ Reference Approach (Mt of CO ₂)	69.23	72.62	85.28	93.10	91.34	91.22	88.25	27.5%
TPES (PJ)	898	949	1 134	1 266	1 265	1 274	1 233	37.3%
TPES (Mtoe)	21.44	22.68	27.09	30.25	30.22	30.42	29.44	37.3%
GDP (billion 2000 USD)	100.82	107.27	127.09	154.91	169.88	171.62	168.11	66.7%
GDP PPP (billion 2000 USD)	159.46	169.65	200.99	244.99	268.68	271.42	265.88	66.7%
Population (millions)	10.34	10.63	10.92	11.10	11.19	11.24	11.28	9.2%
CO ₂ / TPES (t CO ₂ per TJ)	78.1	79.9	77.1	75.0	77.3	74.0	73.2	-6.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.70	0.71	0.69	0.61	0.58	0.55	0.54	-22.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.44	0.45	0.44	0.39	0.36	0.35	0.34	-22.9%
CO ₂ / population (t CO ₂ per capita)	6.78	7.13	8.01	8.56	8.74	8.39	8.00	17.9%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	35.09	48.49	6.62	0.02	90.22	28.6%
Main activity producer elec. and heat	34.42	5.21	3.86	-	43.49	28.1%
Unallocated autoproducers	-	0.65	0.38	0.02	1.05	116.7%
Other energy industry own use	-	3.20	0.06	-	3.26	46.3%
Manufacturing industries and construction	0.65	5.31	1.34	-	7.30	-29.7%
Transport	-	24.56	0.04	-	24.60	63.0%
<i>of which: road</i>	-	20.77	0.03	-	20.80	80.8%
Other	0.01	9.56	0.94	-	10.51	31.5%
<i>of which: residential</i>	0.01	6.73	0.60	-	7.34	60.0%
Reference Approach	34.94	46.54	6.75	0.02	88.25	27.5%
Diff. due to losses and/or transformation	-	- 1.01	0.05	-	- 0.96	
Statistical differences	- 0.15	- 0.94	0.08	-	- 1.01	
<i>Memo: international marine bunkers</i>	-	8.25	-	-	8.25	3.5%
<i>Memo: international aviation bunkers</i>	-	2.53	-	-	2.53	7.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	34.42	20.3%	30.0	30.0
Road - oil	20.77	80.5%	18.1	48.1
Residential - oil	6.73	49.4%	5.9	53.9
Manufacturing industries - oil	5.31	-4.8%	4.6	58.6
Main activity prod. elec. and heat - oil	5.21	-2.3%	4.5	63.1
Main activity prod. elec. and heat - gas	3.86	x	3.4	66.5
Other transport - oil	3.79	5.9%	3.3	69.8
Other energy industry own use - oil	3.20	47.1%	2.8	72.6
Non-specified other - oil	2.83	-16.1%	2.5	75.0
Manufacturing industries - gas	1.34	786.4%	1.2	76.2
Manufacturing industries - coal/peat	0.65	-86.0%	0.6	76.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>90.22</i>	<i>28.6%</i>	<i>78.6</i>	<i>78.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Guatemala

Figure 1. CO₂ emissions by fuel

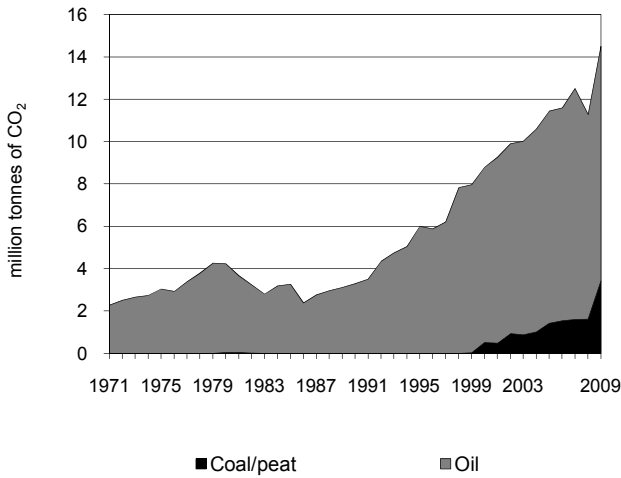


Figure 2. CO₂ emissions by sector

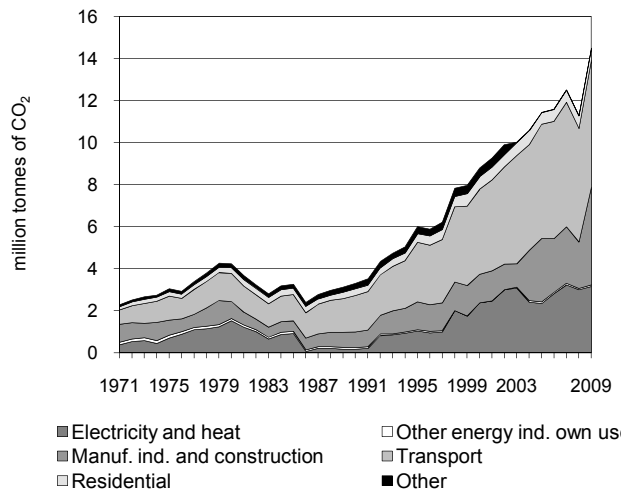


Figure 3. CO₂ emissions by sector

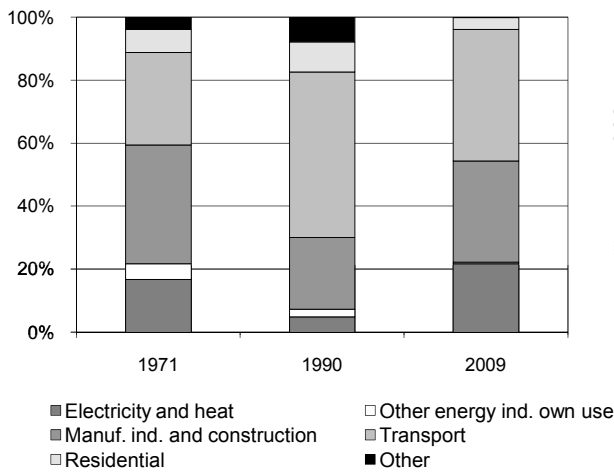


Figure 4. Reference vs Sectoral Approach

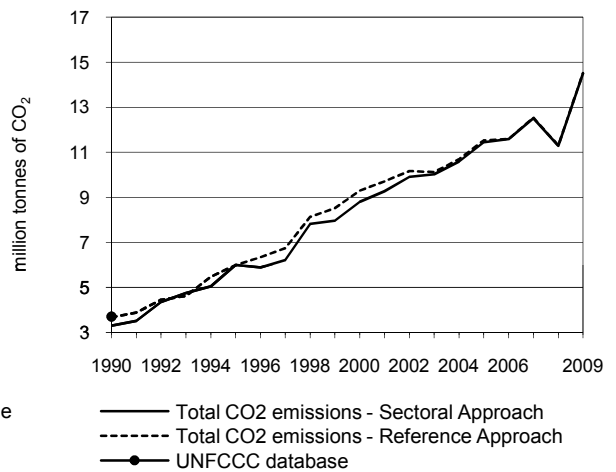


Figure 5. Electricity generation by fuel

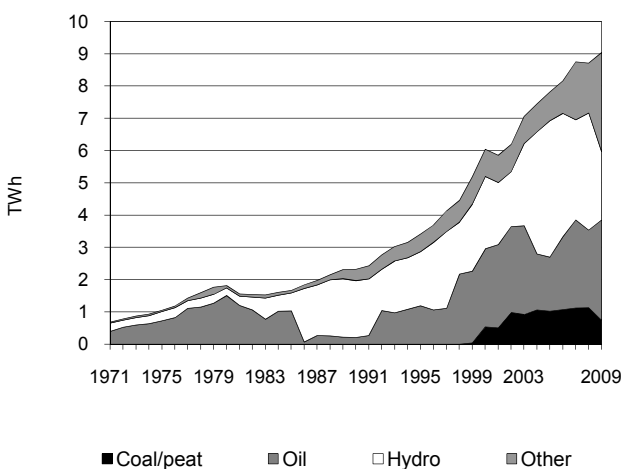
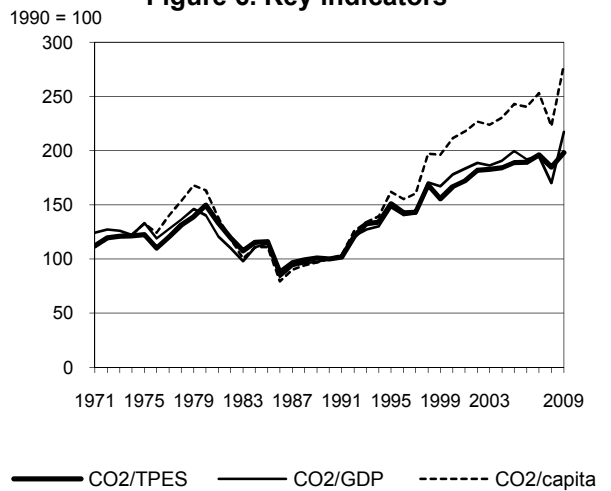


Figure 6. Key indicators



Guatemala

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	3.30	6.01	8.79	11.44	12.51	11.29	14.51	339.5%
CO ₂ Reference Approach (Mt of CO ₂)	3.67	5.99	9.30	11.53	12.53	11.30	14.52	295.6%
TPES (PJ)	186	224	297	341	359	343	412	121.9%
TPES (Mtoe)	4.43	5.35	7.09	8.13	8.58	8.20	9.84	121.9%
GDP (billion 2000 USD)	12.89	15.89	19.29	22.39	25.09	25.91	26.06	102.2%
GDP PPP (billion 2000 USD)	30.20	37.24	45.21	52.47	58.78	60.72	61.07	102.2%
Population (millions)	8.91	10.01	11.23	12.71	13.35	13.69	14.03	57.4%
CO ₂ / TPES (t CO ₂ per TJ)	17.8	26.8	29.6	33.6	34.8	32.9	35.2	98.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.26	0.38	0.46	0.51	0.50	0.44	0.56	117.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.11	0.16	0.19	0.22	0.21	0.19	0.24	117.3%
CO ₂ / population (t CO ₂ per capita)	0.37	0.60	0.78	0.90	0.94	0.82	1.03	179.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	3.42	11.08	-	-	14.51	339.5%
Main activity producer elec. and heat	0.70	2.32	-	-	3.02	+
Unallocated autoproducers	-	0.14	-	-	0.14	x
Other energy industry own use	-	0.08	-	-	0.08	-5.5%
Manufacturing industries and construction	2.72	1.94	-	-	4.66	521.8%
Transport	-	6.05	-	-	6.05	248.9%
<i>of which: road</i>	-	6.04	-	-	6.04	248.6%
Other	-	0.56	-	-	0.56	-2.0%
<i>of which: residential</i>	-	0.55	-	-	0.55	73.5%
Reference Approach	3.42	11.10	-	-	14.52	295.6%
Diff. due to losses and/or transformation	-	0.03	-	-	0.03	
Statistical differences	0.00	-0.01	-	-	-0.01	
<i>Memo: international marine bunkers</i>	-	0.38	-	-	0.38	-
<i>Memo: international aviation bunkers</i>	-	0.07	-	-	0.07	-43.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	6.04	248.6%	22.6	22.6
Manufacturing industries - coal/peat	2.72	x	10.2	32.7
Main activity prod. elec. and heat - oil	2.32	+	8.7	41.4
Manufacturing industries - oil	1.94	159.1%	7.3	48.7
Main activity prod. elec. and heat - coal/peat	0.70	x	2.6	51.3
Residential - oil	0.55	73.5%	2.0	53.3
Unallocated autoproducers - oil	0.14	x	0.5	53.8
Other energy industry own use - oil	0.08	-5.5%	0.3	54.1
Non-specified other - oil	0.01	-94.3%	0.1	54.2
Other transport - oil	0.01	x	0.0	54.2
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>14.51</i>	<i>339.5%</i>	<i>54.2</i>	<i>54.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Haiti

Figure 1. CO₂ emissions by fuel

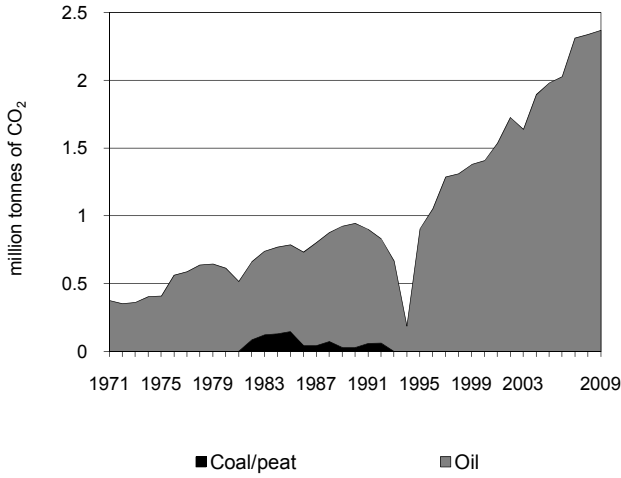


Figure 2. CO₂ emissions by sector

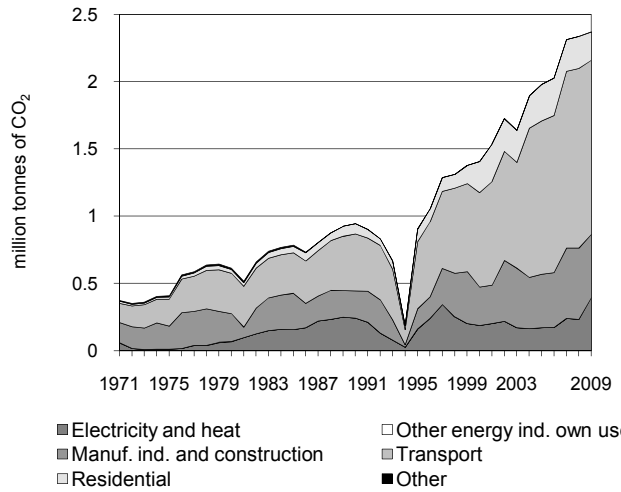


Figure 3. CO₂ emissions by sector

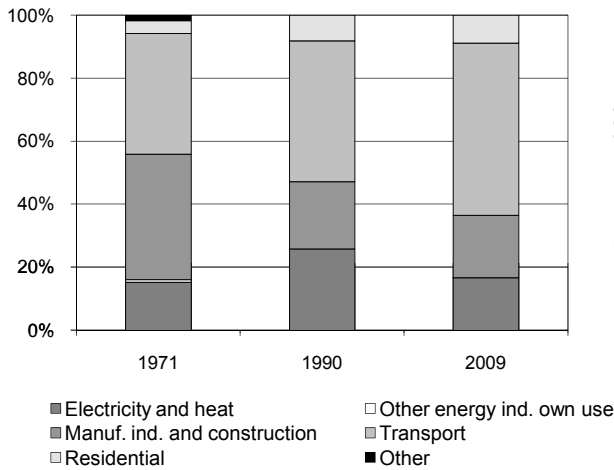


Figure 4. Reference vs Sectoral Approach

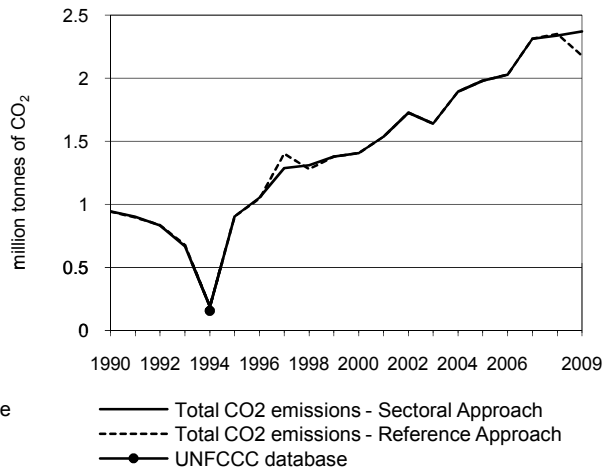


Figure 5. Electricity generation by fuel

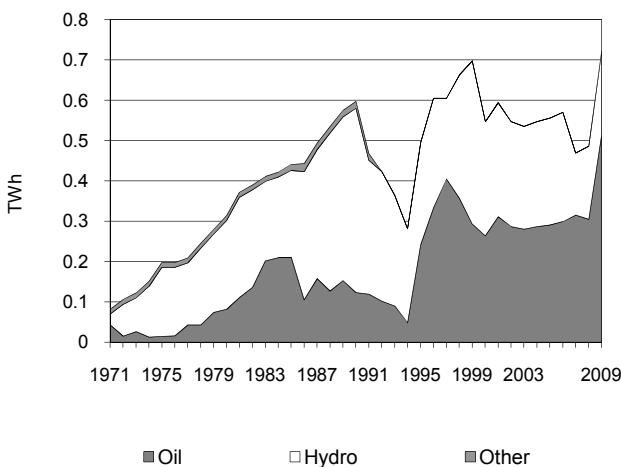
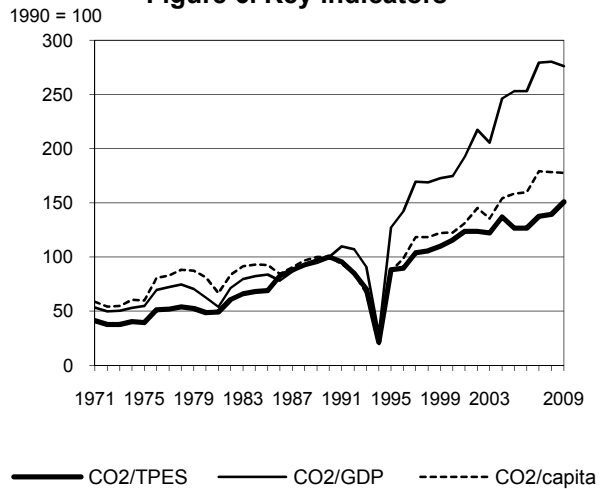


Figure 6. Key indicators



Haiti

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	0.94	0.90	1.41	1.98	2.31	2.34	2.37	150.9%
CO ₂ Reference Approach (Mt of CO ₂)	0.94	0.90	1.41	1.98	2.31	2.35	2.18	131.3%
TPES (PJ)	65	71	84	108	116	116	109	66.3%
TPES (Mtoe)	1.56	1.69	2.01	2.58	2.78	2.77	2.60	66.3%
GDP (billion 2000 USD)	4.30	3.24	3.67	3.57	3.77	3.80	3.91	-9.1%
GDP PPP (billion 2000 USD)	14.36	10.81	12.24	11.91	12.58	12.69	13.05	-9.1%
Population (millions)	7.11	7.86	8.65	9.41	9.72	9.88	10.03	41.2%
CO ₂ / TPES (t CO ₂ per TJ)	14.5	12.8	16.7	18.3	19.9	20.1	21.8	50.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.22	0.28	0.38	0.56	0.61	0.62	0.61	176.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.07	0.08	0.12	0.17	0.18	0.18	0.18	176.0%
CO ₂ / population (t CO ₂ per capita)	0.13	0.12	0.16	0.21	0.24	0.24	0.24	77.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-09
Sectoral Approach	-	2.37	-	-	2.37	150.9%
Main activity producer elec. and heat	-	0.39	-	-	0.39	78.1%
Unallocated autoproducers
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.47	-	-	0.47	133.4%
Transport	-	1.29	-	-	1.29	206.4%
<i>of which: road</i>	-	0.70	-	-	0.70	280.0%
Other	-	0.21	-	-	0.21	174.1%
<i>of which: residential</i>	-	0.21	-	-	0.21	174.1%
Reference Approach	-	2.18	-	-	2.18	131.3%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-0.19	-	-	-0.19	-
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	0.05	-	-	0.05	-26.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	0.70	280.0%	8.2	8.2
Other transport - oil	0.59	149.3%	6.9	15.1
Manufacturing industries - oil	0.47	172.1%	5.5	20.6
Main activity prod. elec. and heat - oil	0.39	78.1%	4.6	25.2
Residential - oil	0.21	174.1%	2.5	27.7
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>2.37</i>	<i>150.9%</i>	<i>27.7</i>	<i>27.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Honduras

Figure 1. CO₂ emissions by fuel

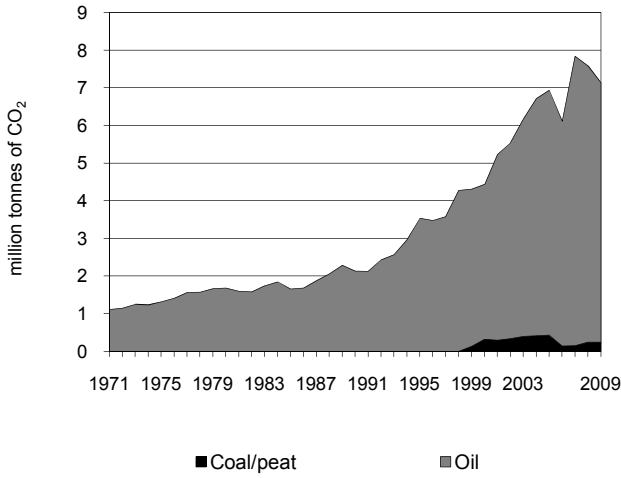


Figure 2. CO₂ emissions by sector

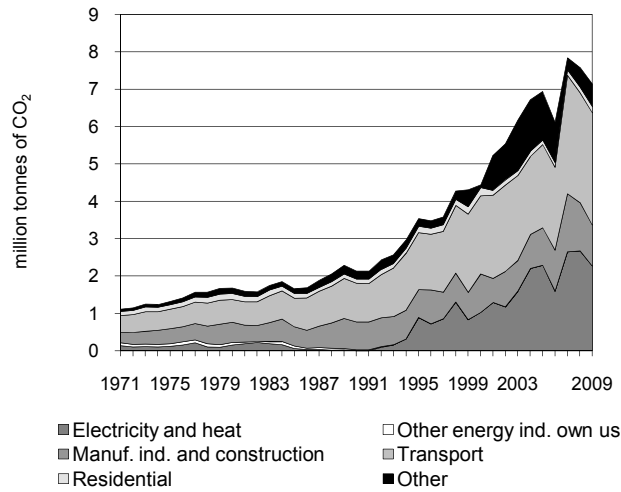


Figure 3. CO₂ emissions by sector

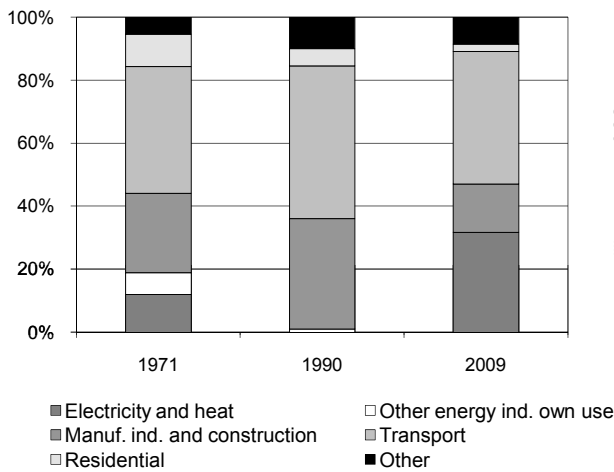


Figure 4. Reference vs Sectoral Approach

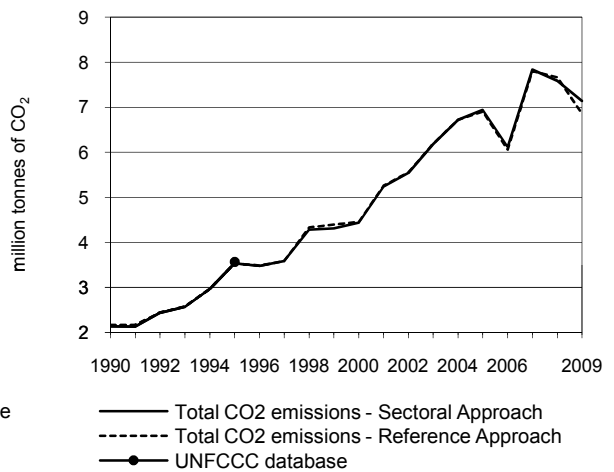


Figure 5. Electricity generation by fuel

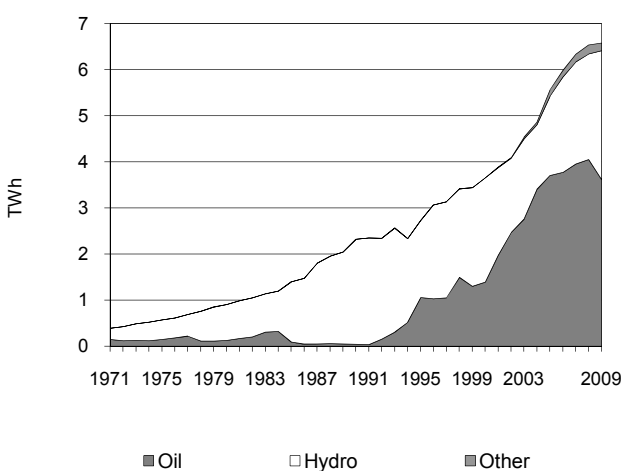
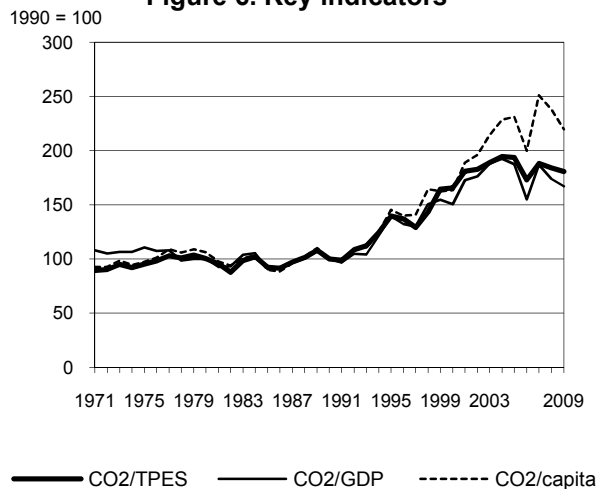


Figure 6. Key indicators



Honduras

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2.13	3.53	4.44	6.94	7.84	7.59	7.14	234.6%
CO ₂ Reference Approach (Mt of CO ₂)	2.16	3.54	4.46	6.91	7.80	7.67	6.86	217.2%
TPES (PJ)	100	118	125	167	195	193	185	85.2%
TPES (Mtoe)	2.38	2.82	2.99	4.00	4.65	4.60	4.41	85.2%
GDP (billion 2000 USD)	5.14	6.12	7.11	8.92	10.11	10.51	10.31	100.4%
GDP PPP (billion 2000 USD)	15.93	18.95	22.01	27.63	31.30	32.54	31.92	100.4%
Population (millions)	4.90	5.59	6.23	6.89	7.17	7.32	7.47	52.3%
CO ₂ / TPES (t CO ₂ per TJ)	21.4	29.9	35.5	41.5	40.3	39.4	38.7	80.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.42	0.58	0.62	0.78	0.78	0.72	0.69	67.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.13	0.19	0.20	0.25	0.25	0.23	0.22	67.0%
CO ₂ / population (t CO ₂ per capita)	0.44	0.63	0.71	1.01	1.09	1.04	0.96	119.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.25	6.90	-	-	7.14	234.6%
Main activity producer elec. and heat	-	2.27	-	-	2.27	x
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.25	0.85	-	-	1.09	46.2%
Transport	-	3.01	-	-	3.01	190.9%
<i>of which: road</i>	-	3.01	-	-	3.01	190.6%
Other	-	0.77	-	-	0.77	134.8%
<i>of which: residential</i>	-	0.16	-	-	0.16	41.1%
Reference Approach	0.25	6.61	-	-	6.86	217.2%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-0.29	-	-	-0.29	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.15	-	-	0.15	69.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	3.01	190.6%	18.3	18.3
Main activity prod. elec. and heat - oil	2.27	x	13.8	32.2
Manufacturing industries - oil	0.85	13.7%	5.2	37.3
Non-specified other - oil	0.61	186.1%	3.7	41.1
Manufacturing industries - coal/peat	0.25	+	1.5	42.6
Residential - oil	0.16	41.1%	1.0	43.6
Other transport - oil	0.00	x	0.0	43.6
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>7.14</i>	<i>234.6%</i>	<i>43.6</i>	<i>43.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Hong Kong, China

Figure 1. CO₂ emissions by fuel

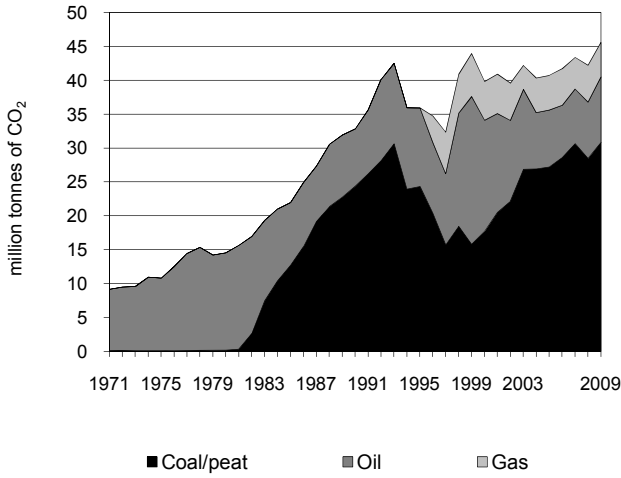


Figure 2. CO₂ emissions by sector

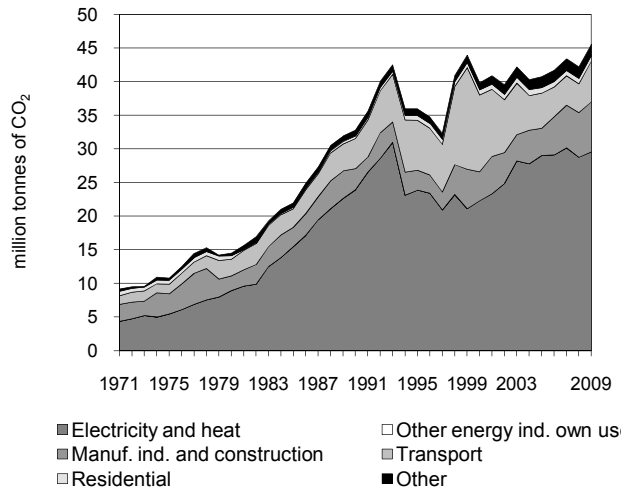


Figure 3. CO₂ emissions by sector

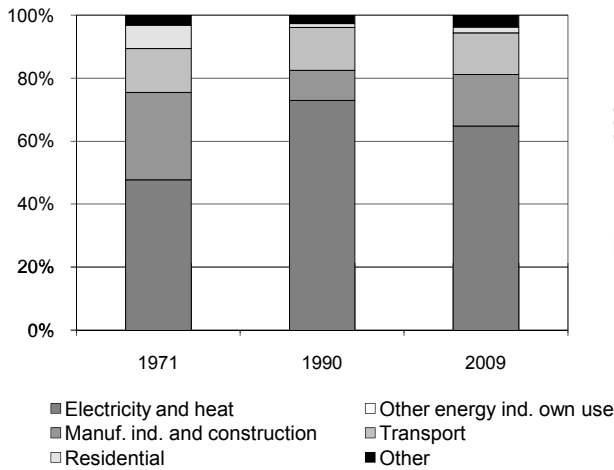


Figure 4. Reference vs Sectoral Approach

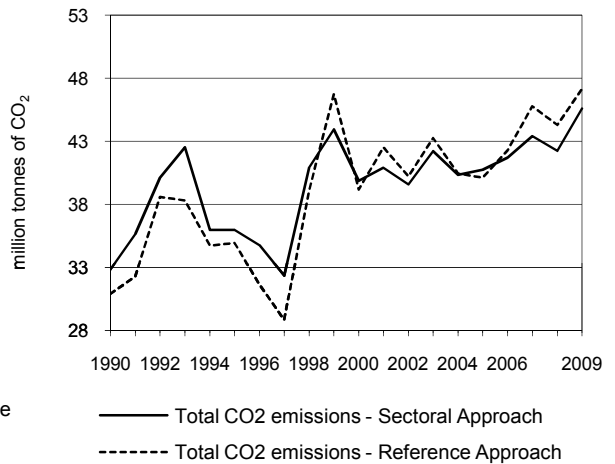


Figure 5. Electricity generation by fuel

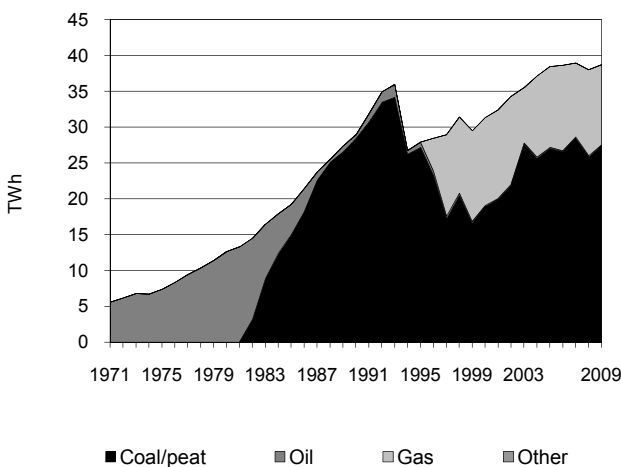
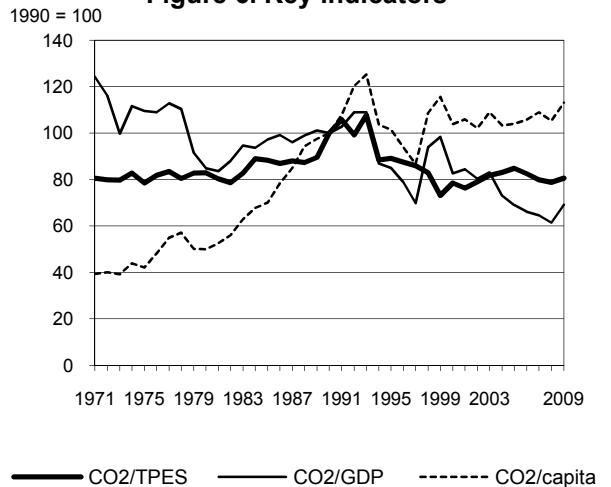


Figure 6. Key indicators



Hong Kong, China

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	32.82	35.97	39.85	40.75	43.40	42.25	45.60	38.9%
CO ₂ Reference Approach (Mt of CO ₂)	30.91	34.94	39.18	40.12	45.77	44.29	47.14	52.5%
TPES (PJ)	362	446	561	530	600	592	625	72.5%
TPES (Mtoe)	8.66	10.65	13.39	12.66	14.34	14.14	14.94	72.5%
GDP (billion 2000 USD)	115.16	148.51	169.12	207.09	235.76	241.34	231.34	100.9%
GDP PPP (billion 2000 USD)	119.23	153.75	175.09	214.40	244.09	249.86	239.51	100.9%
Population (millions)	5.71	6.16	6.67	6.81	6.93	6.98	7.00	22.8%
CO ₂ / TPES (t CO ₂ per TJ)	90.6	80.7	71.1	76.9	72.3	71.4	72.9	-19.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.29	0.24	0.24	0.20	0.18	0.18	0.20	-30.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.28	0.23	0.23	0.19	0.18	0.17	0.19	-30.8%
CO ₂ / population (t CO ₂ per capita)	5.75	5.84	5.98	5.98	6.27	6.05	6.51	13.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	30.84	9.68	5.08	-	45.60	38.9%
Main activity producer elec. and heat	24.34	0.13	5.08	-	29.55	23.3%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	5.20	2.26	-	-	7.46	139.7%
Transport	-	6.05	-	-	6.05	34.5%
<i>of which: road</i>	-	6.05	-	-	6.05	34.7%
Other	1.30	1.24	-	-	2.54	102.3%
<i>of which: residential</i>	0.76	0.06	-	-	0.81	116.4%
Reference Approach	29.49	11.75	5.89	-	47.14	52.5%
Diff. due to losses and/or transformation	- 1.35	1.51	0.81	-	0.97	
Statistical differences	0.00	0.57	-	-	0.57	
<i>Memo: international marine bunkers</i>	-	32.35	-	-	32.35	615.2%
<i>Memo: international aviation bunkers</i>	-	14.06	-	-	14.06	150.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	24.34	3.0%	47.8	47.8
Road - oil	6.05	34.7%	11.9	59.7
Manufacturing industries - coal/peat	5.20	+	10.2	69.9
Main activity prod. elec. and heat - gas	5.08	x	10.0	79.9
Manufacturing industries - oil	2.26	-26.6%	4.4	84.3
Non-specified other - oil	1.18	118.6%	2.3	86.6
Residential - coal/peat	0.76	101.4%	1.5	88.1
Non-specified other sectors - coal/peat	0.55	60.9%	1.1	89.2
Main activity prod. elec. and heat - oil	0.13	-58.4%	0.3	89.4
Residential - oil	0.06	x	0.1	89.5
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>45.60</i>	<i>38.9%</i>	<i>89.5</i>	<i>89.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Hungary

Figure 1. CO₂ emissions by fuel

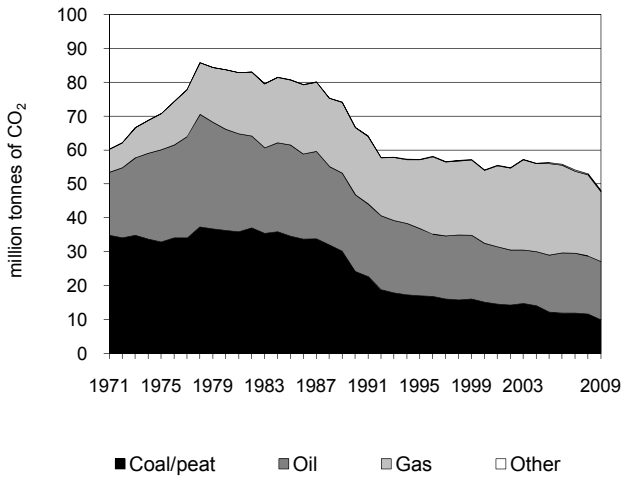


Figure 2. CO₂ emissions by sector

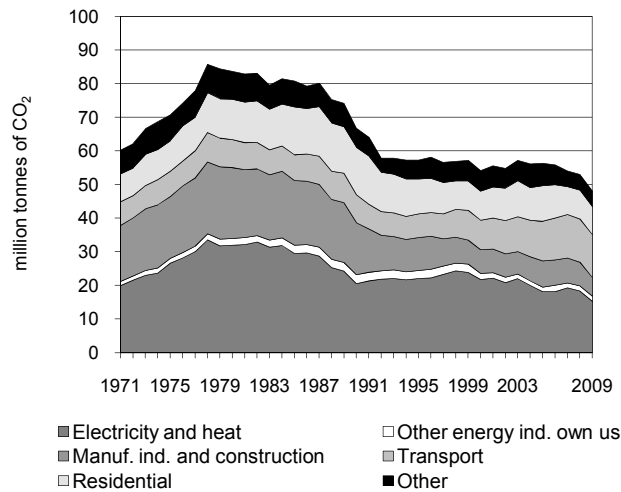


Figure 3. CO₂ emissions by sector



Figure 4. Reference vs Sectoral Approach

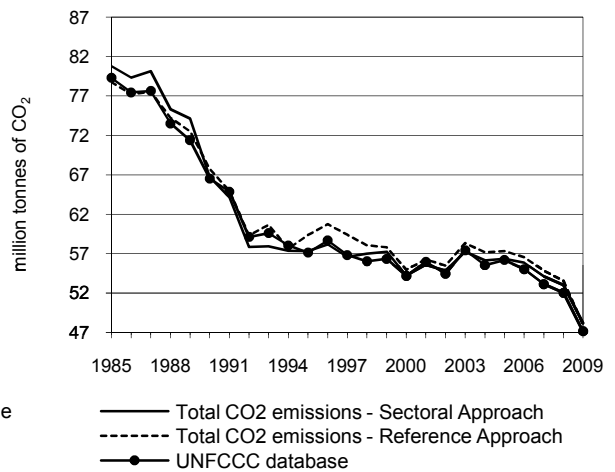


Figure 5. Electricity generation by fuel

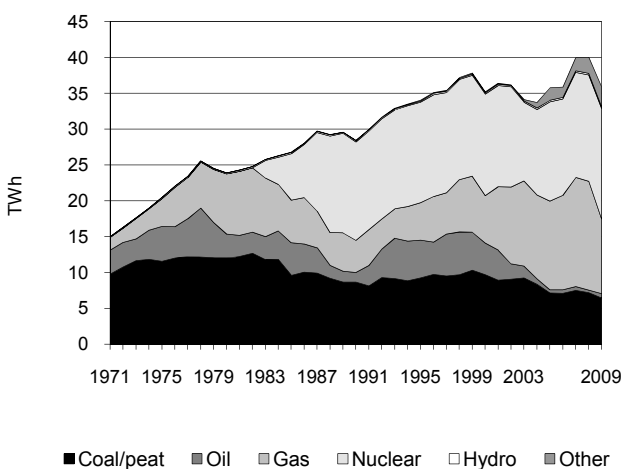
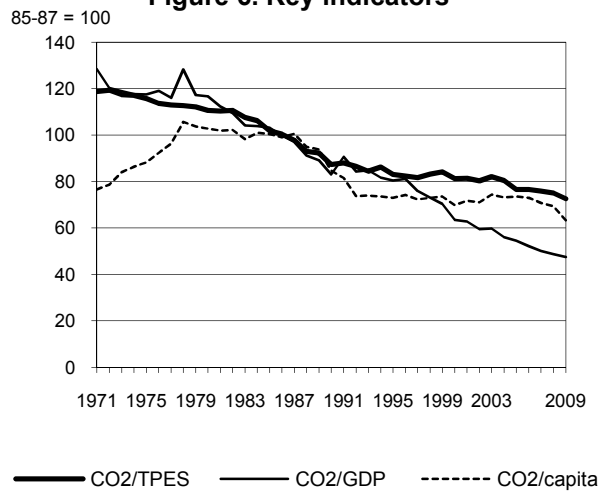


Figure 6. Key indicators



Hungary *

Key indicators

	Avg 85-87	1990	1995	2005	2007	2008	2009	% change base-09
CO ₂ Sectoral Approach (Mt of CO ₂)	80.10	66.74	57.31	56.36	54.12	53.01	48.16	-39.9%
CO ₂ Reference Approach (Mt of CO ₂)	77.85	67.74	59.35	57.33	54.86	53.54	48.01	-38.3%
TPES (PJ)	1 258	1 200	1 083	1 155	1 119	1 108	1 041	-17.2%
TPES (Mtoe)	30.04	28.66	25.87	27.58	26.73	26.46	24.86	-17.2%
GDP (billion 2000 USD)	44.52	44.62	39.59	57.41	59.95	60.45	56.40	26.7%
GDP PPP (billion 2000 USD)	116.42	116.69	103.53	150.13	156.79	158.09	147.51	26.7%
Population (millions)	10.53	10.37	10.33	10.09	10.06	10.04	10.02	-4.8%
CO ₂ / TPES (t CO ₂ per TJ)	63.7	55.6	52.9	48.8	48.4	47.9	46.3	-27.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.80	1.50	1.45	0.98	0.90	0.88	0.85	-52.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.69	0.57	0.55	0.38	0.35	0.34	0.33	-52.5%
CO ₂ / population (t CO ₂ per capita)	7.60	6.44	5.55	5.59	5.38	5.28	4.81	-36.8%

Ratios are based on the Sectoral Approach.

* According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, Hungary is allowed to use average 85-87 as the base year.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change base-09
	Coal/peat	Oil	gas	Other **		
Sectoral Approach	9.93	17.17	20.72	0.33	48.16	-39.9%
Main activity producer elec. and heat	8.08	0.59	6.20	0.21	15.09	-40.9%
Unallocated autoproducers	0.01	0.08	0.14	-	0.22	-94.1%
Other energy industry own use	0.13	1.02	0.41	-	1.56	-39.4%
Manufacturing industries and construction	1.14	1.71	2.58	0.12	5.55	-70.6%
Transport	-	12.76	0.00	-	12.76	58.8%
of which: road	-	12.48	0.00	-	12.48	79.6%
Other	0.57	1.02	11.40	-	12.98	-39.0%
of which: residential	0.56	0.27	7.43	-	8.27	-41.7%
Reference Approach	10.21	16.34	21.13	0.33	48.01	-38.3%
Diff. due to losses and/or transformation	0.25	-0.82	0.42	-	-0.15	
Statistical differences	0.02	-0.02	-0.00	-0.00	0.00	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.70	-	-	0.70	59.0%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change base-09	Level assessment (%) ***	Cumulative total (%)
Road - oil	12.48	79.6%	18.4	18.4
Main activity prod. elec. and heat - coal/peat	8.08	-51.7%	11.9	30.4
Residential - gas	7.43	199.0%	11.0	41.4
Main activity prod. elec. and heat - gas	6.20	30.6%	9.2	50.5
Non-specified other - gas	3.96	129.4%	5.9	56.4
Manufacturing industries - gas	2.58	-71.0%	3.8	60.2
Manufacturing industries - oil	1.71	-60.0%	2.5	62.7
Manufacturing industries - coal/peat	1.14	-80.1%	1.7	64.4
Other energy industry own use - oil	1.02	-46.2%	1.5	65.9
Non-specified other - oil	0.74	-82.1%	1.1	67.0
Main activity prod. elec. and heat - oil	0.59	-85.1%	0.9	67.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>48.16</i>	<i>-39.9%</i>	<i>71.2</i>	<i>71.2</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Iceland

Figure 1. CO₂ emissions by fuel

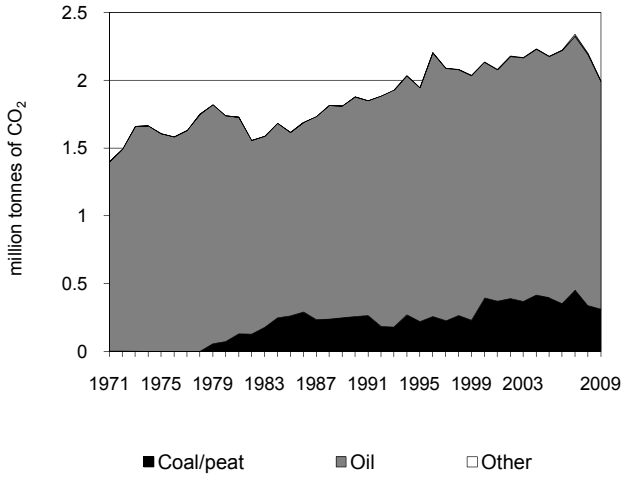


Figure 2. CO₂ emissions by sector

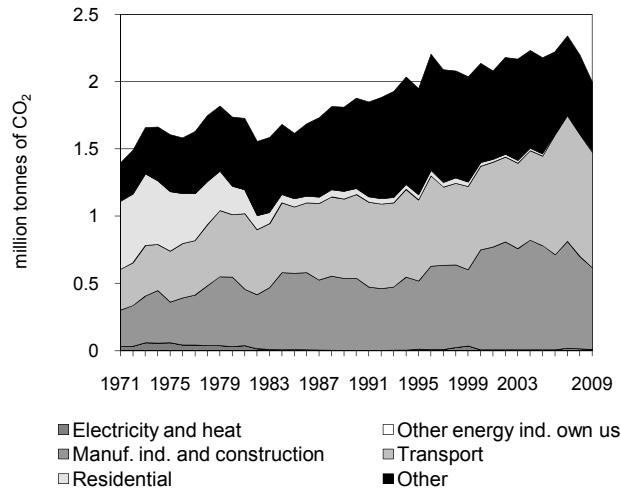


Figure 3. CO₂ emissions by sector

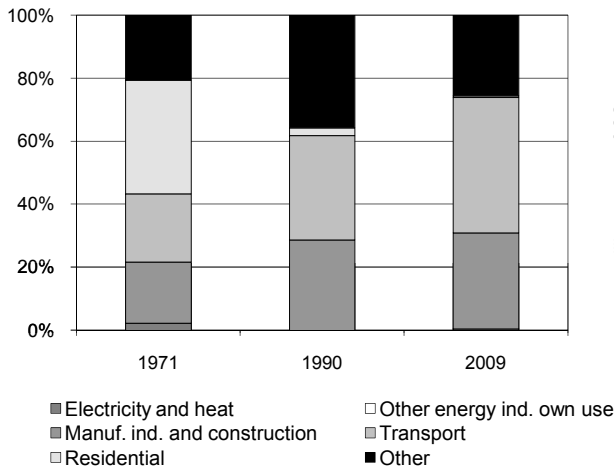


Figure 4. Reference vs Sectoral Approach

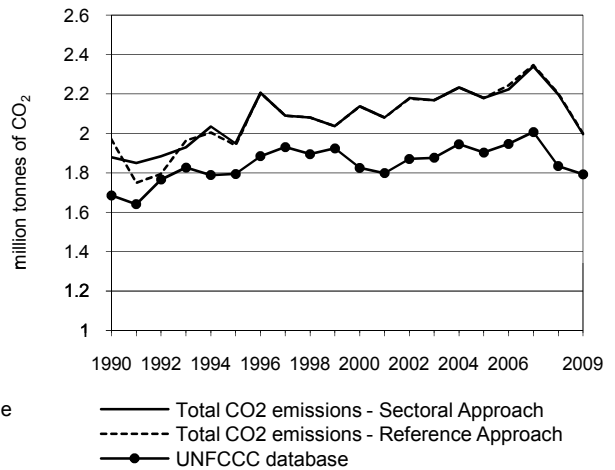


Figure 5. Electricity generation by fuel

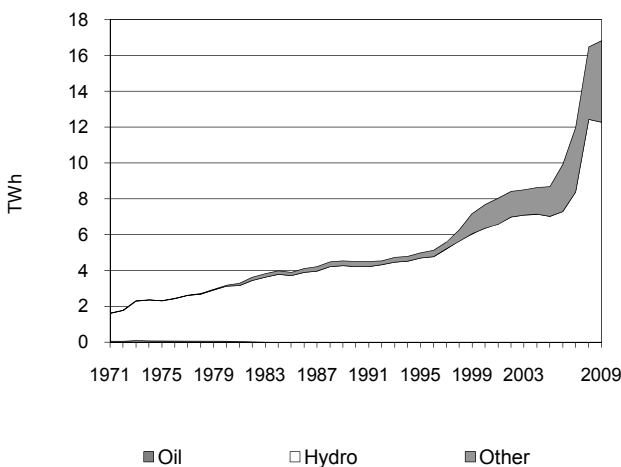
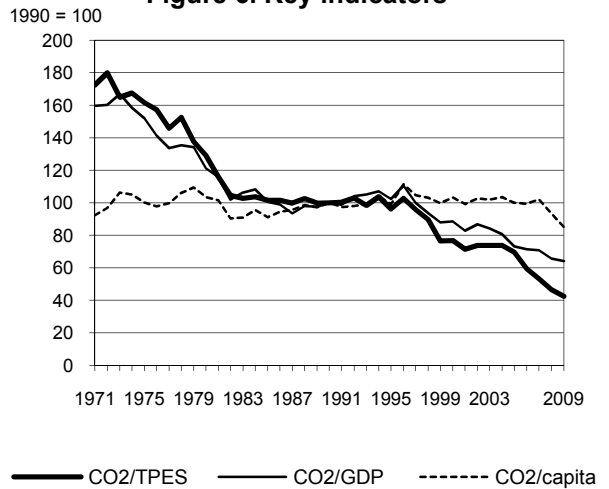


Figure 6. Key indicators



Iceland

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	1.88	1.95	2.14	2.18	2.34	2.20	2.00	6.2%
CO ₂ Reference Approach (Mt of CO ₂)	1.97	1.94	2.14	2.18	2.35	2.20	2.00	1.5%
TPES (PJ)	87	94	130	146	205	220	219	150.2%
TPES (Mtoe)	2.09	2.25	3.10	3.48	4.89	5.25	5.22	150.2%
GDP (billion 2000 USD)	6.76	6.85	8.70	10.73	11.89	12.05	11.22	65.9%
GDP PPP (billion 2000 USD)	6.31	6.39	8.11	10.00	11.09	11.24	10.46	65.9%
Population (millions)	0.26	0.27	0.28	0.30	0.31	0.32	0.32	25.1%
CO ₂ / TPES (t CO ₂ per TJ)	21.5	20.7	16.5	15.0	11.4	10.0	9.1	-57.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.28	0.28	0.25	0.20	0.20	0.18	0.18	-36.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.30	0.30	0.26	0.22	0.21	0.20	0.19	-36.0%
CO ₂ / population (t CO ₂ per capita)	7.37	7.30	7.60	7.36	7.53	6.89	6.26	-15.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.31	1.68	-	0.00	2.00	6.2%
Main activity producer elec. and heat	-	0.01	-	0.00	0.01	114.0%
Unallocated autoproducers	-	-	-	0.00	0.00	x
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.31	0.30	-	-	0.61	13.7%
Transport	-	0.86	-	-	0.86	37.8%
<i>of which: road</i>	-	0.78	-	-	0.78	46.7%
Other	-	0.52	-	-	0.52	-27.4%
<i>of which: residential</i>	-	0.01	-	-	0.01	-80.4%
Reference Approach	0.31	1.69	-	0.00	2.00	1.5%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.01	-	-	0.01	-
<i>Memo: international marine bunkers</i>	-	0.20	-	-	0.20	106.0%
<i>Memo: international aviation bunkers</i>	-	0.22	-	-	0.22	-

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	0.78	46.7%	16.1	16.1
Non-specified other - oil	0.51	-23.7%	10.6	26.7
Manufacturing industries - coal/peat	0.31	20.5%	6.5	33.2
Manufacturing industries - oil	0.30	7.4%	6.2	39.4
Other transport - oil	0.08	-13.6%	1.7	41.0
Residential - oil	0.01	-80.4%	0.2	41.2
Main activity prod. elec. and heat - oil	0.01	100.0%	0.1	41.3
Unallocated autoproducers - other	0.00	x	0.0	41.4
Main activity prod. elec. and heat - other	0.00	x	0.0	41.4
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>2.00</i>	<i>6.2%</i>	<i>41.4</i>	<i>41.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

India

Figure 1. CO₂ emissions by fuel

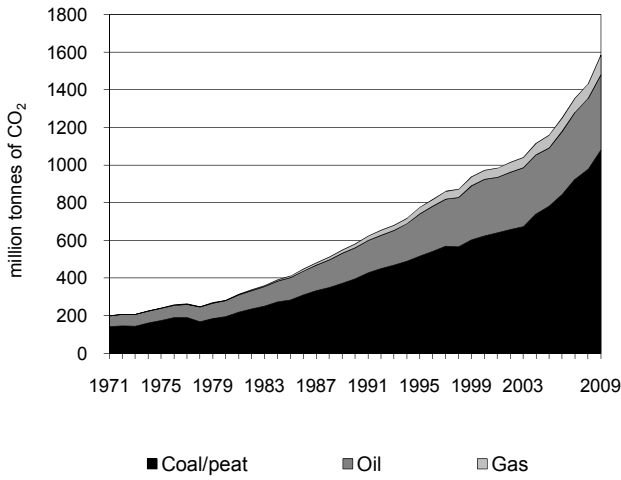


Figure 2. CO₂ emissions by sector

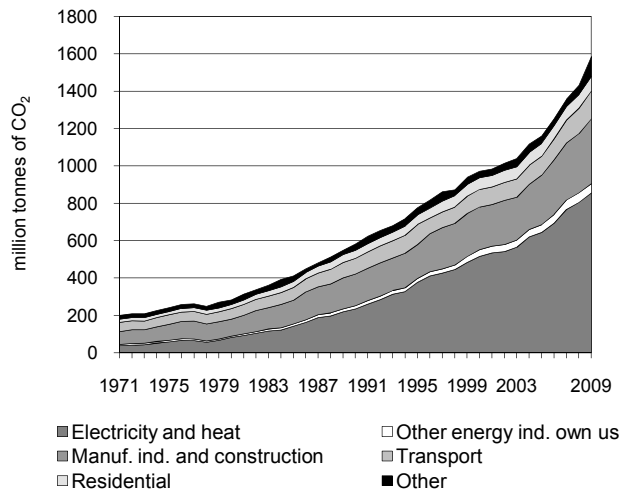


Figure 3. CO₂ emissions by sector

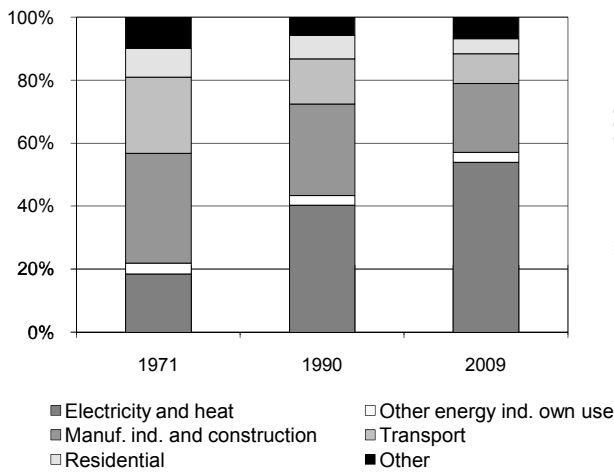


Figure 4. Reference vs Sectoral Approach

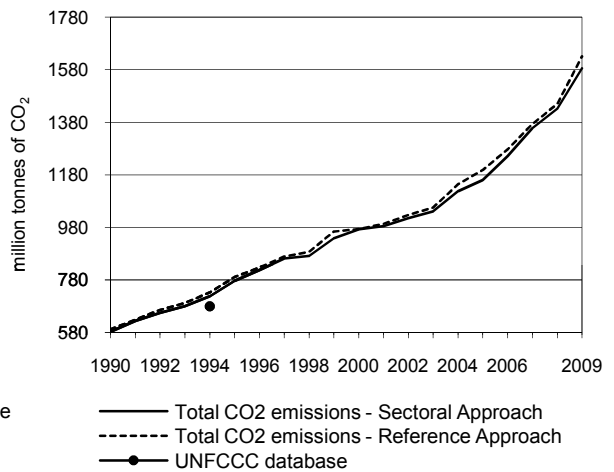


Figure 5. Electricity generation by fuel

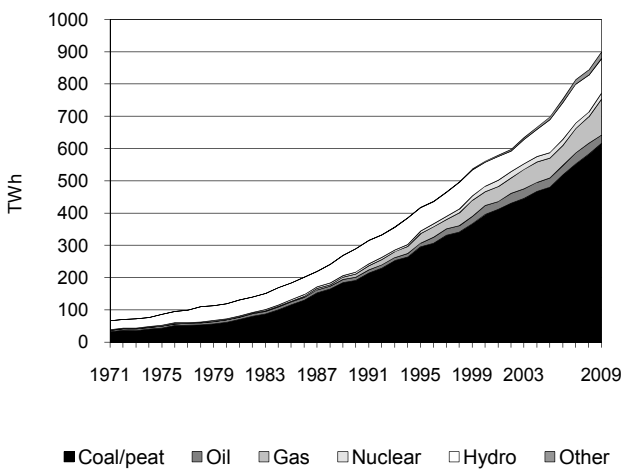
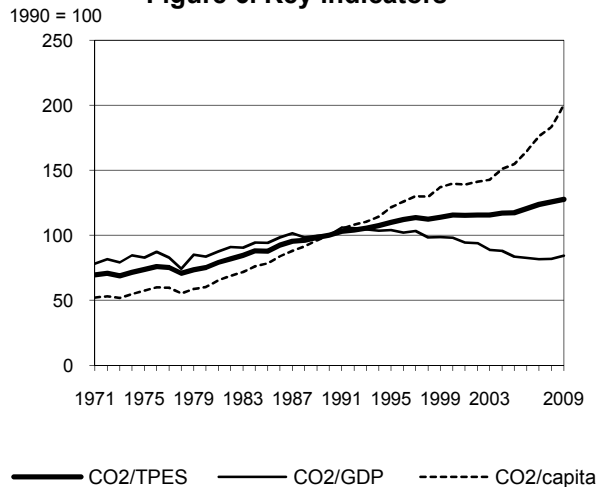


Figure 6. Key indicators



India

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	582.34	776.57	972.47	1 160.40	1 357.16	1 431.27	1 585.82	172.3%
CO ₂ Reference Approach (Mt of CO ₂)	590.75	791.01	973.60	1 198.43	1 372.92	1 450.25	1 629.96	175.9%
TPES (PJ)	13 261	16 089	19 143	22 521	24 977	25 917	28 296	113.4%
TPES (Mtoe)	316.74	384.28	457.21	537.91	596.56	619.02	675.83	113.4%
GDP (billion 2000 USD)	270.50	346.59	460.18	644.40	773.15	812.72	874.94	223.5%
GDP PPP (billion 2000 USD)	1 411.90	1 809.11	2 402.02	3 363.60	4 035.61	4 242.18	4 566.96	223.5%
Population (millions)	849.52	932.18	1 015.92	1 094.58	1 124.79	1 139.97	1 155.35	36.0%
CO ₂ / TPES (t CO ₂ per TJ)	43.9	48.3	50.8	51.5	54.3	55.2	56.0	27.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.15	2.24	2.11	1.80	1.76	1.76	1.81	-15.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.41	0.43	0.40	0.35	0.34	0.34	0.35	-15.8%
CO ₂ / population (t CO ₂ per capita)	0.69	0.83	0.96	1.06	1.21	1.26	1.37	100.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	1 080.41	400.76	104.64	-	1 585.82	172.3%
Main activity producer elec. and heat	672.95	20.19	41.33	-	734.47	235.6%
Unallocated autoproducers	95.02	13.28	12.92	-	121.22	654.1%
Other energy industry own use	2.31	36.88	10.51	-	49.70	179.2%
Manufacturing industries and construction	214.19	97.18	34.85	-	346.22	104.7%
Transport	-	145.42	4.66	-	150.08	80.1%
<i>of which: road</i>	-	129.45	4.66	-	134.10	103.9%
Other	95.95	87.81	0.38	-	184.13	138.6%
<i>of which: residential</i>	11.11	65.49	0.05	-	76.66	76.0%
Reference Approach	1 104.75	420.56	104.64	-	1 629.96	175.9%
Diff. due to losses and/or transformation	13.75	0.31	-	-	14.06	
Statistical differences	10.59	19.49	0.00	-	30.09	
<i>Memo: international marine bunkers</i>	-	0.51	-	-	0.51	7.7%
<i>Memo: international aviation bunkers</i>	-	10.23	-	-	10.23	175.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	672.95	231.0%	26.6	26.6
Manufacturing industries - coal/peat	214.19	72.9%	8.5	35.0
Road - oil	129.45	96.8%	5.1	40.1
Manufacturing industries - oil	97.18	166.8%	3.8	44.0
Unallocated autoproducers - coal/peat	95.02	679.7%	3.8	47.7
Non-specified other sectors - coal/peat	84.83	185.2%	3.3	51.1
Residential - oil	65.49	105.7%	2.6	53.6
Main activity prod. elec. and heat - gas	41.33	487.9%	1.6	55.3
Other energy industry own use - oil	36.88	328.3%	1.5	56.7
Manufacturing industries - gas	34.85	294.9%	1.4	58.1
Non-specified other - oil	22.32	499.7%	0.9	59.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>1585.82</i>	<i>172.3%</i>	<i>62.6</i>	<i>62.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Indonesia

Figure 1. CO₂ emissions by fuel

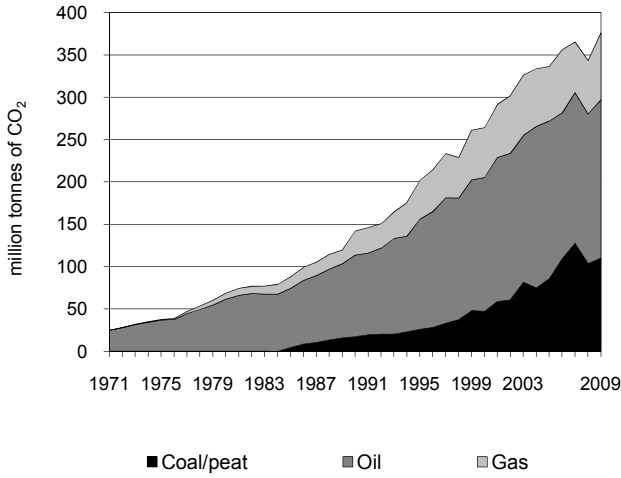


Figure 2. CO₂ emissions by sector

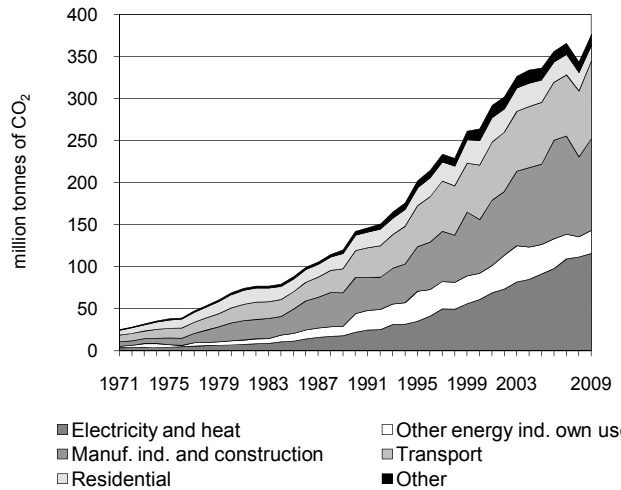


Figure 3. CO₂ emissions by sector

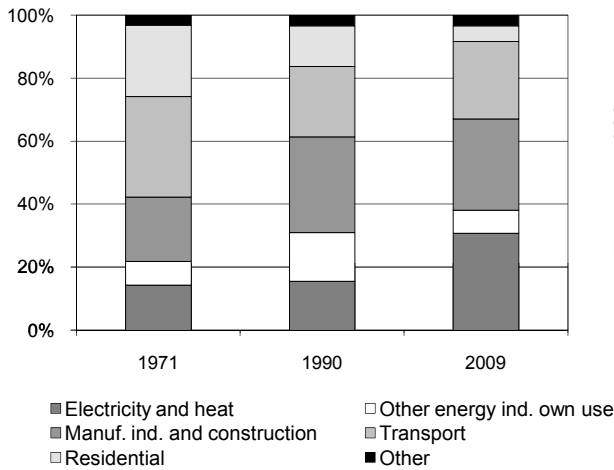


Figure 4. Reference vs Sectoral Approach

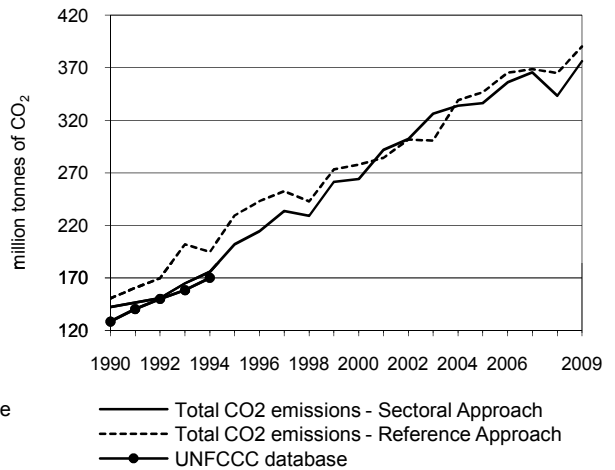


Figure 5. Electricity generation by fuel

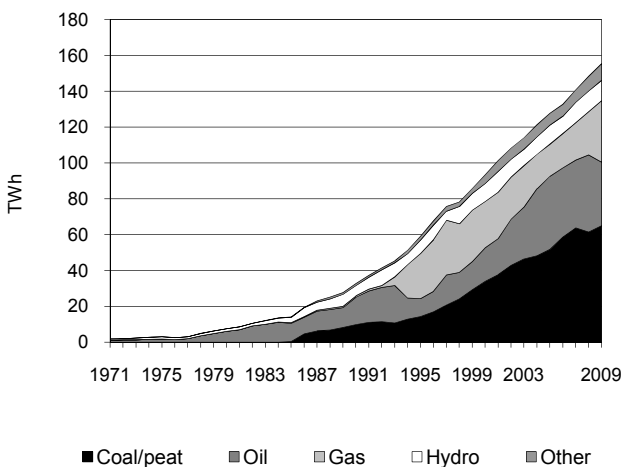
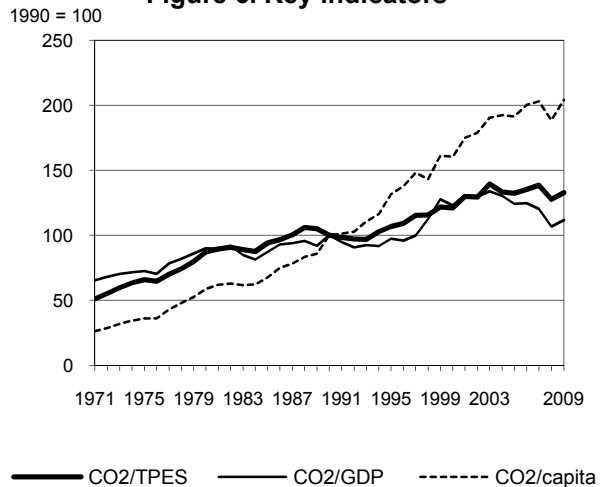


Figure 6. Key indicators



Indonesia

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	142.17	202.07	264.04	336.43	365.52	343.45	376.26	164.7%
CO ₂ Reference Approach (Mt of CO ₂)	150.44	229.37	277.72	346.74	368.56	364.93	390.30	159.4%
TPES (PJ)	4 242	5 651	6 518	7 594	7 884	8 030	8 457	99.4%
TPES (Mtoe)	101.33	134.97	155.69	181.38	188.31	191.80	202.00	99.4%
GDP (billion 2000 USD)	109.15	159.38	165.02	207.89	233.24	247.25	258.49	136.8%
GDP PPP (billion 2000 USD)	396.38	578.79	599.27	754.95	847.02	897.89	938.71	136.8%
Population (millions)	177.39	191.50	205.28	219.21	224.67	227.35	229.97	29.6%
CO ₂ / TPES (t CO ₂ per TJ)	33.5	35.8	40.5	44.3	46.4	42.8	44.5	32.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.30	1.27	1.60	1.62	1.57	1.39	1.46	11.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.36	0.35	0.44	0.45	0.43	0.38	0.40	11.7%
CO ₂ / population (t CO ₂ per capita)	0.80	1.06	1.29	1.53	1.63	1.51	1.64	104.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	110.59	186.53	79.14	-	376.26	164.7%
Main activity producer elec. and heat	44.75	25.93	15.38	-	86.06	288.0%
Unallocated autoproducers	24.67	0.69	4.51	-	29.87	x
Other energy industry own use	-	3.16	24.21	-	27.36	25.3%
Manufacturing industries and construction	41.17	33.21	34.75	-	109.13	152.5%
Transport	-	92.57	0.02	-	92.58	190.5%
<i>of which: road</i>	-	82.58	0.02	-	82.60	188.8%
Other	-	30.97	0.28	-	31.25	35.5%
<i>of which: residential</i>	-	18.48	0.04	-	18.52	1.2%
Reference Approach	120.23	191.19	78.89	-	390.30	159.4%
Diff. due to losses and/or transformation	0.01	- 0.42	-	-	- 0.40	
Statistical differences	9.63	5.07	- 0.25	-	14.45	
<i>Memo: international marine bunkers</i>	-	0.52	-	-	0.52	-68.8%
<i>Memo: international aviation bunkers</i>	-	1.90	-	-	1.90	97.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	82.58	188.8%	11.7	11.7
Main activity prod. elec. and heat - coal/peat	44.75	388.6%	6.3	18.0
Manufacturing industries - coal/peat	41.17	389.9%	5.8	23.9
Manufacturing industries - gas	34.75	180.7%	4.9	28.8
Manufacturing industries - oil	33.21	48.0%	4.7	33.5
Main activity prod. elec. and heat - oil	25.93	107.0%	3.7	37.1
Unallocated autoproducers - coal/peat	24.67	x	3.5	40.6
Other energy industry own use - gas	24.21	54.8%	3.4	44.1
Residential - oil	18.48	1.0%	2.6	46.7
Main activity prod. elec. and heat - gas	15.38	+	2.2	48.9
Non-specified other - oil	12.49	162.4%	1.8	50.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>376.26</i>	<i>164.7%</i>	<i>53.3</i>	<i>53.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Islamic Republic of Iran

Figure 1. CO₂ emissions by fuel

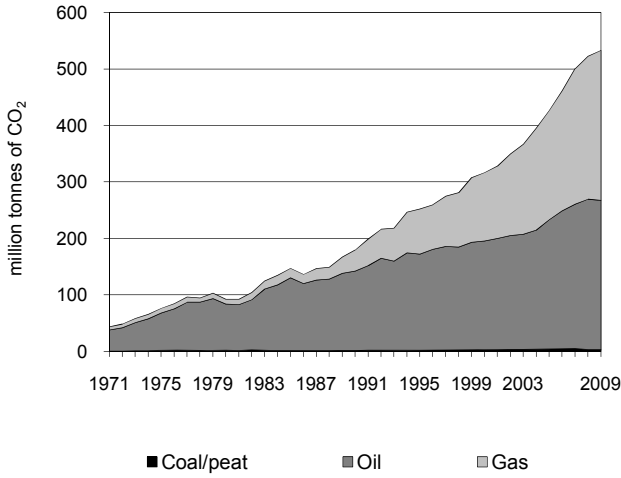


Figure 2. CO₂ emissions by sector

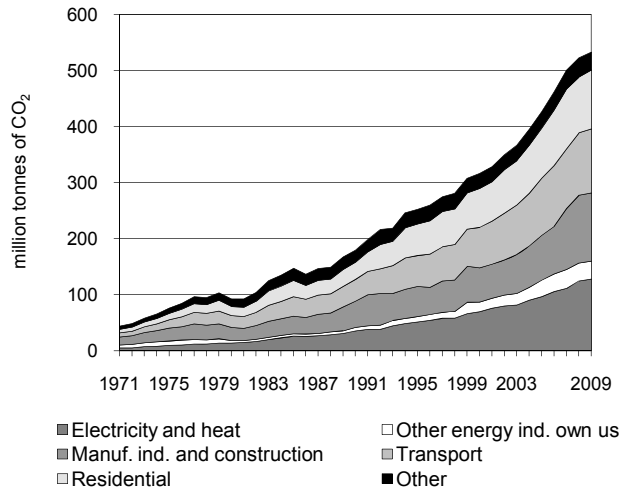


Figure 3. CO₂ emissions by sector

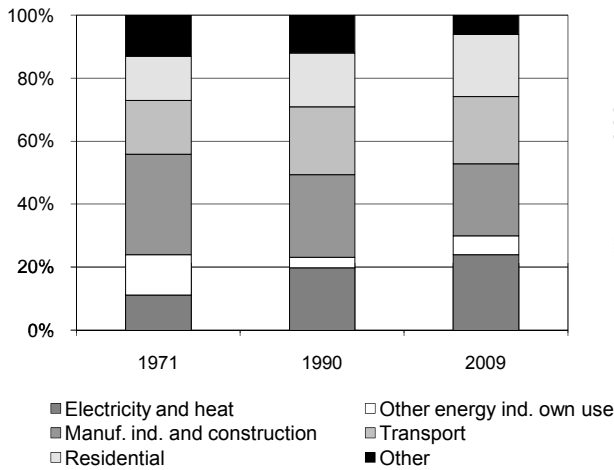


Figure 4. Reference vs Sectoral Approach

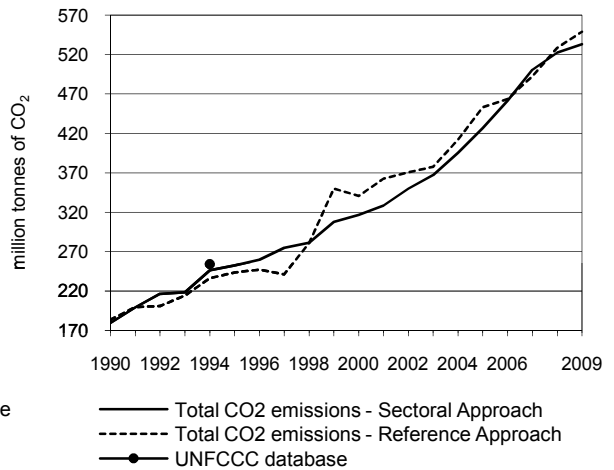


Figure 5. Electricity generation by fuel

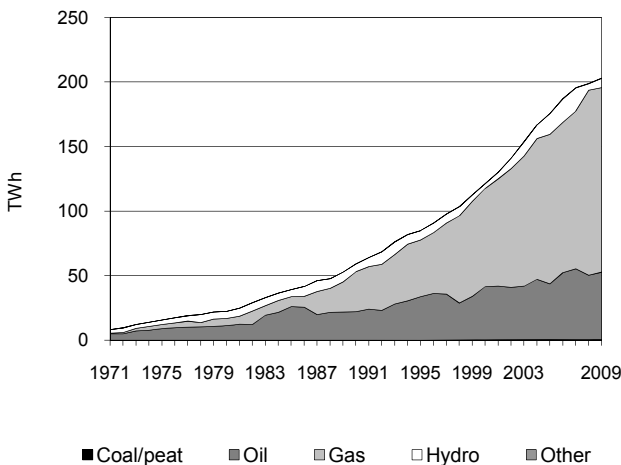
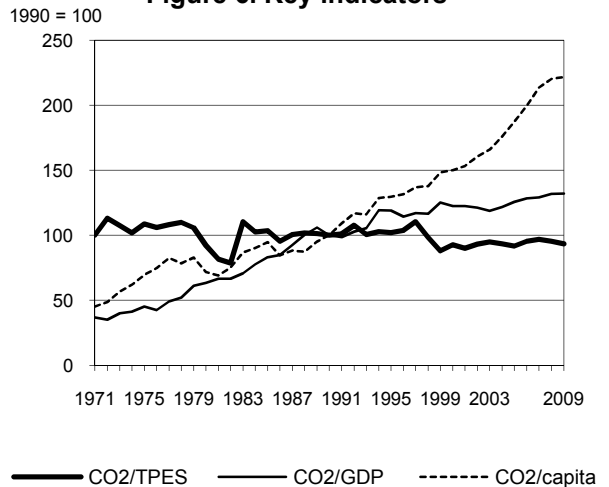


Figure 6. Key indicators



Islamic Republic of Iran

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	179.56	252.35	316.68	426.82	500.75	522.74	533.22	197.0%
CO ₂ Reference Approach (Mt of CO ₂)	183.33	243.73	340.47	452.95	492.74	528.74	549.08	199.5%
TPES (PJ)	2 841	3 914	5 412	7 371	8 186	8 664	9 037	218.1%
TPES (Mtoe)	67.87	93.48	129.25	176.06	195.52	206.95	215.85	218.1%
GDP (billion 2000 USD)	70.29	83.07	101.29	132.95	151.80	155.29	158.09	124.9%
GDP PPP (billion 2000 USD)	256.54	303.18	369.66	485.22	554.02	566.76	576.96	124.9%
Population (millions)	54.40	58.95	63.94	69.09	71.02	71.96	72.90	34.0%
CO ₂ / TPES (t CO ₂ per TJ)	63.2	64.5	58.5	57.9	61.2	60.3	59.0	-6.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.55	3.04	3.13	3.21	3.30	3.37	3.37	32.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.70	0.83	0.86	0.88	0.90	0.92	0.92	32.0%
CO ₂ / population (t CO ₂ per capita)	3.30	4.28	4.95	6.18	7.05	7.26	7.31	121.6%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	3.20	264.52	265.51	-	533.22	197.0%
Main activity producer elec. and heat	-	40.94	80.88	-	121.83	272.4%
Unallocated autoproducers	1.26	0.00	4.91	-	6.17	111.3%
Other energy industry own use	1.05	10.83	20.03	-	31.91	434.8%
Manufacturing industries and construction	0.85	62.86	58.27	-	121.98	159.2%
Transport	-	106.36	7.58	-	113.94	194.0%
<i>of which: road</i>	-	106.36	6.81	-	113.16	192.0%
Other	0.03	43.52	93.84	-	137.39	163.5%
<i>of which: residential</i>	0.03	23.15	81.82	-	105.00	242.9%
Reference Approach	4.85	278.71	265.51	-	549.08	199.5%
Diff. due to losses and/or transformation	0.65	-2.21	0.14	-	-1.41	
Statistical differences	1.01	16.40	-0.14	-	17.27	
<i>Memo: international marine bunkers</i>	-	9.96	-	-	9.96	538.3%
<i>Memo: international aviation bunkers</i>	-	3.70	-	-	3.70	149.4%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	106.36	174.5%	15.0	15.0
Residential - gas	81.82	+	11.5	26.5
Main activity prod. elec. and heat - gas	80.88	416.2%	11.4	37.9
Manufacturing industries - oil	62.86	95.3%	8.8	46.7
Manufacturing industries - gas	58.27	313.6%	8.2	54.9
Main activity prod. elec. and heat - oil	40.94	140.2%	5.8	60.7
Residential - oil	23.15	-5.6%	3.3	63.9
Non-specified other - oil	20.38	-5.3%	2.9	66.8
Other energy industry own use - gas	20.03	+	2.8	69.6
Non-specified other - gas	12.02	x	1.7	71.3
Other energy industry own use - oil	10.83	156.4%	1.5	72.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>533.22</i>	<i>197.0%</i>	<i>75.0</i>	<i>75.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Iraq

Figure 1. CO₂ emissions by fuel

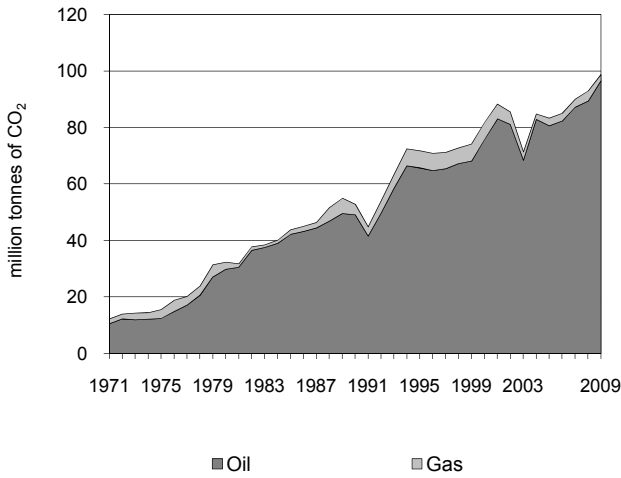


Figure 2. CO₂ emissions by sector

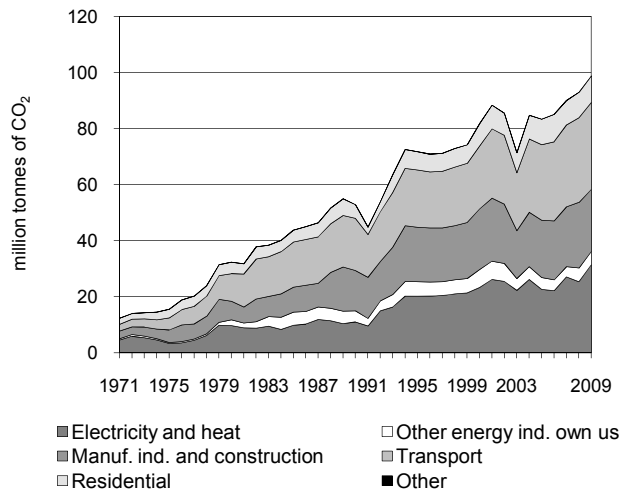


Figure 3. CO₂ emissions by sector

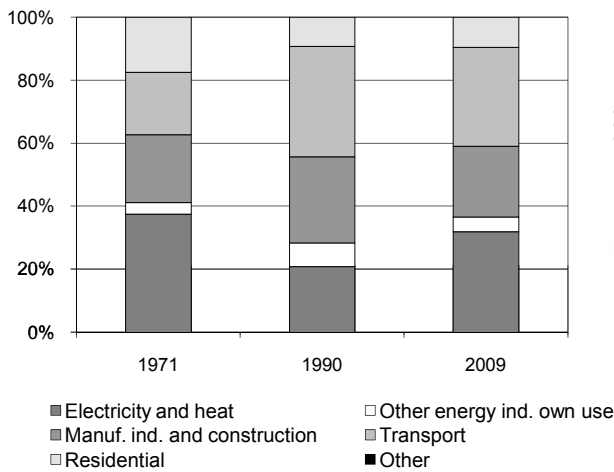


Figure 4. Reference vs Sectoral Approach

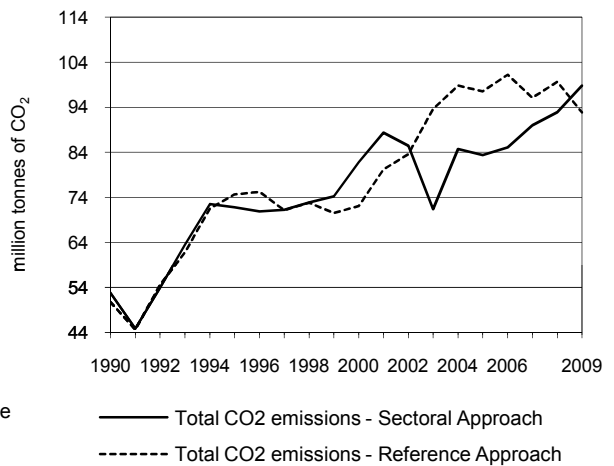


Figure 5. Electricity generation by fuel

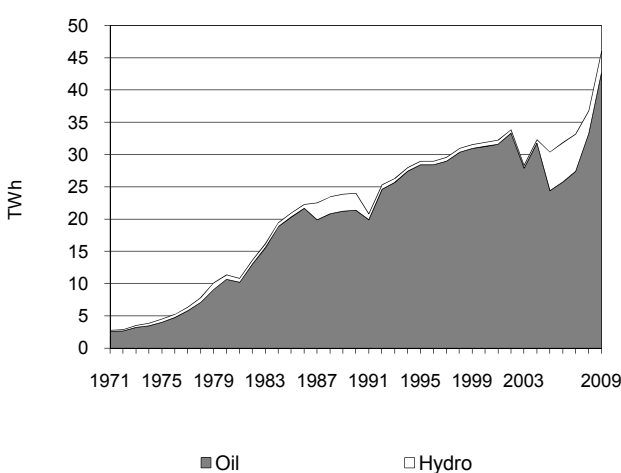
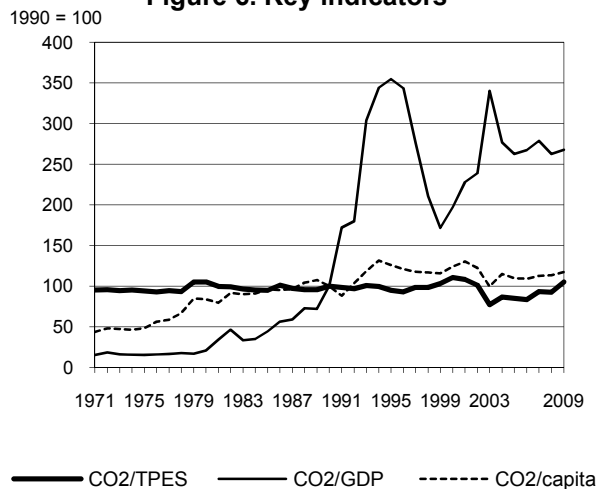


Figure 6. Key indicators



Iraq

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	52.85	71.77	81.81	83.35	90.03	92.94	98.77	86.9%
CO ₂ Reference Approach (Mt of CO ₂)	50.76	74.61	72.10	97.50	96.08	99.64	92.84	82.9%
TPES (PJ)	757	1 087	1 063	1 406	1 384	1 439	1 347	77.9%
TPES (Mtoe)	18.09	25.96	25.38	33.58	33.06	34.37	32.17	77.9%
GDP (billion 2000 USD)	32.96	12.62	25.90	19.81	20.16	22.08	23.01	-30.2%
GDP PPP (billion 2000 USD)	45.06	17.25	35.41	27.08	27.57	30.19	31.46	-30.2%
Population (millions)	18.14	19.56	22.68	26.08	27.50	28.22	28.95	59.6%
CO ₂ / TPES (t CO ₂ per TJ)	69.8	66.0	77.0	59.3	65.0	64.6	73.3	5.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.60	5.69	3.16	4.21	4.46	4.21	4.29	167.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.17	4.16	2.31	3.08	3.27	3.08	3.14	167.7%
CO ₂ / population (t CO ₂ per capita)	2.91	3.67	3.61	3.20	3.27	3.29	3.41	17.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	96.58	2.19	-	98.77	86.9%
Main activity producer elec. and heat	-	31.51	-	-	31.51	185.8%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	4.63	-	-	4.63	17.5%
Manufacturing industries and construction	-	19.98	2.19	-	22.17	53.5%
Transport	-	31.04	-	-	31.04	67.3%
<i>of which: road</i>	-	31.04	-	-	31.04	67.3%
Other	-	9.42	-	-	9.42	92.9%
<i>of which: residential</i>	-	9.42	-	-	9.42	92.9%
Reference Approach	-	90.65	2.19	-	92.84	82.9%
Diff. due to losses and/or transformation	-	3.21	-	-	3.21	
Statistical differences	-	-9.14	-	-	-9.14	
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	2.11	-	-	2.11	-27.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	31.51	185.8%	22.5	22.5
Road - oil	31.04	67.3%	22.2	44.7
Manufacturing industries - oil	19.98	87.4%	14.3	58.9
Residential - oil	9.42	92.9%	6.7	65.6
Other energy industry own use - oil	4.63	17.5%	3.3	69.0
Manufacturing industries - gas	2.19	-42.0%	1.6	70.5
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>98.77</i>	<i>86.9%</i>	<i>70.5</i>	<i>70.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Ireland

Figure 1. CO₂ emissions by fuel

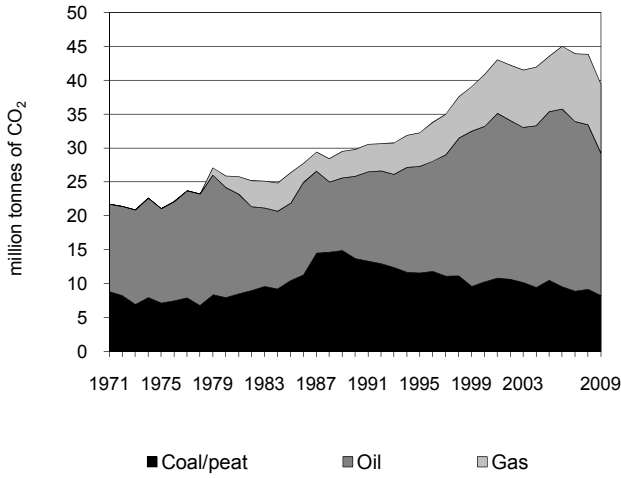


Figure 2. CO₂ emissions by sector

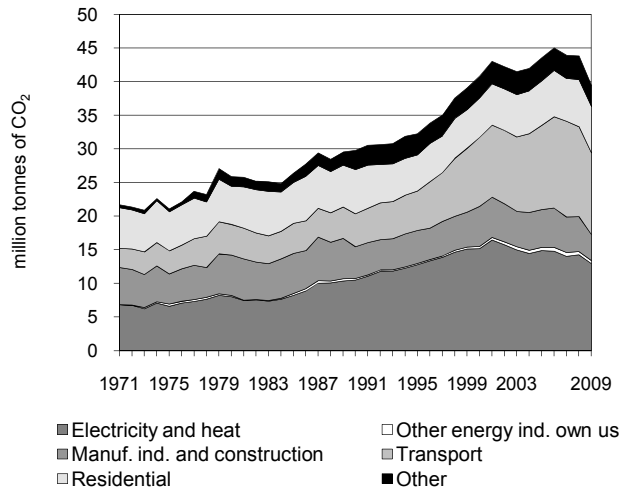


Figure 3. CO₂ emissions by sector

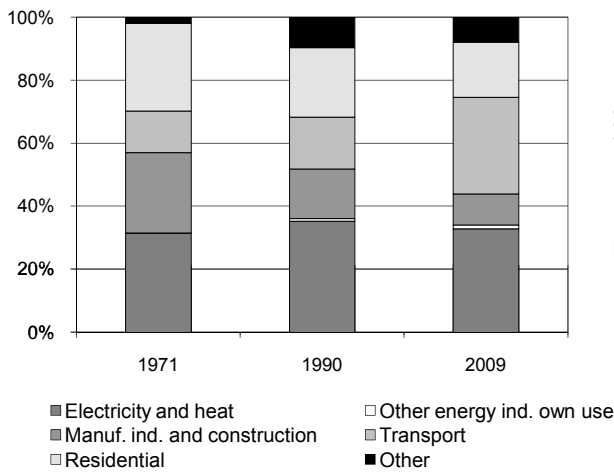


Figure 4. Reference vs Sectoral Approach

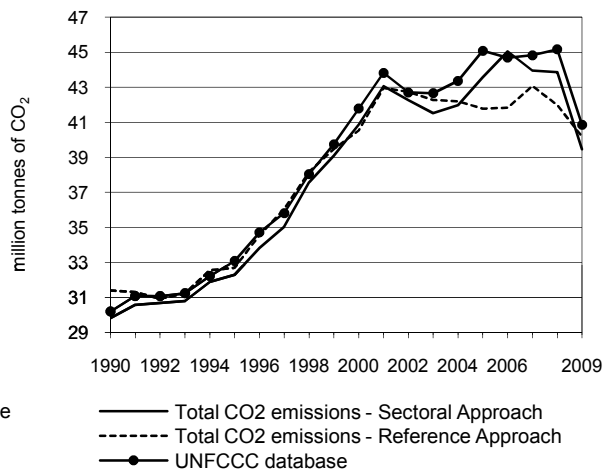


Figure 5. Electricity generation by fuel

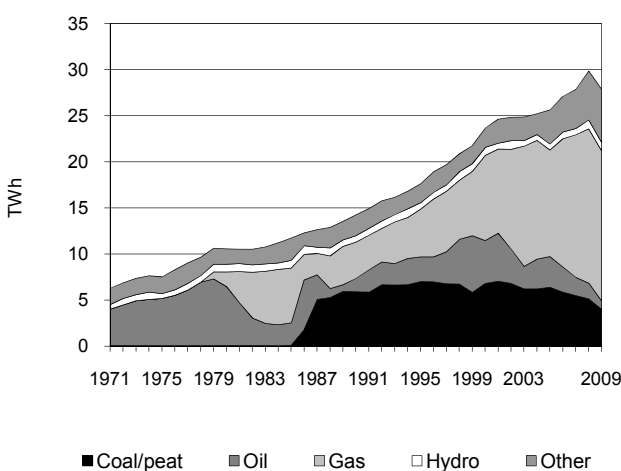
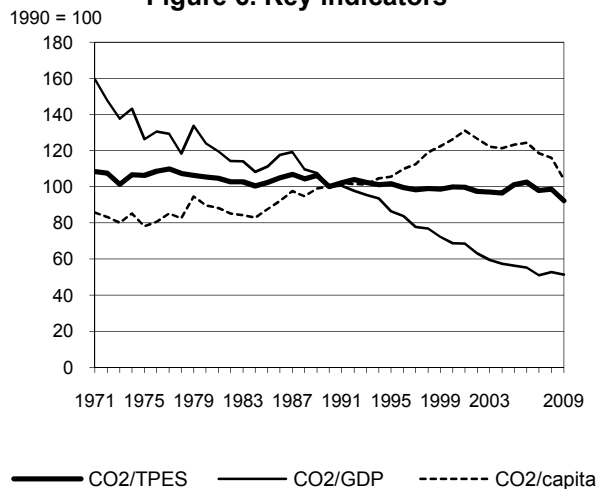


Figure 6. Key indicators



Ireland

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	29.81	32.29	40.86	43.57	43.95	43.85	39.46	32.4%
CO ₂ Reference Approach (Mt of CO ₂)	31.40	32.69	40.53	41.78	43.07	41.97	40.19	28.0%
TPES (PJ)	418	445	574	604	630	624	600	43.6%
TPES (Mtoe)	9.99	10.63	13.70	14.44	15.04	14.90	14.34	43.6%
GDP (billion 2000 USD)	48.51	60.85	96.76	126.16	140.36	135.38	125.11	157.9%
GDP PPP (billion 2000 USD)	54.74	68.65	109.16	142.35	158.36	152.74	141.16	157.9%
Population (millions)	3.51	3.60	3.80	4.16	4.37	4.44	4.47	27.4%
CO ₂ / TPES (t CO ₂ per TJ)	71.3	72.5	71.2	72.1	69.8	70.3	65.7	-7.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.61	0.53	0.42	0.35	0.31	0.32	0.32	-48.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.54	0.47	0.37	0.31	0.28	0.29	0.28	-48.7%
CO ₂ / population (t CO ₂ per capita)	8.50	8.97	10.74	10.47	10.07	9.87	8.83	3.9%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	8.21	21.08	10.11	0.06	39.46	32.4%
Main activity producer elec. and heat	5.78	0.67	5.86	-	12.32	18.6%
Unallocated autoproducers	0.07	0.02	0.57	-	0.65	363.0%
Other energy industry own use	0.14	0.31	-	-	0.46	105.4%
Manufacturing industries and construction	0.43	2.15	1.24	0.06	3.88	-17.6%
Transport	-	12.11	-	-	12.11	146.7%
<i>of which: road</i>	-	11.77	-	-	11.77	157.5%
Other	1.78	5.82	2.44	-	10.04	6.3%
<i>of which: residential</i>	1.78	3.68	1.46	-	6.91	5.1%
Reference Approach	8.86	21.27	10.01	0.06	40.19	28.0%
Diff. due to losses and/or transformation	0.18	0.41	0.15	-	0.74	
Statistical differences	0.47	-0.22	-0.25	-	-0.01	
<i>Memo: international marine bunkers</i>	-	0.35	-	-	0.35	523.9%
<i>Memo: international aviation bunkers</i>	-	1.64	-	-	1.64	59.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	11.77	157.5%	19.3	19.3
Main activity prod. elec. and heat - gas	5.86	207.2%	9.6	28.9
Main activity prod. elec. and heat - coal/peat	5.78	-22.0%	9.5	38.4
Residential - oil	3.68	218.4%	6.0	44.4
Manufacturing industries - oil	2.15	-3.3%	3.5	48.0
Non-specified other - oil	2.14	-17.3%	3.5	51.5
Residential - coal/peat	1.78	-65.5%	2.9	54.4
Residential - gas	1.46	432.7%	2.4	56.8
Manufacturing industries - gas	1.24	-18.0%	2.0	58.8
Non-specified other - gas	0.99	349.7%	1.6	60.4
Main activity prod. elec. and heat - oil	0.67	-36.7%	1.1	61.5
<i>Memo: total CO₂ from fuel combustion</i>	39.46	32.4%	64.7	64.7

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Israel

Figure 1. CO₂ emissions by fuel

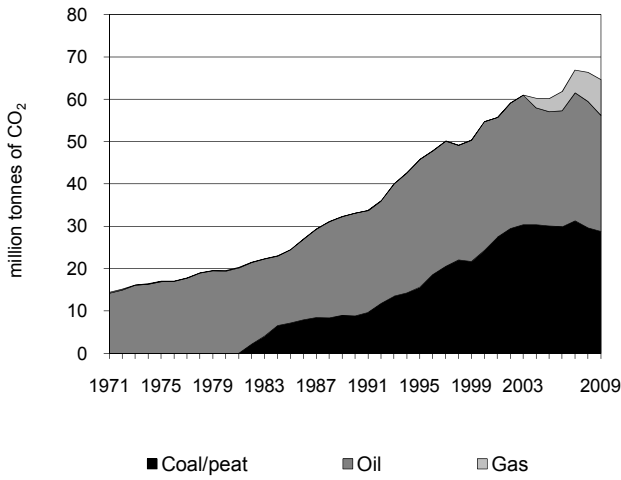


Figure 2. CO₂ emissions by sector

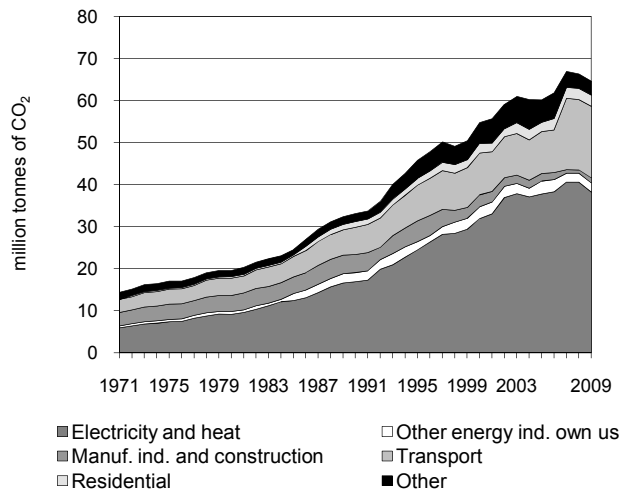


Figure 3. CO₂ emissions by sector

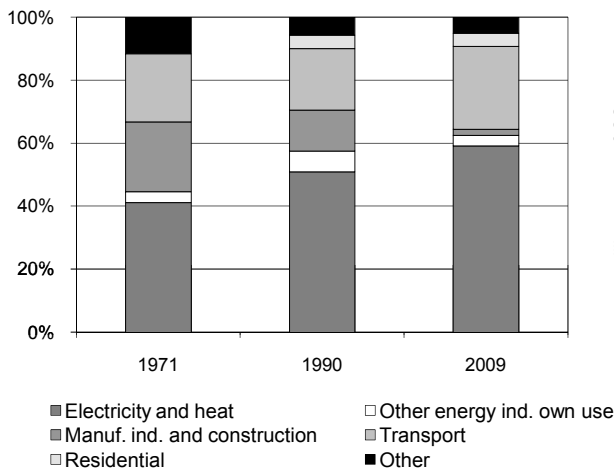


Figure 4. Reference vs Sectoral Approach

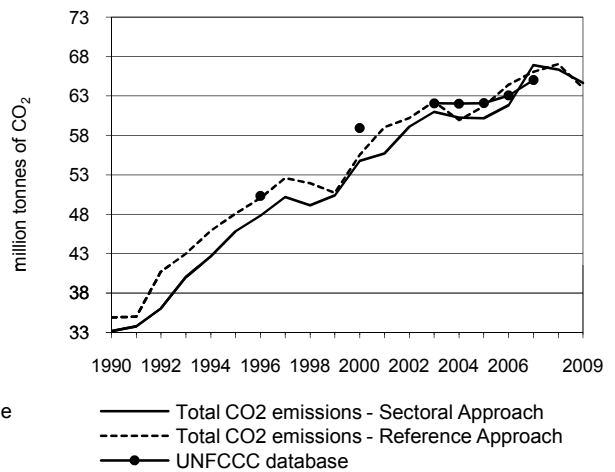


Figure 5. Electricity generation by fuel

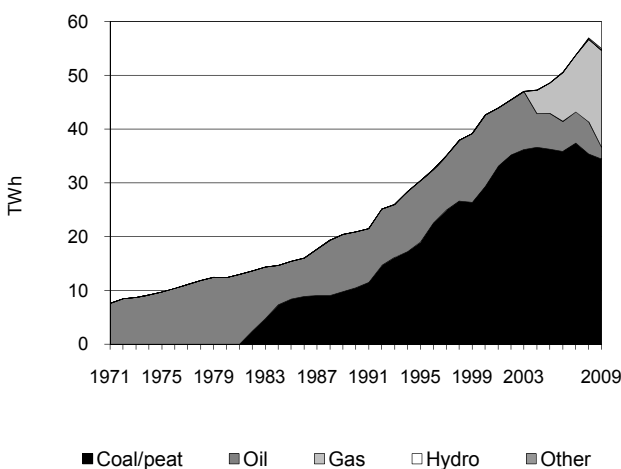
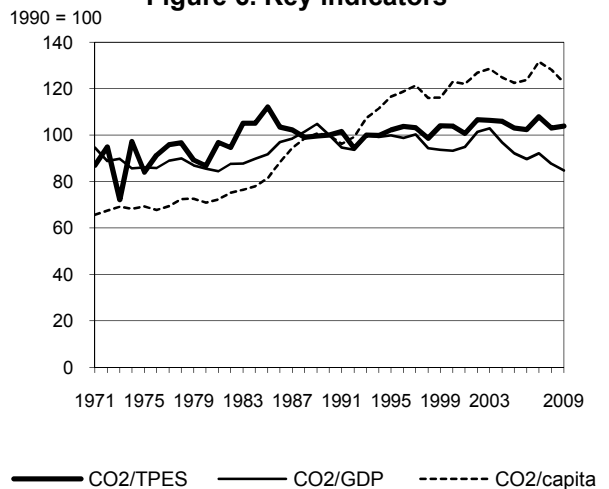


Figure 6. Key indicators



Israel

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	33.14	45.83	54.76	60.19	66.94	66.37	64.63	95.0%
CO ₂ Reference Approach (Mt of CO ₂)	34.89	48.09	55.54	61.67	66.06	67.03	64.02	83.5%
TPES (PJ)	480	650	764	847	899	934	902	87.8%
TPES (Mtoe)	11.48	15.52	18.25	20.24	21.47	22.31	21.55	87.8%
GDP (billion 2000 USD)	70.41	97.47	124.68	138.67	154.36	160.88	162.17	130.3%
GDP PPP (billion 2000 USD)	83.44	115.52	147.77	164.35	182.94	190.67	192.20	130.3%
Population (millions)	4.68	5.55	6.29	6.93	7.18	7.31	7.44	59.1%
CO ₂ / TPES (t CO ₂ per TJ)	69.0	70.5	71.7	71.0	74.4	71.0	71.6	3.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.47	0.47	0.44	0.43	0.43	0.41	0.40	-15.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.40	0.40	0.37	0.37	0.37	0.35	0.34	-15.3%
CO ₂ / population (t CO ₂ per capita)	7.09	8.26	8.71	8.69	9.32	9.08	8.69	22.6%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	28.84	27.38	8.42	-	64.63	95.0%
Main activity producer elec. and heat	28.70	1.14	7.44	-	37.29	126.9%
Unallocated autoproducers	0.14	0.44	0.36	-	0.93	105.2%
Other energy industry own use	-	1.97	0.23	-	2.19	0.1%
Manufacturing industries and construction	-	0.82	0.39	-	1.21	-71.9%
Transport	-	17.01	-	-	17.01	162.7%
<i>of which: road</i>	-	17.01	-	-	17.01	164.9%
Other	-	6.00	-	-	6.00	82.0%
<i>of which: residential</i>	-	2.71	-	-	2.71	93.3%
Reference Approach	28.86	27.18	7.99	-	64.02	83.5%
Diff. due to losses and/or transformation	-	-0.20	-	-	-0.20	
Statistical differences	0.02	-0.00	-0.43	-	-0.41	
<i>Memo: international marine bunkers</i>	-	1.10	-	-	1.10	190.4%
<i>Memo: international aviation bunkers</i>	-	2.40	-	-	2.40	53.6%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	28.70	224.7%	38.3	38.3
Road - oil	17.01	164.9%	22.7	61.0
Main activity prod. elec. and heat - gas	7.44	x	9.9	70.9
Non-specified other - oil	3.29	73.7%	4.4	75.3
Residential - oil	2.71	93.3%	3.6	78.9
Other energy industry own use - oil	1.97	-10.3%	2.6	81.5
Main activity prod. elec. and heat - oil	1.14	-84.9%	1.5	83.0
Manufacturing industries - oil	0.82	-80.6%	1.1	84.1
Unallocated autoproducers - oil	0.44	-2.6%	0.6	84.7
Manufacturing industries - gas	0.39	757.5%	0.5	85.2
Unallocated autoproducers - gas	0.36	x	0.5	85.7
<i>Memo: total CO₂ from fuel combustion</i>	64.63	95.0%	86.2	86.2

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Italy

Figure 1. CO₂ emissions by fuel

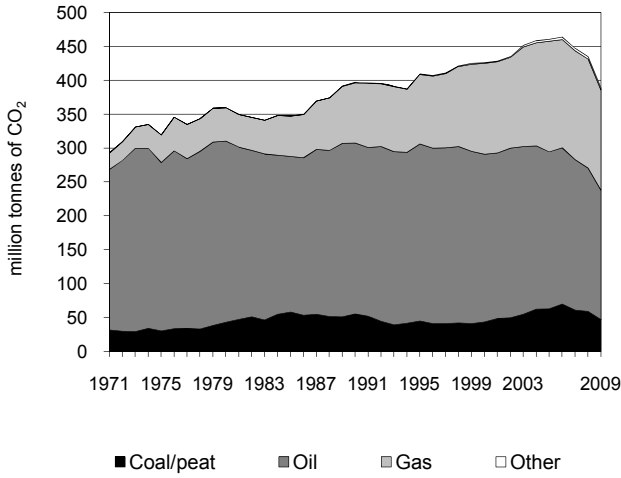


Figure 2. CO₂ emissions by sector

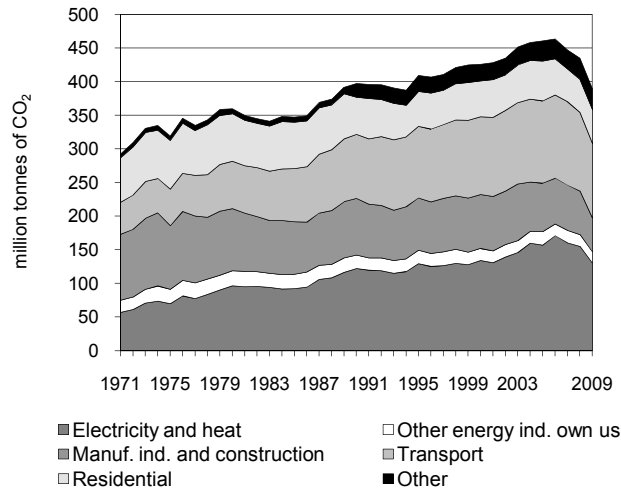


Figure 3. CO₂ emissions by sector

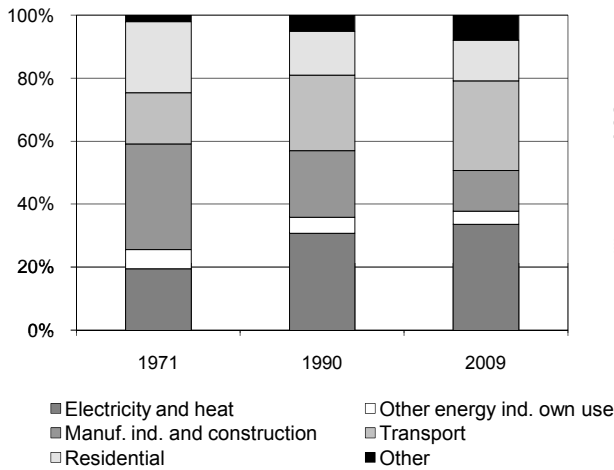


Figure 4. Reference vs Sectoral Approach

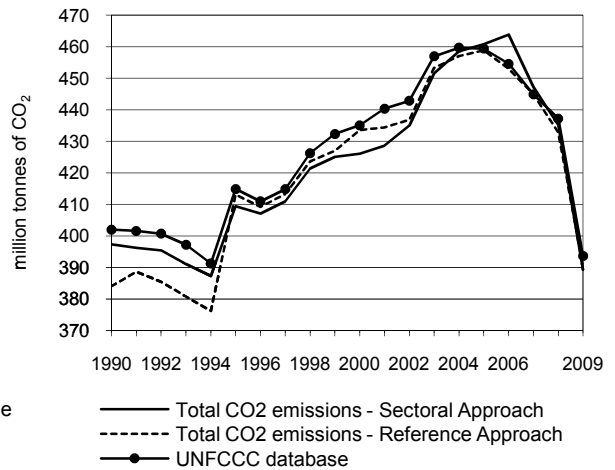


Figure 5. Electricity generation by fuel

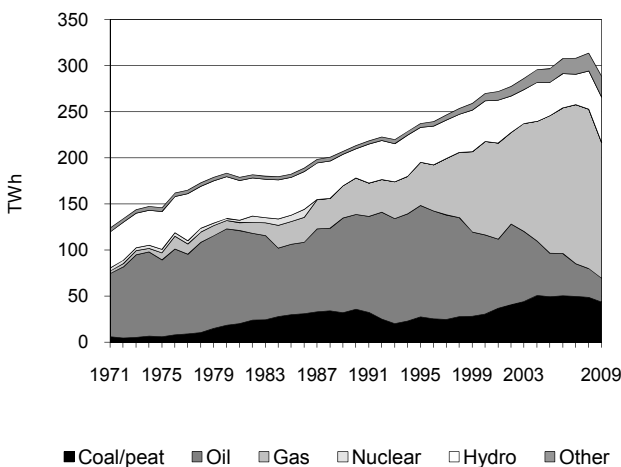
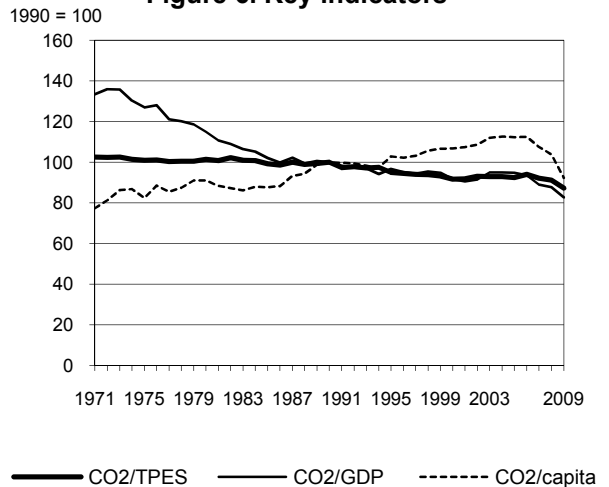


Figure 6. Key indicators



Italy

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	397.36	409.41	426.04	460.81	447.27	435.07	389.28	-2.0%
CO ₂ Reference Approach (Mt of CO ₂)	384.05	413.04	433.61	458.85	444.95	432.71	390.27	1.6%
TPES (PJ)	6 136	6 662	7 181	7 698	7 498	7 371	6 893	12.3%
TPES (Mtoe)	146.56	159.13	171.52	183.87	179.09	176.06	164.63	12.3%
GDP (billion 2000 USD)	937.60	998.73	1 097.34	1 146.84	1 187.54	1 171.82	1 110.68	18.5%
GDP PPP (billion 2000 USD)	1 245.23	1 326.43	1 457.40	1 523.13	1 577.18	1 556.31	1 475.11	18.5%
Population (millions)	56.72	56.84	56.94	58.61	59.38	59.83	60.19	6.1%
CO ₂ / TPES (t CO ₂ per TJ)	64.8	61.4	59.3	59.9	59.6	59.0	56.5	-12.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.42	0.41	0.39	0.40	0.38	0.37	0.35	-17.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.32	0.31	0.29	0.30	0.28	0.28	0.26	-17.3%
CO ₂ / population (t CO ₂ per capita)	7.01	7.20	7.48	7.86	7.53	7.27	6.47	-7.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	46.85	191.08	147.99	3.36	389.28	-2.0%
Main activity producer elec. and heat	41.98	14.73	53.92	3.09	113.72	6.3%
Unallocated autoproducers	0.03	8.97	7.84	0.27	17.10	10.5%
Other energy industry own use	0.16	15.14	1.07	-	16.37	-18.4%
Manufacturing industries and construction	4.30	21.85	24.01	-	50.15	-40.2%
Transport	-	109.38	1.40	-	110.78	16.0%
<i>of which: road</i>	-	103.10	1.40	-	104.50	14.3%
Other	0.39	21.01	59.75	-	81.15	7.6%
<i>of which: residential</i>	0.01	11.01	39.30	-	50.33	-8.8%
Reference Approach	48.94	189.11	148.86	3.36	390.27	1.6%
Diff. due to losses and/or transformation	0.71	-2.84	0.87	-	-1.26	
Statistical differences	1.37	0.88	0.00	-	2.25	
<i>Memo: international marine bunkers</i>	-	7.43	-	-	7.43	-11.2%
<i>Memo: international aviation bunkers</i>	-	8.88	-	-	8.88	97.6%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	103.10	13.3%	21.2	21.2
Main activity prod. elec. and heat - gas	53.92	235.5%	11.1	32.3
Main activity prod. elec. and heat - coal/peat	41.98	51.7%	8.6	40.9
Residential - gas	39.30	48.7%	8.1	49.0
Manufacturing industries - gas	24.01	-27.1%	4.9	53.9
Manufacturing industries - oil	21.85	-38.2%	4.5	58.4
Non-specified other - gas	20.45	106.8%	4.2	62.6
Other energy industry own use - oil	15.14	3.3%	3.1	65.7
Main activity prod. elec. and heat - oil	14.73	-76.7%	3.0	68.7
Residential - oil	11.01	-60.6%	2.3	71.0
Non-specified other - oil	10.00	-3.3%	2.1	73.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>389.28</i>	<i>-2.0%</i>	<i>80.0</i>	<i>80.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Jamaica

Figure 1. CO₂ emissions by fuel

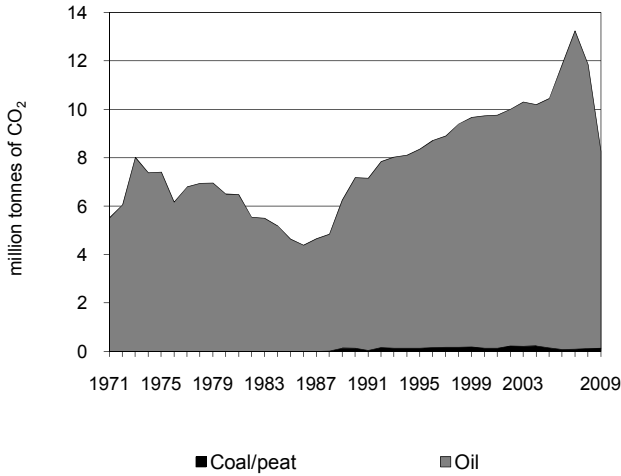


Figure 2. CO₂ emissions by sector

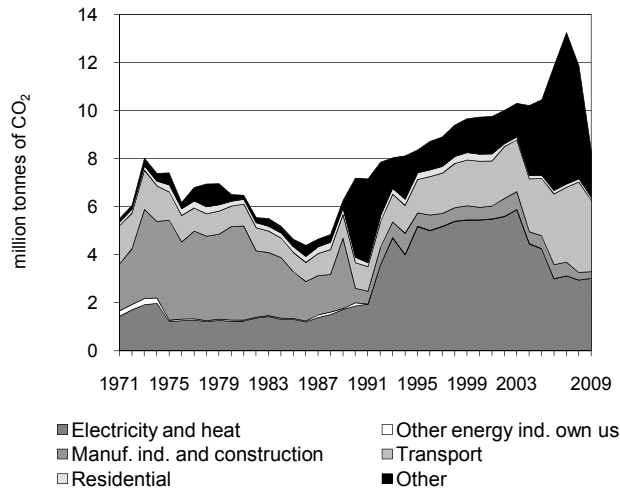


Figure 3. CO₂ emissions by sector

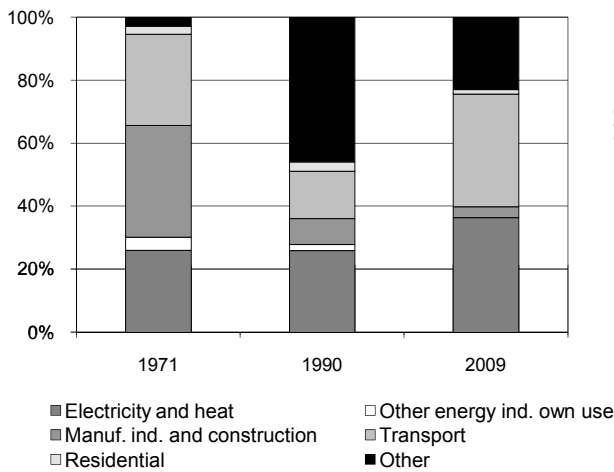


Figure 4. Reference vs Sectoral Approach

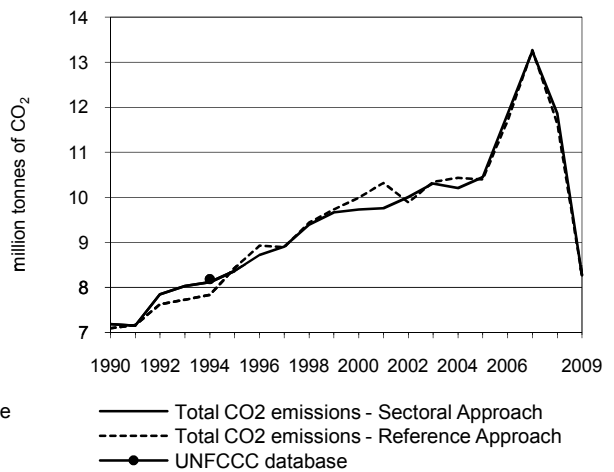


Figure 5. Electricity generation by fuel

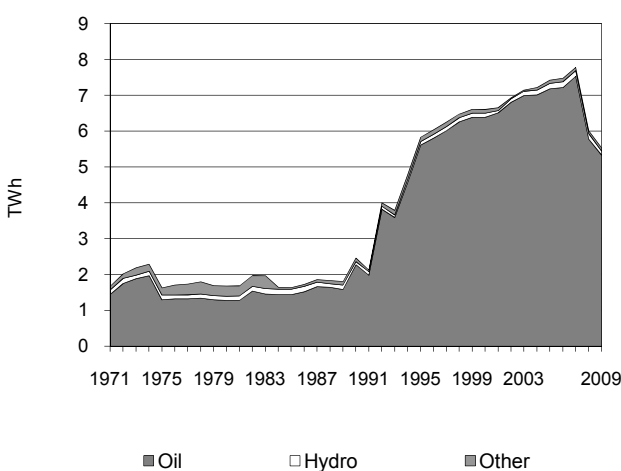
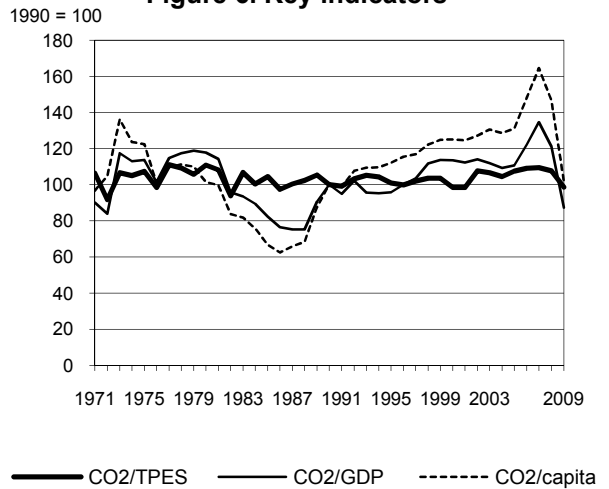


Figure 6. Key indicators



Jamaica

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	7.19	8.36	9.73	10.45	13.24	11.85	8.27	15.1%
CO ₂ Reference Approach (Mt of CO ₂)	7.09	8.43	9.99	10.40	13.27	11.63	8.26	16.5%
TPES (PJ)	117	135	161	158	197	179	136	16.8%
TPES (Mtoe)	2.79	3.21	3.84	3.77	4.70	4.28	3.26	16.8%
GDP (billion 2000 USD)	7.55	9.16	9.01	9.92	10.33	10.28	9.96	32.0%
GDP PPP (billion 2000 USD)	8.76	10.63	10.45	11.51	11.99	11.93	11.56	32.0%
Population (millions)	2.39	2.48	2.59	2.65	2.68	2.69	2.70	13.0%
CO ₂ / TPES (t CO ₂ per TJ)	61.5	62.2	60.6	66.2	67.3	66.2	60.7	-1.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.95	0.91	1.08	1.05	1.28	1.15	0.83	-12.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.82	0.79	0.93	0.91	1.10	0.99	0.72	-12.8%
CO ₂ / population (t CO ₂ per capita)	3.01	3.37	3.76	3.94	4.95	4.41	3.06	1.9%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.13	8.15	-	-	8.27	15.1%
Main activity producer elec. and heat	-	1.76	-	-	1.76	-5.1%
Unallocated autoproducers	-	1.25	-	-	1.25	x
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.13	0.16	-	-	0.29	-52.0%
Transport	-	2.95	-	-	2.95	174.5%
<i>of which: road</i>	-	1.47	-	-	1.47	102.1%
Other	-	2.02	-	-	2.02	-42.6%
<i>of which: residential</i>	-	0.12	-	-	0.12	-43.7%
Reference Approach	0.13	8.13	-	-	8.26	16.5%
Diff. due to losses and/or transformation	-	0.03	-	-	0.03	
Statistical differences	-	-0.04	-	-	-0.04	
<i>Memo: international marine bunkers</i>	-	0.09	-	-	0.09	-
<i>Memo: international aviation bunkers</i>	-	0.52	-	-	0.52	11.6%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Non-specified other - oil	1.90	-42.5%	17.6	17.6
Main activity prod. elec. and heat - oil	1.76	-5.1%	16.4	34.0
Other transport - oil	1.49	324.0%	13.8	47.8
Road - oil	1.47	102.1%	13.6	61.4
Unallocated autoproducers - oil	1.25	x	11.6	72.9
Manufacturing industries - oil	0.16	-66.0%	1.5	74.4
Manufacturing industries - coal/peat	0.13	-1.9%	1.2	75.6
Residential - oil	0.12	-43.7%	1.1	76.7
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>8.27</i>	<i>15.1%</i>	<i>76.7</i>	<i>76.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Japan

Figure 1. CO₂ emissions by fuel

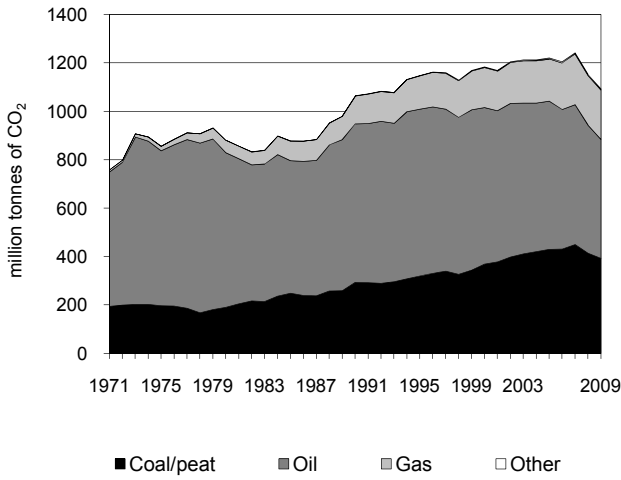


Figure 2. CO₂ emissions by sector

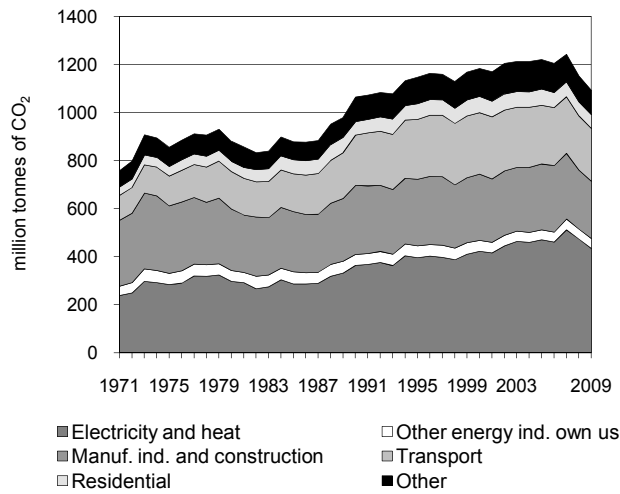


Figure 3. CO₂ emissions by sector

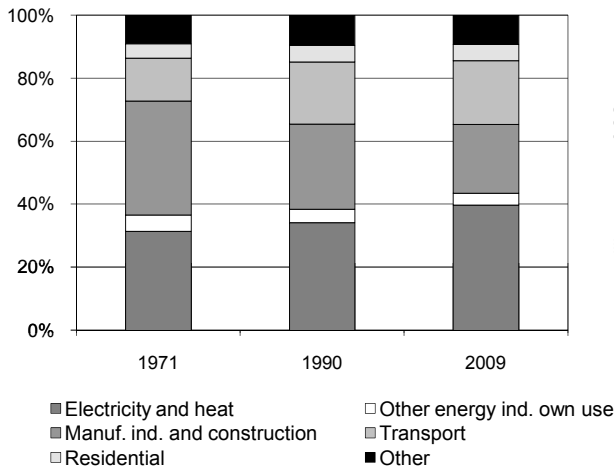


Figure 4. Reference vs Sectoral Approach

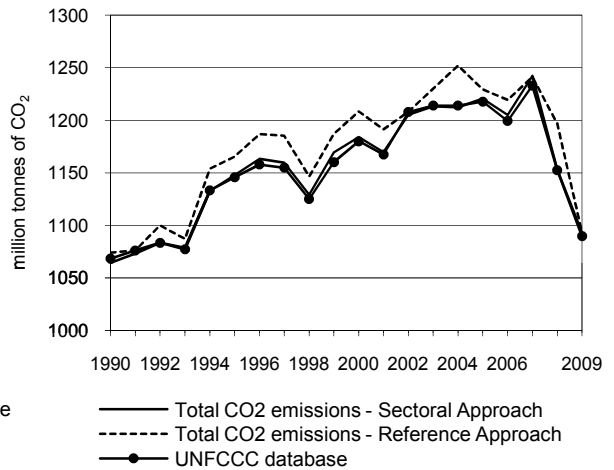


Figure 5. Electricity generation by fuel

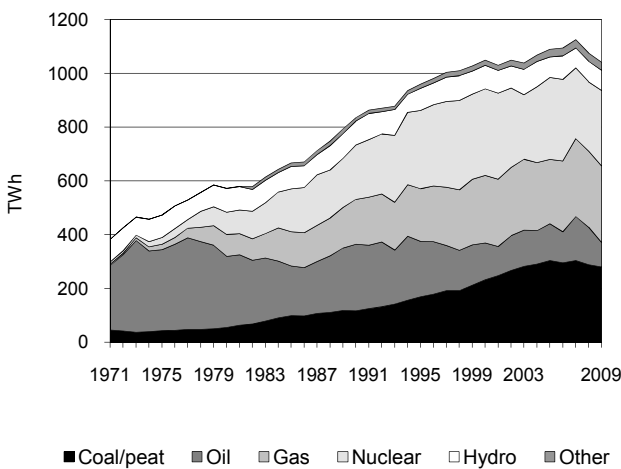
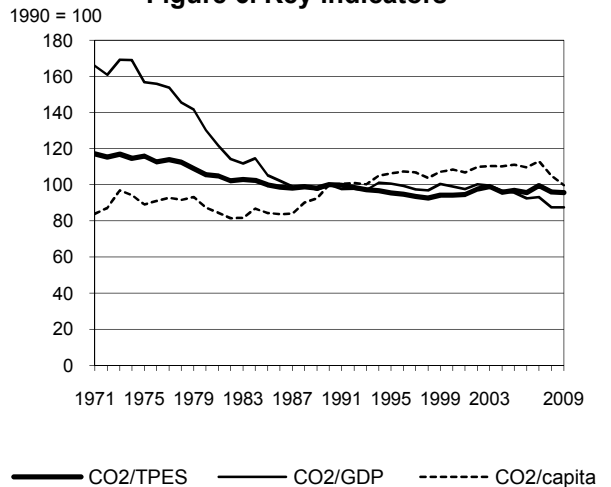


Figure 6. Key indicators



Japan *

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	1 064.37	1 147.91	1 184.03	1 220.68	1 242.32	1 152.59	1 092.86	2.7%
CO ₂ Reference Approach (Mt of CO ₂)	1 074.10	1 165.52	1 208.42	1 229.32	1 241.14	1 196.96	1 092.88	1.7%
TPES (PJ)	18 393	20 777	21 727	21 793	21 569	20 748	19 761	7.4%
TPES (Mtoe)	439.32	496.25	518.95	520.51	515.17	495.55	471.99	7.4%
GDP (billion 2000 USD)	4 150.28	4 450.36	4 667.47	4 979.57	5 201.19	5 140.40	4 872.22	17.4%
GDP PPP (billion 2000 USD)	2 890.12	3 099.09	3 250.28	3 467.62	3 621.95	3 579.62	3 392.86	17.4%
Population (millions)	123.61	125.57	126.93	127.77	127.77	127.51	127.33	3.0%
CO ₂ / TPES (t CO ₂ per TJ)	57.9	55.2	54.5	56.0	57.6	55.6	55.3	-4.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.26	0.26	0.25	0.25	0.24	0.22	0.22	-12.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.37	0.37	0.36	0.35	0.34	0.32	0.32	-12.5%
CO ₂ / population (t CO ₂ per capita)	8.61	9.14	9.33	9.55	9.72	9.04	8.58	-0.3%

Ratios are based on the Sectoral Approach.

* Please see the note in Chapter 1 on the revisions provided by the Japanese Administration.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other **		
Sectoral Approach	392.44	491.97	203.99	4.46	1 092.86	2.7%
Main activity producer elec. and heat	210.54	34.13	121.64	1.21	367.52	19.3%
Unallocated autoproducers	44.33	15.15	5.00	2.42	66.90	19.3%
Other energy industry own use	16.08	22.99	2.27	-	41.35	-8.1%
Manufacturing industries and construction	119.46	100.73	17.78	0.82	238.80	-17.0%
Transport	-	220.10	-	-	220.10	5.0%
<i>of which: road</i>	-	198.19	-	-	198.19	6.1%
Other	2.03	98.86	57.30	-	158.19	0.1%
<i>of which: residential</i>	-	36.23	21.13	-	57.36	2.8%
Reference Approach	392.83	507.32	188.27	4.46	1 092.88	1.7%
Diff. due to losses and/or transformation	2.58	6.14	- 3.44	-	5.29	
Statistical differences	- 2.20	9.21	- 12.28	0.00	- 5.27	
<i>Memo: international marine bunkers</i>	-	15.08	-	-	15.08	-14.6%
<i>Memo: international aviation bunkers</i>	-	15.43	-	-	15.43	15.9%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	210.54	114.1%	17.4	17.4
Road - oil	198.19	6.1%	16.3	33.7
Main activity prod. elec. and heat - gas	121.64	57.3%	10.0	43.7
Manufacturing industries - coal/peat	119.46	-17.9%	9.9	53.6
Manufacturing industries - oil	100.73	-24.3%	8.3	61.9
Non-specified other - oil	62.63	-29.9%	5.2	67.1
Unallocated autoproducers - coal/peat	44.33	47.3%	3.7	70.7
Residential - oil	36.23	-5.6%	3.0	73.7
Non-specified other - gas	36.17	298.0%	3.0	76.7
Main activity prod. elec. and heat - oil	34.13	-74.1%	2.8	79.5
Other energy industry own use - oil	22.99	-19.3%	1.9	81.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>1092.86</i>	<i>2.7%</i>	<i>90.1</i>	<i>90.1</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Jordan

Figure 1. CO₂ emissions by fuel

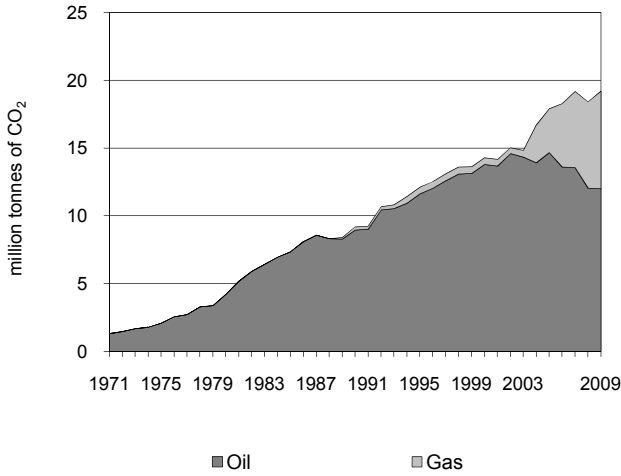


Figure 2. CO₂ emissions by sector

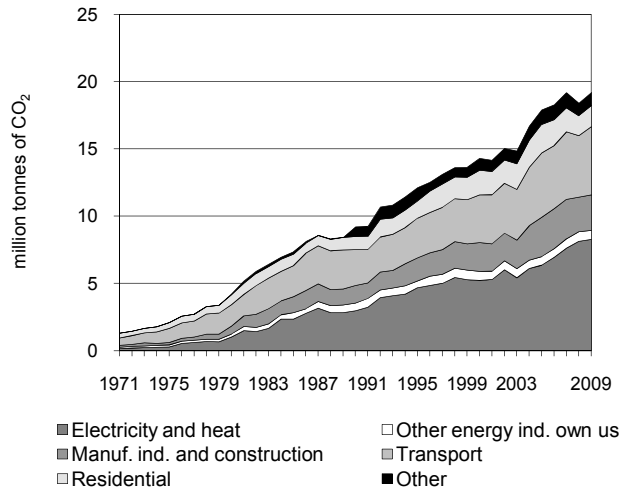


Figure 3. CO₂ emissions by sector

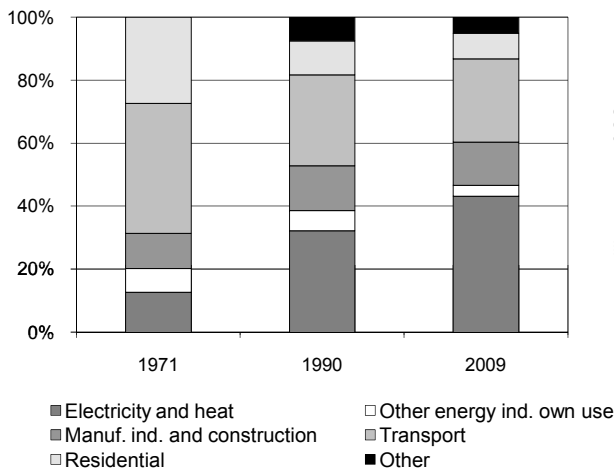


Figure 4. Reference vs Sectoral Approach

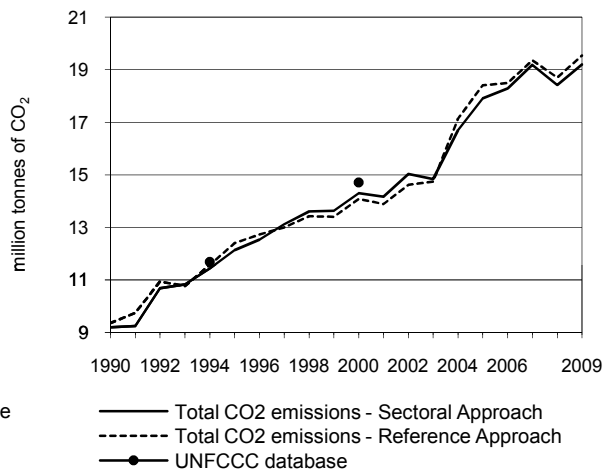


Figure 5. Electricity generation by fuel

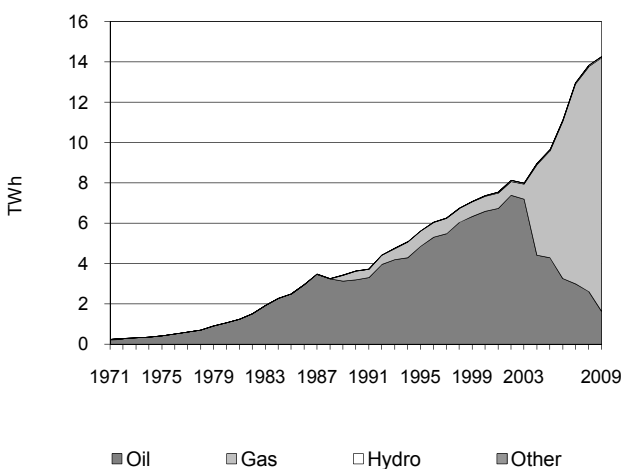
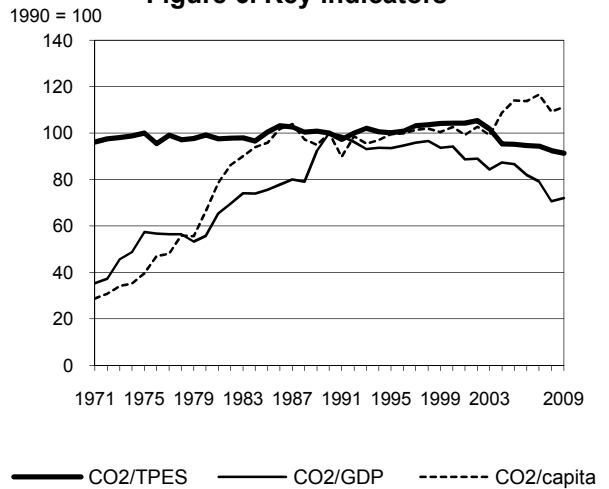


Figure 6. Key indicators



Jordan

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	9.20	12.13	14.30	17.91	19.18	18.42	19.20	108.7%
CO ₂ Reference Approach (Mt of CO ₂)	9.36	12.40	14.09	18.41	19.36	18.69	19.54	108.9%
TPES (PJ)	136	180	203	279	302	296	312	128.6%
TPES (Mtoe)	3.26	4.29	4.86	6.67	7.20	7.06	7.45	128.6%
GDP (billion 2000 USD)	5.13	7.23	8.46	11.53	13.50	14.52	14.86	189.7%
GDP PPP (billion 2000 USD)	12.21	17.21	20.15	27.44	32.13	34.57	35.38	189.8%
Population (millions)	3.17	4.20	4.80	5.41	5.68	5.81	5.95	87.7%
CO ₂ / TPES (t CO ₂ per TJ)	67.4	67.5	70.3	64.1	63.6	62.3	61.6	-8.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.79	1.68	1.69	1.55	1.42	1.27	1.29	-28.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.75	0.70	0.71	0.65	0.60	0.53	0.54	-28.0%
CO ₂ / population (t CO ₂ per capita)	2.90	2.89	2.98	3.31	3.38	3.17	3.23	11.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	11.99	7.21	-	19.20	108.7%
Main activity producer elec. and heat	-	0.85	7.21	-	8.06	202.7%
Unallocated autoproducers	-	0.23	-	-	0.23	-24.6%
Other energy industry own use	-	0.67	-	-	0.67	14.7%
Manufacturing industries and construction	-	2.63	-	-	2.63	101.4%
Transport	-	5.08	-	-	5.08	91.2%
<i>of which: road</i>	-	5.05	-	-	5.05	90.2%
Other	-	2.54	-	-	2.54	50.4%
<i>of which: residential</i>	-	1.56	-	-	1.56	56.9%
Reference Approach	-	12.33	7.21	-	19.54	108.9%
Diff. due to losses and/or transformation	-	0.34	-	-	0.34	
Statistical differences	-	-0.00	0.00	-	-0.00	
<i>Memo: international marine bunkers</i>	-	0.12	-	-	0.12	..
<i>Memo: international aviation bunkers</i>	-	1.00	-	-	1.00	41.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	7.21	+	30.1	30.1
Road - oil	5.05	90.2%	21.1	51.1
Manufacturing industries - oil	2.63	101.4%	11.0	62.1
Residential - oil	1.56	56.9%	6.5	68.6
Non-specified other - oil	0.97	41.0%	4.1	72.7
Main activity prod. elec. and heat - oil	0.85	-65.1%	3.5	76.2
Other energy industry own use - oil	0.67	14.7%	2.8	79.0
Unallocated autoproducers - oil	0.23	-24.6%	1.0	79.9
Other transport - oil	0.02	x	0.1	80.0
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>19.20</i>	<i>108.7%</i>	<i>80.0</i>	<i>80.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Kazakhstan

Figure 1. CO₂ emissions by fuel

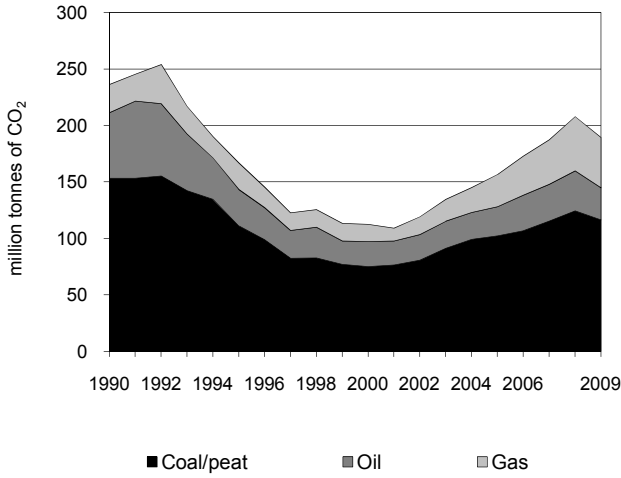


Figure 2. CO₂ emissions by sector

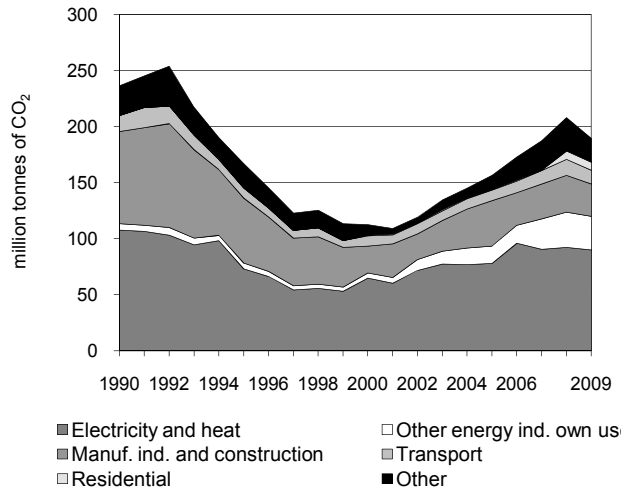


Figure 3. CO₂ emissions by sector

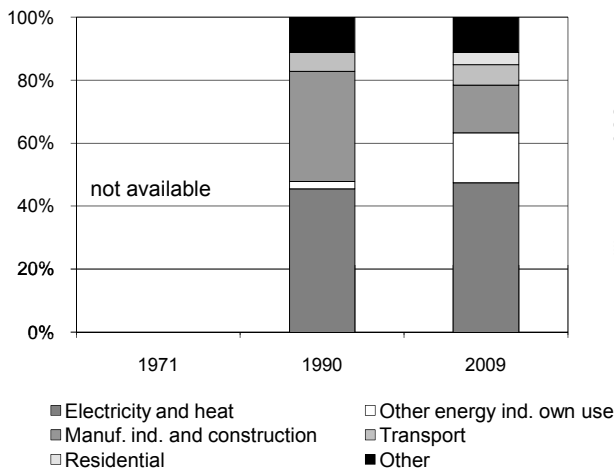


Figure 4. Reference vs Sectoral Approach

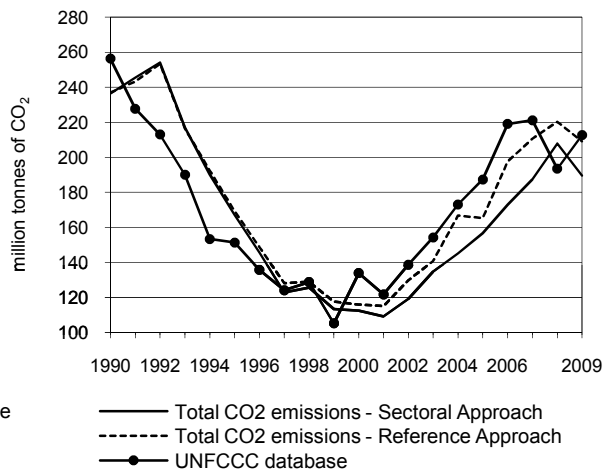


Figure 5. Electricity generation by fuel

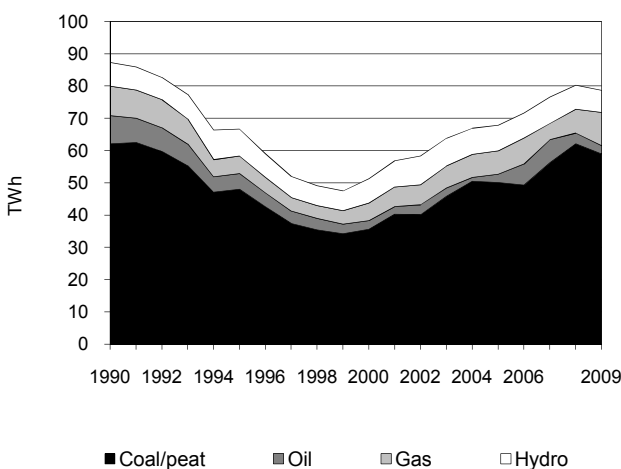
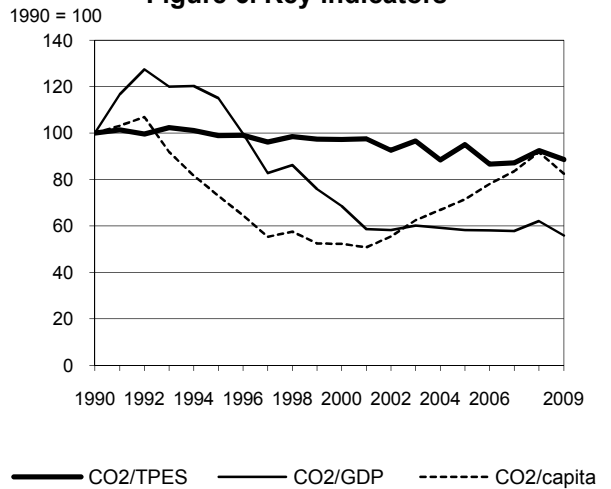


Figure 6. Key indicators



Kazakhstan

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	236.41	167.02	112.50	156.64	187.33	207.89	189.54	-19.8%
CO ₂ Reference Approach (Mt of CO ₂)	236.96	169.27	115.96	165.35	210.56	220.33	209.10	-11.8%
TPES (PJ)	3 046	2 176	1 490	2 124	2 767	2 899	2 756	-9.5%
TPES (Mtoe)	72.75	51.98	35.58	50.74	66.10	69.24	65.84	-9.5%
GDP (billion 2000 USD)	26.35	16.18	18.29	29.96	36.11	37.31	37.75	43.3%
GDP PPP (billion 2000 USD)	93.16	57.20	64.67	105.91	127.68	131.90	133.48	43.3%
Population (millions)	16.35	15.82	14.88	15.15	15.48	15.67	15.89	-2.8%
CO ₂ / TPES (t CO ₂ per TJ)	77.6	76.7	75.5	73.7	67.7	71.7	68.8	-11.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	8.97	10.32	6.15	5.23	5.19	5.57	5.02	-44.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	2.54	2.92	1.74	1.48	1.47	1.58	1.42	-44.0%
CO ₂ / population (t CO ₂ per capita)	14.46	10.56	7.56	10.34	12.10	13.26	11.93	-17.5%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	116.57	28.35	44.62	-	189.54	-19.8%
Main activity producer elec. and heat	81.70	2.29	5.93	-	89.92	-16.5%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	6.78	2.78	20.58	-	30.15	435.0%
Manufacturing industries and construction	22.88	5.67	0.16	-	28.71	-65.2%
Transport	-	12.21	-	-	12.21	-14.4%
<i>of which: road</i>	-	10.93	-	-	10.93	-8.6%
Other	5.21	5.39	17.95	-	28.55	8.0%
<i>of which: residential</i>	4.18	0.92	2.15	-	7.26	x
Reference Approach	122.28	42.05	44.77	-	209.10	-11.8%
Diff. due to losses and/or transformation	5.99	2.76	0.15	-	8.90	
Statistical differences	-0.27	10.93	-	-	10.66	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.53	-	-	0.53	-80.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	81.70	-12.7%	28.0	28.0
Manufacturing industries - coal/peat	22.88	-61.7%	7.8	35.9
Other energy industry own use - gas	20.58	549.7%	7.1	42.9
Non-specified other - gas	15.80	-13.0%	5.4	48.3
Road - oil	10.93	-8.6%	3.7	52.1
Other energy industry - coal/peat	6.78	x	2.3	54.4
Main activity prod. elec. and heat - gas	5.93	70.3%	2.0	56.4
Manufacturing industries - oil	5.67	-75.0%	1.9	58.4
Non-specified other - oil	4.47	-46.1%	1.5	59.9
Residential - coal/peat	4.18	x	1.4	61.4
Other energy industry own use - oil	2.78	12.7%	1.0	62.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>189.54</i>	<i>-19.8%</i>	<i>65.0</i>	<i>65.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Kenya

Figure 1. CO₂ emissions by fuel

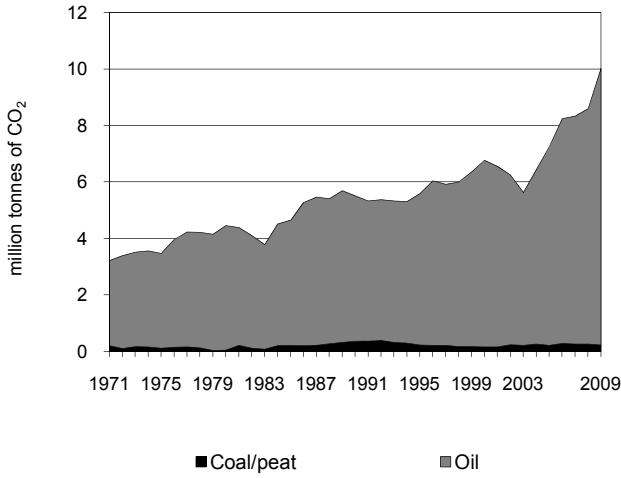


Figure 2. CO₂ emissions by sector

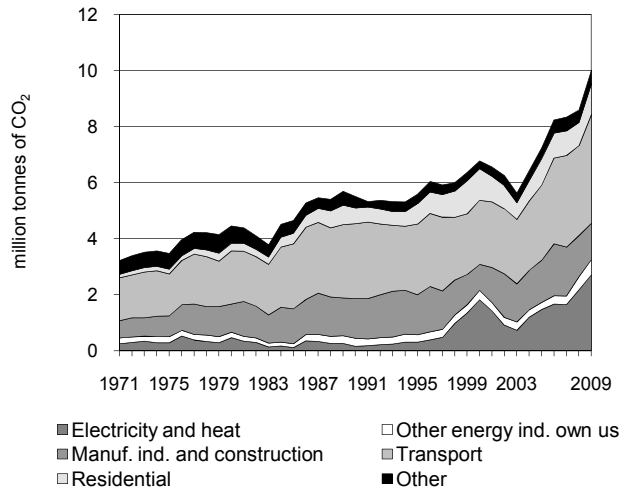


Figure 3. CO₂ emissions by sector

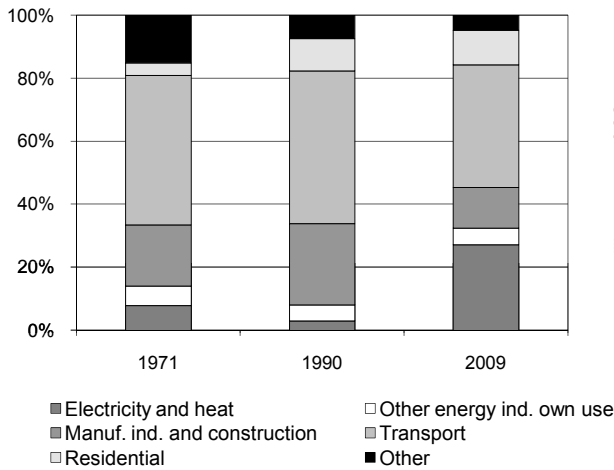


Figure 4. Reference vs Sectoral Approach

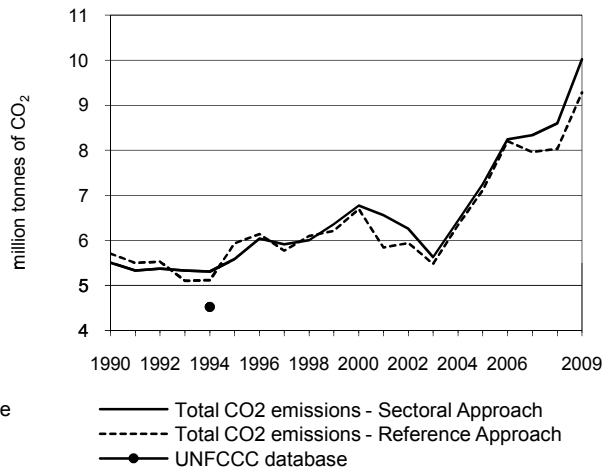


Figure 5. Electricity generation by fuel

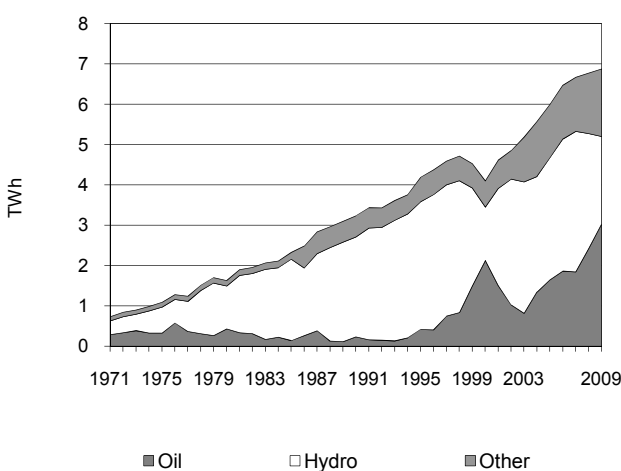
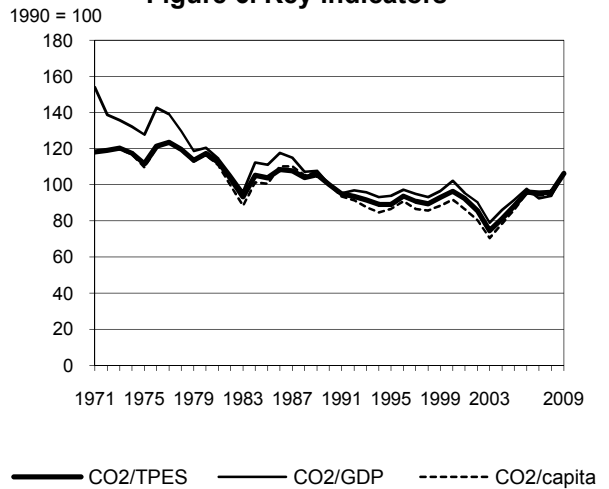


Figure 6. Key indicators



Kenya

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	5.51	5.59	6.77	7.25	8.34	8.60	10.02	82.0%
CO ₂ Reference Approach (Mt of CO ₂)	5.70	5.93	6.70	7.11	7.96	8.03	9.28	62.7%
TPES (PJ)	458	522	585	684	727	746	784	71.1%
TPES (Mtoe)	10.94	12.48	13.98	16.34	17.36	17.82	18.72	71.1%
GDP (billion 2000 USD)	10.54	11.41	12.69	15.17	17.26	17.53	17.99	70.6%
GDP PPP (billion 2000 USD)	26.31	28.47	31.67	37.86	43.07	43.74	44.88	70.6%
Population (millions)	23.43	27.49	31.44	35.82	37.76	38.77	39.80	69.9%
CO ₂ / TPES (t CO ₂ per TJ)	12.0	10.7	11.6	10.6	11.5	11.5	12.8	6.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.52	0.49	0.53	0.48	0.48	0.49	0.56	6.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.21	0.20	0.21	0.19	0.19	0.20	0.22	6.7%
CO ₂ / population (t CO ₂ per capita)	0.24	0.20	0.22	0.20	0.22	0.22	0.25	7.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.23	9.79	-	-	10.02	82.0%
Main activity producer elec. and heat **	-	2.72	-	-	2.72	+
Unallocated autoproducers **	..	..	..	..	..	..
Other energy industry own use	-	0.54	-	-	0.54	91.9%
Manufacturing industries and construction	0.23	1.07	-	-	1.30	-8.9%
Transport	-	3.89	-	-	3.89	46.1%
<i>of which: road</i>	-	3.72	-	-	3.72	47.2%
Other	-	1.58	-	-	1.58	61.8%
<i>of which: residential</i>	-	1.10	-	-	1.10	93.1%
Reference Approach	0.23	9.06	-	-	9.28	62.7%
Diff. due to losses and/or transformation	-	0.17	-	-	0.17	
Statistical differences	-	-0.90	-	-	-0.90	
<i>Memo: international marine bunkers</i>	-	0.09	-	-	0.09	-84.4%
<i>Memo: international aviation bunkers</i>	-	1.80	-	-	1.80	117.1%

* Other includes industrial waste and non-renewable municipal waste.

** Emissions from autoproducers in 2009 have been included with main activity producer electricity and heat

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) ***	Cumulative total (%)
Road - oil	3.72	47.2%	7.4	7.4
Main activity prod. elec. and heat - oil	2.72	+	5.4	12.7
Residential - oil	1.10	93.1%	2.2	14.9
Manufacturing industries - oil	1.07	0.7%	2.1	17.0
Other energy industry own use - oil	0.54	91.9%	1.1	18.1
Non-specified other - oil	0.48	18.4%	1.0	19.0
Manufacturing industries - coal/peat	0.23	-37.1%	0.4	19.5
Other transport - oil	0.17	26.4%	0.3	19.8
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>10.02</i>	<i>82.0%</i>	<i>19.8</i>	<i>19.8</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Democratic People's Republic of Korea

Figure 1. CO₂ emissions by fuel

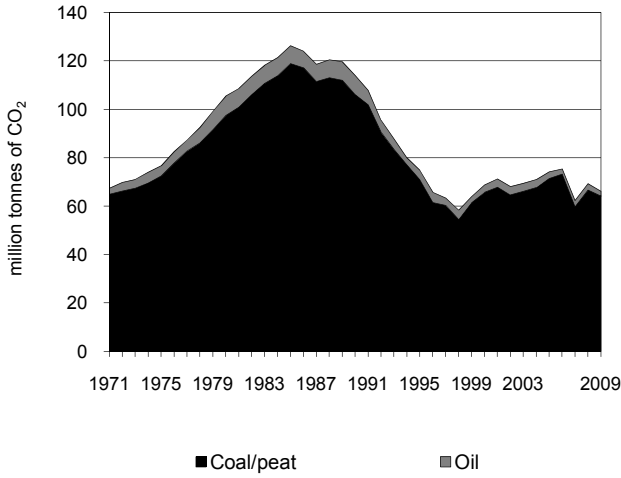


Figure 2. CO₂ emissions by sector

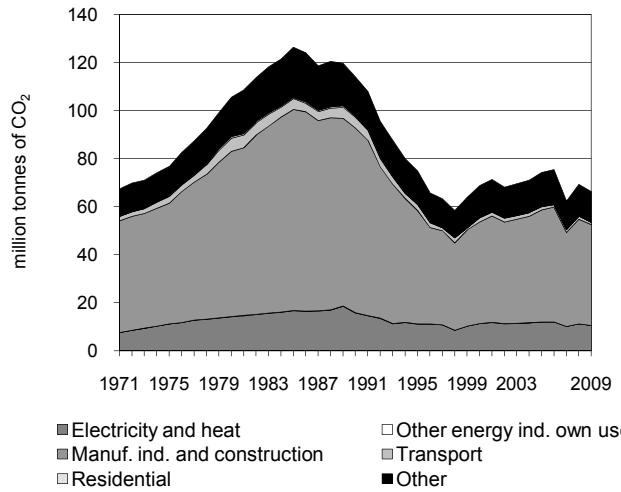


Figure 3. CO₂ emissions by sector

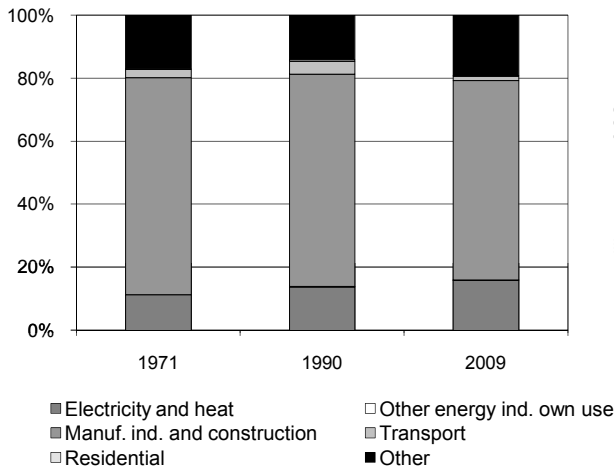


Figure 4. Reference vs Sectoral Approach

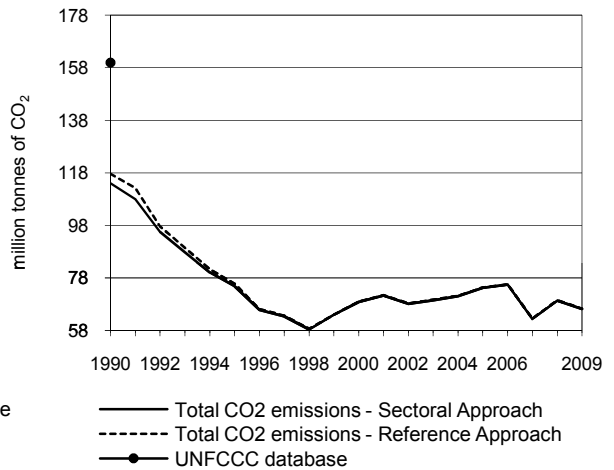


Figure 5. Electricity generation by fuel

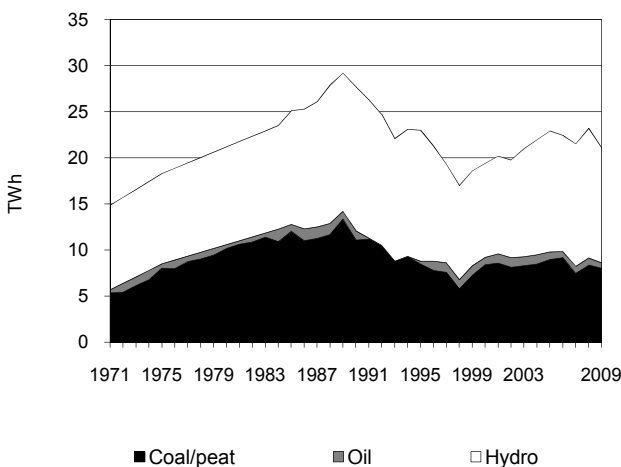
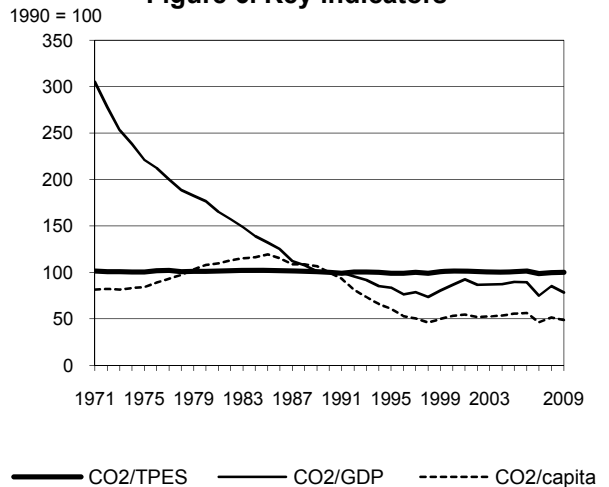


Figure 6. Key indicators



Democratic People's Republic of Korea

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	114.01	74.86	68.82	74.26	62.37	69.37	66.20	-41.9%
CO ₂ Reference Approach (Mt of CO ₂)	117.57	75.77	68.92	74.38	62.46	69.47	66.29	-43.6%
TPES (PJ)	1 391	920	828	898	770	848	807	-42.0%
TPES (Mtoe)	33.22	21.99	19.78	21.44	18.39	20.26	19.27	-42.0%
GDP (billion 2000 USD)	15.57	12.23	10.85	11.31	11.38	11.12	11.53	-25.9%
GDP PPP (billion 2000 USD)	54.75	43.00	38.17	39.76	40.03	39.11	40.56	-25.9%
Population (millions)	20.14	21.72	22.86	23.53	23.73	23.82	23.91	18.7%
CO ₂ / TPES (t CO ₂ per TJ)	82.0	81.3	83.1	82.7	81.0	81.8	82.1	0.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	7.32	6.12	6.34	6.57	5.48	6.24	5.74	-21.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	2.08	1.74	1.80	1.87	1.56	1.77	1.63	-21.6%
CO ₂ / population (t CO ₂ per capita)	5.66	3.45	3.01	3.16	2.63	2.91	2.77	-51.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	64.17	2.04	-	-	66.20	-41.9%
Main activity producer elec. and heat	9.70	0.82	-	-	10.52	-32.8%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.03	-	-	0.03	-84.6%
Manufacturing industries and construction	41.74	0.18	-	-	41.93	-45.4%
Transport	-	0.92	-	-	0.92	-80.1%
<i>of which: road</i>	-	0.92	-	-	0.92	-80.1%
Other	12.72	0.07	-	-	12.80	-23.3%
<i>of which: residential</i>	-	0.07	-	-	0.07	-85.9%
Reference Approach	64.24	2.05	-	-	66.29	-43.6%
Diff. due to losses and/or transformation	0.07	0.02	-	-	0.09	
Statistical differences	-0.00	-0.00	-	-	-0.00	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - coal/peat	41.74	-44.8%	43.9	43.9
Non-specified other sectors - coal/peat	12.72	-21.2%	13.4	57.3
Main activity prod. elec. and heat - coal/peat	9.70	-32.4%	10.2	67.6
Road - oil	0.92	-80.1%	1.0	68.5
Main activity prod. elec. and heat - oil	0.82	-37.5%	0.9	69.4
Manufacturing industries - oil	0.18	-84.5%	0.2	69.6
Residential - oil	0.07	-85.9%	0.1	69.7
Other energy industry own use - oil	0.03	-84.6%	0.0	69.7
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>66.20</i>	<i>-41.9%</i>	<i>69.7</i>	<i>69.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Korea

Figure 1. CO₂ emissions by fuel

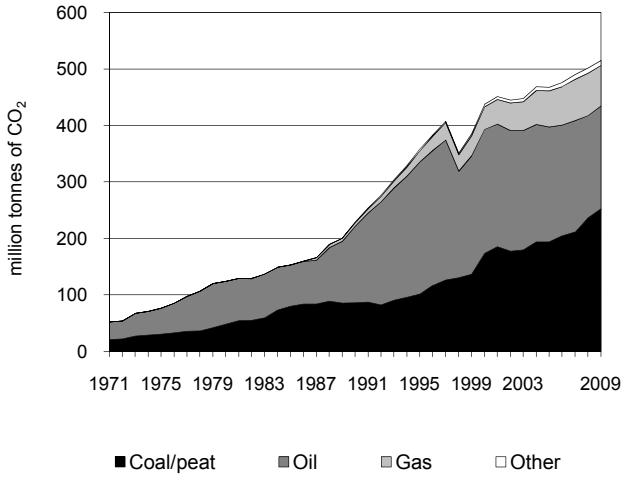


Figure 2. CO₂ emissions by sector

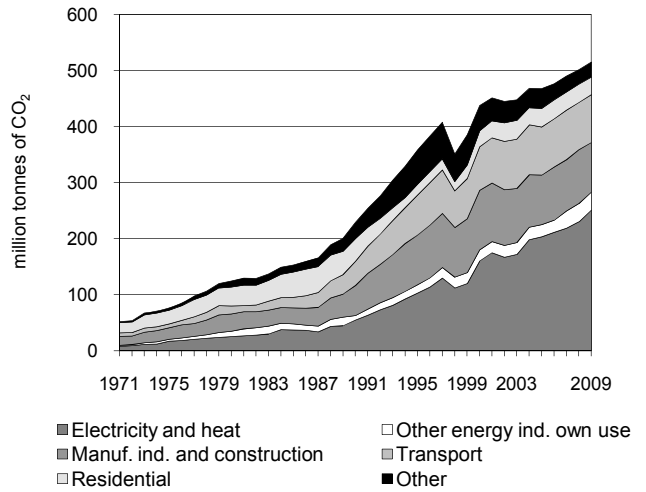


Figure 3. CO₂ emissions by sector

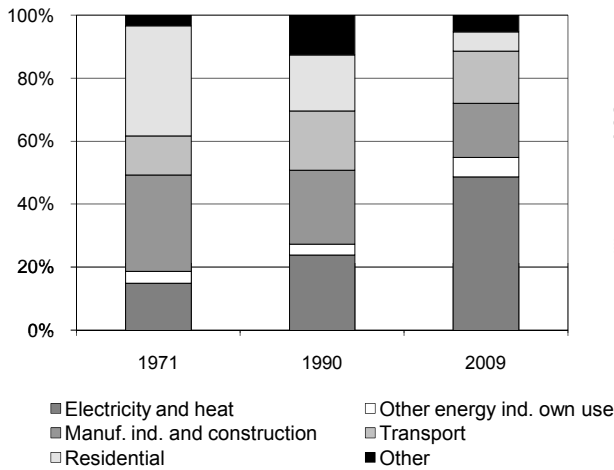


Figure 4. Reference vs Sectoral Approach

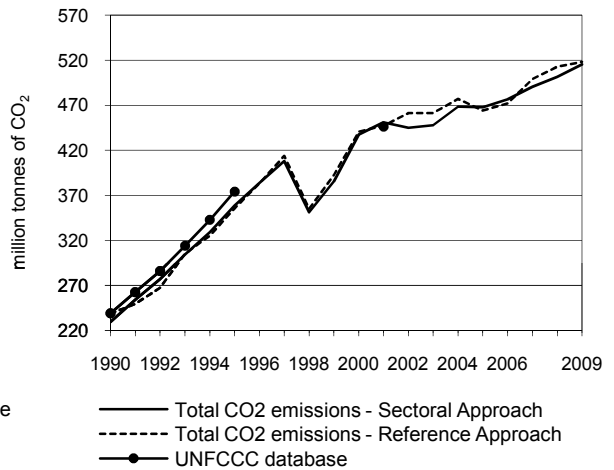


Figure 5. Electricity generation by fuel

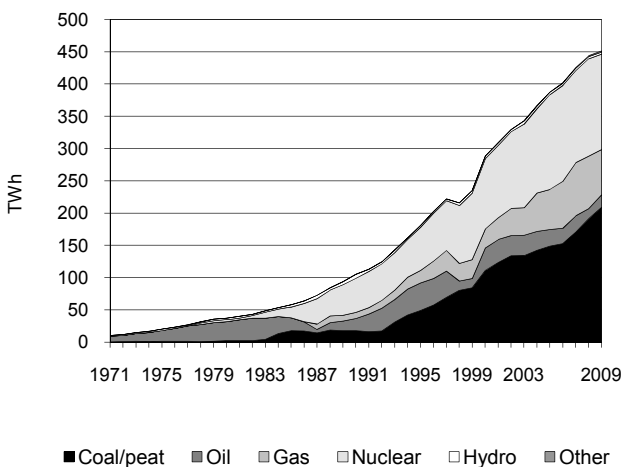
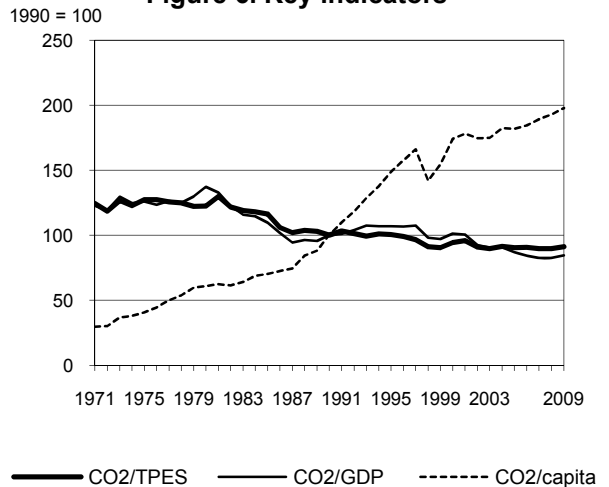


Figure 6. Key indicators



Korea

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	229.30	358.65	437.66	467.90	490.35	501.68	515.46	124.8%
CO ₂ Reference Approach (Mt of CO ₂)	238.60	355.28	440.65	464.33	498.86	512.84	518.15	117.2%
TPES (PJ)	3 897	6 061	7 874	8 797	9 301	9 502	9 595	146.2%
TPES (Mtoe)	93.09	144.76	188.08	210.10	222.15	226.95	229.18	146.2%
GDP (billion 2000 USD)	283.33	414.21	533.38	664.39	734.48	751.36	752.83	165.7%
GDP PPP (billion 2000 USD)	429.42	627.78	808.40	1 006.96	1 113.18	1 138.77	1 140.99	165.7%
Population (millions)	42.87	45.09	47.01	48.14	48.46	48.61	48.75	13.7%
CO ₂ / TPES (t CO ₂ per TJ)	58.8	59.2	55.6	53.2	52.7	52.8	53.7	-8.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.81	0.87	0.82	0.70	0.67	0.67	0.68	-15.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.53	0.57	0.54	0.46	0.44	0.44	0.45	-15.4%
CO ₂ / population (t CO ₂ per capita)	5.35	7.95	9.31	9.72	10.12	10.32	10.57	97.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	252.51	182.06	72.04	8.85	515.46	124.8%
Main activity producer elec. and heat	176.51	11.63	28.01	-	216.14	527.4%
Unallocated autoproducers	29.02	4.21	0.95	0.82	35.00	71.9%
Other energy industry own use	15.32	15.78	0.74	-	31.84	298.2%
Manufacturing industries and construction	28.20	40.05	13.16	7.25	88.67	65.4%
Transport	-	83.07	2.09	-	85.16	96.9%
<i>of which: road</i>	-	77.85	2.09	-	79.94	153.4%
Other	3.47	27.32	27.09	0.78	58.65	-15.7%
<i>of which: residential</i>	3.47	8.57	19.31	-	31.35	-23.0%
Reference Approach	251.51	183.69	74.09	8.85	518.15	117.2%
Diff. due to losses and/or transformation	8.07	4.82	-0.52	-	12.36	
Statistical differences	-9.07	-3.19	2.58	0.00	-9.68	
<i>Memo: international marine bunkers</i>	-	26.81	-	-	26.81	408.9%
<i>Memo: international aviation bunkers</i>	-	10.93	-	-	10.93	+

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	176.51	+	29.2	29.2
Road - oil	77.85	146.8%	12.9	42.0
Manufacturing industries - oil	40.05	5.4%	6.6	48.6
Unallocated autoproducers - coal/peat	29.02	42.5%	4.8	53.4
Manufacturing industries - coal/peat	28.20	98.4%	4.7	58.1
Main activity prod. elec. and heat - gas	28.01	488.4%	4.6	62.7
Residential - gas	19.31	+	3.2	65.9
Non-specified other - oil	18.75	-34.1%	3.1	69.0
Other energy industry own use - oil	15.78	209.4%	2.6	71.6
Other energy industry - coal/peat	15.32	435.6%	2.5	74.1
Manufacturing industries - gas	13.16	+	2.2	76.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>515.46</i>	<i>124.8%</i>	<i>85.1</i>	<i>85.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Kuwait

Figure 1. CO₂ emissions by fuel

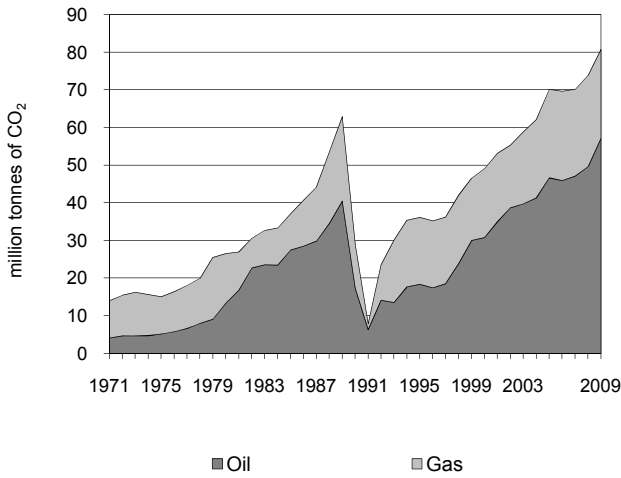


Figure 2. CO₂ emissions by sector

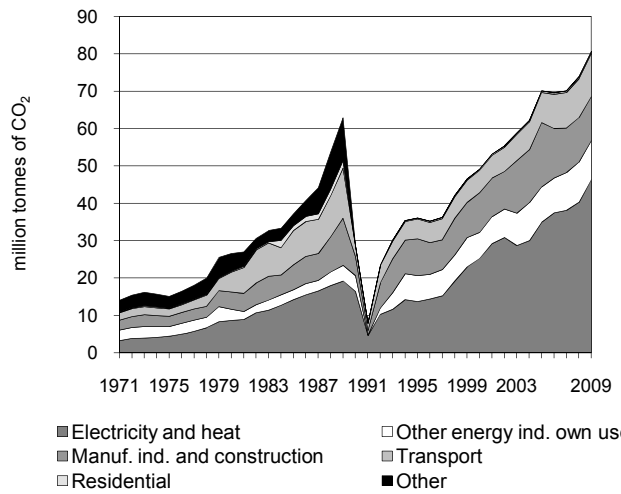


Figure 3. CO₂ emissions by sector

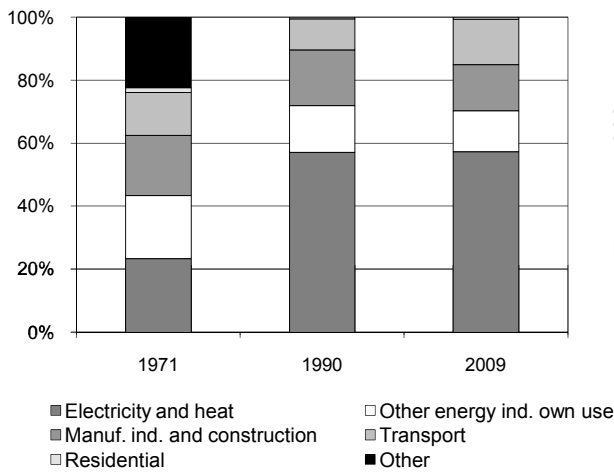


Figure 4. Reference vs Sectoral Approach

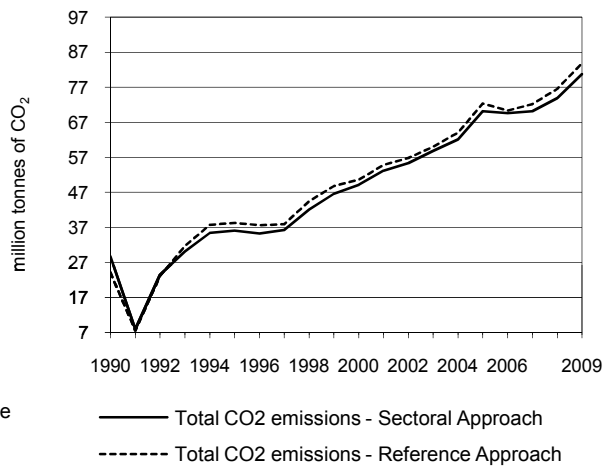


Figure 5. Electricity generation by fuel

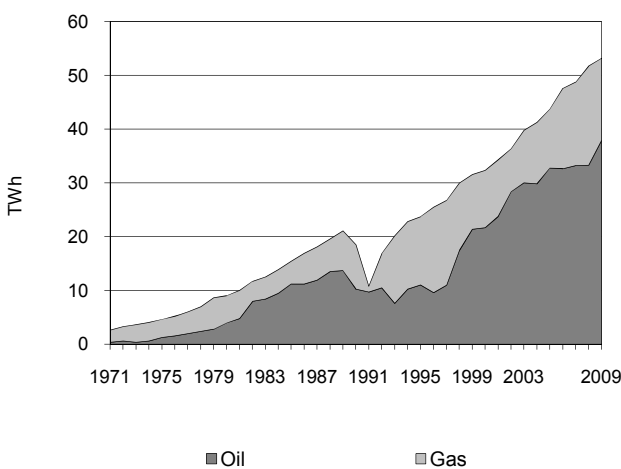
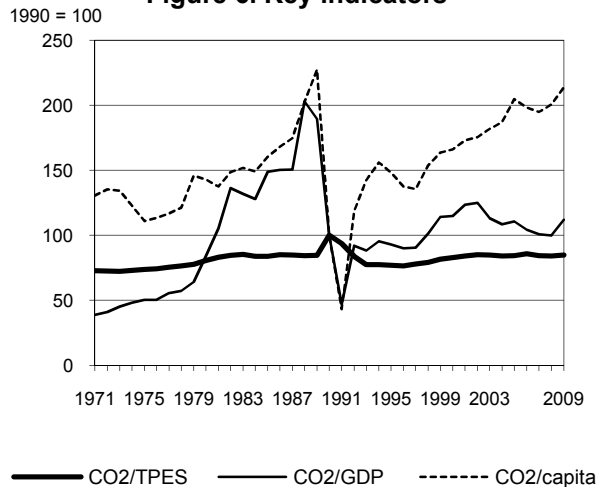


Figure 6. Key indicators



Kuwait

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	28.72	36.11	49.12	70.13	70.13	73.87	80.72	181.1%
CO ₂ Reference Approach (Mt of CO ₂)	24.06	38.31	50.57	72.37	72.13	76.55	83.89	248.7%
TPES (PJ)	381	623	787	1 105	1 105	1 167	1 263	231.2%
TPES (Mtoe)	9.11	14.87	18.81	26.40	26.39	27.87	30.17	231.2%
GDP (billion 2000 USD)	25.34	34.33	37.72	55.96	61.44	65.37	63.63	151.1%
GDP PPP (billion 2000 USD)	28.84	39.06	42.92	63.68	69.92	74.39	72.41	151.1%
Population (millions)	2.13	1.80	2.19	2.54	2.66	2.73	2.80	31.5%
CO ₂ / TPES (t CO ₂ per TJ)	75.3	58.0	62.4	63.4	63.5	63.3	63.9	-15.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.13	1.05	1.30	1.25	1.14	1.13	1.27	11.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.00	0.92	1.14	1.10	1.00	0.99	1.11	11.9%
CO ₂ / population (t CO ₂ per capita)	13.51	20.04	22.43	27.66	26.33	27.08	28.88	113.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	57.10	23.63	-	80.72	181.1%
Main activity producer elec. and heat	-	38.17	8.11	-	46.28	182.3%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	1.27	9.19	-	10.46	145.4%
Manufacturing industries and construction	-	5.55	6.33	-	11.88	133.6%
Transport	-	11.61	-	-	11.61	312.7%
<i>of which: road</i>	-	11.61	-	-	11.61	312.7%
Other	-	0.50	-	-	0.50	208.3%
<i>of which: residential</i>	-	0.50	-	-	0.50	208.3%
Reference Approach	-	60.27	23.63	-	83.89	248.7%
Diff. due to losses and/or transformation	-	2.43	-	-	2.43	
Statistical differences	-	0.74	-	-	0.74	
<i>Memo: international marine bunkers</i>	-	1.20	-	-	1.20	116.3%
<i>Memo: international aviation bunkers</i>	-	2.41	-	-	2.41	370.4%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	38.17	211.3%	38.4	38.4
Road - oil	11.61	312.7%	11.7	50.0
Other energy industry own use - gas	9.19	155.5%	9.2	59.2
Main activity prod. elec. and heat - gas	8.11	96.2%	8.1	67.4
Manufacturing industries - gas	6.33	67.7%	6.4	73.8
Manufacturing industries - oil	5.55	323.7%	5.6	79.3
Other energy industry own use - oil	1.27	91.0%	1.3	80.6
Residential - oil	0.50	208.3%	0.5	81.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>80.72</i>	<i>181.1%</i>	<i>81.1</i>	<i>81.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Kyrgyzstan

Figure 1. CO₂ emissions by fuel

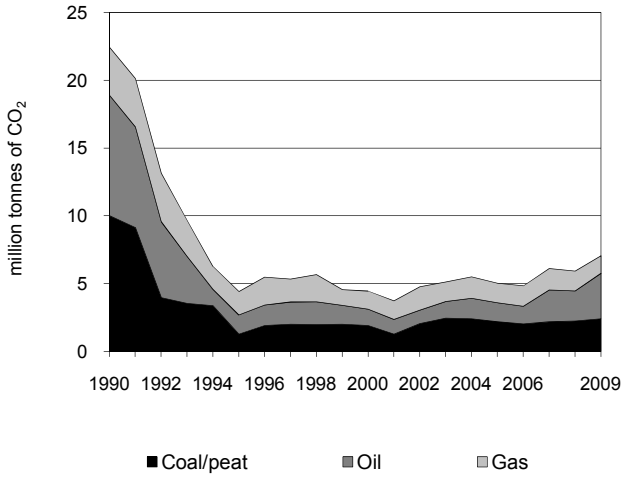


Figure 2. CO₂ emissions by sector

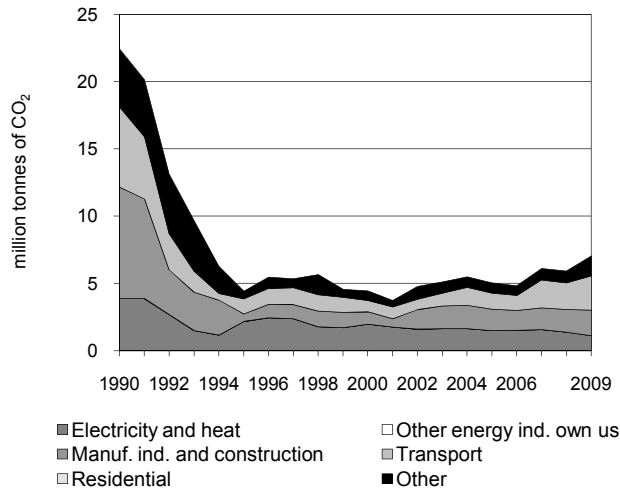


Figure 3. CO₂ emissions by sector

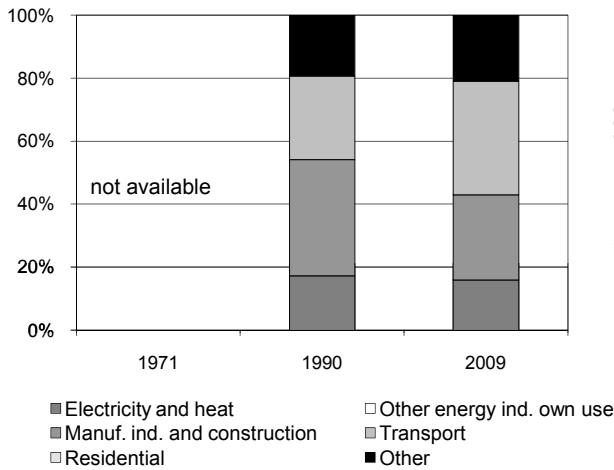


Figure 4. Reference vs Sectoral Approach

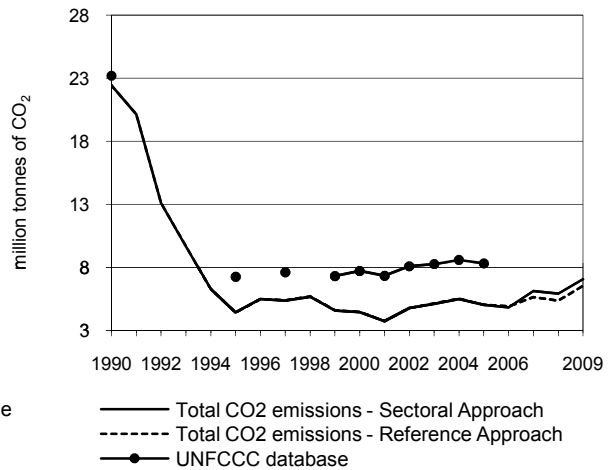


Figure 5. Electricity generation by fuel

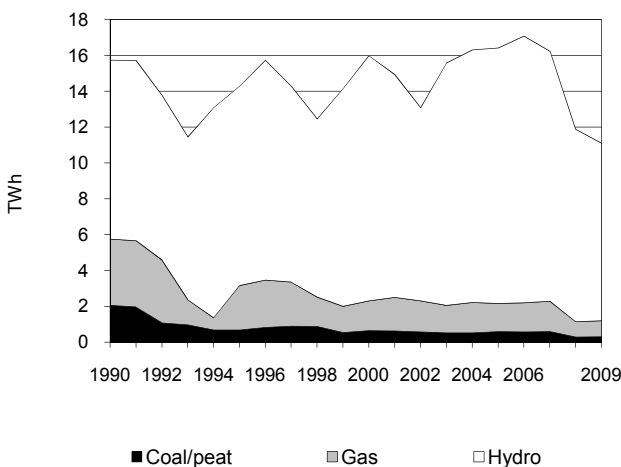
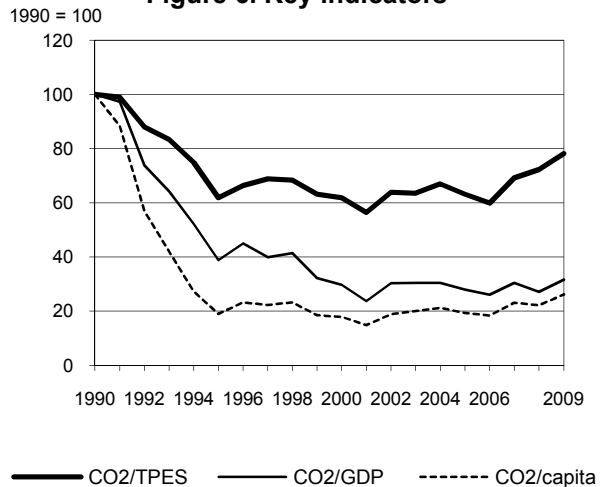


Figure 6. Key indicators



Kyrgyzstan

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	22.45	4.43	4.45	5.04	6.13	5.93	7.06	-68.6%
CO ₂ Reference Approach (Mt of CO ₂)	22.45	4.43	4.48	5.02	5.63	5.37	6.53	-70.9%
TPES (PJ)	313	100	101	111	124	115	126	-59.8%
TPES (Mtoe)	7.49	2.38	2.40	2.66	2.95	2.74	3.01	-59.8%
GDP (billion 2000 USD)	2.06	1.04	1.37	1.65	1.85	2.00	2.05	-0.4%
GDP PPP (billion 2000 USD)	11.04	5.60	7.36	8.86	9.91	10.75	11.00	-0.4%
Population (millions)	4.42	4.59	4.92	5.14	5.24	5.28	5.32	20.3%
CO ₂ / TPES (t CO ₂ per TJ)	71.6	44.3	44.3	45.3	49.6	51.8	56.0	-21.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	10.92	4.24	3.25	3.06	3.32	2.96	3.45	-68.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	2.03	0.79	0.61	0.57	0.62	0.55	0.64	-68.4%
CO ₂ / population (t CO ₂ per capita)	5.08	0.96	0.91	0.98	1.17	1.12	1.33	-73.9%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	2.40	3.37	1.29	-	7.06	-68.6%
Main activity producer elec. and heat	0.52	-	0.61	-	1.13	-70.9%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	1.88	0.02	-	-	1.90	-77.0%
Transport	-	2.53	0.02	-	2.55	-57.2%
<i>of which: road</i>	-	2.53	0.02	-	2.55	-57.2%
Other	-	0.82	0.66	-	1.48	-65.9%
<i>of which: residential</i>	-	-	-	-	-	-
Reference Approach	1.74	3.51	1.29	-	6.53	-70.9%
Diff. due to losses and/or transformation	-	0.00	-	-	0.00	
Statistical differences	-0.66	0.13	-0.00	-	-0.53	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	1.48	-	-	1.48	466.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	2.53	-57.5%	19.7	19.7
Manufacturing industries - coal/peat	1.88	-77.3%	14.6	34.4
Non-specified other - oil	0.82	-72.1%	6.4	40.7
Non-specified other - gas	0.66	-53.2%	5.2	45.9
Main activity prod. elec. and heat - gas	0.61	-71.5%	4.7	50.6
Main activity prod. elec. and heat - coal/peat	0.52	-70.1%	4.1	54.7
Manufacturing industries - oil	0.02	x	0.2	54.9
Road - gas	0.02	x	0.1	55.0
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>7.06</i>	<i>-68.6%</i>	<i>55.0</i>	<i>55.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Latvia

Figure 1. CO₂ emissions by fuel

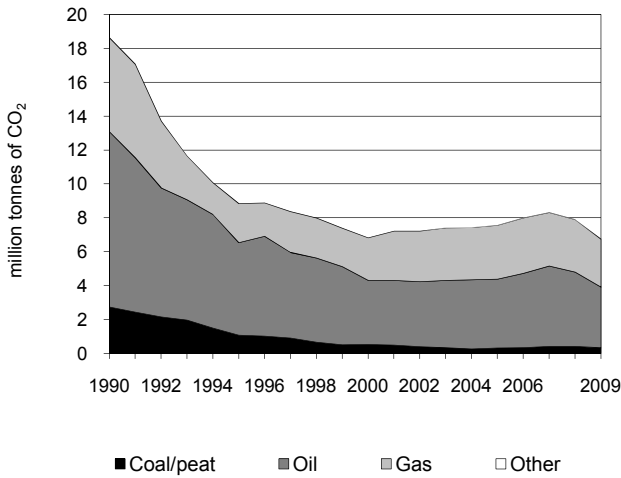


Figure 2. CO₂ emissions by sector

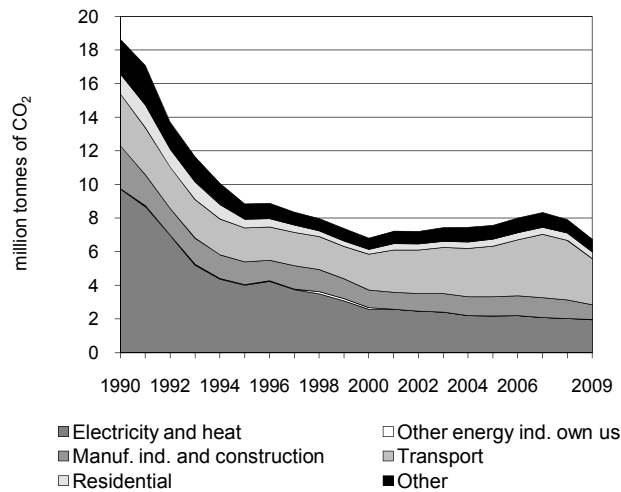


Figure 3. CO₂ emissions by sector

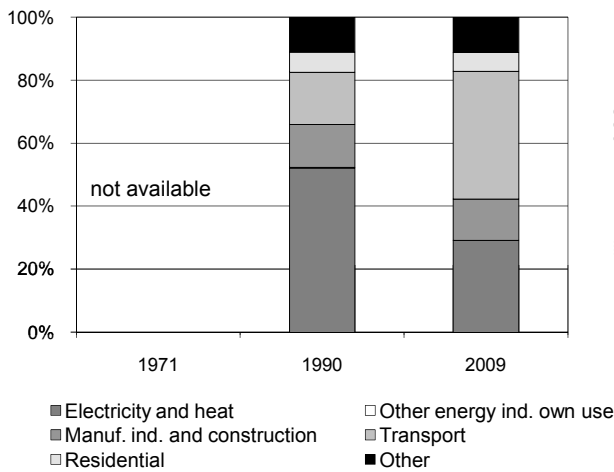


Figure 4. Reference vs Sectoral Approach

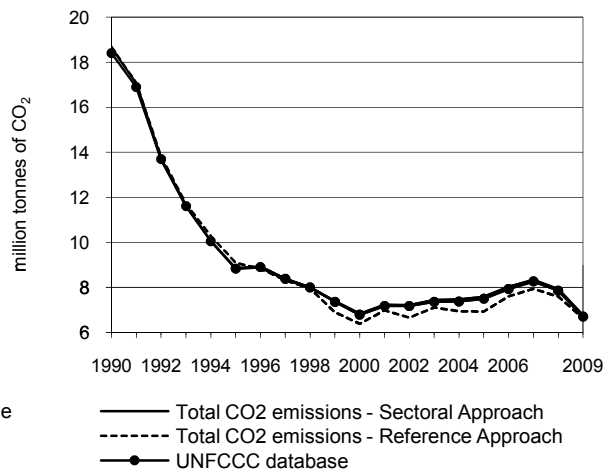


Figure 5. Electricity generation by fuel

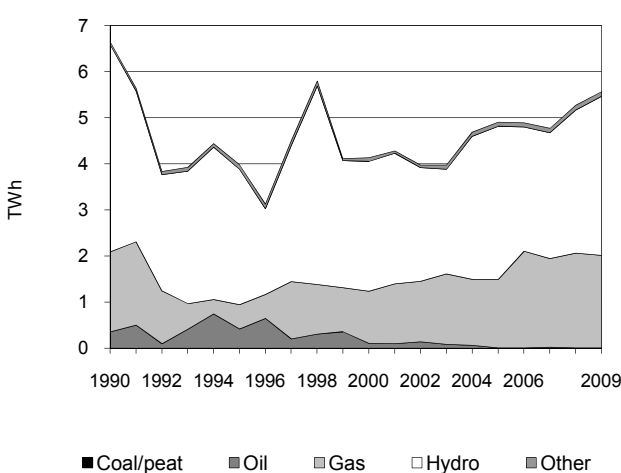
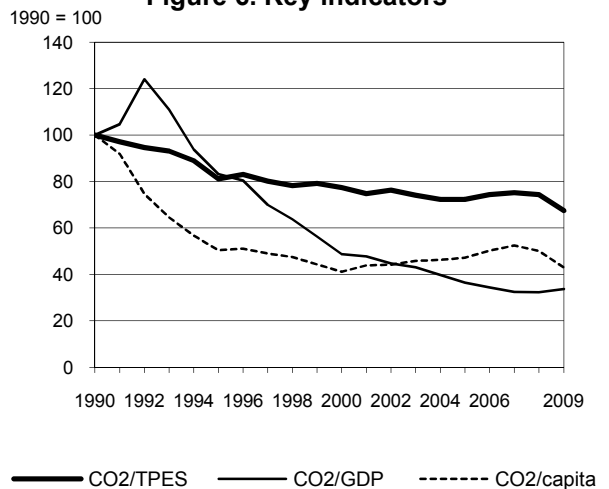


Figure 6. Key indicators



Latvia

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	18.64	8.85	6.82	7.57	8.34	7.91	6.75	-63.8%
CO ₂ Reference Approach (Mt of CO ₂)	18.69	9.10	6.38	6.92	7.94	7.60	6.63	-64.6%
TPES (PJ)	329	192	156	185	196	188	177	-46.3%
TPES (Mtoe)	7.85	4.60	3.71	4.42	4.67	4.48	4.22	-46.3%
GDP (billion 2000 USD)	10.42	5.95	7.83	11.61	14.33	13.68	11.21	7.6%
GDP PPP (billion 2000 USD)	25.16	14.36	18.92	28.04	34.61	33.03	27.08	7.6%
Population (millions)	2.67	2.52	2.37	2.30	2.28	2.27	2.26	-15.6%
CO ₂ / TPES (t CO ₂ per TJ)	56.7	46.0	43.9	40.9	42.6	42.2	38.2	-32.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.79	1.49	0.87	0.65	0.58	0.58	0.60	-66.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.74	0.62	0.36	0.27	0.24	0.24	0.25	-66.3%
CO ₂ / population (t CO ₂ per capita)	6.98	3.52	2.88	3.29	3.66	3.49	2.99	-57.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.33	3.58	2.83	0.01	6.75	-63.8%
Main activity producer elec. and heat	0.04	0.09	1.74	-	1.88	-69.2%
Unallocated autoproducers	0.01	0.00	0.08	-	0.09	-97.5%
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.14	0.24	0.50	0.01	0.89	-65.1%
Transport	-	2.74	0.00	-	2.74	-11.4%
<i>of which: road</i>	-	2.47	0.00	-	2.47	6.3%
Other	0.14	0.51	0.51	-	1.16	-64.5%
<i>of which: residential</i>	0.08	0.08	0.24	-	0.40	-66.3%
Reference Approach	0.33	3.42	2.87	0.01	6.63	-64.6%
Diff. due to losses and/or transformation	0.00	-0.01	0.04	-	0.03	
Statistical differences	0.00	-0.15	-	-	-0.15	
<i>Memo: international marine bunkers</i>	-	0.86	-	-	0.86	-42.0%
<i>Memo: international aviation bunkers</i>	-	0.30	-	-	0.30	39.4%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	2.47	7.1%	23.0	23.0
Main activity prod. elec. and heat - gas	1.74	-36.3%	16.2	39.2
Manufacturing industries - gas	0.50	-51.7%	4.6	43.8
Non-specified other - oil	0.42	-68.0%	3.9	47.7
Non-specified other - gas	0.27	-9.6%	2.5	50.2
Other transport - oil	0.26	-62.4%	2.4	52.7
Residential - gas	0.24	7.5%	2.2	54.9
Manufacturing industries - oil	0.24	-82.7%	2.2	57.1
Manufacturing industries - coal/peat	0.14	8.1%	1.3	58.4
Main activity prod. elec. and heat - oil	0.09	-96.9%	0.9	59.3
Residential - oil	0.08	-74.3%	0.8	60.1
<i>Memo: total CO₂ from fuel combustion</i>	6.75	-63.8%	62.7	62.7

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Lebanon

Figure 1. CO₂ emissions by fuel

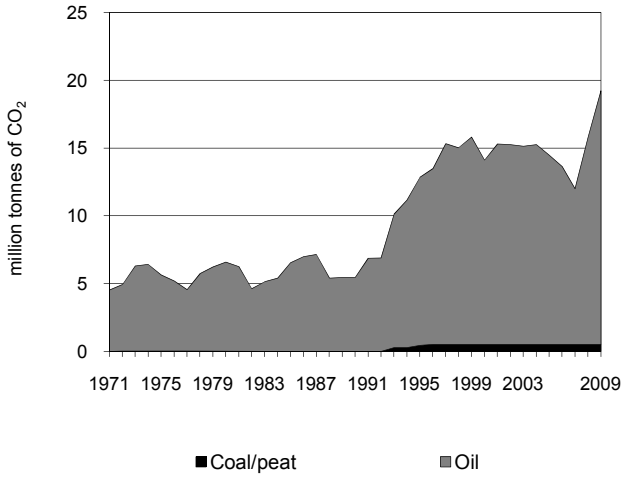


Figure 2. CO₂ emissions by sector

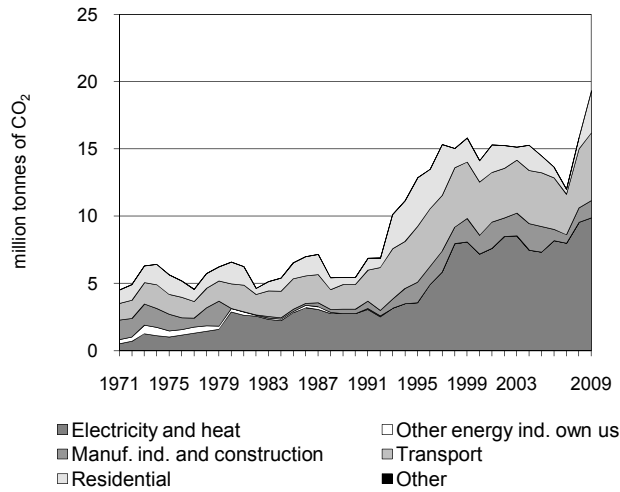


Figure 3. CO₂ emissions by sector

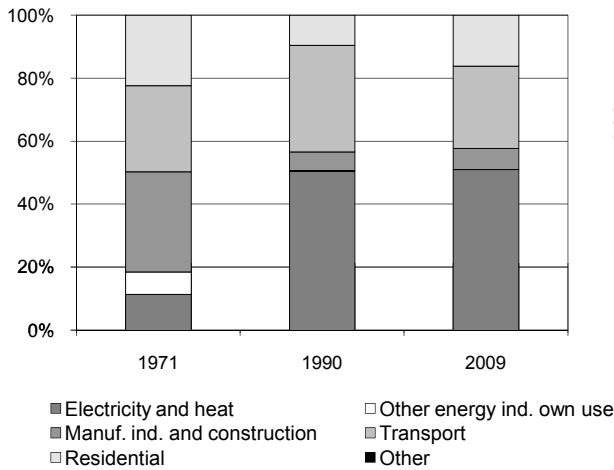


Figure 4. Reference vs Sectoral Approach

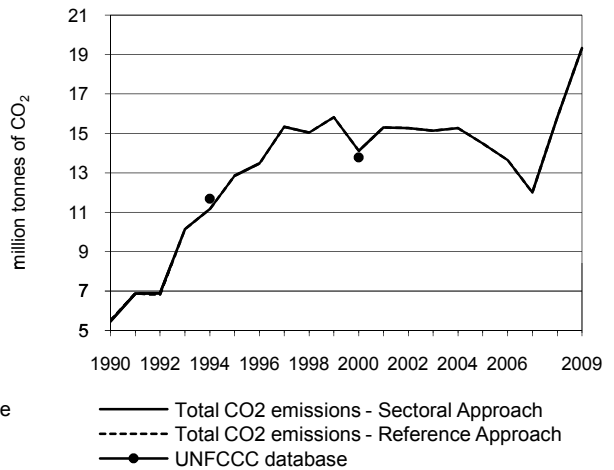


Figure 5. Electricity generation by fuel

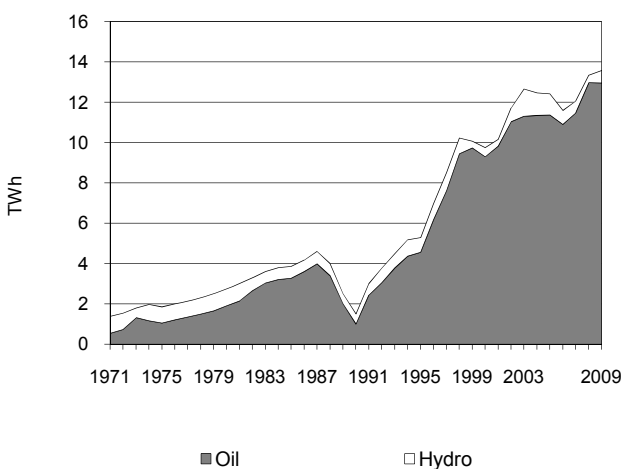
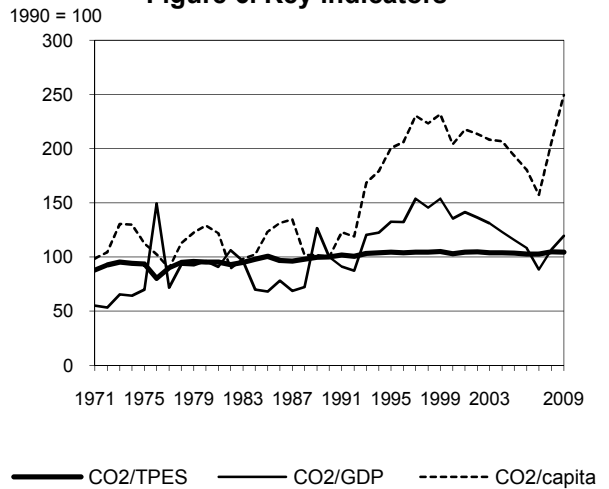


Figure 6. Key indicators



Lebanon

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	5.46	12.85	14.12	14.48	12.01	15.83	19.33	254.3%
CO ₂ Reference Approach (Mt of CO ₂)	5.51	12.85	14.12	14.48	12.01	15.83	19.33	251.0%
TPES (PJ)	82	185	205	210	176	226	278	239.5%
TPES (Mtoe)	1.95	4.41	4.91	5.01	4.19	5.41	6.63	239.5%
GDP (billion 2000 USD)	9.04	16.08	17.26	20.76	22.49	24.57	26.78	196.2%
GDP PPP (billion 2000 USD)	8.72	15.51	16.65	20.02	21.69	23.70	25.83	196.2%
Population (millions)	2.97	3.49	3.77	4.08	4.16	4.19	4.22	42.0%
CO ₂ / TPES (t CO ₂ per TJ)	66.7	69.6	68.8	69.0	68.4	69.9	69.6	4.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.60	0.80	0.82	0.70	0.53	0.64	0.72	19.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.63	0.83	0.85	0.72	0.55	0.67	0.75	19.6%
CO ₂ / population (t CO ₂ per capita)	1.84	3.68	3.74	3.55	2.89	3.77	4.58	149.4%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.51	18.72	0.10	-	19.33	254.3%
Main activity producer elec. and heat	-	7.54	0.10	-	7.63	177.4%
Unallocated autoproducers	-	2.23	-	-	2.23	x
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.51	0.78	-	-	1.29	299.2%
Transport	-	5.04	-	-	5.04	173.4%
<i>of which: road</i>	-	5.04	-	-	5.04	173.4%
Other	-	3.13	-	-	3.13	499.7%
<i>of which: residential</i>	-	3.13	-	-	3.13	499.7%
Reference Approach	0.51	18.72	0.10	-	19.33	251.0%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	0.07	-	-	0.07	..
<i>Memo: international aviation bunkers</i>	-	0.55	-	-	0.55	250.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	7.54	173.8%	32.7	32.7
Road - oil	5.04	173.4%	21.9	54.5
Residential - oil	3.13	499.7%	13.6	68.1
Unallocated autoproducers - oil	2.23	x	9.7	77.8
Manufacturing industries - oil	0.78	140.5%	3.4	81.1
Manufacturing industries - coal/peat	0.51	x	2.2	83.4
Main activity prod. elec. and heat - gas	0.10	x	0.4	83.8
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>19.33</i>	<i>254.3%</i>	<i>83.8</i>	<i>83.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Libyan Arab Jamahiriya

Figure 1. CO₂ emissions by fuel

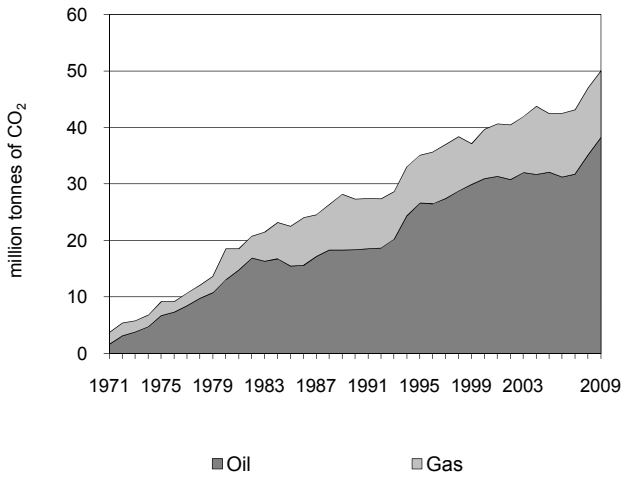


Figure 2. CO₂ emissions by sector

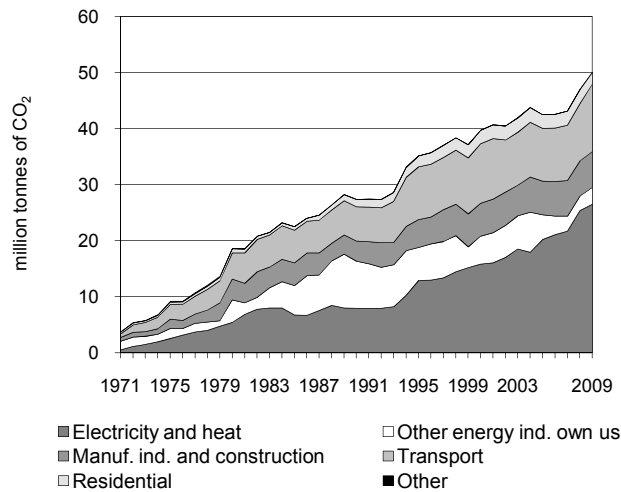


Figure 3. CO₂ emissions by sector

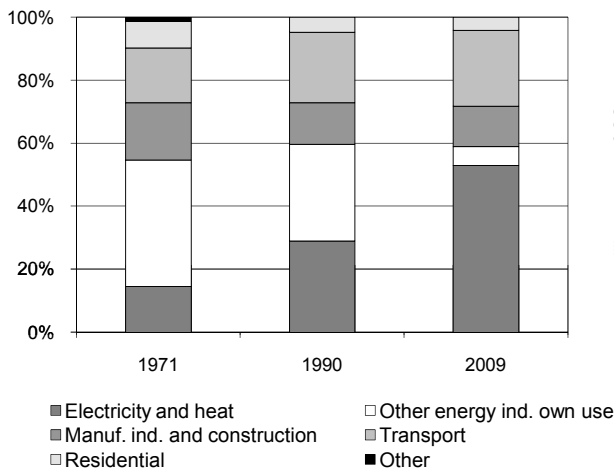


Figure 4. Reference vs Sectoral Approach

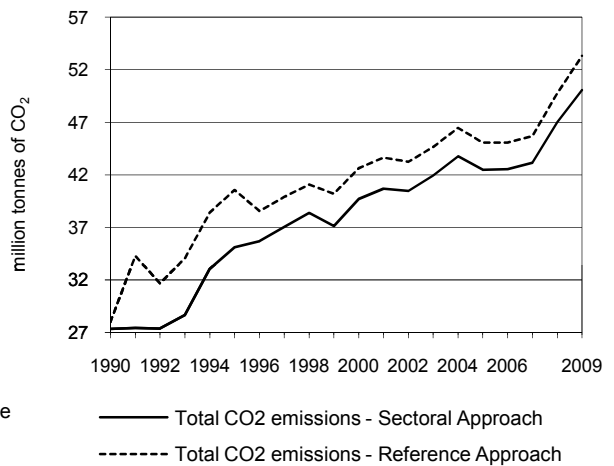


Figure 5. Electricity generation by fuel

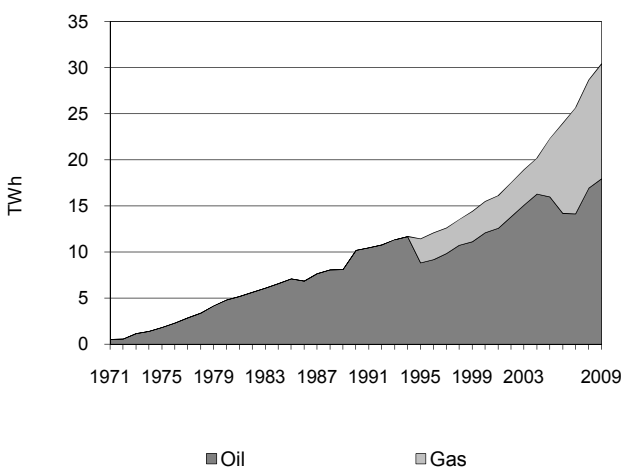
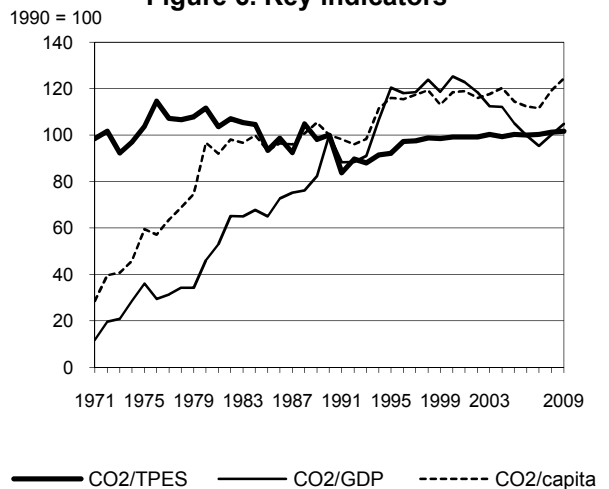


Figure 6. Key indicators



Libyan Arab Jamahiriya

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	27.35	35.12	39.69	42.48	43.13	47.00	50.05	83.0%
CO ₂ Reference Approach (Mt of CO ₂)	27.97	40.56	42.62	45.08	45.66	49.75	53.33	90.7%
TPES (PJ)	474	661	694	735	746	805	854	80.1%
TPES (Mtoe)	11.33	15.79	16.57	17.56	17.82	19.22	20.41	80.1%
GDP (billion 2000 USD)	29.79	31.77	34.50	44.00	49.25	51.12	52.02	74.6%
GDP PPP (billion 2000 USD)	40.48	43.18	46.89	59.80	66.93	69.48	70.70	74.6%
Population (millions)	4.37	4.83	5.35	5.92	6.17	6.29	6.42	47.1%
CO ₂ / TPES (t CO ₂ per TJ)	57.7	53.1	57.2	57.8	57.8	58.4	58.6	1.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.92	1.11	1.15	0.97	0.88	0.92	0.96	4.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.68	0.81	0.85	0.71	0.64	0.68	0.71	4.8%
CO ₂ / population (t CO ₂ per capita)	6.27	7.27	7.42	7.17	6.99	7.47	7.80	24.4%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	38.24	11.81	-	50.05	83.0%
Main activity producer elec. and heat	-	19.52	7.00	-	26.52	235.0%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	2.62	0.36	-	2.97	-64.6%
Manufacturing industries and construction	-	1.96	4.45	-	6.41	78.0%
Transport	-	12.04	-	-	12.04	96.7%
<i>of which: road</i>	-	12.04	-	-	12.04	96.7%
Other	-	2.09	-	-	2.09	61.2%
<i>of which: residential</i>	-	2.09	-	-	2.09	61.2%
Reference Approach	-	41.52	11.81	-	53.33	90.7%
Diff. due to losses and/or transformation	-	3.28	-	-	3.28	
Statistical differences	-	0.00	0.00	-	0.00	
<i>Memo: international marine bunkers</i>	-	0.28	-	-	0.28	12.5%
<i>Memo: international aviation bunkers</i>	-	0.73	-	-	0.73	15.5%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	19.52	146.5%	24.6	24.6
Road - oil	12.04	96.7%	15.1	39.7
Main activity prod. elec. and heat - gas	7.00	x	8.8	48.5
Manufacturing industries - gas	4.45	74.6%	5.6	54.1
Other energy industry own use - oil	2.62	34.0%	3.3	57.4
Residential - oil	2.09	61.2%	2.6	60.1
Manufacturing industries - oil	1.96	86.1%	2.5	62.5
Other energy industry own use - gas	0.36	-94.5%	0.4	63.0
Other transport - oil	0.01	50.0%	0.0	63.0
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>50.05</i>	<i>83.0%</i>	<i>63.0</i>	<i>63.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Lithuania

Figure 1. CO₂ emissions by fuel

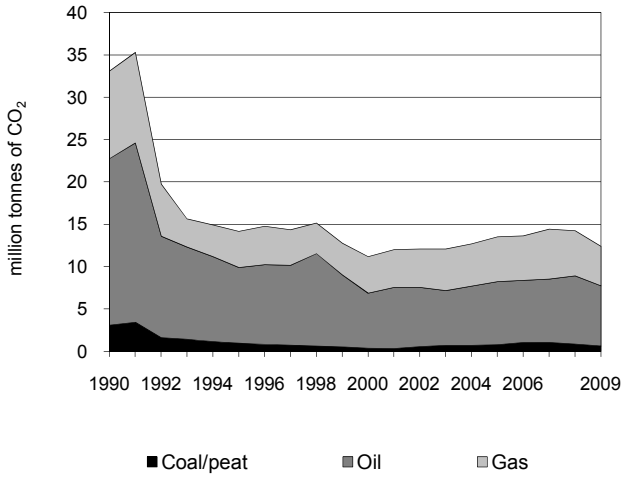


Figure 2. CO₂ emissions by sector

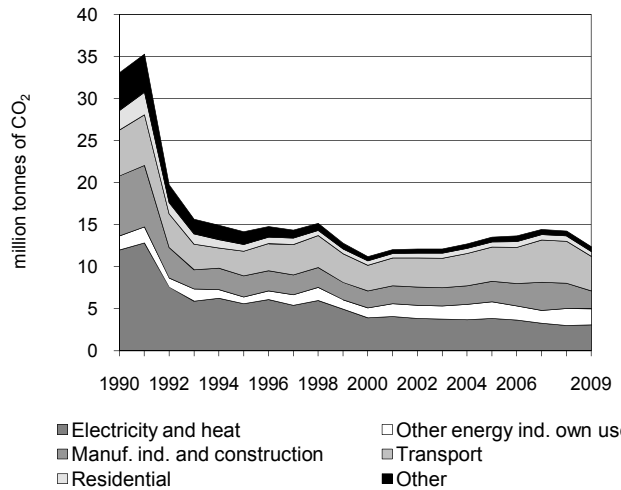


Figure 3. CO₂ emissions by sector

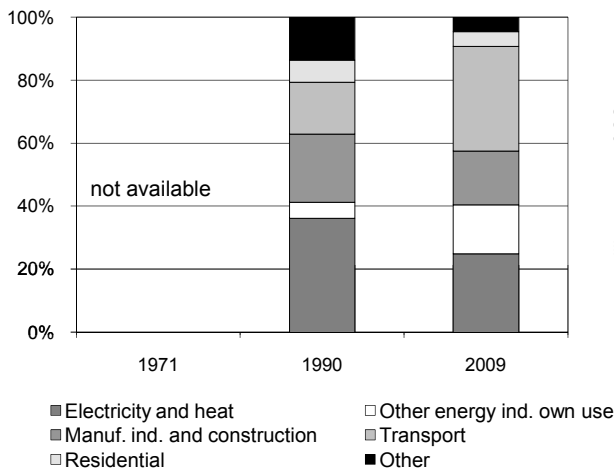


Figure 4. Reference vs Sectoral Approach

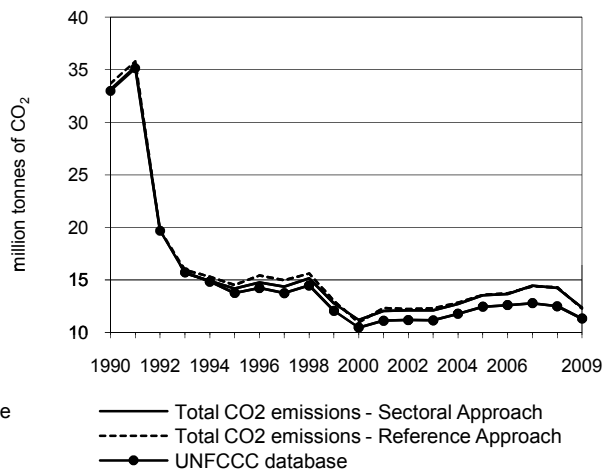


Figure 5. Electricity generation by fuel

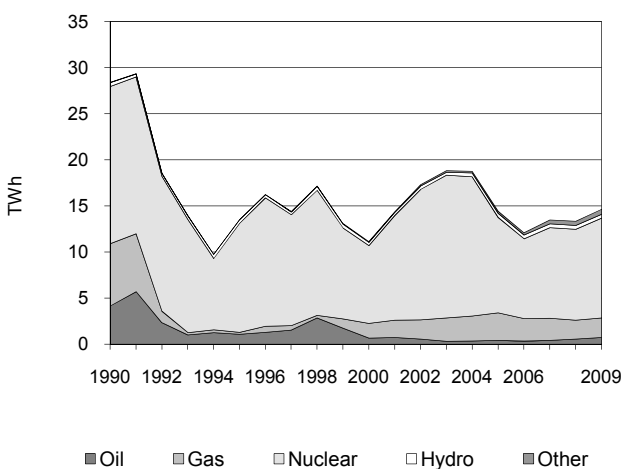
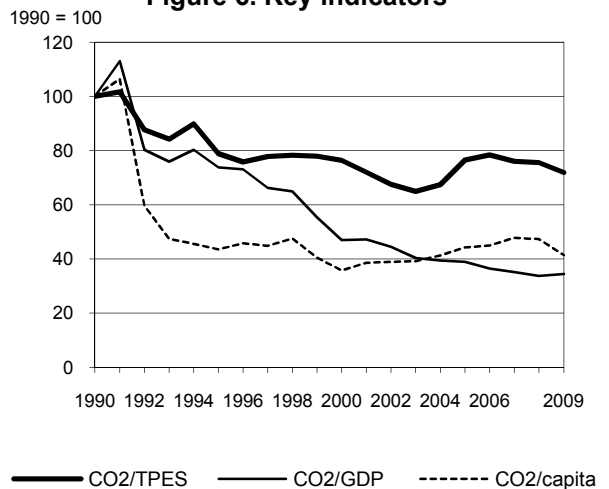


Figure 6. Key indicators



Lithuania

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	33.11	14.17	11.20	13.54	14.45	14.24	12.39	-62.6%
CO ₂ Reference Approach (Mt of CO ₂)	33.68	14.51	10.93	13.58	14.39	14.29	12.27	-63.6%
TPES (PJ)	675	366	299	360	387	384	351	-47.9%
TPES (Mtoe)	16.11	8.75	7.13	8.61	9.25	9.18	8.39	-47.9%
GDP (billion 2000 USD)	15.87	9.20	11.43	16.64	19.71	20.26	17.21	8.5%
GDP PPP (billion 2000 USD)	42.40	24.59	30.55	44.46	52.67	54.12	45.99	8.5%
Population (millions)	3.70	3.63	3.50	3.41	3.38	3.36	3.34	-9.7%
CO ₂ / TPES (t CO ₂ per TJ)	49.1	38.7	37.5	37.6	37.3	37.1	35.3	-28.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.09	1.54	0.98	0.81	0.73	0.70	0.72	-65.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.78	0.58	0.37	0.30	0.27	0.26	0.27	-65.5%
CO ₂ / population (t CO ₂ per capita)	8.95	3.90	3.20	3.96	4.28	4.24	3.71	-58.6%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.63	7.11	4.65	-	12.39	-62.6%
Main activity producer elec. and heat	0.02	0.42	2.44	-	2.88	-73.8%
Unallocated autoproducers	0.00	0.12	0.08	-	0.21	-79.1%
Other energy industry own use	-	1.92	0.00	-	1.92	14.4%
Manufacturing industries and construction	0.25	0.34	1.51	-	2.11	-70.5%
Transport	-	4.07	0.06	-	4.12	-24.6%
<i>of which: road</i>	-	3.84	-	-	3.84	-24.4%
Other	0.35	0.25	0.55	-	1.15	-83.2%
<i>of which: residential</i>	0.13	0.10	0.34	-	0.58	-75.2%
Reference Approach	0.63	6.99	4.65	-	12.27	-63.6%
Diff. due to losses and/or transformation	0.00	-0.13	0.01	-	-0.12	
Statistical differences	0.00	0.00	0.00	-	0.00	
<i>Memo: international marine bunkers</i>	-	0.40	-	-	0.40	34.3%
<i>Memo: international aviation bunkers</i>	-	0.11	-	-	0.11	-73.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	3.84	-24.4%	16.9	16.9
Main activity prod. elec. and heat - gas	2.44	-55.0%	10.8	27.7
Other energy industry own use - oil	1.92	14.1%	8.5	36.2
Manufacturing industries - gas	1.51	-50.8%	6.7	42.8
Main activity prod. elec. and heat - oil	0.42	-92.4%	1.8	44.7
Manufacturing industries - oil	0.34	-91.2%	1.5	46.2
Residential - gas	0.34	-34.2%	1.5	47.7
Manufacturing industries - coal/peat	0.25	37.6%	1.1	48.8
Other transport - oil	0.22	-41.5%	1.0	49.8
Non-specified other sectors - coal/peat	0.21	-83.5%	0.9	50.7
Non-specified other - gas	0.21	-76.3%	0.9	51.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>12.39</i>	<i>-62.6%</i>	<i>54.6</i>	<i>54.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Luxembourg

Figure 1. CO₂ emissions by fuel

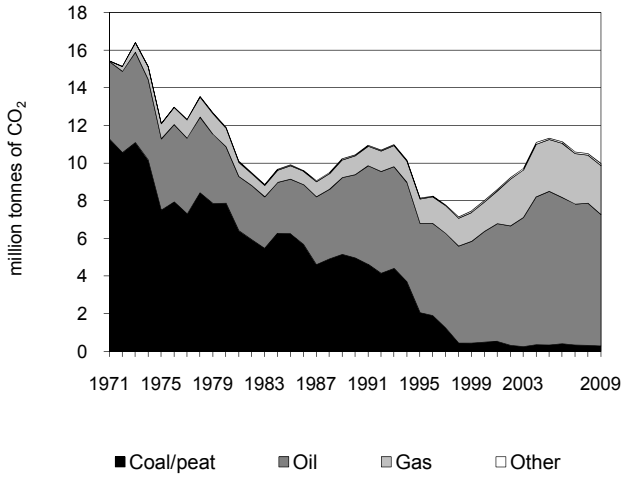


Figure 2. CO₂ emissions by sector

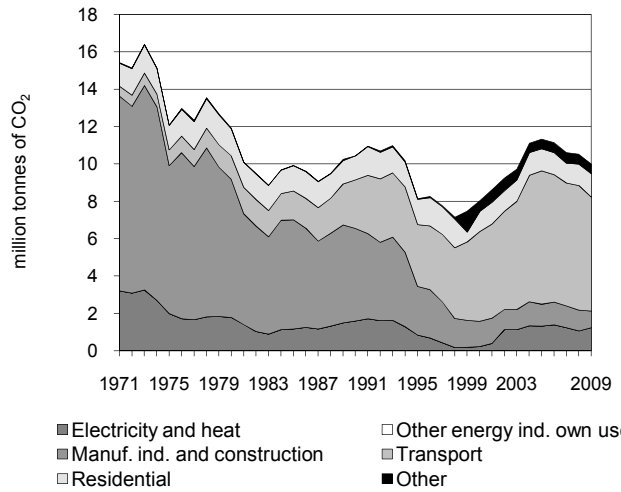


Figure 3. CO₂ emissions by sector

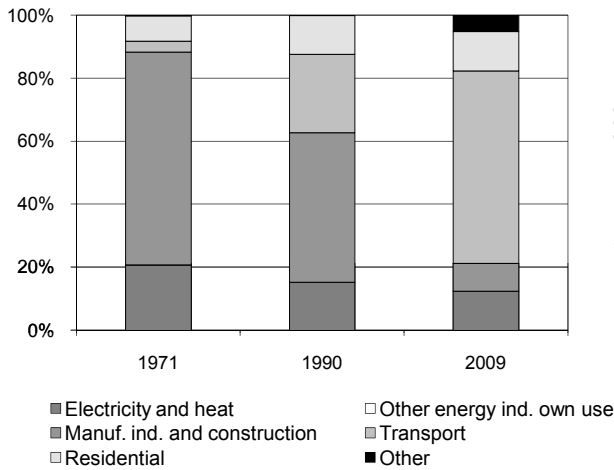


Figure 4. Reference vs Sectoral Approach

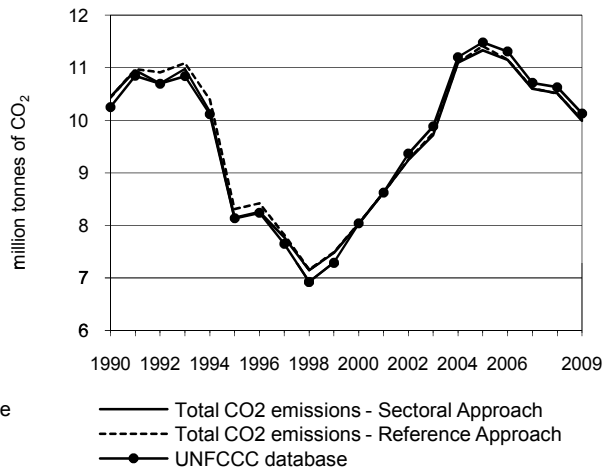


Figure 5. Electricity generation by fuel

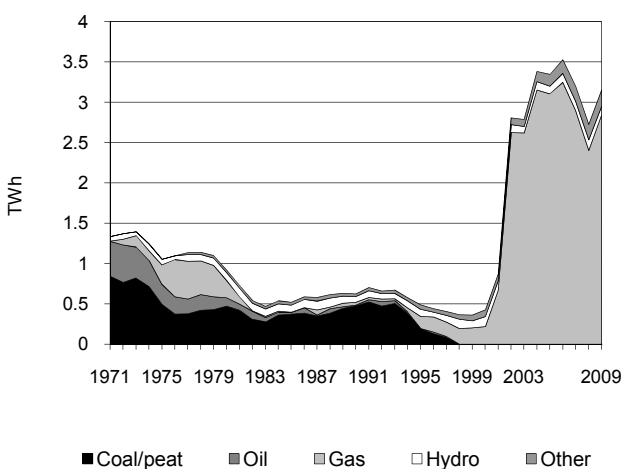
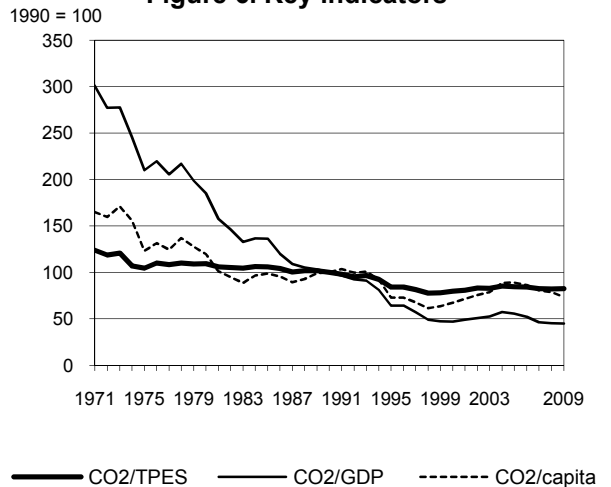


Figure 6. Key indicators



Luxembourg

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	10.44	8.15	8.03	11.33	10.60	10.52	9.99	-4.4%
CO ₂ Reference Approach (Mt of CO ₂)	10.43	8.31	8.04	11.41	10.60	10.51	10.01	-4.0%
TPES (PJ)	143	132	137	183	175	175	165	15.8%
TPES (Mtoe)	3.41	3.15	3.28	4.37	4.19	4.19	3.95	15.8%
GDP (billion 2000 USD)	12.40	15.05	20.27	24.18	27.07	27.46	26.46	113.3%
GDP PPP (billion 2000 USD)	14.32	17.38	23.41	27.92	31.25	31.70	30.55	113.3%
Population (millions)	0.38	0.41	0.44	0.47	0.48	0.49	0.50	30.1%
CO ₂ / TPES (t CO ₂ per TJ)	73.1	61.7	58.5	61.9	60.5	60.0	60.4	-17.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.84	0.54	0.40	0.47	0.39	0.38	0.38	-55.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.73	0.47	0.34	0.41	0.34	0.33	0.33	-55.2%
CO ₂ / population (t CO ₂ per capita)	27.34	19.92	18.42	24.37	22.09	21.55	20.10	-26.5%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.30	6.98	2.60	0.12	9.99	-4.4%
Main activity producer elec. and heat	-	0.00	0.99	0.12	1.11	+
Unallocated autoproducers	-	-	0.14	-	0.14	-91.2%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.30	0.02	0.57	-	0.88	-82.3%
Transport	-	6.10	-	-	6.10	134.4%
<i>of which: road</i>	-	6.08	-	-	6.08	134.4%
Other	0.00	0.85	0.91	-	1.77	36.7%
<i>of which: residential</i>	0.00	0.77	0.47	-	1.24	-2.5%
Reference Approach	0.30	7.00	2.60	0.12	10.01	-4.0%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.02	-0.00	-	0.02	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	1.24	-	-	1.24	218.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	6.08	134.4%	52.7	52.7
Main activity prod. elec. and heat - gas	0.99	x	8.5	61.2
Residential - oil	0.77	-16.6%	6.7	67.9
Manufacturing industries - gas	0.57	-13.1%	4.9	72.8
Residential - gas	0.47	43.6%	4.1	76.9
Non-specified other - gas	0.44	x	3.8	80.7
Manufacturing industries - coal/peat	0.30	-91.4%	2.6	83.3
Unallocated autoproducers - gas	0.14	501.5%	1.2	84.4
Main activity prod. elec. and heat - other	0.12	143.2%	1.0	85.5
Non-specified other - oil	0.08	431.9%	0.7	86.2
Other transport - oil	0.02	145.4%	0.2	86.3
<i>Memo: total CO₂ from fuel combustion</i>	9.99	-4.4%	86.5	86.5

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Former Yugoslav Republic of Macedonia

Figure 1. CO₂ emissions by fuel

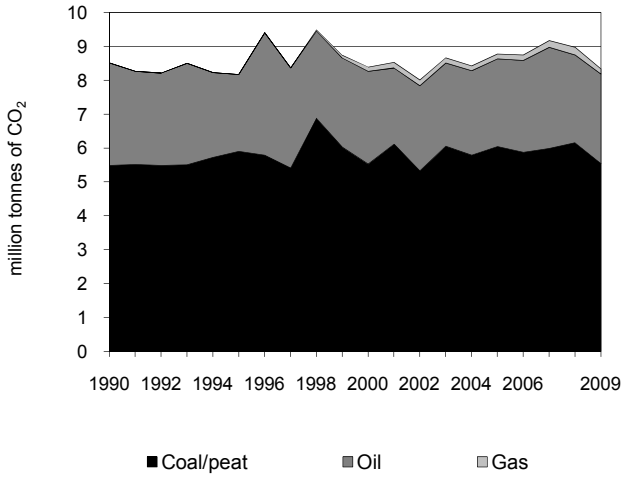


Figure 2. CO₂ emissions by sector

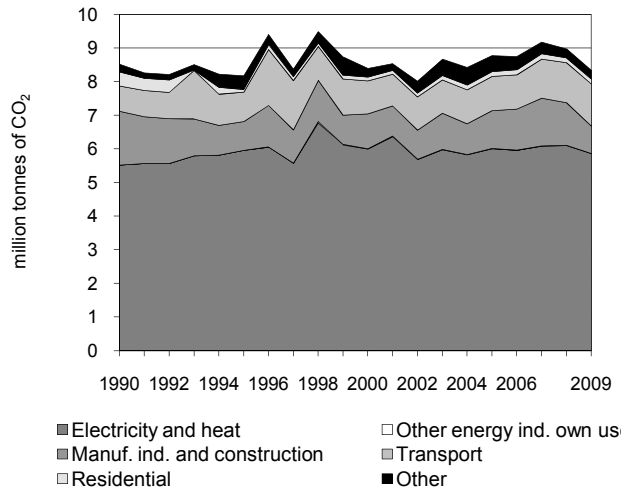


Figure 3. CO₂ emissions by sector

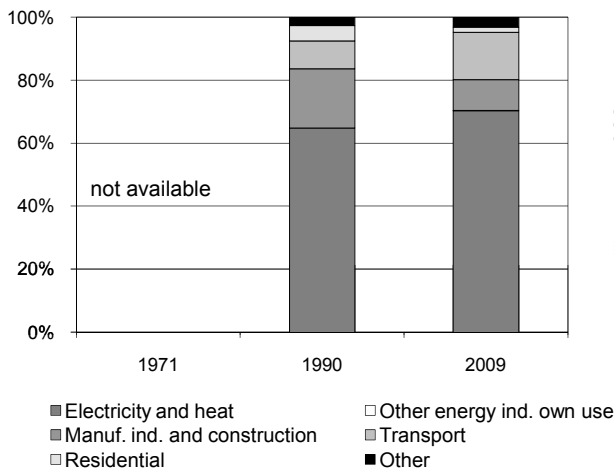


Figure 4. Reference vs Sectoral Approach

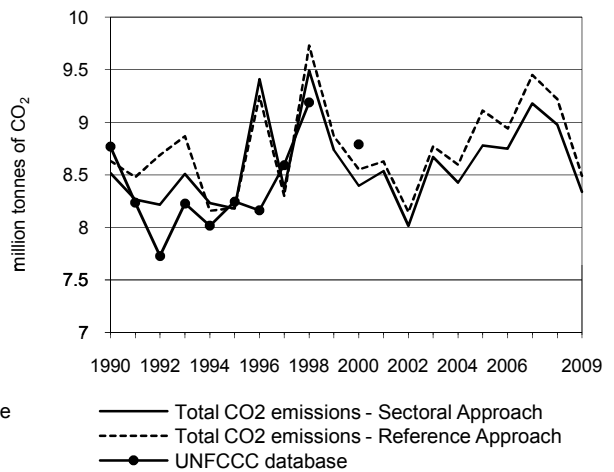


Figure 5. Electricity generation by fuel

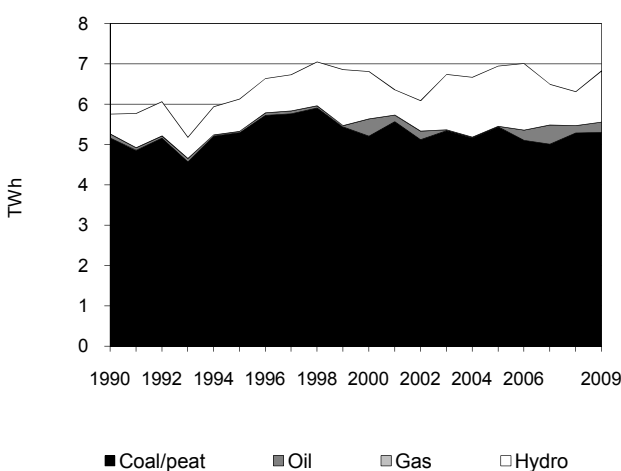
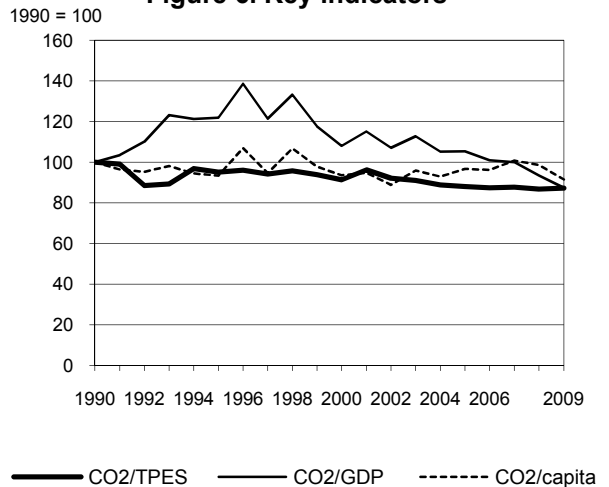


Figure 6. Key indicators



Former Yugoslav Republic of Macedonia

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	8.52	8.18	8.40	8.78	9.18	8.98	8.34	-2.1%
CO ₂ Reference Approach (Mt of CO ₂)	8.63	8.19	8.55	9.11	9.45	9.22	8.49	-1.6%
TPES (PJ)	104	105	112	121	127	126	116	12.2%
TPES (Mtoe)	2.48	2.50	2.67	2.90	3.04	3.01	2.78	12.2%
GDP (billion 2000 USD)	3.93	3.10	3.59	3.85	4.24	4.44	4.41	12.1%
GDP PPP (billion 2000 USD)	13.34	10.51	12.17	13.05	14.37	15.06	14.95	12.1%
Population (millions)	1.91	1.96	2.01	2.04	2.04	2.04	2.04	7.0%
CO ₂ / TPES (t CO ₂ per TJ)	82.1	78.1	75.0	72.3	72.0	71.2	71.6	-12.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.17	2.64	2.34	2.28	2.17	2.02	1.89	-12.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.64	0.78	0.69	0.67	0.64	0.60	0.56	-12.7%
CO ₂ / population (t CO ₂ per capita)	4.46	4.17	4.17	4.31	4.50	4.40	4.08	-8.5%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	5.54	2.64	0.15	-	8.34	-2.1%
Main activity producer elec. and heat	5.24	0.34	0.06	-	5.64	9.7%
Unallocated autoproducers	0.04	0.17	0.02	-	0.23	-40.4%
Other energy industry own use	-	0.00	-	-	0.00	x
Manufacturing industries and construction	0.25	0.50	0.07	-	0.82	-49.0%
Transport	-	1.25	0.00	-	1.25	65.1%
<i>of which: road</i>	-	1.23	0.00	-	1.23	66.6%
Other	0.02	0.38	0.00	-	0.40	-37.3%
<i>of which: residential</i>	0.01	0.13	-	-	0.14	-65.5%
Reference Approach	5.53	2.81	0.15	-	8.49	-1.6%
Diff. due to losses and/or transformation	-	0.16	0.00	-	0.16	
Statistical differences	-0.01	0.00	0.00	-	-0.01	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.01	-	-	0.01	-40.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	5.24	5.6%	48.6	48.6
Road - oil	1.23	66.6%	11.4	60.0
Manufacturing industries - oil	0.50	-57.6%	4.7	64.7
Main activity prod. elec. and heat - oil	0.34	96.4%	3.1	67.8
Non-specified other - oil	0.25	17.4%	2.3	70.1
Manufacturing industries - coal/peat	0.25	-40.2%	2.3	72.4
Unallocated autoproducers - oil	0.17	-43.7%	1.6	74.0
Residential - oil	0.13	-66.9%	1.2	75.2
Manufacturing industries - gas	0.07	x	0.6	75.8
Main activity prod. elec. and heat - gas	0.06	x	0.6	76.4
Unallocated autoproducers - coal/peat	0.04	-54.6%	0.4	76.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>8.34</i>	<i>-2.1%</i>	<i>77.4</i>	<i>77.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Malaysia

Figure 1. CO₂ emissions by fuel

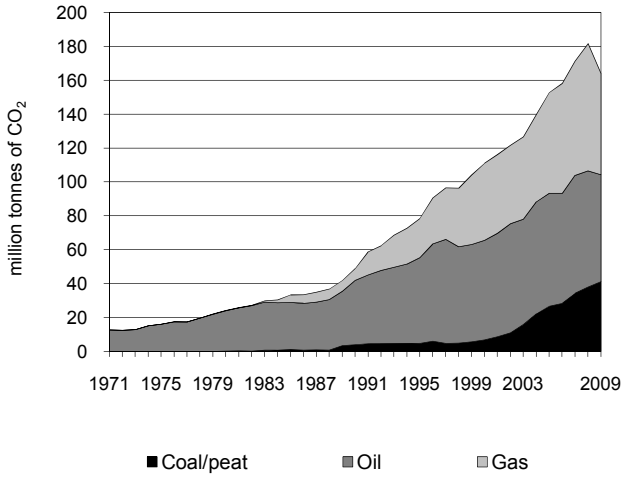


Figure 2. CO₂ emissions by sector

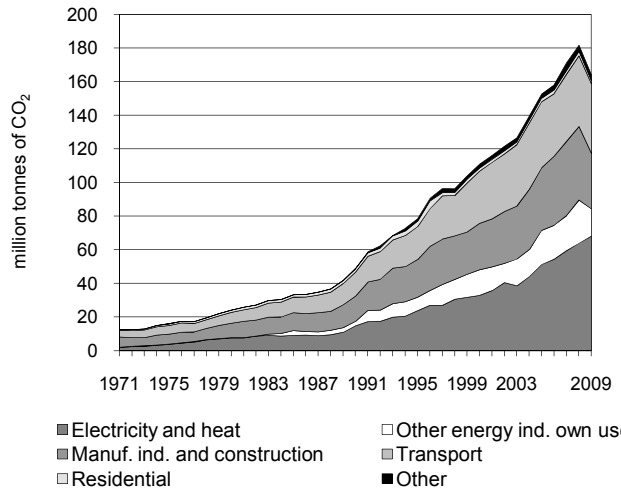


Figure 3. CO₂ emissions by sector

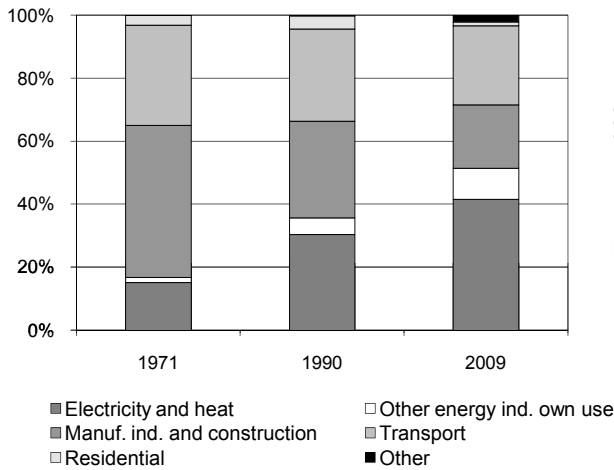


Figure 4. Reference vs Sectoral Approach

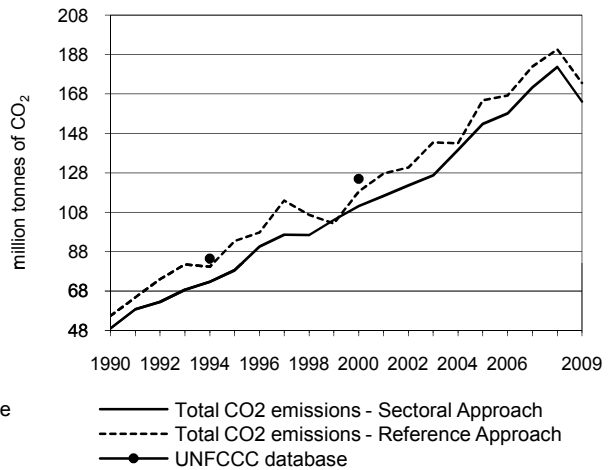


Figure 5. Electricity generation by fuel

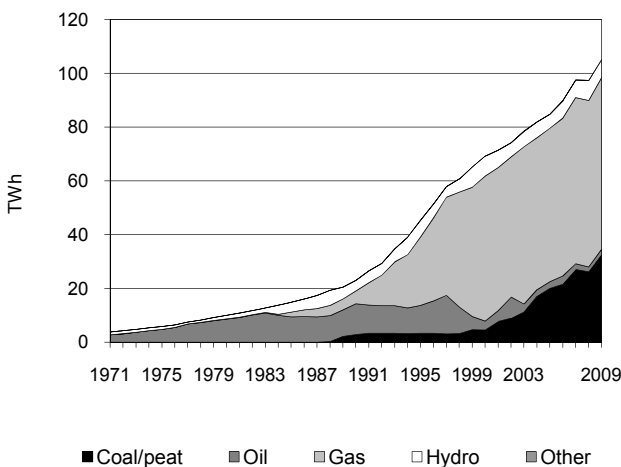
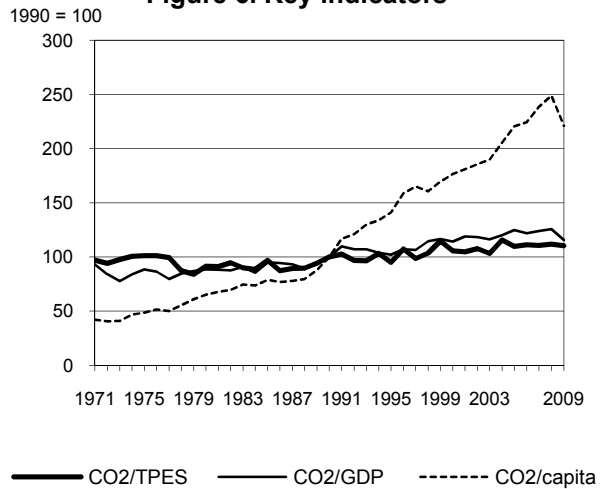


Figure 6. Key indicators



Malaysia

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	48.92	78.49	111.06	152.78	171.25	181.69	164.16	235.6%
CO ₂ Reference Approach (Mt of CO ₂)	55.39	93.31	118.51	164.75	181.91	190.65	173.55	213.3%
TPES (PJ)	921	1 554	1 979	2 619	2 911	3 057	2 798	203.9%
TPES (Mtoe)	21.99	37.11	47.27	62.55	69.53	73.02	66.83	203.9%
GDP (billion 2000 USD)	47.21	74.22	93.79	118.22	133.25	139.52	137.13	190.5%
GDP PPP (billion 2000 USD)	103.05	162.02	204.74	258.08	290.87	304.57	299.35	190.5%
Population (millions)	18.10	20.59	23.27	25.63	26.56	27.01	27.47	51.7%
CO ₂ / TPES (t CO ₂ per TJ)	53.1	50.5	56.1	58.3	58.8	59.4	58.7	10.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.04	1.06	1.18	1.29	1.29	1.30	1.20	15.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.47	0.48	0.54	0.59	0.59	0.60	0.55	15.5%
CO ₂ / population (t CO ₂ per capita)	2.70	3.81	4.77	5.96	6.45	6.73	5.98	121.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	41.23	63.18	59.74	-	164.16	235.6%
Main activity producer elec. and heat	34.97	1.84	28.16	-	64.96	337.1%
Unallocated autoproducers	-	0.28	2.91	-	3.20	x
Other energy industry own use	-	0.54	15.76	-	16.30	529.7%
Manufacturing industries and construction	6.26	14.30	12.37	-	32.93	119.0%
Transport	-	40.79	0.50	-	41.29	188.8%
<i>of which: road</i>	-	40.51	-	-	40.51	183.3%
Other	-	5.43	0.06	-	5.48	156.8%
<i>of which: residential</i>	-	1.97	0.00	-	1.97	-2.0%
Reference Approach	40.94	66.20	66.41	-	173.55	213.3%
Diff. due to losses and/or transformation	-	3.54	3.84	-	7.37	
Statistical differences	-0.30	-0.52	2.83	-	2.02	
<i>Memo: international marine bunkers</i>	-	0.14	-	-	0.14	-52.2%
<i>Memo: international aviation bunkers</i>	-	6.28	-	-	6.28	224.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	40.51	183.3%	17.9	17.9
Main activity prod. elec. and heat - coal/peat	34.97	+	15.5	33.3
Main activity prod. elec. and heat - gas	28.16	883.8%	12.4	45.8
Other energy industry own use - gas	15.76	623.4%	7.0	52.8
Manufacturing industries - oil	14.30	23.1%	6.3	59.1
Manufacturing industries - gas	12.37	583.8%	5.5	64.5
Manufacturing industries - coal/peat	6.26	288.3%	2.8	67.3
Non-specified other - oil	3.46	+	1.5	68.8
Unallocated autoproducers - gas	2.91	x	1.3	70.1
Residential - oil	1.97	1.2%	0.9	71.0
Main activity prod. elec. and heat - oil	1.84	-80.8%	0.8	71.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>164.16</i>	<i>235.6%</i>	<i>72.5</i>	<i>72.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Malta

Figure 1. CO₂ emissions by fuel

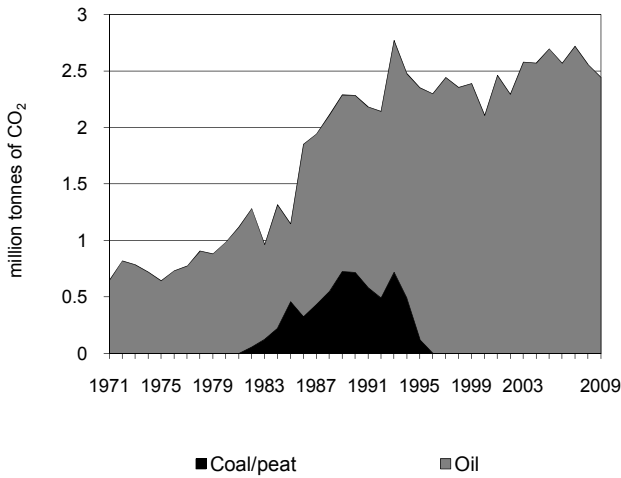


Figure 2. CO₂ emissions by sector

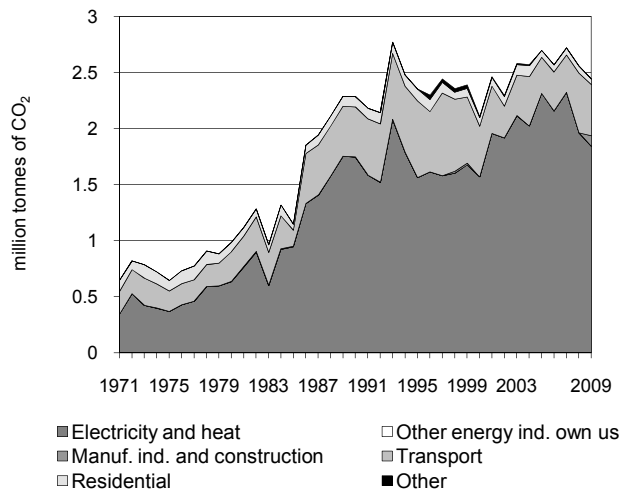


Figure 3. CO₂ emissions by sector

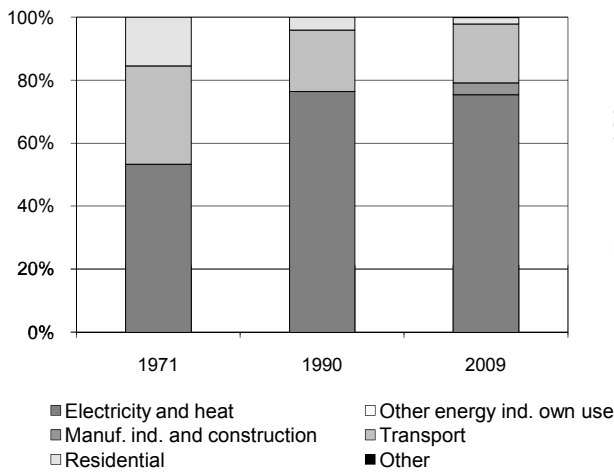


Figure 4. Reference vs Sectoral Approach

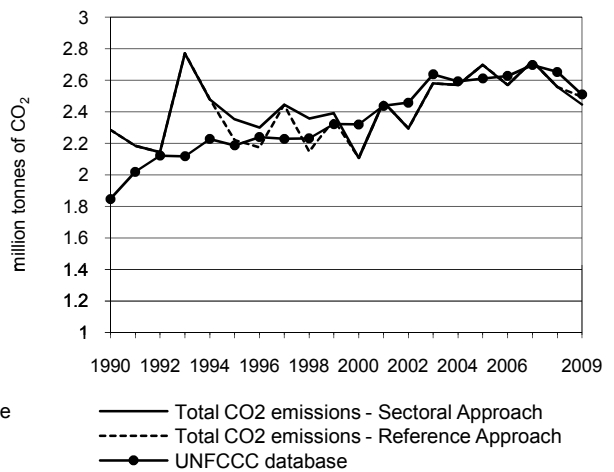


Figure 5. Electricity generation by fuel

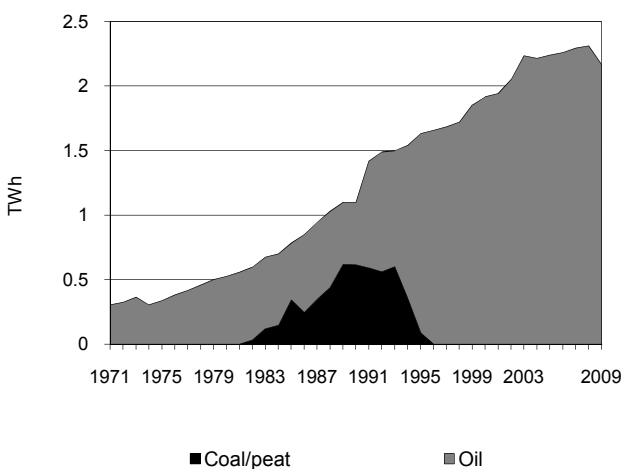
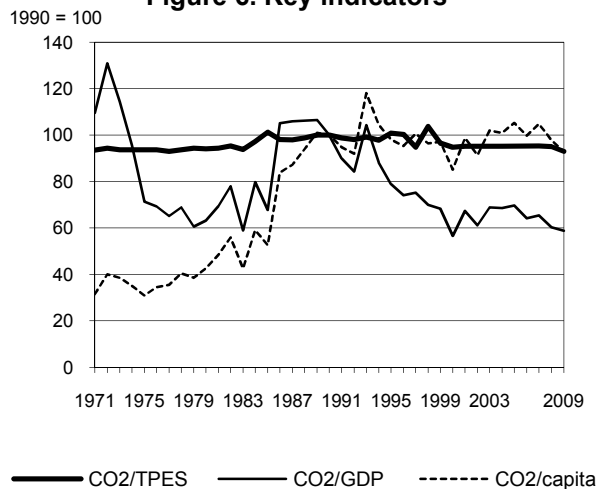


Figure 6. Key indicators



Malta *
Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2.29	2.35	2.11	2.70	2.72	2.56	2.45	7.0%
CO ₂ Reference Approach (Mt of CO ₂)	2.29	2.22	2.11	2.70	2.72	2.56	2.50	9.2%
TPES (PJ)	29	30	28	36	36	34	33	15.1%
TPES (Mtoe)	0.69	0.71	0.68	0.86	0.87	0.82	0.80	15.1%
GDP (billion 2000 USD)	2.39	3.12	3.89	4.05	4.35	4.44	4.36	82.2%
GDP PPP (billion 2000 USD)	4.25	5.54	6.91	7.20	7.72	7.89	7.73	82.1%
Population (millions)	0.36	0.38	0.39	0.40	0.41	0.41	0.42	15.3%
CO ₂ / TPES (t CO ₂ per TJ)	78.6	79.2	74.5	74.8	74.9	74.7	73.0	-7.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.96	0.75	0.54	0.67	0.63	0.58	0.56	-41.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.54	0.42	0.30	0.37	0.35	0.32	0.32	-41.2%
CO ₂ / population (t CO ₂ per capita)	6.35	6.22	5.40	6.68	6.65	6.21	5.89	-7.2%

Ratios are based on the Sectoral Approach.

* At its 15th session, the Conference of the Parties decided to amend Annex I to the Convention to include Malta.

2009 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Natural gas	Other **	Total	% change 90-09
Sectoral Approach	-	2.45	-	-	2.45	7.0%
Main activity producer elec. and heat	-	1.84	-	-	1.84	5.6%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.09	-	-	0.09	+
Transport	-	0.46	-	-	0.46	2.6%
<i>of which: road</i>	-	0.46	-	-	0.46	2.6%
Other	-	0.05	-	-	0.05	-43.6%
<i>of which: residential</i>	-	0.05	-	-	0.05	-46.9%
Reference Approach	-	2.50	-	-	2.50	9.2%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.05	-	-	0.05	-
<i>Memo: international marine bunkers</i>	-	3.57	-	-	3.57	+
<i>Memo: international aviation bunkers</i>	-	0.27	-	-	0.27	27.1%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - oil	1.84	79.3%	65.8	65.8
Road - oil	0.46	2.6%	16.3	82.1
Manufacturing industries - oil	0.09	+	3.3	85.4
Residential - oil	0.05	-46.9%	1.7	87.2
Non-specified other - oil	0.00	x	0.1	87.3
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>2.45</i>	<i>7.0%</i>	<i>87.3</i>	<i>87.3</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Mexico

Figure 1. CO₂ emissions by fuel

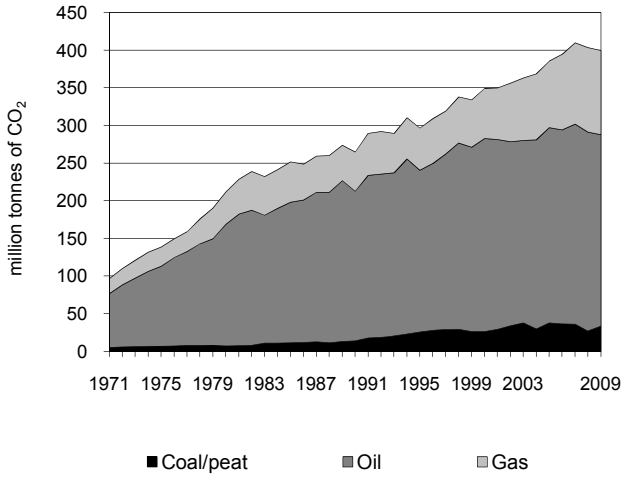


Figure 2. CO₂ emissions by sector

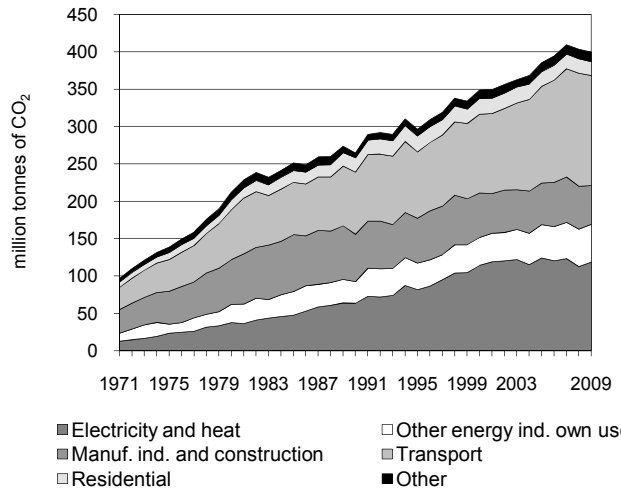


Figure 3. CO₂ emissions by sector

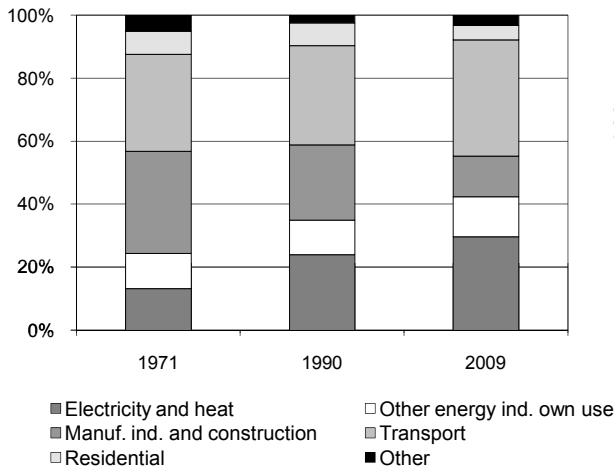


Figure 4. Reference vs Sectoral Approach

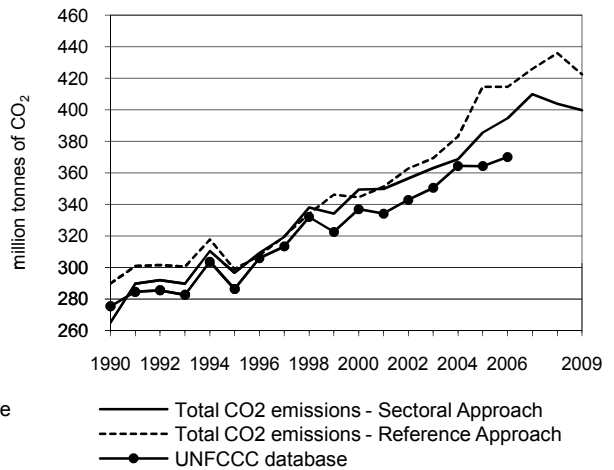


Figure 5. Electricity generation by fuel

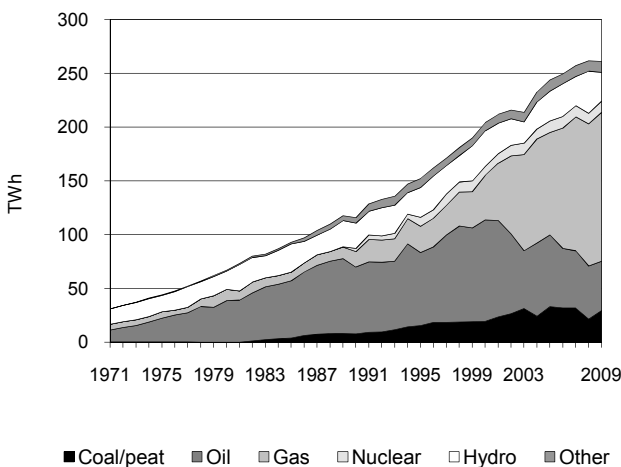
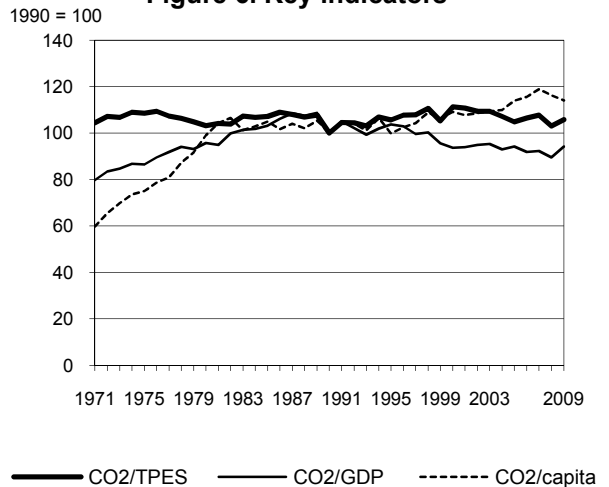


Figure 6. Key indicators



Mexico

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	264.86	296.60	349.32	385.52	409.80	403.70	399.67	50.9%
CO ₂ Reference Approach (Mt of CO ₂)	289.76	298.82	344.40	414.52	426.01	435.84	422.54	45.8%
TPES (PJ)	5 129	5 435	6 076	7 124	7 366	7 582	7 312	42.6%
TPES (Mtoe)	122.49	129.80	145.12	170.15	175.94	181.09	174.64	42.6%
GDP (billion 2000 USD)	452.56	488.23	636.73	698.99	759.05	770.64	724.35	60.1%
GDP PPP (billion 2000 USD)	701.59	756.89	987.11	1 083.62	1 176.73	1 194.71	1 122.95	60.1%
Population (millions)	81.25	91.12	98.26	103.83	105.68	106.57	107.44	32.2%
CO ₂ / TPES (t CO ₂ per TJ)	51.6	54.6	57.5	54.1	55.6	53.2	54.7	5.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.59	0.61	0.55	0.55	0.54	0.52	0.55	-5.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.38	0.39	0.35	0.36	0.35	0.34	0.36	-5.7%
CO ₂ / population (t CO ₂ per capita)	3.26	3.26	3.56	3.71	3.88	3.79	3.72	14.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	33.71	254.27	111.70	-	399.67	50.9%
Main activity producer elec. and heat	27.76	30.03	48.81	-	106.60	67.5%
Unallocated autoproducers	0.89	4.63	6.64	-	12.16	x
Other energy industry own use	0.30	19.50	30.71	-	50.51	74.9%
Manufacturing industries and construction	4.77	23.61	23.42	-	51.79	-18.3%
Transport	-	147.24	0.03	-	147.27	76.7%
of which: road	-	143.50	0.03	-	143.53	79.5%
Other	-	29.24	2.09	-	31.34	22.1%
of which: residential	-	16.87	1.61	-	18.48	-3.5%
Reference Approach	30.23	280.98	111.33	-	422.54	45.8%
Diff. due to losses and/or transformation	0.24	13.49	- 1.42	-	12.31	
Statistical differences	- 3.71	13.22	1.05	-	10.56	
<i>Memo: international marine bunkers</i>	-	2.39	-	-	2.39	..
<i>Memo: international aviation bunkers</i>	-	7.96	-	-	7.96	52.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	143.50	79.4%	24.0	24.0
Main activity prod. elec. and heat - gas	48.81	508.7%	8.2	32.2
Other energy industry own use - gas	30.71	137.6%	5.1	37.3
Main activity prod. elec. and heat - oil	30.03	-38.0%	5.0	42.3
Main activity prod. elec. and heat - coal/peat	27.76	287.7%	4.6	47.0
Manufacturing industries - oil	23.61	-13.2%	3.9	50.9
Manufacturing industries - gas	23.42	-20.0%	3.9	54.8
Other energy industry own use - oil	19.50	23.5%	3.3	58.1
Residential - oil	16.87	-2.3%	2.8	60.9
Non-specified other - oil	12.38	90.3%	2.1	63.0
Unallocated autoproducers - gas	6.64	x	1.1	64.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>399.67</i>	<i>50.9%</i>	<i>66.8</i>	<i>66.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Republic of Moldova

Figure 1. CO₂ emissions by fuel

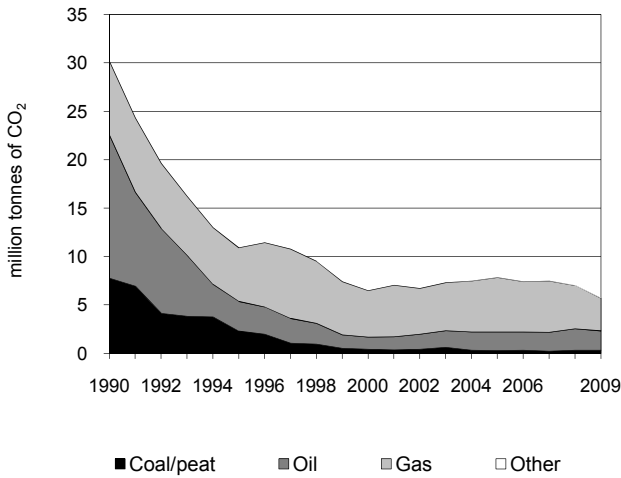


Figure 2. CO₂ emissions by sector

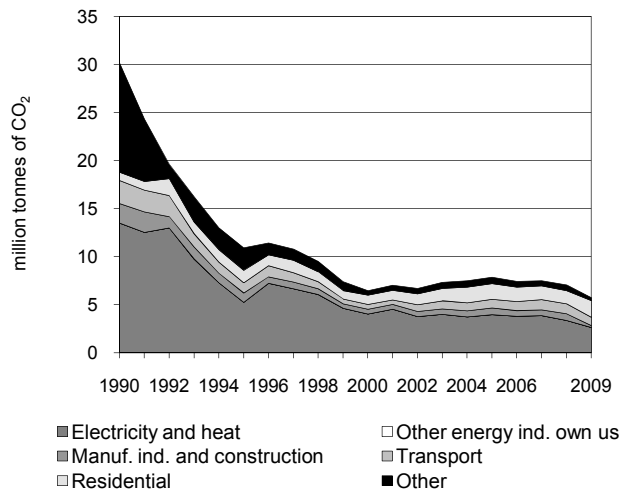


Figure 3. CO₂ emissions by sector

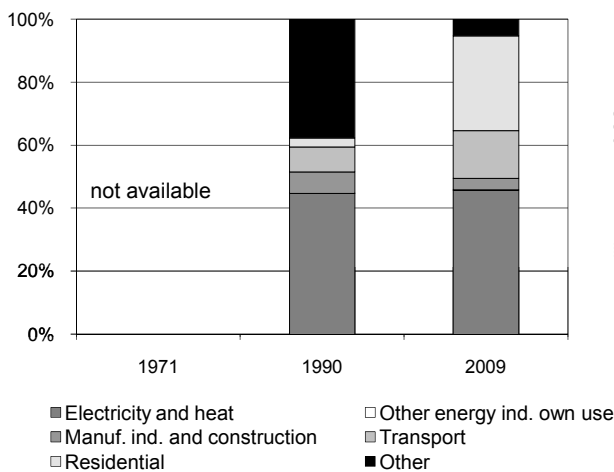


Figure 4. Reference vs Sectoral Approach

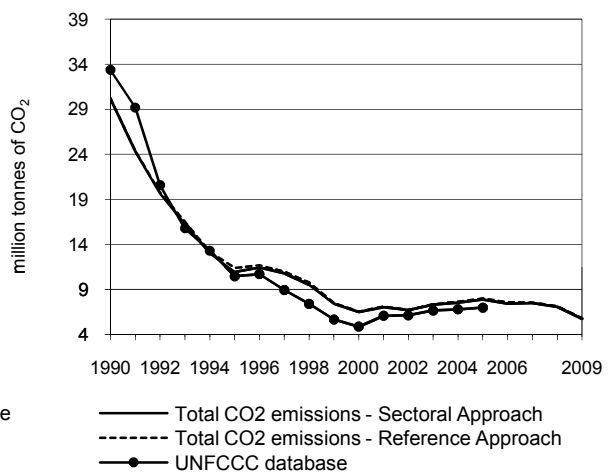


Figure 5. Electricity generation by fuel

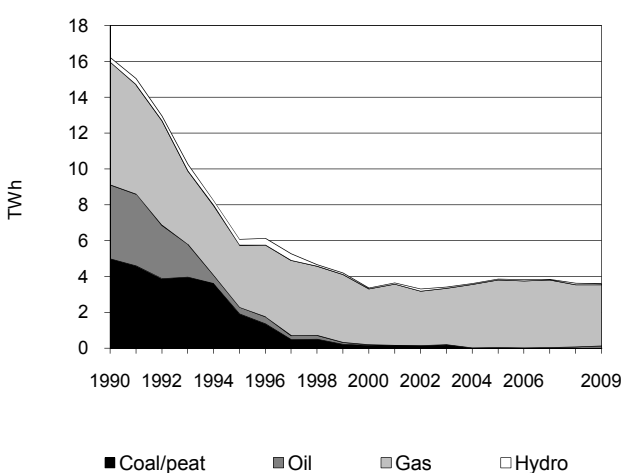
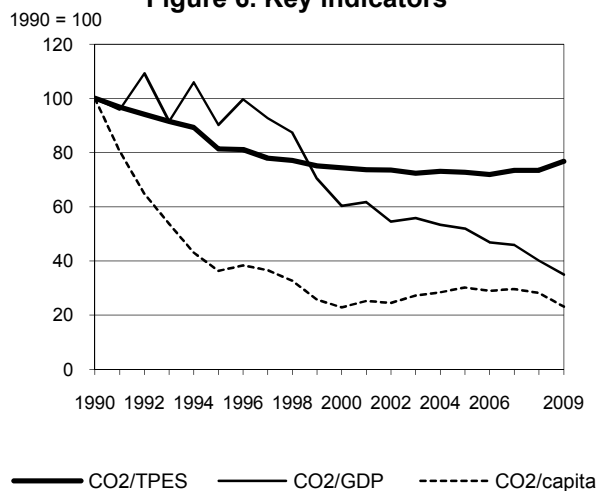


Figure 6. Key indicators



Republic of Moldova

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	30.18	10.92	6.48	7.86	7.50	7.07	5.75	-81.0%
CO ₂ Reference Approach (Mt of CO ₂)	30.24	11.38	6.54	7.99	7.52	7.13	5.79	-80.9%
TPES (PJ)	413	184	119	148	140	132	103	-75.2%
TPES (Mtoe)	9.87	4.39	2.85	3.54	3.34	3.15	2.45	-75.2%
GDP (billion 2000 USD)	3.62	1.45	1.29	1.81	1.96	2.11	1.97	-45.4%
GDP PPP (billion 2000 USD)	15.86	6.36	5.65	7.95	8.59	9.25	8.65	-45.4%
Population (millions)	4.36	4.34	4.10	3.76	3.67	3.63	3.60	-17.4%
CO ₂ / TPES (t CO ₂ per TJ)	73.1	59.4	54.4	53.1	53.7	53.6	56.0	-23.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	8.34	7.52	5.03	4.33	3.83	3.35	2.91	-65.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.90	1.72	1.15	0.99	0.87	0.76	0.66	-65.1%
CO ₂ / population (t CO ₂ per capita)	6.92	2.52	1.58	2.09	2.05	1.95	1.59	-76.9%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.32	2.01	3.36	0.05	5.75	-81.0%
Main activity producer elec. and heat	-	0.09	2.33	-	2.42	-82.0%
Unallocated autoproducers	0.01	0.04	0.10	0.05	0.20	x
Other energy industry own use	-	0.00	-	-	0.00	-65.0%
Manufacturing industries and construction	0.10	0.01	0.10	-	0.21	-89.4%
Transport	-	0.85	0.01	-	0.87	-63.8%
<i>of which: road</i>	-	0.80	0.00	-	0.80	-66.0%
Other	0.20	1.01	0.82	-	2.03	-83.4%
<i>of which: residential</i>	0.10	0.83	0.80	-	1.73	97.8%
Reference Approach	0.32	1.96	3.46	0.05	5.79	-80.9%
Diff. due to losses and/or transformation	0.00	0.01	0.10	-	0.11	
Statistical differences	-0.00	-0.06	0.00	-	-0.06	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.04	-	-	0.04	-80.6%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	2.33	-56.0%	23.0	23.0
Residential - oil	0.83	127.1%	8.2	31.1
Residential - gas	0.80	56.8%	7.9	39.0
Road - oil	0.80	-65.9%	7.8	46.9
Non-specified other - oil	0.18	-97.8%	1.8	48.7
Manufacturing industries - coal/peat	0.10	-87.0%	1.0	49.7
Residential - coal/peat	0.10	x	1.0	50.7
Unallocated autoproducers - gas	0.10	x	1.0	51.7
Non-specified other sectors - coal/peat	0.10	-96.1%	1.0	52.7
Manufacturing industries - gas	0.10	-92.0%	1.0	53.7
Main activity prod. elec. and heat - oil	0.09	-97.6%	0.9	54.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>5.75</i>	<i>-81.0%</i>	<i>56.6</i>	<i>56.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Mongolia

Figure 1. CO₂ emissions by fuel

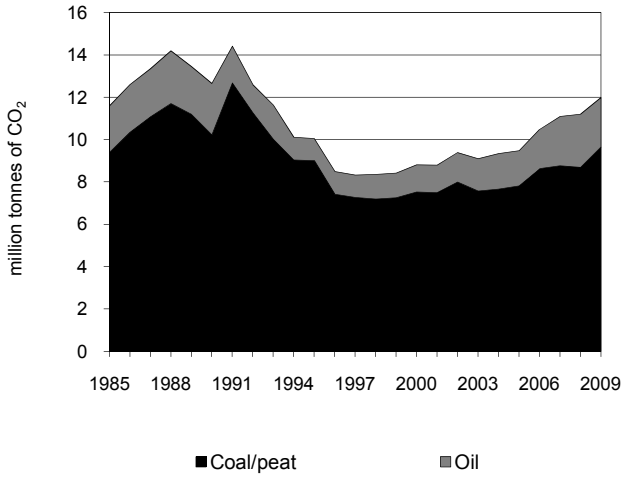


Figure 2. CO₂ emissions by sector

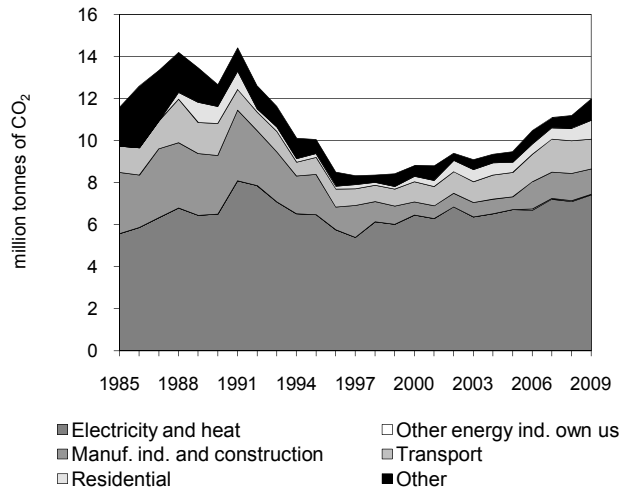


Figure 3. CO₂ emissions by sector

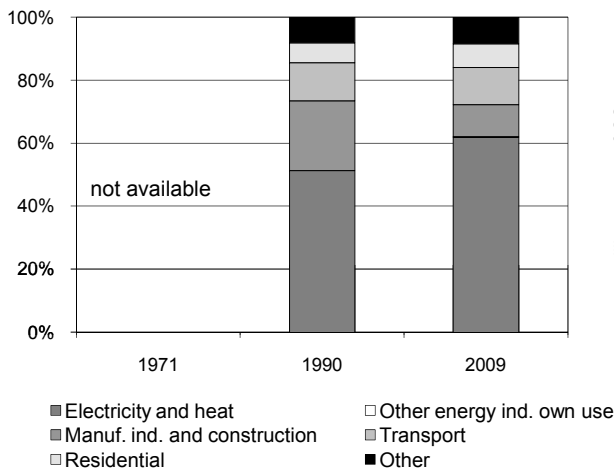


Figure 4. Reference vs Sectoral Approach

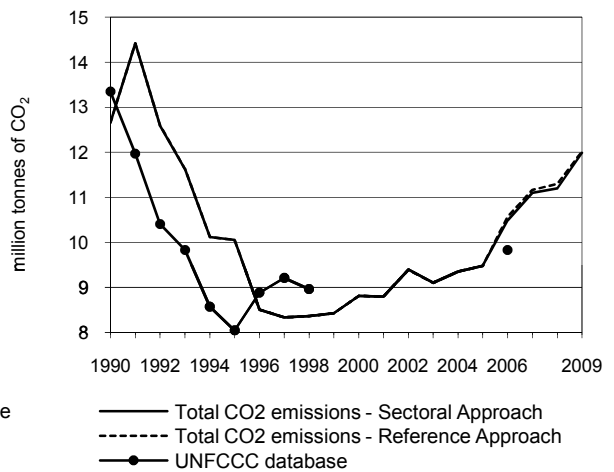


Figure 5. Electricity generation by fuel

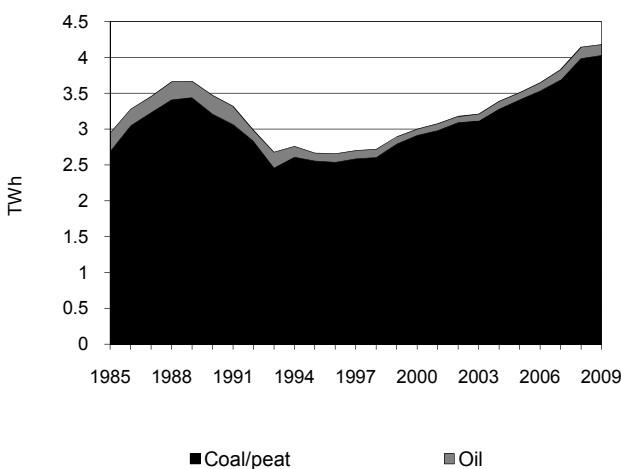
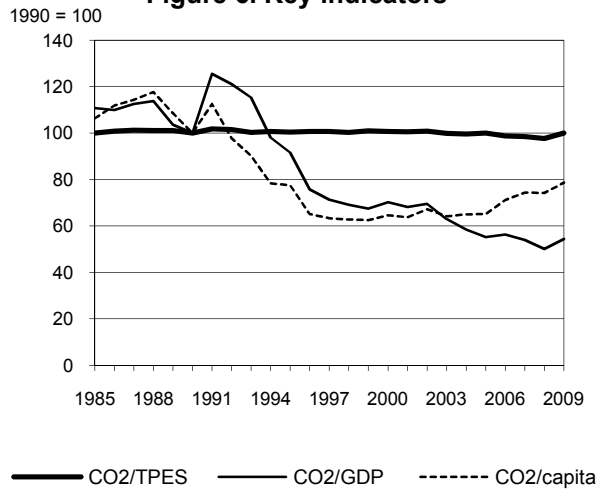


Figure 6. Key indicators



Mongolia

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	12.66	10.05	8.81	9.48	11.10	11.20	11.99	-5.3%
CO ₂ Reference Approach (Mt of CO ₂)	12.66	10.05	8.81	9.48	11.16	11.30	12.02	-5.1%
TPES (PJ)	143	113	99	107	127	130	136	-5.2%
TPES (Mtoe)	3.42	2.70	2.36	2.56	3.04	3.09	3.24	-5.2%
GDP (billion 2000 USD)	1.10	0.95	1.09	1.49	1.78	1.94	1.91	74.0%
GDP PPP (billion 2000 USD)	4.27	3.70	4.23	5.78	6.92	7.54	7.42	73.9%
Population (millions)	2.22	2.27	2.39	2.55	2.61	2.64	2.67	20.5%
CO ₂ / TPES (t CO ₂ per TJ)	88.5	88.8	89.0	88.4	87.1	86.4	88.4	-0.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	11.52	10.55	8.09	6.36	6.22	5.77	6.27	-45.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	2.97	2.72	2.09	1.64	1.60	1.49	1.62	-45.5%
CO ₂ / population (t CO ₂ per capita)	5.71	4.43	3.69	3.72	4.25	4.24	4.49	-21.4%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	9.65	2.33	-	-	11.99	-5.3%
Main activity producer elec. and heat	7.25	0.16	-	-	7.42	14.1%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	0.02	-	-	-	0.02	x
Manufacturing industries and construction	0.51	0.71	-	-	1.22	-56.5%
Transport	0.06	1.35	-	-	1.41	-7.3%
<i>of which: road</i>	-	1.06	-	-	1.06	-4.1%
Other	1.81	0.10	-	-	1.91	4.3%
<i>of which: residential</i>	0.90	-	-	-	0.90	11.5%
Reference Approach	9.68	2.33	-	-	12.02	-5.1%
Diff. due to losses and/or transformation	0.03	-	-	-	0.03	
Statistical differences	0.00	-0.00	-	-	0.00	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.05	-	-	0.05	275.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	7.25	17.4%	31.6	31.6
Road - oil	1.06	-4.1%	4.6	36.2
Non-specified other sectors - coal/peat	0.91	-2.5%	3.9	40.1
Residential - coal/peat	0.90	11.5%	3.9	44.0
Manufacturing industries - oil	0.71	9.4%	3.1	47.1
Manufacturing industries - coal/peat	0.51	-76.4%	2.2	49.3
Other transport - oil	0.30	14.8%	1.3	50.6
Main activity prod. elec. and heat - oil	0.16	-49.2%	0.7	51.3
Non-specified other - oil	0.10	10.0%	0.5	51.8
Other transport - coal/peat	0.06	-64.0%	0.3	52.0
Other energy industry - coal/peat	0.02	x	0.1	52.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>11.99</i>	<i>-5.3%</i>	<i>52.1</i>	<i>52.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Morocco

Figure 1. CO₂ emissions by fuel

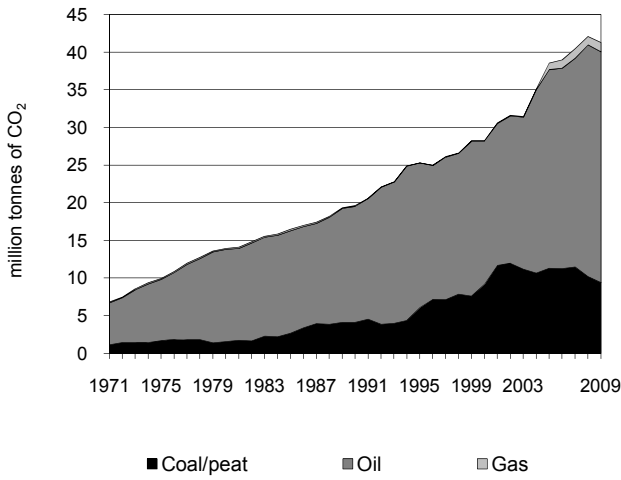


Figure 2. CO₂ emissions by sector

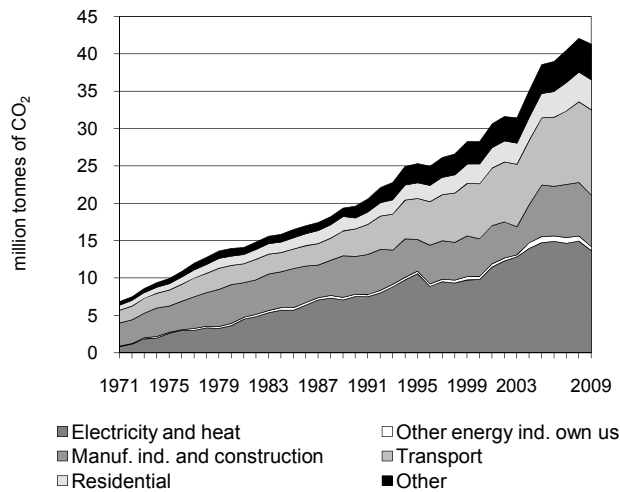


Figure 3. CO₂ emissions by sector

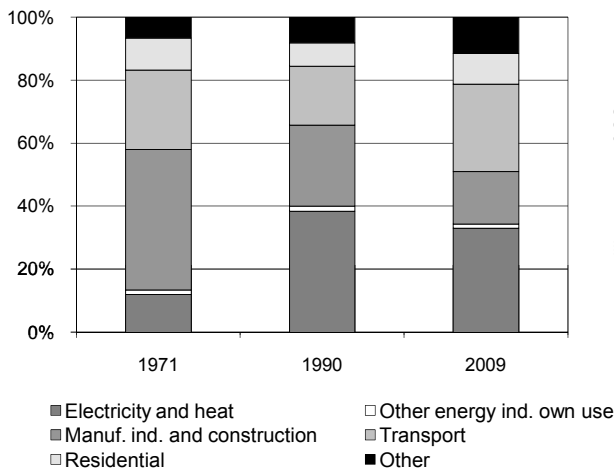


Figure 4. Reference vs Sectoral Approach

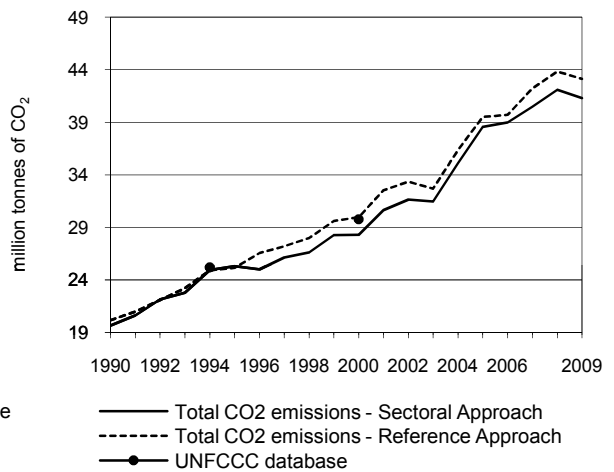


Figure 5. Electricity generation by fuel

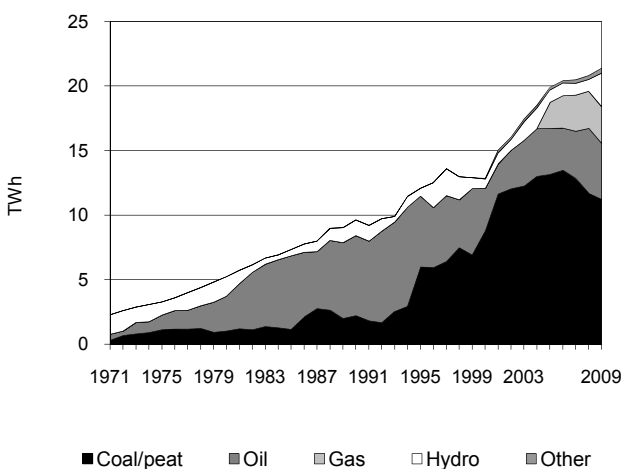
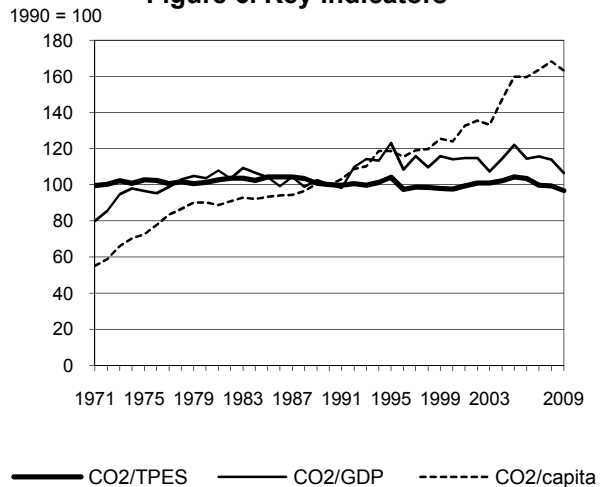


Figure 6. Key indicators



Morocco

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	19.64	25.32	28.29	38.57	40.48	42.09	41.30	110.3%
CO ₂ Reference Approach (Mt of CO ₂)	20.16	25.17	29.96	39.52	42.23	43.82	43.13	114.0%
TPES (PJ)	291	360	429	547	601	627	632	117.3%
TPES (Mtoe)	6.94	8.59	10.24	13.07	14.35	14.97	15.08	117.3%
GDP (billion 2000 USD)	29.31	30.69	37.02	47.20	52.24	55.16	57.89	97.5%
GDP PPP (billion 2000 USD)	88.54	92.69	111.82	142.57	157.79	166.60	174.85	97.5%
Population (millions)	24.81	26.95	28.83	30.50	31.22	31.61	31.99	29.0%
CO ₂ / TPES (t CO ₂ per TJ)	67.6	70.4	66.0	70.5	67.4	67.1	65.4	-3.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.67	0.83	0.76	0.82	0.77	0.76	0.71	6.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.22	0.27	0.25	0.27	0.26	0.25	0.24	6.5%
CO ₂ / population (t CO ₂ per capita)	0.79	0.94	0.98	1.26	1.30	1.33	1.29	63.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	9.39	30.68	1.23	-	41.30	110.3%
Main activity producer elec. and heat	9.33	2.49	1.15	-	12.97	100.0%
Unallocated autoproducers	-	0.69	-	-	0.69	-34.5%
Other energy industry own use	-	0.54	-	-	0.54	71.0%
Manufacturing industries and construction	0.05	6.75	0.09	-	6.89	36.2%
Transport	-	11.44	-	-	11.44	210.7%
<i>of which: road</i>	-	11.44	-	-	11.44	210.7%
Other	-	8.77	-	-	8.77	187.7%
<i>of which: residential</i>	-	4.01	-	-	4.01	178.1%
Reference Approach	10.50	31.40	1.23	-	43.13	114.0%
Diff. due to losses and/or transformation	-	0.38	-	-	0.38	
Statistical differences	1.11	0.34	-	-	1.45	
<i>Memo: international marine bunkers</i>	-	0.04	-	-	0.04	-34.9%
<i>Memo: international aviation bunkers</i>	-	1.54	-	-	1.54	96.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	11.44	210.7%	18.1	18.1
Main activity prod. elec. and heat - coal/peat	9.33	239.7%	14.7	32.8
Manufacturing industries - oil	6.75	88.9%	10.6	43.4
Non-specified other - oil	4.76	196.3%	7.5	50.9
Residential - oil	4.01	178.1%	6.3	57.3
Main activity prod. elec. and heat - oil	2.49	-33.3%	3.9	61.2
Main activity prod. elec. and heat - gas	1.15	x	1.8	63.0
Unallocated autoproducers - oil	0.69	-34.5%	1.1	64.1
Other energy industry own use - oil	0.54	71.0%	0.9	65.0
Manufacturing industries - gas	0.09	-14.4%	0.1	65.1
Manufacturing industries - coal/peat	0.05	-96.2%	0.1	65.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>41.30</i>	<i>110.3%</i>	<i>65.2</i>	<i>65.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Mozambique

Figure 1. CO₂ emissions by fuel

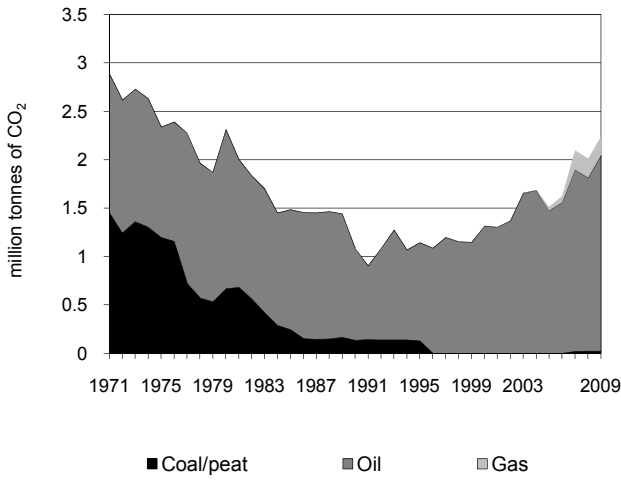


Figure 2. CO₂ emissions by sector

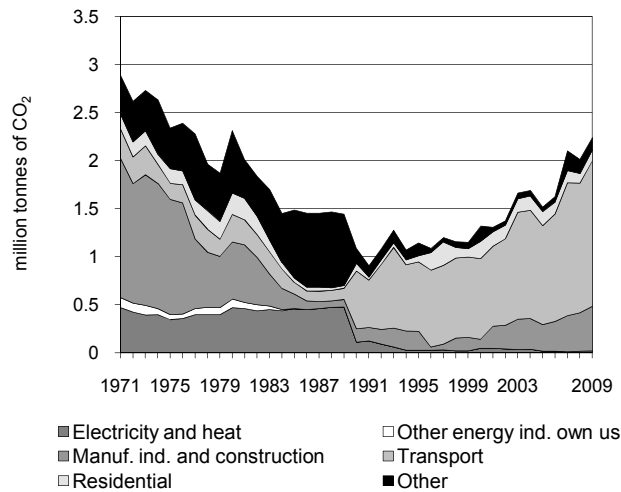


Figure 3. CO₂ emissions by sector

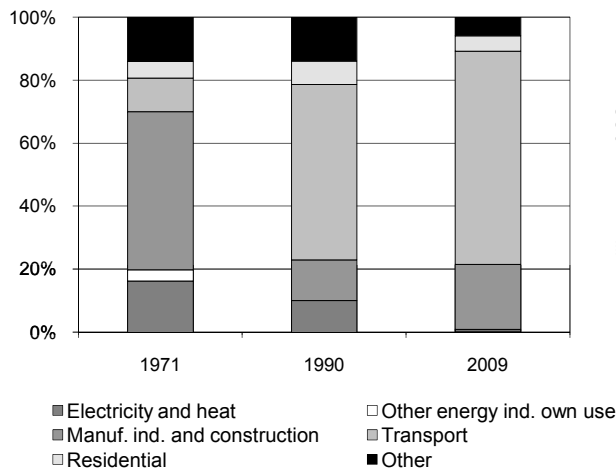


Figure 4. Reference vs Sectoral Approach

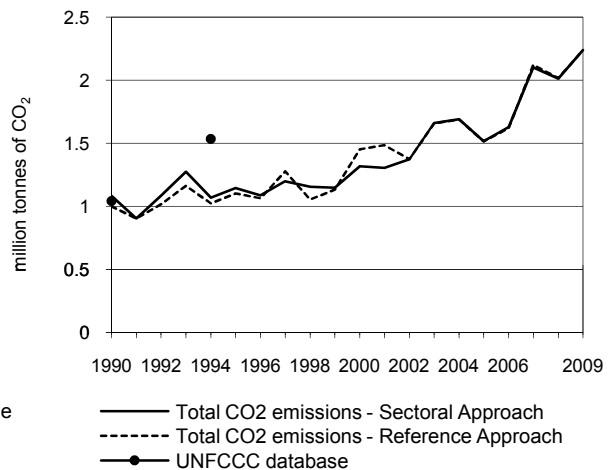


Figure 5. Electricity generation by fuel

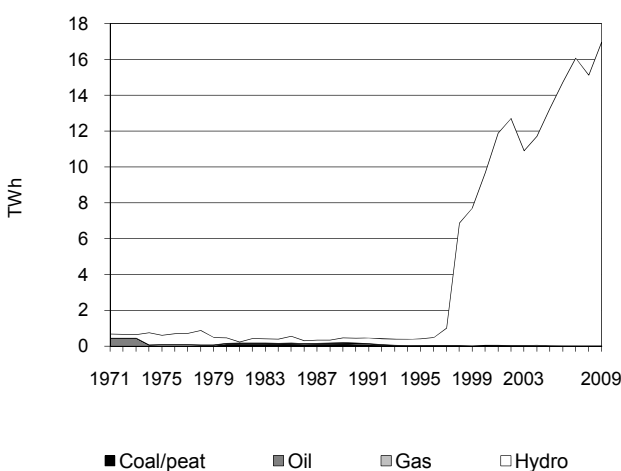
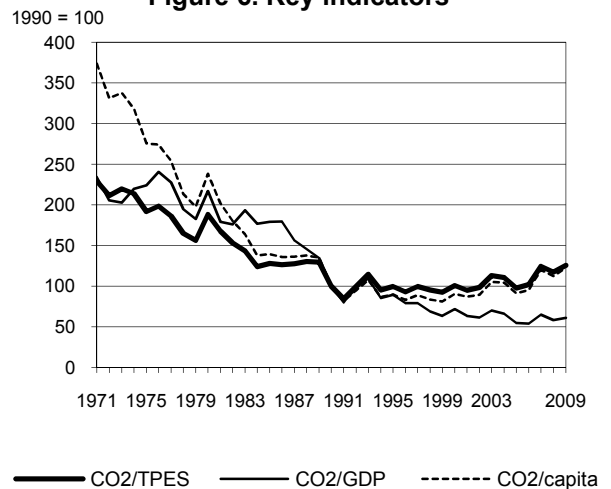


Figure 6. Key indicators



Mozambique

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	1.08	1.14	1.32	1.52	2.10	2.01	2.24	106.8%
CO ₂ Reference Approach (Mt of CO ₂)	1.00	1.10	1.45	1.51	2.12	2.02	2.24	123.6%
TPES (PJ)	248	263	300	355	387	393	409	64.9%
TPES (Mtoe)	5.92	6.28	7.17	8.49	9.24	9.39	9.77	64.9%
GDP (billion 2000 USD)	2.50	2.96	4.25	6.41	7.48	7.98	8.49	239.7%
GDP PPP (billion 2000 USD)	9.47	11.23	16.10	24.30	28.34	30.25	32.16	239.7%
Population (millions)	13.54	15.95	18.25	20.83	21.87	22.38	22.89	69.0%
CO ₂ / TPES (t CO ₂ per TJ)	4.4	4.3	4.4	4.3	5.4	5.1	5.5	25.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.43	0.39	0.31	0.24	0.28	0.25	0.26	-39.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.11	0.10	0.08	0.06	0.07	0.07	0.07	-39.2%
CO ₂ / population (t CO ₂ per capita)	0.08	0.07	0.07	0.07	0.10	0.09	0.10	22.3%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.02	2.02	0.19	-	2.24	106.8%
Main activity producer elec. and heat	-	-	0.01	-	0.01	-92.2%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	0.01	-	-	-	0.01	x
Manufacturing industries and construction	0.01	0.31	0.14	-	0.46	231.6%
Transport	-	1.51	0.00	-	1.51	151.4%
<i>of which: road</i>	-	1.37	0.00	-	1.37	161.3%
Other	-	0.19	0.05	-	0.24	4.7%
<i>of which: residential</i>	-	0.11	-	-	0.11	38.2%
Reference Approach	0.02	2.02	0.19	-	2.24	123.6%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-0.00	0.00	-	-0.00	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.21	-	-	0.21	63.4%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	1.37	161.3%	10.2	10.2
Manufacturing industries - oil	0.31	418.8%	2.3	12.5
Other transport - oil	0.14	83.3%	1.0	13.5
Manufacturing industries - gas	0.14	x	1.0	14.6
Residential - oil	0.11	38.2%	0.8	15.4
Non-specified other - oil	0.08	-45.4%	0.6	16.0
Non-specified other - gas	0.05	x	0.4	16.4
Other energy industry - coal/peat	0.01	x	0.1	16.4
Manufacturing industries - coal/peat	0.01	-85.3%	0.1	16.5
Main activity prod. elec. and heat - gas	0.01	x	0.1	16.6
Road - gas	0.00	x	0.0	16.6
<i>Memo: total CO₂ from fuel combustion</i>	2.24	106.8%	16.6	16.6

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Myanmar

Figure 1. CO₂ emissions by fuel

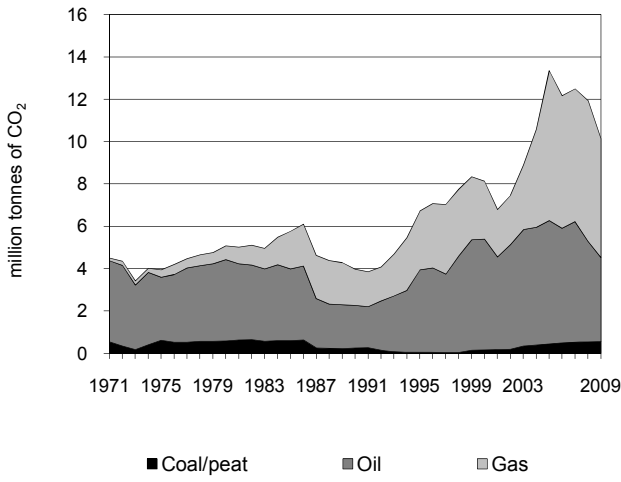


Figure 2. CO₂ emissions by sector

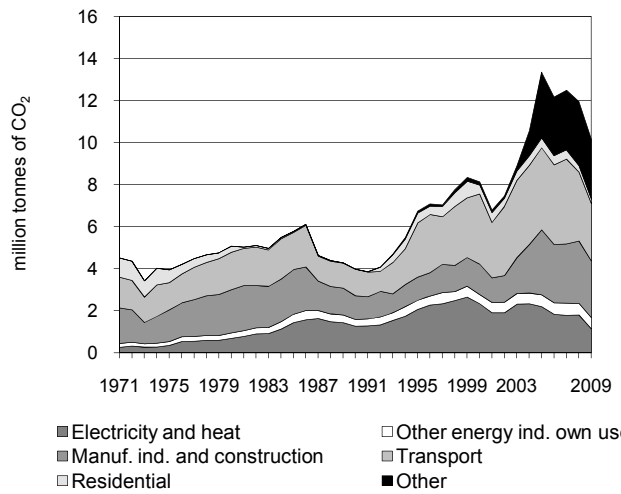


Figure 3. CO₂ emissions by sector

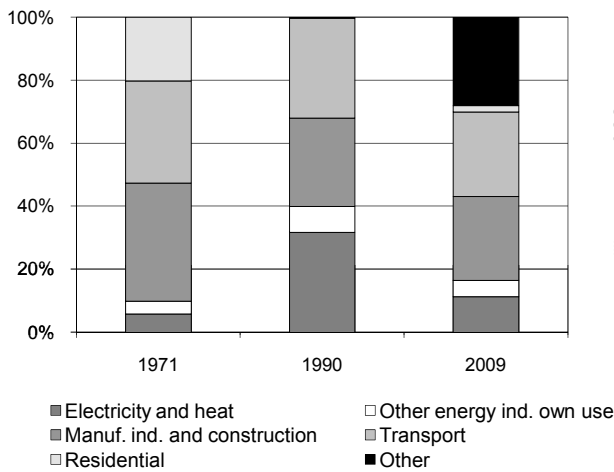


Figure 4. Reference vs Sectoral Approach

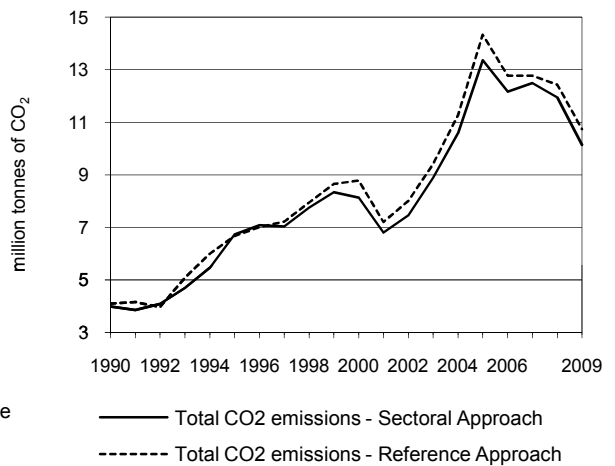


Figure 5. Electricity generation by fuel

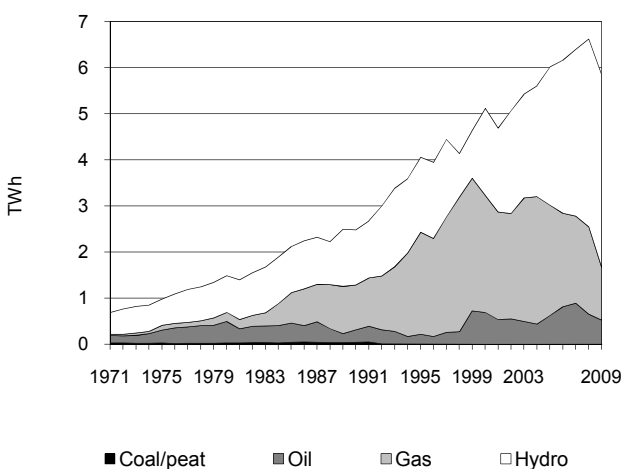
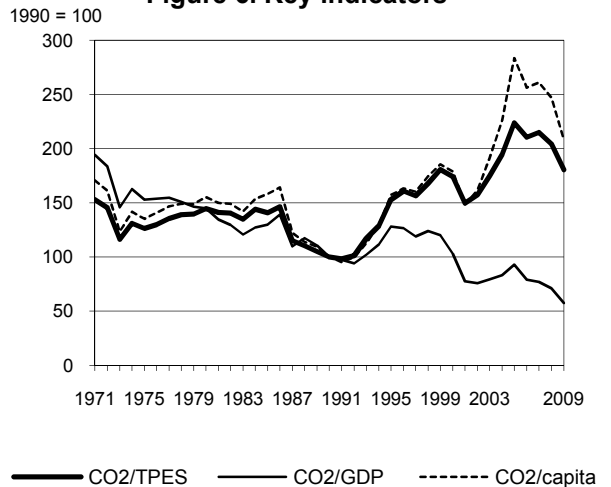


Figure 6. Key indicators



Myanmar

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	3.98	6.73	8.13	13.35	12.50	11.94	10.14	154.7%
CO ₂ Reference Approach (Mt of CO ₂)	4.10	6.67	8.77	14.33	12.78	12.43	10.74	162.1%
TPES (PJ)	446	493	523	669	652	655	631	41.3%
TPES (Mtoe)	10.66	11.77	12.50	15.97	15.57	15.64	15.06	41.3%
GDP (billion 2000 USD)	4.49	5.94	8.91	16.25	18.33	18.99	19.91	343.1%
GDP PPP (billion 2000 USD)	27.18	35.89	53.85	98.24	110.86	114.85	120.41	343.1%
Population (millions)	40.84	43.86	46.61	48.35	49.13	49.56	50.02	22.5%
CO ₂ / TPES (t CO ₂ per TJ)	8.9	13.7	15.5	20.0	19.2	18.2	16.1	80.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.89	1.13	0.91	0.82	0.68	0.63	0.51	-42.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.15	0.19	0.15	0.14	0.11	0.10	0.08	-42.5%
CO ₂ / population (t CO ₂ per capita)	0.10	0.15	0.17	0.28	0.25	0.24	0.20	108.0%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.56	3.97	5.61	-	10.14	154.7%
Main activity producer elec. and heat	-	0.31	0.83	-	1.15	-9.3%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.20	0.33	-	0.53	60.9%
Manufacturing industries and construction	0.46	0.59	1.65	-	2.70	141.3%
Transport	-	2.56	0.16	-	2.72	116.0%
<i>of which: road</i>	-	2.45	0.16	-	2.61	107.2%
Other	0.10	0.31	2.64	-	3.05	+
<i>of which: residential</i>	-	0.21	-	-	0.21	+
Reference Approach	0.56	3.92	6.25	-	10.74	162.1%
Diff. due to losses and/or transformation	-	0.13	0.64	-	0.77	
Statistical differences	-	-0.18	-0.00	-	-0.18	
<i>Memo: international marine bunkers</i>	-	0.01	-	-	0.01	x
<i>Memo: international aviation bunkers</i>	-	0.21	-	-	0.21	139.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Non-specified other - gas	2.64	x	2.4	2.4
Road - oil	2.45	94.7%	2.2	4.6
Manufacturing industries - gas	1.65	263.3%	1.5	6.1
Main activity prod. elec. and heat - gas	0.83	-18.1%	0.8	6.8
Manufacturing industries - oil	0.59	31.4%	0.5	7.4
Manufacturing industries - coal/peat	0.46	112.9%	0.4	7.8
Other energy industry own use - gas	0.33	40.4%	0.3	8.1
Main activity prod. elec. and heat - oil	0.31	56.8%	0.3	8.4
Residential - oil	0.21	+	0.2	8.5
Other energy industry own use - oil	0.20	113.6%	0.2	8.7
Road - gas	0.16	+	0.1	8.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>10.14</i>	<i>154.7%</i>	<i>9.2</i>	<i>9.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Namibia

Figure 1. CO₂ emissions by fuel

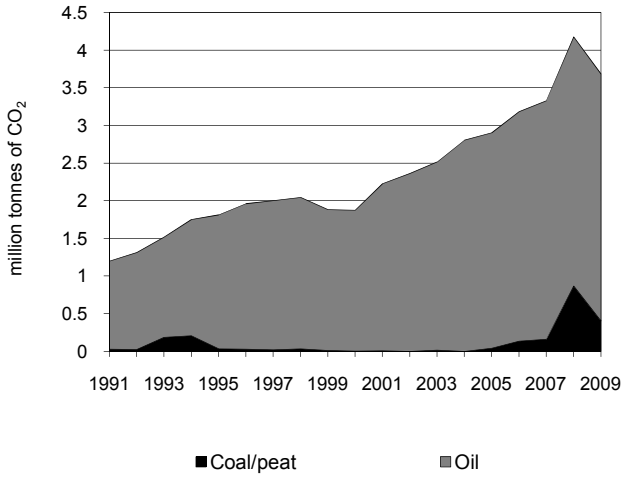


Figure 2. CO₂ emissions by sector

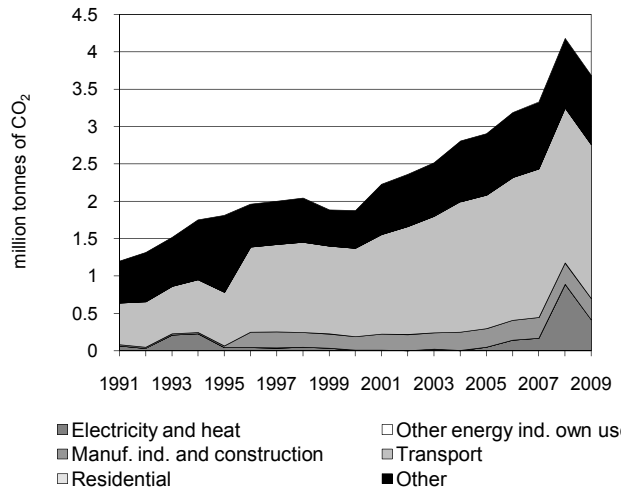


Figure 3. CO₂ emissions by sector

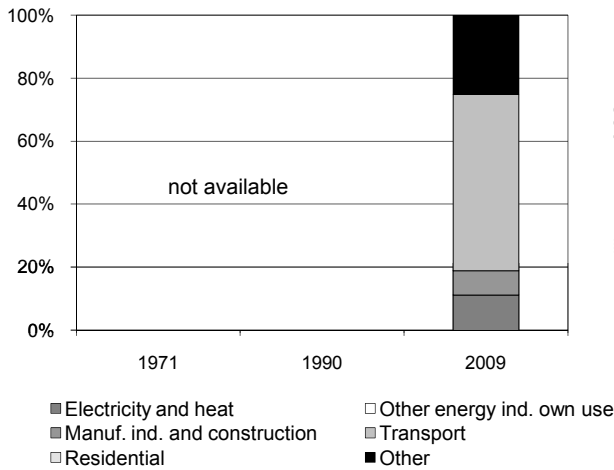


Figure 4. Reference vs Sectoral Approach

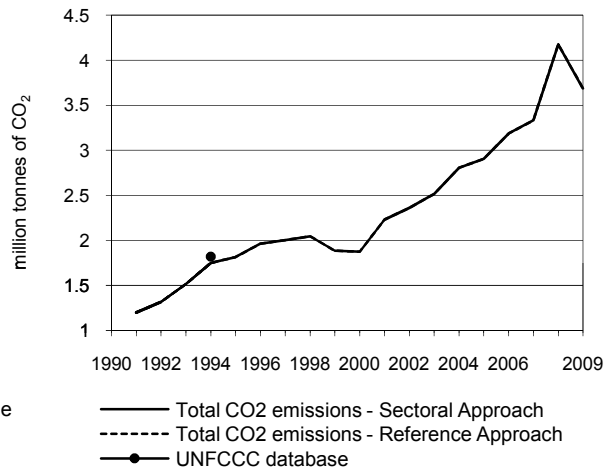


Figure 5. Electricity generation by fuel

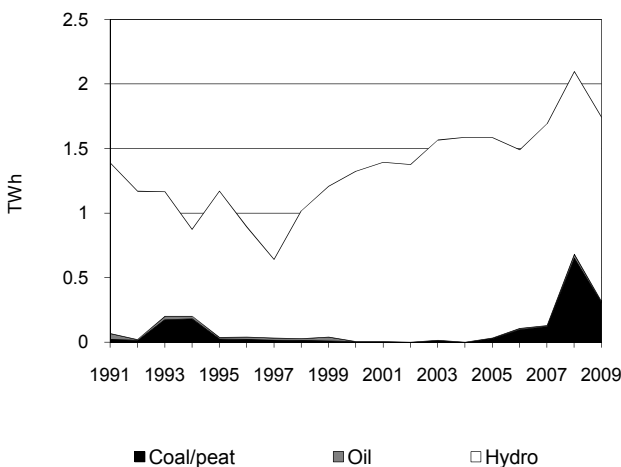
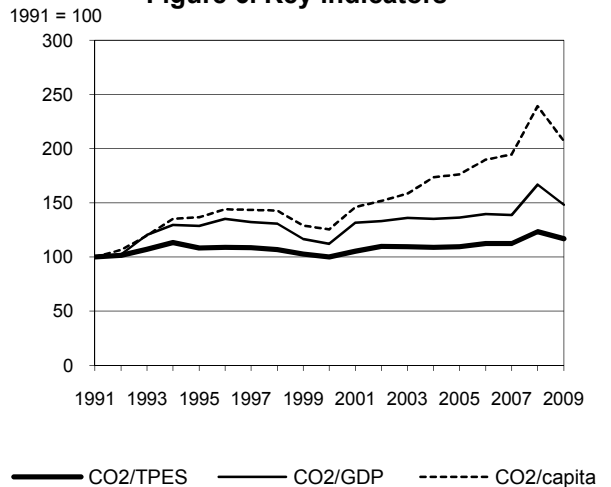


Figure 6. Key indicators



Namibia *

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	..	1.81	1.87	2.90	3.33	4.18	3.69	..
CO ₂ Reference Approach (Mt of CO ₂)	..	1.81	1.87	2.90	3.33	4.18	3.69	..
TPES (PJ)	..	38	43	60	67	77	72	..
TPES (Mtoe)	..	0.91	1.02	1.44	1.61	1.84	1.71	..
GDP (billion 2000 USD)	..	3.29	3.91	4.97	5.61	5.85	5.80	..
GDP PPP (billion 2000 USD)	..	10.66	12.66	16.11	18.18	18.96	18.80	..
Population (millions)	..	1.62	1.82	2.01	2.09	2.13	2.17	..
CO ₂ / TPES (t CO ₂ per TJ)	..	47.7	44.0	48.2	49.4	54.2	51.4	..
CO ₂ / GDP (kg CO ₂ per 2000 USD)	..	0.55	0.48	0.58	0.59	0.71	0.64	..
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	..	0.17	0.15	0.18	0.18	0.22	0.20	..
CO ₂ / population (t CO ₂ per capita)	..	1.12	1.03	1.45	1.59	1.96	1.70	..

Ratios are based on the Sectoral Approach.

* Prior to 1991, data for Namibia were included in Other Africa.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other **		
Sectoral Approach	0.41	3.28	-	-	3.69	..
Main activity producer elec. and heat	0.41	0.01	-	-	0.41	..
Unallocated autoproducers	-	-	-	-	-	..
Other energy industry own use	-	-	-	-	-	..
Manufacturing industries and construction	-	0.29	-	-	0.29	..
Transport	-	2.06	-	-	2.06	..
<i>of which: road</i>	-	1.85	-	-	1.85	..
Other	-	0.93	-	-	0.93	..
<i>of which: residential</i>	-	-	-	-	-	..
Reference Approach	0.41	3.28	-	-	3.69	..
Diff. due to losses and/or transformation	-	-	-	-	-	..
Statistical differences	-	-	-	-	-	..
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	..

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) ***	Cumulative total (%)
Road - oil	1.85	..	16.1	16.1
Non-specified other - oil	0.93	..	8.1	24.2
Main activity prod. elec. and heat - coal/peat	0.41	..	3.5	27.7
Manufacturing industries - oil	0.29	..	2.5	30.2
Other transport - oil	0.21	..	1.9	32.1
Main activity prod. elec. and heat - oil	0.01	..	0.1	32.1
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
<i>Memo: total CO₂ from fuel combustion</i>	3.69	..	32.1	32.1

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Nepal

Figure 1. CO₂ emissions by fuel

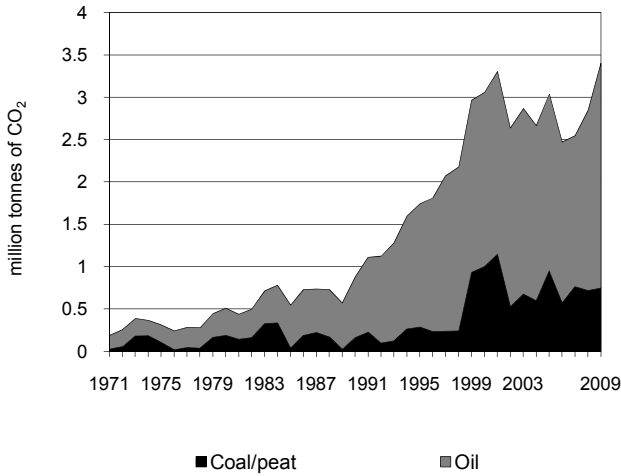


Figure 2. CO₂ emissions by sector

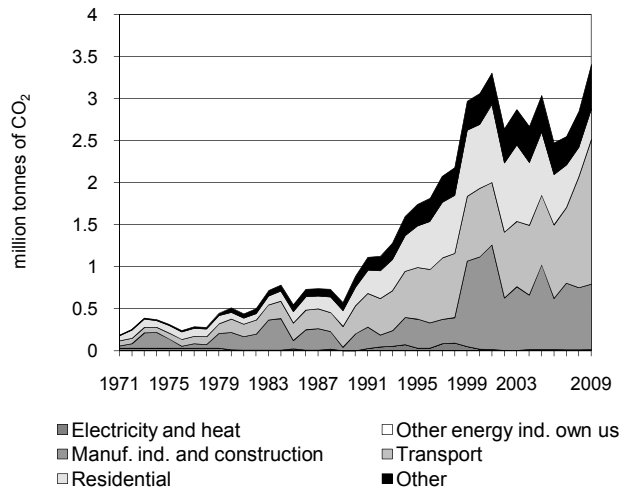


Figure 3. CO₂ emissions by sector

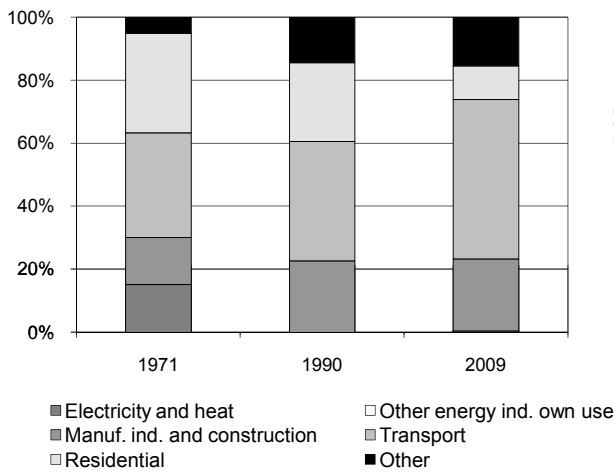


Figure 4. Reference vs Sectoral Approach

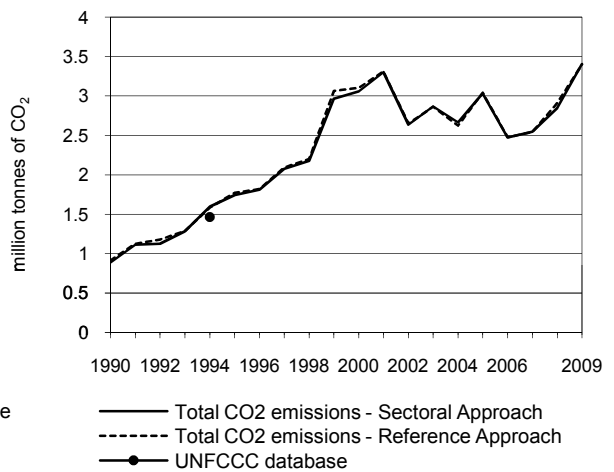


Figure 5. Electricity generation by fuel

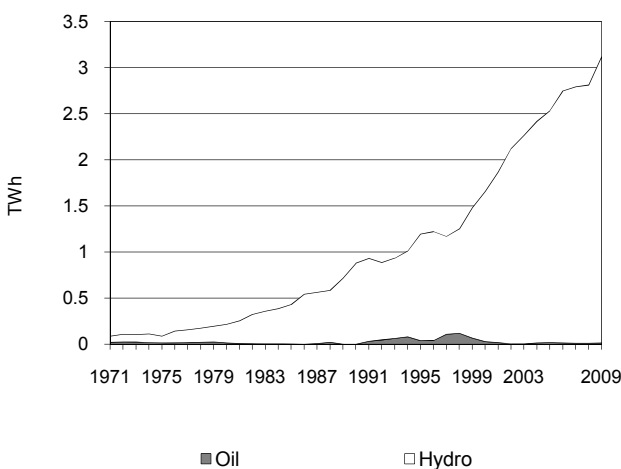
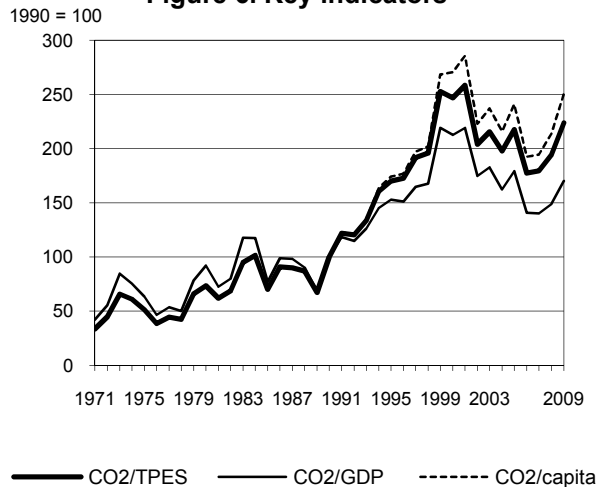


Figure 6. Key indicators



Nepal

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	0.88	1.74	3.06	3.04	2.55	2.85	3.40	284.9%
CO ₂ Reference Approach (Mt of CO ₂)	0.91	1.77	3.10	3.04	2.54	2.91	3.40	272.6%
TPES (PJ)	242	281	339	382	389	402	417	72.0%
TPES (Mtoe)	5.79	6.71	8.11	9.13	9.29	9.60	9.96	72.0%
GDP (billion 2000 USD)	3.38	4.35	5.49	6.47	6.93	7.31	7.65	126.5%
GDP PPP (billion 2000 USD)	19.92	25.65	32.41	38.16	40.91	43.09	45.10	126.5%
Population (millions)	19.11	21.62	24.43	27.22	28.29	28.81	29.33	53.5%
CO ₂ / TPES (t CO ₂ per TJ)	3.7	6.2	9.0	7.9	6.5	7.1	8.2	123.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.26	0.40	0.56	0.47	0.37	0.39	0.45	70.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.04	0.07	0.09	0.08	0.06	0.07	0.08	70.0%
CO ₂ / population (t CO ₂ per capita)	0.05	0.08	0.13	0.11	0.09	0.10	0.12	150.5%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.75	2.65	-	-	3.40	284.9%
Main activity producer elec. and heat	-	0.01	-	-	0.01	x
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.75	0.03	-	-	0.78	288.6%
Transport	-	1.72	-	-	1.72	414.6%
<i>of which: road</i>	-	1.72	-	-	1.72	414.6%
Other	0.00	0.89	-	-	0.89	154.4%
<i>of which: residential</i>	0.00	0.36	-	-	0.36	63.9%
Reference Approach	0.75	2.65	-	-	3.40	272.6%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	0.00	-0.01	-	-	-0.00	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.21	-	-	0.21	326.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	1.72	414.6%	5.5	5.5
Manufacturing industries - coal/peat	0.75	358.6%	2.4	7.9
Non-specified other - oil	0.52	311.8%	1.7	9.6
Residential - oil	0.36	62.8%	1.2	10.7
Manufacturing industries - oil	0.03	-18.8%	0.1	10.8
Main activity prod. elec. and heat - oil	0.01	x	0.0	10.9
Residential - coal/peat	0.00	x	0.0	10.9
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>3.40</i>	<i>284.9%</i>	<i>10.9</i>	<i>10.9</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Netherlands

Figure 1. CO₂ emissions by fuel

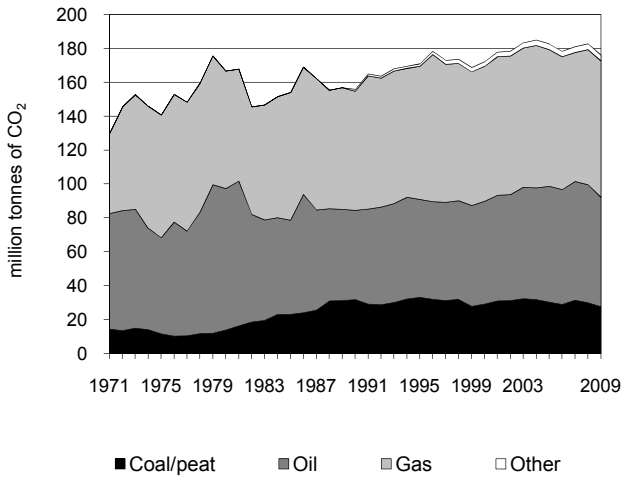


Figure 2. CO₂ emissions by sector

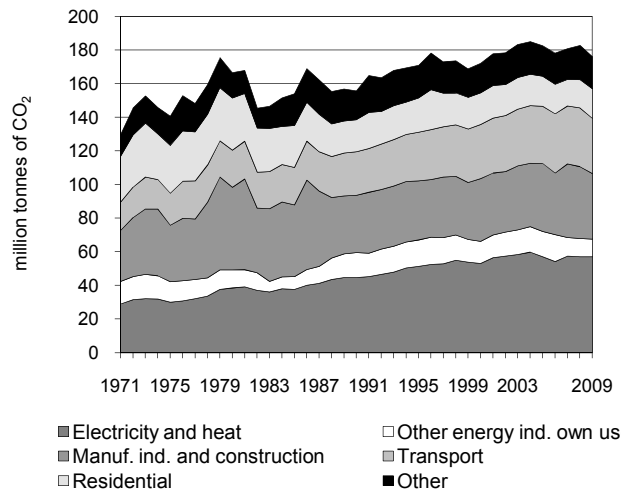


Figure 3. CO₂ emissions by sector

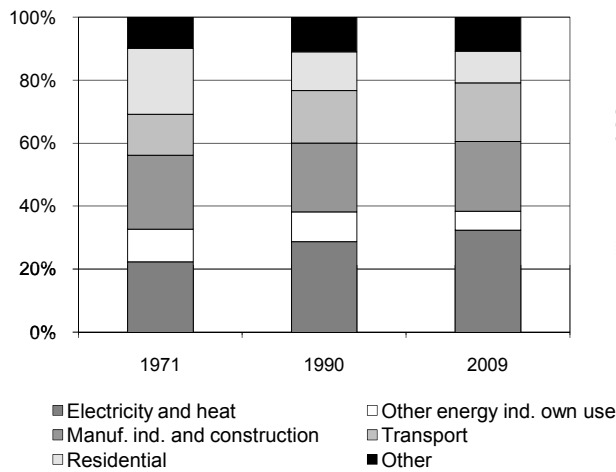


Figure 4. Reference vs Sectoral Approach

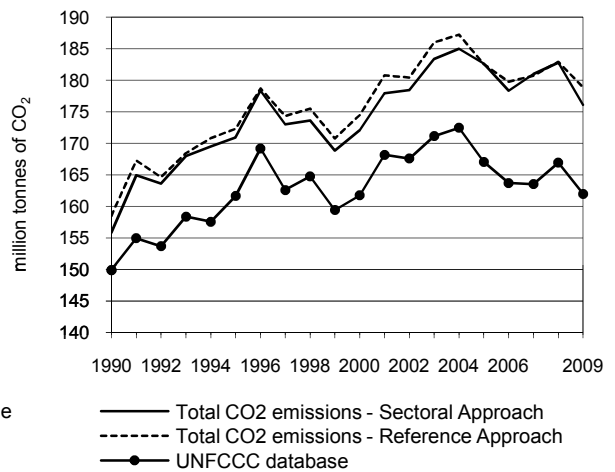


Figure 5. Electricity generation by fuel

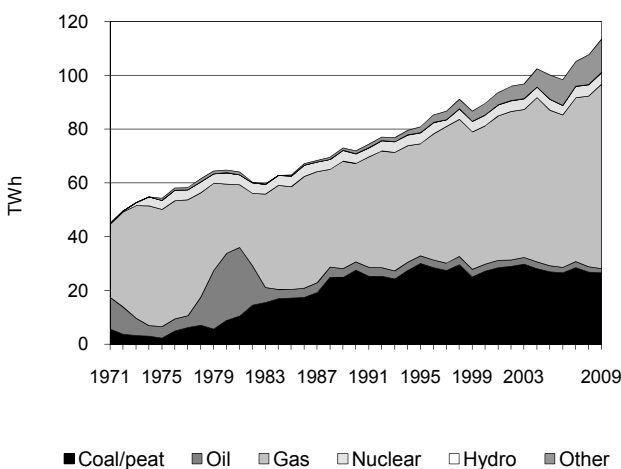
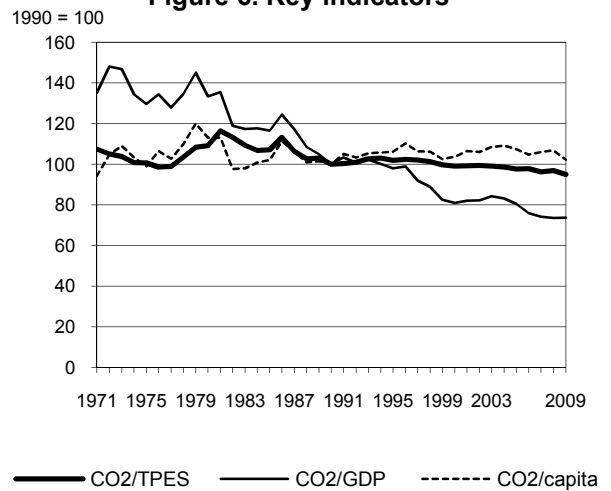


Figure 6. Key indicators



Netherlands

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	155.85	170.94	172.09	182.66	180.96	182.82	176.11	13.0%
CO ₂ Reference Approach (Mt of CO ₂)	158.50	172.27	174.47	182.57	180.70	182.93	178.89	12.9%
TPES (PJ)	2 750	2 962	3 066	3 300	3 322	3 331	3 273	19.0%
TPES (Mtoe)	65.69	70.75	73.22	78.82	79.35	79.55	78.17	19.0%
GDP (billion 2000 USD)	281.96	315.81	385.08	411.17	441.79	450.10	432.48	53.4%
GDP PPP (billion 2000 USD)	342.82	383.97	468.20	499.92	537.16	547.26	525.84	53.4%
Population (millions)	14.95	15.46	15.92	16.32	16.38	16.44	16.53	10.6%
CO ₂ / TPES (t CO ₂ per TJ)	56.7	57.7	56.1	55.3	54.5	54.9	53.8	-5.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.55	0.54	0.45	0.44	0.41	0.41	0.41	-26.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.45	0.45	0.37	0.37	0.34	0.33	0.33	-26.3%
CO ₂ / population (t CO ₂ per capita)	10.43	11.06	10.81	11.19	11.05	11.12	10.66	2.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	27.57	64.70	80.45	3.38	176.11	13.0%
Main activity producer elec. and heat	23.18	0.26	25.16	-	48.60	28.9%
Unallocated autoproducers	0.10	0.87	4.25	3.38	8.59	21.4%
Other energy industry own use	0.45	6.57	3.42	-	10.44	-29.4%
Manufacturing industries and construction	3.81	20.93	14.27	-	39.02	14.5%
Transport	-	32.82	0.00	-	32.82	26.9%
<i>of which: road</i>	-	32.02	0.00	-	32.03	30.0%
Other	0.03	3.24	33.36	-	36.63	0.9%
<i>of which: residential</i>	0.02	0.18	17.43	-	17.63	-8.1%
Reference Approach	28.63	66.71	80.18	3.38	178.89	12.9%
Diff. due to losses and/or transformation	1.02	1.47	-0.27	-	2.22	
Statistical differences	0.03	0.54	-0.00	-	0.57	
<i>Memo: international marine bunkers</i>	-	44.61	-	-	44.61	30.1%
<i>Memo: international aviation bunkers</i>	-	10.25	-	-	10.25	138.6%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	32.02	30.0%	15.0	15.0
Main activity prod. elec. and heat - gas	25.16	94.2%	11.8	26.8
Main activity prod. elec. and heat - coal/peat	23.18	-5.8%	10.9	37.7
Manufacturing industries - oil	20.93	123.8%	9.8	47.6
Residential - gas	17.43	-5.1%	8.2	55.7
Non-specified other - gas	15.92	13.0%	7.5	63.2
Manufacturing industries - gas	14.27	-24.0%	6.7	69.9
Other energy industry own use - oil	6.57	-43.9%	3.1	73.0
Unallocated autoproducers - gas	4.25	16.3%	2.0	75.0
Manufacturing industries - coal/peat	3.81	-35.9%	1.8	76.8
Other energy industry own use - gas	3.42	43.4%	1.6	78.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>176.11</i>	<i>13.0%</i>	<i>82.7</i>	<i>82.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Netherlands Antilles

Figure 1. CO₂ emissions by fuel

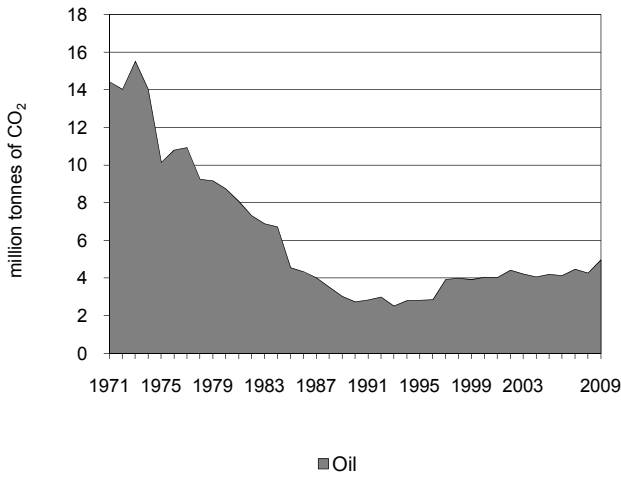


Figure 2. CO₂ emissions by sector

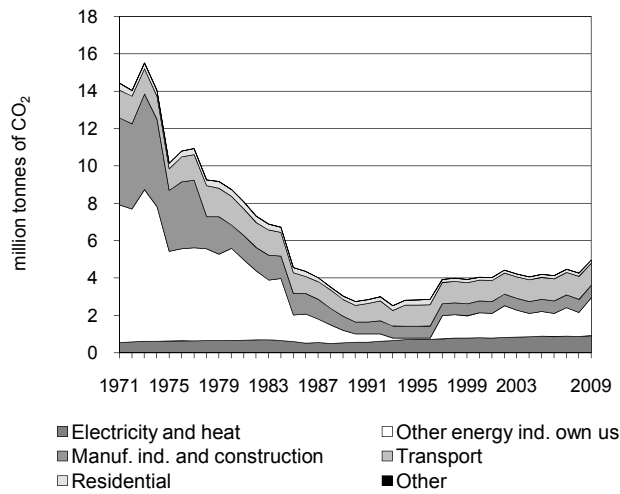


Figure 3. CO₂ emissions by sector

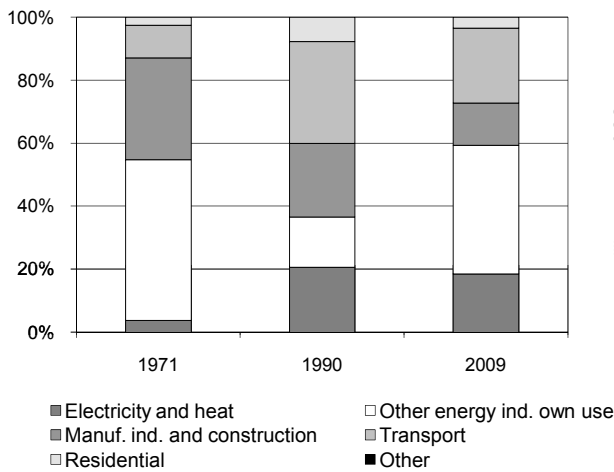


Figure 4. Reference vs Sectoral Approach

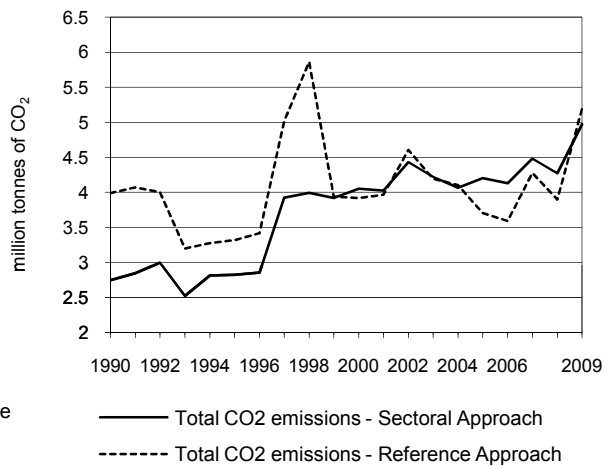


Figure 5. Electricity generation by fuel

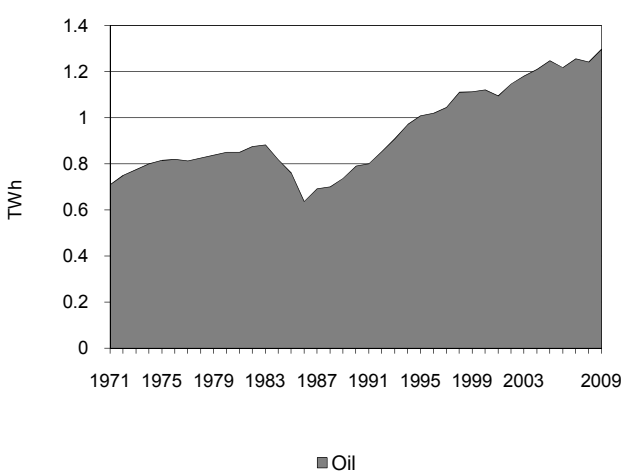
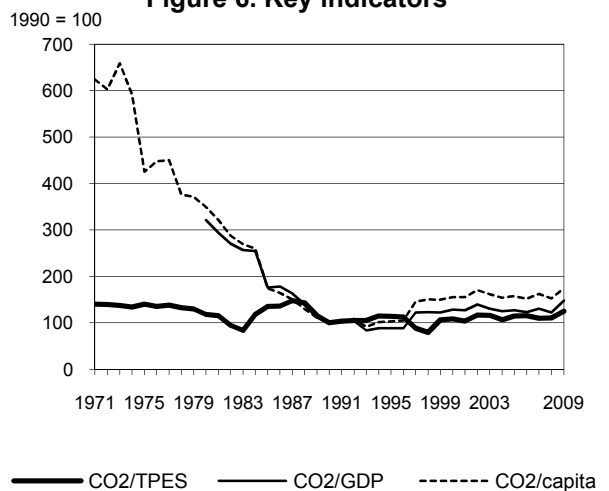


Figure 6. Key indicators



Netherlands Antilles

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2.74	2.82	4.05	4.20	4.48	4.27	4.97	81.1%
CO ₂ Reference Approach (Mt of CO ₂) *	3.99	3.31	3.92	3.71	4.27	3.90	5.19	30.1%
TPES (PJ)	61	55	83	81	90	86	89	45.0%
TPES (Mtoe)	1.46	1.31	1.98	1.95	2.16	2.05	2.12	45.0%
GDP (billion 2000 USD)	1.05	1.22	1.20	1.26	1.31	1.34	1.28	22.2%
GDP PPP (billion 2000 USD)	2.36	2.74	2.71	2.84	2.95	3.00	2.88	22.3%
Population (millions)	0.19	0.19	0.18	0.19	0.19	0.20	0.20	3.7%
CO ₂ / TPES (t CO ₂ per TJ)	45.0	51.3	48.9	51.6	49.5	49.7	56.1	24.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.62	2.32	3.37	3.33	3.42	3.20	3.88	48.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.16	1.03	1.50	1.48	1.52	1.42	1.72	48.1%
CO ₂ / population (t CO ₂ per capita)	14.37	14.77	22.38	22.60	23.33	21.90	25.10	74.7%

Ratios are based on the Sectoral Approach.

* The Reference Approach in 1990 overstates emissions since data for lubricants and bitumen (which store carbon) are not available.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other **		
Sectoral Approach	-	4.97	-	-	4.97	81.1%
Main activity producer elec. and heat	-	0.45	-	-	0.45	63.3%
Unallocated autoproducers	-	0.46	-	-	0.46	60.6%
Other energy industry own use	-	2.03	-	-	2.03	364.9%
Manufacturing industries and construction	-	0.67	-	-	0.67	3.8%
Transport	-	1.18	-	-	1.18	33.1%
<i>of which: road</i>	-	1.18	-	-	1.18	33.1%
Other	-	0.17	-	-	0.17	-18.7%
<i>of which: residential</i>	-	0.17	-	-	0.17	-18.7%
Reference Approach *	-	5.19	-	-	5.19	30.1%
Diff. due to losses and/or transformation	-	0.22	-	-	0.22	
Statistical differences	-	-	-	-	-	
<i>Memo: international marine bunkers</i>	-	5.54	-	-	5.54	6.9%
<i>Memo: international aviation bunkers</i>	-	0.21	-	-	0.21	78.4%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) ***	Cumulative total (%)
Other energy industry own use - oil	2.03	364.9%	39.4	39.4
Road - oil	1.18	33.1%	22.9	62.4
Manufacturing industries - oil	0.67	3.8%	13.0	75.3
Unallocated autoproducers - oil	0.46	60.6%	9.0	84.3
Main activity prod. elec. and heat - oil	0.45	63.3%	8.8	93.1
Residential - oil	0.17	-18.7%	3.3	96.4
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>4.97</i>	<i>81.1%</i>	<i>96.4</i>	<i>96.4</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

New Zealand

Figure 1. CO₂ emissions by fuel

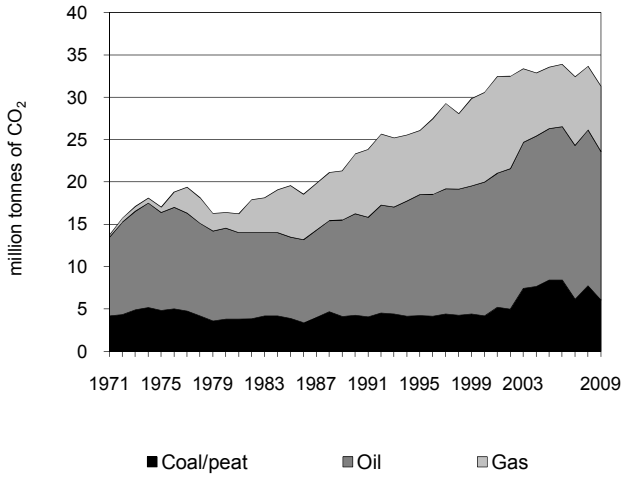


Figure 2. CO₂ emissions by sector

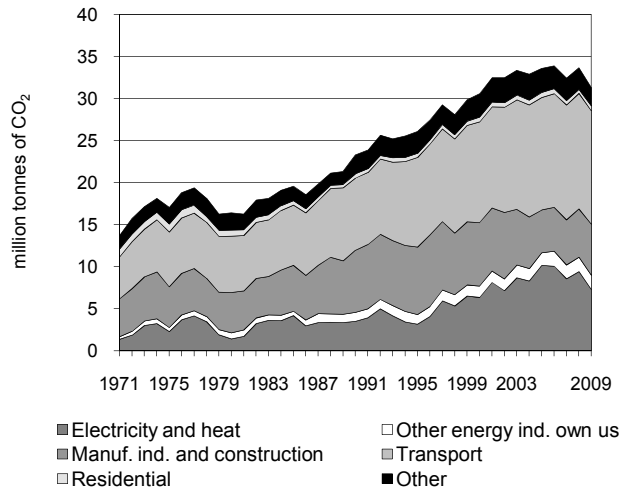


Figure 3. CO₂ emissions by sector

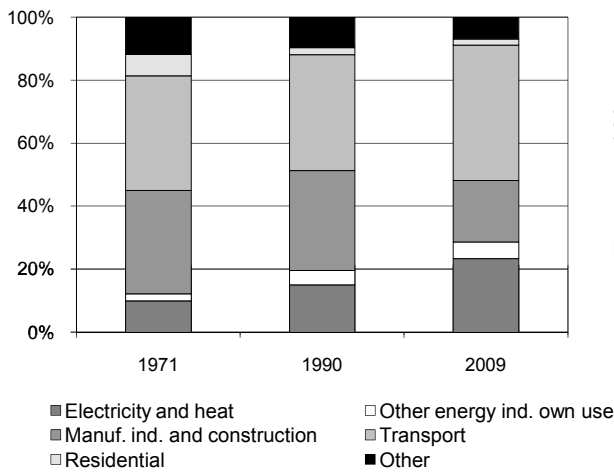


Figure 4. Reference vs Sectoral Approach

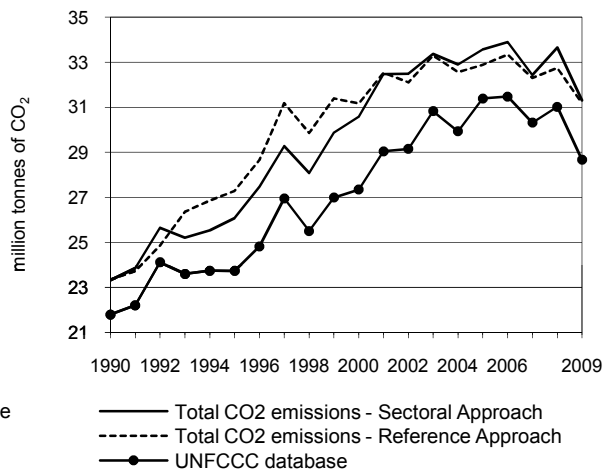


Figure 5. Electricity generation by fuel

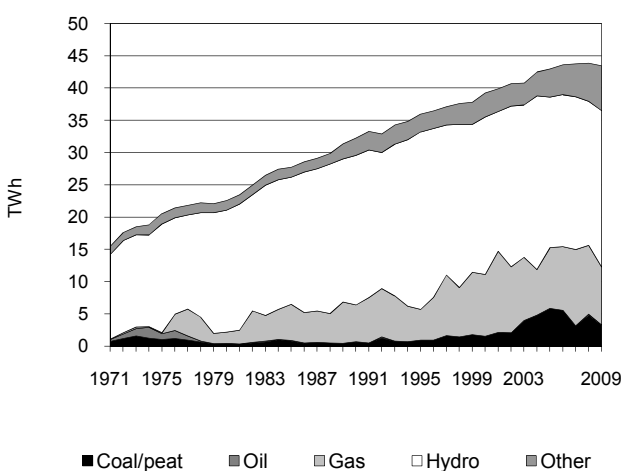
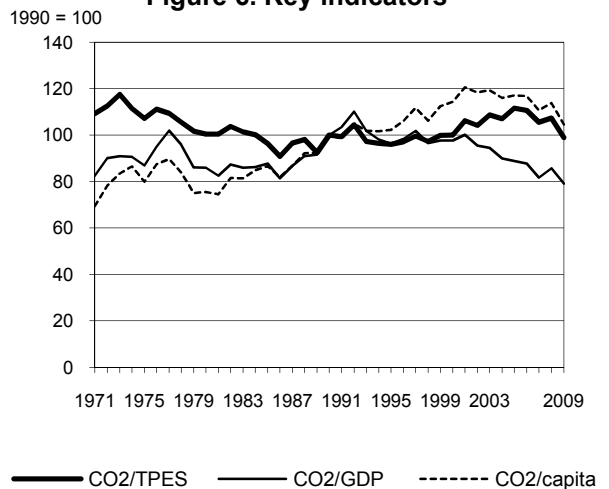


Figure 6. Key indicators



New Zealand

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	23.32	26.08	30.59	33.58	32.43	33.66	31.31	34.3%
CO ₂ Reference Approach (Mt of CO ₂)	23.35	27.28	31.17	32.88	32.30	32.74	31.18	33.5%
TPES (PJ)	537	625	704	693	708	723	729	35.7%
TPES (Mtoe)	12.83	14.93	16.82	16.55	16.91	17.26	17.40	35.7%
GDP (billion 2000 USD)	39.71	46.16	53.39	64.36	67.68	66.96	67.48	69.9%
GDP PPP (billion 2000 USD)	60.54	70.36	81.38	98.11	103.17	102.07	102.87	69.9%
Population (millions)	3.37	3.69	3.87	4.15	4.24	4.28	4.33	28.4%
CO ₂ / TPES (t CO ₂ per TJ)	43.4	41.7	43.4	48.4	45.8	46.6	43.0	-1.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.59	0.57	0.57	0.52	0.48	0.50	0.46	-21.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.39	0.37	0.38	0.34	0.31	0.33	0.30	-21.0%
CO ₂ / population (t CO ₂ per capita)	6.91	7.07	7.91	8.09	7.65	7.86	7.23	4.6%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	6.05	17.55	7.71	-	31.31	34.3%
Main activity producer elec. and heat	2.44	0.01	3.32	-	5.76	72.5%
Unallocated autoproducers	1.26	-	0.29	-	1.55	788.6%
Other energy industry own use	0.16	0.99	0.53	-	1.68	57.8%
Manufacturing industries and construction	1.86	1.39	2.83	-	6.08	-17.7%
Transport	0.00	13.48	0.00	-	13.48	57.2%
<i>of which: road</i>	-	12.06	0.00	-	12.07	64.4%
Other	0.33	1.69	0.74	-	2.76	-0.3%
<i>of which: residential</i>	0.08	0.17	0.34	-	0.58	13.6%
Reference Approach	5.75	17.76	7.68	-	31.18	33.5%
Diff. due to losses and/or transformation	- 0.15	0.11	0.04	-	0.00	
Statistical differences	- 0.15	0.09	- 0.07	-	- 0.13	
<i>Memo: international marine bunkers</i>	-	1.09	-	-	1.09	4.4%
<i>Memo: international aviation bunkers</i>	-	2.18	-	-	2.18	65.4%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	12.06	67.4%	16.5	16.5
Main activity prod. elec. and heat - gas	3.32	15.9%	4.5	21.0
Manufacturing industries - gas	2.83	-16.6%	3.9	24.9
Main activity prod. elec. and heat - coal/peat	2.44	430.2%	3.3	28.2
Manufacturing industries - coal/peat	1.86	-35.9%	2.5	30.8
Non-specified other - oil	1.52	-3.2%	2.1	32.8
Other transport - oil	1.41	15.2%	1.9	34.8
Manufacturing industries - oil	1.39	26.9%	1.9	36.7
Unallocated autoproducers - coal/peat	1.26	811.7%	1.7	38.4
Other energy industry own use - oil	0.99	20.1%	1.4	39.7
Other energy industry own use - gas	0.53	195.6%	0.7	40.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>31.31</i>	<i>34.3%</i>	<i>42.8</i>	<i>42.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Nicaragua

Figure 1. CO₂ emissions by fuel

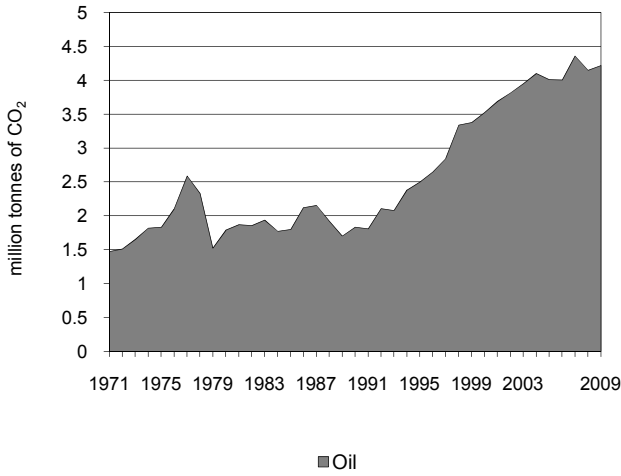


Figure 2. CO₂ emissions by sector

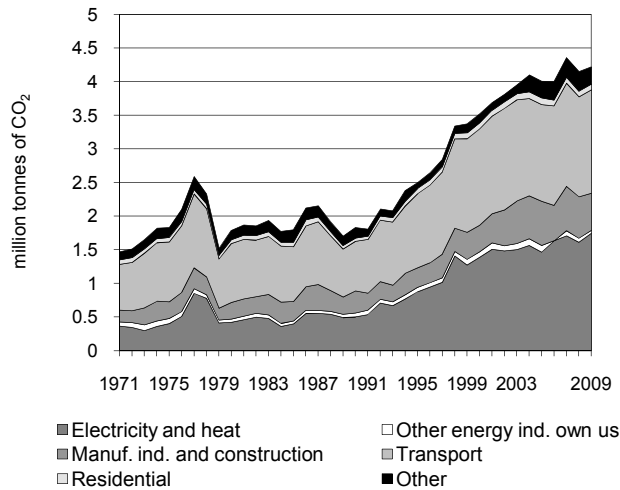


Figure 3. CO₂ emissions by sector

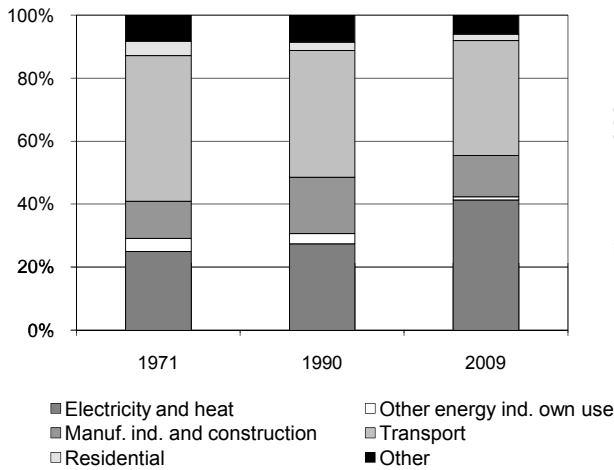


Figure 4. Reference vs Sectoral Approach

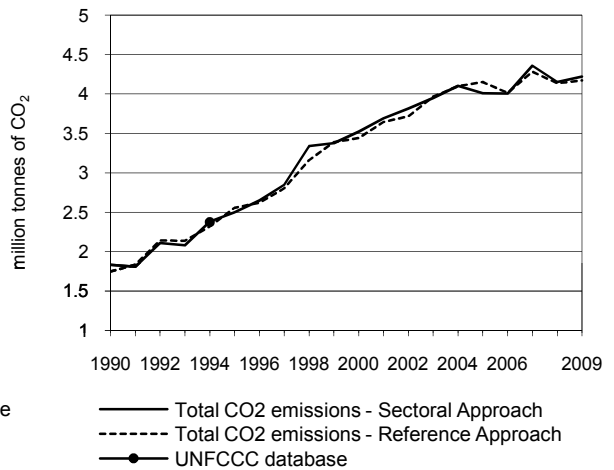


Figure 5. Electricity generation by fuel

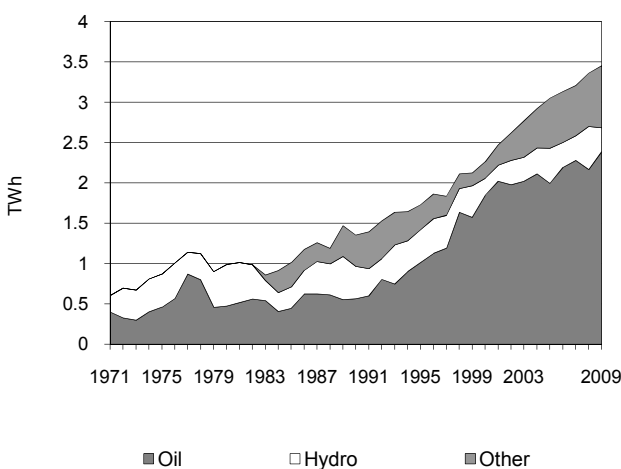
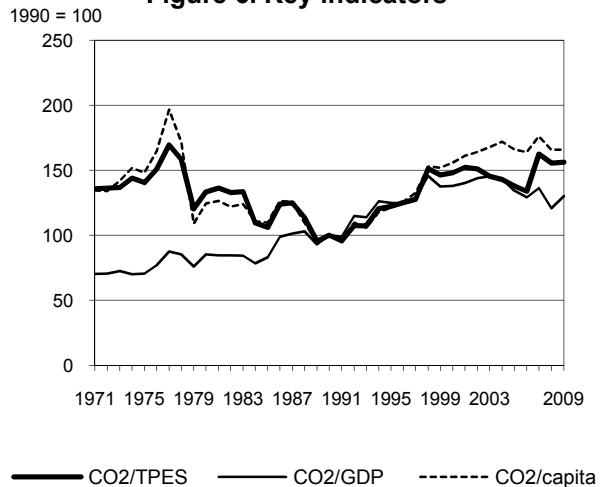


Figure 6. Key indicators



Nicaragua

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	1.83	2.50	3.52	4.01	4.36	4.15	4.22	130.4%
CO ₂ Reference Approach (Mt of CO ₂)	1.75	2.55	3.44	4.15	4.28	4.13	4.17	138.6%
TPES (PJ)	88	98	114	139	128	128	129	47.4%
TPES (Mtoe)	2.09	2.34	2.72	3.32	3.07	3.05	3.09	47.4%
GDP (billion 2000 USD)	2.82	3.08	3.94	4.60	4.93	5.30	5.00	77.2%
GDP PPP (billion 2000 USD)	11.04	12.06	15.41	18.00	19.29	20.74	19.57	77.2%
Population (millions)	4.14	4.66	5.10	5.46	5.60	5.67	5.74	38.8%
CO ₂ / TPES (t CO ₂ per TJ)	20.9	25.5	30.9	28.9	34.0	32.5	32.7	56.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.65	0.81	0.90	0.87	0.88	0.78	0.84	30.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.17	0.21	0.23	0.22	0.23	0.20	0.22	30.0%
CO ₂ / population (t CO ₂ per capita)	0.44	0.54	0.69	0.74	0.78	0.73	0.73	66.0%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	4.22	-	-	4.22	130.4%
Main activity producer elec. and heat	-	1.71	-	-	1.71	253.9%
Unallocated autoproducers	-	0.03	-	-	0.03	84.8%
Other energy industry own use	-	0.04	-	-	0.04	-25.2%
Manufacturing industries and construction	-	0.55	-	-	0.55	68.3%
Transport	-	1.54	-	-	1.54	108.7%
<i>of which: road</i>	-	1.54	-	-	1.54	119.9%
Other	-	0.34	-	-	0.34	65.6%
<i>of which: residential</i>	-	0.09	-	-	0.09	75.2%
Reference Approach	-	4.17	-	-	4.17	138.6%
Diff. due to losses and/or transformation	-	-0.06	-	-	-0.06	
Statistical differences	-	0.01	-	-	0.01	
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	0.06	-	-	0.06	-26.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	1.71	253.9%	12.2	12.2
Road - oil	1.54	119.9%	10.9	23.1
Manufacturing industries - oil	0.55	68.3%	3.9	27.0
Non-specified other - oil	0.25	62.5%	1.8	28.8
Residential - oil	0.09	75.2%	0.6	29.4
Other energy industry own use - oil	0.04	-25.2%	0.3	29.7
Unallocated autoproducers - oil	0.03	84.8%	0.2	30.0
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	4.22	130.4%	30.0	30.0

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Nigeria

Figure 1. CO₂ emissions by fuel

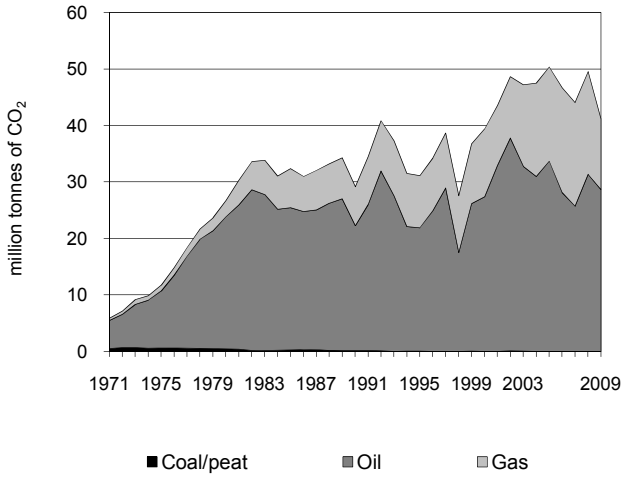


Figure 2. CO₂ emissions by sector

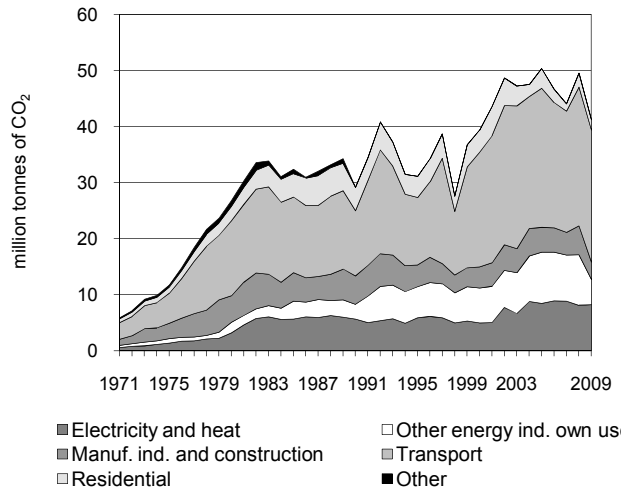


Figure 3. CO₂ emissions by sector

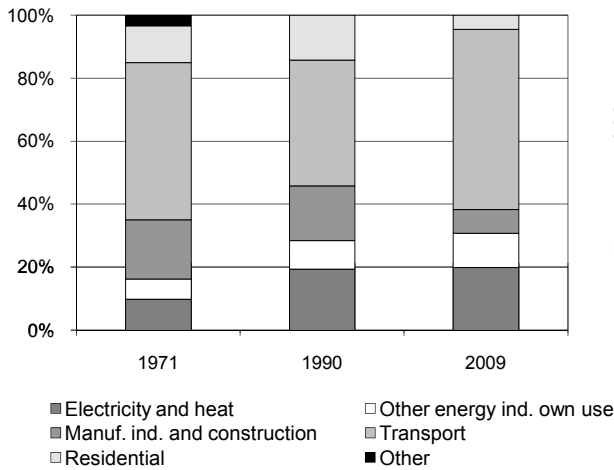


Figure 4. Reference vs Sectoral Approach

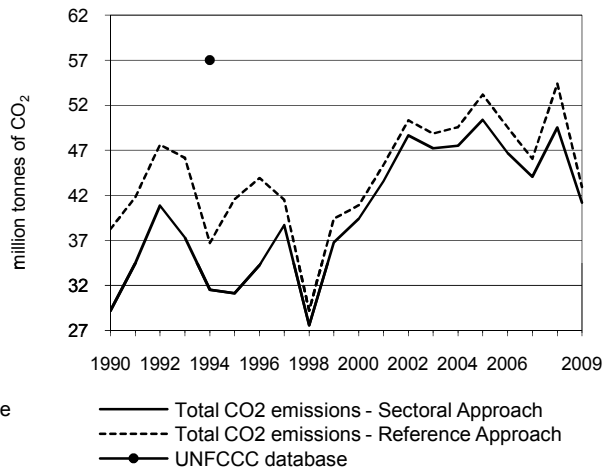


Figure 5. Electricity generation by fuel

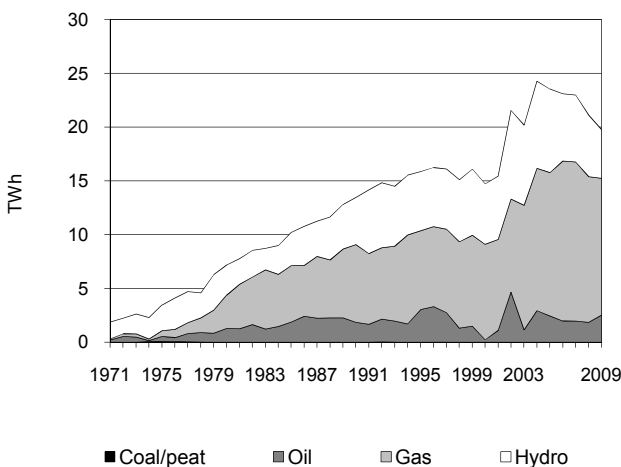
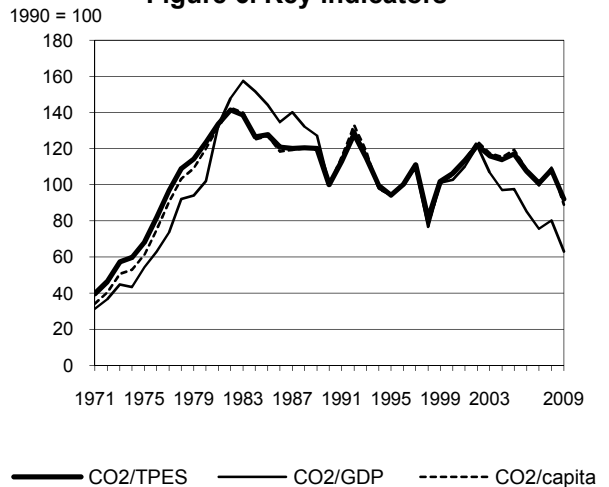


Figure 6. Key indicators



Nigeria

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂) *	29.16	31.12	39.40	50.38	44.06	49.55	41.19	41.3%
CO ₂ Reference Approach (Mt of CO ₂) *	38.23	41.57	40.89	53.19	46.04	54.41	42.91	12.2%
TPES (PJ)	2 955	3 350	3 760	4 363	4 434	4 642	4 532	53.4%
TPES (Mtoe)	70.58	80.00	89.82	104.20	105.90	110.87	108.25	53.4%
GDP (billion 2000 USD)	34.98	39.54	45.98	61.90	69.98	74.18	78.33	123.9%
GDP PPP (billion 2000 USD)	80.34	90.82	105.62	142.18	160.73	170.38	179.92	124.0%
Population (millions)	97.34	110.45	124.84	140.88	147.72	151.21	154.73	59.0%
CO ₂ / TPES (t CO ₂ per TJ)	9.9	9.3	10.5	11.5	9.9	10.7	9.1	-7.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.83	0.79	0.86	0.81	0.63	0.67	0.53	-36.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.36	0.34	0.37	0.35	0.27	0.29	0.23	-36.9%
CO ₂ / population (t CO ₂ per capita)	0.30	0.28	0.32	0.36	0.30	0.33	0.27	-11.1%

Ratios are based on the Sectoral Approach.

* The difference in the growth rate between the Sectoral and Reference Approaches is mainly due to statistical differences for some oil products in 1990.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other **		
Sectoral Approach *	0.02	28.65	12.52	-	41.19	41.3%
Main activity producer elec. and heat	-	1.84	6.39	-	8.22	45.2%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.66	3.82	-	4.48	69.0%
Manufacturing industries and construction	0.02	0.77	2.32	-	3.11	-38.4%
Transport	-	23.55	-	-	23.55	102.3%
of which: road	-	23.46	-	-	23.46	105.5%
Other	-	1.84	-	-	1.84	-55.8%
of which: residential	-	1.84	-	-	1.84	-55.8%
Reference Approach *	0.02	29.12	13.77	-	42.91	12.2%
Diff. due to losses and/or transformation	-	0.47	1.25	-	1.72	
Statistical differences	-	-0.00	0.00	-	-0.00	
<i>Memo: international marine bunkers</i>	-	1.96	-	-	1.96	237.9%
<i>Memo: international aviation bunkers</i>	-	2.00	-	-	2.00	109.3%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) ***	Cumulative total (%)
Road - oil	23.46	105.5%	11.4	11.4
Main activity prod. elec. and heat - gas	6.39	51.4%	3.1	14.5
Other energy industry own use - gas	3.82	286.5%	1.8	16.3
Manufacturing industries - gas	2.32	38.5%	1.1	17.4
Residential - oil	1.84	-55.8%	0.9	18.3
Main activity prod. elec. and heat - oil	1.84	29.2%	0.9	19.2
Manufacturing industries - oil	0.77	-76.1%	0.4	19.6
Other energy industry own use - oil	0.66	-60.4%	0.3	19.9
Other transport - oil	0.08	-61.8%	0.0	19.9
Manufacturing industries - coal/peat	0.02	-87.5%	0.0	19.9
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>41.19</i>	<i>41.3%</i>	<i>19.9</i>	<i>19.9</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Norway *

Figure 1. CO₂ emissions by fuel

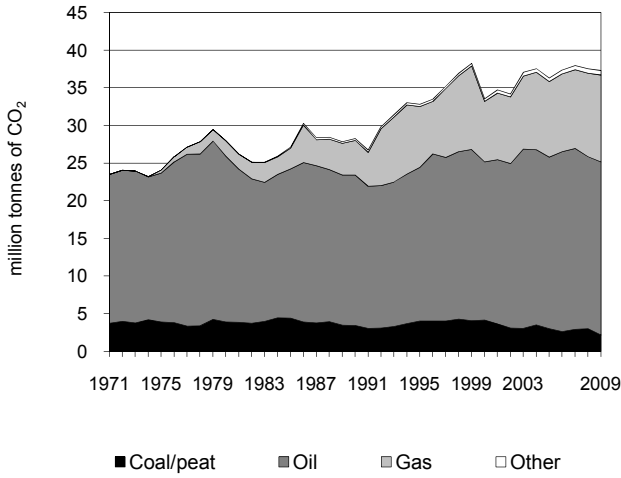


Figure 2. CO₂ emissions by sector

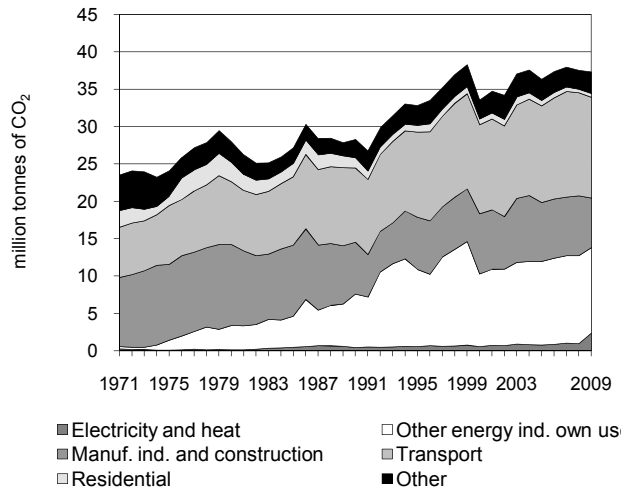


Figure 3. CO₂ emissions by sector

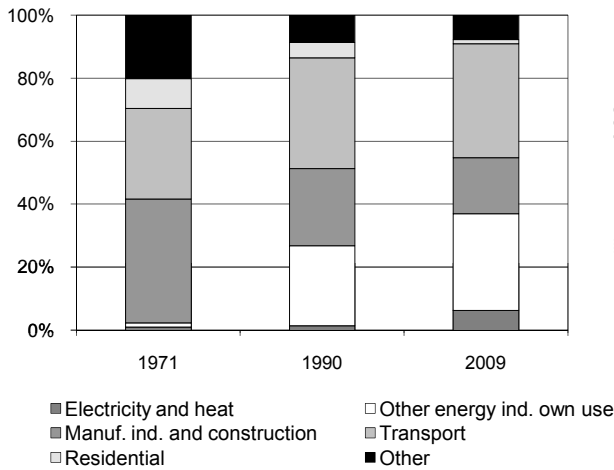


Figure 4. Reference vs Sectoral Approach

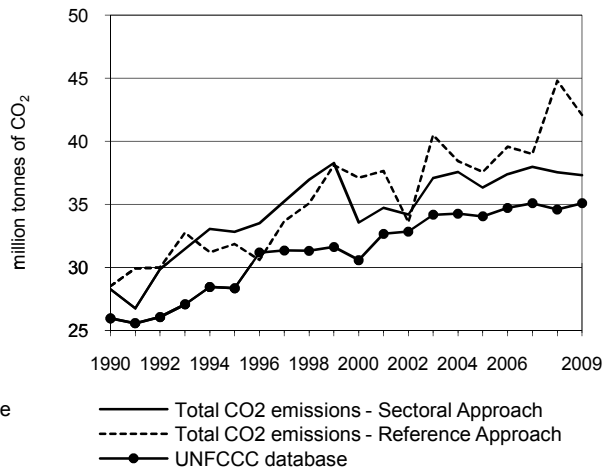


Figure 5. Electricity generation by fuel

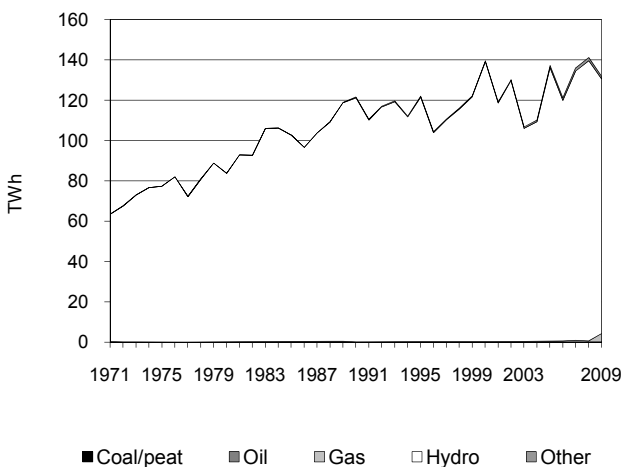
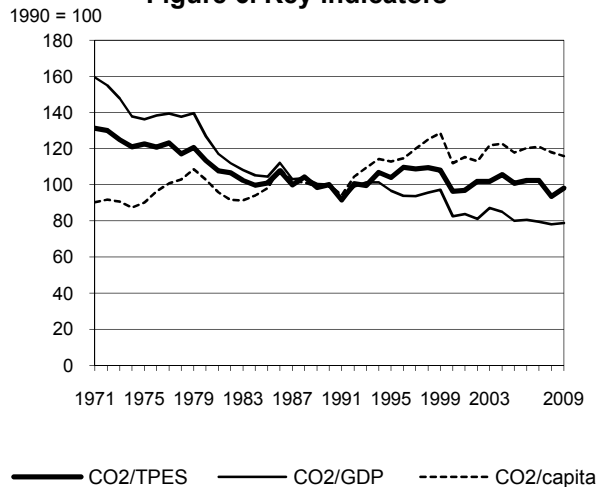


Figure 6. Key indicators



* Large statistical differences for oil and gas cause discrepancies between the Sectoral and Reference Approaches; please see the note in Chapter 1.

Norway

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂) *	28.29	32.81	33.54	36.32	37.97	37.53	37.31	31.9%
CO ₂ Reference Approach (Mt of CO ₂) *	28.51	31.84	37.10	37.56	39.00	44.80	42.08	47.6%
TPES (PJ)	879	981	1 083	1 120	1 153	1 248	1 183	34.5%
TPES (Mtoe)	21.00	23.42	25.87	26.76	27.55	29.80	28.24	34.5%
GDP (billion 2000 USD)	116.97	140.45	168.29	187.79	197.32	198.80	195.96	67.5%
GDP PPP (billion 2000 USD)	112.76	135.41	162.24	181.04	190.23	191.66	188.92	67.5%
Population (millions)	4.24	4.36	4.49	4.62	4.71	4.77	4.83	13.8%
CO ₂ / TPES (t CO ₂ per TJ)	32.2	33.5	31.0	32.4	32.9	30.1	31.6	-1.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.24	0.23	0.20	0.19	0.19	0.19	0.19	-21.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.25	0.24	0.21	0.20	0.20	0.20	0.20	-21.3%
CO ₂ / population (t CO ₂ per capita)	6.67	7.53	7.47	7.86	8.07	7.87	7.73	15.9%

Ratios are based on the Sectoral Approach.

* Large statistical differences for oil and gas cause discrepancies between the Sectoral and Reference Approaches; please see note in Chapter 1.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other **		
Sectoral Approach *	2.17	22.99	11.56	0.60	37.31	31.9%
Main activity producer elec. and heat	0.14	0.13	0.92	0.51	1.70	303.8%
Unallocated autoproducers	-	0.01	0.64	0.01	0.65	x
Other energy industry own use	-	2.76	8.67	-	11.43	59.3%
Manufacturing industries and construction	2.02	3.42	1.12	0.08	6.64	-4.1%
Transport	-	13.37	0.12	-	13.49	35.9%
<i>of which: road</i>	-	9.88	0.01	-	9.89	30.1%
Other	0.01	3.30	0.09	-	3.39	-11.5%
<i>of which: residential</i>	-	0.50	0.01	-	0.51	-63.7%
Reference Approach *	2.29	26.67	12.52	0.60	42.08	47.6%
Diff. due to losses and/or transformation	0.08	-1.73	-	-	-1.65	
Statistical differences	0.04	5.41	0.97	-	6.42	
<i>Memo: international marine bunkers</i>	-	1.54	-	-	1.54	10.3%
<i>Memo: international aviation bunkers</i>	-	1.06	-	-	1.06	-15.2%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) ***	Cumulative total (%)
Road - oil	9.88	30.0%	18.5	18.5
Other energy industry own use - gas	8.67	87.8%	16.2	34.7
Other transport - oil	3.49	50.0%	6.5	41.2
Manufacturing industries - oil	3.42	-6.7%	6.4	47.6
Non-specified other - oil	2.80	15.4%	5.2	52.8
Other energy industry own use - oil	2.76	7.8%	5.2	58.0
Manufacturing industries - coal/peat	2.02	-38.0%	3.8	61.7
Manufacturing industries - gas	1.12	x	2.1	63.8
Main activity prod. elec. and heat - gas	0.92	x	1.7	65.6
Unallocated autoproducers - gas	0.64	x	1.2	66.8
Main activity prod. elec. and heat - other	0.51	107.9%	1.0	67.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>37.31</i>	<i>31.9%</i>	<i>69.7</i>	<i>69.7</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Oman

Figure 1. CO₂ emissions by fuel

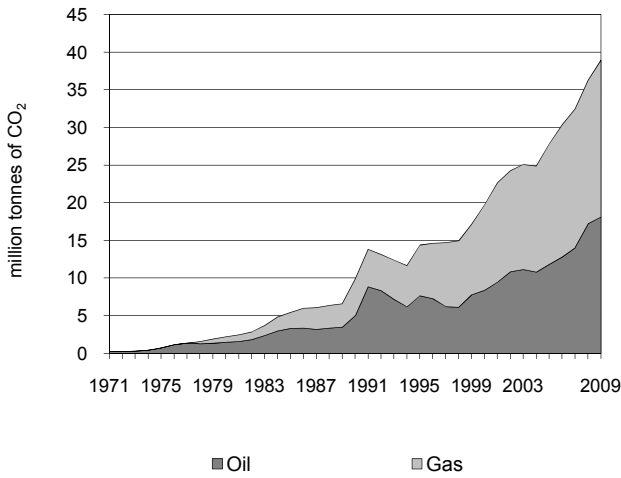


Figure 2. CO₂ emissions by sector

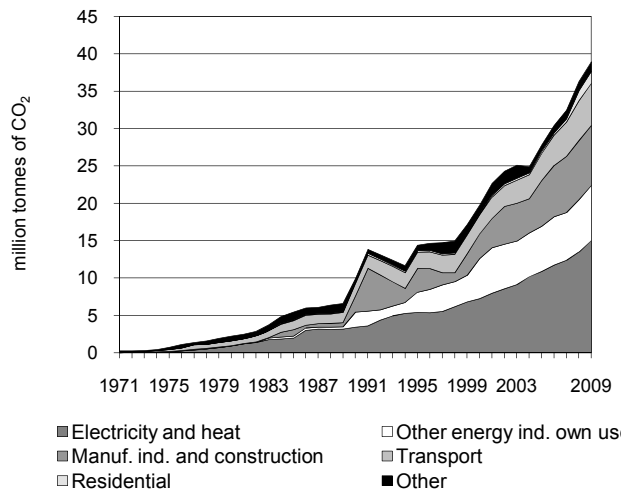


Figure 3. CO₂ emissions by sector

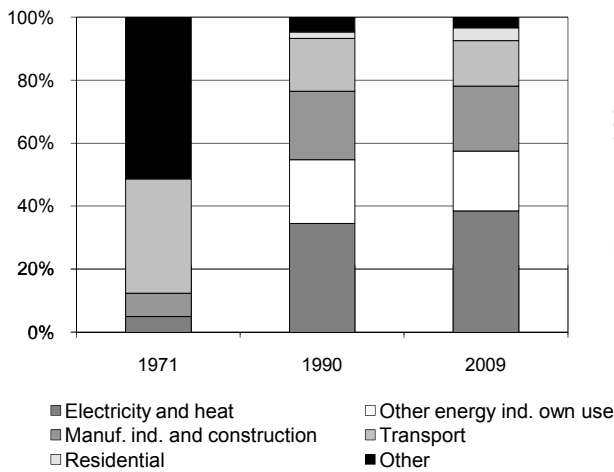


Figure 4. Reference vs Sectoral Approach

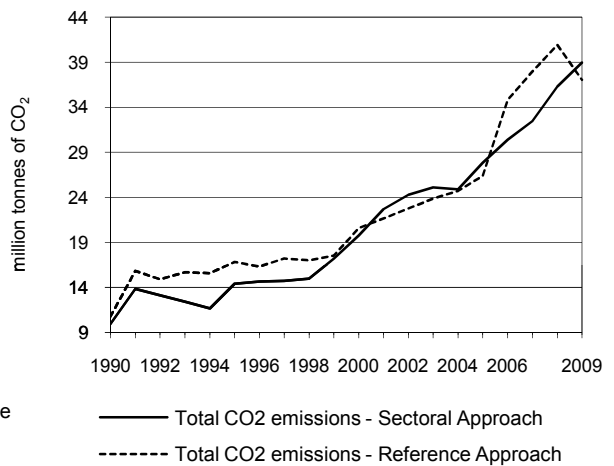


Figure 5. Electricity generation by fuel

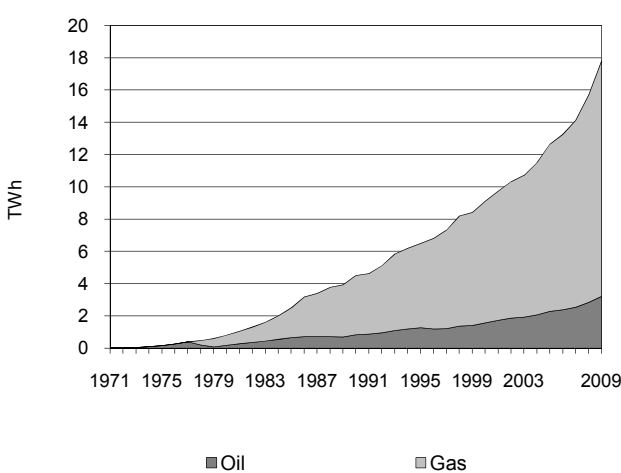
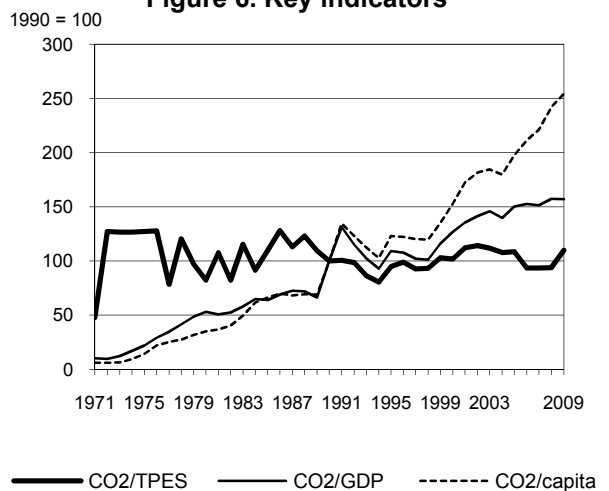


Figure 6. Key indicators



Oman

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	9.93	14.40	19.76	27.82	32.46	36.31	38.95	292.4%
CO ₂ Reference Approach (Mt of CO ₂)	10.76	16.81	20.59	26.40	37.98	40.93	37.03	244.2%
TPES (PJ)	177	270	346	456	618	688	631	257.1%
TPES (Mtoe)	4.22	6.45	8.26	10.89	14.76	16.44	15.06	257.1%
GDP (billion 2000 USD)	12.65	16.83	19.87	23.62	27.35	29.40	31.63	150.0%
GDP PPP (billion 2000 USD)	19.61	26.08	30.79	36.61	42.39	45.56	49.02	150.0%
Population (millions)	1.84	2.17	2.40	2.62	2.73	2.79	2.85	54.4%
CO ₂ / TPES (t CO ₂ per TJ)	56.2	53.3	57.2	61.0	52.5	52.7	61.8	9.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.78	0.86	0.99	1.18	1.19	1.23	1.23	56.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.51	0.55	0.64	0.76	0.77	0.80	0.79	56.9%
CO ₂ / population (t CO ₂ per capita)	5.39	6.63	8.23	10.63	11.91	13.04	13.69	154.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	18.14	20.81	-	38.95	292.4%
Main activity producer elec. and heat	-	3.38	11.63	-	15.02	337.6%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	1.27	6.10	-	7.37	267.2%
Manufacturing industries and construction	-	5.32	2.71	-	8.03	272.1%
Transport	-	5.65	-	-	5.65	238.9%
<i>of which: road</i>	-	5.65	-	-	5.65	238.9%
Other	-	2.51	0.36	-	2.88	334.3%
<i>of which: residential</i>	-	1.55	-	-	1.55	697.0%
Reference Approach	-	12.61	24.42	-	37.03	244.2%
Diff. due to losses and/or transformation	-	3.75	2.70	-	6.44	
Statistical differences	-	-9.28	0.92	-	-8.36	
<i>Memo: international marine bunkers</i>	-	0.38	-	-	0.38	510.0%
<i>Memo: international aviation bunkers</i>	-	1.41	-	-	1.41	51.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	11.63	354.7%	19.2	19.2
Other energy industry own use - gas	6.10	280.3%	10.0	29.2
Road - oil	5.65	238.9%	9.3	38.5
Manufacturing industries - oil	5.32	239.6%	8.8	47.3
Main activity prod. elec. and heat - oil	3.38	287.6%	5.6	52.8
Manufacturing industries - gas	2.71	358.3%	4.5	57.3
Residential - oil	1.55	697.0%	2.6	59.9
Other energy industry own use - oil	1.27	215.3%	2.1	62.0
Non-specified other - oil	0.96	214.6%	1.6	63.5
Non-specified other - gas	0.36	124.1%	0.6	64.1
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	38.95	292.4%	64.1	64.1

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Pakistan

Figure 1. CO₂ emissions by fuel

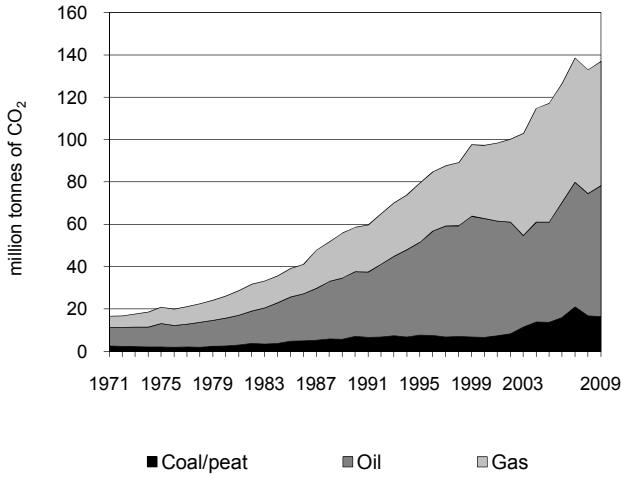


Figure 2. CO₂ emissions by sector

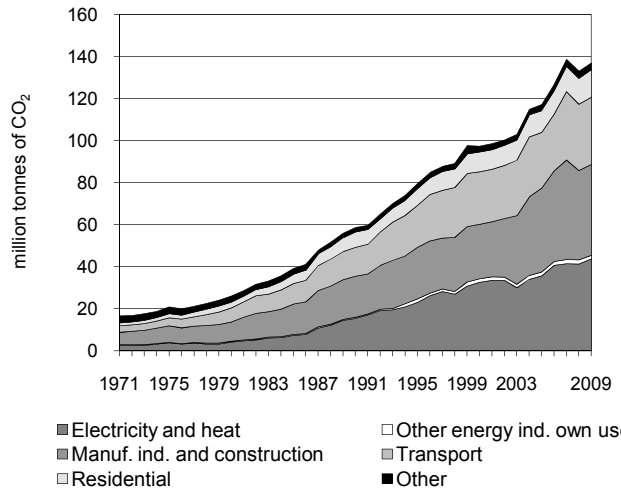


Figure 3. CO₂ emissions by sector

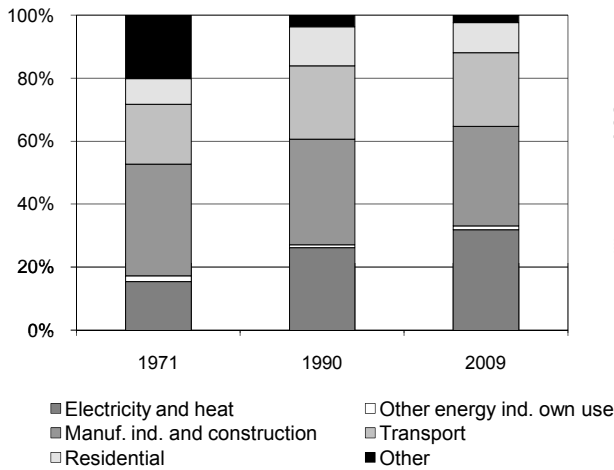


Figure 4. Reference vs Sectoral Approach

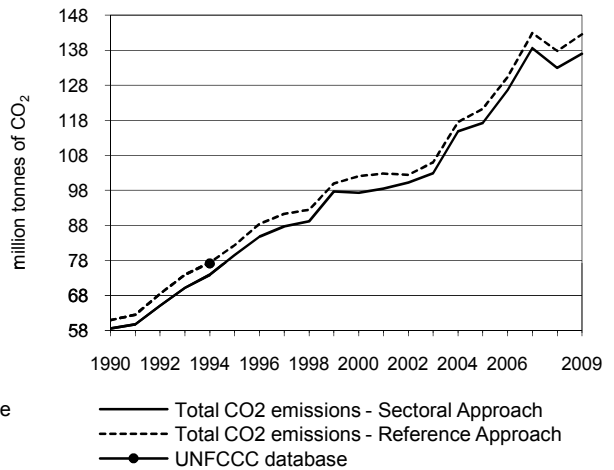


Figure 5. Electricity generation by fuel

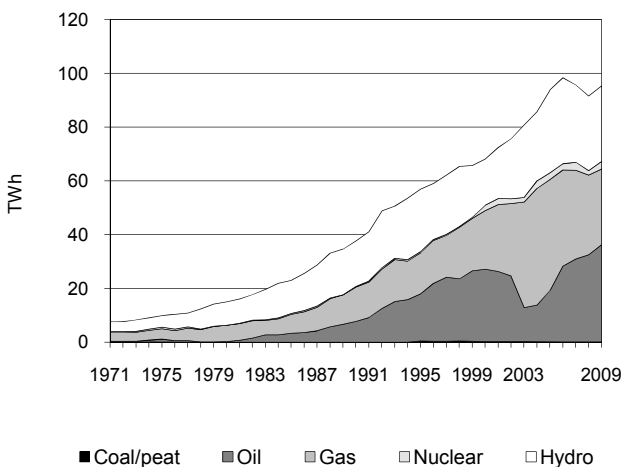
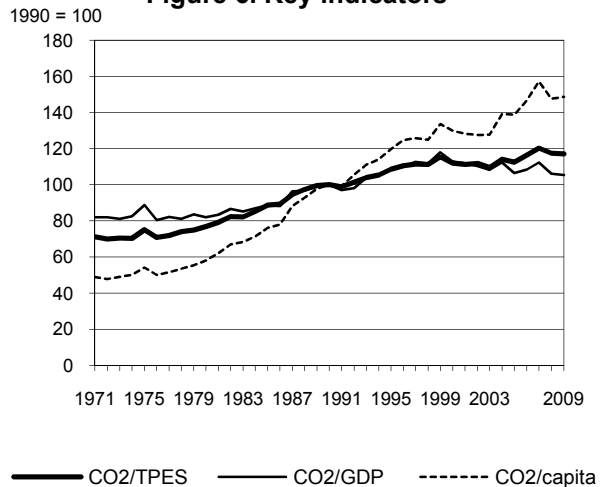


Figure 6. Key indicators



Pakistan

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	58.60	79.52	97.30	117.21	138.60	132.98	136.94	133.7%
CO ₂ Reference Approach (Mt of CO ₂)	60.97	82.33	102.05	121.28	142.88	137.77	142.50	133.7%
TPES (PJ)	1 793	2 243	2 660	3 189	3 525	3 466	3 581	99.7%
TPES (Mtoe)	42.83	53.58	63.52	76.17	84.20	82.78	85.52	99.7%
GDP (billion 2000 USD)	50.25	63.00	73.95	94.36	105.88	107.57	111.48	121.8%
GDP PPP (billion 2000 USD)	178.00	223.17	261.97	334.25	375.06	381.05	394.89	121.8%
Population (millions)	107.98	122.38	138.08	155.77	162.59	166.11	169.71	57.2%
CO ₂ / TPES (t CO ₂ per TJ)	32.7	35.4	36.6	36.8	39.3	38.4	38.2	17.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.17	1.26	1.32	1.24	1.31	1.24	1.23	5.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.33	0.36	0.37	0.35	0.37	0.35	0.35	5.3%
CO ₂ / population (t CO ₂ per capita)	0.54	0.65	0.70	0.75	0.85	0.80	0.81	48.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	16.50	61.79	58.66	-	136.94	133.7%
Main activity producer elec. and heat	0.27	27.58	15.78	-	43.63	184.1%
Unallocated autoproducers	-	0.03	-	-	0.03	x
Other energy industry own use	-	1.03	0.64	-	1.68	196.0%
Manufacturing industries and construction	16.22	3.32	23.78	-	43.32	120.9%
Transport	-	26.85	5.14	-	31.99	134.5%
<i>of which: road</i>	-	26.03	5.14	-	31.17	144.3%
Other	-	2.97	13.32	-	16.29	72.9%
<i>of which: residential</i>	-	1.68	11.40	-	13.07	79.4%
Reference Approach	17.28	63.93	61.29	-	142.50	133.7%
Diff. due to losses and/or transformation	0.24	1.31	2.63	-	4.18	
Statistical differences	0.54	0.83	-	-	1.37	
<i>Memo: international marine bunkers</i>	-	0.73	-	-	0.73	583.9%
<i>Memo: international aviation bunkers</i>	-	2.54	-	-	2.54	82.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	27.58	299.9%	8.2	8.2
Road - oil	26.03	104.0%	7.7	15.9
Manufacturing industries - gas	23.78	183.0%	7.1	23.0
Manufacturing industries - coal/peat	16.22	132.2%	4.8	27.8
Main activity prod. elec. and heat - gas	15.78	88.0%	4.7	32.5
Residential - gas	11.40	228.4%	3.4	35.9
Road - gas	5.14	+	1.5	37.5
Manufacturing industries - oil	3.32	-21.4%	1.0	38.4
Non-specified other - gas	1.92	200.0%	0.6	39.0
Residential - oil	1.68	-55.9%	0.5	39.5
Non-specified other - oil	1.29	-13.4%	0.4	39.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>136.94</i>	<i>133.7%</i>	<i>40.7</i>	<i>40.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Panama

Figure 1. CO₂ emissions by fuel

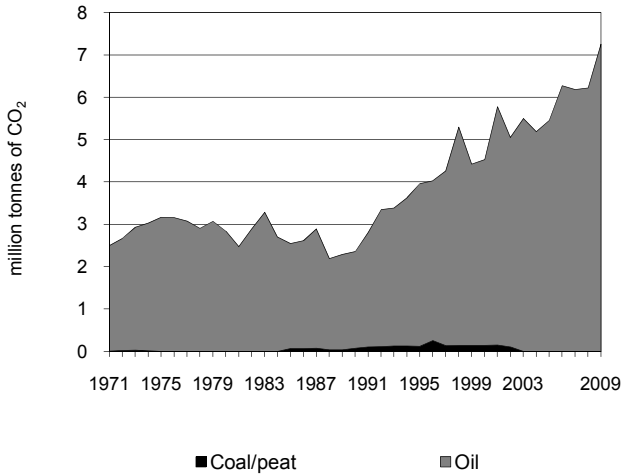


Figure 2. CO₂ emissions by sector

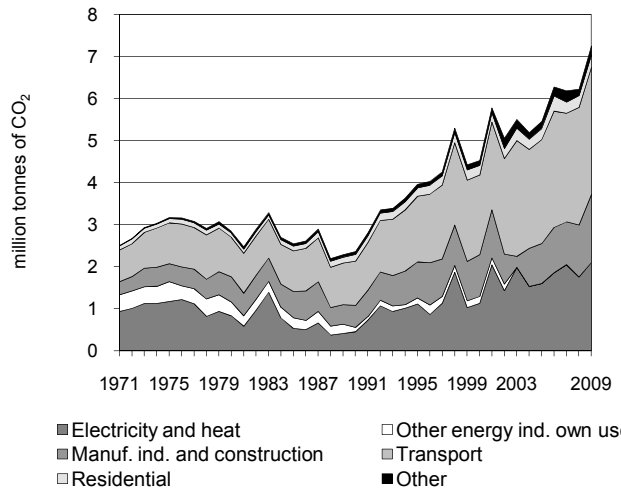


Figure 3. CO₂ emissions by sector

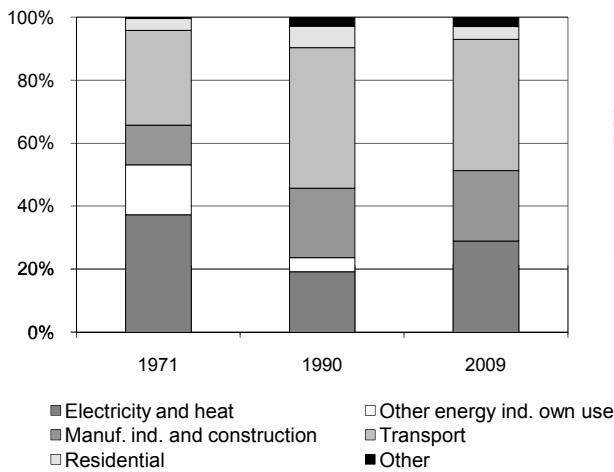


Figure 4. Reference vs Sectoral Approach

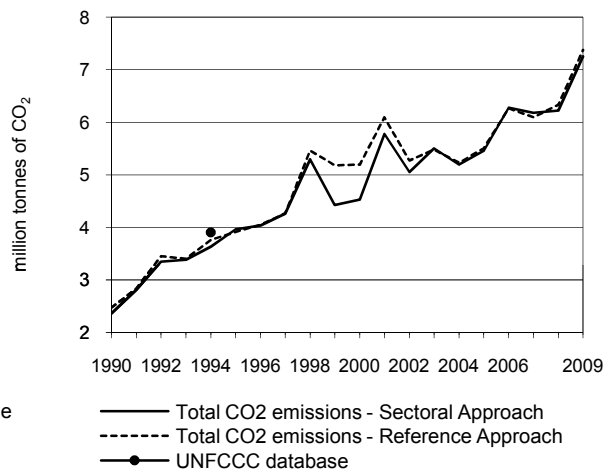


Figure 5. Electricity generation by fuel

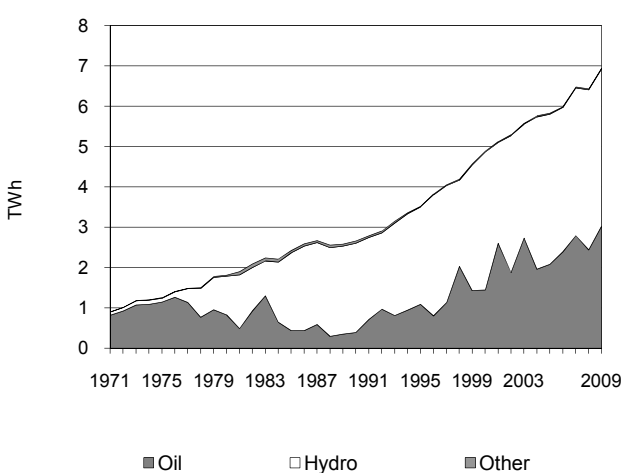
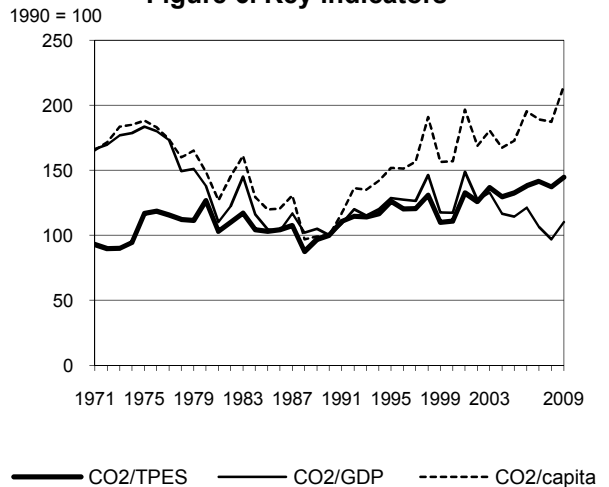


Figure 6. Key indicators



Panama

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2.36	3.96	4.53	5.45	6.18	6.22	7.25	207.6%
CO ₂ Reference Approach (Mt of CO ₂)	2.47	3.91	5.19	5.50	6.09	6.33	7.38	198.9%
TPES (PJ)	61	81	106	107	113	117	130	112.7%
TPES (Mtoe)	1.46	1.94	2.52	2.54	2.70	2.80	3.10	112.7%
GDP (billion 2000 USD)	7.09	9.27	11.62	14.35	17.46	19.33	19.80	179.1%
GDP PPP (billion 2000 USD)	10.89	14.23	17.84	22.03	26.81	29.68	30.40	179.1%
Population (millions)	2.41	2.67	2.95	3.23	3.34	3.40	3.45	43.1%
CO ₂ / TPES (t CO ₂ per TJ)	38.6	48.8	42.9	51.2	54.6	53.0	55.9	44.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.33	0.43	0.39	0.38	0.35	0.32	0.37	10.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.22	0.28	0.25	0.25	0.23	0.21	0.24	10.2%
CO ₂ / population (t CO ₂ per capita)	0.98	1.48	1.53	1.69	1.85	1.83	2.10	114.9%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	7.25	-	-	7.25	207.6%
Main activity producer elec. and heat	-	2.10	-	-	2.10	416.7%
Unallocated autoproducers
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	-	1.62	-	-	1.62	211.4%
Transport	-	3.03	-	-	3.03	187.6%
<i>of which: road</i>	-	1.61	-	-	1.61	149.0%
Other	-	0.51	-	-	0.51	123.1%
<i>of which: residential</i>	-	0.29	-	-	0.29	82.4%
Reference Approach	-	7.38	-	-	7.38	198.9%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.12	-	-	0.12	-
<i>Memo: international marine bunkers</i>	-	0.34	-	-	0.34	234.4%
<i>Memo: international aviation bunkers</i>	-	0.94	-	-	0.94	367.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	2.10	416.7%	16.9	16.9
Manufacturing industries - oil	1.62	265.1%	13.1	30.0
Road - oil	1.61	149.0%	13.0	43.0
Other transport - oil	1.42	248.9%	11.4	54.4
Residential - oil	0.29	82.4%	2.4	56.7
Non-specified other - oil	0.21	221.4%	1.7	58.5
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>7.25</i>	<i>207.6%</i>	<i>58.5</i>	<i>58.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Paraguay

Figure 1. CO₂ emissions by fuel

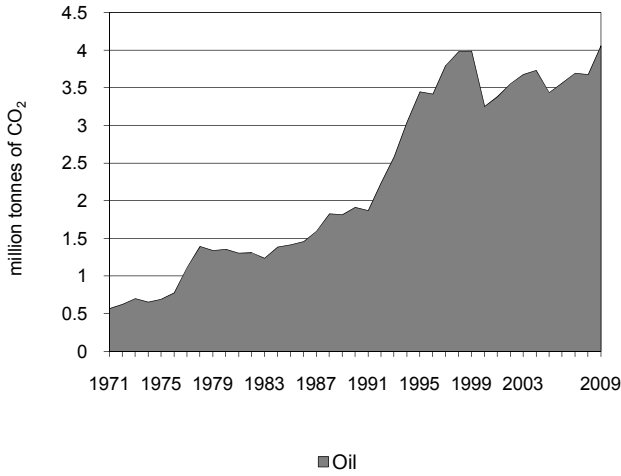


Figure 2. CO₂ emissions by sector

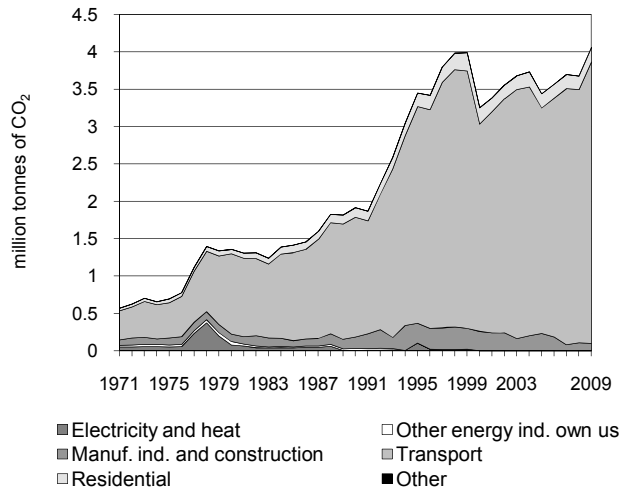


Figure 3. CO₂ emissions by sector

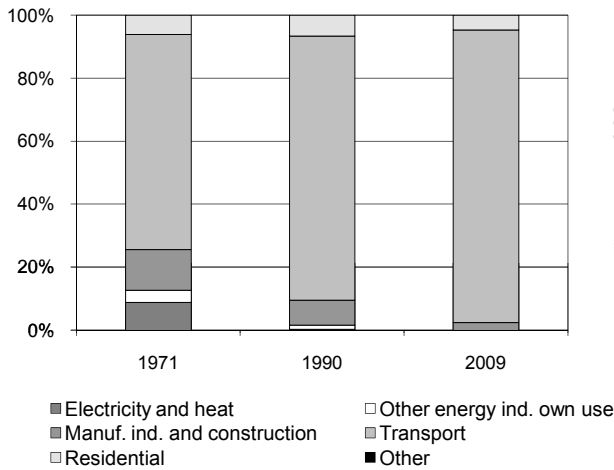


Figure 4. Reference vs Sectoral Approach

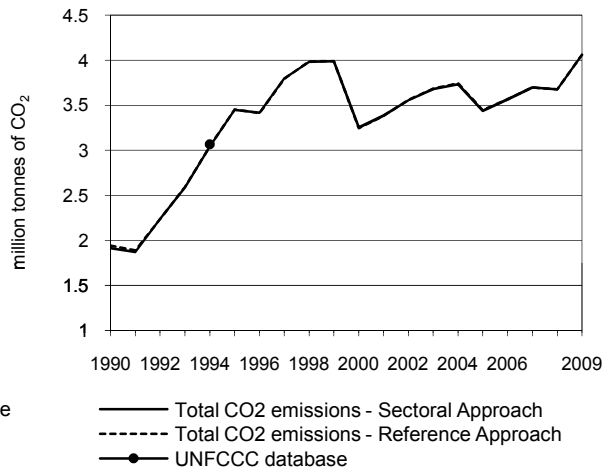


Figure 5. Electricity generation by fuel

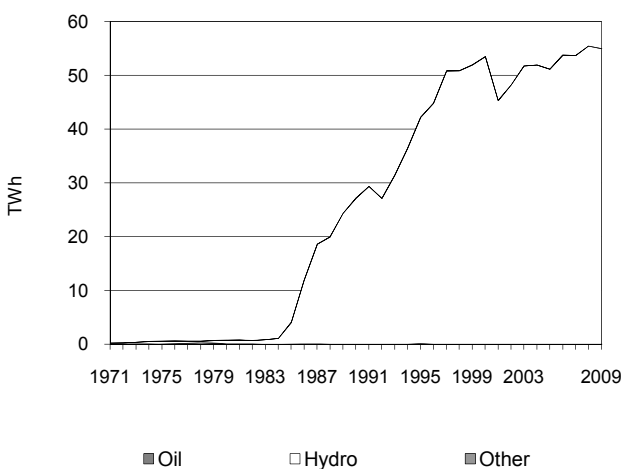
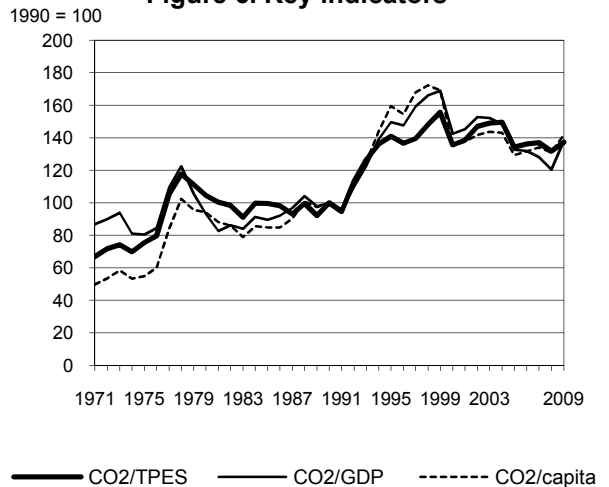


Figure 6. Key indicators



Paraguay

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	1.91	3.45	3.25	3.44	3.70	3.68	4.06	112.1%
CO ₂ Reference Approach (Mt of CO ₂)	1.94	3.45	3.25	3.45	3.70	3.68	4.06	108.9%
TPES (PJ)	129	164	161	172	181	188	199	54.7%
TPES (Mtoe)	3.07	3.93	3.85	4.11	4.33	4.48	4.75	54.7%
GDP (billion 2000 USD)	5.93	7.14	7.07	8.03	8.94	9.46	9.10	53.4%
GDP PPP (billion 2000 USD)	18.67	22.49	22.27	25.27	28.15	29.79	28.64	53.4%
Population (millions)	4.25	4.80	5.35	5.90	6.13	6.24	6.35	49.4%
CO ₂ / TPES (t CO ₂ per TJ)	14.9	21.0	20.2	20.0	20.4	19.6	20.4	37.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.32	0.48	0.46	0.43	0.41	0.39	0.45	38.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.10	0.15	0.15	0.14	0.13	0.12	0.14	38.2%
CO ₂ / population (t CO ₂ per capita)	0.45	0.72	0.61	0.58	0.60	0.59	0.64	42.0%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	4.06	-	-	4.06	112.1%
Main activity producer elec. and heat	-	-	-	-	-	-100.0%
Unallocated autoproducers
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	-	0.10	-	-	0.10	-35.3%
Transport	-	3.77	-	-	3.77	134.9%
<i>of which: road</i>	-	3.72	-	-	3.72	137.8%
Other	-	0.19	-	-	0.19	52.0%
<i>of which: residential</i>	-	0.19	-	-	0.19	52.0%
Reference Approach	-	4.06	-	-	4.06	108.9%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.06	-	-	0.06	105.6%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	3.72	137.8%	14.1	14.1
Residential - oil	0.19	52.0%	0.7	14.8
Manufacturing industries - oil	0.10	-35.3%	0.4	15.2
Other transport - oil	0.05	25.1%	0.2	15.4
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>4.06</i>	<i>112.1%</i>	<i>15.4</i>	<i>15.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Peru

Figure 1. CO₂ emissions by fuel

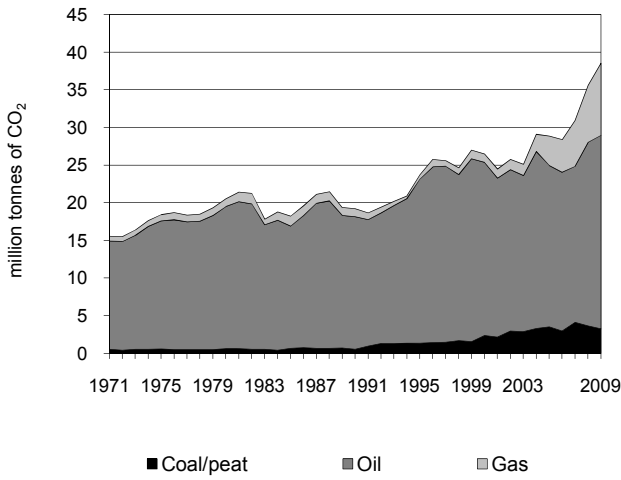


Figure 2. CO₂ emissions by sector

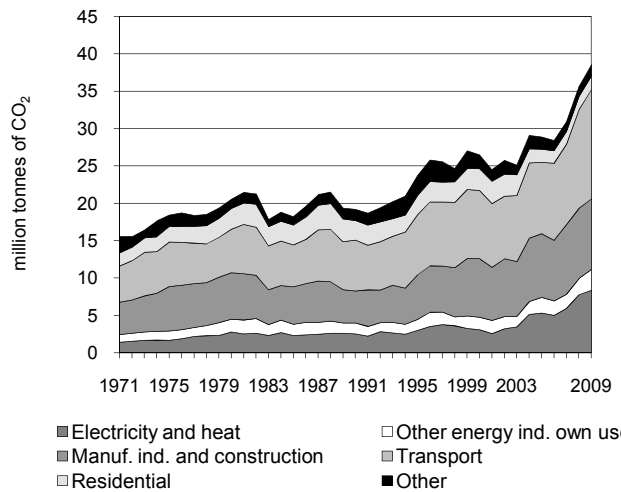


Figure 3. CO₂ emissions by sector

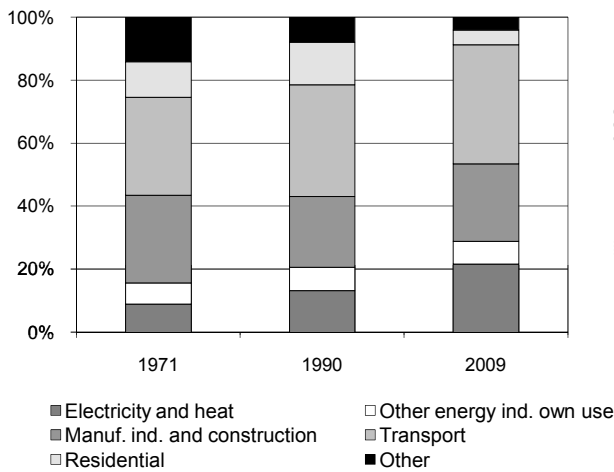


Figure 4. Reference vs Sectoral Approach

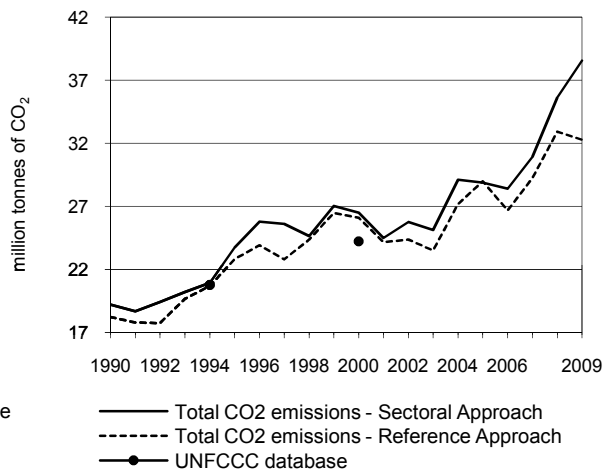


Figure 5. Electricity generation by fuel

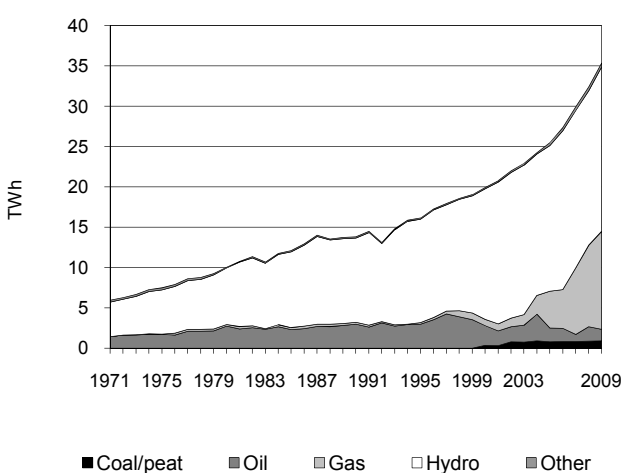
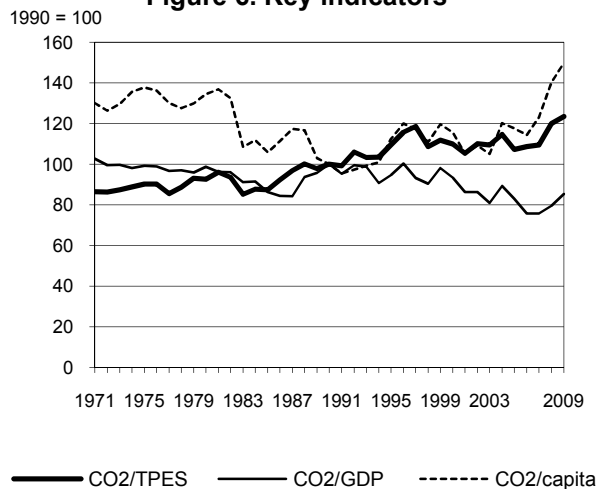


Figure 6. Key indicators



Peru

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	19.21	23.73	26.49	28.87	30.92	35.62	38.55	100.7%
CO ₂ Reference Approach (Mt of CO ₂)	18.22	22.82	26.08	28.98	29.24	32.92	32.28	77.2%
TPES (PJ)	408	459	512	571	600	630	663	62.6%
TPES (Mtoe)	9.73	10.97	12.22	13.65	14.33	15.04	15.83	62.6%
GDP (billion 2000 USD)	36.09	47.13	53.29	65.43	76.75	84.24	84.96	135.4%
GDP PPP (billion 2000 USD)	83.02	108.42	122.59	150.52	176.56	193.79	195.44	135.4%
Population (millions)	21.78	23.94	26.00	27.84	28.51	28.84	29.17	33.9%
CO ₂ / TPES (t CO ₂ per TJ)	47.1	51.7	51.8	50.5	51.5	56.6	58.2	23.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.53	0.50	0.50	0.44	0.40	0.42	0.45	-14.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.23	0.22	0.22	0.19	0.18	0.18	0.20	-14.7%
CO ₂ / population (t CO ₂ per capita)	0.88	0.99	1.02	1.04	1.08	1.24	1.32	49.9%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	3.27	25.70	9.58	-	38.55	100.7%
Main activity producer elec. and heat	1.00	1.09	5.51	-	7.60	843.4%
Unallocated autoproducers	-	0.52	0.23	-	0.76	-56.4%
Other energy industry own use	-	1.05	1.74	-	2.79	94.7%
Manufacturing industries and construction	2.27	5.84	1.34	-	9.45	119.5%
Transport	-	13.99	0.60	-	14.59	114.4%
<i>of which: road</i>	-	13.97	-	-	13.97	113.3%
Other	-	3.20	0.16	-	3.37	-18.4%
<i>of which: residential</i>	-	1.79	0.01	-	1.80	-30.6%
Reference Approach	3.24	19.45	9.58	-	32.28	77.2%
Diff. due to losses and/or transformation	-	-0.36	-	-	-0.36	
Statistical differences	-0.04	-5.89	0.01	-	-5.92	
<i>Memo: international marine bunkers</i>	-	0.23	-	-	0.23	563.7%
<i>Memo: international aviation bunkers</i>	-	1.74	-	-	1.74	170.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	13.97	113.3%	21.0	21.0
Manufacturing industries - oil	5.84	57.9%	8.8	29.8
Main activity prod. elec. and heat - gas	5.51	x	8.3	38.1
Manufacturing industries - coal/peat	2.27	314.3%	3.4	41.5
Residential - oil	1.79	-27.4%	2.7	44.2
Other energy industry own use - gas	1.74	138.4%	2.6	46.9
Non-specified other - oil	1.41	-7.8%	2.1	49.0
Manufacturing industries - gas	1.34	+	2.0	51.0
Main activity prod. elec. and heat - oil	1.09	35.4%	1.6	52.6
Other energy industry own use - oil	1.05	49.4%	1.6	54.2
Main activity prod. elec. and heat - coal/peat	1.00	x	1.5	55.7
<i>Memo: total CO₂ from fuel combustion</i>	38.55	100.7%	58.0	58.0

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Philippines

Figure 1. CO₂ emissions by fuel

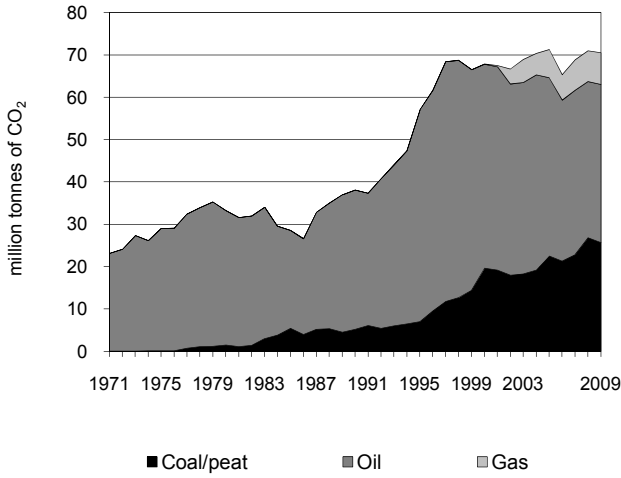


Figure 2. CO₂ emissions by sector

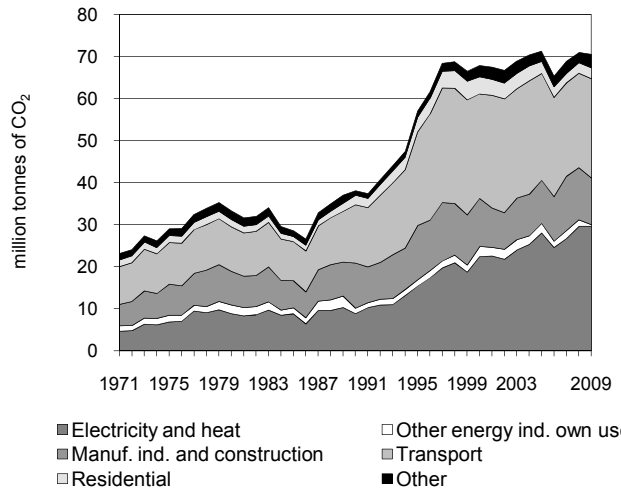


Figure 3. CO₂ emissions by sector

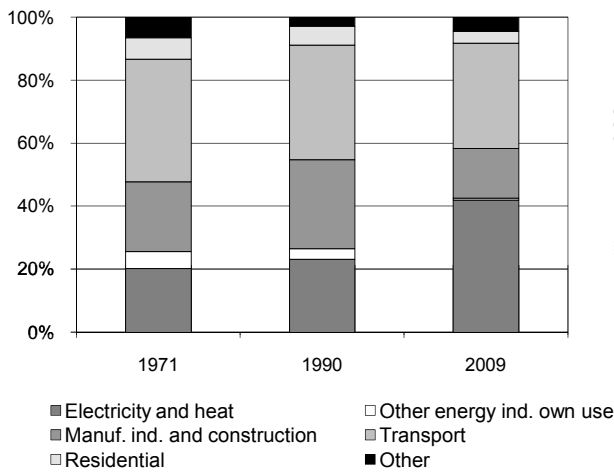


Figure 4. Reference vs Sectoral Approach

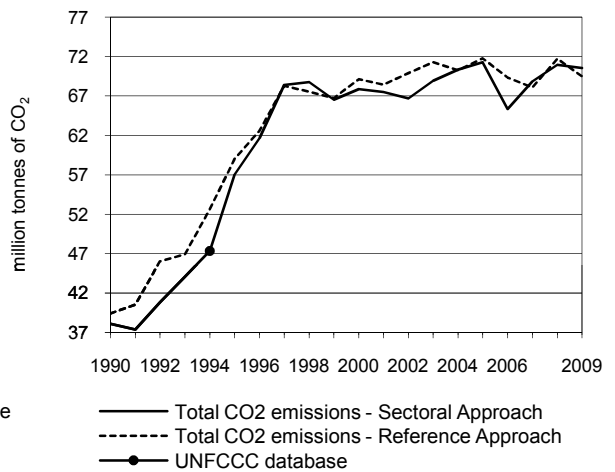


Figure 5. Electricity generation by fuel

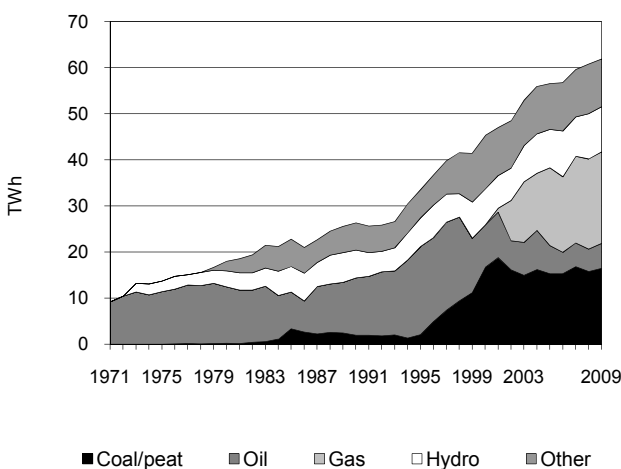
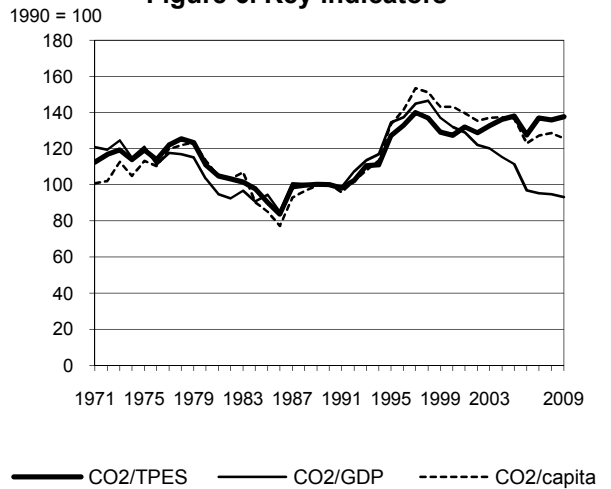


Figure 6. Key indicators



Philippines

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	38.11	57.02	67.85	71.29	68.85	70.96	70.54	85.1%
CO ₂ Reference Approach (Mt of CO ₂)	39.38	59.04	69.12	71.77	68.06	71.74	69.51	76.5%
TPES (PJ)	1 210	1 423	1 692	1 640	1 597	1 658	1 626	34.4%
TPES (Mtoe)	28.89	33.98	40.42	39.18	38.14	39.61	38.84	34.4%
GDP (billion 2000 USD)	56.23	62.59	75.91	94.52	106.59	110.56	111.74	98.7%
GDP PPP (billion 2000 USD)	226.29	251.89	305.50	380.39	428.94	444.96	449.68	98.7%
Population (millions)	62.43	69.97	77.69	85.50	88.72	90.35	91.98	47.3%
CO ₂ / TPES (t CO ₂ per TJ)	31.5	40.1	40.1	43.5	43.1	42.8	43.4	37.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.68	0.91	0.89	0.75	0.65	0.64	0.63	-6.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.17	0.23	0.22	0.19	0.16	0.16	0.16	-6.8%
CO ₂ / population (t CO ₂ per capita)	0.61	0.82	0.87	0.83	0.78	0.79	0.77	25.6%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	25.68	37.35	7.51	-	70.54	85.1%
Main activity producer elec. and heat	18.98	3.70	6.93	-	29.61	235.8%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	0.41	-	0.41	-68.1%
Manufacturing industries and construction	6.70	4.26	0.16	-	11.12	3.6%
Transport	-	23.58	-	-	23.58	70.0%
<i>of which: road</i>	-	20.96	-	-	20.96	79.7%
Other	-	5.81	-	-	5.81	72.2%
<i>of which: residential</i>	-	2.63	-	-	2.63	15.4%
Reference Approach	23.10	38.91	7.51	-	69.51	76.5%
Diff. due to losses and/or transformation	0.04	0.38	-	-	0.42	
Statistical differences	- 2.62	1.18	0.00	-	- 1.44	
<i>Memo: international marine bunkers</i>	-	0.62	-	-	0.62	201.6%
<i>Memo: international aviation bunkers</i>	-	3.09	-	-	3.09	187.4%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	20.96	79.7%	14.4	14.4
Main activity prod. elec. and heat - coal/peat	18.98	861.9%	13.0	27.4
Main activity prod. elec. and heat - gas	6.93	x	4.8	32.2
Manufacturing industries - coal/peat	6.70	106.7%	4.6	36.8
Manufacturing industries - oil	4.26	-43.2%	2.9	39.7
Main activity prod. elec. and heat - oil	3.70	-46.0%	2.5	42.2
Non-specified other - oil	3.17	191.4%	2.2	44.4
Residential - oil	2.63	15.4%	1.8	46.2
Other transport - oil	2.63	18.8%	1.8	48.0
Other energy industry own use - gas	0.41	x	0.3	48.3
Manufacturing industries - gas	0.16	x	0.1	48.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>70.54</i>	<i>85.1%</i>	<i>48.4</i>	<i>48.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Poland

Figure 1. CO₂ emissions by fuel

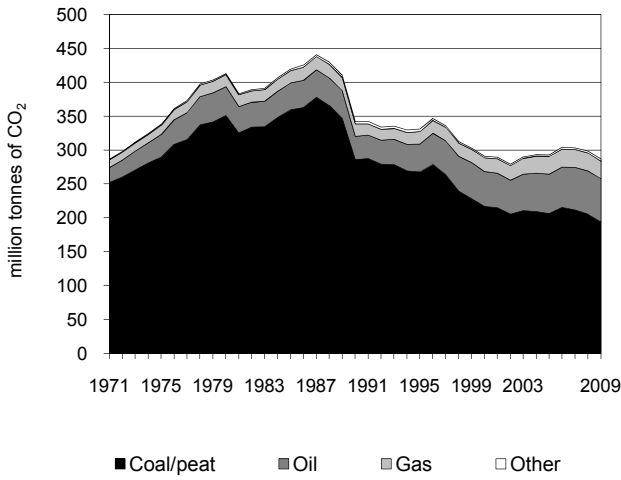


Figure 2. CO₂ emissions by sector

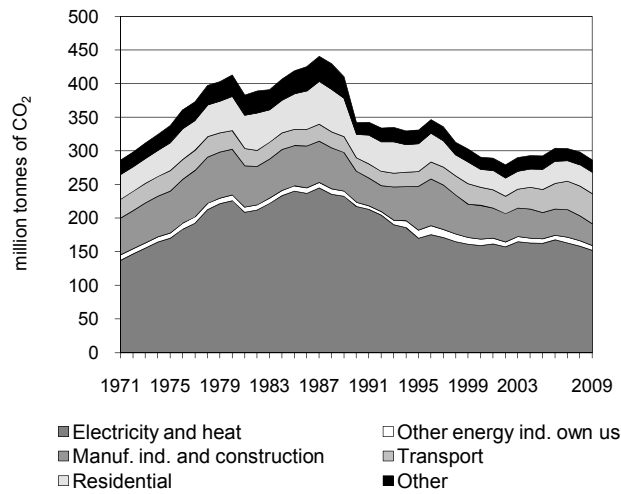


Figure 3. CO₂ emissions by sector

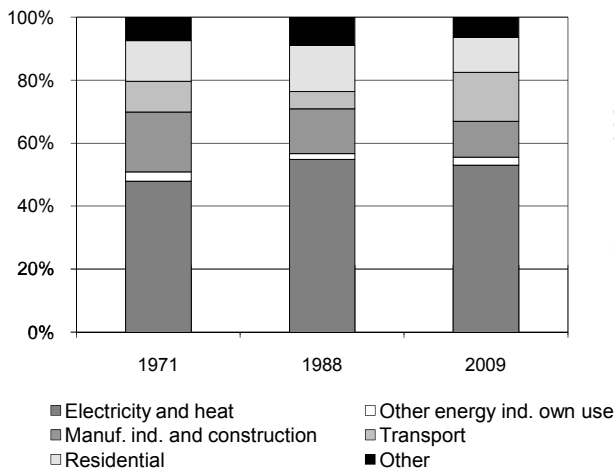


Figure 4. Reference vs Sectoral Approach

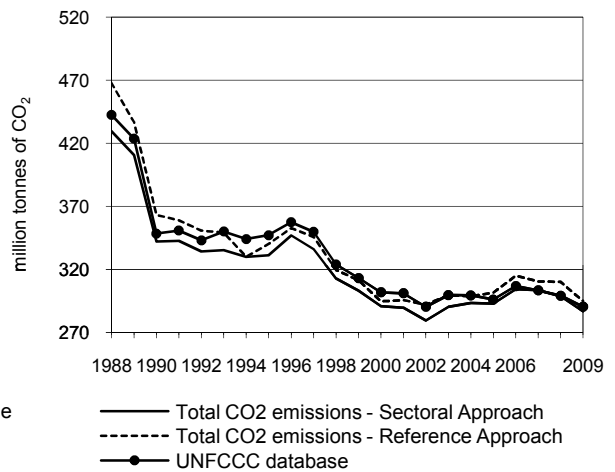


Figure 5. Electricity generation by fuel

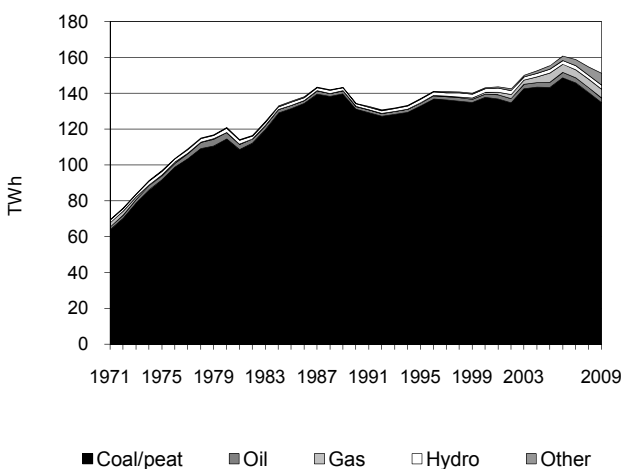
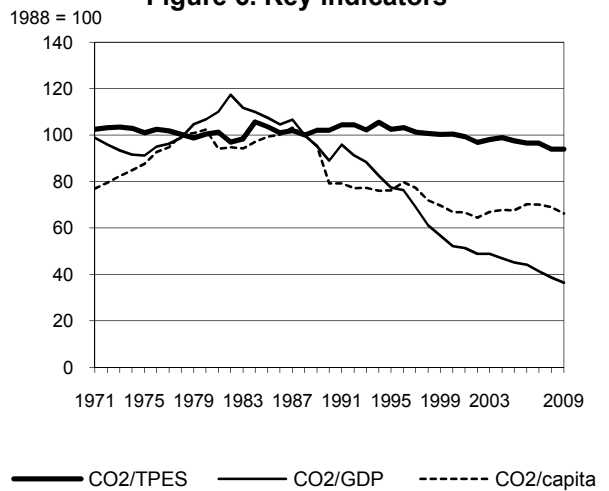


Figure 6. Key indicators



Poland *

Key indicators

	1988	1990	1995	2005	2007	2008	2009	% change 88-09
CO ₂ Sectoral Approach (Mt of CO ₂)	429.78	342.11	331.10	292.93	303.52	298.58	286.76	-33.3%
CO ₂ Reference Approach (Mt of CO ₂)	467.99	363.26	339.99	301.57	310.29	310.12	294.90	-37.0%
TPES (PJ)	5 538	4 317	4 165	3 868	4 049	4 098	3 935	-28.9%
TPES (Mtoe)	132.27	103.10	99.47	92.38	96.71	97.88	93.99	-28.9%
GDP (billion 2000 USD)	132.16	118.17	131.59	199.36	226.15	237.74	241.67	82.9%
GDP PPP (billion 2000 USD)	311.92	278.91	310.59	470.55	533.76	561.13	570.39	82.9%
Population (millions)	37.86	38.03	38.28	38.16	38.12	38.12	38.15	0.8%
CO ₂ / TPES (t CO ₂ per TJ)	77.6	79.3	79.5	75.7	75.0	72.9	72.9	-6.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	3.25	2.90	2.52	1.47	1.34	1.26	1.19	-63.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.38	1.23	1.07	0.62	0.57	0.53	0.50	-63.5%
CO ₂ / population (t CO ₂ per capita)	11.35	9.00	8.65	7.68	7.96	7.83	7.52	-33.8%

Ratios are based on the Sectoral Approach.

* According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, Poland is allowed to use 1988 as the base year.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 88-09
	Coal/peat	Oil	gas	Other **		
Sectoral Approach	193.91	63.82	25.84	3.19	286.76	-33.3%
Main activity producer elec. and heat	143.29	0.57	2.70	0.46	147.01	-11.7%
Unallocated autoproducers	3.79	1.14	0.20	0.13	5.26	-92.4%
Other energy industry own use	2.05	3.52	1.46	0.00	7.04	-13.1%
Manufacturing industries and construction	15.45	5.33	9.30	2.59	32.67	-46.3%
Transport	-	43.89	0.65	-	44.53	86.2%
of which: road	-	43.21	-	-	43.21	112.5%
Other	29.32	9.38	11.54	0.01	50.25	-50.4%
of which: residential	22.00	2.20	7.53	-	31.73	-49.6%
Reference Approach	200.27	64.60	26.84	3.19	294.90	-37.0%
Diff. due to losses and/or transformation	2.11	0.94	0.86	-	3.91	
Statistical differences	4.25	-0.16	0.14	0.00	4.23	
<i>Memo: international marine bunkers</i>	-	0.78	-	-	0.78	-54.9%
<i>Memo: international aviation bunkers</i>	-	1.44	-	-	1.44	28.5%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 88-09	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	143.29	-13.1%	38.4	38.4
Road - oil	43.21	112.5%	11.6	50.0
Residential - coal/peat	22.00	-61.3%	5.9	55.9
Manufacturing industries - coal/peat	15.45	-62.5%	4.1	60.0
Manufacturing industries - gas	9.30	-18.1%	2.5	62.5
Residential - gas	7.53	31.4%	2.0	64.5
Non-specified other sectors - coal/peat	7.32	-78.1%	2.0	66.5
Non-specified other - oil	7.18	84.8%	1.9	68.4
Manufacturing industries - oil	5.33	-17.8%	1.4	69.9
Non-specified other - gas	4.01	429.0%	1.1	70.9
Unallocated autoproducers - coal/peat	3.79	-94.0%	1.0	72.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>286.76</i>	<i>-33.3%</i>	<i>76.9</i>	<i>76.9</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Portugal

Figure 1. CO₂ emissions by fuel

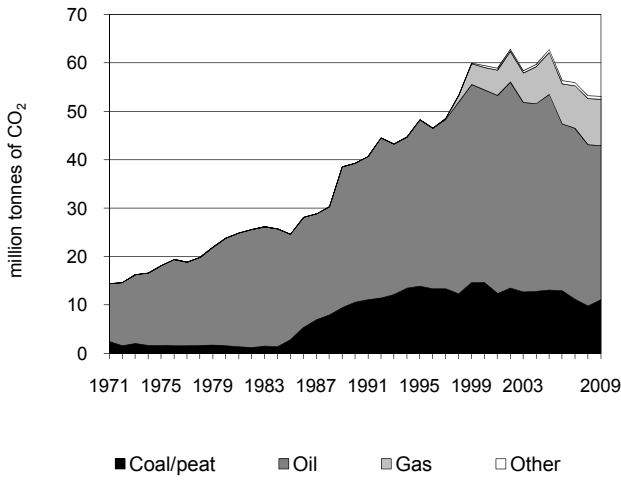


Figure 2. CO₂ emissions by sector

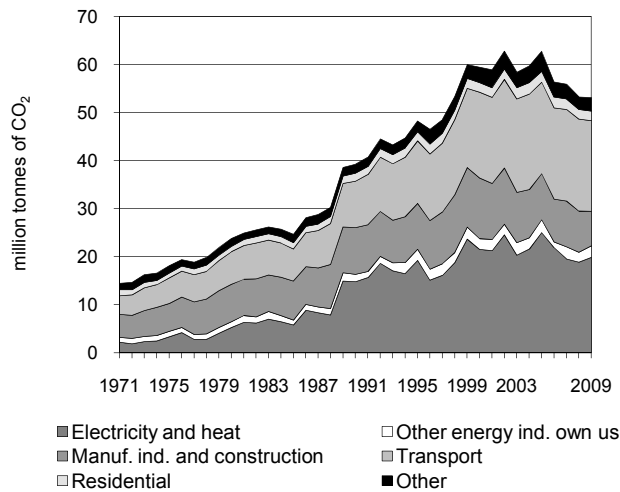


Figure 3. CO₂ emissions by sector

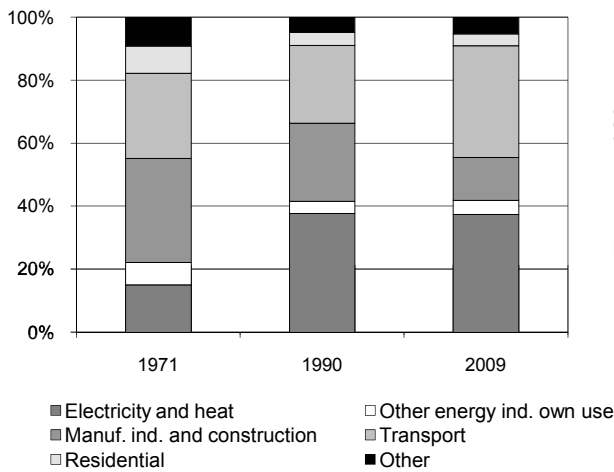


Figure 4. Reference vs Sectoral Approach

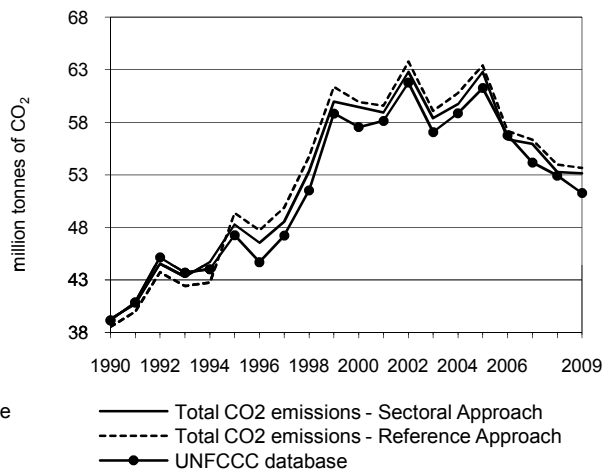


Figure 5. Electricity generation by fuel

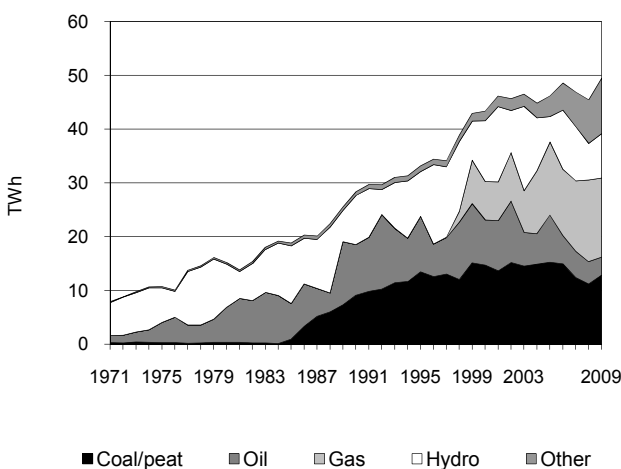
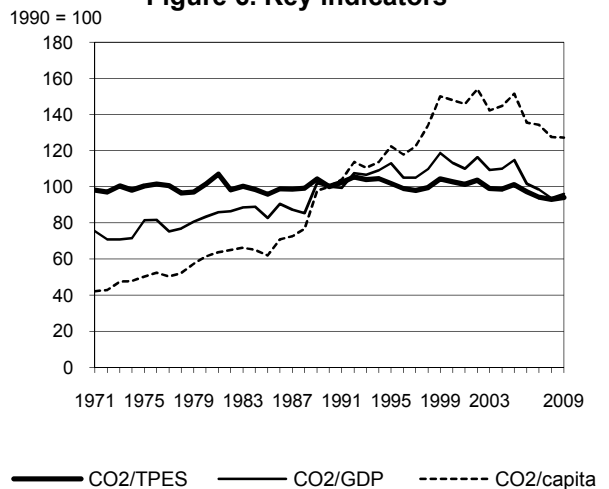


Figure 6. Key indicators



Portugal

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	39.28	48.27	59.44	62.80	55.94	53.26	53.14	35.3%
CO ₂ Reference Approach (Mt of CO ₂)	38.53	49.38	59.94	63.40	56.34	53.98	53.66	39.3%
TPES (PJ)	701	846	1 033	1 108	1 059	1 023	1 009	43.9%
TPES (Mtoe)	16.74	20.21	24.67	26.47	25.30	24.43	24.10	43.9%
GDP (billion 2000 USD)	87.47	95.18	117.01	121.81	126.52	126.51	123.35	41.0%
GDP PPP (billion 2000 USD)	135.66	147.62	181.50	188.94	196.23	196.22	191.32	41.0%
Population (millions)	10.00	10.03	10.23	10.55	10.61	10.62	10.63	6.4%
CO ₂ / TPES (t CO ₂ per TJ)	56.0	57.0	57.5	56.7	52.8	52.1	52.7	-6.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.45	0.51	0.51	0.52	0.44	0.42	0.43	-4.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.29	0.33	0.33	0.33	0.29	0.27	0.28	-4.1%
CO ₂ / population (t CO ₂ per capita)	3.93	4.81	5.81	5.95	5.27	5.01	5.00	27.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	11.09	31.82	9.59	0.63	53.14	35.3%
Main activity producer elec. and heat	11.00	1.44	4.25	-	16.69	17.4%
Unallocated autoproducers	-	0.95	1.76	0.46	3.17	439.9%
Other energy industry own use	-	2.19	0.22	-	2.41	57.6%
Manufacturing industries and construction	0.09	4.70	2.23	0.18	7.20	-26.0%
Transport	-	18.83	0.03	-	18.85	94.7%
<i>of which: road</i>	-	17.65	0.03	-	17.68	95.6%
Other	-	3.71	1.10	-	4.81	36.4%
<i>of which: residential</i>	-	1.39	0.62	-	2.01	23.3%
Reference Approach	11.11	32.06	9.85	0.63	53.66	39.3%
Diff. due to losses and/or transformation	-	0.46	0.07	-	0.53	
Statistical differences	0.02	-0.22	0.19	-	-0.00	
<i>Memo: international marine bunkers</i>	-	1.51	-	-	1.51	-20.8%
<i>Memo: international aviation bunkers</i>	-	2.43	-	-	2.43	63.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	17.65	95.3%	23.1	23.1
Main activity prod. elec. and heat - coal/peat	11.00	39.7%	14.4	37.5
Manufacturing industries - oil	4.70	-36.1%	6.1	43.6
Main activity prod. elec. and heat - gas	4.25	x	5.6	49.2
Non-specified other - oil	2.32	24.1%	3.0	52.2
Manufacturing industries - gas	2.23	x	2.9	55.1
Other energy industry own use - oil	2.19	46.3%	2.9	58.0
Unallocated autoproducers - gas	1.76	x	2.3	60.3
Main activity prod. elec. and heat - oil	1.44	-77.3%	1.9	62.2
Residential - oil	1.39	-9.1%	1.8	64.0
Other transport - oil	1.17	82.7%	1.5	65.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>53.14</i>	<i>35.3%</i>	<i>69.5</i>	<i>69.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Qatar

Figure 1. CO₂ emissions by fuel

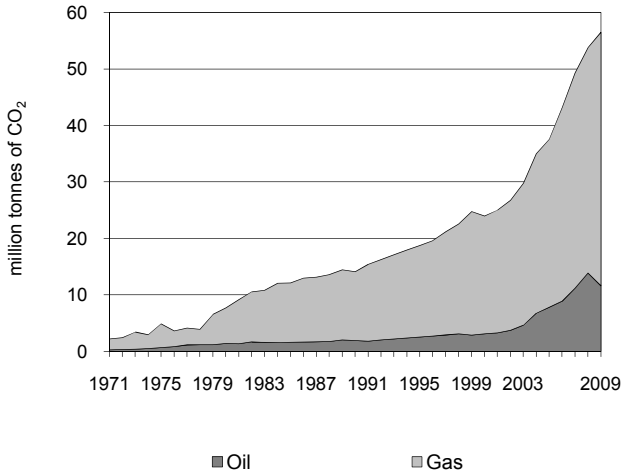


Figure 2. CO₂ emissions by sector

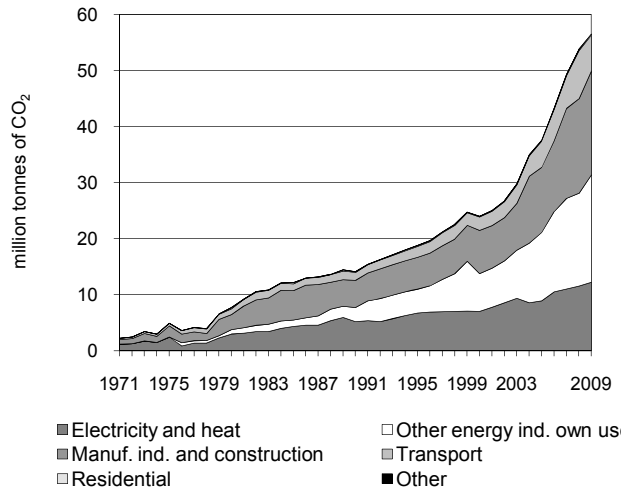


Figure 3. CO₂ emissions by sector

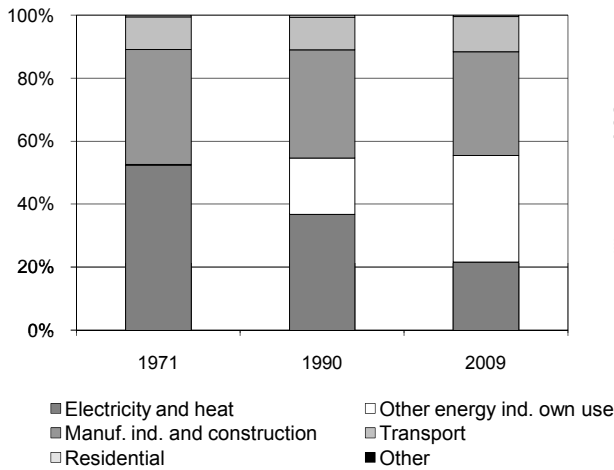


Figure 4. Reference vs Sectoral Approach

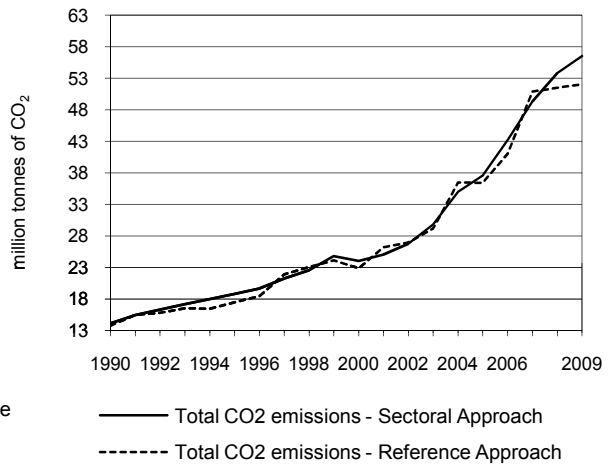


Figure 5. Electricity generation by fuel

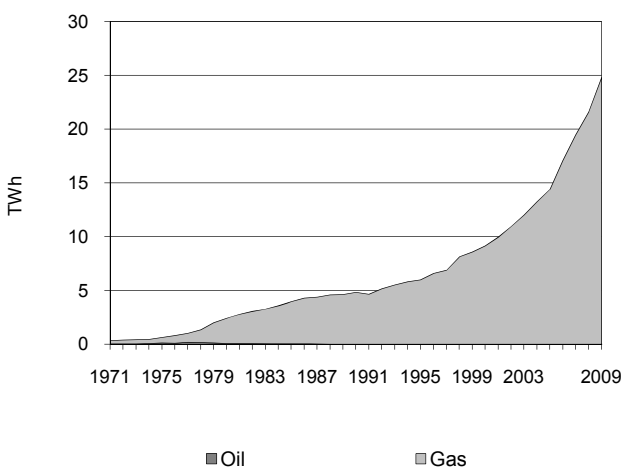
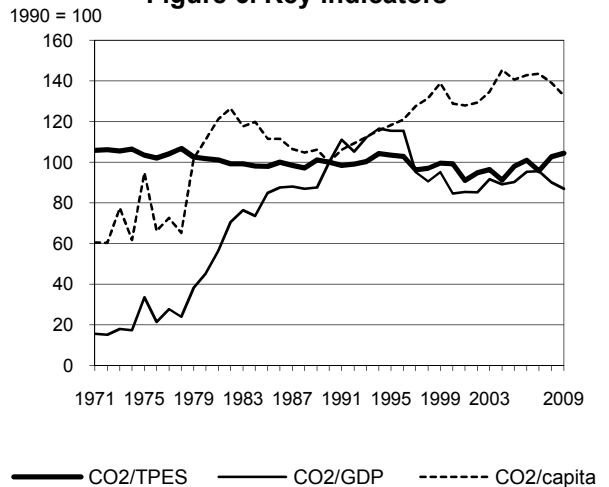


Figure 6. Key indicators



Qatar

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	14.11	18.78	24.01	37.58	49.30	53.81	56.53	300.6%
CO ₂ Reference Approach (Mt of CO ₂)	13.79	17.46	22.87	36.43	50.85	51.48	52.03	277.4%
TPES (PJ)	260	335	446	706	949	965	997	284.0%
TPES (Mtoe)	6.21	7.99	10.65	16.87	22.67	23.05	23.82	284.0%
GDP (billion 2000 USD)	8.82	10.18	17.76	26.07	32.24	37.34	40.71	361.5%
GDP PPP (billion 2000 USD)	7.90	9.12	15.91	23.35	28.88	33.45	36.47	361.5%
Population (millions)	0.47	0.53	0.62	0.89	1.14	1.28	1.41	201.7%
CO ₂ / TPES (t CO ₂ per TJ)	54.3	56.1	53.8	53.2	51.9	55.7	56.7	4.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.60	1.85	1.35	1.44	1.53	1.44	1.39	-13.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.79	2.06	1.51	1.61	1.71	1.61	1.55	-13.2%
CO ₂ / population (t CO ₂ per capita)	30.21	35.71	38.91	42.46	43.33	42.01	40.12	32.8%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	11.62	44.91	-	56.53	300.6%
Main activity producer elec. and heat	-	-	3.42	-	3.42	184.2%
Unallocated autoproducers	-	-	8.83	-	8.83	121.7%
Other energy industry own use	-	0.44	18.68	-	19.11	656.7%
Manufacturing industries and construction	-	4.61	13.98	-	18.59	283.7%
Transport	-	6.33	-	-	6.33	333.9%
<i>of which: road</i>	-	6.33	-	-	6.33	333.9%
Other	-	0.25	-	-	0.25	163.1%
<i>of which: residential</i>	-	0.25	-	-	0.25	163.1%
Reference Approach	-	9.12	42.91	-	52.03	277.4%
Diff. due to losses and/or transformation	-	-2.36	-	-	-2.36	
Statistical differences	-	-0.15	-1.99	-	-2.14	
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	3.14	-	-	3.14	811.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Other energy industry own use - gas	18.68	755.5%	20.6	20.6
Manufacturing industries - gas	13.98	191.9%	15.4	36.0
Unallocated autoproducers - gas	8.83	121.7%	9.7	45.8
Road - oil	6.33	333.9%	7.0	52.8
Manufacturing industries - oil	4.61	+	5.1	57.9
Main activity prod. elec. and heat - gas	3.42	184.2%	3.8	61.6
Other energy industry own use - oil	0.44	27.3%	0.5	62.1
Residential - oil	0.25	163.1%	0.3	62.4
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>56.53</i>	<i>300.6%</i>	<i>62.4</i>	<i>62.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Romania

Figure 1. CO₂ emissions by fuel

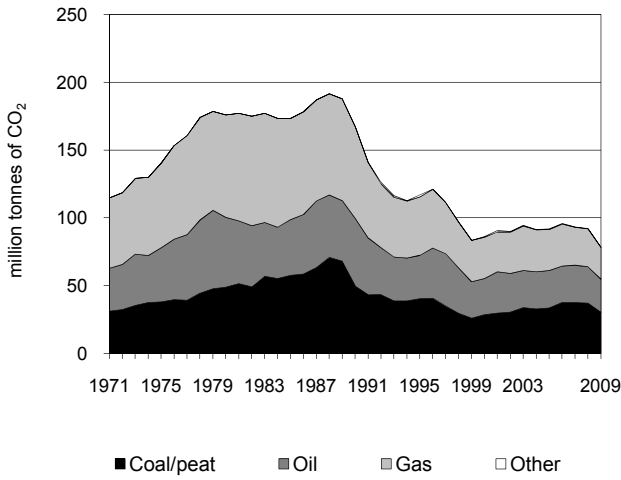


Figure 2. CO₂ emissions by sector

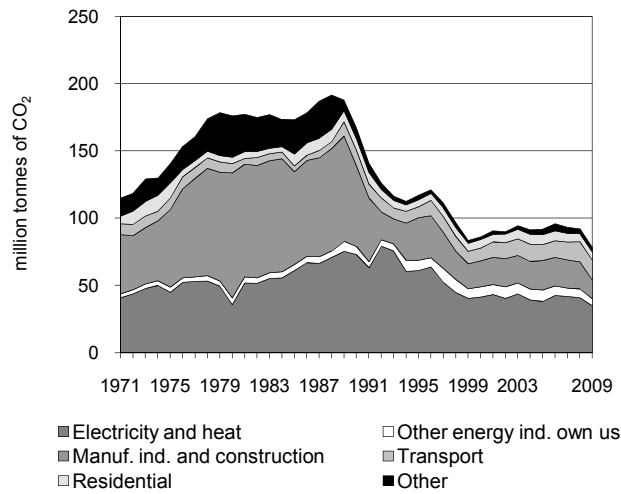


Figure 3. CO₂ emissions by sector

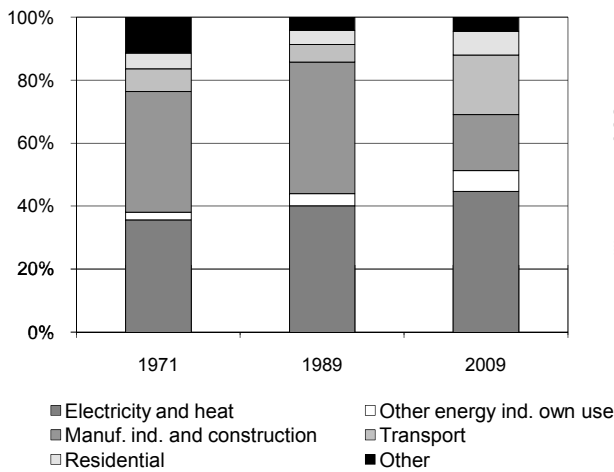


Figure 4. Reference vs Sectoral Approach

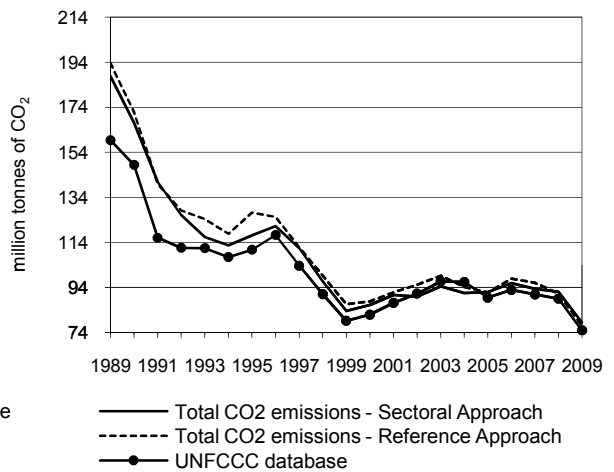


Figure 5. Electricity generation by fuel

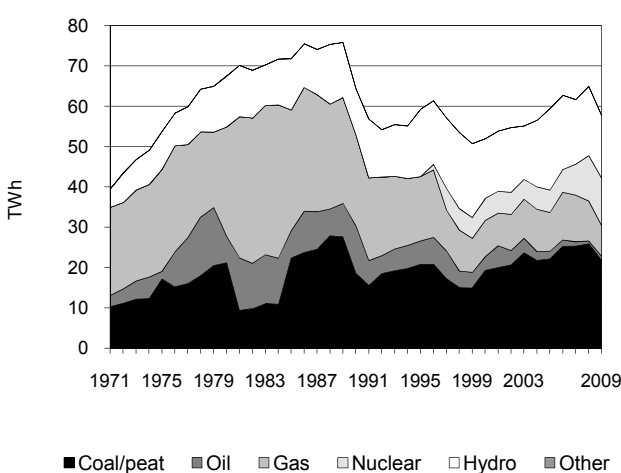
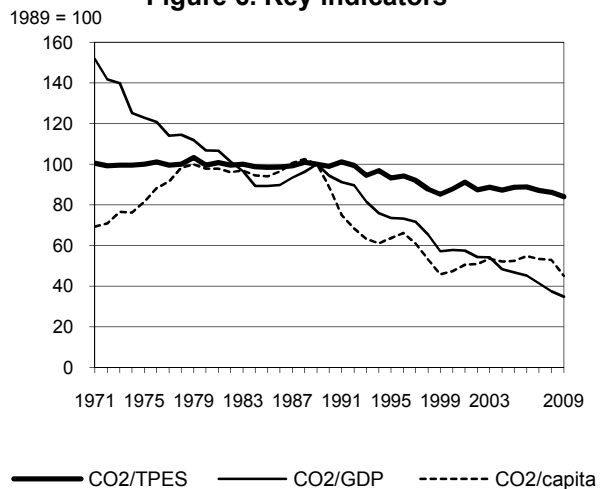


Figure 6. Key indicators



Romania *

Key indicators

	1989	1990	1995	2005	2007	2008	2009	% change 89-09
CO ₂ Sectoral Approach (Mt of CO ₂)	187.82	167.08	117.07	91.93	93.28	92.12	78.36	-58.3%
CO ₂ Reference Approach (Mt of CO ₂)	193.68	171.76	127.16	91.74	96.10	91.25	77.06	-60.2%
TPES (PJ)	2 897	2 606	1 938	1 601	1 651	1 650	1 441	-50.3%
TPES (Mtoe)	69.18	62.25	46.28	38.24	39.44	39.42	34.41	-50.3%
GDP (billion 2000 USD)	46.60	43.99	39.50	48.90	55.93	61.20	56.00	20.2%
GDP PPP (billion 2000 USD)	166.36	157.05	141.03	174.57	199.67	218.49	199.91	20.2%
Population (millions)	23.15	23.21	22.68	21.63	21.55	21.51	21.48	-7.2%
CO ₂ / TPES (t CO ₂ per TJ)	64.8	64.1	60.4	57.4	56.5	55.8	54.4	-16.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	4.03	3.80	2.96	1.88	1.67	1.51	1.40	-65.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.13	1.06	0.83	0.53	0.47	0.42	0.39	-65.3%
CO ₂ / population (t CO ₂ per capita)	8.11	7.20	5.16	4.25	4.33	4.28	3.65	-55.0%

Ratios are based on the Sectoral Approach.

* According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, Romania is allowed to use 1989 as the base year.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 89-09
	Coal/peat	Oil	gas	Other **		
Sectoral Approach	30.39	24.48	23.38	0.11	78.36	-58.3%
Main activity producer elec. and heat	24.82	1.28	6.43	-	32.52	-52.8%
Unallocated autoproducers	1.75	0.28	0.49	0.00	2.53	-60.9%
Other energy industry own use	0.19	3.38	1.53	0.03	5.13	-29.8%
Manufacturing industries and construction	3.54	2.92	7.46	0.08	14.00	-82.1%
Transport	-	14.66	0.13	-	14.79	41.0%
of which: road	-	13.86	-	-	13.86	54.4%
Other	0.10	1.96	7.33	-	9.39	-41.9%
of which: residential	0.06	0.80	5.02	-	5.88	-29.4%
Reference Approach	30.75	22.04	24.17	0.10	77.06	-60.2%
Diff. due to losses and/or transformation	0.56	-2.31	0.65	-	-1.10	
Statistical differences	-0.20	-0.13	0.15	-0.01	-0.19	
<i>Memo: international marine bunkers</i>	-	0.05	-	-	0.05	..
<i>Memo: international aviation bunkers</i>	-	0.38	-	-	0.38	-48.6%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 89-09	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	24.82	-28.6%	18.5	18.5
Road - oil	13.86	54.4%	10.3	28.8
Manufacturing industries - gas	7.46	-83.7%	5.6	34.4
Main activity prod. elec. and heat - gas	6.43	-71.1%	4.8	39.2
Residential - gas	5.02	-1.2%	3.7	42.9
Manufacturing industries - coal/peat	3.54	-84.2%	2.6	45.5
Other energy industry own use - oil	3.38	-46.8%	2.5	48.0
Manufacturing industries - oil	2.92	-71.9%	2.2	50.2
Non-specified other - gas	2.32	16.8%	1.7	51.9
Unallocated autoproducers - coal/peat	1.75	-72.9%	1.3	53.3
Other energy industry own use - gas	1.53	x	1.1	54.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>78.36</i>	<i>-58.3%</i>	<i>58.4</i>	<i>58.4</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Russian Federation

Figure 1. CO₂ emissions by fuel

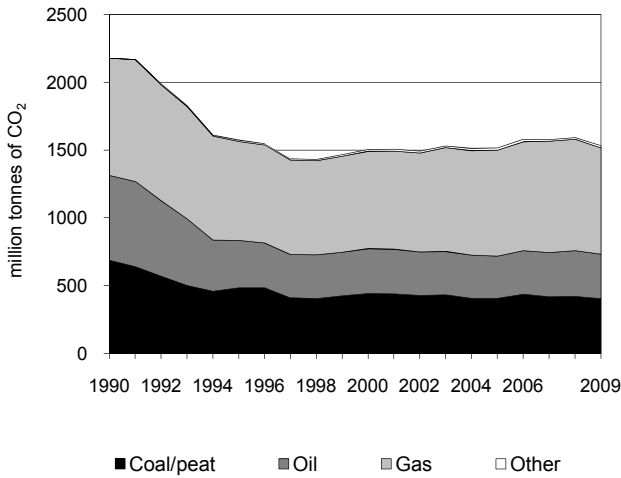


Figure 2. CO₂ emissions by sector

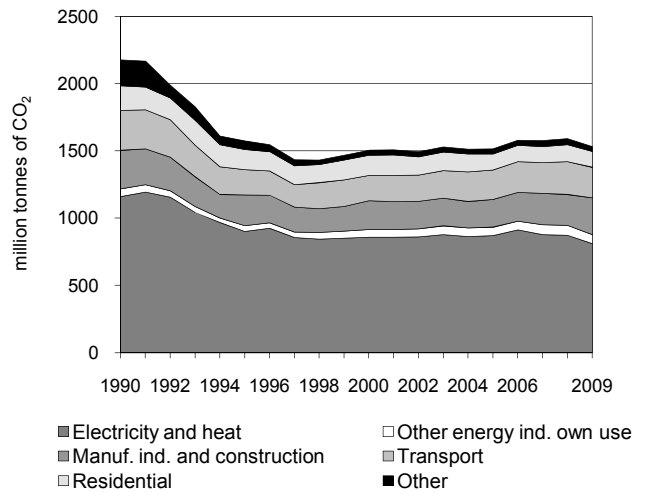


Figure 3. CO₂ emissions by sector

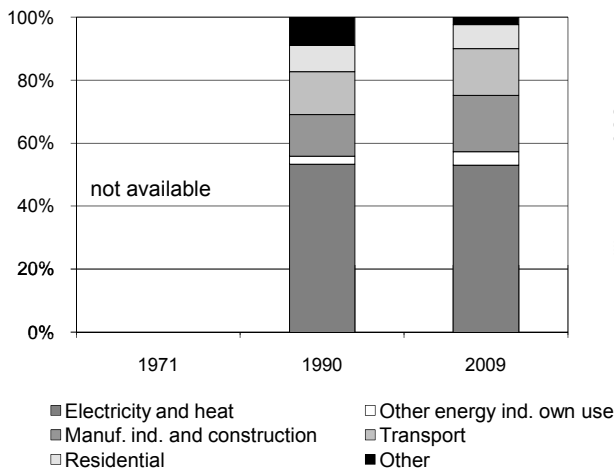


Figure 4. Reference vs Sectoral Approach

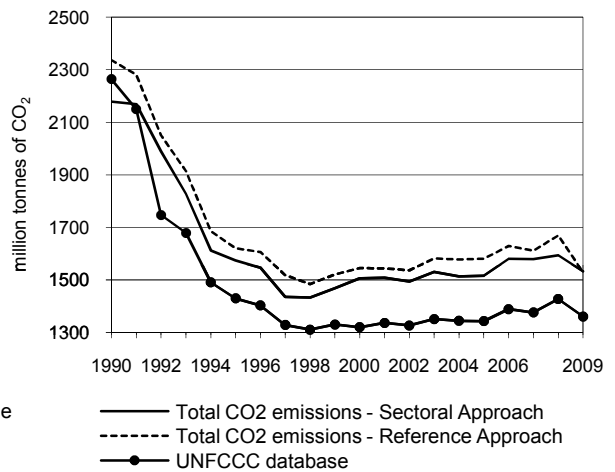


Figure 5. Electricity generation by fuel

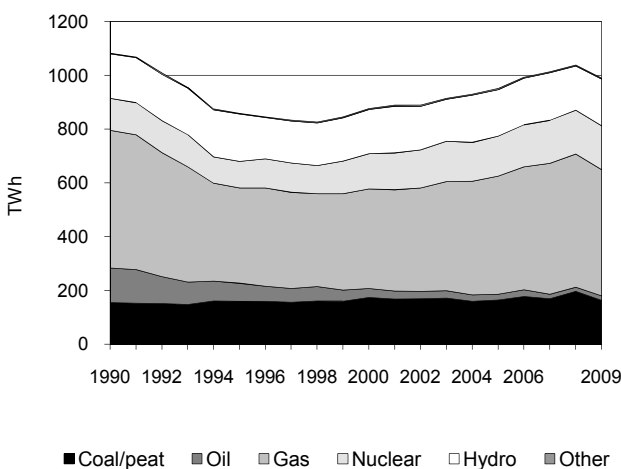
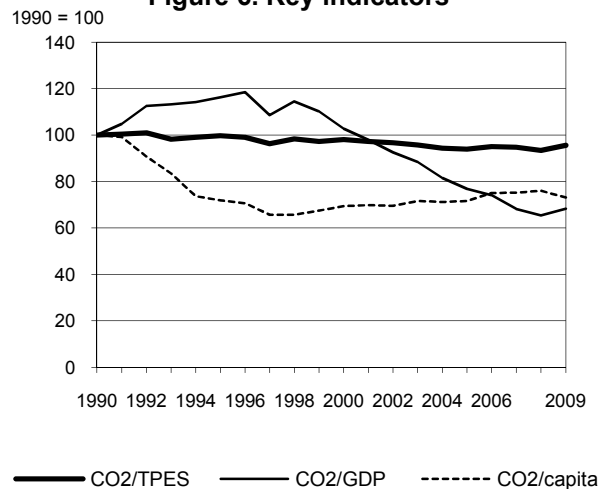


Figure 6. Key indicators



Russian Federation

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2 178.8	1 574.5	1 505.5	1 516.2	1 578.5	1 593.4	1 532.6	-29.7%
CO ₂ Reference Approach (Mt of CO ₂)	2 337.2	1 620.4	1 545.2	1 579.8	1 611.3	1 669.5	1 528.6	-34.6%
TPES (PJ)	36 810	26 655	25 927	27 286	28 160	28 825	27 085	-26.4%
TPES (Mtoe)	879.2	636.6	619.3	651.7	672.6	688.5	646.9	-26.4%
GDP (billion 2000 USD)	385.8	239.7	259.4	349.4	410.1	431.6	397.5	3.0%
GDP PPP (billion 2000 USD)	1 485.0	922.4	998.6	1 344.7	1 578.4	1 661.2	1 530.2	3.0%
Population (millions)	147.7	148.5	146.9	143.5	142.2	142.0	141.9	-3.9%
CO ₂ / TPES (t CO ₂ per TJ)	59.2	59.1	58.1	55.6	56.1	55.3	56.6	-4.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	5.65	6.57	5.80	4.34	3.85	3.69	3.86	-31.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.47	1.71	1.51	1.13	1.00	0.96	1.00	-31.7%
CO ₂ / population (t CO ₂ per capita)	14.75	10.61	10.25	10.57	11.10	11.22	10.80	-26.8%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	404.9	327.2	784.8	15.7	1 532.6	-29.7%
Main activity producer elec. and heat	186.7	12.5	304.0	-	503.2	-39.8%
Unallocated autoproducers	91.1	28.8	176.1	13.4	309.5	-5.2%
Other energy industry own use	6.0	34.7	24.6	0.6	66.0	16.4%
Manufacturing industries and construction	103.2	60.2	109.9	1.1	274.3	-4.5%
Transport	-	161.8	64.5	-	226.3	-23.6%
of which: road	-	136.6	0.2	-	136.8	-10.2%
Other	17.9	29.1	105.7	0.6	153.2	-59.4%
of which: residential	7.5	12.4	97.4	-	117.2	-36.0%
Reference Approach	370.5	343.9	798.4	15.7	1 528.6	-34.6%
Diff. due to losses and/or transformation	- 21.6	18.1	13.6	-	10.2	
Statistical differences	- 12.8	- 1.4	0.0	-	- 14.2	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	17.4	-	-	17.4	-34.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	304.0	-12.4%	13.0	13.0
Main activity prod. elec. and heat - coal/peat	186.7	-46.3%	8.0	21.0
Unallocated autoproducers - gas	176.1	-4.8%	7.6	28.6
Road - oil	136.6	-8.8%	5.9	34.5
Manufacturing industries - gas	109.9	5.3%	4.7	39.2
Manufacturing industries - coal/peat	103.2	6.4%	4.4	43.6
Residential - gas	97.4	-11.6%	4.2	47.8
Unallocated autoproducers - coal/peat	91.1	8.3%	3.9	51.7
Other transport - gas	64.3	-16.4%	2.8	54.4
Manufacturing industries - oil	60.2	-30.0%	2.6	57.0
Other energy industry own use - oil	34.7	-10.2%	1.5	58.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>1 532.6</i>	<i>-29.7%</i>	<i>65.7</i>	<i>65.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Saudi Arabia

Figure 1. CO₂ emissions by fuel

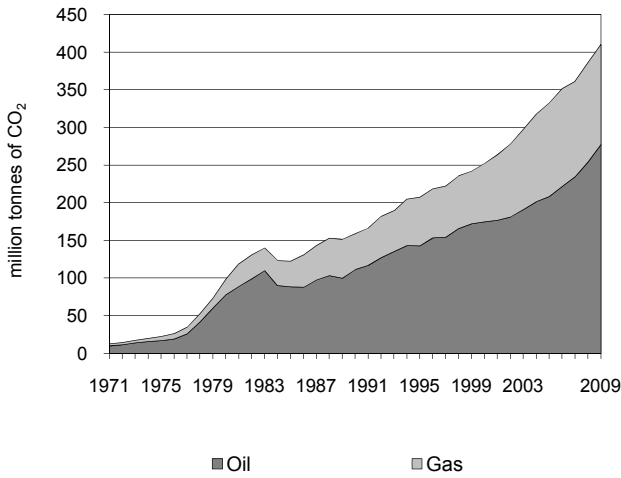


Figure 2. CO₂ emissions by sector

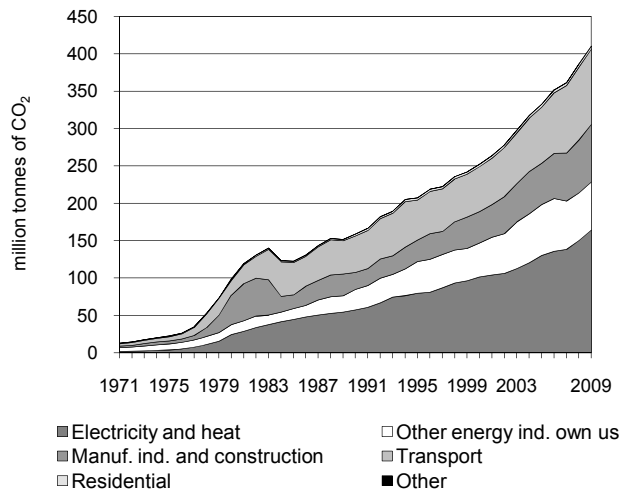


Figure 3. CO₂ emissions by sector

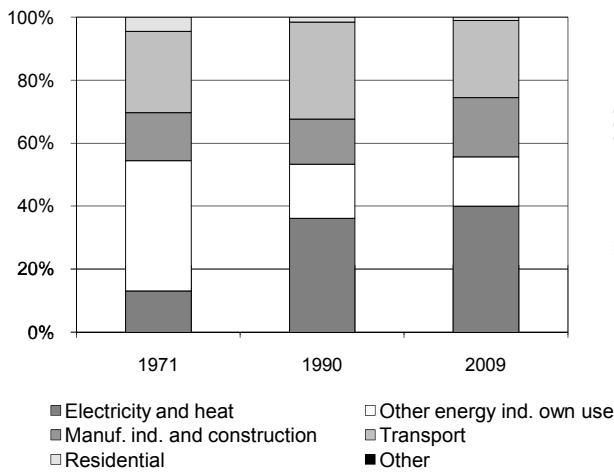


Figure 4. Reference vs Sectoral Approach

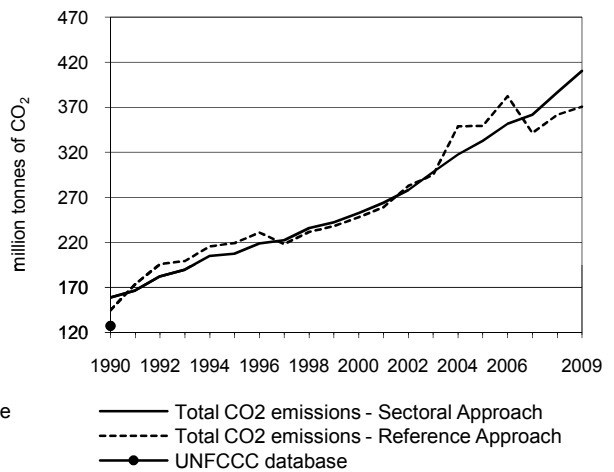


Figure 5. Electricity generation by fuel

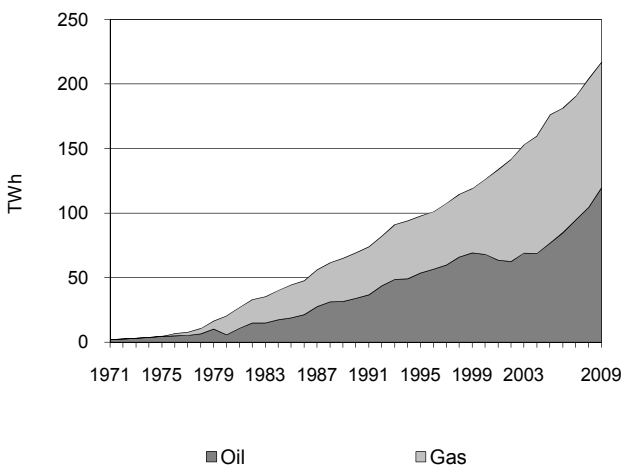
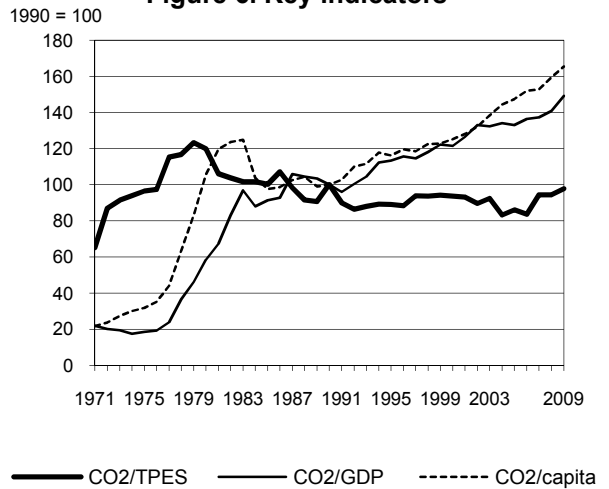


Figure 6. Key indicators



Saudi Arabia

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	158.87	207.39	252.41	332.73	361.53	386.58	410.47	158.4%
CO ₂ Reference Approach (Mt of CO ₂)	144.59	219.21	247.87	349.09	341.31	361.85	370.45	156.2%
TPES (PJ)	2 502	3 665	4 242	6 093	6 034	6 451	6 609	164.2%
TPES (Mtoe)	59.76	87.55	101.32	145.54	144.11	154.08	157.85	164.2%
GDP (billion 2000 USD)	144.13	166.00	188.44	226.95	238.83	249.18	249.54	73.1%
GDP PPP (billion 2000 USD)	214.80	247.40	280.85	338.23	355.95	371.37	371.91	73.1%
Population (millions)	16.26	18.27	20.64	23.12	24.24	24.81	25.39	56.2%
CO ₂ / TPES (t CO ₂ per TJ)	63.5	56.6	59.5	54.6	59.9	59.9	62.1	-2.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.10	1.25	1.34	1.47	1.51	1.55	1.64	49.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.74	0.84	0.90	0.98	1.02	1.04	1.10	49.2%
CO ₂ / population (t CO ₂ per capita)	9.77	11.35	12.23	14.39	14.92	15.58	16.17	65.4%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	277.48	132.99	-	410.47	158.4%
Main activity producer elec. and heat	-	96.86	42.17	-	139.03	249.1%
Unallocated autoproducers	-	2.80	22.55	-	25.35	43.5%
Other energy industry own use	-	16.95	47.20	-	64.15	134.8%
Manufacturing industries and construction	-	56.22	21.07	-	77.30	241.2%
Transport	-	100.58	-	-	100.58	105.7%
<i>of which: road</i>	-	98.55	-	-	98.55	108.3%
Other	-	4.06	-	-	4.06	61.5%
<i>of which: residential</i>	-	4.06	-	-	4.06	61.5%
Reference Approach	-	237.45	132.99	-	370.45	156.2%
Diff. due to losses and/or transformation	-	- 9.65	-	-	- 9.65	
Statistical differences	-	- 30.38	0.00	-	- 30.38	
<i>Memo: international marine bunkers</i>	-	8.00	-	-	8.00	39.5%
<i>Memo: international aviation bunkers</i>	-	6.11	-	-	6.11	27.5%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	98.55	108.3%	19.9	19.9
Main activity prod. elec. and heat - oil	96.86	242.3%	19.5	39.4
Manufacturing industries - oil	56.22	202.9%	11.3	50.7
Other energy industry own use - gas	47.20	229.4%	9.5	60.2
Main activity prod. elec. and heat - gas	42.17	265.8%	8.5	68.7
Unallocated autoproducers - gas	22.55	27.7%	4.5	73.3
Manufacturing industries - gas	21.07	414.9%	4.2	77.5
Other energy industry own use - oil	16.95	30.5%	3.4	80.9
Residential - oil	4.06	61.5%	0.8	81.7
Unallocated autoproducers - oil	2.80	x	0.6	82.3
Other transport - oil	2.04	27.5%	0.4	82.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>410.47</i>	<i>158.4%</i>	<i>82.7</i>	<i>82.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Senegal

Figure 1. CO₂ emissions by fuel

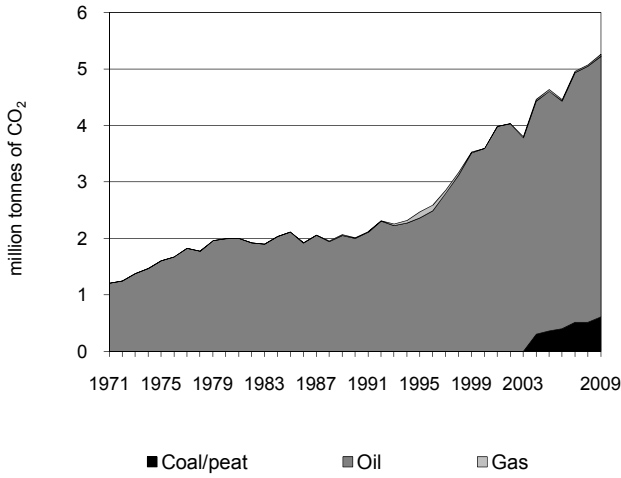


Figure 2. CO₂ emissions by sector

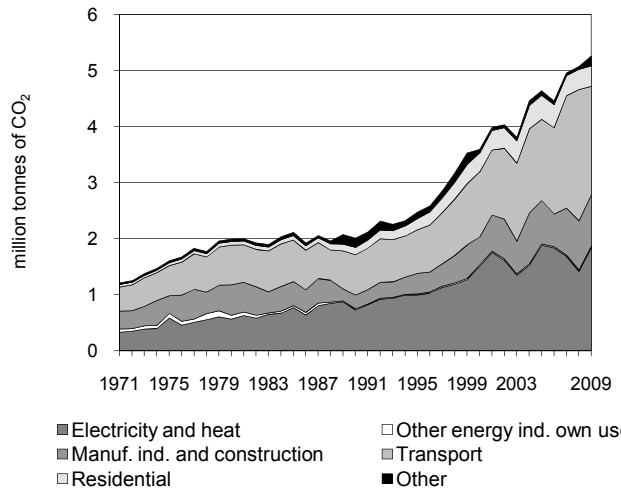


Figure 3. CO₂ emissions by sector

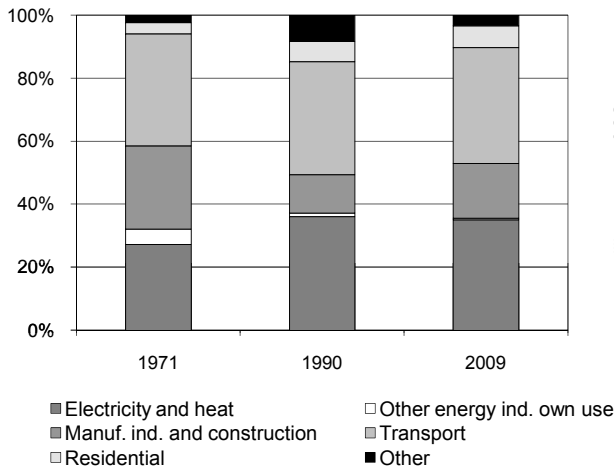


Figure 4. Reference vs Sectoral Approach

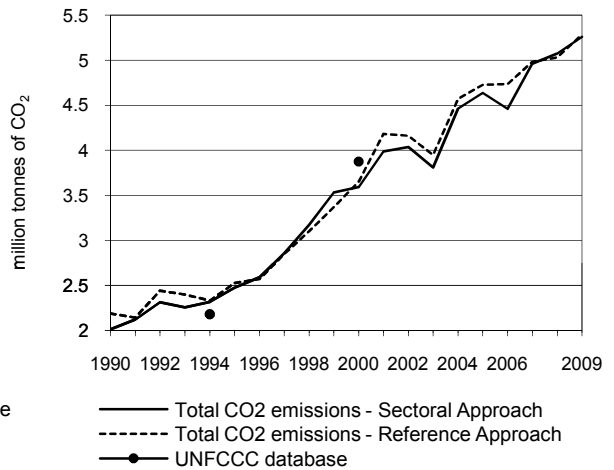


Figure 5. Electricity generation by fuel

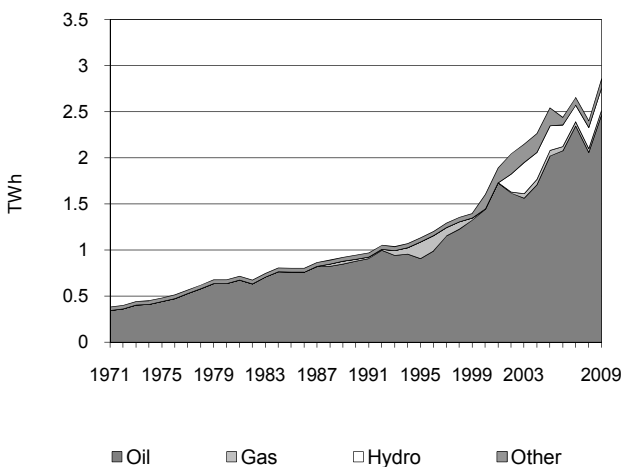
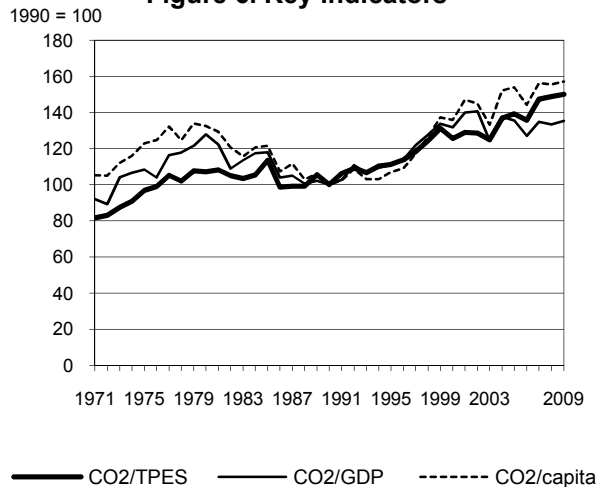


Figure 6. Key indicators



Senegal

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2.01	2.47	3.59	4.64	4.96	5.07	5.26	161.4%
CO ₂ Reference Approach (Mt of CO ₂)	2.19	2.53	3.65	4.73	4.98	5.03	5.28	141.5%
TPES (PJ)	71	78	100	117	118	120	123	74.3%
TPES (Mtoe)	1.69	1.86	2.40	2.79	2.82	2.86	2.94	74.3%
GDP (billion 2000 USD)	3.46	3.84	4.69	5.89	6.34	6.55	6.69	93.2%
GDP PPP (billion 2000 USD)	11.70	12.96	15.84	19.90	21.39	22.10	22.60	93.2%
Population (millions)	7.54	8.66	9.90	11.28	11.89	12.21	12.53	66.3%
CO ₂ / TPES (t CO ₂ per TJ)	28.5	31.7	35.8	39.7	42.0	42.4	42.8	50.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.58	0.64	0.77	0.79	0.78	0.77	0.79	35.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.17	0.19	0.23	0.23	0.23	0.23	0.23	35.3%
CO ₂ / population (t CO ₂ per capita)	0.27	0.29	0.36	0.41	0.42	0.42	0.42	57.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.61	4.62	0.03	-	5.26	161.4%
Main activity producer elec. and heat	-	1.66	0.03	-	1.70	138.0%
Unallocated autoproducers	-	0.15	-	-	0.15	+
Other energy industry own use	-	0.03	-	-	0.03	14.3%
Manufacturing industries and construction	0.61	0.31	-	-	0.92	274.9%
Transport	-	1.93	-	-	1.93	167.4%
<i>of which: road</i>	-	1.84	-	-	1.84	178.3%
Other	-	0.54	-	-	0.54	82.5%
<i>of which: residential</i>	-	0.37	-	-	0.37	185.5%
Reference Approach	0.61	4.64	0.03	-	5.28	141.5%
Diff. due to losses and/or transformation	-	0.16	-	-	0.16	
Statistical differences	-	-0.14	-	-	-0.14	
<i>Memo: international marine bunkers</i>	-	0.19	-	-	0.19	69.7%
<i>Memo: international aviation bunkers</i>	-	0.63	-	-	0.63	37.6%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	1.84	178.3%	8.8	8.8
Main activity prod. elec. and heat - oil	1.66	137.6%	7.9	16.7
Manufacturing industries - coal/peat	0.61	x	2.9	19.6
Residential - oil	0.37	185.5%	1.8	21.4
Manufacturing industries - oil	0.31	25.9%	1.5	22.9
Non-specified other - oil	0.17	3.7%	0.8	23.7
Unallocated autoproducers - oil	0.15	+	0.7	24.4
Other transport - oil	0.09	49.9%	0.4	24.8
Main activity prod. elec. and heat - gas	0.03	161.4%	0.2	25.0
Other energy industry own use - oil	0.03	14.3%	0.1	25.1
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	5.26	161.4%	25.1	25.1

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Serbia

Figure 1. CO₂ emissions by fuel

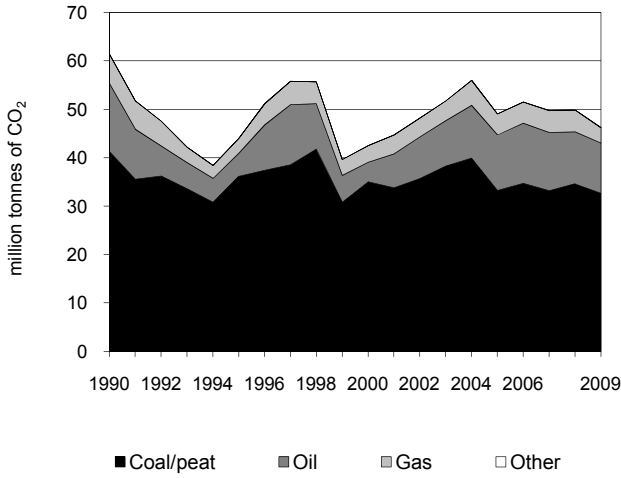


Figure 2. CO₂ emissions by sector

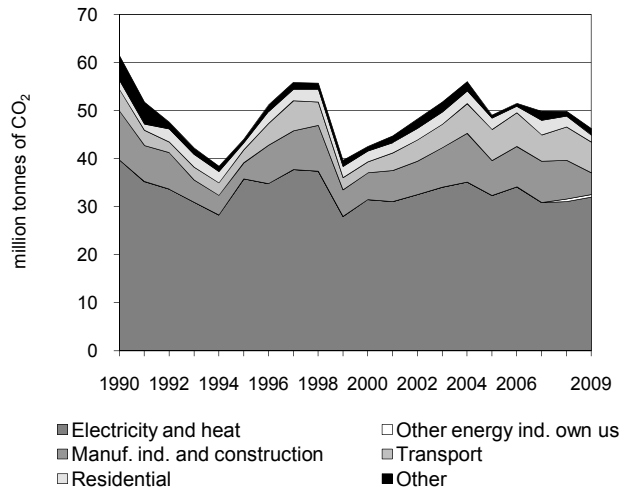


Figure 3. CO₂ emissions by sector

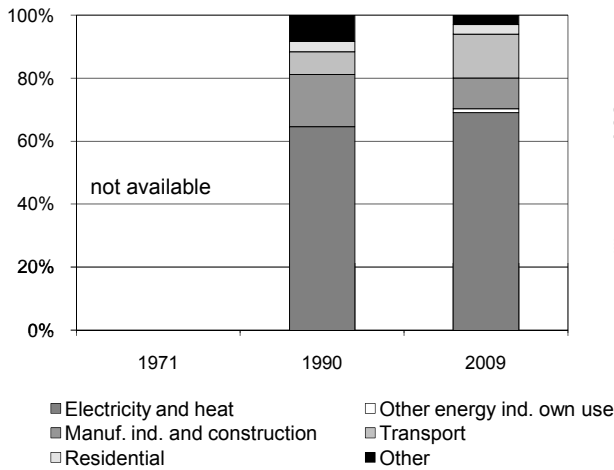


Figure 4. Reference vs Sectoral Approach

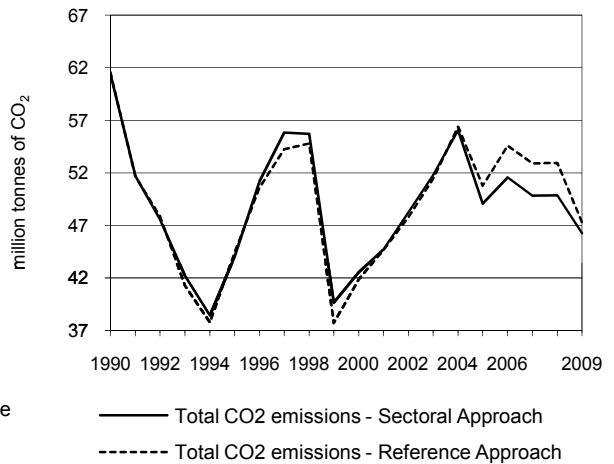


Figure 5. Electricity generation by fuel

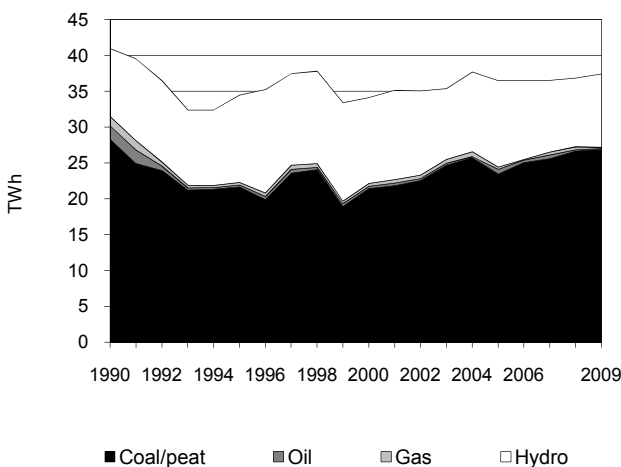
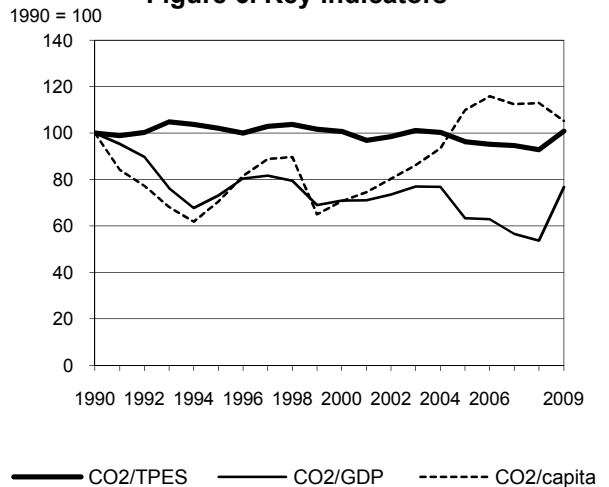


Figure 6. Key indicators



Serbia *

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	61.44	44.01	42.54	49.07	49.82	49.86	46.26	-24.7%
CO ₂ Reference Approach (Mt of CO ₂)	61.58	44.41	41.88	50.78	52.89	52.94	47.29	-23.2%
TPES (PJ)	810	569	557	672	694	708	605	-25.3%
TPES (Mtoe)	19.35	13.58	13.31	16.04	16.57	16.90	14.45	-25.3%
GDP (billion 2000 USD)	9.17	8.98	8.96	11.56	13.14	13.88	9.00	-1.9%
GDP PPP (billion 2000 USD)	33.77	33.08	33.00	42.56	48.37	51.08	33.13	-1.9%
Population (millions)	10.23	10.39	10.04	7.44	7.38	7.35	7.32	-28.5%
CO ₂ / TPES (t CO ₂ per TJ)	75.8	77.4	76.3	73.1	71.8	70.5	76.5	0.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	6.70	4.90	4.75	4.24	3.79	3.59	5.14	-23.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.82	1.33	1.29	1.15	1.03	0.98	1.40	-23.2%
CO ₂ / population (t CO ₂ per capita)	6.01	4.24	4.24	6.59	6.75	6.78	6.32	5.2%

Ratios are based on the Sectoral Approach.

* Data for Serbia include Montenegro until 2004 and Kosovo until 1999.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other **		
Sectoral Approach	32.67	10.39	3.19	0.01	46.26	-24.7%
Main activity producer elec. and heat	28.35	0.84	0.91	0.01	30.11	-24.2%
Unallocated autoproducers	0.75	0.93	0.18	-	1.86	x
Other energy industry own use	-	0.48	0.10	-	0.58	x
Manufacturing industries and construction	2.02	1.21	1.28	-	4.50	-55.9%
Transport	0.00	6.41	0.01	-	6.42	45.2%
of which: road	-	5.67	0.00	-	5.68	28.3%
Other	1.55	0.53	0.72	-	2.80	-60.7%
of which: residential	0.96	0.01	0.46	-	1.43	-29.0%
Reference Approach	33.41	10.68	3.20	0.01	47.29	-23.2%
Diff. due to losses and/or transformation	0.23	0.29	0.01	-	0.53	
Statistical differences	0.50	0.00	-0.00	0.00	0.50	
Memo: international marine bunkers	-	..	-	-	..	..
Memo: international aviation bunkers	-	-	-	-	-	-100.0%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	28.35	-24.4%	42.8	42.8
Road - oil	5.67	28.3%	8.6	51.4
Manufacturing industries - coal/peat	2.02	30.5%	3.0	54.4
Manufacturing industries - gas	1.28	-29.9%	1.9	56.3
Manufacturing industries - oil	1.21	-82.3%	1.8	58.1
Residential - coal/peat	0.96	-48.5%	1.4	59.6
Unallocated autoproducers - oil	0.93	x	1.4	61.0
Main activity prod. elec. and heat - gas	0.91	73.1%	1.4	62.4
Main activity prod. elec. and heat - oil	0.84	-50.8%	1.3	63.6
Unallocated autoproducers - coal/peat	0.75	x	1.1	64.8
Other transport - oil	0.74	x	1.1	65.9
Memo: total CO₂ from fuel combustion	46.26	-24.7%	69.8	69.8

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Singapore

Figure 1. CO₂ emissions by fuel

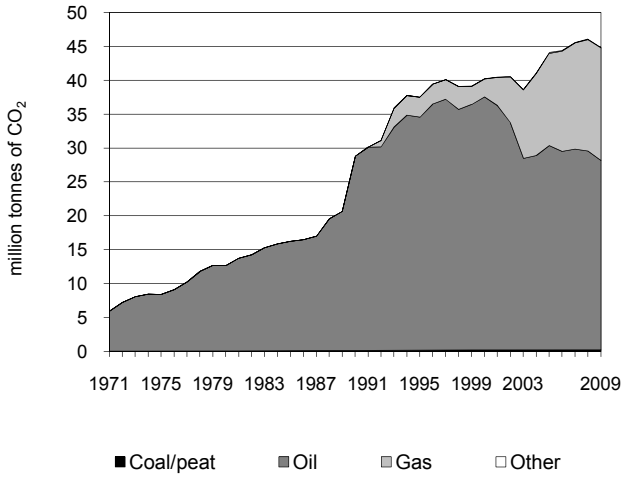


Figure 2. CO₂ emissions by sector

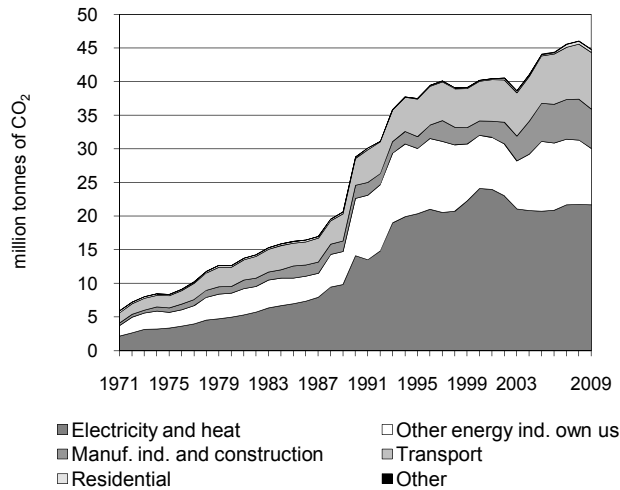


Figure 3. CO₂ emissions by sector

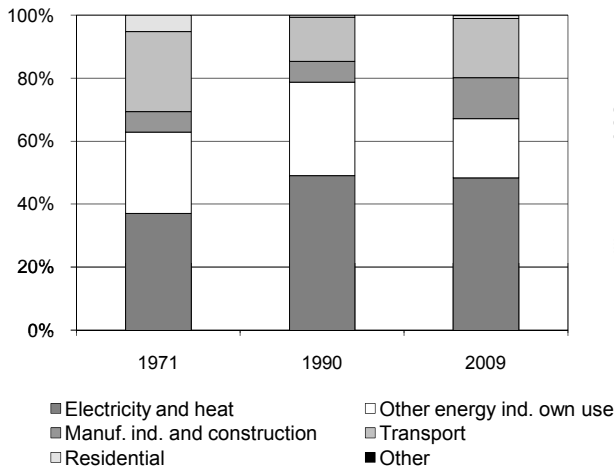


Figure 4. Reference vs Sectoral Approach

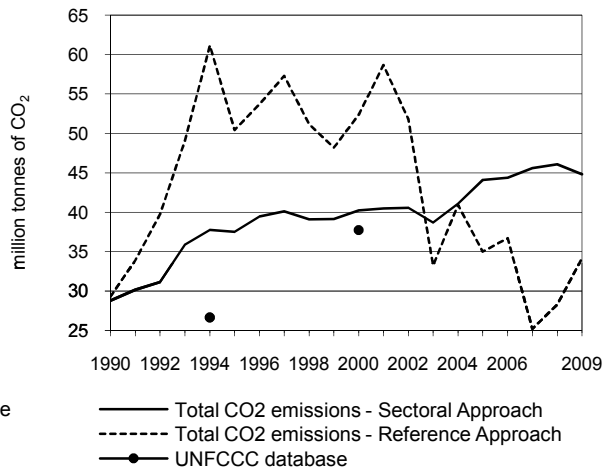


Figure 5. Electricity generation by fuel

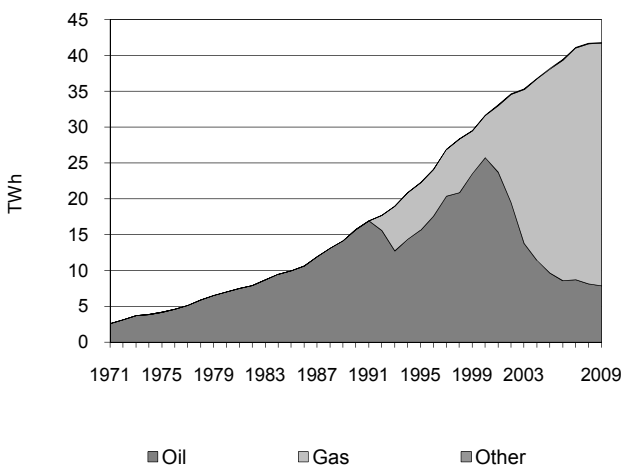
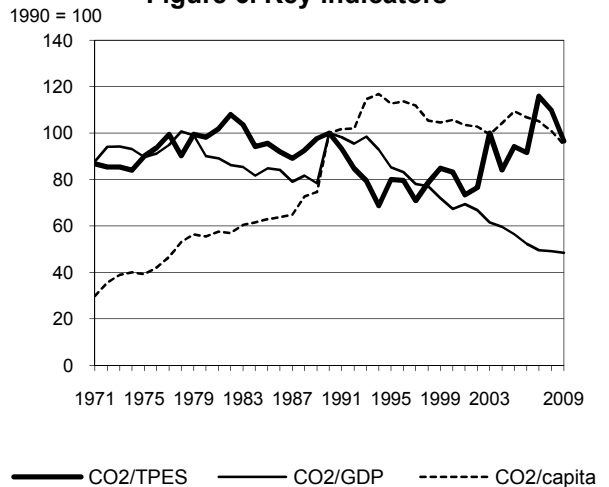


Figure 6. Key indicators



Singapore

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	28.80	37.53	40.24	44.11	45.60	46.09	44.83	55.7%
CO ₂ Reference Approach (Mt of CO ₂)	29.26	50.42	52.38	34.98	25.21	28.31	34.12	16.6%
TPES (PJ)	480	780	806	779	655	699	774	61.3%
TPES (Mtoe)	11.46	18.64	19.25	18.61	15.65	16.71	18.48	61.3%
GDP (billion 2000 USD)	44.66	68.23	92.72	121.10	142.79	145.33	143.47	221.2%
GDP PPP (billion 2000 USD)	45.66	69.76	94.79	123.81	145.99	148.59	146.68	221.2%
Population (millions)	3.05	3.53	4.03	4.27	4.59	4.84	4.99	63.7%
CO ₂ / TPES (t CO ₂ per TJ)	60.0	48.1	49.9	56.6	69.6	65.9	58.0	-3.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.64	0.55	0.43	0.36	0.32	0.32	0.31	-51.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.63	0.54	0.42	0.36	0.31	0.31	0.31	-51.5%
CO ₂ / population (t CO ₂ per capita)	9.45	10.65	9.99	10.34	9.94	9.52	8.99	-4.9%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.26	27.93	16.58	0.07	44.83	55.7%
Main activity producer elec. and heat	-	6.51	15.12	0.07	21.69	55.1%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	8.41	-	-	8.41	-1.5%
Manufacturing industries and construction	0.15	4.78	0.92	-	5.85	205.0%
Transport	-	8.17	0.25	-	8.42	109.2%
<i>of which: road</i>	-	8.17	-	-	8.17	102.9%
Other	0.11	0.07	0.29	-	0.47	158.7%
<i>of which: residential</i>	0.11	0.07	0.24	-	0.42	129.2%
Reference Approach	0.02	17.46	16.58	0.07	34.12	16.6%
Diff. due to losses and/or transformation	- 0.24	2.12	-	-	1.88	
Statistical differences	-	- 12.59	-	-	- 12.59	
<i>Memo: international marine bunkers</i>	-	112.19	-	-	112.19	231.3%
<i>Memo: international aviation bunkers</i>	-	12.43	-	-	12.43	120.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	15.12	x	29.1	29.1
Other energy industry own use - oil	8.41	-1.5%	16.2	45.3
Road - oil	8.17	102.9%	15.7	61.1
Main activity prod. elec. and heat - oil	6.51	-53.5%	12.5	73.6
Manufacturing industries - oil	4.78	159.4%	9.2	82.8
Manufacturing industries - gas	0.92	x	1.8	84.6
Other transport - gas	0.25	x	0.5	85.1
Residential - gas	0.24	x	0.5	85.5
Manufacturing industries - coal/peat	0.15	99.7%	0.3	85.8
Residential - coal/peat	0.11	61.2%	0.2	86.0
Residential - oil	0.07	-39.5%	0.1	86.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>44.83</i>	<i>55.7%</i>	<i>86.4</i>	<i>86.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Slovak Republic

Figure 1. CO₂ emissions by fuel

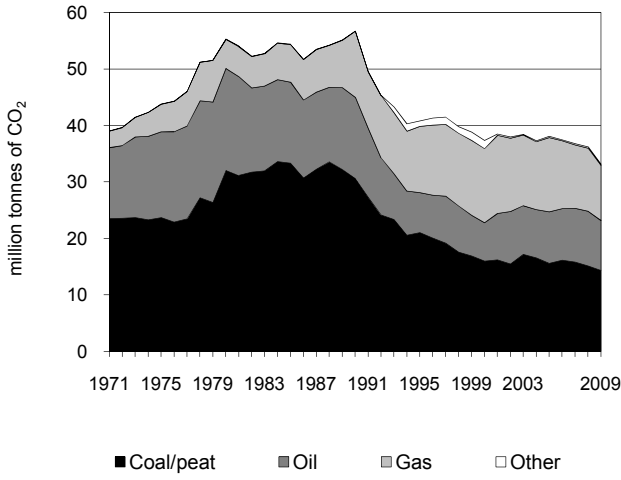


Figure 2. CO₂ emissions by sector

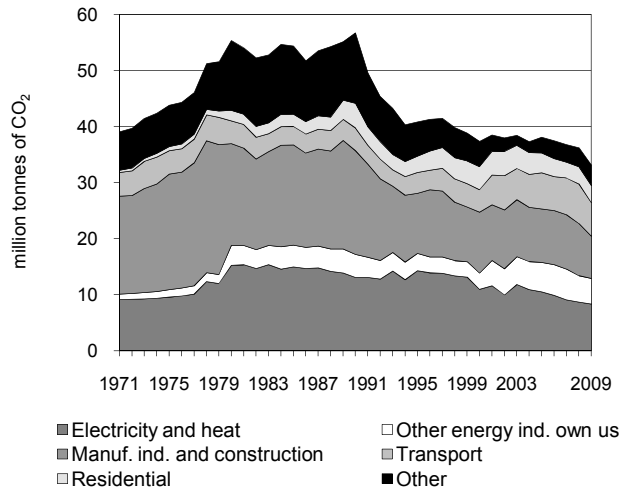


Figure 3. CO₂ emissions by sector

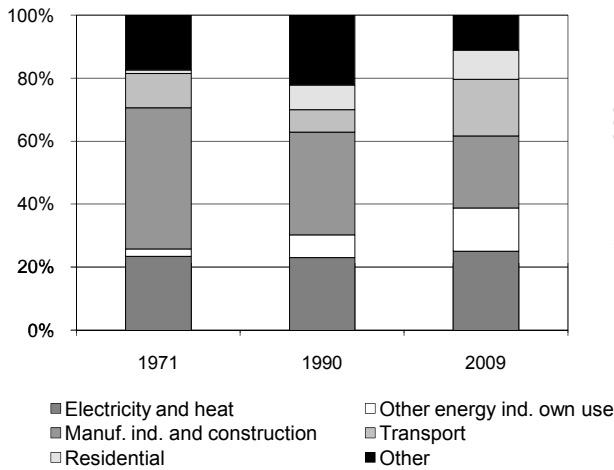


Figure 4. Reference vs Sectoral Approach

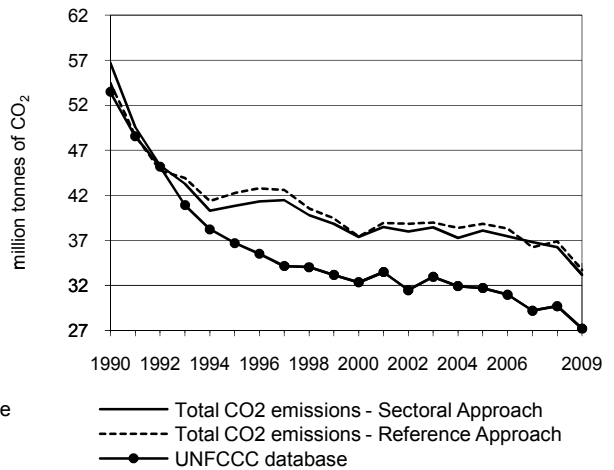


Figure 5. Electricity generation by fuel

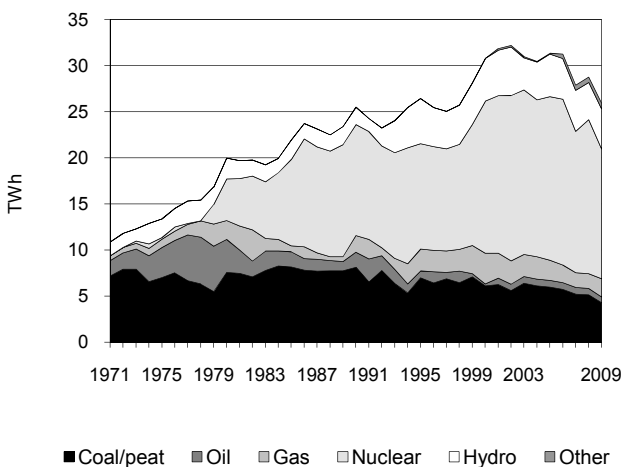
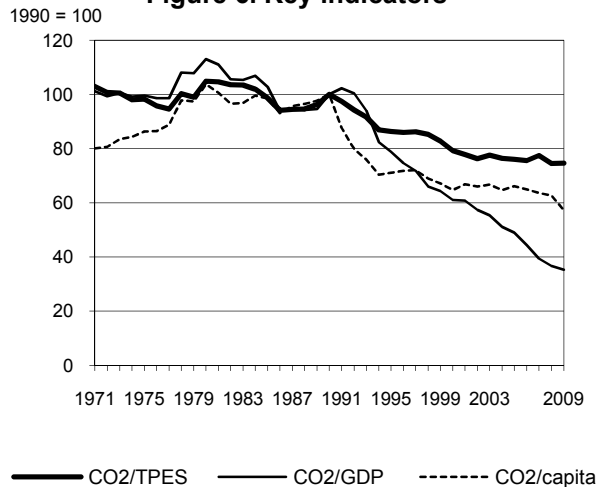


Figure 6. Key indicators



Slovak Republic

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	56.73	40.83	37.37	38.10	36.80	36.25	33.17	-41.5%
CO ₂ Reference Approach (Mt of CO ₂)	54.49	42.26	37.42	38.85	36.25	36.90	33.71	-38.1%
TPES (PJ)	893	744	743	788	747	766	700	-21.6%
TPES (Mtoe)	21.33	17.78	17.74	18.83	17.85	18.30	16.72	-21.6%
GDP (billion 2000 USD)	18.91	17.26	20.40	25.92	31.09	32.90	31.32	65.6%
GDP PPP (billion 2000 USD)	54.96	50.17	59.30	75.34	90.35	95.61	91.04	65.6%
Population (millions)	5.30	5.36	5.40	5.39	5.40	5.41	5.42	2.2%
CO ₂ / TPES (t CO ₂ per TJ)	63.5	54.9	50.3	48.3	49.2	47.3	47.4	-25.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	3.00	2.37	1.83	1.47	1.18	1.10	1.06	-64.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.03	0.81	0.63	0.51	0.41	0.38	0.36	-64.7%
CO ₂ / population (t CO ₂ per capita)	10.71	7.61	6.92	7.07	6.82	6.71	6.12	-42.8%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	14.36	8.84	9.75	0.21	33.17	-41.5%
Main activity producer elec. and heat	4.67	0.73	1.89	0.01	7.30	-32.8%
Unallocated autoproducers	0.72	0.09	0.15	0.08	1.04	-52.9%
Other energy industry own use	2.69	1.51	0.35	-	4.54	10.0%
Manufacturing industries and construction	4.13	1.17	2.18	0.09	7.57	-59.1%
Transport	-	5.00	0.97	-	5.97	47.7%
of which: road	-	5.00	-	-	5.00	23.6%
Other	2.16	0.34	4.22	0.03	6.74	-60.3%
of which: residential	0.19	0.05	2.82	-	3.05	-31.2%
Reference Approach	15.10	8.26	10.13	0.22	33.71	-38.1%
Diff. due to losses and/or transformation	0.55	-0.58	0.38	0.01	0.36	
Statistical differences	0.18	0.00	-	-0.00	0.18	
Memo: international marine bunkers	-	-	-	-	-	-
Memo: international aviation bunkers	-	0.13	-	-	0.13	x

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	5.00	23.6%	10.1	10.1
Main activity prod. elec. and heat - coal/peat	4.67	-42.7%	9.5	19.6
Manufacturing industries - coal/peat	4.13	-50.6%	8.4	27.9
Residential - gas	2.82	10.5%	5.7	33.6
Other energy industry - coal/peat	2.69	-21.3%	5.4	39.1
Manufacturing industries - gas	2.18	-30.1%	4.4	43.5
Non-specified other sectors - coal/peat	1.96	-72.9%	4.0	47.5
Main activity prod. elec. and heat - gas	1.89	-7.8%	3.8	51.3
Other energy industry own use - oil	1.51	235.3%	3.0	54.4
Non-specified other - gas	1.40	-59.7%	2.8	57.2
Manufacturing industries - oil	1.17	-83.3%	2.4	59.6
Memo: total CO₂ from fuel combustion	33.17	-41.5%	67.2	67.2

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Slovenia

Figure 1. CO₂ emissions by fuel

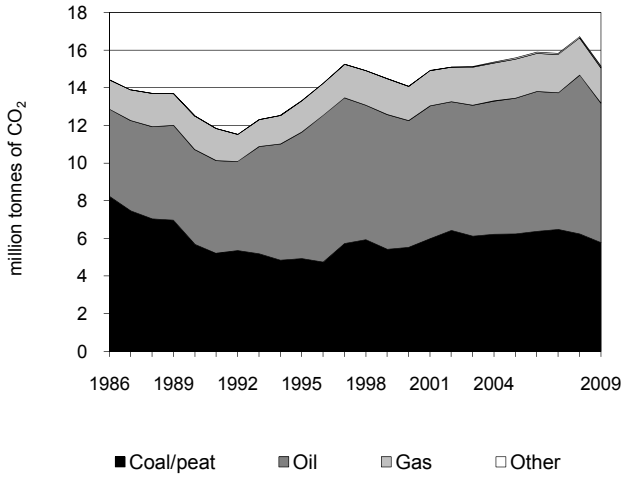


Figure 2. CO₂ emissions by sector

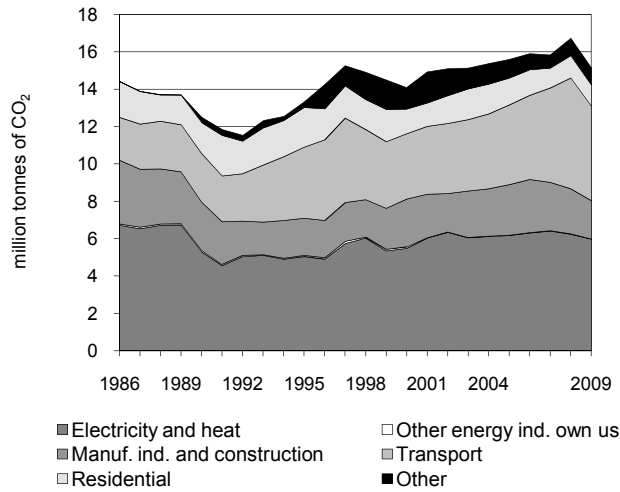


Figure 3. CO₂ emissions by sector

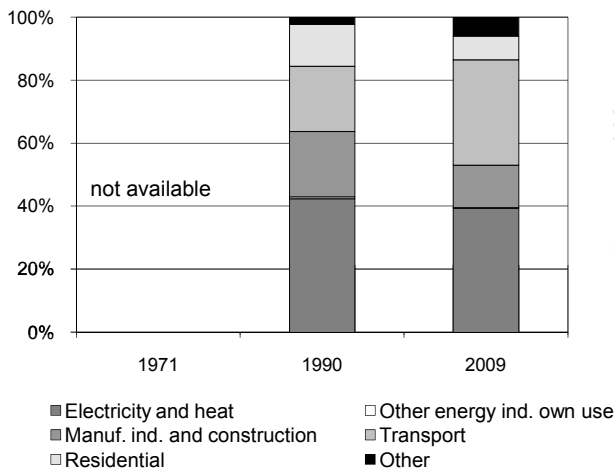


Figure 4. Reference vs Sectoral Approach

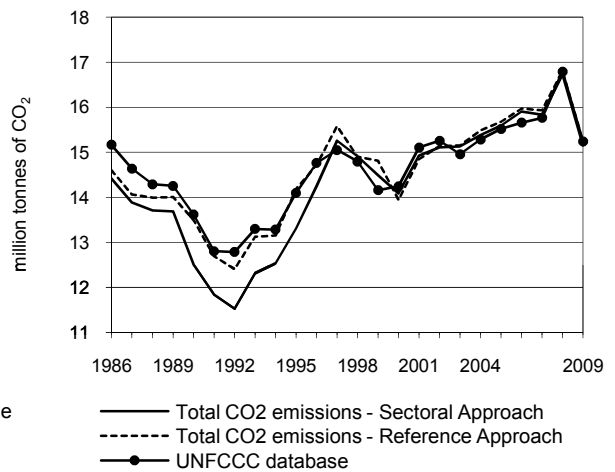


Figure 5. Electricity generation by fuel

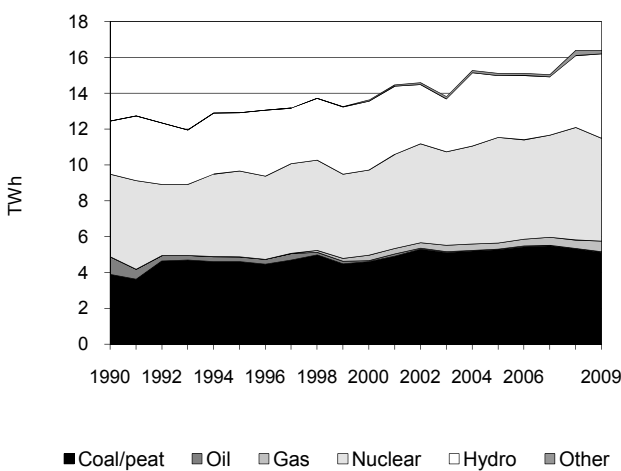
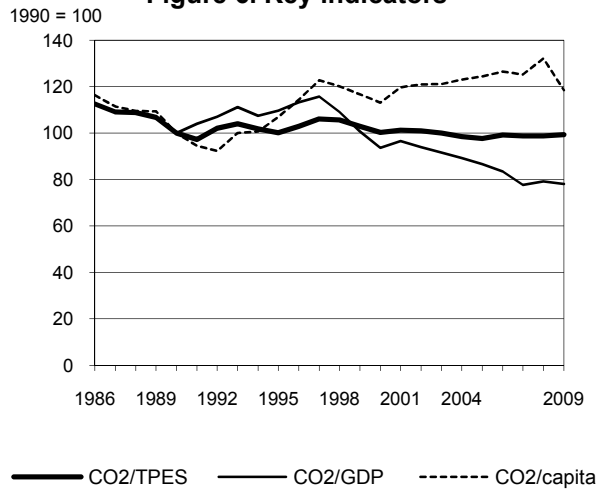


Figure 6. Key indicators



Slovenia *

Key indicators

	1986	1990	1995	2005	2007	2008	2009	% change 86-09
CO ₂ Sectoral Approach (Mt of CO ₂)	14.42e	12.50	13.31	15.59	15.83	16.73	15.15	5.1%
CO ₂ Reference Approach (Mt of CO ₂)	14.6e	13.49	14.19	15.68	15.93	16.81	15.24	4.3%
TPES (PJ)	245e	239	254	305	306	324	292	19.0%
TPES (Mtoe)	5.85e	5.71	6.07	7.29	7.32	7.74	6.97	19.0%
GDP (billion 2000 USD)	..	16.55	16.07	23.83	26.96	27.97	25.70	..
GDP PPP (billion 2000 USD)	..	28.91	28.08	41.64	47.11	48.87	44.90	..
Population (millions)	1.98e	2.00	1.99	2.00	2.02	2.02	2.04	3.1%
CO ₂ / TPES (t CO ₂ per TJ)	58.8e	52.3	52.4	51.1	51.7	51.6	51.9	-11.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	..	0.76	0.83	0.65	0.59	0.60	0.59	..
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	..	0.43	0.47	0.37	0.34	0.34	0.34	..
CO ₂ / population (t CO ₂ per capita)	7.28e	6.26	6.69	7.79	7.84	8.27	7.42	2.0%

Ratios are based on the Sectoral Approach.

* According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, Slovenia is allowed to use 1986 as the base year.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 86-09
	Coal/peat	Oil	gas	Other **		
Sectoral Approach	5.79	7.40	1.87	0.09	15.15	5.1%
Main activity producer elec. and heat	5.52	0.04	0.34	-	5.89	1.0%
Unallocated autoproducers	0.04	0.00	0.05	0.00	0.09	-89.8%
Other energy industry own use	-	-	0.01	-	0.01	-88.3%
Manufacturing industries and construction	0.23	0.54	1.19	0.09	2.05	-39.7%
Transport	-	5.06	-	-	5.06	120.0%
<i>of which: road</i>	-	5.02	-	-	5.02	121.5%
Other	-	1.76	0.29	-	2.05	6.5%
<i>of which: residential</i>	-	0.89	0.25	-	1.14	-40.6%
Reference Approach	5.87	7.40	1.87	0.09	15.24	4.3%
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	0.08	0.00	0.00	0.00	0.08	
<i>Memo: international marine bunkers</i>	-	0.10	-	-	0.10	..
<i>Memo: international aviation bunkers</i>	-	0.08	-	-	0.08	-18.8%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 86-09	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	5.52	-3.2%	28.6	28.6
Road - oil	5.02	121.5%	26.1	54.7
Manufacturing industries - gas	1.19	5.0%	6.2	60.9
Residential - oil	0.89	31.5%	4.6	65.5
Non-specified other - oil	0.87	x	4.5	70.1
Manufacturing industries - oil	0.54	-49.5%	2.8	72.9
Main activity prod. elec. and heat - gas	0.34	623.4%	1.8	74.6
Residential - gas	0.25	607.9%	1.3	75.9
Manufacturing industries - coal/peat	0.23	-80.4%	1.2	77.1
Manufacturing industries -other	0.09	x	0.5	77.6
Unallocated autoproducers - gas	0.05	-85.1%	0.2	77.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>15.15</i>	<i>5.1%</i>	<i>78.7</i>	<i>78.7</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

South Africa

Figure 1. CO₂ emissions by fuel

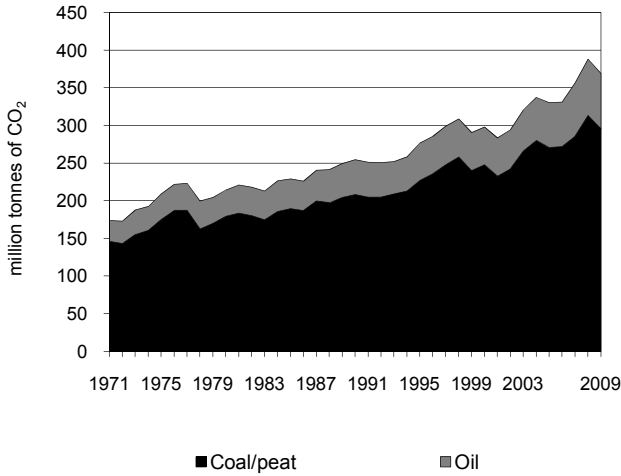


Figure 2. CO₂ emissions by sector

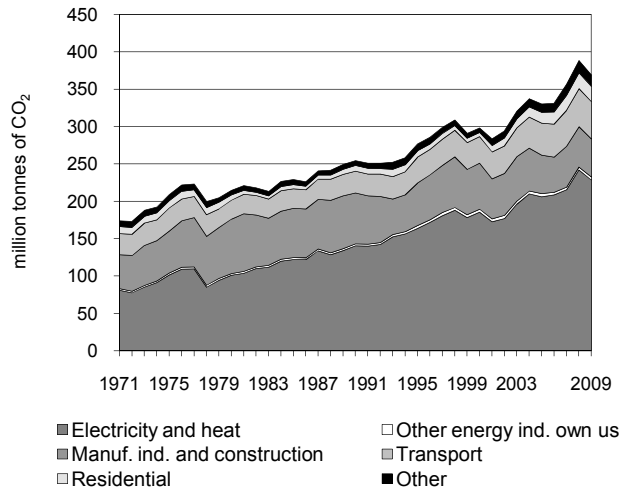


Figure 3. CO₂ emissions by sector

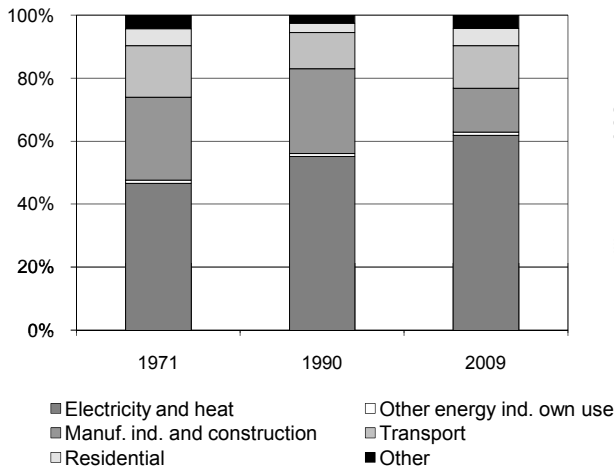


Figure 4. Reference vs Sectoral Approach

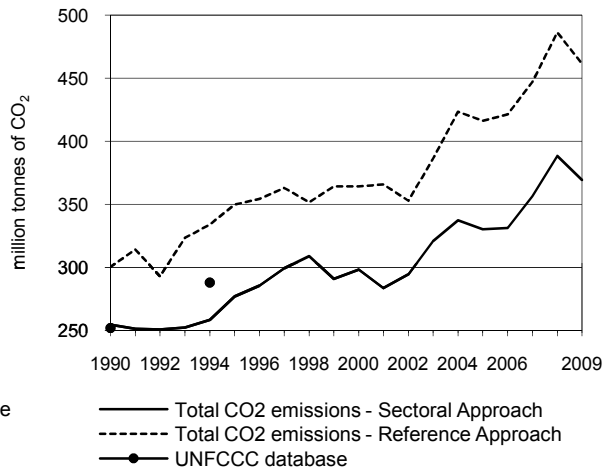


Figure 5. Electricity generation by fuel

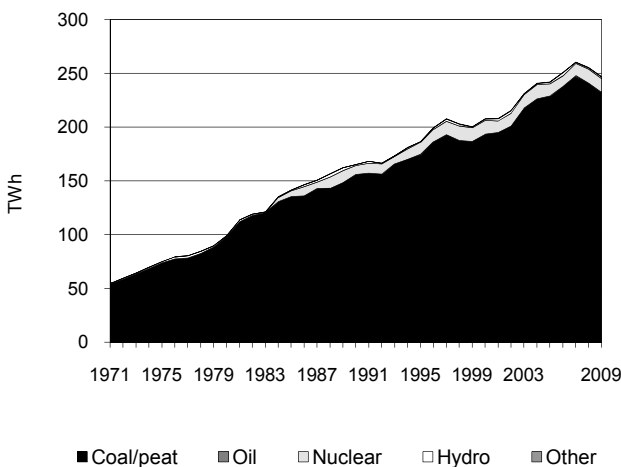
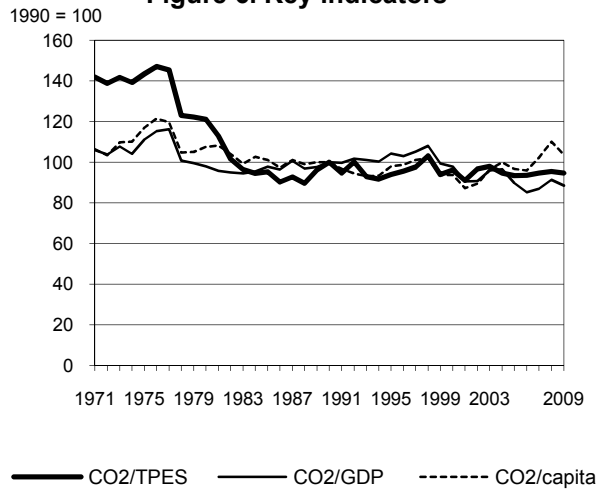


Figure 6. Key indicators



South Africa

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	254.67	276.94	298.18	330.31	356.50	388.42	369.37	45.0%
CO ₂ Reference Approach (Mt of CO ₂)	300.34	349.91	364.14	416.41	446.93	486.28	461.48	53.7%
TPES (PJ)	3 930	4 560	4 789	5 458	5 813	6 281	6 031	53.4%
TPES (Mtoe)	93.88	108.90	114.39	130.36	138.83	150.02	144.04	53.4%
GDP (billion 2000 USD)	110.95	115.81	132.88	160.37	178.64	185.22	181.92	64.0%
GDP PPP (billion 2000 USD)	321.98	336.11	385.64	465.42	518.46	537.53	527.98	64.0%
Population (millions)	35.20	39.12	44.00	47.20	48.26	48.79	49.32	40.1%
CO ₂ / TPES (t CO ₂ per TJ)	64.8	60.7	62.3	60.5	61.3	61.8	61.2	-5.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.30	2.39	2.24	2.06	2.00	2.10	2.03	-11.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.79	0.82	0.77	0.71	0.69	0.72	0.70	-11.5%
CO ₂ / population (t CO ₂ per capita)	7.24	7.08	6.78	7.00	7.39	7.96	7.49	3.5%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	295.45	73.92	-	-	369.37	45.0%
Main activity producer elec. and heat	219.37	0.04	-	-	219.41	66.2%
Unallocated autoproducers	9.12	-	-	-	9.12	6.5%
Other energy industry own use	-	4.00	-	-	4.00	70.7%
Manufacturing industries and construction	38.27	12.93	-	-	51.20	-25.1%
Transport	-	49.88	-	-	49.88	70.6%
<i>of which: road</i>	-	46.69	-	-	46.69	67.2%
Other	28.69	7.07	-	-	35.75	153.4%
<i>of which: residential</i>	18.36	1.81	-	-	20.17	166.4%
Reference Approach	381.43	71.38	8.67	-	461.48	53.7%
Diff. due to losses and/or transformation	84.80	-2.54	8.67	-	90.93	
Statistical differences	1.18	0.00	-	-	1.18	
<i>Memo: international marine bunkers</i>	-	8.46	-	-	8.46	42.1%
<i>Memo: international aviation bunkers</i>	-	2.68	-	-	2.68	145.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	219.37	66.2%	45.6	45.6
Road - oil	46.69	67.2%	9.7	55.3
Manufacturing industries - coal/peat	38.27	-34.1%	7.9	63.2
Residential - coal/peat	18.36	218.9%	3.8	67.0
Manufacturing industries - oil	12.93	25.0%	2.7	69.7
Non-specified other sectors - coal/peat	10.33	181.3%	2.1	71.8
Unallocated autoproducers - coal/peat	9.12	6.5%	1.9	73.7
Non-specified other - oil	5.26	83.3%	1.1	74.8
Other energy industry own use - oil	4.00	73.2%	0.8	75.7
Other transport - oil	3.20	182.3%	0.7	76.3
Residential - oil	1.81	-0.3%	0.4	76.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>369.37</i>	<i>45.0%</i>	<i>76.7</i>	<i>76.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Spain

Figure 1. CO₂ emissions by fuel

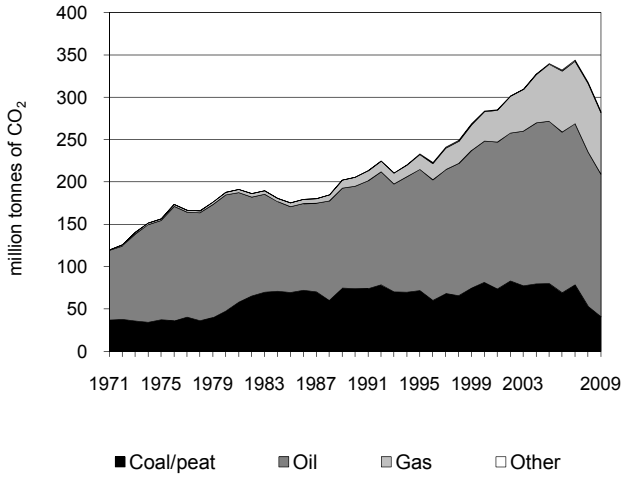


Figure 2. CO₂ emissions by sector

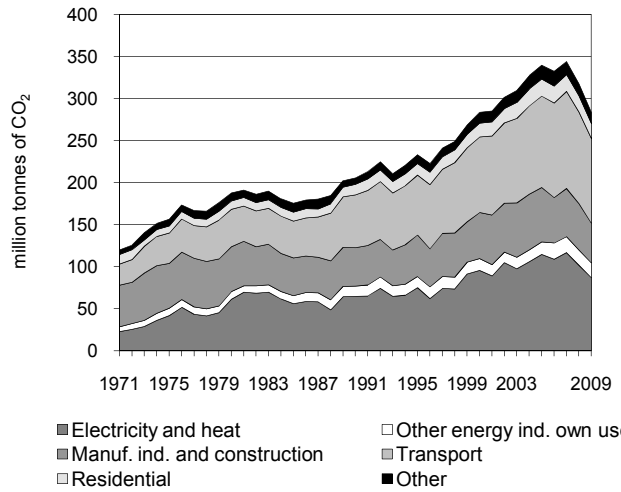


Figure 3. CO₂ emissions by sector

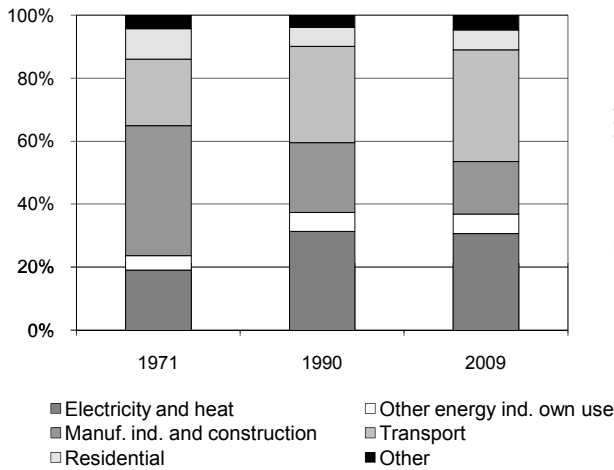


Figure 4. Reference vs Sectoral Approach

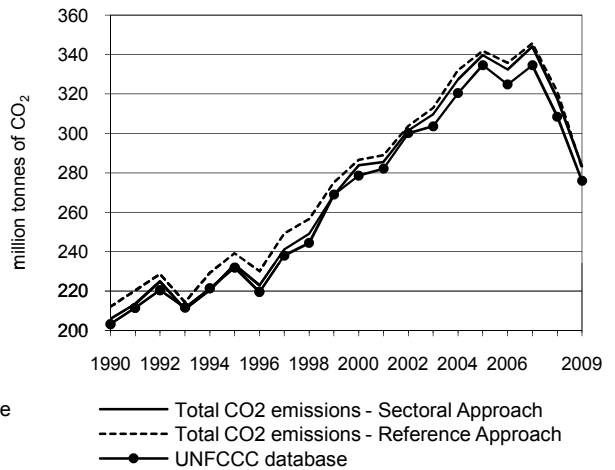


Figure 5. Electricity generation by fuel

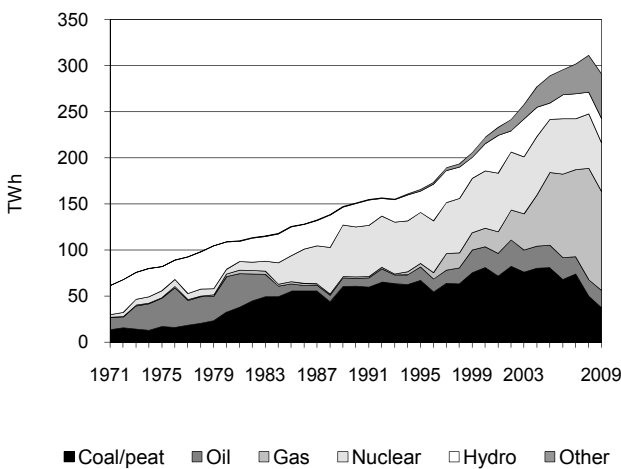
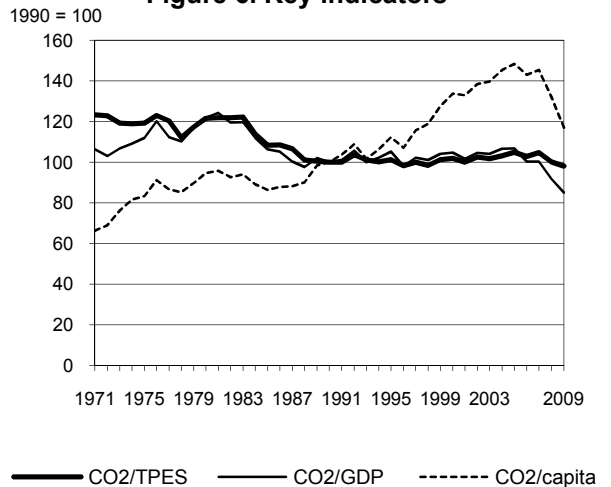


Figure 6. Key indicators



Spain

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	205.81	233.28	283.87	339.71	344.07	317.60	283.37	37.7%
CO ₂ Reference Approach (Mt of CO ₂)	212.09	239.18	286.67	341.91	345.81	321.23	282.48	33.2%
TPES (PJ)	3 772	4 221	5 106	5 938	6 024	5 812	5 297	40.4%
TPES (Mtoe)	90.09	100.82	121.95	141.83	143.87	138.81	126.52	40.4%
GDP (billion 2000 USD)	440.64	474.85	580.67	681.88	734.63	740.95	713.36	61.9%
GDP PPP (billion 2000 USD)	651.42	702.00	858.44	1 008.05	1 086.04	1 095.37	1 054.60	61.9%
Population (millions)	39.01	39.39	40.26	43.40	44.87	45.59	45.93	17.7%
CO ₂ / TPES (t CO ₂ per TJ)	54.6	55.3	55.6	57.2	57.1	54.6	53.5	-2.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.47	0.49	0.49	0.50	0.47	0.43	0.40	-15.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.32	0.33	0.33	0.34	0.32	0.29	0.27	-14.9%
CO ₂ / population (t CO ₂ per capita)	5.28	5.92	7.05	7.83	7.67	6.97	6.17	17.0%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	40.88	168.47	72.57	1.45	283.37	37.7%
Main activity producer elec. and heat	33.83	10.85	29.32	0.26	74.25	18.7%
Unallocated autoproducers	0.37	2.06	9.08	1.19	12.70	530.1%
Other energy industry own use	2.11	11.98	3.42	-	17.51	40.8%
Manufacturing industries and construction	3.35	24.02	19.88	-	47.26	3.9%
Transport	-	100.37	0.13	-	100.50	59.7%
<i>of which: road</i>	-	88.53	-	-	88.53	67.8%
Other	1.23	19.19	10.74	-	31.15	52.9%
<i>of which: residential</i>	0.99	9.59	7.32	-	17.90	43.3%
Reference Approach	36.47	171.91	72.66	1.45	282.48	33.2%
Diff. due to losses and/or transformation	- 0.74	2.61	0.25	-	2.12	
Statistical differences	- 3.67	0.82	- 0.16	- 0.00	- 3.01	
<i>Memo: international marine bunkers</i>	-	27.52	-	-	27.52	140.2%
<i>Memo: international aviation bunkers</i>	-	9.40	-	-	9.40	183.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	88.53	67.8%	23.6	23.6
Main activity prod. elec. and heat - coal/peat	33.83	-39.7%	9.0	32.6
Main activity prod. elec. and heat - gas	29.32	+	7.8	40.4
Manufacturing industries - oil	24.02	3.3%	6.4	46.9
Manufacturing industries - gas	19.88	133.2%	5.3	52.2
Other energy industry own use - oil	11.98	13.6%	3.2	55.4
Other transport - oil	11.84	16.2%	3.2	58.5
Main activity prod. elec. and heat - oil	10.85	81.5%	2.9	61.4
Non-specified other - oil	9.60	30.7%	2.6	64.0
Residential - oil	9.59	-3.4%	2.6	66.5
Unallocated autoproducers - gas	9.08	+	2.4	68.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>283.37</i>	<i>37.7%</i>	<i>75.6</i>	<i>75.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Sri Lanka

Figure 1. CO₂ emissions by fuel

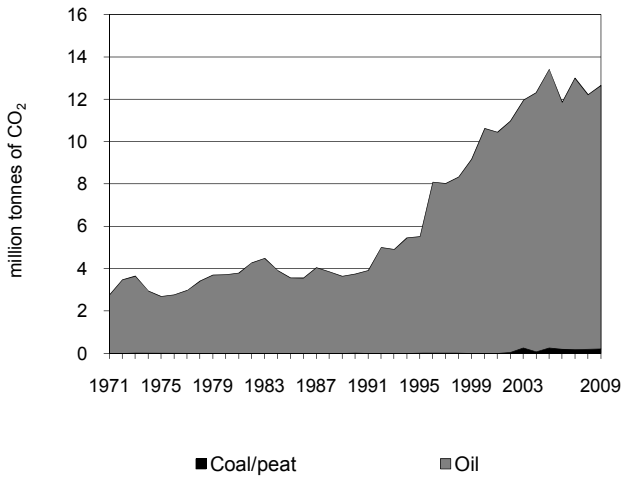


Figure 2. CO₂ emissions by sector

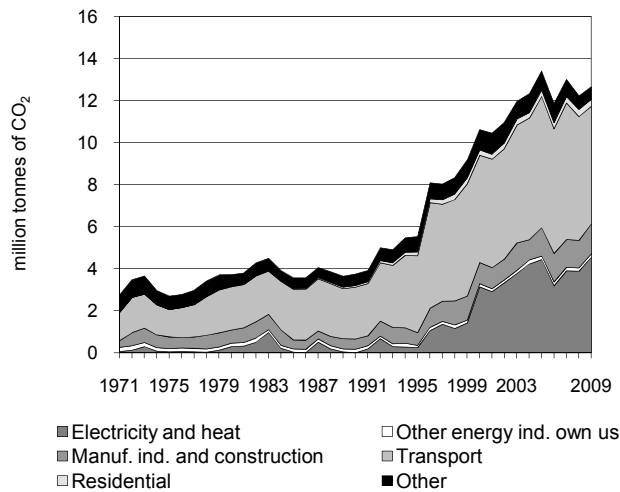


Figure 3. CO₂ emissions by sector

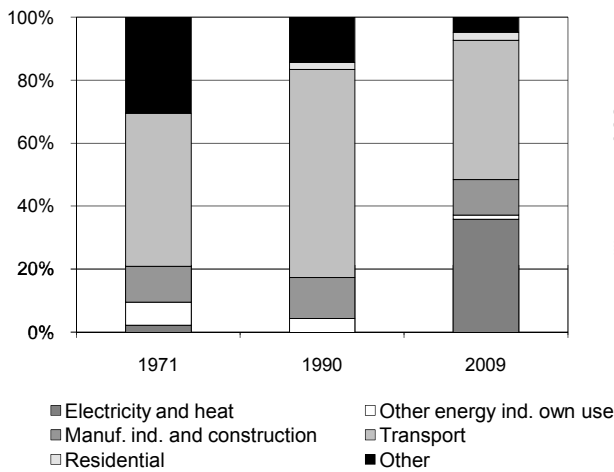


Figure 4. Reference vs Sectoral Approach

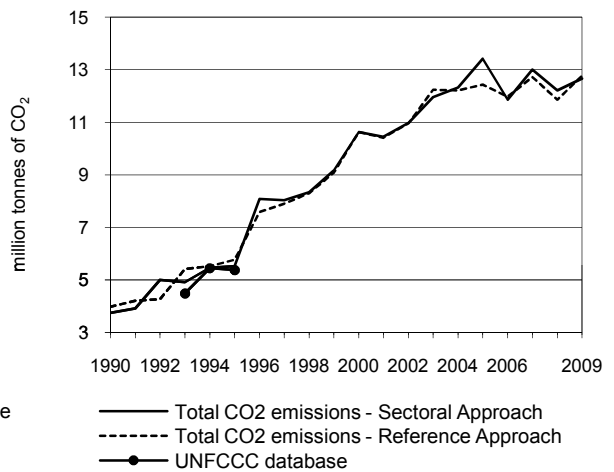


Figure 5. Electricity generation by fuel

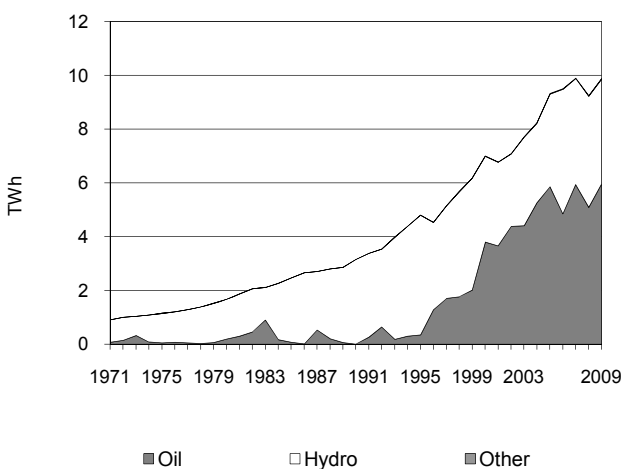
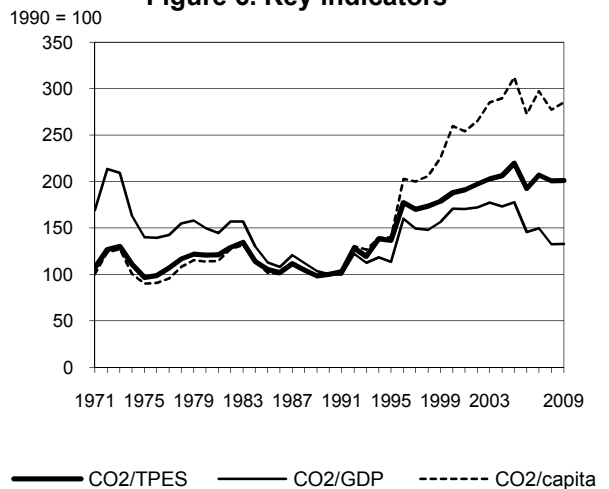


Figure 6. Key indicators



Sri Lanka

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	3.74	5.52	10.62	13.42	13.00	12.22	12.66	238.1%
CO ₂ Reference Approach (Mt of CO ₂)	3.98	5.77	10.63	12.44	12.73	11.87	12.76	220.8%
TPES (PJ)	231	249	349	377	388	376	389	68.3%
TPES (Mtoe)	5.52	5.95	8.33	9.00	9.26	8.97	9.28	68.3%
GDP (billion 2000 USD)	9.82	12.77	16.33	19.84	22.81	24.17	25.03	154.8%
GDP PPP (billion 2000 USD)	40.09	52.14	66.65	80.97	93.11	98.65	102.14	154.8%
Population (millions)	17.11	18.08	18.71	19.67	20.01	20.16	20.30	18.6%
CO ₂ / TPES (t CO ₂ per TJ)	16.2	22.2	30.5	35.6	33.5	32.5	32.6	101.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.38	0.43	0.65	0.68	0.57	0.51	0.51	32.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.09	0.11	0.16	0.17	0.14	0.12	0.12	32.7%
CO ₂ / population (t CO ₂ per capita)	0.22	0.31	0.57	0.68	0.65	0.61	0.62	185.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.21	12.45	-	-	12.66	238.1%
Main activity producer elec. and heat	-	4.55	-	-	4.55	+
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.16	-	-	0.16	1.3%
Manufacturing industries and construction	0.21	1.22	-	-	1.43	192.8%
Transport	-	5.59	-	-	5.59	126.3%
<i>of which: road</i>	-	4.91	-	-	4.91	122.9%
Other	-	0.93	-	-	0.93	50.1%
<i>of which: residential</i>	-	0.33	-	-	0.33	298.8%
Reference Approach	0.21	12.55	-	-	12.76	220.8%
Diff. due to losses and/or transformation	-	0.45	-	-	0.45	
Statistical differences	-	-0.34	-	-	-0.34	
<i>Memo: international marine bunkers</i>	-	0.62	-	-	0.62	-48.4%
<i>Memo: international aviation bunkers</i>	-	0.31	-	-	0.31	x

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	4.91	122.9%	18.2	18.2
Main activity prod. elec. and heat - oil	4.55	+	16.9	35.1
Manufacturing industries - oil	1.22	160.6%	4.5	39.7
Other transport - oil	0.68	154.1%	2.5	42.2
Non-specified other - oil	0.60	11.9%	2.2	44.5
Residential - oil	0.33	298.8%	1.2	45.7
Manufacturing industries - coal/peat	0.21	980.5%	0.8	46.4
Other energy industry own use - oil	0.16	1.3%	0.6	47.0
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>12.66</i>	<i>238.1%</i>	<i>47.0</i>	<i>47.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Sudan

Figure 1. CO₂ emissions by fuel

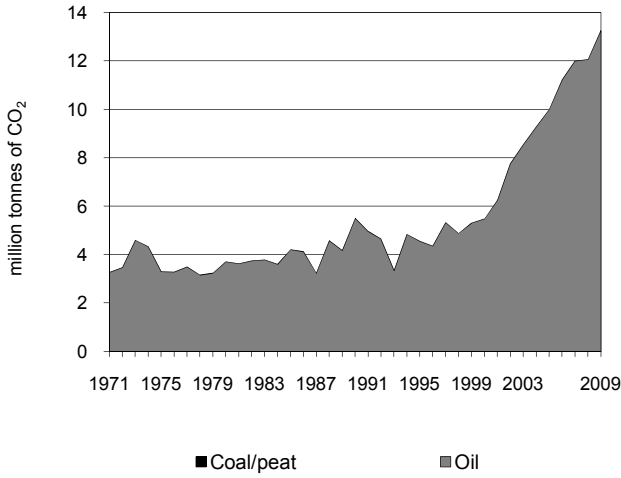


Figure 2. CO₂ emissions by sector

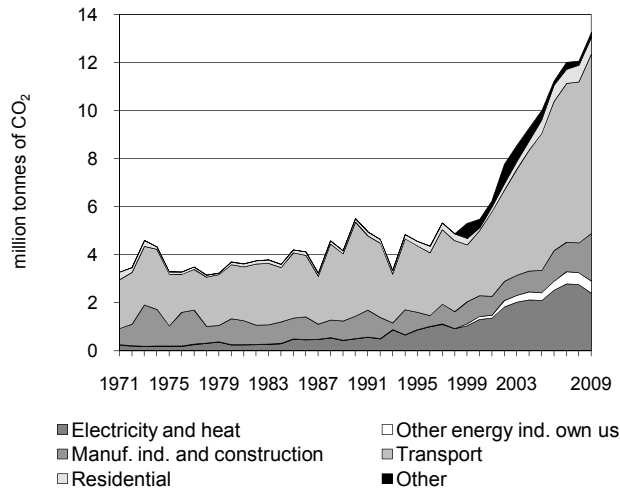


Figure 3. CO₂ emissions by sector

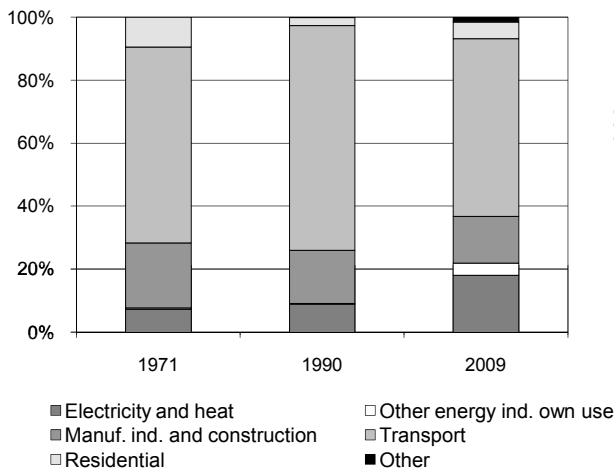


Figure 4. Reference vs Sectoral Approach

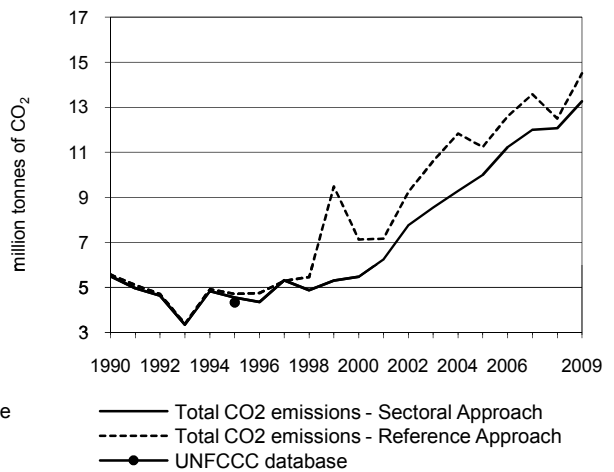


Figure 5. Electricity generation by fuel

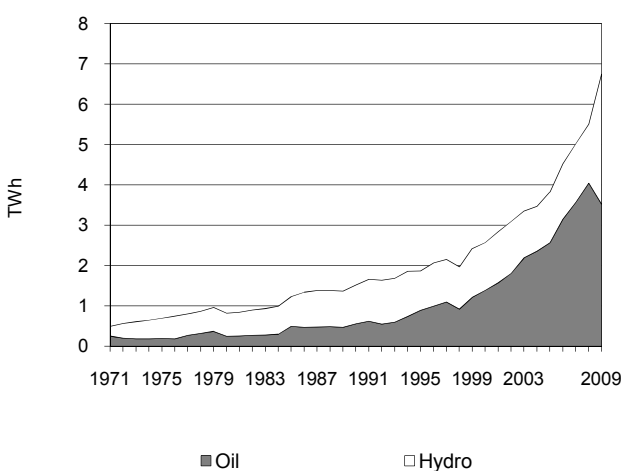
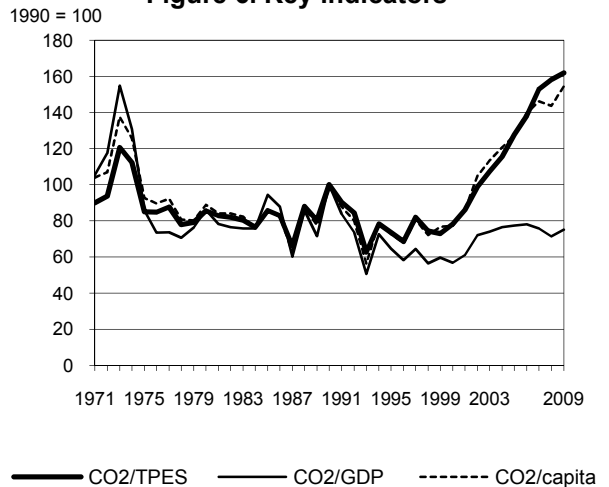


Figure 6. Key indicators



Sudan

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	5.50	4.56	5.48	10.00	12.00	12.07	13.26	140.9%
CO ₂ Reference Approach (Mt of CO ₂)	5.58	4.71	7.13	11.24	13.58	12.49	14.50	160.0%
TPES (PJ)	445	502	566	633	635	617	662	48.8%
TPES (Mtoe)	10.63	11.98	13.53	15.11	15.16	14.73	15.82	48.8%
GDP (billion 2000 USD)	7.06	9.06	12.37	16.56	20.31	21.70	22.68	221.1%
GDP PPP (billion 2000 USD)	28.31	36.31	49.57	66.39	81.40	86.97	90.90	221.1%
Population (millions)	27.09	30.84	34.90	38.70	40.43	41.35	42.27	56.0%
CO ₂ / TPES (t CO ₂ per TJ)	12.4	9.1	9.7	15.8	18.9	19.6	20.0	61.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.78	0.50	0.44	0.60	0.59	0.56	0.58	-25.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.19	0.13	0.11	0.15	0.15	0.14	0.15	-24.9%
CO ₂ / population (t CO ₂ per capita)	0.20	0.15	0.16	0.26	0.30	0.29	0.31	54.4%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	13.26	-	-	13.26	140.9%
Main activity producer elec. and heat	-	2.40	-	-	2.40	387.5%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.50	-	-	0.50	+
Manufacturing industries and construction	-	1.98	-	-	1.98	112.5%
Transport	-	7.48	-	-	7.48	90.7%
<i>of which: road</i>	-	7.44	-	-	7.44	89.7%
Other	-	0.90	-	-	0.90	510.5%
<i>of which: residential</i>	-	0.69	-	-	0.69	389.5%
Reference Approach	-	14.50	-	-	14.50	160.0%
Diff. due to losses and/or transformation	-	0.66	-	-	0.66	
Statistical differences	-	0.57	-	-	0.57	
<i>Memo: international marine bunkers</i>	-	0.03	-	-	0.03	14.3%
<i>Memo: international aviation bunkers</i>	-	1.14	-	-	1.14	+

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	7.44	89.7%	3.7	3.7
Main activity prod. elec. and heat - oil	2.40	387.5%	1.2	4.8
Manufacturing industries - oil	1.98	112.5%	1.0	5.8
Residential - oil	0.69	389.5%	0.3	6.1
Other energy industry own use - oil	0.50	+	0.2	6.4
Non-specified other - oil	0.21	+	0.1	6.5
Other transport - oil	0.04	x	0.0	6.5
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>13.26</i>	<i>140.9%</i>	<i>6.5</i>	<i>6.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Sweden

Figure 1. CO₂ emissions by fuel

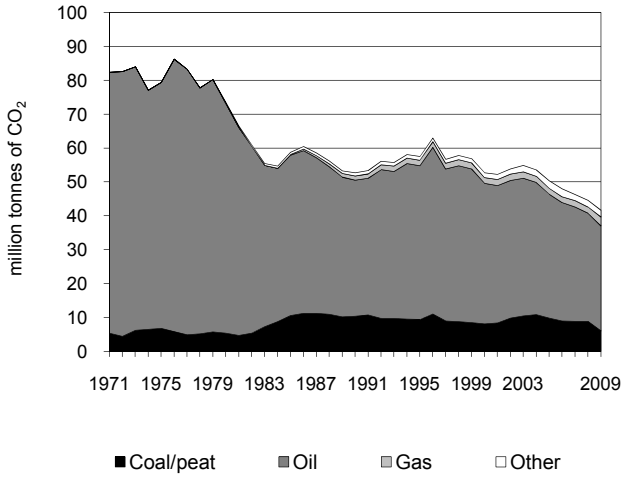


Figure 2. CO₂ emissions by sector

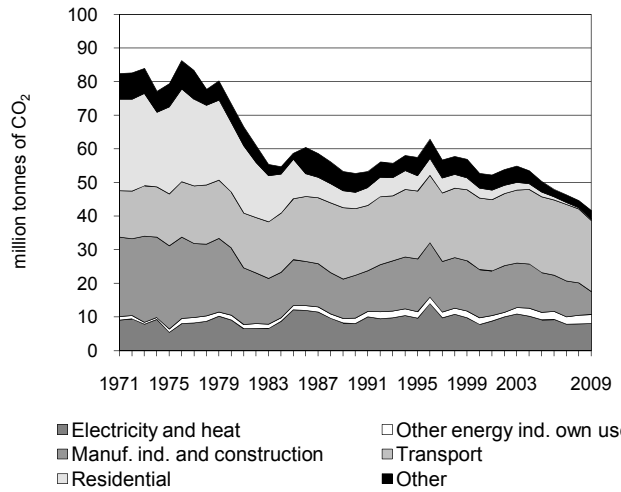


Figure 3. CO₂ emissions by sector

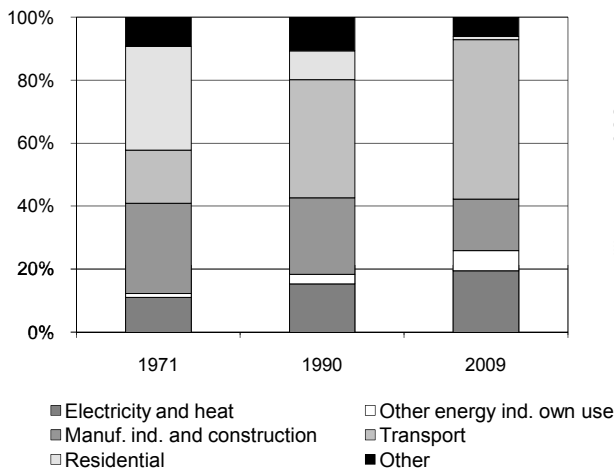


Figure 4. Reference vs Sectoral Approach

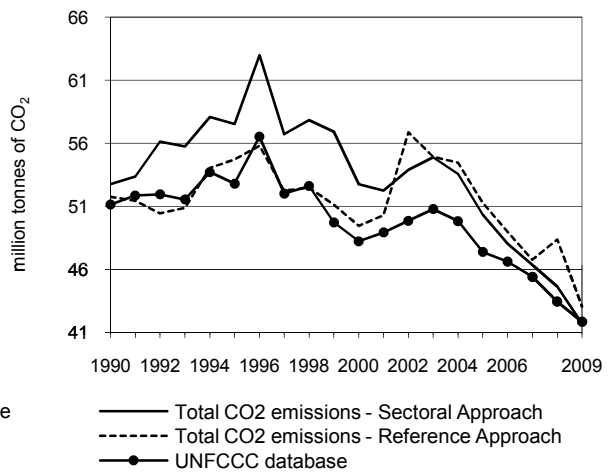


Figure 5. Electricity generation by fuel

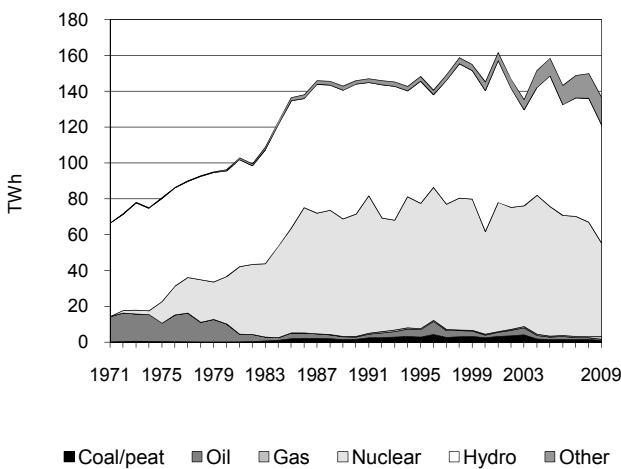
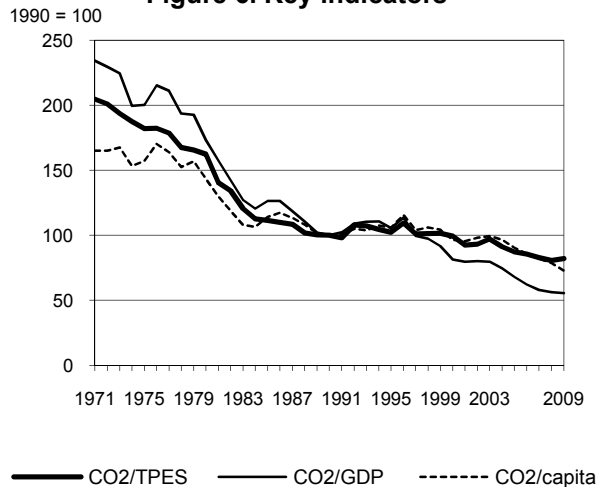


Figure 6. Key indicators



Sweden

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	52.75	57.52	52.76	50.34	46.35	44.63	41.71	-20.9%
CO ₂ Reference Approach (Mt of CO ₂)	51.76	54.71	49.46	51.29	46.77	48.37	43.05	-16.8%
TPES (PJ)	1 976	2 107	1 991	2 159	2 096	2 077	1 901	-3.8%
TPES (Mtoe)	47.20	50.33	47.56	51.57	50.06	49.60	45.41	-3.8%
GDP (billion 2000 USD)	201.04	207.98	247.26	282.36	304.26	302.39	286.27	42.4%
GDP PPP (billion 2000 USD)	201.60	208.57	247.96	283.16	305.12	303.25	287.08	42.4%
Population (millions)	8.56	8.83	8.87	9.03	9.15	9.22	9.30	8.6%
CO ₂ / TPES (t CO ₂ per TJ)	26.7	27.3	26.5	23.3	22.1	21.5	21.9	-17.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.26	0.28	0.21	0.18	0.15	0.15	0.15	-44.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.26	0.28	0.21	0.18	0.15	0.15	0.15	-44.5%
CO ₂ / population (t CO ₂ per capita)	6.16	6.52	5.95	5.58	5.07	4.84	4.48	-27.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	6.09	30.97	2.61	2.04	41.71	-20.9%
Main activity producer elec. and heat	3.68	0.88	1.26	2.04	7.86	1.2%
Unallocated autoproducers	0.14	0.12	0.01	-	0.27	-15.4%
Other energy industry own use	0.26	2.41	0.00	-	2.67	64.1%
Manufacturing industries and construction	1.98	3.89	0.95	-	6.82	-46.6%
Transport	-	21.07	0.05	-	21.12	6.8%
<i>of which: road</i>	-	20.15	0.05	-	20.20	13.4%
Other	0.03	2.60	0.33	-	2.96	-71.7%
<i>of which: residential</i>	0.02	0.23	0.15	-	0.41	-91.6%
Reference Approach	7.42	31.01	2.57	2.04	43.05	-16.8%
Diff. due to losses and/or transformation	1.26	0.82	0.01	-	2.09	
Statistical differences	0.07	-0.77	-0.04	-	-0.74	
<i>Memo: international marine bunkers</i>	-	6.70	-	-	6.70	220.0%
<i>Memo: international aviation bunkers</i>	-	2.11	-	-	2.11	96.6%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	20.15	13.1%	33.7	33.7
Manufacturing industries - oil	3.89	-48.5%	6.5	40.2
Main activity prod. elec. and heat - coal/peat	3.68	-29.8%	6.1	46.3
Other energy industry own use - oil	2.41	81.6%	4.0	50.3
Non-specified other - oil	2.36	-55.6%	4.0	54.3
Main activity prod. elec. and heat - other	2.04	114.1%	3.4	57.7
Manufacturing industries - coal/peat	1.98	-57.1%	3.3	61.0
Main activity prod. elec. and heat - gas	1.26	185.3%	2.1	63.1
Manufacturing industries - gas	0.95	60.4%	1.6	64.7
Other transport - oil	0.92	-52.9%	1.5	66.2
Main activity prod. elec. and heat - oil	0.88	-22.8%	1.5	67.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>41.71</i>	<i>-20.9%</i>	<i>69.7</i>	<i>69.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Switzerland

Figure 1. CO₂ emissions by fuel

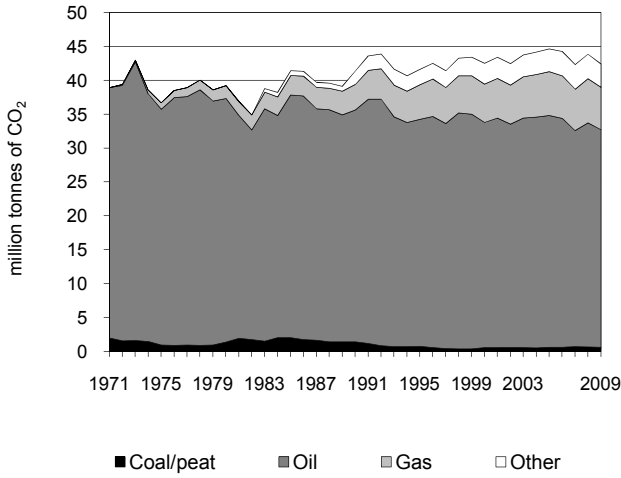


Figure 2. CO₂ emissions by sector

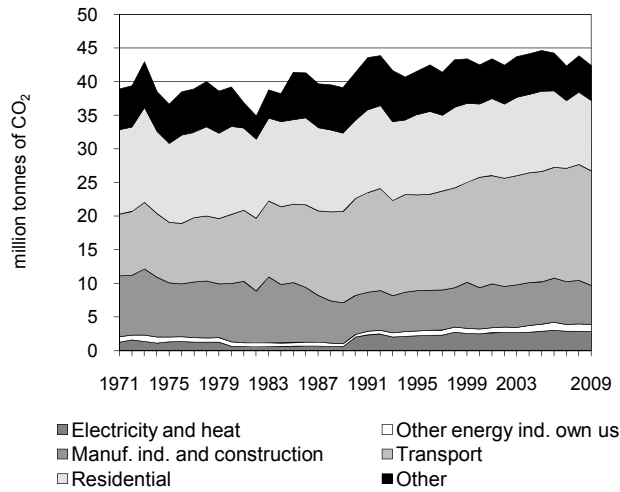


Figure 3. CO₂ emissions by sector

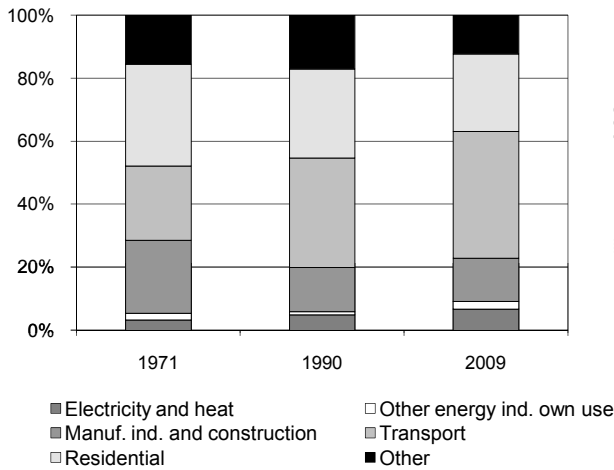


Figure 4. Reference vs Sectoral Approach

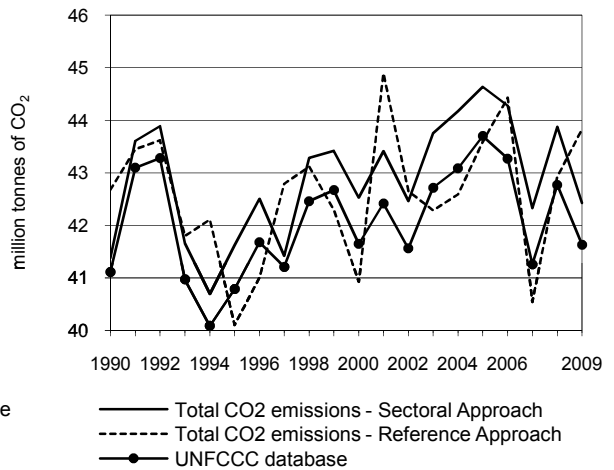


Figure 5. Electricity generation by fuel

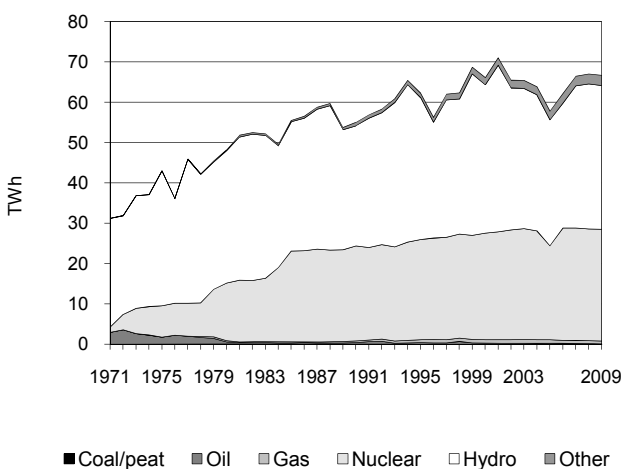
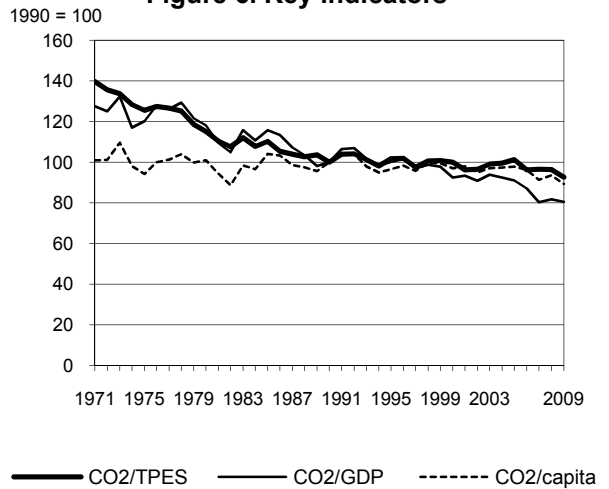


Figure 6. Key indicators



Switzerland

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	41.38	41.62	42.53	44.64	42.33	43.87	42.42	2.5%
CO ₂ Reference Approach (Mt of CO ₂)	42.68	40.11	40.93	43.59	40.54	42.92	43.83	2.7%
TPES (PJ)	1 018	1 007	1 047	1 085	1 079	1 121	1 128	10.8%
TPES (Mtoe)	24.32	24.06	25.01	25.92	25.76	26.78	26.95	10.8%
GDP (billion 2000 USD)	224.77	225.89	249.91	266.69	286.44	291.88	286.30	27.4%
GDP PPP (billion 2000 USD)	205.00	206.02	227.94	243.24	261.25	266.21	261.12	27.4%
Population (millions)	6.80	7.08	7.21	7.50	7.62	7.71	7.80	14.8%
CO ₂ / TPES (t CO ₂ per TJ)	40.6	41.3	40.6	41.1	39.2	39.1	37.6	-7.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.18	0.18	0.17	0.17	0.15	0.15	0.15	-19.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.20	0.20	0.19	0.18	0.16	0.16	0.16	-19.5%
CO ₂ / population (t CO ₂ per capita)	6.09	5.88	5.90	5.95	5.56	5.69	5.44	-10.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.60	32.12	6.27	3.44	42.42	2.5%
Main activity producer elec. and heat	-	0.03	0.31	-	0.34	-42.3%
Unallocated autoproducers	-	0.04	0.17	2.31	2.52	74.3%
Other energy industry own use	-	1.03	0.01	-	1.04	151.4%
Manufacturing industries and construction	0.56	2.35	1.91	0.99	5.81	0.2%
Transport	-	17.03	0.03	-	17.06	18.5%
<i>of which: road</i>	-	16.77	0.03	-	16.80	21.1%
Other	0.04	11.63	3.84	0.14	15.65	-16.5%
<i>of which: residential</i>	0.04	8.07	2.32	-	10.42	-10.6%
Reference Approach	0.60	33.49	6.30	3.44	43.83	2.7%
Diff. due to losses and/or transformation	-	0.40	0.03	-	0.43	
Statistical differences	0.00	0.97	0.00	-	0.97	
<i>Memo: international marine bunkers</i>	-	0.02	-	-	0.02	-55.6%
<i>Memo: international aviation bunkers</i>	-	3.98	-	-	3.98	32.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	16.77	20.9%	31.8	31.8
Residential - oil	8.07	-21.0%	15.3	47.1
Non-specified other - oil	3.56	-42.8%	6.8	53.8
Manufacturing industries - oil	2.35	-7.5%	4.5	58.3
Residential - gas	2.32	65.3%	4.4	62.7
Unallocated autoproducers - other	2.31	79.7%	4.4	67.1
Manufacturing industries - gas	1.91	40.6%	3.6	70.7
Non-specified other - gas	1.52	113.7%	2.9	73.6
Other energy industry own use - oil	1.03	154.3%	2.0	75.5
Manufacturing industries - other	0.99	41.0%	1.9	77.4
Manufacturing industries - coal/peat	0.56	-52.9%	1.1	78.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>42.42</i>	<i>2.5%</i>	<i>80.4</i>	<i>80.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Syrian Arab Republic

Figure 1. CO₂ emissions by fuel

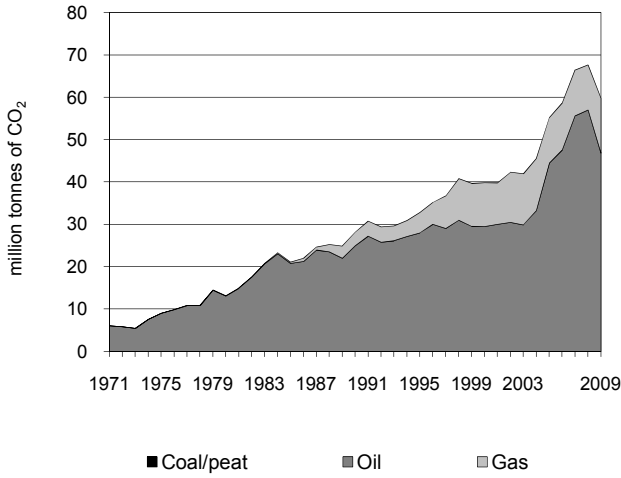


Figure 2. CO₂ emissions by sector

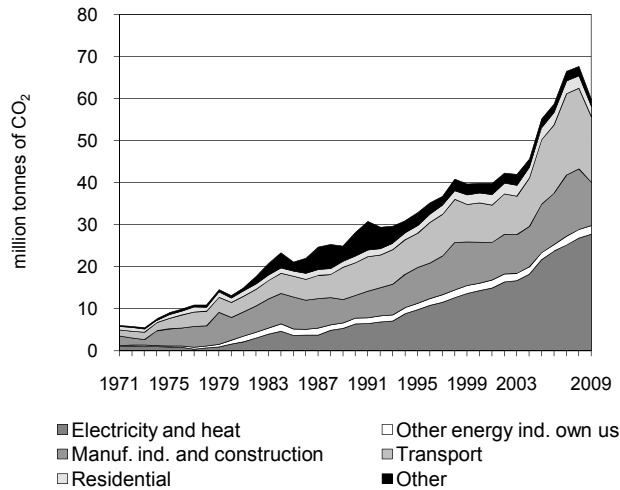


Figure 3. CO₂ emissions by sector

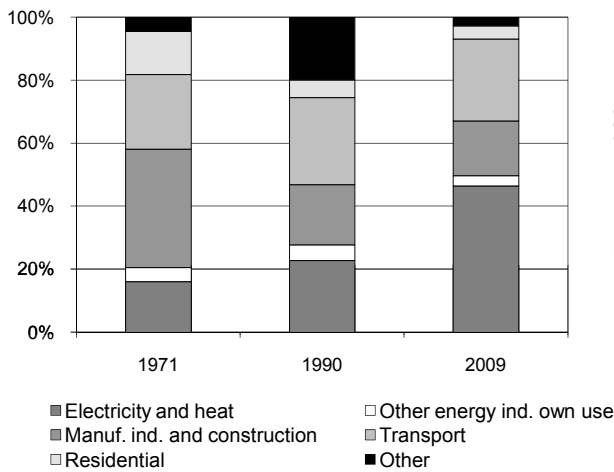


Figure 4. Reference vs Sectoral Approach

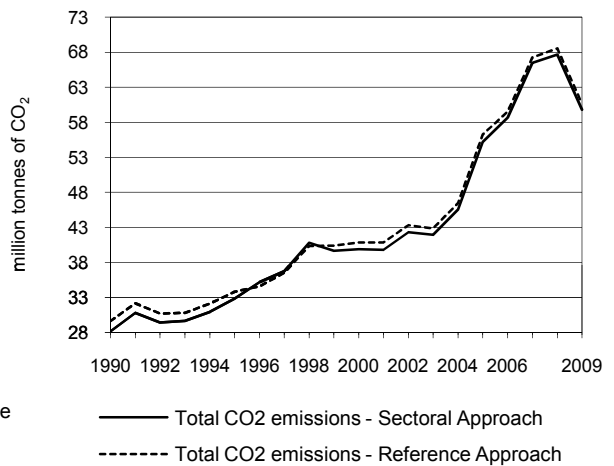


Figure 5. Electricity generation by fuel

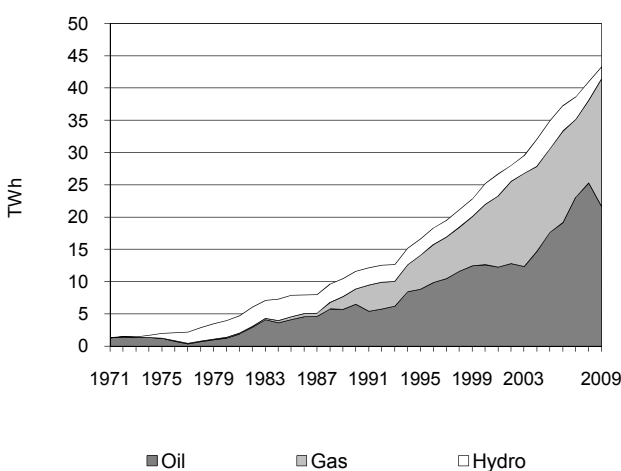
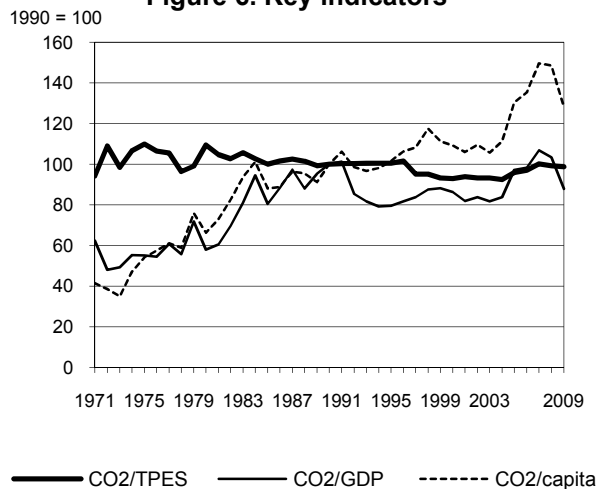


Figure 6. Key indicators



Syrian Arab Republic

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	28.16	32.82	39.87	55.20	66.47	67.64	59.80	112.4%
CO ₂ Reference Approach (Mt of CO ₂)	29.62	33.82	40.85	56.25	67.26	68.52	60.66	104.8%
TPES (PJ)	438	509	668	896	1 034	1 062	942	115.0%
TPES (Mtoe)	10.47	12.15	15.95	21.39	24.69	25.36	22.50	115.0%
GDP (billion 2000 USD)	11.77	17.26	19.33	23.76	26.02	27.37	28.47	141.8%
GDP PPP (billion 2000 USD)	32.38	47.48	53.17	65.36	71.58	75.30	78.31	141.8%
Population (millions)	12.72	14.61	16.51	19.12	20.08	20.58	21.09	65.8%
CO ₂ / TPES (t CO ₂ per TJ)	64.3	64.5	59.7	61.6	64.3	63.7	63.5	-1.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.39	1.90	2.06	2.32	2.56	2.47	2.10	-12.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.87	0.69	0.75	0.84	0.93	0.90	0.76	-12.2%
CO ₂ / population (t CO ₂ per capita)	2.21	2.25	2.41	2.89	3.31	3.29	2.84	28.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.01	46.82	12.97	-	59.80	112.4%
Main activity producer elec. and heat	-	15.06	10.74	-	25.80	371.7%
Unallocated autoproducers	-	1.96	-	-	1.96	105.3%
Other energy industry own use	-	1.78	0.21	-	1.99	44.0%
Manufacturing industries and construction	0.01	8.61	1.74	-	10.37	92.2%
Transport	-	15.56	-	-	15.56	99.9%
<i>of which: road</i>	-	14.93	-	-	14.93	91.8%
Other	-	3.85	0.28	-	4.13	-42.5%
<i>of which: residential</i>	-	2.48	-	-	2.48	58.5%
Reference Approach	0.01	47.68	12.97	-	60.66	104.8%
Diff. due to losses and/or transformation	0.00	0.86	-	-	0.86	
Statistical differences	-	- 0.00	0.00	-	-	
<i>Memo: international marine bunkers</i>	-	3.39	-	-	3.39	20.4%
<i>Memo: international aviation bunkers</i>	-	0.29	-	-	0.29	-66.5%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	15.06	260.7%	18.3	18.3
Road - oil	14.93	91.8%	18.1	36.5
Main activity prod. elec. and heat - gas	10.74	729.6%	13.1	49.5
Manufacturing industries - oil	8.61	59.7%	10.5	60.0
Residential - oil	2.48	58.5%	3.0	63.0
Unallocated autoproducers - oil	1.96	105.3%	2.4	65.4
Other energy industry own use - oil	1.78	44.6%	2.2	67.5
Manufacturing industries - gas	1.74	x	2.1	69.7
Non-specified other - oil	1.37	-64.5%	1.7	71.3
Other transport - oil	0.63	x	0.8	72.1
Non-specified other - gas	0.28	-84.2%	0.3	72.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>59.80</i>	<i>112.4%</i>	<i>72.7</i>	<i>72.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Tajikistan

Figure 1. CO₂ emissions by fuel

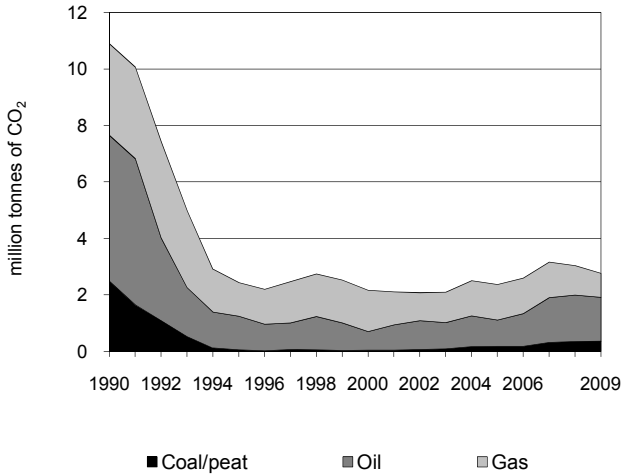


Figure 2. CO₂ emissions by sector

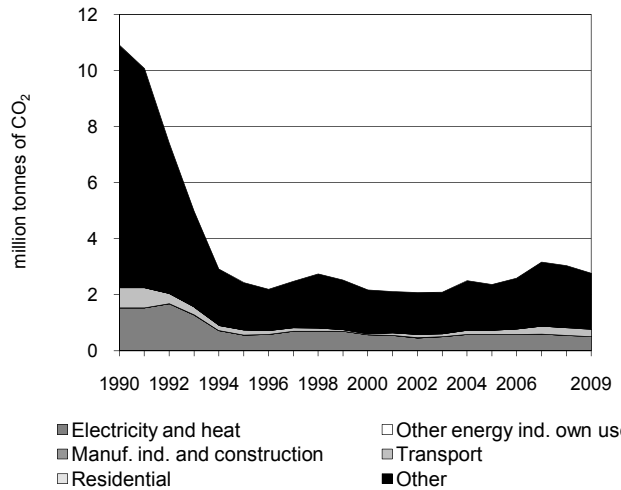


Figure 3. CO₂ emissions by sector

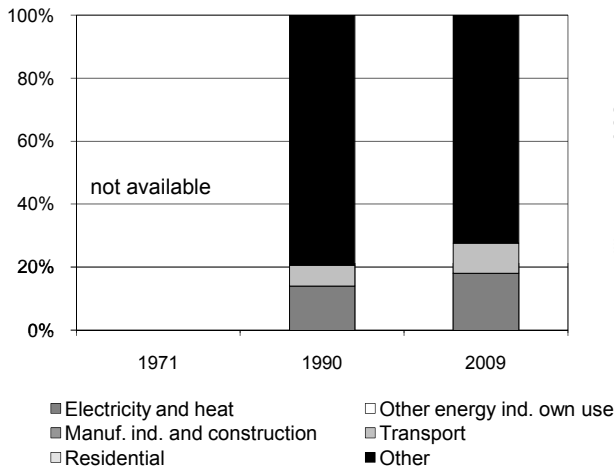


Figure 4. Reference vs Sectoral Approach

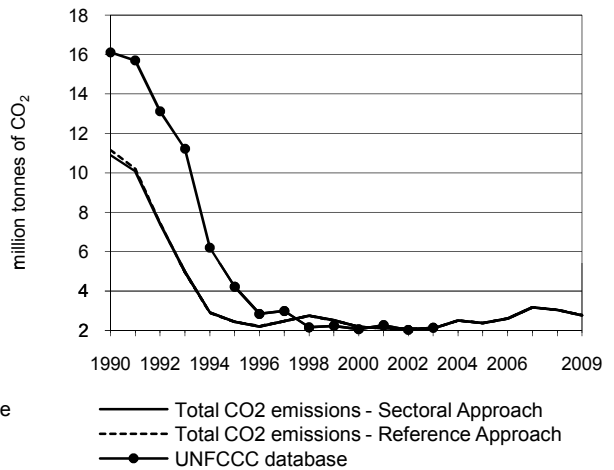


Figure 5. Electricity generation by fuel

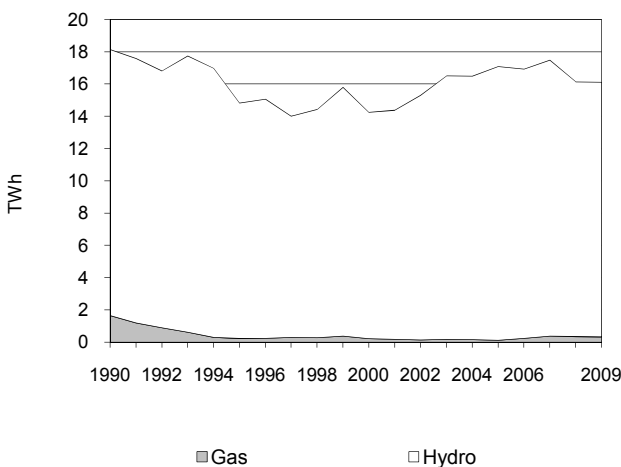
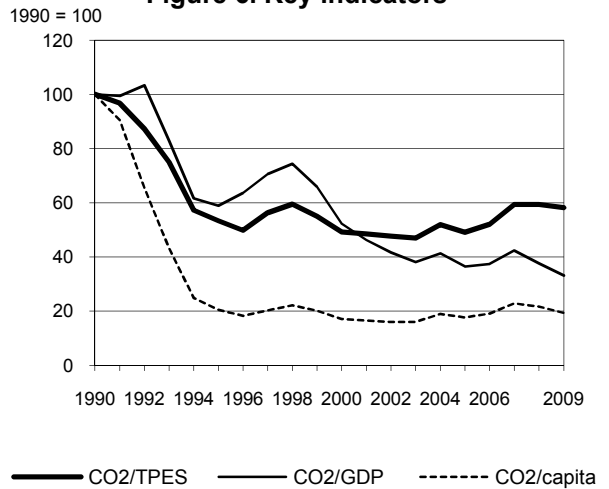


Figure 6. Key indicators



Tajikistan

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	10.90	2.44	2.17	2.37	3.17	3.04	2.77	-74.6%
CO ₂ Reference Approach (Mt of CO ₂)	11.17	2.44	2.17	2.37	3.17	3.05	2.77	-75.2%
TPES (PJ)	222	93	90	98	109	104	97	-56.3%
TPES (Mtoe)	5.31	2.23	2.15	2.35	2.60	2.49	2.32	-56.3%
GDP (billion 2000 USD)	2.26	0.86	0.86	1.35	1.55	1.68	1.73	-23.4%
GDP PPP (billion 2000 USD)	11.52	4.38	4.39	6.86	7.91	8.54	8.83	-23.4%
Population (millions)	5.30	5.78	6.17	6.54	6.73	6.84	6.95	31.1%
CO ₂ / TPES (t CO ₂ per TJ)	49.0	26.2	24.1	24.1	29.1	29.1	28.5	-41.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	4.82	2.84	2.52	1.76	2.04	1.82	1.60	-66.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.95	0.56	0.49	0.35	0.40	0.36	0.31	-66.9%
CO ₂ / population (t CO ₂ per capita)	2.06	0.42	0.35	0.36	0.47	0.45	0.40	-80.6%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.36	1.56	0.85	-	2.77	-74.6%
Main activity producer elec. and heat	-	-	0.50	-	0.50	-67.2%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	-	-	-	-	-
Transport	-	0.24	0.03	-	0.27	-63.4%
<i>of which: road</i>	-	0.24	0.03	-	0.27	-63.4%
Other	0.36	1.32	0.32	-	2.00	-76.8%
<i>of which: residential</i>	-	-	-	-	-	-
Reference Approach	0.36	1.57	0.85	-	2.77	-75.2%
Diff. due to losses and/or transformation	-	0.01	-	-	0.01	-
Statistical differences	-	-	0.00	-	0.00	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.01	-	-	0.01	-73.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Non-specified other - oil	1.32	-70.3%	14.1	14.1
Main activity prod. elec. and heat - gas	0.50	-67.2%	5.3	19.5
Non-specified other sectors - coal/peat	0.36	-85.6%	3.8	23.3
Non-specified other - gas	0.32	-81.3%	3.4	26.7
Road - oil	0.24	-67.1%	2.5	29.3
Road - gas	0.03	x	0.3	29.5
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>2.77</i>	<i>-74.6%</i>	<i>29.5</i>	<i>29.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

United Republic of Tanzania

Figure 1. CO₂ emissions by fuel

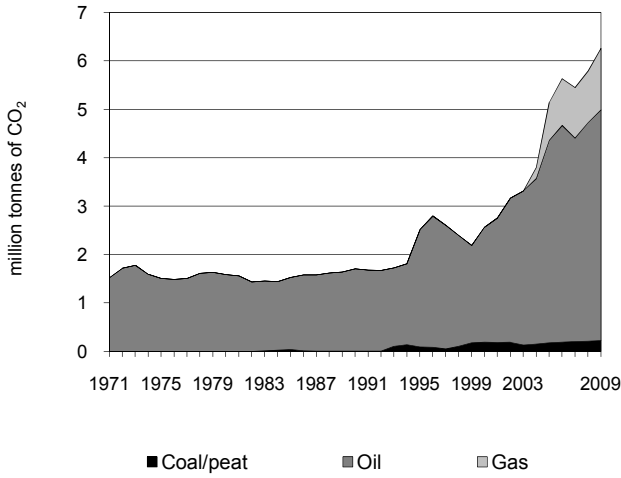


Figure 2. CO₂ emissions by sector

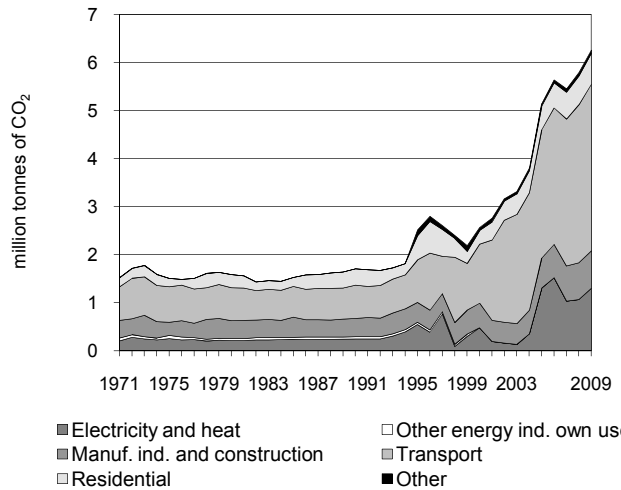


Figure 3. CO₂ emissions by sector

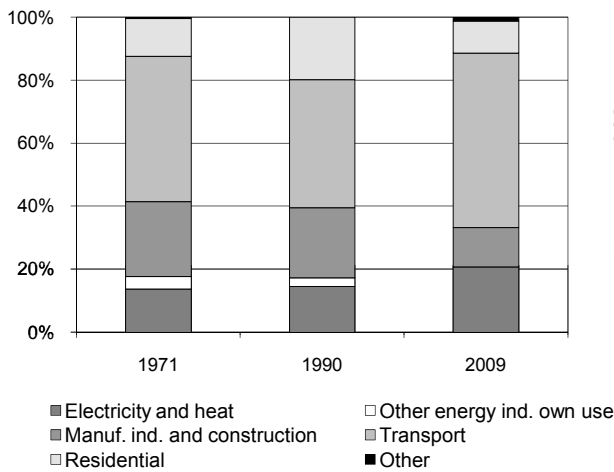


Figure 4. Reference vs Sectoral Approach

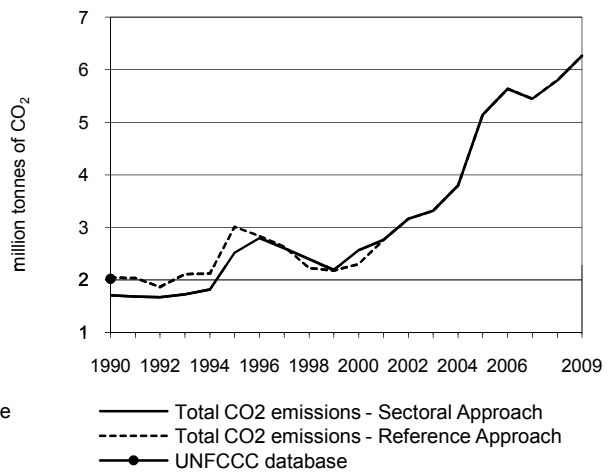


Figure 5. Electricity generation by fuel

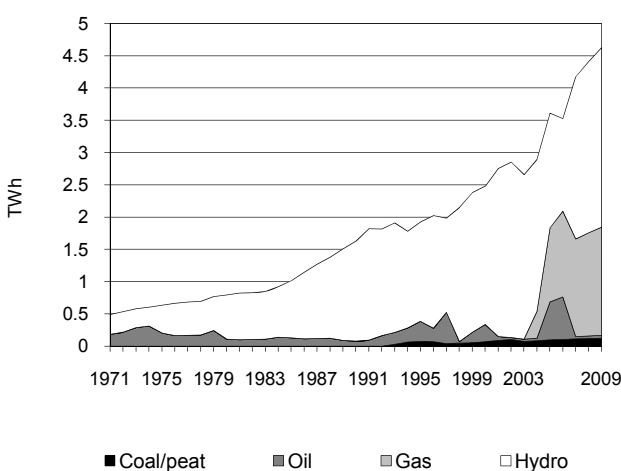
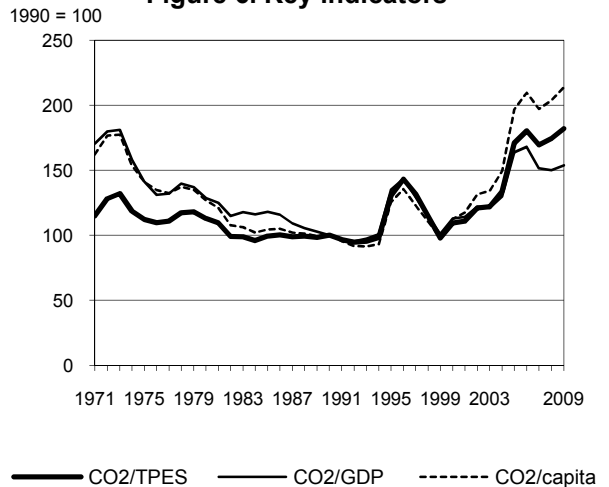


Figure 6. Key indicators



United Republic of Tanzania

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	1.71	2.52	2.57	5.15	5.45	5.79	6.26	267.0%
CO ₂ Reference Approach (Mt of CO ₂)	2.04	3.01	2.30	5.15	5.45	5.80	6.26	206.8%
TPES (PJ)	408	461	561	718	768	794	821	101.5%
TPES (Mtoe)	9.73	11.02	13.39	17.16	18.33	18.96	19.62	101.5%
GDP (billion 2000 USD)	6.80	7.43	9.08	12.53	14.33	15.39	16.24	138.8%
GDP PPP (billion 2000 USD)	13.21	14.44	17.64	24.33	27.83	29.90	31.54	138.8%
Population (millions)	25.46	29.97	34.13	39.01	41.28	42.48	43.74	71.8%
CO ₂ / TPES (t CO ₂ per TJ)	4.2	5.5	4.6	7.2	7.1	7.3	7.6	82.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.25	0.34	0.28	0.41	0.38	0.38	0.39	53.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.13	0.17	0.15	0.21	0.20	0.19	0.20	53.6%
CO ₂ / population (t CO ₂ per capita)	0.07	0.08	0.08	0.13	0.13	0.14	0.14	113.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.23	4.77	1.27	-	6.26	267.0%
Main activity producer elec. and heat	-	0.04	1.12	-	1.16	369.5%
Unallocated autoproducers	0.14	-	-	-	0.14	x
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.09	0.54	0.15	-	0.78	104.5%
Transport	-	3.47	-	-	3.47	401.5%
<i>of which: road</i>	-	3.47	-	-	3.47	401.5%
Other	-	0.71	-	-	0.71	109.9%
<i>of which: residential</i>	-	0.63	-	-	0.63	87.4%
Reference Approach	0.23	4.77	1.27	-	6.26	206.8%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-0.00	-	-	-0.00	-
<i>Memo: international marine bunkers</i>	-	0.07	-	-	0.07	-15.5%
<i>Memo: international aviation bunkers</i>	-	0.34	-	-	0.34	53.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	3.47	401.5%	7.8	7.8
Main activity prod. elec. and heat - gas	1.12	x	2.5	10.4
Residential - oil	0.63	87.4%	1.4	11.8
Manufacturing industries - oil	0.54	46.6%	1.2	13.0
Manufacturing industries - gas	0.15	x	0.3	13.3
Unallocated autoproducers - coal/peat	0.14	x	0.3	13.6
Manufacturing industries - coal/peat	0.09	770.7%	0.2	13.8
Non-specified other - oil	0.08	x	0.2	14.0
Main activity prod. elec. and heat - oil	0.04	-83.8%	0.1	14.1
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	6.26	267.0%	14.1	14.1

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Thailand

Figure 1. CO₂ emissions by fuel

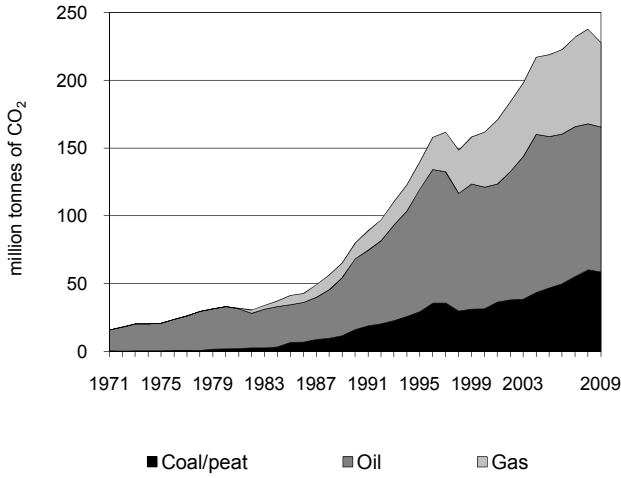


Figure 2. CO₂ emissions by sector

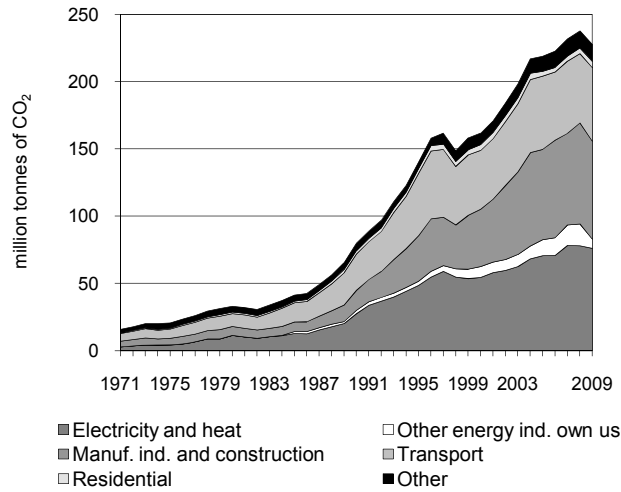


Figure 3. CO₂ emissions by sector

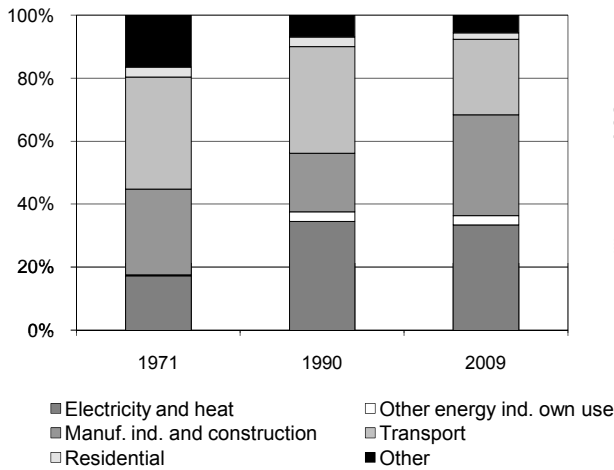


Figure 4. Reference vs Sectoral Approach

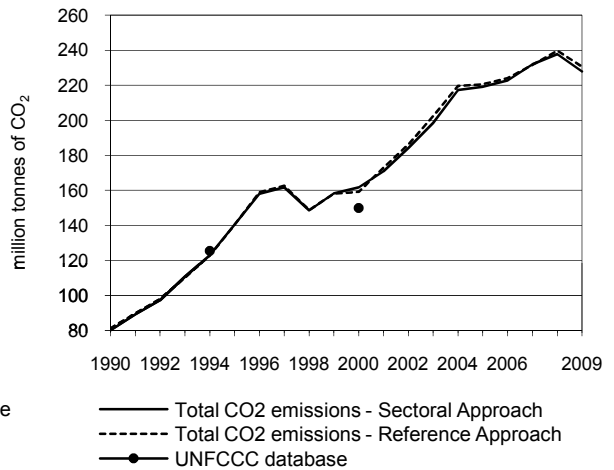


Figure 5. Electricity generation by fuel

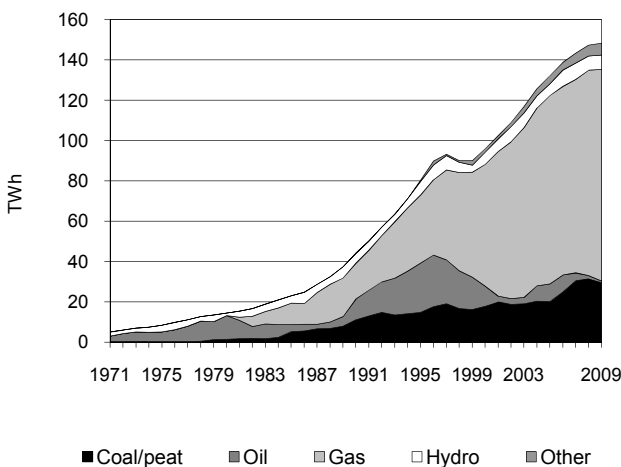
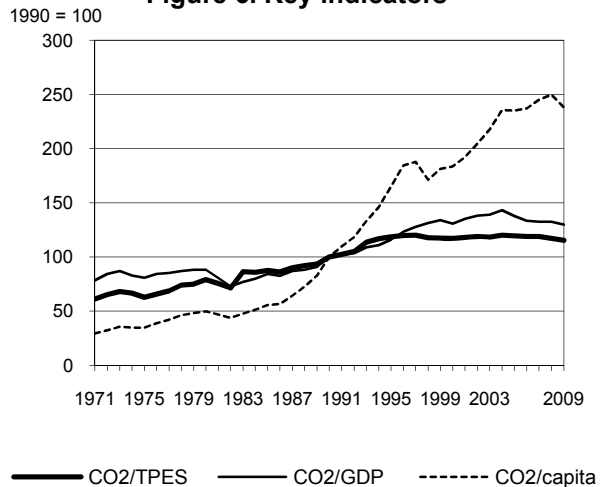


Figure 6. Key indicators



Thailand

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	80.08	140.32	161.79	219.06	231.89	237.82	227.80	184.5%
CO ₂ Reference Approach (Mt of CO ₂)	81.19	140.25	159.22	220.65	231.60	239.71	230.57	184.0%
TPES (PJ)	1 756	2 592	3 030	4 020	4 279	4 451	4 326	146.3%
TPES (Mtoe)	41.95	61.91	72.37	96.02	102.21	106.30	103.32	146.3%
GDP (billion 2000 USD)	79.36	120.01	122.73	157.39	173.64	177.92	173.92	119.2%
GDP PPP (billion 2000 USD)	251.14	379.77	388.38	498.06	549.51	563.04	550.39	119.2%
Population (millions)	56.67	60.14	62.35	65.95	66.98	67.39	67.76	19.6%
CO ₂ / TPES (t CO ₂ per TJ)	45.6	54.1	53.4	54.5	54.2	53.4	52.7	15.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.01	1.17	1.32	1.39	1.34	1.34	1.31	29.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.32	0.37	0.42	0.44	0.42	0.42	0.41	29.8%
CO ₂ / population (t CO ₂ per capita)	1.41	2.33	2.60	3.32	3.46	3.53	3.36	137.9%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	58.55	107.01	62.25	-	227.80	184.5%
Main activity producer elec. and heat	25.65	0.52	42.76	-	68.92	149.0%
Unallocated autoproducers	2.08	0.03	5.15	-	7.26	x
Other energy industry own use	-	-	6.71	-	6.71	178.5%
Manufacturing industries and construction	30.82	37.24	4.94	-	72.99	389.7%
Transport	-	51.92	2.69	-	54.61	101.7%
<i>of which: road</i>	-	51.45	2.69	-	54.14	110.9%
Other	-	17.30	0.00	-	17.30	115.8%
<i>of which: residential</i>	-	4.59	-	-	4.59	86.7%
Reference Approach	59.42	108.90	62.25	-	230.57	184.0%
Diff. due to losses and/or transformation	0.00	2.04	-	-	2.04	
Statistical differences	0.87	-0.15	-0.00	-	0.73	
<i>Memo: international marine bunkers</i>	-	4.75	-	-	4.75	179.1%
<i>Memo: international aviation bunkers</i>	-	10.49	-	-	10.49	87.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	51.45	100.4%	14.1	14.1
Main activity prod. elec. and heat - gas	42.76	378.5%	11.7	25.8
Manufacturing industries - oil	37.24	309.3%	10.2	36.1
Manufacturing industries - coal/peat	30.82	461.9%	8.5	44.5
Main activity prod. elec. and heat - coal/peat	25.65	142.4%	7.0	51.5
Non-specified other - oil	12.71	128.7%	3.5	55.0
Other energy industry own use - gas	6.71	178.5%	1.8	56.9
Unallocated autoproducers - gas	5.15	x	1.4	58.3
Manufacturing industries - gas	4.94	+	1.4	59.6
Residential - oil	4.59	86.7%	1.3	60.9
Road - gas	2.69	+	0.7	61.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>227.80</i>	<i>184.5%</i>	<i>62.5</i>	<i>62.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Togo

Figure 1. CO₂ emissions by fuel

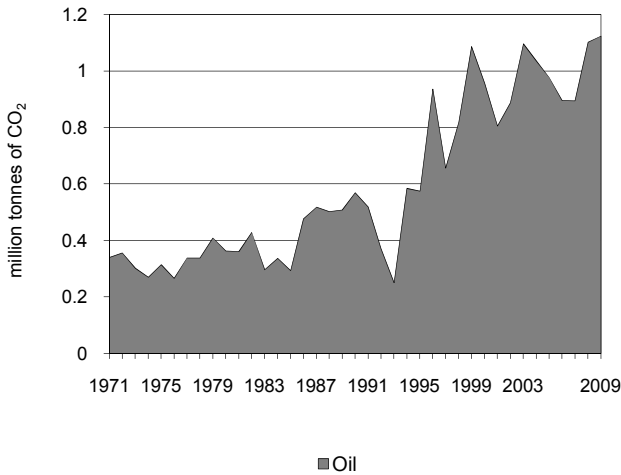


Figure 2. CO₂ emissions by sector

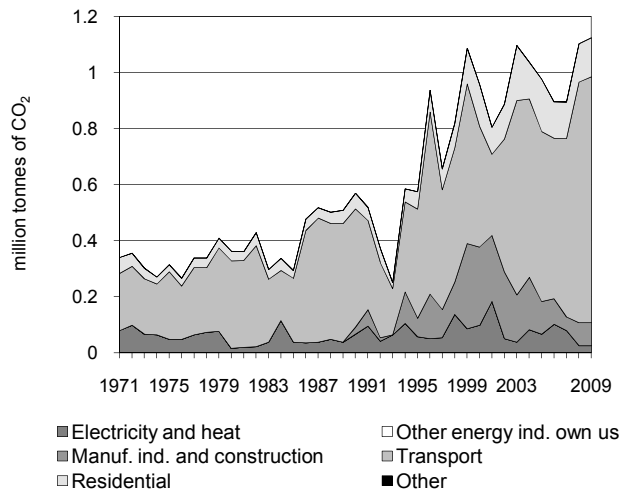


Figure 3. CO₂ emissions by sector

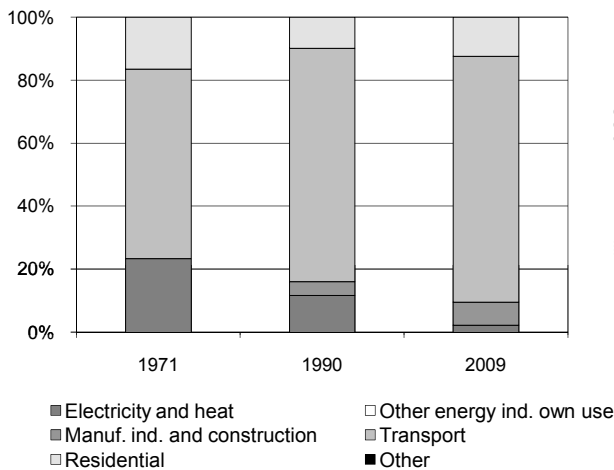


Figure 4. Reference vs Sectoral Approach

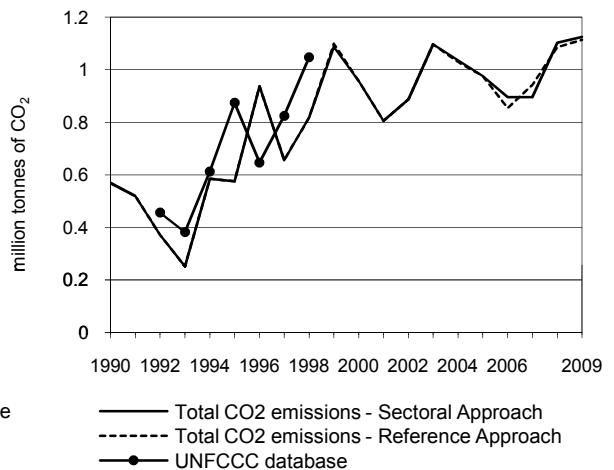


Figure 5. Electricity generation by fuel

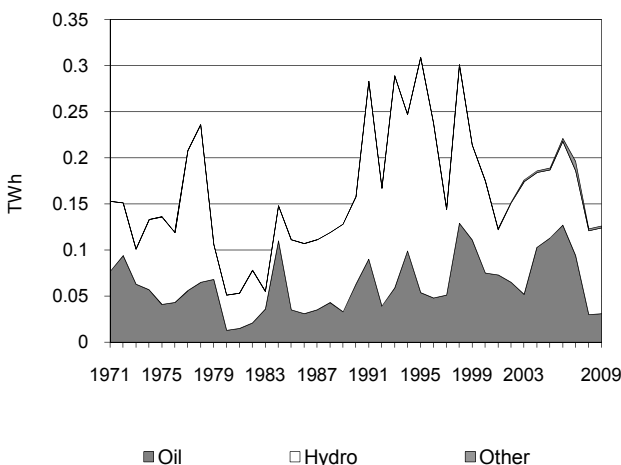
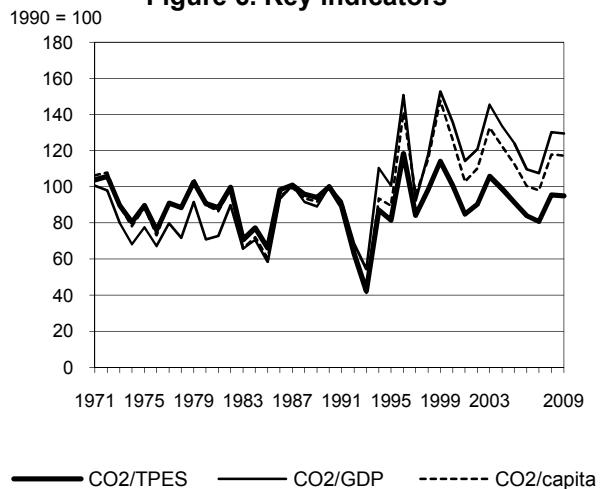


Figure 6. Key indicators



Togo

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	0.57	0.57	0.96	0.98	0.90	1.10	1.12	97.5%
CO ₂ Reference Approach (Mt of CO ₂)	0.57	0.57	0.96	0.98	0.94	1.09	1.11	95.8%
TPES (PJ)	53	66	88	99	103	107	110	107.9%
TPES (Mtoe)	1.26	1.57	2.11	2.37	2.46	2.56	2.63	107.9%
GDP (billion 2000 USD)	1.07	1.08	1.33	1.48	1.57	1.59	1.63	52.6%
GDP PPP (billion 2000 USD)	5.87	5.89	7.28	8.10	8.58	8.73	8.95	52.6%
Population (millions)	3.93	4.43	5.25	5.99	6.30	6.46	6.62	68.6%
CO ₂ / TPES (t CO ₂ per TJ)	10.8	8.8	10.8	9.8	8.7	10.3	10.2	-5.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.53	0.53	0.72	0.66	0.57	0.69	0.69	29.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.10	0.10	0.13	0.12	0.10	0.13	0.13	29.5%
CO ₂ / population (t CO ₂ per capita)	0.15	0.13	0.18	0.16	0.14	0.17	0.17	17.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	1.12	-	-	1.12	97.5%
Main activity producer elec. and heat	-	0.02	-	-	0.02	-63.2%
Unallocated autoproducers	-	0.00	-	-	0.00	-50.0%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.08	-	-	0.08	234.0%
Transport	-	0.88	-	-	0.88	107.8%
<i>of which: road</i>	-	0.88	-	-	0.88	107.8%
Other	-	0.14	-	-	0.14	149.6%
<i>of which: residential</i>	-	0.14	-	-	0.14	149.6%
Reference Approach	-	1.11	-	-	1.11	95.8%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-0.01	-	-	-0.01	-
<i>Memo: international marine bunkers</i>	-	0.01	-	-	0.01	..
<i>Memo: international aviation bunkers</i>	-	0.19	-	-	0.19	81.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	0.88	107.8%	7.9	7.9
Residential - oil	0.14	149.6%	1.3	9.2
Manufacturing industries - oil	0.08	234.0%	0.7	10.0
Main activity prod. elec. and heat - oil	0.02	-63.2%	0.2	10.2
Unallocated autoproducers - oil	0.00	-50.0%	0.0	10.2
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	1.12	97.5%	10.2	10.2

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Trinidad and Tobago

Figure 1. CO₂ emissions by fuel

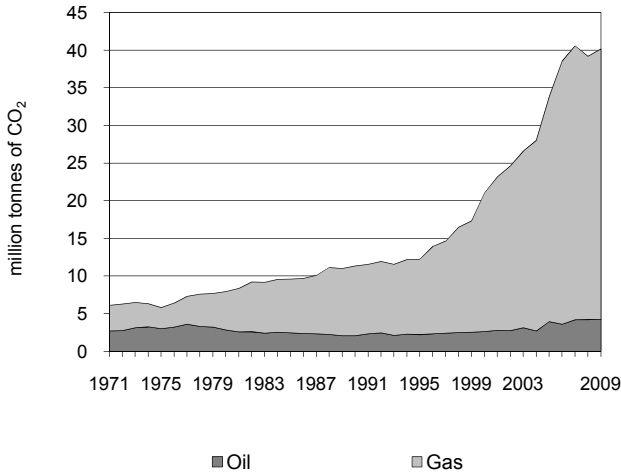


Figure 2. CO₂ emissions by sector

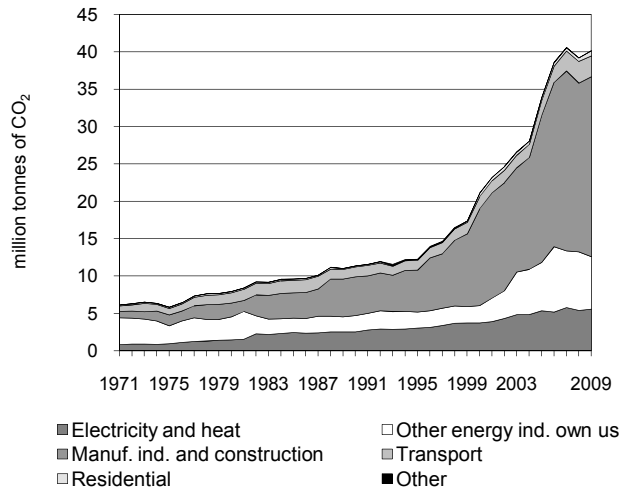


Figure 3. CO₂ emissions by sector

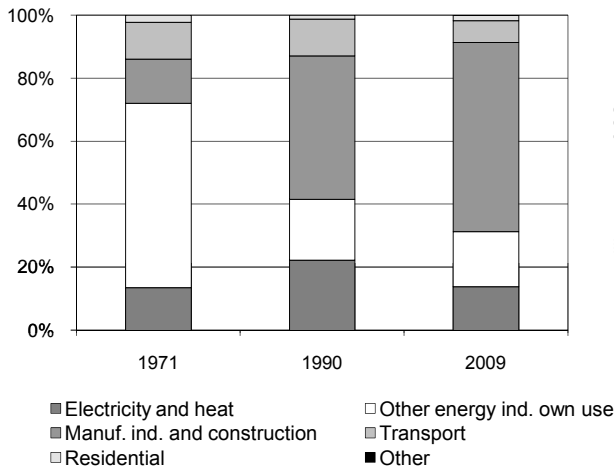


Figure 4. Reference vs Sectoral Approach

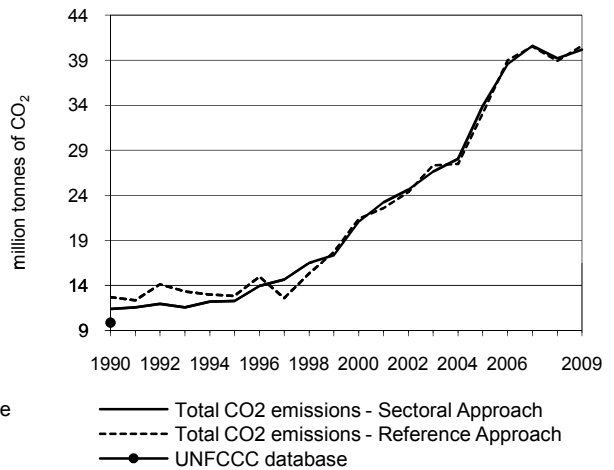


Figure 5. Electricity generation by fuel

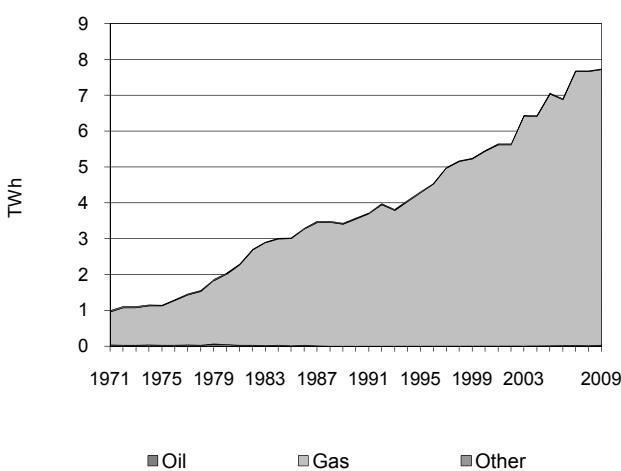
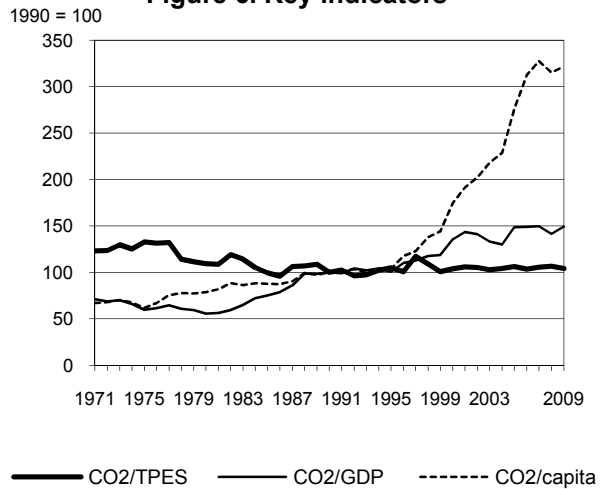


Figure 6. Key indicators



Trinidad and Tobago

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	11.37	12.27	21.08	33.90	40.58	39.20	40.17	253.3%
CO ₂ Reference Approach (Mt of CO ₂)	12.71	12.84	21.40	33.09	40.52	38.94	40.61	219.6%
TPES (PJ)	250	257	446	702	844	809	848	239.3%
TPES (Mtoe)	5.97	6.13	10.66	16.76	20.17	19.33	20.26	239.3%
GDP (billion 2000 USD)	5.97	6.40	8.15	11.98	14.22	14.55	14.11	136.3%
GDP PPP (billion 2000 USD)	8.55	9.16	11.68	17.16	20.37	20.84	20.21	136.3%
Population (millions)	1.22	1.27	1.30	1.32	1.33	1.33	1.34	9.8%
CO ₂ / TPES (t CO ₂ per TJ)	45.5	47.8	47.2	48.3	48.1	48.4	47.4	4.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.90	1.92	2.59	2.83	2.85	2.70	2.85	49.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.33	1.34	1.80	1.98	1.99	1.88	1.99	49.5%
CO ₂ / population (t CO ₂ per capita)	9.33	9.70	16.28	25.72	30.56	29.41	30.00	221.6%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Coal/peat	Oil	Natural		Total	% change 90-09
			gas	Other *		
Sectoral Approach	-	4.25	35.92	-	40.17	253.3%
Main activity producer elec. and heat	-	0.06	5.47	-	5.53	129.7%
Unallocated autoproducers	-	-	0.03	-	0.03	-77.3%
Other energy industry own use	-	0.71	6.31	-	7.02	220.5%
Manufacturing industries and construction	-	0.43	23.67	-	24.11	365.8%
Transport	-	2.79	-	-	2.79	109.3%
<i>of which: road</i>	-	2.79	-	-	2.79	116.8%
Other	-	0.25	0.44	-	0.70	402.9%
<i>of which: residential</i>	-	0.23	0.44	-	0.68	389.1%
Reference Approach	-	4.68	35.92	-	40.61	219.6%
Diff. due to losses and/or transformation	-	0.43	-	-	0.43	
Statistical differences	-	0.01	-	-	0.01	
<i>Memo: international marine bunkers</i>	-	1.38	-	-	1.38	+
<i>Memo: international aviation bunkers</i>	-	0.20	-	-	0.20	3.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - gas	23.67	385.2%	43.3	43.3
Other energy industry own use - gas	6.31	238.6%	11.5	54.8
Main activity prod. elec. and heat - gas	5.47	127.5%	10.0	64.8
Road - oil	2.79	116.8%	5.1	69.9
Other energy industry own use - oil	0.71	117.5%	1.3	71.2
Residential - gas	0.44	x	0.8	72.0
Manufacturing industries - oil	0.43	45.9%	0.8	72.8
Residential - oil	0.23	68.8%	0.4	73.2
Main activity prod. elec. and heat - oil	0.06	+	0.1	73.3
Unallocated autoproducers - gas	0.03	-77.3%	0.1	73.4
Non-specified other - oil	0.02	x	0.0	73.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>40.17</i>	<i>253.3%</i>	<i>73.4</i>	<i>73.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Tunisia

Figure 1. CO₂ emissions by fuel

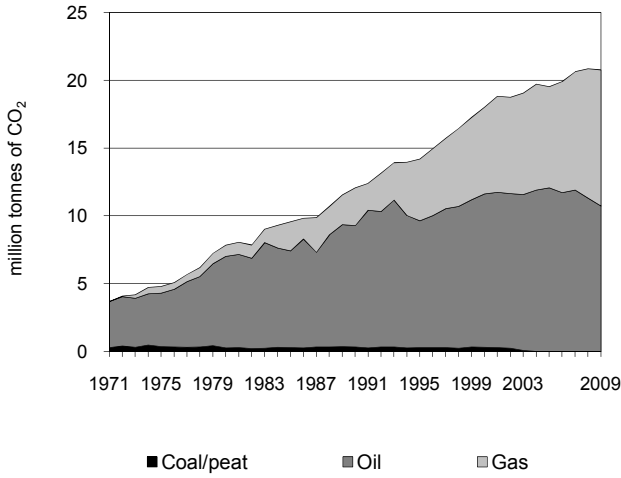


Figure 2. CO₂ emissions by sector

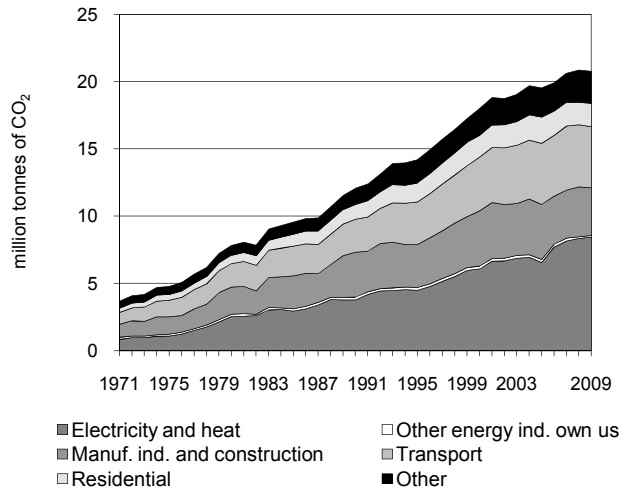


Figure 3. CO₂ emissions by sector

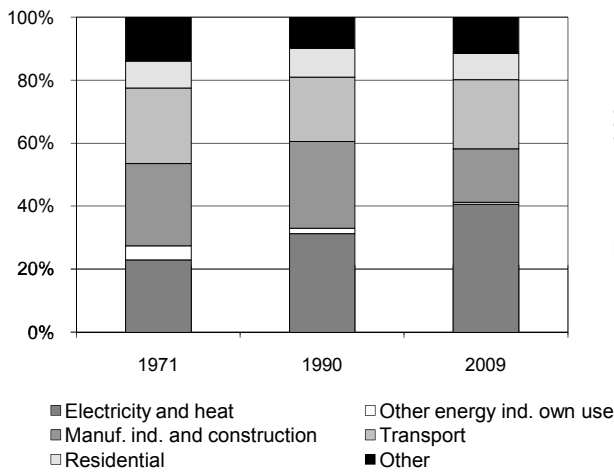


Figure 4. Reference vs Sectoral Approach

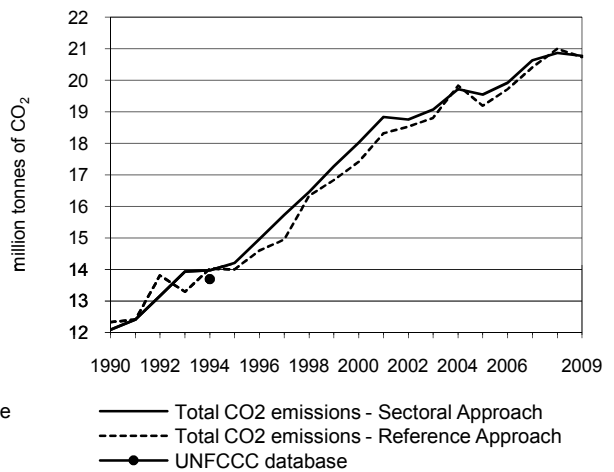


Figure 5. Electricity generation by fuel

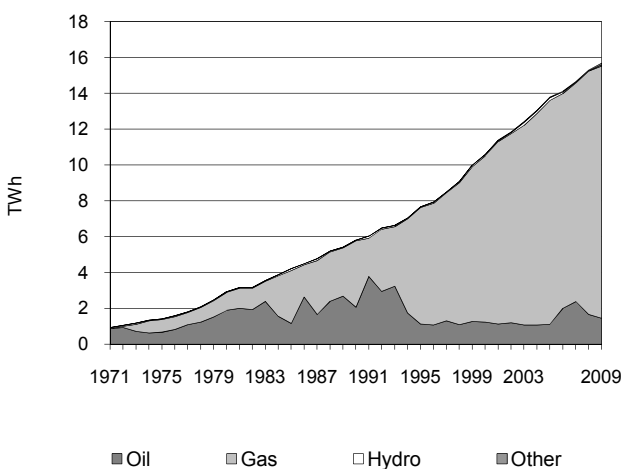
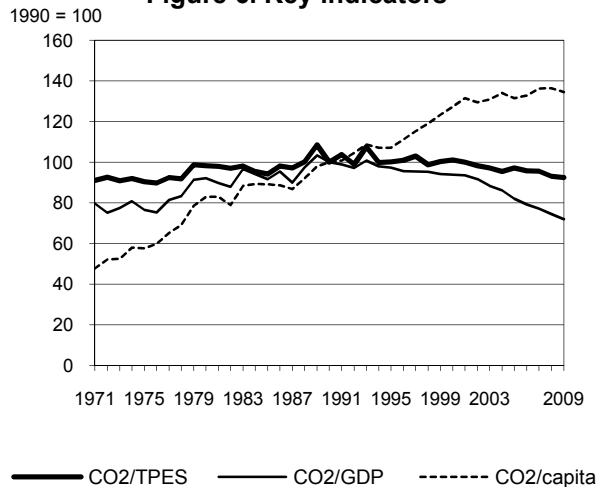


Figure 6. Key indicators



Tunisia

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	12.08	14.20	18.02	19.54	20.64	20.87	20.78	72.0%
CO ₂ Reference Approach (Mt of CO ₂)	12.33	14.01	17.41	19.19	20.40	21.00	20.73	68.1%
TPES (PJ)	207	243	306	345	370	385	385	86.0%
TPES (Mtoe)	4.95	5.80	7.31	8.23	8.84	9.19	9.20	86.0%
GDP (billion 2000 USD)	12.24	14.79	19.44	24.14	27.12	28.38	29.27	139.2%
GDP PPP (billion 2000 USD)	37.79	45.69	60.05	74.54	83.75	87.64	90.38	139.2%
Population (millions)	8.15	8.96	9.56	10.03	10.23	10.33	10.43	27.9%
CO ₂ / TPES (t CO ₂ per TJ)	58.4	58.4	58.9	56.7	55.8	54.3	53.9	-7.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.99	0.96	0.93	0.81	0.76	0.74	0.71	-28.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.32	0.31	0.30	0.26	0.25	0.24	0.23	-28.1%
CO ₂ / population (t CO ₂ per capita)	1.48	1.59	1.88	1.95	2.02	2.02	1.99	34.4%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	10.73	10.05	-	20.78	72.0%
Main activity producer elec. and heat	-	0.38	7.22	-	7.60	137.7%
Unallocated autoproducers	-	0.84	-	-	0.84	43.8%
Other energy industry own use	-	0.14	-	-	0.14	-33.7%
Manufacturing industries and construction	-	1.46	2.07	-	3.53	5.8%
Transport	-	4.55	0.00	-	4.55	84.7%
<i>of which: road</i>	-	4.55	-	-	4.55	87.0%
Other	-	3.36	0.75	-	4.12	79.5%
<i>of which: residential</i>	-	1.27	0.46	-	1.73	57.7%
Reference Approach	-	10.81	9.92	-	20.73	68.1%
Diff. due to losses and/or transformation	-	0.04	-	-	0.04	
Statistical differences	-	0.05	-0.13	-	-0.08	
<i>Memo: international marine bunkers</i>	-	0.09	-	-	0.09	25.5%
<i>Memo: international aviation bunkers</i>	-	0.61	-	-	0.61	8.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	7.22	249.1%	21.0	21.0
Road - oil	4.55	87.0%	13.3	34.3
Non-specified other - oil	2.09	82.8%	6.1	40.4
Manufacturing industries - gas	2.07	247.3%	6.0	46.4
Manufacturing industries - oil	1.46	-39.6%	4.3	50.7
Residential - oil	1.27	26.1%	3.7	54.4
Unallocated autoproducers - oil	0.84	43.8%	2.5	56.8
Residential - gas	0.46	432.5%	1.3	58.2
Main activity prod. elec. and heat - oil	0.38	-66.1%	1.1	59.3
Non-specified other - gas	0.29	472.8%	0.9	60.1
Other energy industry own use - oil	0.14	-33.7%	0.4	60.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>20.78</i>	<i>72.0%</i>	<i>60.5</i>	<i>60.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Turkey

Figure 1. CO₂ emissions by fuel

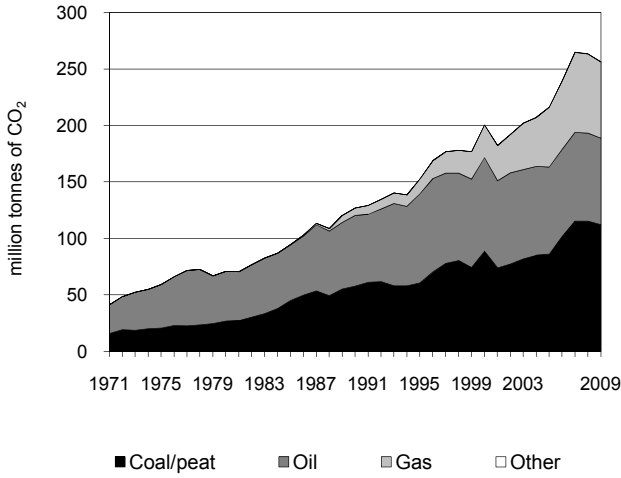


Figure 2. CO₂ emissions by sector

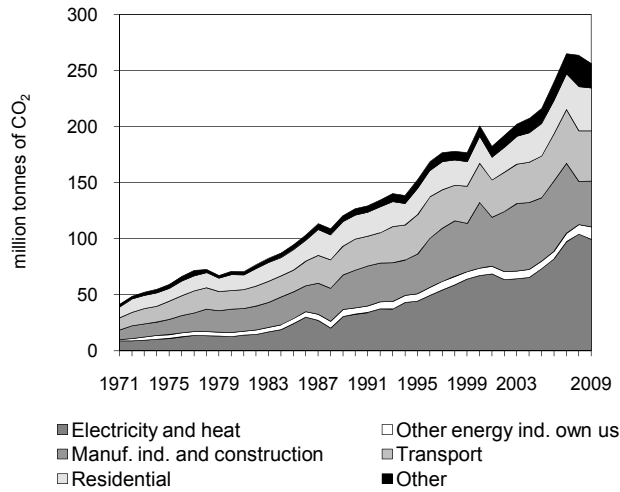


Figure 3. CO₂ emissions by sector

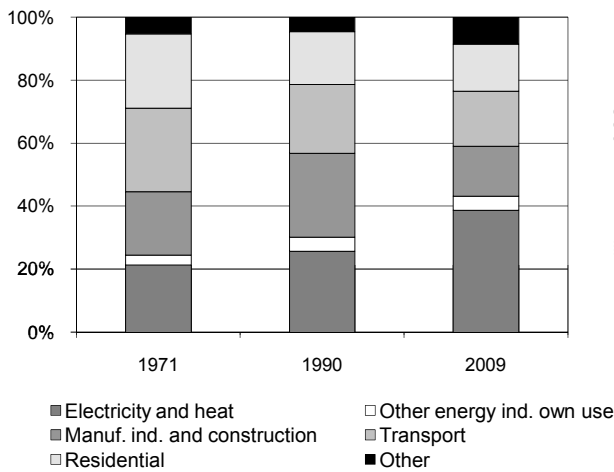


Figure 4. Reference vs Sectoral Approach

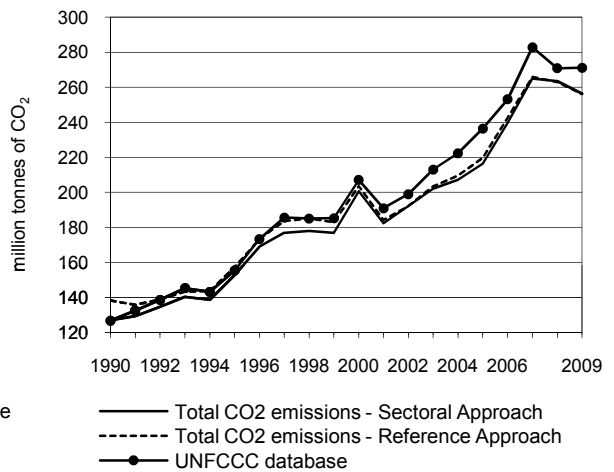


Figure 5. Electricity generation by fuel

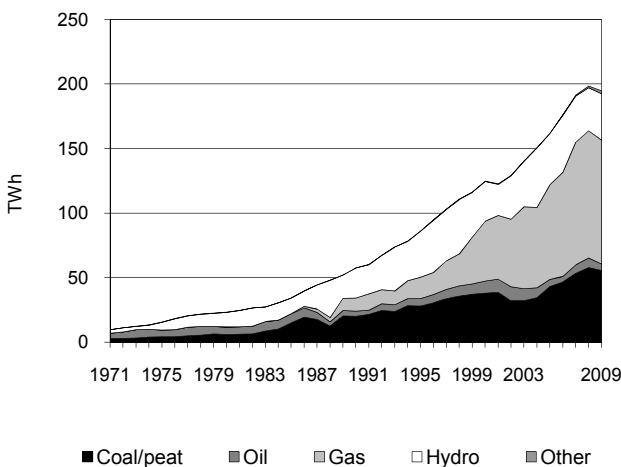
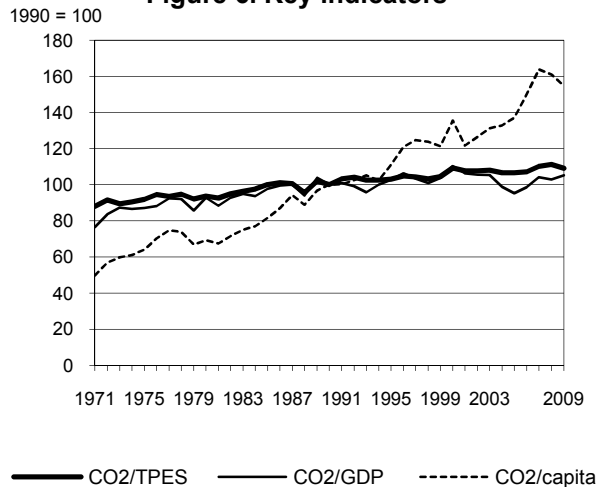


Figure 6. Key indicators



Turkey

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	126.91	152.66	200.56	216.36	265.00	263.53	256.31	102.0%
CO ₂ Reference Approach (Mt of CO ₂)	138.20	157.28	203.48	219.65	265.83	262.94	256.19	85.4%
TPES (PJ)	2 209	2 577	3 197	3 533	4 187	4 124	4 089	85.1%
TPES (Mtoe)	52.76	61.55	76.35	84.38	100.01	98.50	97.66	85.1%
GDP (billion 2000 USD)	185.95	217.79	266.56	333.03	372.61	375.06	356.96	92.0%
GDP PPP (billion 2000 USD)	411.06	481.43	589.24	736.17	823.66	829.09	789.08	92.0%
Population (millions)	55.12	59.76	64.26	68.58	70.26	71.08	71.90	30.4%
CO ₂ / TPES (t CO ₂ per TJ)	57.5	59.2	62.7	61.2	63.3	63.9	62.7	9.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.68	0.70	0.75	0.65	0.71	0.70	0.72	5.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.31	0.32	0.34	0.29	0.32	0.32	0.32	5.2%
CO ₂ / population (t CO ₂ per capita)	2.30	2.55	3.12	3.15	3.77	3.71	3.57	54.8%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	112.25	76.53	67.42	0.11	256.31	102.0%
Main activity producer elec. and heat	51.01	2.44	34.56	0.02	88.03	227.5%
Unallocated autoproducers	6.01	1.47	3.79	0.10	11.36	94.8%
Other energy industry own use	3.70	4.60	2.92	-	11.22	99.5%
Manufacturing industries and construction	24.19	6.08	10.53	-	40.81	21.0%
Transport	-	44.33	0.44	-	44.77	61.3%
<i>of which: road</i>	-	38.95	0.08	-	39.03	55.0%
Other	27.34	17.61	15.18	-	60.13	121.8%
<i>of which: residential</i>	23.56	4.44	10.27	-	38.27	80.0%
Reference Approach	118.98	69.67	67.42	0.11	256.19	85.4%
Diff. due to losses and/or transformation	2.45	- 0.55	0.01	-	1.91	
Statistical differences	4.28	- 6.31	0.00	- 0.00	- 2.03	
<i>Memo: international marine bunkers</i>	-	0.85	-	-	0.85	129.8%
<i>Memo: international aviation bunkers</i>	-	4.22	-	-	4.22	691.4%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	51.01	145.5%	14.4	14.4
Road - oil	38.95	54.7%	11.0	25.4
Main activity prod. elec. and heat - gas	34.56	595.2%	9.7	35.1
Manufacturing industries - coal/peat	24.19	24.1%	6.8	41.9
Residential - coal/peat	23.56	92.5%	6.6	48.5
Non-specified other - oil	13.18	125.6%	3.7	52.3
Manufacturing industries - gas	10.53	636.8%	3.0	55.2
Residential - gas	10.27	+	2.9	58.1
Manufacturing industries - oil	6.08	-52.5%	1.7	59.8
Unallocated autoproducers - coal/peat	6.01	76.3%	1.7	61.5
Other transport - oil	5.38	113.2%	1.5	63.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>256.31</i>	<i>102.0%</i>	<i>72.2</i>	<i>72.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Turkmenistan

Figure 1. CO₂ emissions by fuel

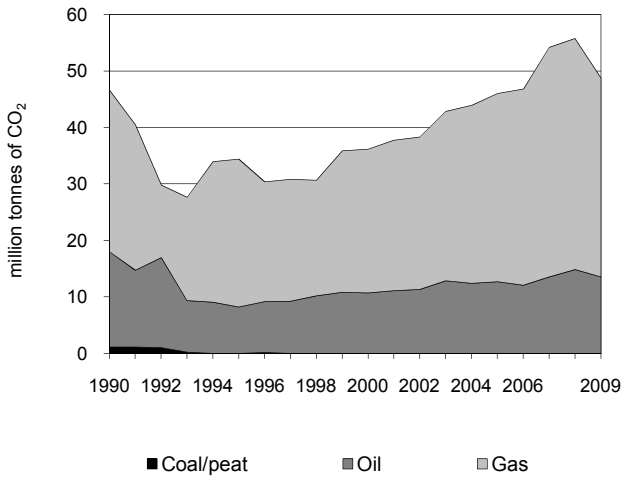


Figure 2. CO₂ emissions by sector

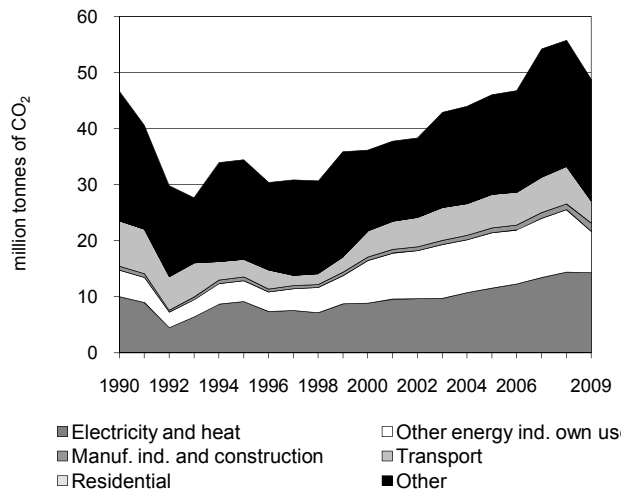


Figure 3. CO₂ emissions by sector

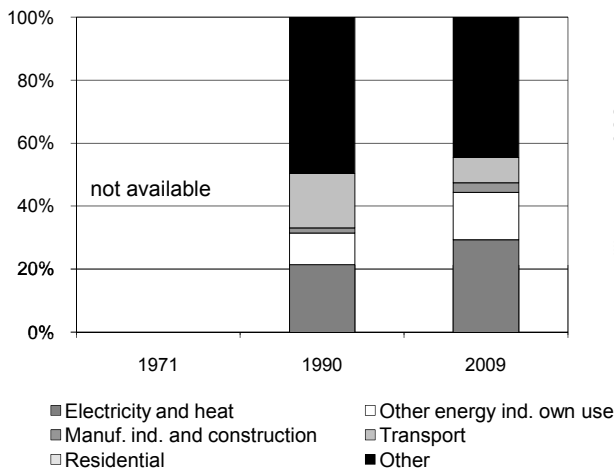


Figure 4. Reference vs Sectoral Approach

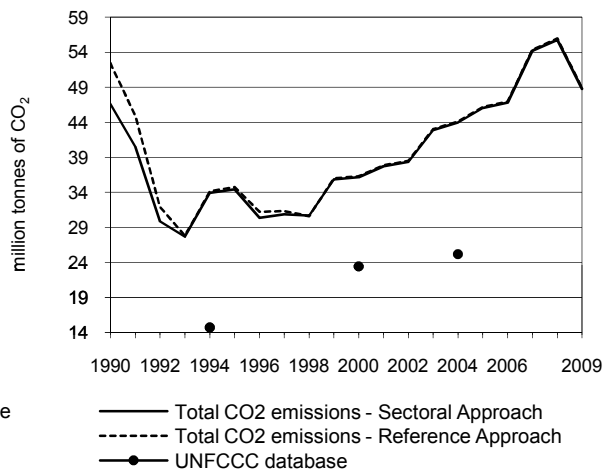


Figure 5. Electricity generation by fuel

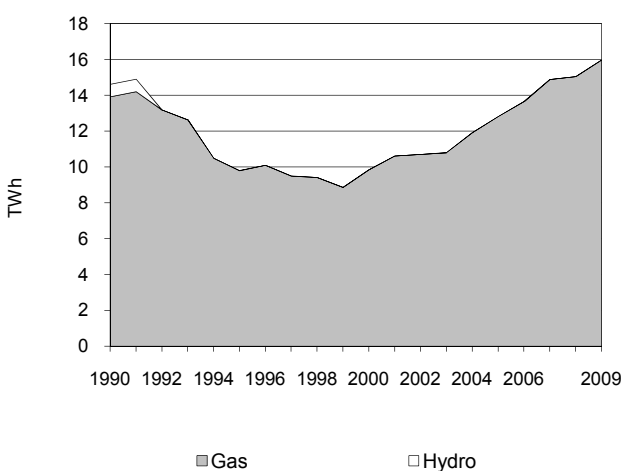
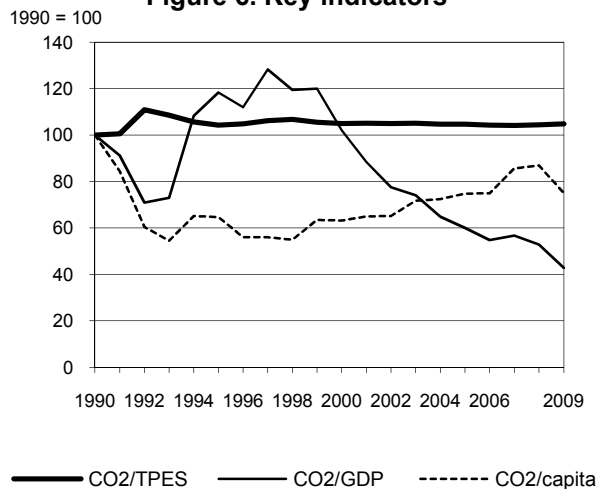


Figure 6. Key indicators



Turkmenistan

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	46.64	34.43	36.19	46.03	54.22	55.78	48.77	4.6%
CO ₂ Reference Approach (Mt of CO ₂)	52.41	34.74	36.30	46.17	54.37	55.95	48.93	-6.7%
TPES (PJ)	822	582	607	775	918	941	820	-0.2%
TPES (Mtoe)	19.63	13.90	14.51	18.51	21.92	22.48	19.58	-0.2%
GDP (billion 2000 USD)	3.82	2.38	2.91	6.28	7.82	8.65	9.34	144.4%
GDP PPP (billion 2000 USD)	20.62	12.85	15.67	33.90	42.22	46.65	50.38	144.4%
Population (millions)	3.67	4.19	4.50	4.84	4.98	5.04	5.11	39.3%
CO ₂ / TPES (t CO ₂ per TJ)	56.7	59.2	59.6	59.4	59.1	59.3	59.5	4.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	12.21	14.45	12.46	7.33	6.93	6.45	5.22	-57.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	2.26	2.68	2.31	1.36	1.28	1.20	0.97	-57.2%
CO ₂ / population (t CO ₂ per capita)	12.71	8.22	8.04	9.50	10.89	11.06	9.54	-24.9%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	13.55	35.22	-	48.77	4.6%
Main activity producer elec. and heat	-	-	14.31	-	14.31	42.8%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	3.33	4.03	-	7.36	56.7%
Manufacturing industries and construction	-	-	1.47	-	1.47	101.9%
Transport	-	2.46	1.47	-	3.93	-51.3%
of which: road	-	2.46	-	-	2.46	2.0%
Other	-	7.76	13.94	-	21.70	-6.1%
of which: residential	-	-	-	-	-	-
Reference Approach	-	13.71	35.22	-	48.93	-6.7%
Diff. due to losses and/or transformation	-	0.15	-	-	0.15	
Statistical differences	-	-	0.00	-	0.00	
Memo: international marine bunkers	-	..	-	-
Memo: international aviation bunkers	-	-	-	-	-	-

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	14.31	42.8%	15.9	15.9
Non-specified other - gas	13.94	49.0%	15.5	31.4
Non-specified other - oil	7.76	-38.4%	8.6	40.0
Other energy industry own use - gas	4.03	40.8%	4.5	44.5
Other energy industry own use - oil	3.33	81.5%	3.7	48.2
Road - oil	2.46	2.0%	2.7	50.9
Manufacturing industries - gas	1.47	101.9%	1.6	52.5
Other transport - gas	1.47	-74.1%	1.6	54.2
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO₂ from fuel combustion	48.77	4.6%	54.2	54.2

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Ukraine

Figure 1. CO₂ emissions by fuel

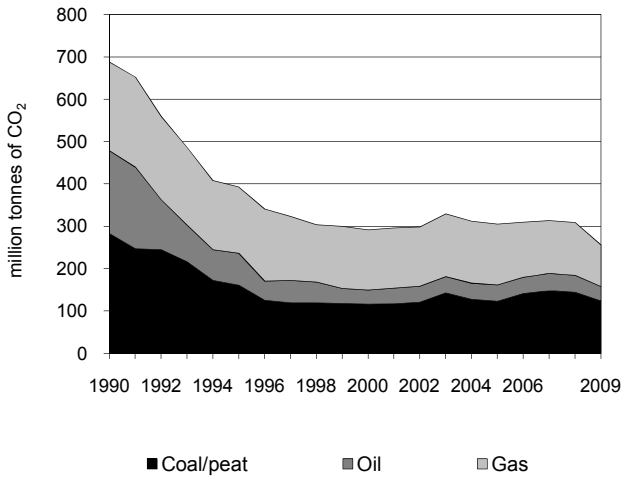


Figure 2. CO₂ emissions by sector

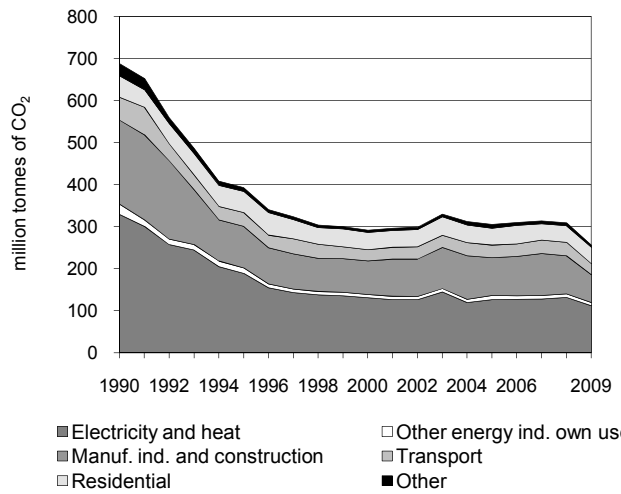


Figure 3. CO₂ emissions by sector

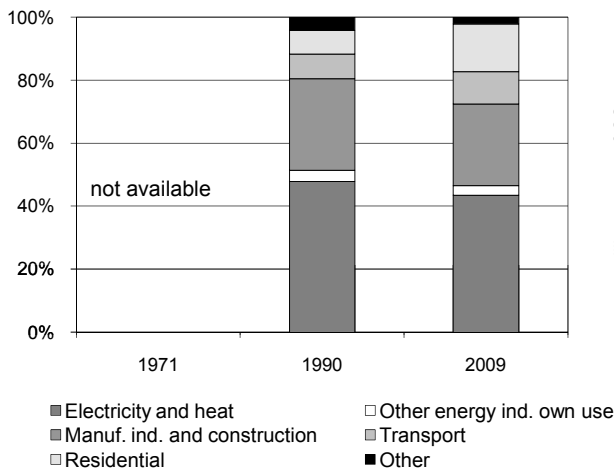


Figure 4. Reference vs Sectoral Approach

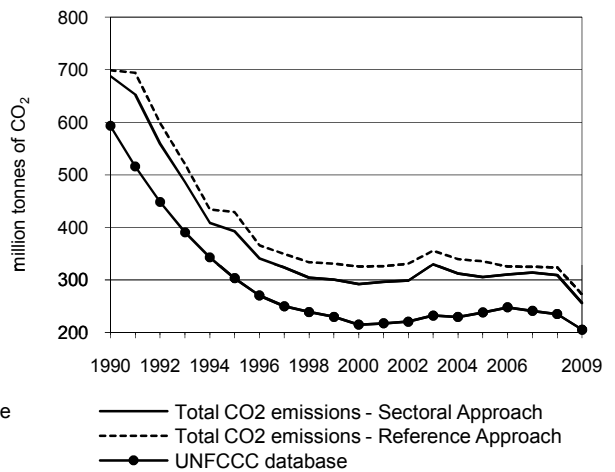


Figure 5. Electricity generation by fuel

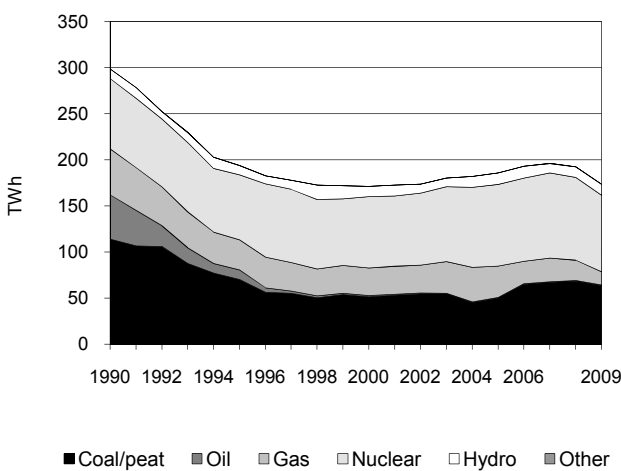
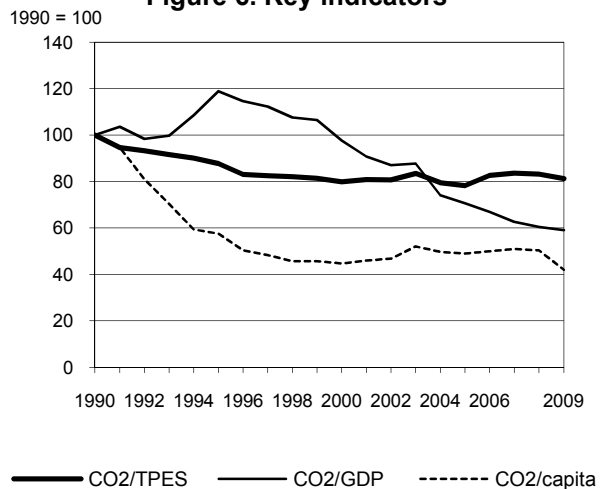


Figure 6. Key indicators



Ukraine

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	687.86	392.78	291.96	305.59	313.93	309.28	256.39	-62.7%
CO ₂ Reference Approach (Mt of CO ₂)	699.10	428.82	325.75	335.36	324.68	323.56	272.84	-61.0%
TPES (PJ)	10 541	6 859	5 602	5 982	5 750	5 696	4 835	-54.1%
TPES (Mtoe)	251.76	163.81	133.79	142.89	137.34	136.05	115.47	-54.1%
GDP (billion 2000 USD)	71.95	34.54	31.26	45.23	52.37	53.47	45.39	-36.9%
GDP PPP (billion 2000 USD)	456.90	219.32	198.51	287.22	332.53	339.52	288.25	-36.9%
Population (millions)	51.89	51.51	49.18	47.11	46.51	46.26	46.01	-11.3%
CO ₂ / TPES (t CO ₂ per TJ)	65.3	57.3	52.1	51.1	54.6	54.3	53.0	-18.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	9.56	11.37	9.34	6.76	5.99	5.78	5.65	-40.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.51	1.79	1.47	1.06	0.94	0.91	0.89	-40.9%
CO ₂ / population (t CO ₂ per capita)	13.26	7.63	5.94	6.49	6.75	6.69	5.57	-58.0%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	123.85	34.11	98.42	-	256.39	-62.7%
Main activity producer elec. and heat	62.12	0.91	28.11	-	91.13	-69.4%
Unallocated autoproducers	8.71	-	11.80	-	20.51	-34.5%
Other energy industry own use	3.36	1.93	2.30	-	7.59	-69.0%
Manufacturing industries and construction	43.58	4.36	18.67	-	66.60	-66.7%
Transport	0.10	21.20	4.90	-	26.19	-51.8%
<i>of which: road</i>	-	20.37	0.13	-	20.50	-56.3%
Other	5.99	5.72	32.65	-	44.36	-44.7%
<i>of which: residential</i>	5.28	1.97	31.55	-	38.80	-24.1%
Reference Approach	135.68	37.01	100.15	-	272.84	-61.0%
Diff. due to losses and/or transformation	12.23	1.84	2.30	-	16.36	
Statistical differences	-0.40	1.06	-0.57	-	0.09	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.70	-	-	0.70	-88.6%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	62.12	-54.3%	14.7	14.7
Manufacturing industries - coal/peat	43.58	-58.7%	10.3	25.1
Residential - gas	31.55	54.6%	7.5	32.6
Main activity prod. elec. and heat - gas	28.11	-69.7%	6.7	39.2
Road - oil	20.37	-56.6%	4.8	44.1
Manufacturing industries - gas	18.67	-65.7%	4.4	48.5
Unallocated autoproducers - gas	11.80	-59.2%	2.8	51.3
Unallocated autoproducers - coal/peat	8.71	259.1%	2.1	53.4
Residential - coal/peat	5.28	-76.0%	1.3	54.6
Other transport - gas	4.77	x	1.1	55.7
Manufacturing industries - oil	4.36	-89.1%	1.0	56.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>256.39</i>	<i>-62.7%</i>	<i>60.8</i>	<i>60.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

United Arab Emirates

Figure 1. CO₂ emissions by fuel

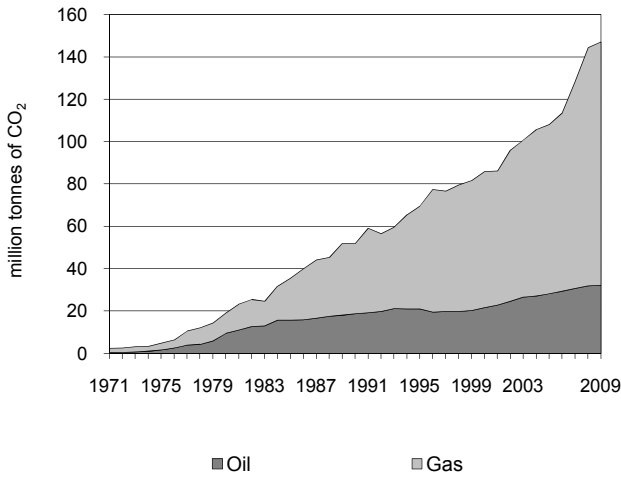


Figure 2. CO₂ emissions by sector

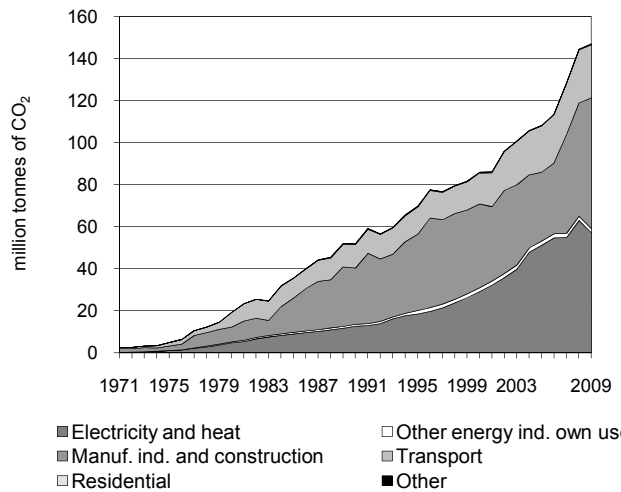


Figure 3. CO₂ emissions by sector

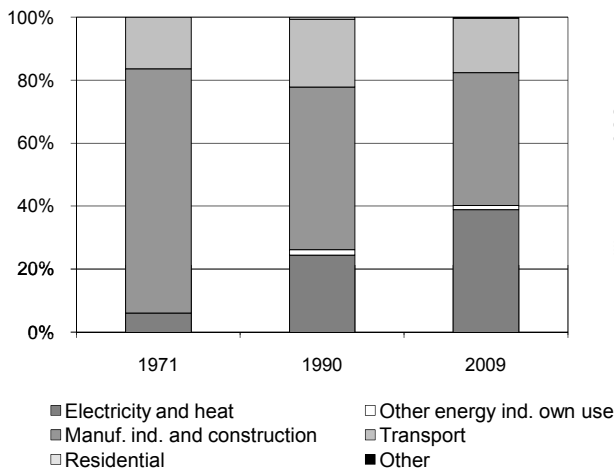


Figure 4. Reference vs Sectoral Approach

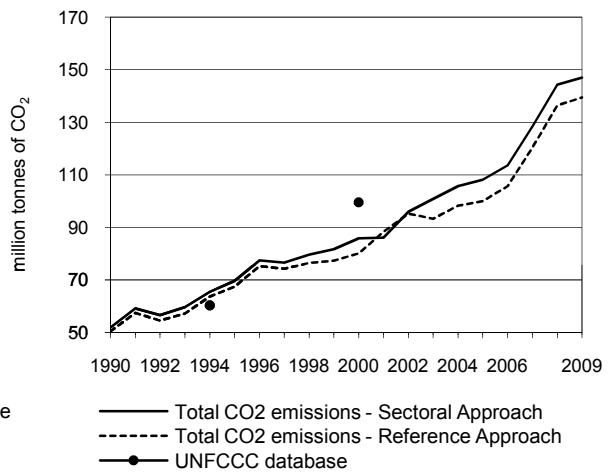


Figure 5. Electricity generation by fuel

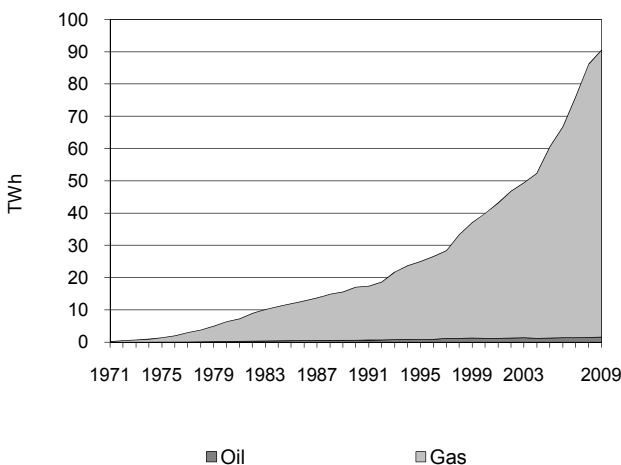
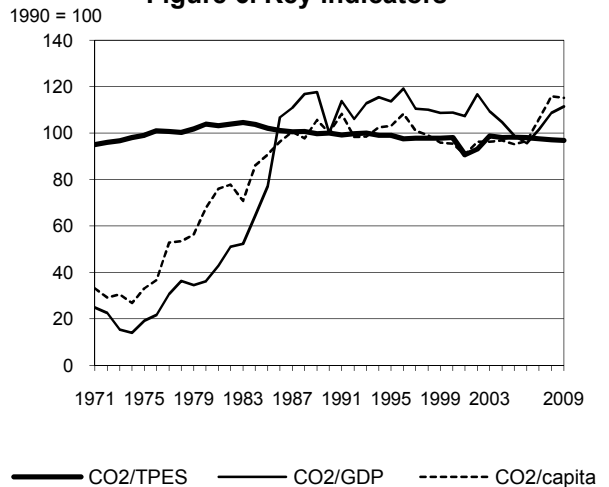


Figure 6. Key indicators



United Arab Emirates

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	51.85	69.59	85.85	108.09	128.34	144.35	147.04	183.6%
CO ₂ Reference Approach (Mt of CO ₂)	50.34	67.42	80.15	100.00	120.37	136.42	139.40	176.9%
TPES (PJ)	853	1 156	1 439	1 810	2 164	2 445	2 495	192.7%
TPES (Mtoe)	20.36	27.61	34.37	43.23	51.69	58.40	59.59	192.7%
GDP (billion 2000 USD)	46.40	54.82	70.59	97.83	113.04	118.86	118.06	154.5%
GDP PPP (billion 2000 USD)	45.84	54.16	69.74	96.65	111.68	117.42	116.64	154.5%
Population (millions)	1.87	2.43	3.24	4.09	4.36	4.49	4.60	146.3%
CO ₂ / TPES (t CO ₂ per TJ)	60.8	60.2	59.7	59.7	59.3	59.0	58.9	-3.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.12	1.27	1.22	1.10	1.14	1.21	1.25	11.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.13	1.28	1.23	1.12	1.15	1.23	1.26	11.5%
CO ₂ / population (t CO ₂ per capita)	27.77	28.62	26.51	26.44	29.41	32.19	31.97	15.1%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	32.23	114.81	-	147.04	183.6%
Main activity producer elec. and heat	-	1.71	55.46	-	57.17	350.3%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.57	1.37	-	1.94	110.9%
Manufacturing industries and construction	-	4.11	57.98	-	62.09	132.0%
Transport	-	25.36	-	-	25.36	127.0%
<i>of which: road</i>	-	25.36	-	-	25.36	127.0%
Other	-	0.48	-	-	0.48	59.8%
<i>of which: residential</i>	-	0.48	-	-	0.48	59.8%
Reference Approach	-	24.59	114.81	-	139.40	176.9%
Diff. due to losses and/or transformation	-	- 7.64	-	-	- 7.64	
Statistical differences	-	- 0.00	-	-	- 0.00	
<i>Memo: international marine bunkers</i>	-	38.88	-	-	38.88	104.7%
<i>Memo: international aviation bunkers</i>	-	11.48	-	-	11.48	17.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - gas	57.98	184.0%	31.9	31.9
Main activity prod. elec. and heat - gas	55.46	359.0%	30.5	62.4
Road - oil	25.36	127.0%	13.9	76.3
Manufacturing industries - oil	4.11	-35.2%	2.3	78.5
Main activity prod. elec. and heat - oil	1.71	177.7%	0.9	79.5
Other energy industry own use - gas	1.37	119.1%	0.8	80.2
Other energy industry own use - oil	0.57	93.5%	0.3	80.6
Residential - oil	0.48	59.8%	0.3	80.8
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>147.04</i>	<i>183.6%</i>	<i>80.8</i>	<i>80.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

United Kingdom

Figure 1. CO₂ emissions by fuel

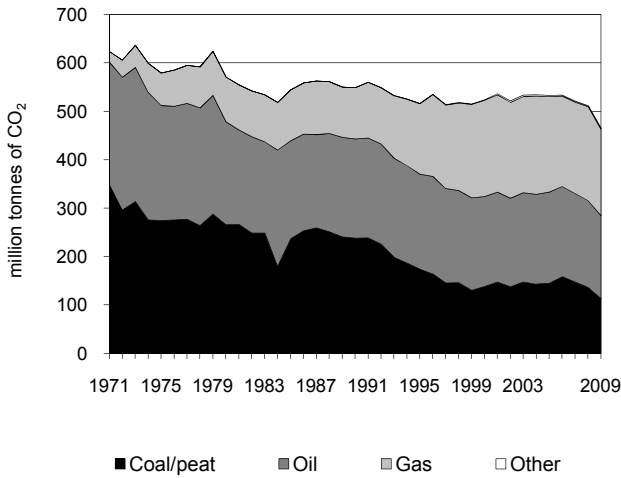


Figure 2. CO₂ emissions by sector

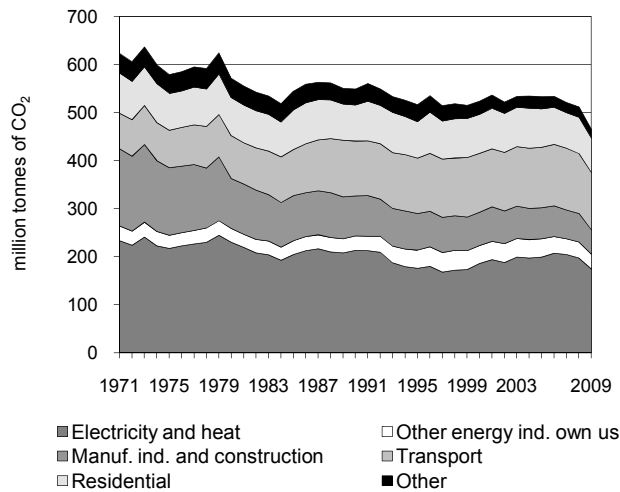


Figure 3. CO₂ emissions by sector

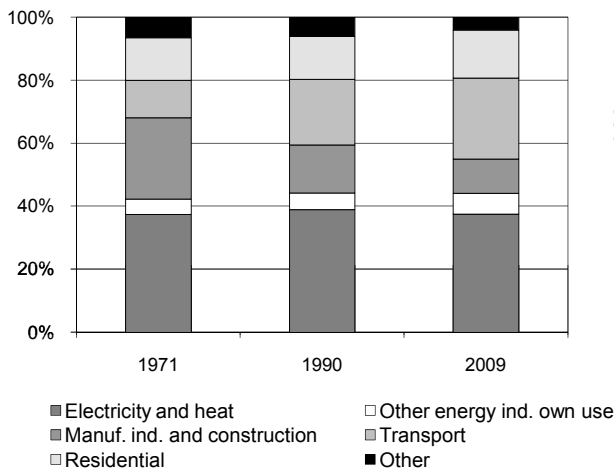


Figure 4. Reference vs Sectoral Approach

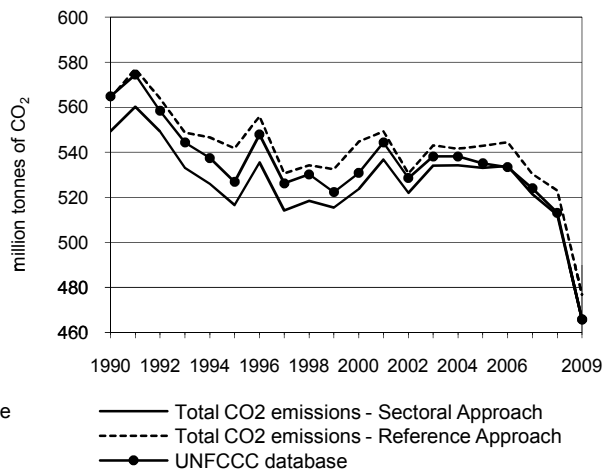


Figure 5. Electricity generation by fuel

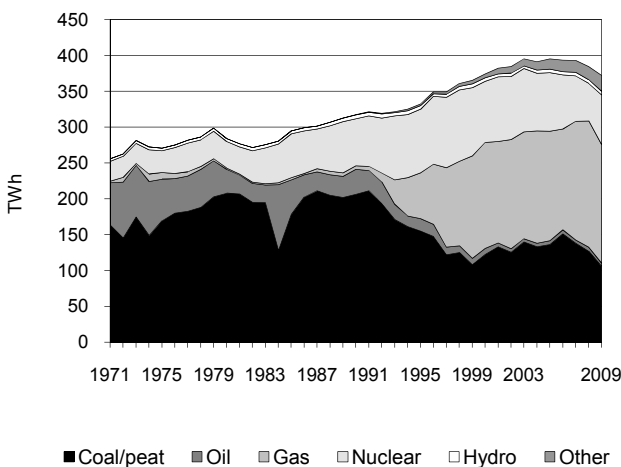
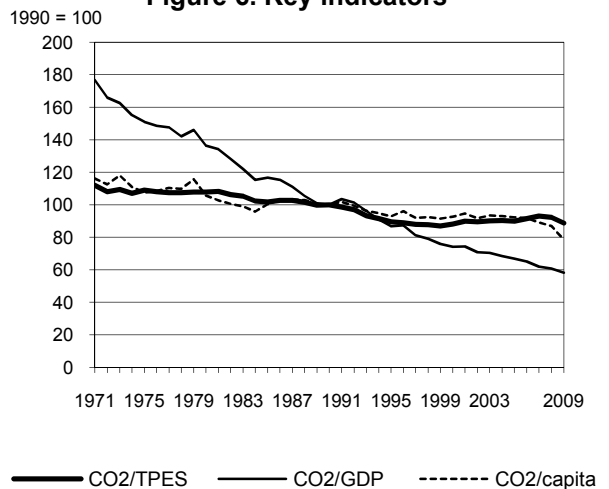


Figure 6. Key indicators



United Kingdom

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	549.25	516.60	523.76	533.14	521.46	512.13	465.80	-15.2%
CO ₂ Reference Approach (Mt of CO ₂)	564.00	541.68	544.77	542.90	530.41	522.93	476.75	-15.5%
TPES (PJ)	8 621	9 055	9 334	9 310	8 803	8 715	8 238	-4.4%
TPES (Mtoe)	205.92	216.26	222.94	222.36	210.26	208.14	196.76	-4.4%
GDP (billion 2000 USD)	1 150.27	1 247.82	1 477.51	1 671.47	1 764.20	1 763.05	1 677.10	45.8%
GDP PPP (billion 2000 USD)	1 195.21	1 296.57	1 535.24	1 736.77	1 833.12	1 831.92	1 742.62	45.8%
Population (millions)	57.24	58.03	58.89	60.24	60.99	61.40	61.79	8.0%
CO ₂ / TPES (t CO ₂ per TJ)	63.7	57.1	56.1	57.3	59.2	58.8	56.5	-11.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.48	0.41	0.35	0.32	0.30	0.29	0.28	-41.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.46	0.40	0.34	0.31	0.28	0.28	0.27	-41.8%
CO ₂ / population (t CO ₂ per capita)	9.60	8.90	8.89	8.85	8.55	8.34	7.54	-21.4%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	113.42	171.58	178.70	2.11	465.80	-15.2%
Main activity producer elec. and heat	88.17	3.49	55.41	-	147.07	-26.5%
Unallocated autoproducers	10.37	1.98	13.46	1.86	27.66	106.8%
Other energy industry own use	3.86	14.23	12.49	-	30.58	3.9%
Manufacturing industries and construction	8.47	20.43	21.78	0.15	50.84	-39.1%
Transport	0.02	119.63	-	-	119.65	4.6%
<i>of which: road</i>	-	110.54	-	-	110.54	3.6%
Other	2.53	11.81	75.56	0.10	90.00	-17.0%
<i>of which: residential</i>	2.36	8.25	60.54	0.02	71.16	-5.0%
Reference Approach	115.48	177.18	181.98	2.11	476.75	-15.5%
Diff. due to losses and/or transformation	2.21	5.98	3.02	-	11.21	
Statistical differences	-0.15	-0.38	0.26	-	-0.27	
<i>Memo: international marine bunkers</i>	-	7.67	-	-	7.67	-2.2%
<i>Memo: international aviation bunkers</i>	-	32.94	-	-	32.94	74.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	110.54	3.6%	19.4	19.4
Main activity prod. elec. and heat - coal/peat	88.17	-51.1%	15.5	34.9
Residential - gas	60.54	11.5%	10.6	45.5
Main activity prod. elec. and heat - gas ***	55.41	x	9.7	55.2
Manufacturing industries - gas	21.78	-18.6%	3.8	59.0
Manufacturing industries - oil	20.43	-22.7%	3.6	62.6
Non-specified other - gas	15.02	-2.3%	2.6	65.2
Other energy industry own use - oil	14.23	-28.8%	2.5	67.7
Unallocated autoproducers - gas ***	13.46	417.3%	2.4	70.1
Other energy industry own use - gas	12.49	78.4%	2.2	72.3
Unallocated autoproducers - coal/peat	10.37	35.5%	1.8	74.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>465.80</i>	<i>-15.2%</i>	<i>81.7</i>	<i>81.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

*** For reasons of confidentiality, gas for main activity producer electricity is included in autoproducers for 1990.

United States

Figure 1. CO₂ emissions by fuel

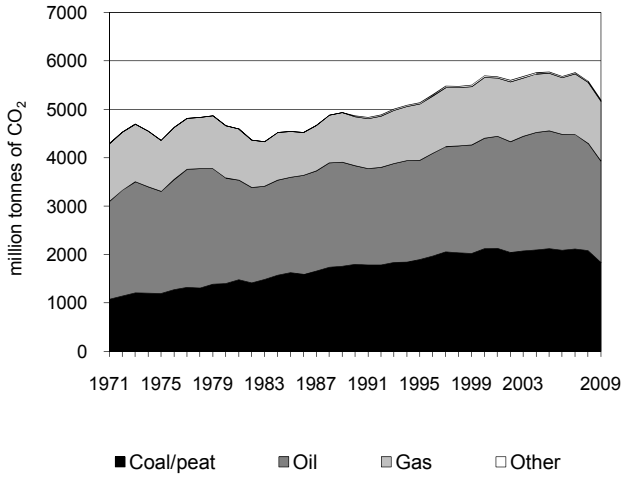


Figure 2. CO₂ emissions by sector

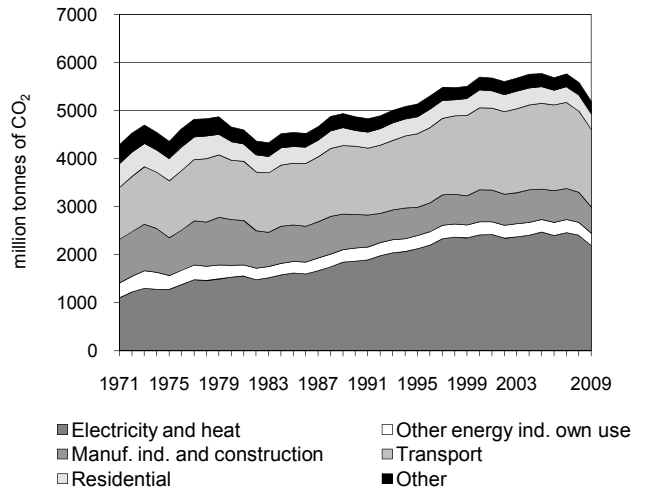


Figure 3. CO₂ emissions by sector

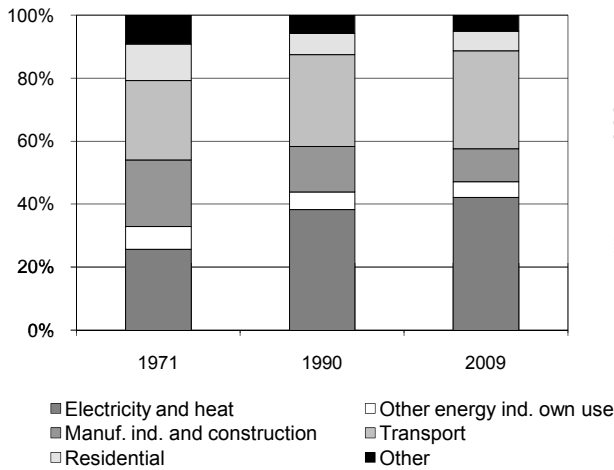


Figure 4. Reference vs Sectoral Approach

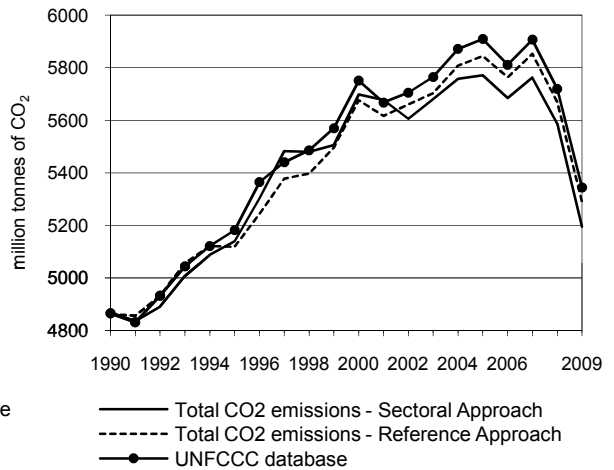


Figure 5. Electricity generation by fuel

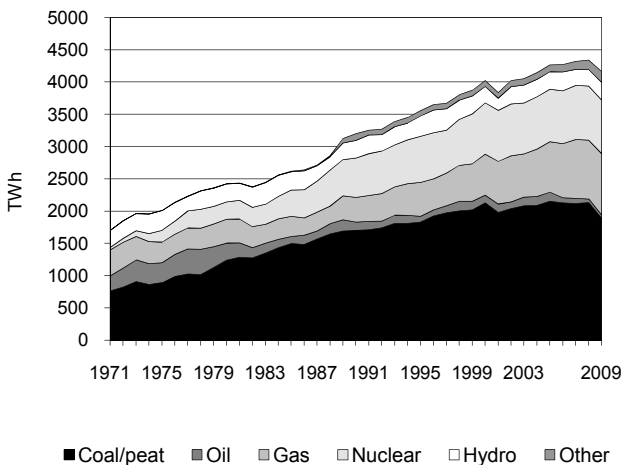
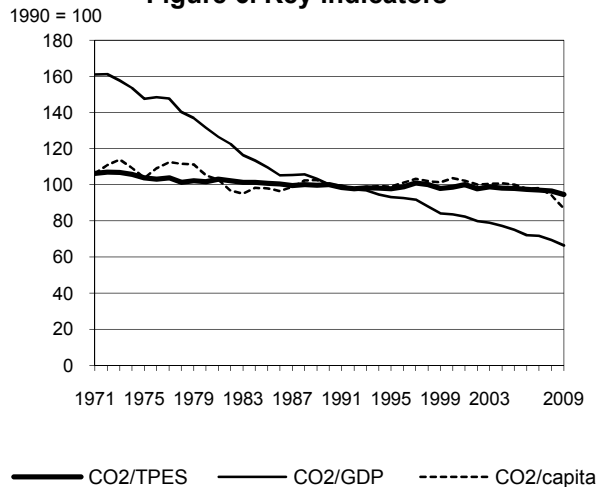


Figure 6. Key indicators



United States

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	4 868.7	5 138.7	5 698.1	5 771.7	5 762.7	5 586.8	5 195.0	6.7%
CO ₂ Reference Approach (Mt of CO ₂)	4 860.4	5 118.5	5 676.2	5 843.9	5 852.4	5 668.6	5 290.0	8.8%
TPES (PJ)	80 177	86 550	95 180	97 086	97 846	95 335	90 557	12.9%
TPES (Mtoe)	1 915.0	2 067.2	2 273.3	2 318.9	2 337.0	2 277.0	2 162.9	12.9%
GDP (billion 2000 USD)	7 064.0	8 002.0	9 898.8	11 150.4	11 670.8	11 668.5	11 357.1	60.8%
GDP PPP (billion 2000 USD)	7 064.0	8 002.0	9 898.8	11 150.4	11 670.8	11 668.5	11 357.1	60.8%
Population (millions)	250.2	266.6	282.4	296.2	302.0	304.8	307.5	22.9%
CO ₂ / TPES (t CO ₂ per TJ)	60.7	59.4	59.9	59.4	58.9	58.6	57.4	-5.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.69	0.64	0.58	0.52	0.49	0.48	0.46	-33.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.69	0.64	0.58	0.52	0.49	0.48	0.46	-33.6%
CO ₂ / population (t CO ₂ per capita)	19.46	19.28	20.18	19.48	19.08	18.33	16.90	-13.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	1 832.1	2 101.0	1 234.5	27.3	5 195.0	6.7%
Main activity producer elec. and heat	1 714.3	32.6	373.2	13.4	2 133.6	20.3%
Unallocated autoproducers	14.9	6.1	30.2	5.4	56.6	-38.6%
Other energy industry own use	6.4	142.8	108.0	-	257.2	-5.8%
Manufacturing industries and construction	90.4	184.7	261.9	7.5	544.4	-22.5%
Transport	-	1 580.2	34.1	-	1 614.3	13.7%
<i>of which: road</i>	-	1 401.2	1.6	-	1 402.8	23.3%
Other	6.2	154.6	427.1	1.0	588.8	-3.0%
<i>of which: residential</i>	-	64.8	259.5	-	324.3	0.1%
Reference Approach	1 899.0	2 121.4	1 242.4	27.3	5 290.0	8.8%
Diff. due to losses and/or transformation	13.5	- 13.1	- 2.7	-	- 2.3	
Statistical differences	53.3	33.4	10.6	- 0.0	97.3	
<i>Memo: international marine bunkers</i>	-	76.5	-	-	76.5	-15.6%
<i>Memo: international aviation bunkers</i>	-	63.9	-	-	63.9	64.8%

* Other includes industrial waste and non-renewable municipal waste.

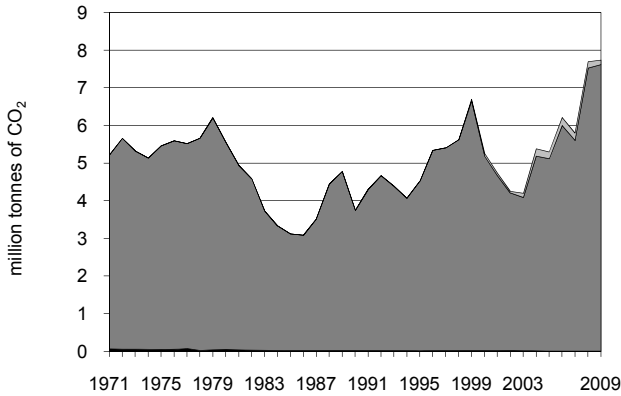
Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	1 714.3	11.8%	26.5	26.5
Road - oil	1 401.2	23.1%	21.7	48.2
Main activity prod. elec. and heat - gas	373.2	144.5%	5.8	54.0
Manufacturing industries - gas	261.9	-6.0%	4.1	58.1
Residential - gas	259.5	8.3%	4.0	62.1
Manufacturing industries - oil	184.7	-14.9%	2.9	64.9
Other transport - oil	179.1	-27.3%	2.8	67.7
Non-specified other - gas	167.5	17.0%	2.6	70.3
Other energy industry own use - oil	142.8	-14.1%	2.2	72.5
Other energy industry own use - gas	108.0	3.6%	1.7	74.2
Manufacturing industries - coal/peat	90.4	-56.4%	1.4	75.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>5 195.0</i>	<i>6.7%</i>	<i>80.4</i>	<i>80.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

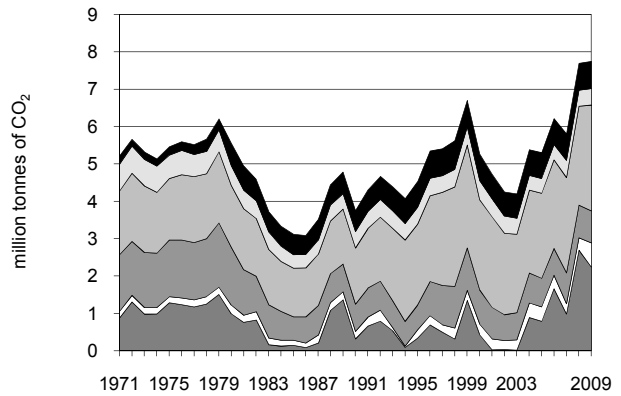
Uruguay

Figure 1. CO₂ emissions by fuel



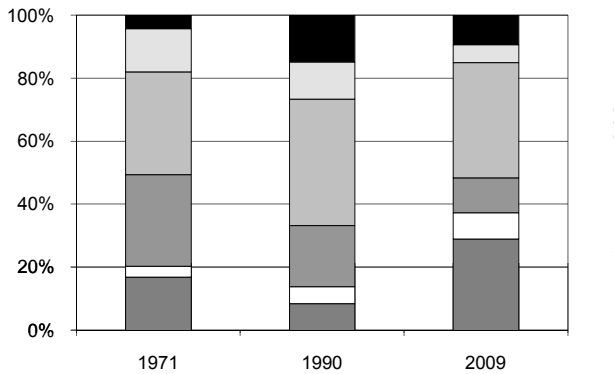
■ Coal/peat ■ Oil ■ Gas

Figure 2. CO₂ emissions by sector



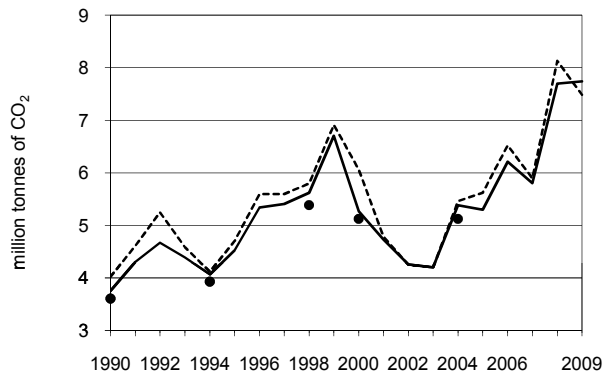
■ Electricity and heat □ Other energy ind. own use
 ■ Manuf. ind. and construction ■ Transport
 □ Residential ■ Other

Figure 3. CO₂ emissions by sector



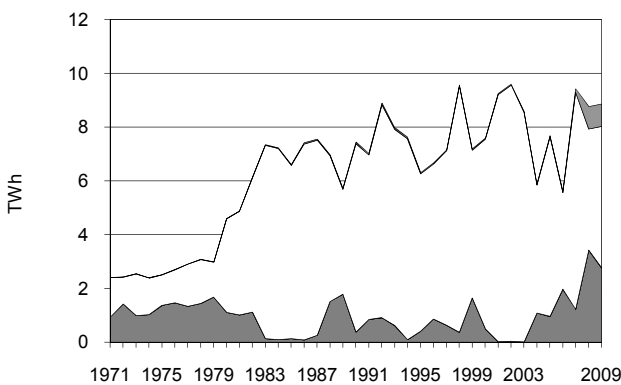
■ Electricity and heat □ Other energy ind. own use
 ■ Manuf. ind. and construction ■ Transport
 □ Residential ■ Other

Figure 4. Reference vs Sectoral Approach



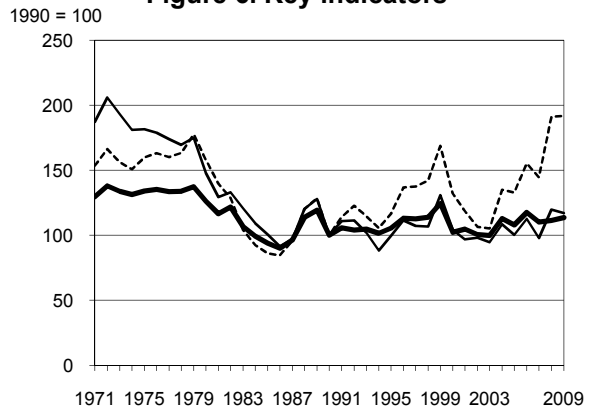
— Total CO₂ emissions - Sectoral Approach
 - - - Total CO₂ emissions - Reference Approach
 ● UNFCCC database

Figure 5. Electricity generation by fuel



■ Oil ■ Gas □ Hydro ■ Other

Figure 6. Key indicators



— CO₂/TPES — CO₂/GDP - - - CO₂/capita

Uruguay

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	3.75	4.52	5.26	5.30	5.80	7.70	7.74	106.5%
CO ₂ Reference Approach (Mt of CO ₂)	4.02	4.70	6.06	5.62	5.89	8.13	7.48	86.3%
TPES (PJ)	94	108	129	123	132	174	171	81.8%
TPES (Mtoe)	2.25	2.57	3.09	2.95	3.16	4.14	4.09	81.8%
GDP (billion 2000 USD)	16.95	20.56	22.82	23.90	26.79	29.08	29.91	76.5%
GDP PPP (billion 2000 USD)	24.00	29.11	32.32	33.84	37.94	41.17	42.35	76.5%
Population (millions)	3.11	3.22	3.30	3.31	3.32	3.33	3.35	7.7%
CO ₂ / TPES (t CO ₂ per TJ)	39.8	42.0	40.7	42.9	43.8	44.4	45.2	13.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.22	0.22	0.23	0.22	0.22	0.26	0.26	17.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.16	0.16	0.16	0.16	0.15	0.19	0.18	17.0%
CO ₂ / population (t CO ₂ per capita)	1.21	1.41	1.59	1.60	1.75	2.31	2.31	91.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.01	7.61	0.13	-	7.74	106.5%
Main activity producer elec. and heat	-	2.22	0.01	-	2.23	652.6%
Unallocated autoproducers	-	0.02	-	-	0.02	-28.6%
Other energy industry own use	-	0.64	0.00	-	0.64	222.8%
Manufacturing industries and construction	0.01	0.81	0.04	-	0.86	17.9%
Transport	-	2.83	-	-	2.83	88.2%
<i>of which: road</i>	-	2.81	-	-	2.81	96.9%
Other	-	1.09	0.07	-	1.17	16.7%
<i>of which: residential</i>	-	0.40	0.04	-	0.44	0.0%
Reference Approach	0.01	7.34	0.14	-	7.48	86.3%
Diff. due to losses and/or transformation	-	0.03	0.01	-	0.04	
Statistical differences	-	-0.30	-0.00	-	-0.30	
<i>Memo: international marine bunkers</i>	-	1.63	-	-	1.63	342.5%
<i>Memo: international aviation bunkers</i>	-	0.21	-	-	0.21	x

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	2.81	96.9%	7.8	7.8
Main activity prod. elec. and heat - oil	2.22	649.3%	6.2	14.0
Manufacturing industries - oil	0.81	12.3%	2.3	16.2
Non-specified other - oil	0.69	25.3%	1.9	18.1
Other energy industry own use - oil	0.64	220.7%	1.8	19.9
Residential - oil	0.40	-6.1%	1.1	21.0
Manufacturing industries - gas	0.04	x	0.1	21.1
Residential - gas	0.04	x	0.1	21.2
Non-specified other - gas	0.03	x	0.1	21.3
Unallocated autoproducers - oil	0.02	-28.6%	0.0	21.4
Other transport - oil	0.02	-79.4%	0.0	21.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>7.74</i>	<i>106.5%</i>	<i>21.5</i>	<i>21.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Uzbekistan

Figure 1. CO₂ emissions by fuel

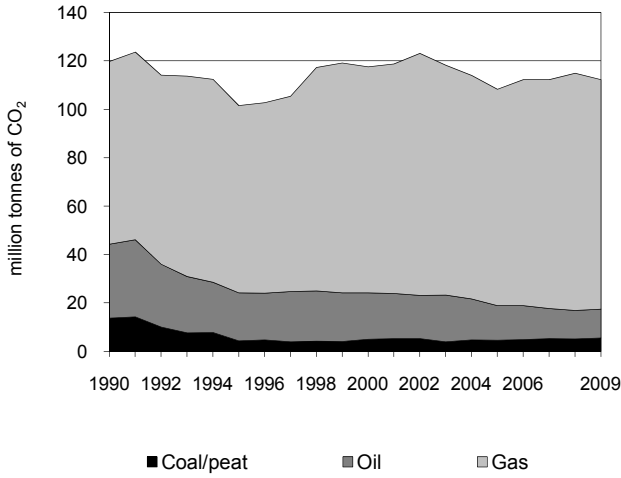


Figure 2. CO₂ emissions by sector

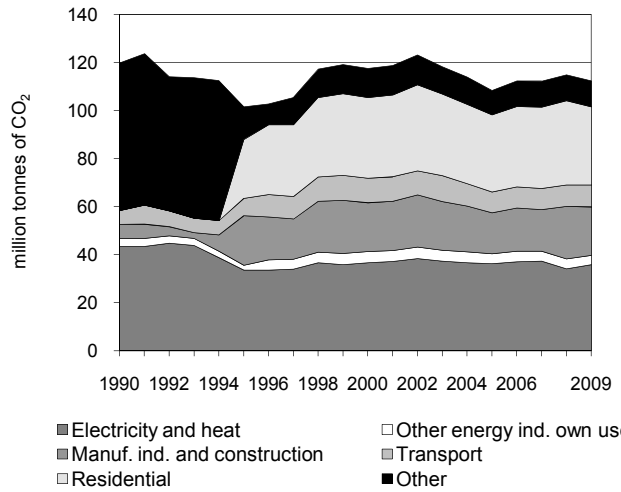


Figure 3. CO₂ emissions by sector

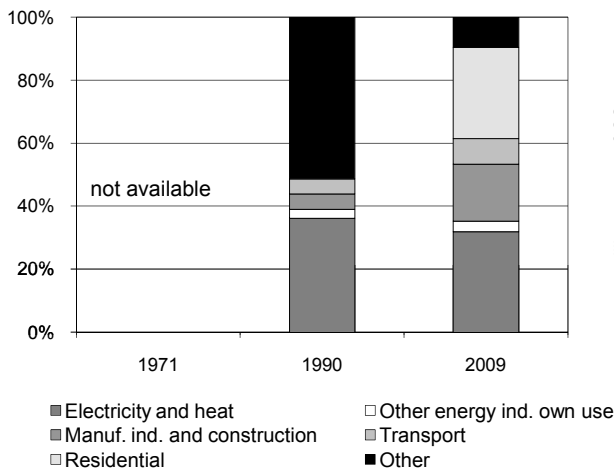


Figure 4. Reference vs Sectoral Approach

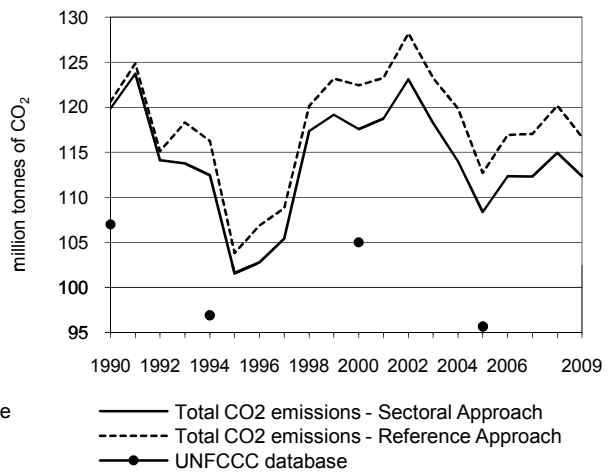


Figure 5. Electricity generation by fuel

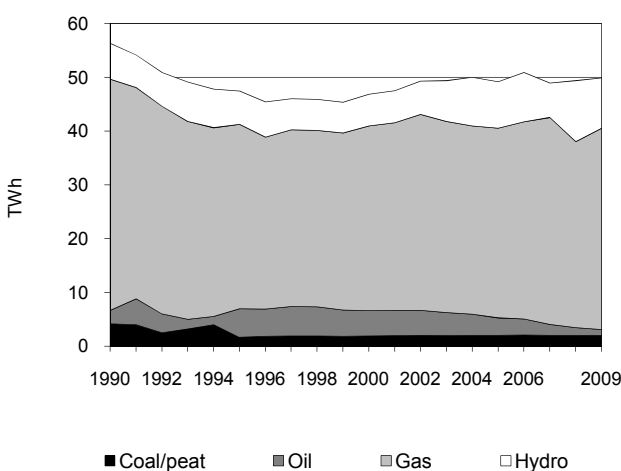
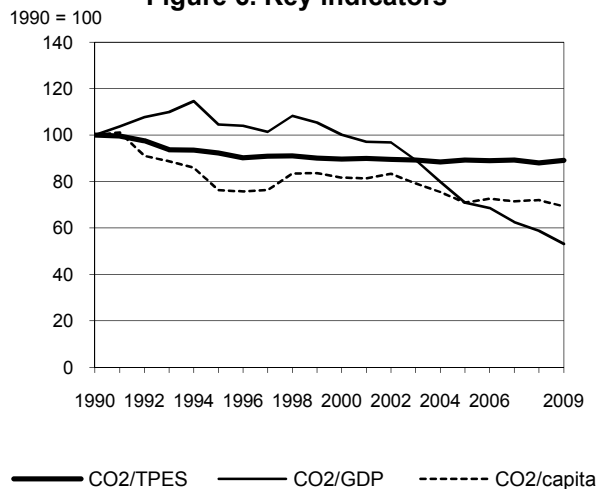


Figure 6. Key indicators



Uzbekistan

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	119.83	101.59	117.58	108.38	112.30	114.93	112.36	-6.2%
CO ₂ Reference Approach (Mt of CO ₂)	120.58	103.83	122.44	112.72	117.05	120.15	116.72	-3.2%
TPES (PJ)	1 941	1 782	2 124	1 966	2 039	2 114	2 044	5.3%
TPES (Mtoe)	46.37	42.57	50.74	46.95	48.70	50.50	48.81	5.3%
GDP (billion 2000 USD)	14.04	11.39	13.76	17.91	21.04	22.93	24.79	76.5%
GDP PPP (billion 2000 USD)	37.68	30.56	36.92	48.04	56.45	61.53	66.51	76.5%
Population (millions)	20.51	22.79	24.65	26.17	26.87	27.31	27.77	35.4%
CO ₂ / TPES (t CO ₂ per TJ)	61.7	57.0	55.3	55.1	55.1	54.4	55.0	-10.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	8.53	8.92	8.54	6.05	5.34	5.01	4.53	-46.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	3.18	3.32	3.18	2.26	1.99	1.87	1.69	-46.9%
CO ₂ / population (t CO ₂ per capita)	5.84	4.46	4.77	4.14	4.18	4.21	4.05	-30.7%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	5.52	11.96	94.89	-	112.36	-6.2%
Main activity producer elec. and heat	3.70	1.04	31.01	-	35.75	-17.7%
Unallocated autoproducers	-	0.00	0.07	-	0.07	x
Other energy industry own use	-	0.50	3.36	-	3.87	13.8%
Manufacturing industries and construction	0.44	1.68	18.12	-	20.23	246.4%
Transport	-	6.03	3.14	-	9.18	62.0%
<i>of which: road</i>	-	5.22	0.14	-	5.36	-1.3%
Other	1.39	2.69	39.19	-	43.27	-29.7%
<i>of which: residential</i>	0.07	0.05	32.37	-	32.48	x
Reference Approach	5.57	12.66	98.49	-	116.72	-3.2%
Diff. due to losses and/or transformation	0.05	0.21	3.60	-	3.86	
Statistical differences	0.00	0.50	0.00	-	0.50	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Residential - gas	32.37	x	18.2	18.2
Main activity prod. elec. and heat - gas	31.01	14.3%	17.4	35.6
Manufacturing industries - gas	18.12	x	10.2	45.8
Non-specified other - gas	6.82	-85.2%	3.8	49.6
Road - oil	5.22	-3.9%	2.9	52.5
Main activity prod. elec. and heat - coal/peat	3.70	-58.0%	2.1	54.6
Other energy industry own use - gas	3.36	39.2%	1.9	56.5
Other transport - gas	3.00	x	1.7	58.2
Non-specified other - oil	2.65	-75.0%	1.5	59.7
Manufacturing industries - oil	1.68	-71.3%	0.9	60.6
Non-specified other sectors - coal/peat	1.32	-73.2%	0.7	61.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>112.36</i>	<i>-6.2%</i>	<i>63.1</i>	<i>63.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Venezuela

Figure 1. CO₂ emissions by fuel

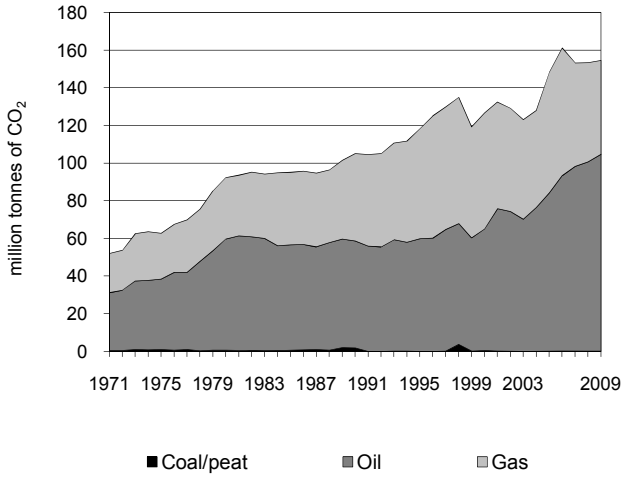


Figure 2. CO₂ emissions by sector

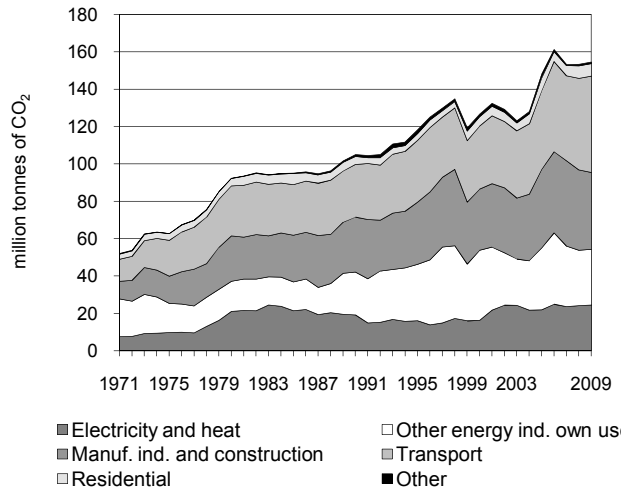


Figure 3. CO₂ emissions by sector

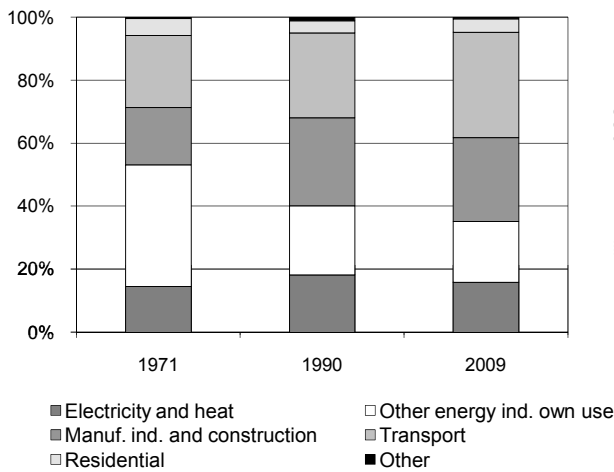


Figure 4. Reference vs Sectoral Approach

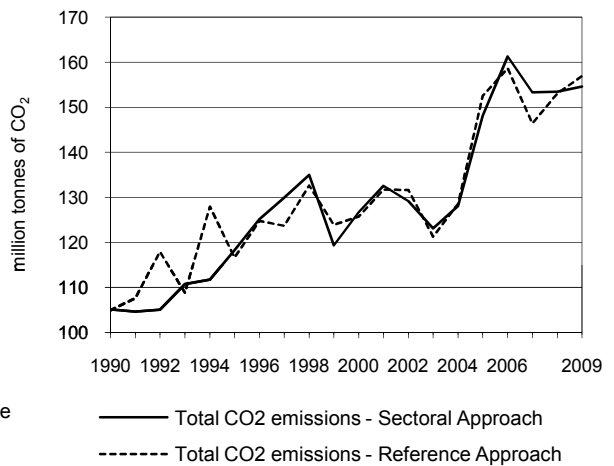


Figure 5. Electricity generation by fuel

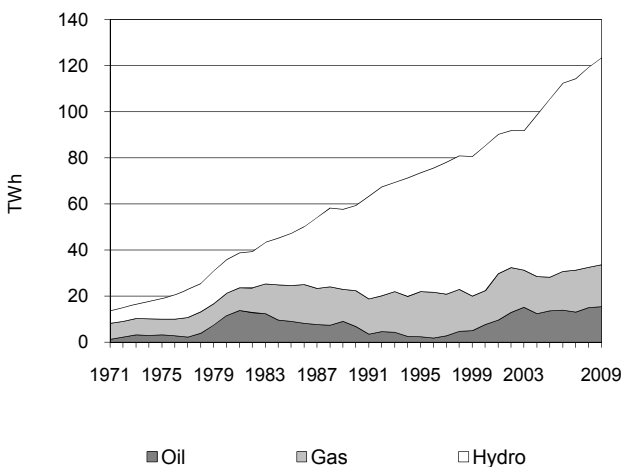
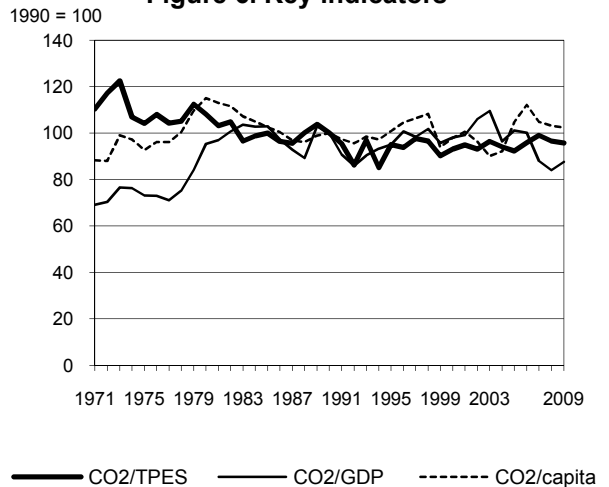


Figure 6. Key indicators



Venezuela

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	105.09	118.29	126.74	148.16	153.28	153.43	154.57	47.1%
CO ₂ Reference Approach (Mt of CO ₂)	104.94	116.62	125.71	152.50	146.39	153.04	156.95	49.6%
TPES (PJ)	1 823	2 159	2 362	2 785	2 686	2 757	2 801	53.6%
TPES (Mtoe)	43.54	51.58	56.43	66.53	64.16	65.84	66.90	53.6%
GDP (billion 2000 USD)	95.26	112.85	117.15	132.89	157.91	165.46	160.02	68.0%
GDP PPP (billion 2000 USD)	113.85	134.86	140.00	158.81	188.71	197.73	191.23	68.0%
Population (millions)	19.75	22.04	24.31	26.58	27.48	27.94	28.38	43.7%
CO ₂ / TPES (t CO ₂ per TJ)	57.7	54.8	53.6	53.2	57.1	55.7	55.2	-4.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.10	1.05	1.08	1.11	0.97	0.93	0.97	-12.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.92	0.88	0.91	0.93	0.81	0.78	0.81	-12.4%
CO ₂ / population (t CO ₂ per capita)	5.32	5.37	5.21	5.57	5.58	5.49	5.45	2.3%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.20	104.58	49.79	-	154.57	47.1%
Main activity producer elec. and heat	-	13.49	9.93	-	23.42	53.7%
Unallocated autoproducers	-	0.03	1.06	-	1.10	-72.0%
Other energy industry own use	-	19.18	10.67	-	29.86	29.7%
Manufacturing industries and construction	0.20	16.27	24.61	-	41.08	39.8%
Transport	-	51.63	0.02	-	51.66	82.8%
<i>of which: road</i>	-	51.63	-	-	51.63	82.9%
Other	-	3.96	3.50	-	7.46	41.3%
<i>of which: residential</i>	-	3.91	2.69	-	6.60	59.4%
Reference Approach	0.20	104.41	52.34	-	156.95	49.6%
Diff. due to losses and/or transformation	-	-0.07	-	-	-0.07	
Statistical differences	-	-0.10	2.55	-	2.46	
<i>Memo: international marine bunkers</i>	-	2.81	-	-	2.81	12.5%
<i>Memo: international aviation bunkers</i>	-	0.48	-	-	0.48	-53.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	51.63	82.9%	21.2	21.2
Manufacturing industries - gas	24.61	36.2%	10.1	31.3
Other energy industry own use - oil	19.18	108.0%	7.9	39.2
Manufacturing industries - oil	16.27	71.2%	6.7	45.9
Main activity prod. elec. and heat - oil	13.49	138.5%	5.5	51.4
Other energy industry own use - gas	10.67	-22.6%	4.4	55.8
Main activity prod. elec. and heat - gas	9.93	3.6%	4.1	59.9
Residential - oil	3.91	5.6%	1.6	61.5
Residential - gas	2.69	513.3%	1.1	62.6
Unallocated autoproducers - gas	1.06	-69.3%	0.4	63.1
Non-specified other - gas	0.81	-17.4%	0.3	63.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>154.57</i>	<i>47.1%</i>	<i>63.5</i>	<i>63.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Vietnam *

Figure 1. CO₂ emissions by fuel

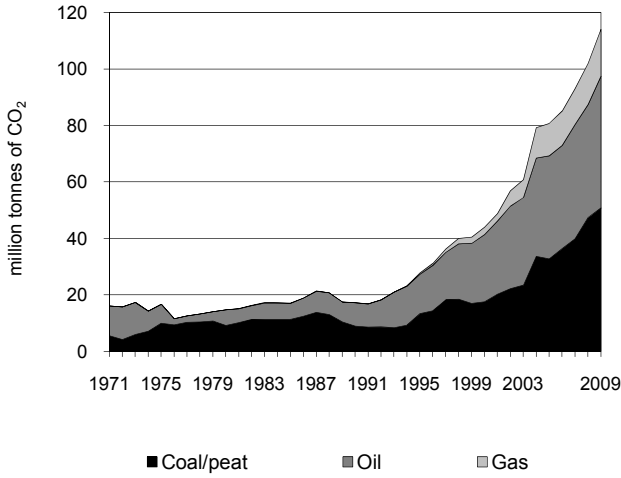


Figure 2. CO₂ emissions by sector

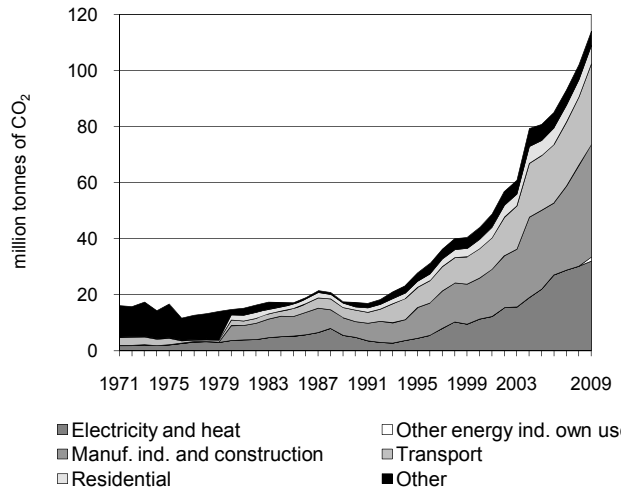


Figure 3. CO₂ emissions by sector

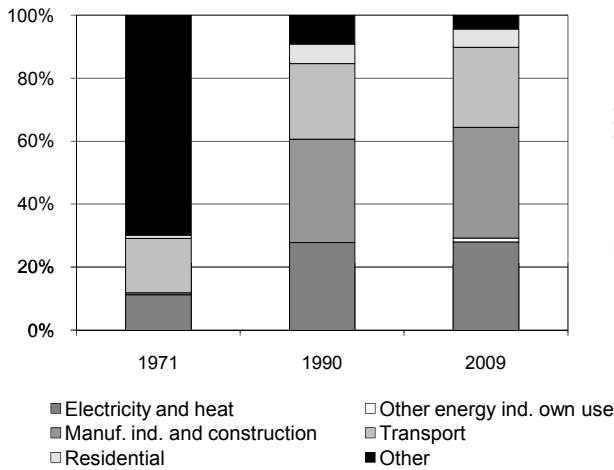


Figure 4. Reference vs Sectoral Approach

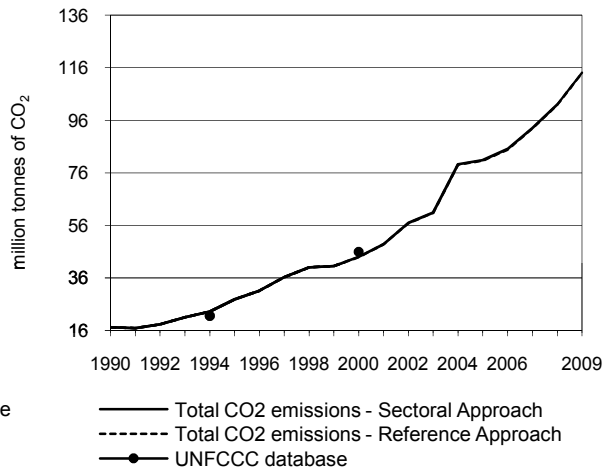


Figure 5. Electricity generation by fuel

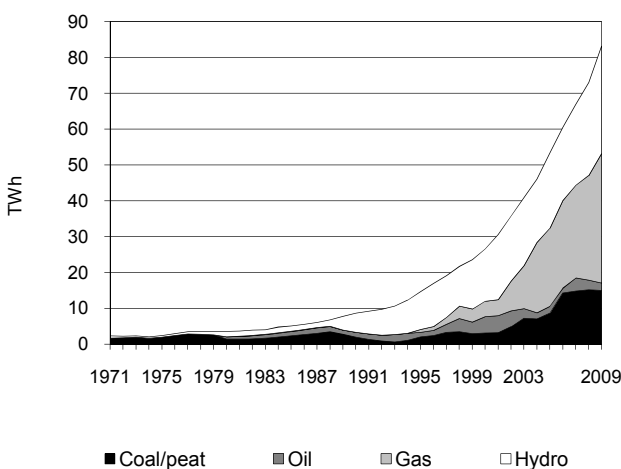
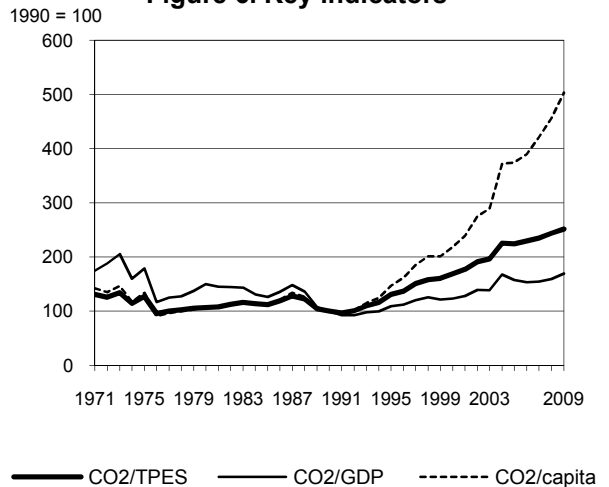


Figure 6. Key indicators



* A detailed sectoral breakdown is available starting in 1980.

Vietnam

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	17.20	27.79	44.01	80.78	93.07	102.05	114.07	563.2%
CO ₂ Reference Approach (Mt of CO ₂)	17.20	27.79	43.96	80.64	92.93	101.91	113.98	562.5%
TPES (PJ)	1 017	1 255	1 546	2 133	2 345	2 476	2 682	163.6%
TPES (Mtoe)	24.30	29.98	36.92	50.95	56.01	59.15	64.05	163.6%
GDP (billion 2000 USD)	15.02	22.28	31.17	44.77	52.55	55.87	58.84	291.8%
GDP PPP (billion 2000 USD)	76.30	113.18	158.37	227.45	266.99	283.83	298.94	291.8%
Population (millions)	66.20	72.98	77.64	83.11	85.16	86.21	87.28	31.8%
CO ₂ / TPES (t CO ₂ per TJ)	16.9	22.1	28.5	37.9	39.7	41.2	42.5	151.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.15	1.25	1.41	1.80	1.77	1.83	1.94	69.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.23	0.25	0.28	0.36	0.35	0.36	0.38	69.3%
CO ₂ / population (t CO ₂ per capita)	0.26	0.38	0.57	0.97	1.09	1.18	1.31	403.0%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	50.77	46.70	16.59	-	114.07	563.2%
Main activity producer elec. and heat	14.30	0.85	14.59	-	29.74	520.5%
Unallocated autoproducers	0.48	1.22	0.51	-	2.21	x
Other energy industry own use	-	1.48	-	-	1.48	x
Manufacturing industries and construction	30.10	8.46	1.49	-	40.06	610.0%
Transport	-	29.01	-	-	29.01	603.7%
<i>of which: road</i>	-	27.67	-	-	27.67	638.5%
Other	5.89	5.69	-	-	11.57	338.1%
<i>of which: residential</i>	4.39	2.18	-	-	6.58	518.1%
Reference Approach	50.77	46.61	16.59	-	113.98	562.5%
Diff. due to losses and/or transformation	-	-0.09	-	-	-0.09	
Statistical differences	-0.00	-0.00	-	-	-0.00	
<i>Memo: international marine bunkers</i>	-	0.92	-	-	0.92	974.1%
<i>Memo: international aviation bunkers</i>	-	1.15	-	-	1.15	x

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - coal/peat	30.10	625.1%	11.4	11.4
Road - oil	27.67	638.5%	10.5	21.9
Main activity prod. elec. and heat - gas	14.59	+	5.5	27.5
Main activity prod. elec. and heat - coal/peat	14.30	299.4%	5.4	32.9
Manufacturing industries - oil	8.46	467.7%	3.2	36.1
Residential - coal/peat	4.39	425.7%	1.7	37.8
Non-specified other - oil	3.50	182.2%	1.3	39.1
Residential - oil	2.18	856.1%	0.8	39.9
Non-specified other sectors - coal/peat	1.49	344.3%	0.6	40.5
Manufacturing industries - gas	1.49	x	0.6	41.1
Other energy industry own use - oil	1.48	x	0.6	41.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>114.07</i>	<i>563.2%</i>	<i>43.3</i>	<i>43.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Yemen

Figure 1. CO₂ emissions by fuel

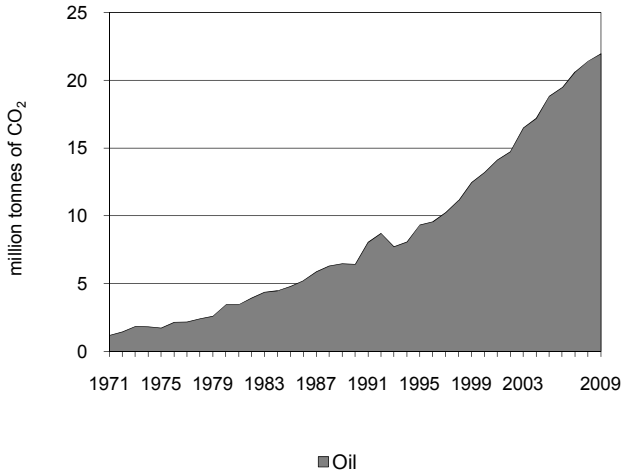


Figure 2. CO₂ emissions by sector

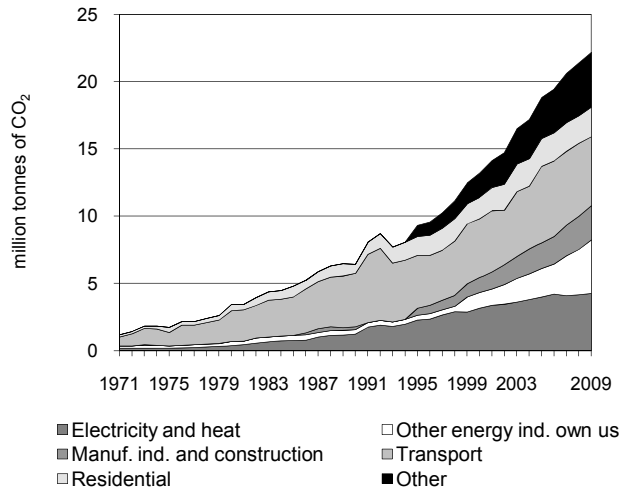


Figure 3. CO₂ emissions by sector

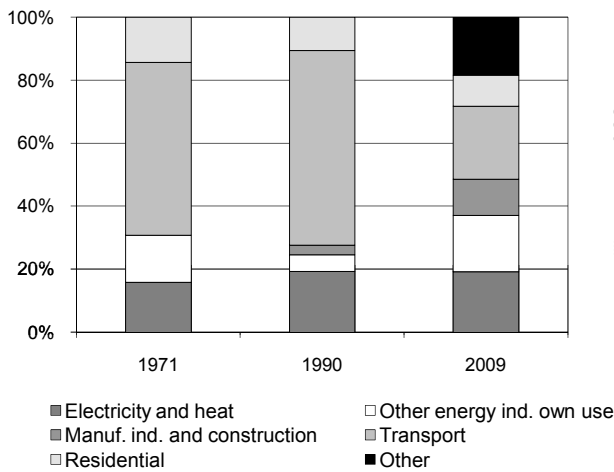


Figure 4. Reference vs Sectoral Approach

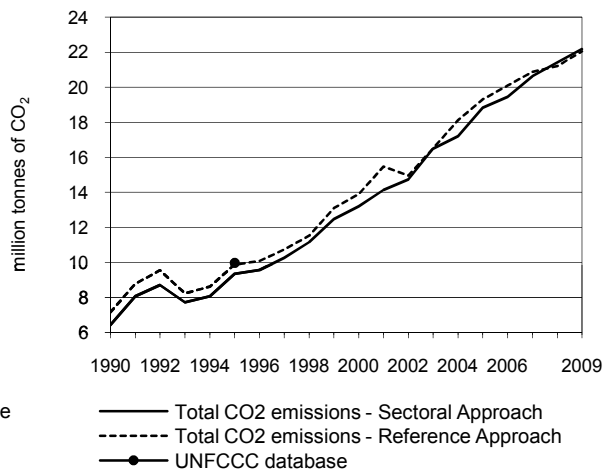


Figure 5. Electricity generation by fuel

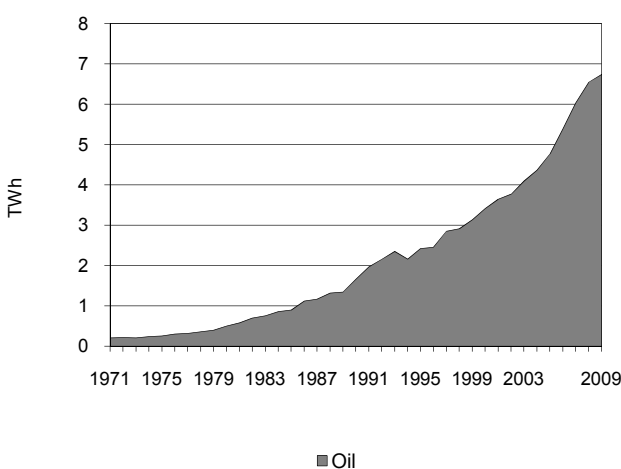
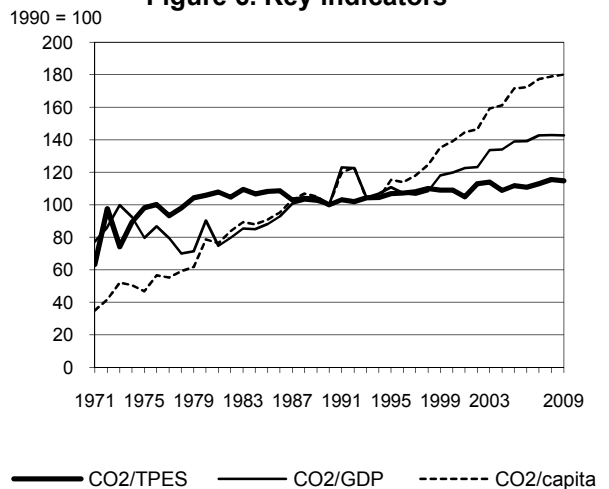


Figure 6. Key indicators



Yemen

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	6.43	9.34	13.21	18.83	20.62	21.41	22.18	244.9%
CO ₂ Reference Approach (Mt of CO ₂)	7.14	9.87	13.90	19.31	20.88	21.20	22.05	208.6%
TPES (PJ)	105	143	198	276	299	303	317	200.8%
TPES (Mtoe)	2.51	3.42	4.74	6.59	7.14	7.25	7.56	200.8%
GDP (billion 2000 USD)	5.51	7.22	9.44	11.61	12.38	12.83	13.32	141.7%
GDP PPP (billion 2000 USD)	8.60	11.28	14.74	18.14	19.33	20.04	20.79	141.7%
Population (millions)	12.31	15.52	18.18	21.02	22.27	22.92	23.58	91.5%
CO ₂ / TPES (t CO ₂ per TJ)	61.1	65.3	66.6	68.3	69.0	70.6	70.1	14.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.17	1.29	1.40	1.62	1.67	1.67	1.67	42.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.75	0.83	0.90	1.04	1.07	1.07	1.07	42.7%
CO ₂ / population (t CO ₂ per capita)	0.52	0.60	0.73	0.90	0.93	0.93	0.94	80.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	-	21.97	0.21	-	22.18	244.9%
Main activity producer elec. and heat	-	3.83	-	-	3.83	316.4%
Unallocated autoproducers	-	0.42	-	-	0.42	31.9%
Other energy industry own use	-	3.77	0.21	-	3.98	+
Manufacturing industries and construction	-	2.55	-	-	2.55	+
Transport	-	5.13	-	-	5.13	29.2%
<i>of which: road</i>	-	5.13	-	-	5.13	29.2%
Other	-	6.26	-	-	6.26	822.0%
<i>of which: residential</i>	-	2.19	-	-	2.19	222.0%
Reference Approach	-	21.84	0.21	-	22.05	208.6%
Diff. due to losses and/or transformation	-	0.41	-	-	0.41	
Statistical differences	-	-0.53	-	-	-0.53	
<i>Memo: international marine bunkers</i>	-	0.39	-	-	0.39	-68.2%
<i>Memo: international aviation bunkers</i>	-	0.43	-	-	0.43	147.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Road - oil	5.13	29.2%	13.7	13.7
Non-specified other - oil	4.08	x	10.8	24.5
Main activity prod. elec. and heat - oil	3.83	316.4%	10.2	34.7
Other energy industry own use - oil	3.77	+	10.0	44.7
Manufacturing industries - oil	2.55	+	6.8	51.5
Residential - oil	2.19	222.0%	5.8	57.3
Unallocated autoproducers - oil	0.42	31.9%	1.1	58.5
Other energy industry own use - gas	0.21	x	0.6	59.0
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>22.18</i>	<i>244.9%</i>	<i>59.0</i>	<i>59.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Zambia

Figure 1. CO₂ emissions by fuel

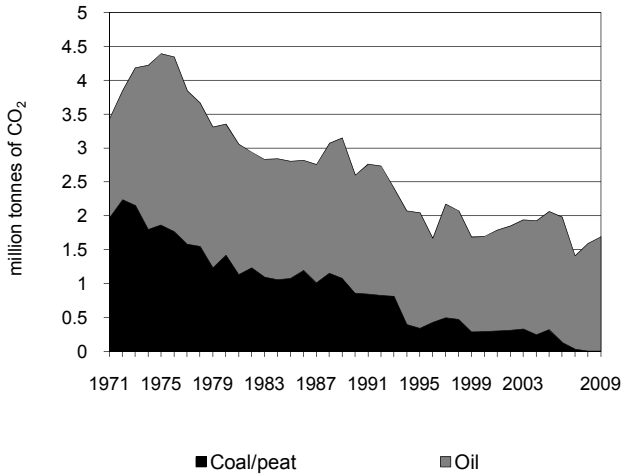


Figure 2. CO₂ emissions by sector

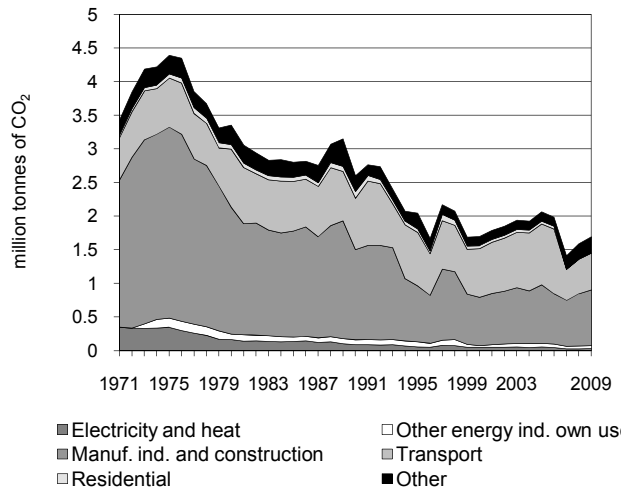


Figure 3. CO₂ emissions by sector

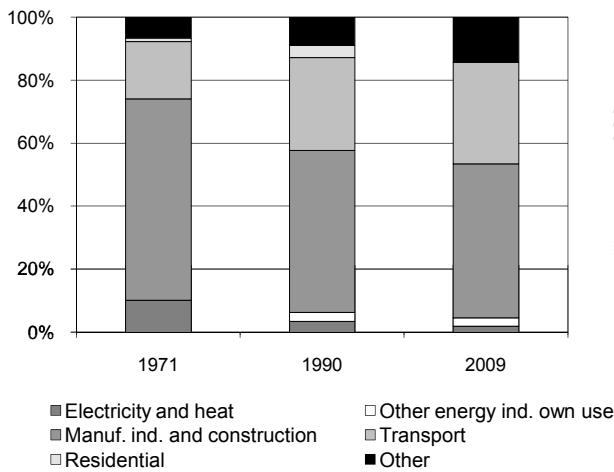


Figure 4. Reference vs Sectoral Approach

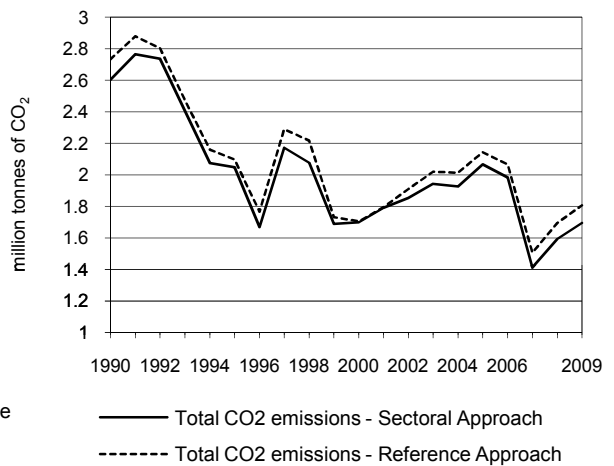


Figure 5. Electricity generation by fuel

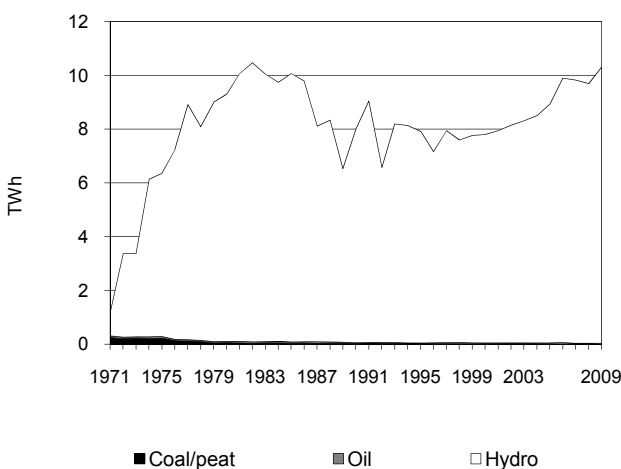
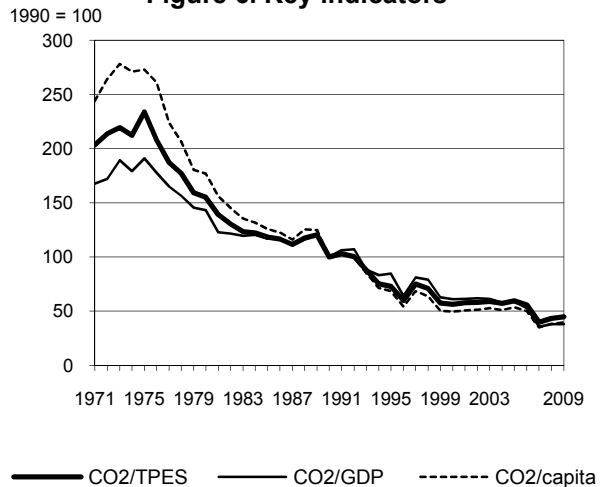


Figure 6. Key indicators



Zambia

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	2.60	2.05	1.70	2.07	1.41	1.59	1.69	-34.9%
CO ₂ Reference Approach (Mt of CO ₂)	2.73	2.10	1.71	2.14	1.50	1.70	1.81	-33.9%
TPES (PJ)	226	244	262	302	309	319	329	45.5%
TPES (Mtoe)	5.40	5.83	6.25	7.20	7.38	7.61	7.86	45.5%
GDP (billion 2000 USD)	3.03	2.82	3.24	4.09	4.62	4.88	5.19	71.3%
GDP PPP (billion 2000 USD)	7.86	7.33	8.41	10.62	11.99	12.67	13.47	71.3%
Population (millions)	7.91	9.11	10.47	11.74	12.31	12.62	12.94	63.5%
CO ₂ / TPES (t CO ₂ per TJ)	11.5	8.4	6.5	6.9	4.6	5.0	5.2	-55.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.86	0.73	0.52	0.51	0.31	0.33	0.33	-62.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.33	0.28	0.20	0.19	0.12	0.13	0.13	-62.0%
CO ₂ / population (t CO ₂ per capita)	0.33	0.22	0.16	0.18	0.11	0.13	0.13	-60.2%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	0.00	1.69	-	-	1.69	-34.9%
Main activity producer elec. and heat	-	0.03	-	-	0.03	28.6%
Unallocated autoproducers	0.00	0.00	-	-	0.01	-92.5%
Other energy industry own use	-	0.04	-	-	0.04	-38.7%
Manufacturing industries and construction	0.00	0.83	-	-	0.83	-38.2%
Transport	-	0.55	-	-	0.55	-28.6%
<i>of which: road</i>	-	0.38	-	-	0.38	-44.8%
Other	-	0.24	-	-	0.24	-27.4%
<i>of which: residential</i>	-	-	-	-	-	-100.0%
Reference Approach	0.00	1.80	-	-	1.81	-33.9%
Diff. due to losses and/or transformation	-	0.11	-	-	0.11	
Statistical differences	-0.00	0.00	-	-	0.00	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.13	-	-	0.13	-34.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - oil	0.83	31.7%	5.1	5.1
Road - oil	0.38	-44.8%	2.3	7.5
Non-specified other - oil	0.24	59.9%	1.5	9.0
Other transport - oil	0.17	107.2%	1.0	10.0
Other energy industry own use - oil	0.04	-38.7%	0.3	10.3
Main activity prod. elec. and heat - oil	0.03	28.6%	0.2	10.5
Unallocated autoproducers - oil	0.00	-6.0%	0.0	10.5
Unallocated autoproducers - coal/peat	0.00	-96.6%	0.0	10.5
Manufacturing industries - coal/peat	0.00	-99.7%	0.0	10.5
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	1.69	-34.9%	10.5	10.5

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Zimbabwe

Figure 1. CO₂ emissions by fuel

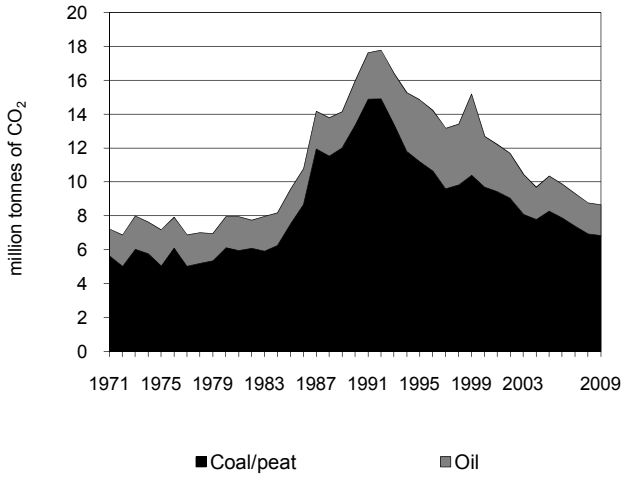


Figure 2. CO₂ emissions by sector

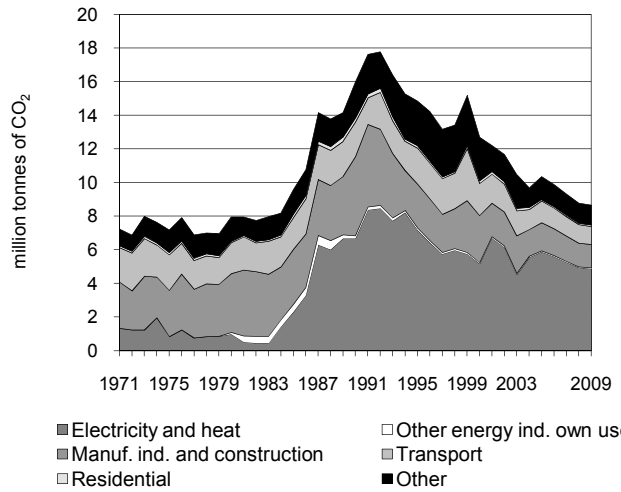


Figure 3. CO₂ emissions by sector

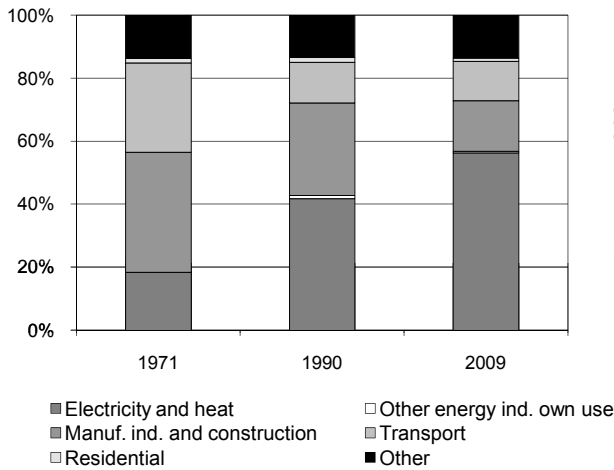


Figure 4. Reference vs Sectoral Approach

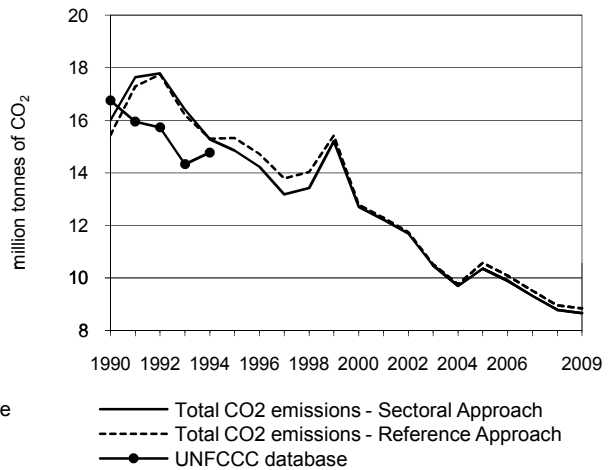


Figure 5. Electricity generation by fuel

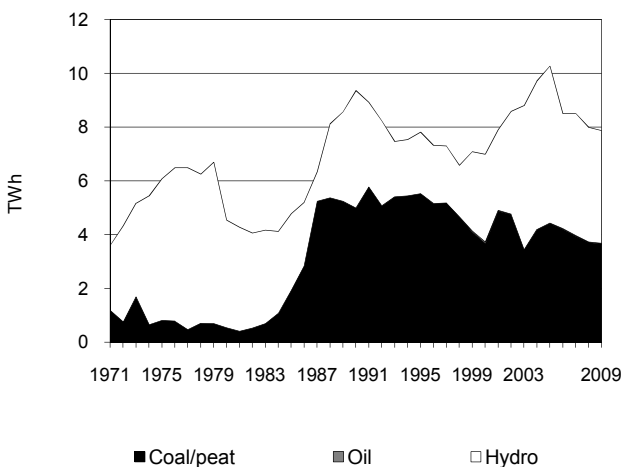
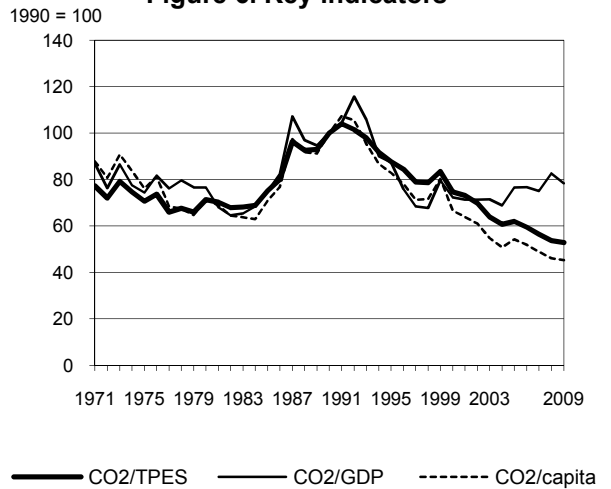


Figure 6. Key indicators



Zimbabwe

Key indicators

	1990	1995	2000	2005	2007	2008	2009	% change 90-09
CO ₂ Sectoral Approach (Mt of CO ₂)	16.00	14.85	12.71	10.36	9.32	8.78	8.66	-45.9%
CO ₂ Reference Approach (Mt of CO ₂)	15.44	15.33	12.79	10.58	9.51	8.96	8.84	-42.8%
TPES (PJ)	389	412	414	406	401	398	398	2.3%
TPES (Mtoe)	9.30	9.84	9.89	9.70	9.58	9.51	9.51	2.3%
GDP (billion 2000 USD)	6.73	7.15	7.40	5.70	5.23	4.47	4.65	-30.9%
GDP PPP (billion 2000 USD)	28.64	30.41	31.48	24.23	22.24	19.02	19.78	-30.9%
Population (millions)	10.46	11.71	12.46	12.48	12.45	12.46	12.52	19.7%
CO ₂ / TPES (t CO ₂ per TJ)	41.1	36.0	30.7	25.5	23.2	22.1	21.7	-47.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.38	2.08	1.72	1.82	1.78	1.96	1.86	-21.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.56	0.49	0.40	0.43	0.42	0.46	0.44	-21.6%
CO ₂ / population (t CO ₂ per capita)	1.53	1.27	1.02	0.83	0.75	0.70	0.69	-54.8%

Ratios are based on the Sectoral Approach.

2009 CO₂ emissions by sector

million tonnes of CO ₂	Natural				Total	% change 90-09
	Coal/peat	Oil	gas	Other *		
Sectoral Approach	6.85	1.82	-	-	8.66	-45.9%
Main activity producer elec. and heat	4.83	0.05	-	-	4.88	-27.0%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	0.05	-	-	-	0.05	-70.9%
Manufacturing industries and construction	1.16	0.23	-	-	1.39	-70.4%
Transport	0.02	1.06	-	-	1.08	-47.8%
<i>of which: road</i>	-	1.00	-	-	1.00	-24.3%
Other	0.79	0.48	-	-	1.27	-46.9%
<i>of which: residential</i>	0.00	0.08	-	-	0.09	-64.5%
Reference Approach	7.02	1.82	-	-	8.84	-42.8%
Diff. due to losses and/or transformation	0.29	-	-	-	0.29	
Statistical differences	-0.12	-0.00	-	-	-0.12	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.02	-	-	0.02	-90.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2009

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-09	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	4.83	-27.8%	22.1	22.1
Manufacturing industries - coal/peat	1.16	-73.1%	5.3	27.5
Road - oil	1.00	-24.3%	4.6	32.1
Non-specified other sectors - coal/peat	0.79	-49.8%	3.6	35.7
Non-specified other - oil	0.40	-31.3%	1.8	37.5
Manufacturing industries - oil	0.23	-39.0%	1.0	38.5
Residential - oil	0.08	-29.0%	0.4	38.9
Other transport - oil	0.06	-74.7%	0.3	39.2
Main activity prod. elec. and heat - oil	0.05	x	0.2	39.4
Other energy industry - coal/peat	0.05	-70.9%	0.2	39.7
Other transport - coal/peat	0.02	-96.1%	0.1	39.8
<i>Memo: total CO₂ from fuel combustion</i>	8.66	-45.9%	39.8	39.8

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

PART III:

GREENHOUSE-GAS EMISSIONS

1. SHARES AND TRENDS IN GREENHOUSE-GAS EMISSIONS

The information in Part III (with the exception of CO₂ emissions from fuel combustion) has been provided by Dr. Jos G.J. Olivier from the PBL Netherlands Environmental Assessment Agency based on the EDGAR 4.2 FT2008 database developed jointly by JRC and PBL as part of and in cooperation with the *Global Exchange and Interactions Activity* (GEIA) of IGBP and the *ACCENT Network of Excellence*.

Country data have been provided for 1990, 2000, 2005 and 2008. Moving from the EDGAR 4.1 to the EDGAR 4.2 FT2008 database has resulted in revisions of greenhouse-gas estimates for some source categories. However, in most cases there were only small changes in the global total. Global total emissions per gas have changed little, except for total CO₂ which increased in 2005 by 1% mainly due to the addition of peat decomposition in drained peatlands as a new source. Please see Chapter 2 for further details on data sources and methodology.

Emission trends for gases and sources are provided in this discussion through 2008.

CO₂ emissions from fuel combustion constitute the majority of anthropogenic greenhouse-gas emissions. However, comprehensive analysis of emissions and emission trends considers other sources of CO₂ as well as other gases.

To complement work regarding the emissions of CO₂ from fuel combustion, the IEA elected to include the EDGAR data on other CO₂ sources and on five other greenhouse gases; CH₄, N₂O and the fluorinated gases (or “F-gases”) HFCs, PFCs and SF₆. These gases are addressed by the Kyoto Protocol.

When considering comparative shares and trends in greenhouse-gas emissions, data on gases and sources other than CO₂ from fuel combustion are much more uncertain. Country-specific estimates of CO₂ from biomass burning and F-gas emissions are particularly difficult to ascertain.

Shares by gas

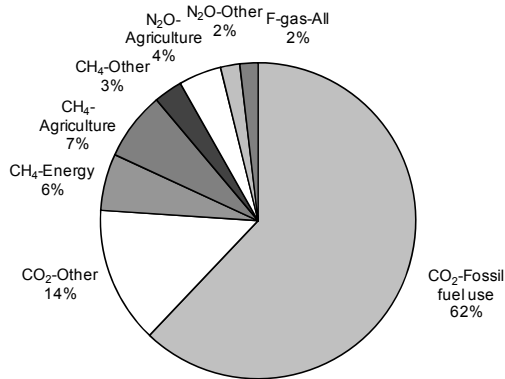
The contribution of non-CO₂ gases to total emissions can be estimated by expressing the emissions of all the gases in CO₂-equivalent units. For a given gas, emissions expressed in mass are multiplied by its specific weighting factor, the Global Warming Potential (GWP), an estimate of the relative contribution of a kilogramme of that gas to global radiative forcing, as compared to the same amount of CO₂, integrated over a fixed period of time (e.g. 100 years).

The UN Framework Convention on Climate Change (UNFCCC), following the Second Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), uses the 100-year GWPs of 21 for CH₄, 310 for N₂O and 23 900 for SF₆. For the most common HFCs, GWPs vary between 140 and 3 000 (1 300 for HFC-134a). For the by-product HFC-23, the GWP is 11 700. The GWPs for PFCs vary between 6 500 (CF₄) to 9 200 (C₂F₆). These two PFCs, the ones most commonly used, are also significant sources of by-product emissions. This chapter expresses all emission data in CO₂-equivalents using these GWP values.

In 2008, CO₂ contributed 76% of global greenhouse-gas emissions, CH₄ about 16%, N₂O about 6% and the combined F-gases about 2% (Figure 1).

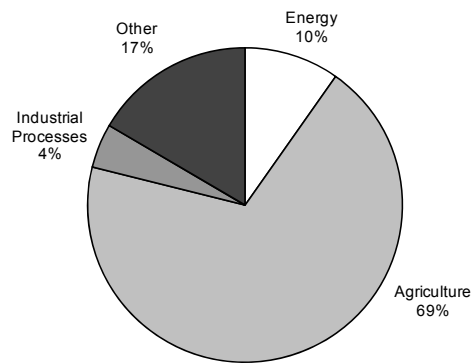
In 2008, the largest sources of greenhouse-gas emissions were the sectors of energy (68%, mainly CO₂ fossil fuel use), and agriculture (11%, mainly CH₄ and N₂O). Other sources of greenhouse gases were CO₂ from biomass burning (11%, mostly forest and peat fires and post-burn decay in non-Annex I countries), and CO₂ from cement production (3%, of which half originated in China).

Figure 1. Global greenhouse-gas emissions by gas/source in 2008



For **nitrous oxide** (N₂O), agriculture contributed 69% of emissions in 2008, mainly from synthetic fertilisers and animal waste dropped on soils (either as animal manure or by animals during grazing) and agricultural waste burning (Figure 3). A much smaller source is fuel combustion (10%, mainly from coal, fuelwood and road transport). Another small source is N₂O from industrial processes (5%), mostly in Annex I countries.

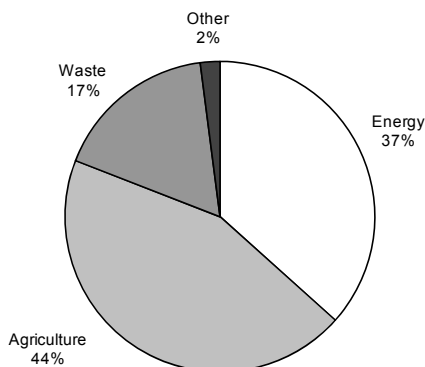
Figure 3. Global N₂O emissions in 2008



As seen in Figure 2, on an individual gas basis, the major global sources for **methane** (CH₄) in 2008 were:

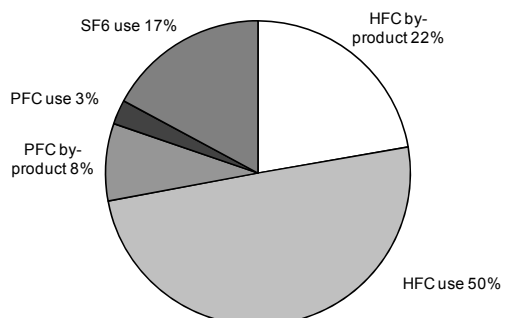
- agriculture (45%), mainly from enteric fermentation by animals and animal waste, from rice cultivation and from savannah burning;
- energy production and transmission (37%), mainly from coal production, and gas production and transmission;
- waste (17%), from landfills and wastewater.

Figure 2. Global CH₄ emissions in 2008



For the **fluorinated gases** (Figure 4), emissions are split between “use” and “by-products” because of the different ways they are produced. HFC use represented half of the total in 2008, of which HFC 134a alone represented about half. Total by-product emissions of HFC contributed 22% and by-product emissions of PFCs another 8%. SF₆ use represented 20%, while PFC use represented the remaining 3%. Most F-gas emissions are emitted by Annex I countries.

Figure 4. Global F-gas emissions in 2008



Shares by region

In 2008, most **methane** emissions originated in non-Annex I regions such as Asia including China (41%) and Latin America (10%). Emissions from Annex I countries contributed 27%, largely driven by emissions from the Former Soviet Union countries and North America.

For methane, emissions from animals and their waste dominate sources in Latin America and South Asia, while emissions from rice cultivation are common in South, East and Southeast Asia. Coal production emissions are concentrated in East Asia (mainly China), North America, and Other Europe and Eurasia, while emissions from gas systems are concentrated in the Former Soviet Union countries and North America. Methane from landfills stems mainly from Annex I countries, whereas methane emissions from wastewater disposal originate predominantly in non-Annex I countries.

Non-Annex I regions produced over two-thirds of global **nitrous oxide** emissions in 2008: Asia including China (33%), Latin America (11%) and Africa (20%). N₂O emissions from Annex I countries contributed 29% to the global total, with most emissions originating in Annex II North America (11%) and Annex II Europe (8%).

Of all nitrous oxide sources, animal waste emissions occur predominantly in the non-Annex I regions of Latin America, Africa and South Asia; N₂O from fertiliser use is largest in East Asia (mainly China) and Latin America followed by North America, Annex II Europe and South Asia (mainly India). N₂O emissions from crop production are largest in North America, Latin America, South Asia and East Asia. Industrial processes also emit significant volumes of N₂O.

The shares of Annex I countries in total CH₄ and total N₂O emissions (27 and 29% respectively) were relatively low compared to their share in global CO₂ emissions (41%).

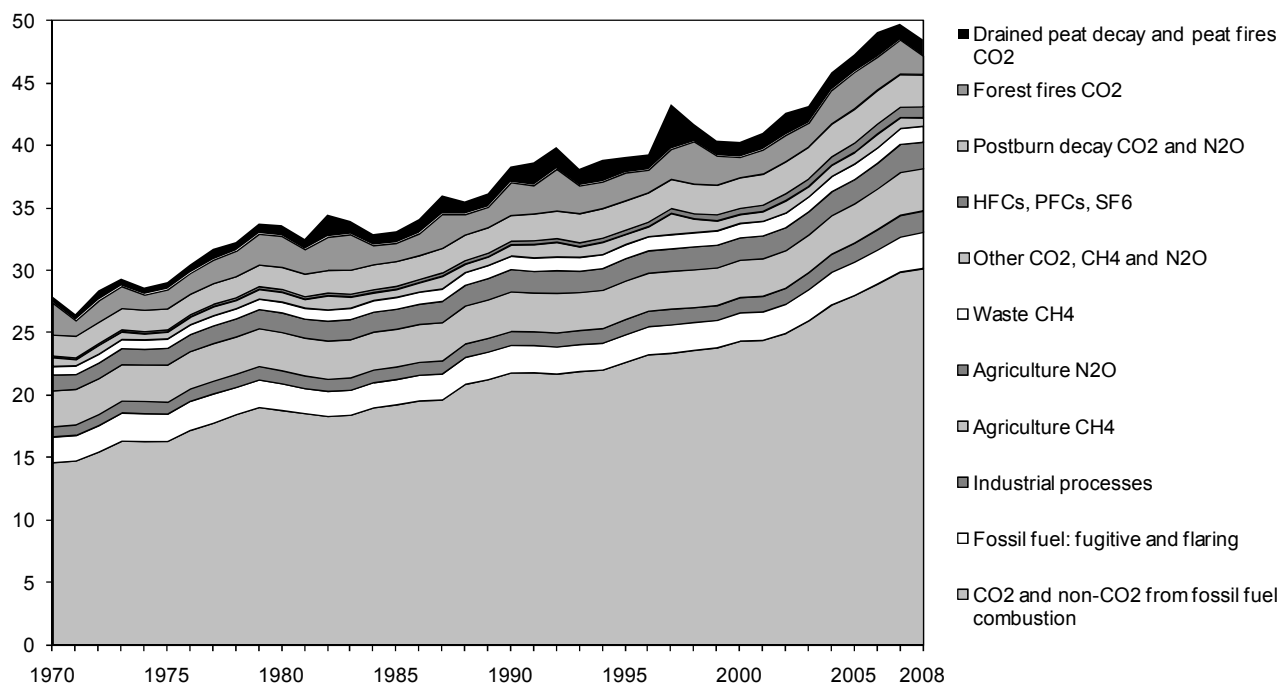
In 2008, most **fluorinated gas** emissions originated in Annex I countries (65%), with Annex II North America contributing 35%, Annex II Europe 12%, Annex II Asia Oceania 8% and Other Europe and Eurasia 9%. Non-Annex I countries contributed about 35% to global F-gas emissions.

Total greenhouse-gas emission trends

Emissions related to fossil-fuels dominate the global trend in total greenhouse-gas emissions. Between 1970-2008, global anthropogenic CO₂ emissions increased by about 80%, CH₄ and N₂O by about 45% and 40% respectively and the F-gases by about 650%. Total emissions of all greenhouse gases - weighted by their GWP - increased by about 75% since 1970.

According to the EDGAR 4.2 FT 2008 dataset, global total greenhouse-gas emissions increased by 27% during the 1990-2008 period (Figure 5). A 40% growth in CO₂ emissions from fuel combustion drove much of this increase. Over the same period, CO₂ emissions from biomass burning – based on satellite observations – are assumed to have decreased by about 10% with CO₂ from decay of drained peatlands increasing by 5% since 1990. Increases in CO₂ emissions from cement production (120%), CH₄ emissions from fossil fuel production (43%) and wastewater (30%), N₂O emissions from agriculture (18%) and the F-gases (about 200%, mainly from HFC use) also contributed to the total increase. The F-gases (for which 1995 generally serves as base year) increased their share of global emissions from 1.0% in 1990 to 1.9% in 2008.

Figure 5. Trend in global greenhouse-gas emissions 1970-2008

Gigatonnes of CO₂-eq.

Sources: IEA for CO₂ from fuel combustion and JRC/PBL (2011) EDGAR 4.2 FT2008 for all other sources.

CO₂ emission trends

Energy dominates the trend in CO₂ emissions, accounting for 81% of the global total CO₂ emissions in 2008 including non-energy uses. About 8% higher than in 1970, this share now varies between 90-99% in most Annex I countries. Within non-Annex I countries, the energy share in CO₂ emissions varies more widely. Indeed, in some African, Latin American and Asian countries, it can be lower than 10%.

Over the 1990-2008 period, total fossil fuel combustion emissions of CO₂ increased about 40% worldwide (by 125% in non-Annex I countries while remaining flat in Annex I countries). Emissions from electricity and heat production and from road transport dominated global trends. Between 1990-2008, CO₂ emissions from electricity and heat production increased by 24% for Annex II countries and by 92%

in the rest of the world. Over the same period, road transport emissions rose 25% in Annex II countries and 94% in the other countries. By 2005, these two sectors together accounted for 58% of global total CO₂ emissions from fuel combustion. The introduction at the beginning of this publication provides a more complete discussion of CO₂ emissions in 2009 and the trends in energy-related CO₂ emissions.

In 2008 deforestation accounted for about 7% of CO₂ emissions (or about 14% including indirect CO₂ emissions from post-burn decay of remaining aboveground biomass). According to satellite observations the share of deforestation in global emissions was about 18% in the 1970s, 1980s and 1990s. Since 2000, however, this share has decreased due to rapidly increasing emissions from fossil fuel combustion. In 2008, CO₂ emissions from cement production – excluding fossil fuel use – represented over 3% of total emissions worldwide. Between 1990-2008, CO₂ from cement production increased by about 120%.

CH₄ emission trends

Between 1970-2008, global methane emissions rose about 45%. In the 1980s, emissions rose about 11%, driven by growth of emissions in Other Europe and Eurasia from gas production and transmission (Figure 6). In addition, enteric fermentation by ruminants and wastewater disposal contributed to the increased emissions, particularly in non-Annex I regions.

Emissions from rice cultivation are estimated to have decreased due to changes in types of rice and to other organic amendment practices. Furthermore, coal production shifted to incorporate more surface mining, which releases much less methane than underground mines. The economic decline of Former Soviet Union countries in the early 1990s strongly influenced global methane trends. Their emissions from coal production, from gas transmission and from animals (enteric fermentation) decreased substantially between 1990-1995. It should be stressed, however, that detailed statistics for this region are rather uncertain in this period.

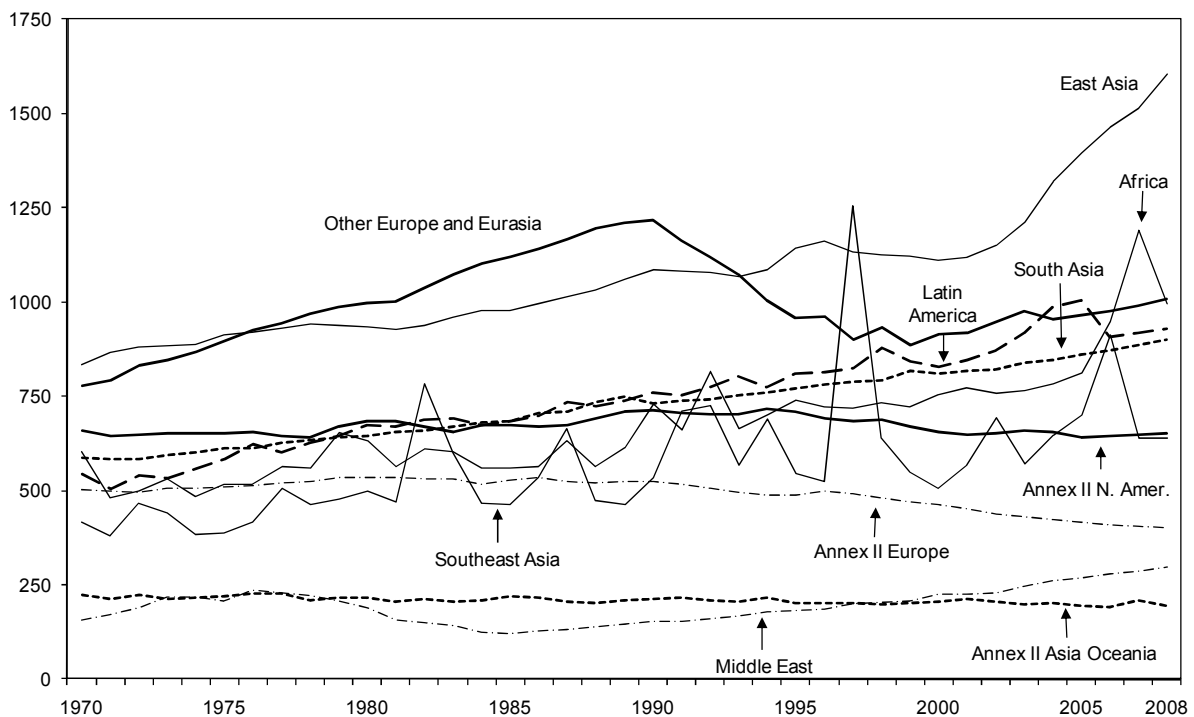
Based on country-specific trends of activity data and emission factors for the 1990-2008 period, global total

methane emissions are estimated to have effectively increased by about 15% between 1990-2008. Between 1990-2008, emissions in non-Annex I countries increased about 35%, with the largest absolute growth occurring in Asia and Africa. Emissions in Annex I countries decreased by 17%, mainly driven by the countries of the Former Soviet Union. Annex II emissions as a whole decreased by 14%. Annex II Europe decreased by about 23%, mainly as a result of the policies of the United Kingdom and Germany, which reduced coal production and increased methane recovery from coal mines, entailing emission reductions of about 50%. In Annex II North America and Annex II Europe, methane emissions from landfills also decreased by about 50% due to enhanced methane recovery.

In the 1990s, emissions increased from gas production (particularly in the Middle East and North America), from waste handling sectors (particularly landfills in Latin America and wastewater in South Asia), from large-scale biomass burning in developing countries and from coal production in China. These increases were partly offset by decreases in fugitive emissions from coal production and CH₄ emissions from animals in EIT countries. Since 2000, emissions increased by 18%, driven by large increases in China and Brazil.

Figure 6. Trends in regional CH₄ emissions

Million tonnes of CO₂-eq.



Source: EDGAR 4.2 FT2008.

N₂O emission trends

Between 1970-2008, global emissions of N₂O increased by about 40%. Since the 1970s, increased use of synthetic fertilisers and manure from livestock caused agricultural emissions in South Asia and East Asia to increase on average by 3-4% annually. These regional emission trends continued into the 2000s (Figure 7). Emissions from Latin America and Africa also increased in the 1990s, predominantly from the same sources and from forest fires.

In contrast, N₂O emissions from industrial processes have decreased by 40% during the 1980s. This decrease resulted from the gradual upgrade of global production facilities for nitric acid. In 1990 about 20% of the facilities were equipped for non-selective catalytic reduction limiting NO_x emissions while simultaneously reducing N₂O emissions.

During the 1970s, North America and Japan introduced catalytic converters in gasoline-fired cars to reduce emissions of precursors of tropospheric ozone, but with higher N₂O emissions as a side effect. Since

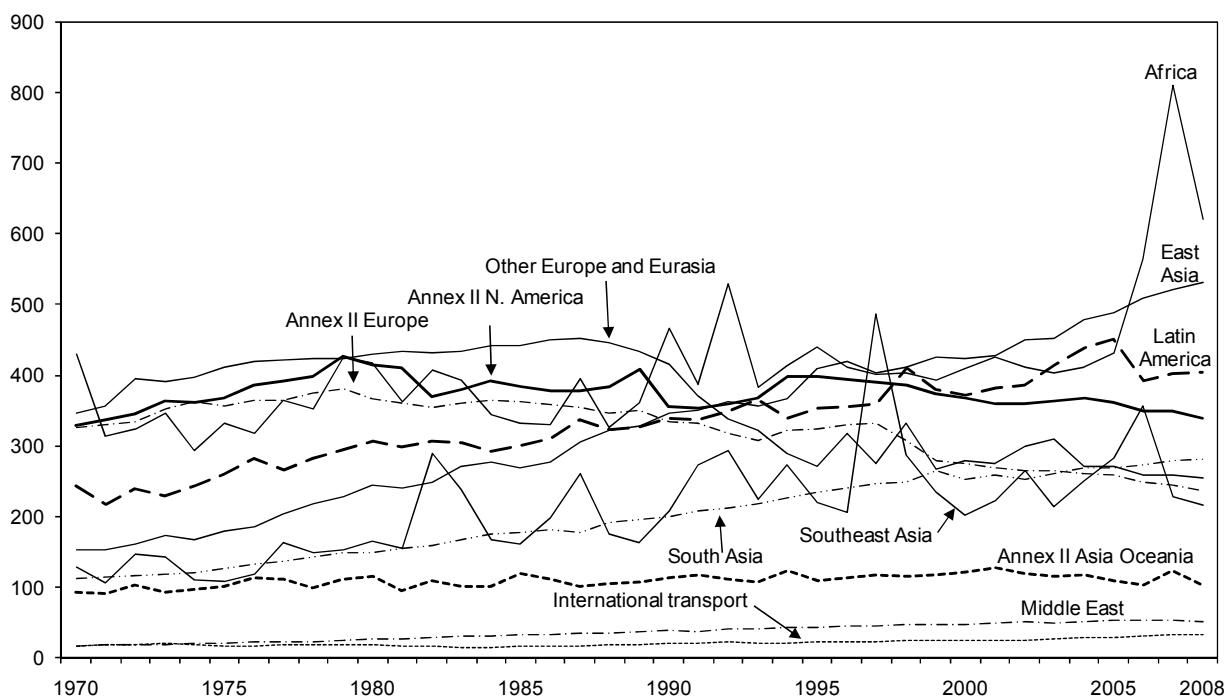
the 1990s this technology was also introduced in Europe and Australia. Until about 2000 the catalytic converters contributed to the increase in N₂O emissions in these countries, whereas in the late 1990s newer types were introduced with lower specific N₂O emissions.

In the 1990-2008 period, global N₂O emissions are estimated to have increased by about 8%. The almost three-quarter reduction in industrial emissions from adipic acid manufacturing particularly limited this increase. Over this period, emissions in non-Annex I countries increased by over 30%, mainly in the agricultural sector in South Asia, East Asia and Latin America. This increase was partially offset by decreasing emissions in the Former Soviet Union countries (about 40%) and, to a lesser extent, in other EIT countries. In Annex II Europe, N₂O decreased by almost 30% since 1990, mainly due to emission abatement in the chemical industry and to a decrease in the use of nitrogen fertilisers.

When considering these trends, one should note that the uncertainties in annual emissions of most sources of N₂O are very large, e.g. the uncertainty for agricultural sources may sometimes exceed 100%.

Figure 7. Trends in regional N₂O emissions

Million tonnes of CO₂-eq



Source: EDGAR 4.2 FT2008.

HFC, PFC and SF₆ emission trends

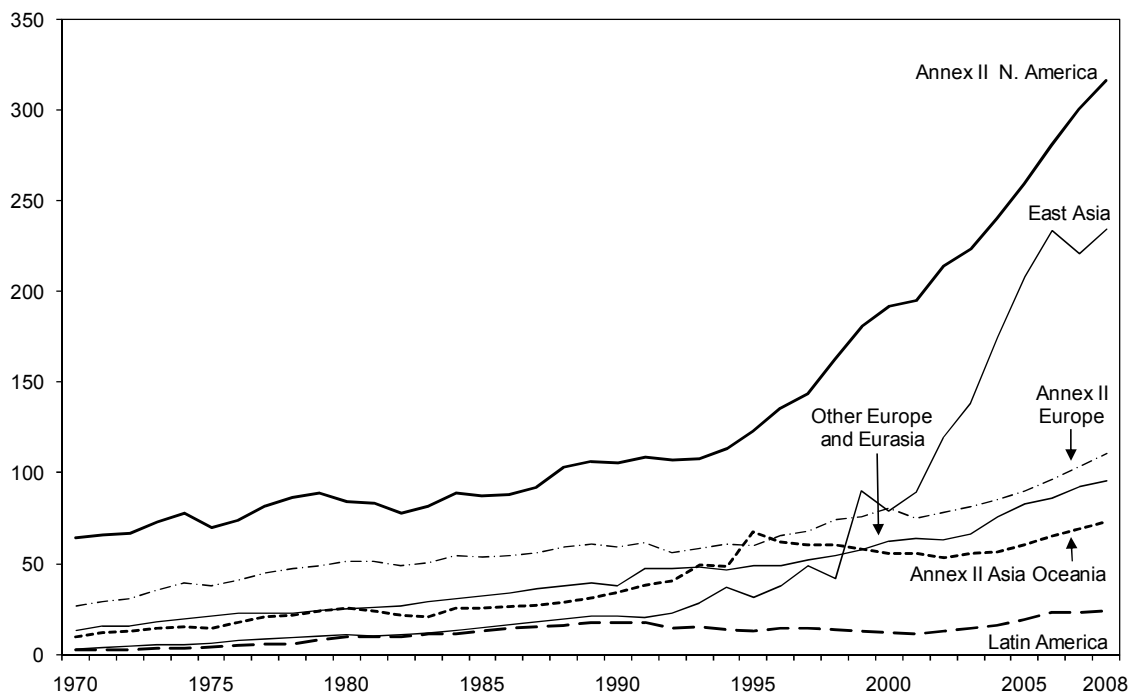
Between 1990-2008, the estimated emissions of F-gases increased by about 200%, mainly due to an increase in HFC emissions: emissions of HFC in 2008 were about 8.5 times higher than in 1990. During the same period, PFC emissions decreased by about 15% while SF₆ emissions increased by about 35%. Annex I regions experienced large growth in F-gas emissions, with average increases on the order of 100-200%. On a regional basis, total F-gas emission trends varied between 0%-1600% for the non-Annex I regions, with the largest absolute increases coming from China (included in East Asia).

Since 1995, global F-gas emissions increased more rapidly. The increase in HFC emissions (almost four times higher) more than offset a 20% reduction in SF₆ emissions and about 5% reduction in PFC emissions since 1995. The reductions in SF₆ were mainly due to reductions in emissions from manufacture and use of switchgear for the electricity sector. Global emissions of HFCs other than HFC-134a exceed emissions of HFC-134a, widely used for refrigeration and air-conditioning.

When considering these trends, one should note that the uncertainties in annual emissions of most sources of F-gases are very large, e.g. at a country level they may well exceed 100%. Therefore, the figures provided for individual countries should only be considered as order-of-magnitude estimates.

Figure 8. Trends in regional* F-gas emissions

Million tonnes of CO₂-eq.



* Only regions with significant emissions of F-gases have been included in this figure.

Source: EDGAR 4.2 FT2008.

2. SOURCES AND METHODS

When looking at greenhouse-gas emission trends, limiting the emissions to CO₂ from fuel combustion means that the estimates give an incomplete picture of total greenhouse-gas emissions. Therefore, to put the CO₂ emissions from fuel combustion into context, information has been added from the emissions model “EDGAR”, developed by the Netherlands Environmental Assessment Agency (PBL) and the European Commission’s Joint Research Centre (JRC) to provide global anthropogenic emissions of greenhouse gases to be used as a reference database for science and policy applications.

The information in Part III (with the exception of CO₂ emissions from fossil fuel combustion) has been provided by Jos G.J. Olivier from PBL and Greet Janssens-Maenhout based on the EDGAR 4.2 FT2008 datasets. PBL and JRC are responsible for the calculation of the EDGAR 4.2 FT2008 data. Please see below for further details.

Background on PBL and JRC

The **PBL Netherlands Environmental Assessment Agency** is a government-funded agency that supports national and international policy makers by exploring future spatial and social trends that influence environmental, ecological and spatial quality, and by evaluating possible policy options. PBL explores the future quality of this environment and identifies possible strategic options and aims to contribute to improving the quality of political and administrative decision-making at a regional, national, European and global scale by conducting outlook studies, analyses and evaluations in which an integrated approach and policy relevance are considered paramount.

PBL provides independent integrated assessments on topics such as sustainable development, energy and

climate change, biodiversity, spatial planning, transport, land use and air quality. PBL acts as an interface between science and policy and provides the Netherlands government and international organisations such as EU/EEA, UN, OECD and the World Bank with sound, evidence-based assessments. PBL employs over 200 staff members and works in close collaboration with national and international partners, to assess future policies and the effects of policies already in place. A key feature of PBL research is taking a broad view of the subject matter and revealing the links between different spatial scales of investigation. This ranges from Dutch problems in the European and global context to global topics such as climate change, as well as European and global sustainability issues. PBL participates in the Topic Centre on Air and Climate Change of the European Environmental Agency (EEA), whose aim is to support EU policy on air pollution and climate change, together with 12 other organisations in Europe. PBL was also involved in the work of the IPCC’s National Greenhouse Gas Inventory Programme (NGGIP).

The **Joint Research Centre (JRC)** is a Directorate General of the European Commission (EC). The mission of the JRC is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of EU Policies. As a service of the European Commission, the JRC functions as a reference centre of science and technology for the European Union (EU). Close to the policy-making process, it serves the common interest of the Member States, while being independent of special interests, whether private or national. The Institute for Environment and Sustainability (IES) is one of seven institutes of the JRC, located in Ispra (Italy). The mission of IES is to provide scientific-technical support to the EU’s policies for the protection of the European and global environment. The IES adopts a systems-based approach to understand the complex interactions between human activity and the

physical environment, and manage strategic resources (water, land, forests, food, minerals, etc.) in a more sustainable manner. Together with other JRC institutes, the IES provides the scientific basis for the conception, development, implementation and evaluation of EU policies that promote the greening of Europe and the global sustainable management of natural resources. The IES has over 400 staff members and manages several large-scale research infrastructures and hosts a large number of unique pan-European and global databases. The main customers of the IES are the Policy Directorates-General of the European Commission, other European bodies such as the European Environment Agency (EEA) and the European Space Agency (ESA), and global organisations such as the United Nations Environment Programme (UNEP) and the United Nations Food and Agricultural Organisation (FAO). The IES cooperates with international organisations such as UN-ECE, WHO, IPCC and NASA.

General note on EDGAR

Version 4 of the *Emission Database for Global Atmospheric Research*, in short the *EDGAR 4 system*, has been developed jointly by the European Commission's Joint Research Centre (JRC) and the PBL Netherlands Environmental Assessment Agency. The aim of the EDGAR system, which was started in 1992 with financial support from the Netherlands' Ministry of Housing, Spatial Planning and the Environment (VROM) and the Netherlands' National Research Programme on Global Air Pollution and Climate Change (NRP), is to provide global anthropogenic emissions of greenhouse gases CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ and of precursor gases and air pollutants CO, NO_x, NMVOC, SO₂ and the aerosols BC/OC, per source category, both at country/region levels as well as on a 0.1x0.1 degree grid. It is meant to serve as a reference database for policy applications, e.g. to provide JRC's POLES global economic energy scenario model and PBL's integrated global change model IMAGE 2 with emissions data and for assessments of potentials for emission reductions, as well as for scientific studies by providing gridded emissions as input for atmospheric models. The latter function is part of the *Global Exchange and Interactions Activity* (GEIA), that combines efforts to produce gridded inventories for all compounds relevant for the modelling activities within the *Analysis, Integration and Modelling of the Earth System* (AIMES) project of the *International Geosphere-*

Biosphere Programme (IGBP) and of ACCENT, a Network of Excellence funded by the EC, 6th Framework Programme (FP6), Priority 1.1.6.3 Global Change and Ecosystems. EDGAR data have also been used in the Fourth Report of IPCC Working Group III (IPCC, 2007).

Activity data were mostly taken from international statistical data sources and emission factors for greenhouse gases were selected mostly from the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (IPCC, 2006) to ensure a consistent approach across countries. JRC and PBL have made all reasonable efforts to ensure that the information was generated correctly, but it is the responsibility of the EDGAR consortium to modify activity data when required to arrive at complete time series and for selecting the emission factors. It is stressed that the uncertainty in the resulting dataset at national level may be substantial, especially for methane and nitrous oxide, and even more so for the F-gases. The uncertainty is caused by the limited accuracy of international activity data used and in particular of emission factors selected for calculating emissions on a country level (Olivier *et al.*, 1999, 2001; Olivier and Berdowski, 2001; Olivier, 2002; Olivier *et al.*, 2005). However, since the methods used are either IPCC methodologies or comparable with them (see below) and global totals comply with budgets used in atmospheric studies and the data were based on international information sources, this dataset provides a sound basis for comparability.

The main aim of the EDGAR 4.2 Fast Track 2008 (FT 2008) dataset was to provide an extended time series by adding emissions for 2006 to 2008. Moreover, CO₂ emissions from decomposition of drained peatlands have been added, which is a significant source of CO₂. For the greenhouse gas update, the impact of CDM projects in developing countries to reduce CH₄, N₂O and HFC-23 emissions was taken into account. This applies to sources such as coal mines and landfills (CH₄ recovery), nitric acid and adipid acid production (N₂O) and the production of HCFC-22 (HFC-23), which now start to significantly influence global emission trends. In addition, a few errors found in the dataset have been corrected.

Although this dataset has been constructed with great care, JRC and PBL do not accept any liability from using the data provided in this report including any inaccuracies or omissions in the data provided. For details on uncertainty and caveats identified in the dataset, as well as more detailed source category estimates, we refer to the EDGAR 4 website at

edgar.jrc.ec.europa.eu. Also preliminary estimates for other recent years than 2008 will be made publicly available through this website. Preliminary global trends of greenhouse-gas emissions will also be made available at PBL (2011).

Source definitions

For carbon dioxide:

Fuel combustion refers to fossil fuel combustion and the unstored fraction of non-energy/feedstock use (IPCC Source/Sink Category 1A) estimated using the IPCC Sectoral Approach from the *Revised 1996 IPCC Guidelines* (see Part I).

Fugitive refers to flaring of associated gas in oil and gas production (in some cases including indirect CO₂ from methane venting) (IPCC Source/Sink Category 1B).

Industrial Processes refers to production of cement, lime, soda ash, carbides, ammonia, methanol, ethylene and other chemicals, metals and to the use of soda ash, limestone and dolomite, and non-energy use of lubricants and waxes (IPCC Source/Sink Category 2). However, from EDGAR 4.1, only emissions from production of cement, lime and soda ash and from the use of soda ash, limestone and dolomite are included here, since all others were estimated by the IEA and reported under 'Fuel combustion'.

Other refers to direct emissions from forest fires and peat fires plus emissions from decay (decomposition) of aboveground biomass that remains after logging and deforestation and emissions from peat fires and decay of drained peat soils (IPCC Source/Sink Category 5). CO₂ from solvent use (IPCC Source/Sink Category 3), application of agricultural lime (IPCC Source/Sink Category 4) and from fossil fuel fires, notably coal fires and the Kuwait oil fires (IPCC Source/Sink Category 7), is also included here.

For methane:

Energy comprises production, handling, transmission and combustion of fossil fuels and biofuels (IPCC Source/Sink Categories 1A and 1B).

Agriculture comprises animals, animal waste, rice production, agricultural waste burning (non-energy, on-site) and savannah burning (IPCC Source/Sink Category 4).

Waste comprises landfills, wastewater treatment, human wastewater disposal and waste incineration (non-energy) (IPCC Source/Sink Category 6).

Others includes industrial process emissions such as methanol production, forest and peat fires and other vegetation fires (IPCC Source/Sink Categories 2 and 5).

For nitrous oxide:

Energy comprises combustion of fossil fuels and bio-fuels (IPCC Source/Sink Categories 1A and 1B).

Agriculture comprises fertiliser use (synthetic and animal manure), animal waste management, agricultural waste burning (non-energy, on-site) and savannah burning (IPCC Source/Sink Category 4).

Industrial Processes comprises non-combustion emissions from manufacturing of adipic acid, nitric acid, caprolactam and glyoxal (IPCC Source/Sink Category 2).

Others includes N₂O usage, forest and peat fires (including post-burn emissions from remaining biomass) and other vegetation fires, human sewage discharge and waste incineration (non-energy) and indirect N₂O from atmospheric deposition of NO_x and NH₃ from non-agricultural sources (IPCC Source/Sink Categories 3, 5, 6 and 7).

For fluorinated gases:

HFC emissions comprise by-product emissions of HFC-23 from HCFC-22 manufacture and the use of HFCs (IPCC Source/Sink Categories 2E and 2F).

PFC emissions comprise by-product emissions of CF₄ and C₂F₆ from primary aluminium production and the use of PFCs, in particular for the manufacture of semiconductors, flat panel displays and photovoltaic cells (IPCC Source/Sink Categories 2C, 2E and 2F). *SF₆ emissions* stem from various sources of SF₆ use, of which the largest is the use and manufacture of Gas Insulated Switchgear (GIS) used in the electricity distribution networks (IPCC Source/Sink Categories 2C and 2F) and from SF₆ production (Category 2E).

Data sources and methodology for EDGAR 4.2 FT2008

For EDGAR 4.2 Fast Track 2008 (EDGAR 4.2 FT2008) the same methods were applied as for EDGAR 4.1 that was used in last year's edition, however, with some corrections (ammonia production, double counting in iron and steel production, landfills in Annex I countries, industrial wastewater in

South Korea and the United States), improvements (CO₂ from cement clinker production) and some additional sources (small CO₂ sources in industrial processes such as production of specific chemicals and non-ferrous metals, small CH₄ sources such as production of coke and charcoal, SF₆ from SF₆ production, N₂O from N-fixing crops and indirect N₂O from atmospheric deposition of NO_x and NH₃ from non-agricultural sources (mostly fuel combustion). For greenhouse gases the default emission factors from the *2006 IPCC Guidelines* (IPCC, 2006) were used instead of those of the *Revised 1996 IPCC Guidelines* (IPCC, 1997), except for CH₄ and N₂O from road transport where technology-specific factors were used from the EMEP-EEA emission inventory guidebook (EEA, 2009).

EDGAR 4.2 FT2008 provides an extended time series for the main sources by adding new statistics for 2006 to 2008 and updating the activity data for 2000 to 2008 (or by using the trend in the data, when a large discrepancy with the 1999 value would otherwise occur). For less important sources, such as for F-gas uses, a linear extrapolation of the past trend to 2006 to 2008 was assumed. For important sources where significant trends in the technology mix or in the application rate of emission control technology occurred, estimates for these trends were added, whereas in all other cases the mix and fraction of end-of-pipe abatement technology has been left unchanged after 2005.

To take into account non-CO₂ emission reductions that have occurred due to control measures implemented since 1990, officially reported emissions were used for Annex I countries (mainly countries that were members of the OECD in 1990). These emission trends have been taken from the CRF emission data files which are part of the National Inventory Reports (NIR) to the UNFCCC (UNFCCC, 2008, 2010). In addition, for non-CO₂ emission reductions in developing countries we used the information on so-called CDM projects that have been implemented according to the “CDM pipeline” database maintained by the UNEP-Risø Centre (2011).

Energy / Fugitive / Biofuel

The data sources for **fugitive CO₂ emissions** and **CH₄ and N₂O from energy** are listed below. Data for fossil fuel production and use for 138 countries were taken from the IEA energy statistics for OECD and Non-OECD countries 1970-2008 (extended energy balances, in energy units) (IEA, 2007, 2010). This dataset comprises 94 sectors and 64 fuel types. For the

countries of the Former Soviet Union and Former Yugoslavia a modified dataset was used to achieve a complete time series for the new countries for 1970 to 2008 of which the sum converges to the older dataset for the total Former Soviet Union and Yugoslavia. For another 62 countries, the aggregated IEA data for the regions ‘Other America’, ‘Other Africa’ and ‘Other Asia’ have been split using the sectoral IEA data per region and total production and consumption figures per country of coal, gas and oil from energy statistics reported by the US Energy Information Administration (EIA, 2007, 2010).

Please note that the figures of CO₂ from fuel combustion and non-energy use of fuels in this report differ somewhat from the EDGAR 4.2 FT2008 dataset. This is due to the following reasons:

- IEA energy statistics used may differ slightly due to updates included in more recent IEA releases. For EDGAR 4.2 FT2008 the releases of 2007 and 2010 were used (IEA, 2007, 2010);
- the IEA uses the default CO₂ emission factors from the *Revised 1996 IPCC Guidelines*, which differ slightly due to different default oxidation factors (coal updated value +2%, oil products +1%, natural gas +0.5%) and due to updated defaults for carbon content for some fuels of which the quality may vary considerably (mainly refinery gas, updated value -7%, coke oven gas -7%, blast furnace gas +7%, coke -1%);
- the IEA estimates CO₂ emissions from carbon released in fossil fuel use labelled in the sectoral energy balance as ‘non-energy use’ or ‘chemical feedstock’ using default fractions stored. For EDGAR 4.2 FT2008, default emission factors and methods from the *2006 IPCC Guidelines* were applied, which may give rise to considerable differences compared to the 1996 guidelines.

In addition, the subtraction of the non-energy/feedstock fuel use part of the EDGAR dataset for combining with the IEA CO₂ dataset also introduces some uncertainty.

For estimating CH₄ emissions from fossil fuel production and transmission, hard coal and brown coal production data have been split into surface and underground mining based on various national reports. For gas transport and distribution, pipeline length was used as activity data. Pipeline length and material statistics are taken from reports on Europe by Eurogas and Marcogaz, national reports (e.g. the United States and Canada), UNFCCC (2008) and supplemental data from CIA (2008). Total amounts of

natural gas flared (sometimes including gas vented) for most countries for 1994 onwards are primarily based on amounts of gas flared determined from the satellite observations of the intensity of flaring lights (Elvidge *et al.*, 2009), reported by NOAA (2011). For other years before 1994 and for other countries emissions or emissions trends were supplemented by CO₂ trends from CDIAC (Marland *et al.*, 2006), EIA (2011) and UNFCCC (2010).

Biofuel data were also taken from IEA (2007). However, to avoid incomplete time series for large sectors, solid biomass consumption in the residential and commercial sectors in non-OECD countries were replaced by fuelwood and charcoal consumption from FAO (2007a). Vegetal waste used as fuel is based on the amounts of crop residues per country and fractions used as fuel based on Yevich and Logan (2003) and IPCC (2006). The amount of dung used as fuel is based on the total amount of manure produced per country and the fraction of total manure burned as fuel with fractions from IPCC (2006) and UNFCCC (2008). The results are rather close to the work of Fernandes *et al.* (2007) who did an extensive analysis of global and regional biofuel use in 2000. Charcoal production data were taken from IEA (2010) and supplemented or extrapolated using data from UN (2010) for 1990-2005 and FAO (2010) for pre-1990 data and 49 more countries not included in the IEA dataset.

Emission factors for fossil fuel production and use are based on the default values in the *2006 IPCC Guidelines* (IPCC, 2006). Methane emission factors for coal mining are based on average depths of coal production based on CIAB (1994), EURACOAL (2008), Kirchgessner *et al.* (1993) and include post mining emissions. Methane recovery from coal mining was included for twelve countries amounting to about 1.3 Tg in 1990 (of which about one-third was allocated to the United States and Germany). Recovery in 2005 was estimated at 2.8 Tg (of which 50% in China and 25% in the United States (UNFCCC, 2010; Thakur *et al.*, 1994, 1996; EPA, 2008; Cheng *et al.*, 2011).

Emission factors for oil and gas production, transport and distribution are from IPCC (2006), supplemented with data from UNFCCC (2008), except for the emission factor for CH₄ from oil tanker transport which is from Rudd and Hill (2001). The CH₄ emission factor for venting and flaring has been derived from country-specific data reported to UNFCCC (2010), with the average value used as global default, applied to all other countries. The CO₂ emission factor excludes the indirect emissions through gas venting.

For N₂O from gasoline cars in road transport, the fraction of cars equipped with different types of catalytic converters was taken into account (based on various references). The factors for biofuel combustion were taken from the *2006 IPCC Guidelines*. For charcoal production the emissions factors are from Andreae (2011).

Industrial processes

Production data of CO₂ sources cement, iron and steel, non-ferrous metals and various chemicals were based on UN Industrial Commodity Statistics (UN, 2006a), often supplemented for recent years by data from the US Geological Survey (USGS, 2007). This also applies to paper, wine, beer and bread production. Other CO₂ sources such as production of lime, soda ash, ammonia, ferroalloys and non-ferrous metals are from USGS (2007, 2010), supplemented by data reported to the UNFCCC (2010). IFA (2007) was used for urea production (where it is assumed that the fossil carbon in CO₂ from ammonia production is stored) and FAO (2007a,c) for production of pulp, meat and poultry. Iron and steel production was further split into technologies (basic oxygen furnace, open hearth, electric arc furnace) using data from WSA (2010).

For the N₂O sources nitric acid, adipic acid and caprolactam, production data are based on UNFCCC (2010) and on (smoothed and averaged data) SRIC (2005). For other industrial production for which no international statistics were available, such as silicon carbide and glyoxal, UNFCCC (2010) was used, which is limited to Annex I countries.

However, for many countries interpolations and extrapolations were necessary to arrive at complete time series per country for 1970-2005/2008. Special attention had to be given to new EIT countries, in particular to Former Soviet Union and Former Yugoslavia countries, to match the older totals for the former countries.

Emission factors for CO₂, CH₄ and N₂O are described in IPCC (2006). Note that emissions of CO₂ from cement production are only a proxy for cement clinker production. The N₂O emission factors for the production of adipic acid, nitric acid, caprolactam and glyoxal are based on IPCC (2006). For adipic acid, abatement is only assumed from 1990 onwards if indicated in UNFCCC (2010) combined with activity data from SRIC (2005). For nitric acid in 1970, all old technology is assumed, changing their technology towards 1990 into high pressure plants in non-Annex I countries and a mix of low and medium pressure

plants in Annex I countries that matches reported emissions in UNFCCC (2010). In addition, about 20% of global total production is equipped with Non-Selective Catalytic Reduction (NSCR) technology all in Annex II countries (Choe *et al.*, 1993). The emission factors for the F-gases as by-product emissions were based on IPCC (2006), but modified to match global emissions to observations of atmospheric concentrations.

Global annual total production of HCFC-22 was taken from AFEAS (2008) and McCulloch and Lindley (2007) to include captive production, but was modified using UNFCCC (2010) and other data sources. Primary aluminium production statistics per country from UN (2006a) were combined with smelters types characterised by one of five technologies according to Aluminium Verlag (2007) and Hunt (2004) for China. The default emission factor for HFC-23 from HCFC-22 manufacture was set for non-OECD countries to the IPCC default for old, unoptimised plants and for OECD countries somewhat lower and decreasing over time to reflect atmospheric concentrations. Country-specific fractions of emission abatement were estimated for six Annex II countries based on reported emissions in UNFCCC (2010) and UNEP Risø Centre (2011) for other countries. For aluminium production the CF₄ emission factors per technology are based on factors for 1990-2002 reported by IAI (2006, 2008) based on large surveys, but with modifications for Söderberg technologies to comply with atmospheric concentration trends, and for C₂F₆ based on the ratio to CF₄ reported in IPCC (2006) for default Tier 2 emission factors.

Global consumption of HFC-125, 134a (in three applications) and 143a was from AFEAS (2008), for HFC-152a, 227ea, 245fa, 32 and 365mfc from Ashford *et al.* (2004) and for HFC-23, 236fa and 43-10-mee from UNFCCC (2008). Global HFC consumption was distributed to countries according to their share in global CFC-12 or CFC-11 consumption (ODP consumption statistics from the UN Ozone Secretariat) depending on their characteristics (mostly for refrigeration/air-conditioning or mostly for other applications (i.e. foams/aerosols)) and calibrated to regional totals calculated by Ashford *et al.* (2004). Global emission factors for HFC use were derived from the emissions also reported by these data sources, except for HFC-125 and 143a which were from Ashford *et al.* (2004).

Global consumption data of PFCs (and SF₆) for semiconductor manufacture were for Annex I countries in 1990-2005 based on UNFCCC (2008) and the

National Inventory Report 2008 of Japan., for Taiwan on Lu (2006) and other non-Annex I countries for 1995 and 2005 based on their global share in semiconductor manufacture (SEMI, 1998; SEMI, 2009). The trend from 1982 to 2005 of PFC use within four regions/countries (the United States, Japan, Europe and Rest of the World) was estimated from the world market sales (SIA, 2006). Global CF₄ and SF₆ consumption and consumption in Taiwan for the production of flat panel displays for 2003 is from Lu (2006); trends and market shares per country from SEMI (2007). National consumption of PFCs for PV cells is based on the production per country of PV systems in m² (estimated from production statistics in MW for 1985-2003: Kammen, 2005; and for 1990, 1995, 2000-2007: Jäger-Waldau, 2008). The emission factors are from IPCC (2006), for semiconductors and FPD using the tier 2a factors and for PV production taking into account the fraction of thin film production per country and assuming that 50% of the manufacturers uses PFCs. PFC consumption for other PFC uses was based on data for PFC use in fire extinguishing and air-conditioning, and use as solvent reported by a few Annex I countries (UNFCCC, 2008) and extrapolated to all Annex I countries and assuming an emission factor of 1.

Global consumption of SF₆ per application was taken from Knopman and Smythe (2007). For SF₆ containing switchgear, equipment manufacture and utility stock estimates were adjusted as in Mais and Brenninkmeijer (1998) and the regional and per country distribution was based on various references (e.g. Mais and Brenninkmeijer, 1998; Bitsch, 1998, pers. comm.) and for missing countries and years based on the trend in the increase of electricity consumption as a proxy for GIS stock additions. For primary magnesium production and diecasting global consumption was distributed using production statistics from USGS (2007) and IMA (1999a,b) and others for the number of diecasting companies per country. Other sources were distributed as follows: sport shoes among Annex I countries based on GDP, tyres according to reported consumption in Germany (UNFCCC, 2008), sound insulating windows mainly in Germany with 10% used in neighbouring countries, aluminium production as reported in UNFCCC (2010), accelerators were distributed according to the number of high-energy physics labs and miscellaneous sources according to the number of airborne early warning systems such as AWACs. For soundproof windows a major revision was made and small revisions in other sources, partly based on UNFCCC (2010).

Note that both the variables for distributing global total consumption per source category and the emission factors may vary widely between different plants and countries. This implies that the estimated emissions of F-gases at country level should be considered as very uncertain (an order of magnitude).

Please note that CO₂ from fossil carbon accounted for in this sector (such as from ammonia and carbide production, iron and steel production using a blast furnace and metal production through smelting processes with carbon anode consumption) and CO₂ from urea application in agriculture have been subtracted from the EDGAR 4.2 FT2008 data to avoid double counting with the IEA CO₂ dataset for fuel combustion that includes these emissions (see previous section on Energy).

Solvent and other product use

For N₂O from the use of anaesthesia an amount of 24 g N₂O and 34 g N₂O per capita in 2000 was used for EIT and Annex II countries, respectively, based on the average values in UNFCCC (2010) and tentatively set at 5 g/cap/year for non-Annex I countries, based on Kroeze (1994). Globally a declining rate from 1990 to 2005 of 20% was assumed as observed for total Annex I countries.

For N₂O from aerosol spray cans an amount of 10 g N₂O per capita in 2000 was used for Annex I countries based on the average values in UNFCCC (2010) and none for non-Annex I countries. A uniform inclining rate from 1990 to 2005 of 50% was assumed as observed for total Annex I countries.

Agriculture

In general, the IPCC (2006) methodology and new default emission factors for CO₂, CH₄ and N₂O were used to estimate agricultural emissions, except for the instances mentioned below. Please note that N₂O emissions from agriculture as reported in EDGAR 4.2 FT2008 are substantially lower than those presently reported by most Annex I countries due to two markedly lower emission factors: the default IPCC emission factor (“EF1”) for direct soil emissions of N₂O from the use of synthetic fertilisers, manure used as fertiliser and from crop residues left in the field has been reduced by 20% and the default emission factor (“EF5”) for indirect N₂O emissions from nitrogen leaching and run-off been reduced by 70% compared to the values recommended in the *1996 IPCC Guidelines* and the *IPCC Good Practice Guidance* (IPCC, 1997, 2000).

Livestock numbers were taken from FAO (2007b,c, 2010). For enteric fermentation for cattle, country-specific methane emission factors were calculated following the IPCC methodology (IPCC, 2006) using country-specific milk yield (dairy cattle) and carcass weight (other cattle) trends from FAO (2007c) to estimate the trends in the emission factors. For other animal types, regional emission factors from IPCC (2006) were used.

Livestock numbers were combined with estimates for animal waste generated per head to estimate the total amount of animal waste generated. Nitrogen excretion rates for cattle, pigs and chicken in Europe were based on the CAPRI model (Pérez, 2005; Britz, 2005; Leip *et al.*, 2007) and for all other countries and animal types in IPCC (2006). The trend in carcass weight was used to determine the development in nitrogen excretion over time. The shares of different animal waste management systems were based on regional defaults provided in IPCC (2006) and regional trend estimates for dairy and non-dairy cattle for the fractions stall-fed, extensive grazing and mixed systems from Bouwman *et al.* (2005). Methane emissions from manure management were estimated by applying default IPCC emission factors for each country and temperature zone. For the latter, the 1x1 degree grid map for non-dairy cattle from Lerner *et al.* (1988) was used and the annual average temperature per grid cell from New *et al.* (1999) to calculate the livestock fractions of the countries in 19 annual mean temperature zones for cattle, swine and buffalo and three climates zones for other animals (cold, temperate, warm). N₂O emissions from manure management were based on distribution of manure management systems from Annex I countries reporting to the UNFCCC (2008), Zhou *et al.* (2007) for China and IPCC (2006) for the rest of the countries.

The total area harvested for rice cultivation was obtained from FAO (2007d, 2010), which was split over different ecology types (rainfed, irrigated, deep water and upland) using IRRI (2007). The total harvested area of rice production in China was increased by 40%, due to recognition that official harvested rice area statistics of China are largely underestimating the actual area (Denier van der Gon, 1999; 2000; personal communication, 2000). However, methane emission factors were not from IPCC (2006) but from a review of Neue (1997), and country-specific studies by Mitra *et al.* (2004), Gupta *et al.* (2002) and IIASA (2007). For the period 1970-2000 a trend in the emission factors was assumed based on data of Denier van der Gon (1999, 2000).

The same data as described above for manure management were used to estimate N₂O emissions from the use of animal waste as fertilizer by taking into account loss of nitrogen that occurs from manure management systems before manure is applied to soils and additional nitrogen introduced by bedding material. N₂O emissions from fertilizer use and CO₂ from urea fertilization were estimated based on IFA (2007) and FAO (2007e) statistics and emission factors from IPCC (2006).

CO₂ emissions from liming of soils were estimated based on reporting of Annex I countries to the UNFCCC (2010), and on the use of ammonium fertilizers for other countries (FAO, 2007e), as liming is needed to balance the acidity caused by ammonium fertilizers.

Areas of cultivated histosols were estimated by combining three different maps: the FAO climate map (FAO Geonetwork, 2007a), the FAO soil map (FAO Geonetwork, 2007b) and the land use map of Goldewijk *et al.* (2007). However, where available areas reported by Annex I countries to the UNFCCC (2008) were used. Separate N₂O emission factors were applied for tropical and non-tropical regions (IPCC, 2006).

Nitrogen and dry-matter content of agricultural residues were estimated based on cultivation area and yield for 24 crop types from FAO (2007d) and IPCC (2006) factors. The fractions of crop residues removed from and burned in the field were estimated using data of Yevich and Logan (2003) and UNFCCC (2008) for fractions burned in the field by Annex I countries. Subsequently, N₂O emissions from crop residues left in the field and non-CO₂ emissions from field burning of the residues were calculated using IPCC (2006) emission factors.

Indirect N₂O emissions from leaching and runoff were estimated based on nitrogen input to agricultural soils as described above. Leaching and run-off was assumed to occur in other areas than non-irrigated dryland regions, which were identified based on FAO (1999; 2000; 2005) and Murray *et al.* (1999). The fraction of nitrogen lost through leaching and runoff was based on a study of Van Drecht *et al.* (2003). IPCC (2006) emission factors were used for indirect N₂O from leaching and runoff, as well as from deposition of agricultural NH₃ and NO_x emissions.

For savannah burning, estimates for areas burned are based on satellite measurements (see next section) and emission factors from IPCC (2006).

Large-scale biomass burning

For estimating the amounts of biomass burned in large-scale fires the three key parameters have to be multiplied: (a) area burned, (b) aboveground biomass density (fuel load) (kg/ha), and (c) fraction of aboveground biomass burned (combustion completeness). Country-specific data for large-scale biomass burning (total amount of dry matter burned, which were subdivided into tropical and non-tropical forest fires, savannah fires and grassland fires), have been taken from the gridded data at 1°x1° of the *Global Fire Emissions Database* (GFED version 2; Van der Werf *et al.*, 2006) for the years 1997-2005. For the years before 1997, the GFED v2.0 data were scaled back to 1970 using regional biomass burning trends from the RETRO dataset, which comprises the 1960-2000 period (Schultz *et al.*, 2008). GFED data in agricultural areas were attributed to savannah and grassland fires. There is an insignificant overlap with the EDGAR category for agricultural waste burning. The GFED data on biomass burning were estimated using burned area time series for 2001-2005 derived from the MODIS satellite sensors in combination with the fuel load estimated by the satellite-driven Carnegie-Ames-Stanford-Approach (CASA) biogeochemical model that was modified to account for fires. The 1997–2000 period was included using fire counts from the VIRS/ATSR sensors. The burning areas were mapped at 0.5x0.5 km spatial resolution. For some countries a correction was made to the time series for the allocation of biomass burned in savannahs and tropical forests. Since these sources have different emission factors, total emissions have changed for these countries. For 2006-2008 the trend in the activity data from the GFED v3 model (Van der Werf *et al.*, 2010) was used, since the new dataset is not consistent with the previous version. The non-CO₂ emission factors for large scale biomass burning have been updated using data from Andreae (2011). The greenhouse-gas emission factors are not from IPCC (2006), which are taken from Andreae and Merlet (2001), but updated values from Andreae (2011), including the carbon content of 0.47 kg C/kg dry matter, which is the default value for tropical forest. For greenhouse gas accounting purposes, net CO₂ emissions from savannah and grassland fires have been assumed to be zero (organic carbon in a short cycle). There is a large uncertainty in the assumptions for the carbon contents and the fraction of carbon that is actually being burned and thus in the amount of burned carbon.

CO₂ emissions from large-scale biomass burning are only one component of emissions from forest fires.

Roughly half of the aboveground biomass is not burned, but decomposes over time. This results in delayed decay emissions of approximately the same level of magnitude as the direct emissions from the fires but distributed over a period of 10 to 20 years (IPCC, 2006). Post-burn CO₂ emissions have been estimated from the same activity data as direct burning emissions assuming that remaining aboveground biomass decays in 15 year after the year the fire or deforestation occurred, i.e. 1/15 per year and a carbon content of 0.47 kg C/kg dry matter tropical forest from IPCC (2006).

A new source added in EDGAR 4.2 FT2008 is CO₂ emissions from drained peatlands, for which the comprehensive dataset of Joosten (2009), including activity data for 1990 and 2008 and CO₂ emission factors per hectare of drained peatland. For intervening years, the activity data were linearly interpolated, except for Indonesia, for which the trend in the area of palm oil plantations was used as proxy for the interpolation. For years before 1990 a linear decrease to 0 in 1970 was assumed, with a few exceptions, where the area was assumed to remain constant prior to 1990. In EDGAR 4.2 FT2008 the amount of peat burned (in Indonesia only) has been separated from the amount of tropical forest burned in the GFED v2.0 dataset and different emission factors have been applied for most substances (Christian et al., 2003; Weiss (2002), resulting in different emissions.

In addition, enhanced N₂O emissions that occur after large-scale tropical biomass burning (Bouwman *et al.*, 1997) were calculated from the post-burn biomass dataset.

Waste handling

For estimating the amount of organic solid waste in landfills three key parameters have to be determined: (a) Municipal Solid Waste (MSW) generated per year (kg/cap), (b) fraction of total solid waste that is landfilled, and (c) fraction of Degradable Organic Carbon (DOC) in the MSW (%). Total and urban population figures were taken from UN (2006b). The amounts of Municipal Solid Waste (MSW) generated are the primary statistics for emissions from landfills. For 70 countries, the 2006 IPCC Guidelines provide country-specific data for 2000 of the amount of MSW generated per year per capita (urban capita in case of non-Annex I countries) and the fraction landfilled and incinerated. For 58 more countries, country-specific values for the MSW generation per capita were found in the literature. For the remaining 91 countries, the waste generation per capita in 2000 was estimated

using an exponential fit of the IPCC (2006) country-specific data for 70 countries of MSW/cap for 2000 to GDP/cap. For Annex I countries trend data for MSW generation/cap are available for the period 1990-2005 (UNFCCC, 2008). For other years and for other countries for which these data are not available, extrapolation from 2000 back and forward was done using the exponential fit mentioned above. When the country-specific fraction of MSW landfilled was missing, regional defaults provided in IPCC (2006) were used. In addition, UN statistics on MSW treatment may provide country-specific data for some other years than 2000. Based on regional defaults for the composition of MSW, IPCC (2006) provides regional defaults for the fraction Degradable Organic Carbon (DOC). However, for Annex I countries, country-specific data from UNFCCC (2008) were used (sometimes including a change over time) and for 94 Non-Annex I countries, country-specific MSW composition data were found, from which the average DOC value was calculated. However, in version 4.2, for a number of Annex I countries the DOC fraction was adjusted to better reflect the overall emission trends for landfills as reported to UNFCCC (2008).

For calculation of methane emissions from landfills using the First Order Decay (FOD) model of IPCC (2006), the Methane Conversion Factor (MCF), the k-value and the Oxidation Factor (OX) are required. The MCF represents the type of landfill, managed aerobic or anaerobic, unmanaged deep or shallow. Apart from country-specific time series for 11 Annex I countries, two sets of MCF time series for Annex I and non-Annex I countries were determined based on assumptions for the fractions of the four landfill types over time. For the k-value, which is the methane generation rate (that is inversely proportional to the half life value of the DOC), default regional MSW composition weighted k-values for four climate zones (tropical dry/wet and non-tropical dry/wet) are provided by IPCC (2006). For EDGAR 4.2 FT2008, country-specific values were calculated using the country-specific fractions of population (urban population for non-Annex I countries) in each climate zone. For the Oxidation Factor the IPCC default values were used (0.1 for Annex I and 0 for non-Annex I). Finally, the amounts of methane recovered (and used or flared), that is to be subtracted from the gross methane emissions, were used as reported by Annex I countries in UNFCCC (2010) and for 23 non-Annex I countries from CDM projects reported by the UNEP Risø Centre (2011). Total recovery in 2008 is estimated at 11.3 Tg CH₄, half of which by the United States and one fifth by the United Kingdom; about 8% is recovered by non-Annex I countries.

For domestic wastewater, total organics in wastewater (BOD₅) was estimated using regional default or country-specific default values for BOD₅ generation per capita per day provided by IPCC (2006). For industrial wastewater, total organically degradable material in wastewater from industry was calculated per type of industry from WW generation per ton of product and COD values (chemical oxygen demand (industrial degradable organic component in wastewater) in kg/m³ WW, using defaults from IPCC (2006). Production statistics for industry types that produce most organics in wastewater are available from UN (2006a). Examples are meat and poultry, raw sugar, alcohol, pulp and organic chemicals. To estimate methane emissions from domestic wastewater, additional information is required on the WW treatment systems, such as sewer (to wastewater treatment plants (WWTP) or to raw discharge), latrines by type, open pits and septic tanks. Regional or country-specific default fractions for 2000 were from IPCC (2006). In addition, country-specific fractions of improved sanitation over time from Van Drecht *et al.* (2009) were used, based on the UN Water Supply and Sanitation (WSS) dataset and other national reports, and fractions reported by Doorn and Liles (1999). For industrial methane emissions, fractions on-site treatment in WWTP, sewer with and without city-WWTP, and raw discharge were based on regional values reported by Doorn *et al.* (1997). To calculate methane emissions from wastewater, default factors provided by IPCC (2006) per type of WW treatment were used, with default methane correction factors (MCF) per type of treatment. For Annex I countries, OECD or EIT average fractions of methane recovered in WWTPs (and either used as biogas or flared) were used, except for five countries for which country-specific values reported in UNFCCC (2008) were used.

For estimating N₂O emissions from wastewater, the activity data is total annual amount of nitrogen in the wastewater, which was calculated from annual protein consumption per capita reported by FAO (2007f), using correction factors for non-consumed protein and for the fraction of industrial and commercial protein that is co-discharged. For the correction factors and the N₂O emission factor, defaults provided in IPCC (2006) were used.

Other waste sources are incineration, with activity data from UNFCCC (2008) and IPCC (2006) and extrapolations assuming a fixed ratio to landfilling, and composting (UNFCCC, 2008; ECN, 2008; CCC, 2008).

Other sources

Indirect N₂O emissions from atmospheric deposition of nitrogen of NO_x and NH₃ emissions from non-agricultural sources, mainly fossil fuel combustion and large scale biomass burning, were estimated using nitrogen in NO_x and NH₃ emissions from these sources as activity data, based on preliminary EDGAR 4.2 FT2008 data for these gases. The same IPCC (2006) emission factor was used for indirect N₂O from atmospheric deposition of nitrogen from NH₃ and NO_x emissions as was used for agricultural emissions.

We note that EDGAR 4.2 FT2008 estimates for all sources have been made for all years. For more detailed data of the EDGAR 4.2 FT2008 dataset, including the complete period 1970-2008 and preliminary estimates for more recent years we refer to the EDGAR version 4 website at edgar.jrc.ec.europa.eu. Aggregated preliminary estimates can also be found at PBL (2011) and for CO₂ to Olivier *et al.* (2011).

References

- AFEAS (2008). Production, sales and atmospheric release of fluorocarbons through 2006. Alternative Fluorocarbons Environmental Acceptability Study (AFEAS) Program Office, Washington DC. Internet: www.afeas.org/data.php on May 2009.
- Aluminium Verlag (2007). Primary Aluminium Smelters and Producers of the World. Aluminium Verlag, Düsseldorf, Germany.
- Andreae, M. (2011). Updated emissions factors for emissions of trace gases and aerosols from biomass burning, pers. comm. 30 July 2011.
- Andreae, M. and P. Merlet (2001). Emissions of trace gases and aerosols from biomass burning. *Global Biogeochemical Cycles*, 15, 955-966.
- Ashford, D., D. Clodic, A. McCulloch and L. Kuijpers (2004). Emission profiles from the foam and refrigeration sectors comparison with atmospheric concentrations. Part 2: results and discussion, *International Journal of Refrigeration*, 27, 701-716.
- Bitsch, R. (Siemens) (1998). Personal communication on estimated regional distribution of SF₆ from switchgear in 1995 by CAPIEL and UNIPEDE, 29 July 1998.

- Bouwman, A.F., D.S. Lee, W.A.H. Asman, F.J. Dentener, K.W. Van der Hoek and J.G.J. Olivier (1997). A Global High-Resolution Emission Inventory for Ammonia, *Global Biogeochemical Cycles*, 11, 561-587.
- Bouwman, A.F., K.W. Van der Hoek, B. Eickhout and I. Soenario (2005). Exploring changes in world ruminant production systems. *Agricultural Systems*, 84, 121-153.
- Britz, W. (ed.) (2005). CAPRI Modelling System Documentation. Common Agricultural Policy Regional Impact Analysis. Universität Bonn, Bonn, Germany. Internet: www.agp.uni-bonn.de/agpo/rsrch/capri/capri-documentation.pdf
- CCC (2008). Communication and Education Initiatives, Composting Council of Canada (CCC). Toronto. Internet: www.compost.org/commEdInit.html
- Cheng, Y.P., L. Wang, and X.-L. Zhang (2011). Environmental impact of coal mine methane emissions and responding strategies in China. *Int. J. Greenhouse gas Control*, 5, 157-166.
- Choe, J.S., P.J. Gook and F.P. Petrocelli (1993). Developing N₂O abatement technology for the nitric acid industry. Paper presented at the 1993 ANPSG Conference, Destin, Florida, 6 October, 1993.
- CIA (2008). *The World Fact Book*. Central Intelligence Agency (CIA), Washington DC. Internet: www.cia.gov/library/publications/the-world-factbook/
- CIAB (1994). *Global methane emissions and the coal industry*. Coal Industry Advisory Board, IEA, Paris.
- Christian, T.J., B. Kleiss, R.J. Yokelson, R. Holzinger, P.J. Crutzen, W.M. Hao, B.H. Saharjo and D.E. Ward (2003). Comprehensive laboratory measurements of biomass-burning emissions: 1. Emissions from Indonesian, African, and other fuels, *J. Geophys. Res.*, 108(D23), 4719, doi:10.1029/2003JD003704.
- Denier van der Gon, H. (1999). Changes in CH₄ emission from rice fields from 1960 to 1990s, The declining use of organic inputs in rice farming. *Global Biogeochemical Cycles*, 13, 1053-1062.
- Denier van der Gon, H. (2000). Changes in CH₄ emission from rice fields from 1960 to 1990s, Impacts of modern rice technology. *Global Biogeochemical Cycles*, 14, 61-72.
- Doorn, M.R.J., R.P. Strait, W.R. Barnard and B. Eklund (1997). Estimates of global greenhouse-gas emissions from industrial and domestic waste water treatment. Report no. NRMRL-RTP-086. R 8/18/97. Pechan & Ass., Durham.
- Doorn, M.J. and D.S. Liles (1999). Quantification of methane emissions and discussion of nitrous oxide, and ammonia emissions from septic tanks, latrines, and stagnant open sewers in the world. EPA, Washington DC. EPA report EPA-600/R-99-089, October 1999.
- ECN (2008). Biowaste Treatment; Country presentations. European Compost Network (ECN), Weimar, Germany. Internet: www.compostnetwork.info/
- EEA (2009). *EMEP-EEA emission inventory guidebook – 2009*, European Environment Agency. Internet: www.eea.europa.eu/publications
- EIA (2007, 2010, 2011). *International Energy Statistics*; downloaded in 2007, 2010 and 2011. US Energy Information Administration, Washington DC. Internet: www.eia.doe.gov/emeu/international/contents.html
- Elvidge, C.D., D. Ziskin, K.E. Baugh, B.T. Tuttle, T. Ghosh, D.W. Pack, E.H. Erwin and M. Zhizhin (2009). Fifteen Year Record of Global Natural Gas Flaring Derived from Satellite Data. *Energies*, 2, 595-622, doi:10.3390/en20300595.
- EPA (2008). Global Overview of CMM Opportunities. US Environmental Protection Agency in support of the Methane to Markets Partnership. EPA, Washington DC.
- EURACOAL (2008). Coal industry across Europe 2008. Brussels, Belgium.
- FAO (1999). Irrigation in Asia in figures. FAO Water report 18. <ftp://ftp.fao.org/agl/aglw/docs/wr18.pdf>
- FAO (2000). Irrigation in Latin America and the Caribbean in figures. FAO water report 20. Internet: <ftp://ftp.fao.org/agl/aglw/docs/wr20.pdf>
- FAO (2005). Irrigation in Africa in figures. FAO water report 29. Internet: ftp://ftp.fao.org/agl/aglw/docs/wr29_eng.pdf
- FAO (2007a, 2010). FAOSTAT: ForeSTAT. Internet: faostat.fao.org/site/626/default.aspx#ancor
- FAO (2007b). FAOSTAT: Live animals. Internet: faostat.fao.org/site/573/default.aspx#ancor
- FAO (2007c). FAOSTAT: Livestock primary. Internet: faostat.fao.org/site/573/default.aspx#ancor
- FAO (2007d). FAOSTAT: Crops. Internet: faostat.fao.org/site/567/default.aspx#ancor
- FAO (2007e). FAOSTAT: ResourSTAT. Fertilizers Archive. Internet: faostat.fao.org/site/422/default.aspx#ancor

- FAO (2007f). FAOSTAT: Consumption. Internet: faostat.fao.org/site/610/default.aspx#ancor
- FAO (2010). FAOSTAT. Statistics for 2000-2008.
- FAO Geonetwork (2007a). Thermal Climate Zones of the World.
- FAO Geonetwork (2007b). Digital Soil Map of the World. Internet: www.fao.org/geonetwork/srv/en/metadata.show?id=14116&currTab=simple
- Fernandes, S.D., N.M. Trautmann, D.G. Streets, C.A. Roden and T.C. Bond (2007). Global biofuel use, 1850–2000, *Global Biogeochemical Cycles*, 21, GB2019, doi:10.1029/2006GB002836.
- Goldewijk, K., G. van Drecht and A. Bouwman (2007). Mapping contemporary global cropland and grassland distributions on a 5 x 5 minute resolution. *Journal of Land Use Science*, 2, 167-190.
- Gupta, P., C. Sharma, S. Bhattacharya and A. Mitra (2002). Scientific basis for establishing country greenhouse gas estimates for rice-based agriculture: An Indian case study. *Nutrient Cycling in Agroecosystems* 64, 19-31.
- Hunt, W.H. (2004). The China Factor: Aluminum Industry Impact. *JOM*, 56, 21-24.
- IAI (2006, 2008). Report on the aluminium industry's global perfluorocarbon gas emissions reduction programme. Results of the 2004/2006 anode effect survey. International Aluminium Institute (IAI), London, UK.
- IEA (2007, 2010). *Energy Statistics of OECD and Non-OECD Countries*. On-line data service. Internet: data.iea.org
- IFA (2007). IFA Statistics. Production, imports, exports and consumption data for nitrogen, phosphate and potash fertilizers. International Fertilizer Industry Association, Paris. CD-ROM.
- IIASA (2007). RAINS model. Internet: www.iiasa.ac.at/web-apps/tap/RainsWeb
- IMA (1999a). The Magnesium Diecasters Guide 1999; Volume III; Version 23 February 1999.
- IMA (1999b). *Magnesium International Buyers Guide*.
- IPCC (1997). *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*. IPCC/OECD/IEA, Paris.
- IPCC (2000). *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*, IPCC-TSU NGGIP, Japan.
- IPCC (2006). *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. Eggleston, S., Buendia, L., Miwa, K., Ngara, T., Tanabe, K. (eds.). IPCC-TSU NGGIP, IGES, Japan. Internet: www.ipcc-nggip.iges.or.jp/public/2006gl/index.html
- IPCC (2007). Climate Change 2007: Mitigation. Contribution of Working Group III to the *Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds.)], Cambridge University Press, Cambridge, United Kingdom and New York, NY. Internet: www.ipcc.ch/ipccreports/ar4-wg3.htm.
- IRRI (2007). World rice statistics. Distribution of rice crop area, by environment. 2001. Internet: www.irri.org/science/ricestat/
- Jäger-Waldau, A. (2008). PV Status Report 2008. Joint Research Centre, Institute for Energy. Report no. EUR 23604 EN. Luxembourg. ISBN 978-92-79-10122-9.
- Joosten, H. (2009). The Global Peatland CO₂ Picture - Peatland status and drainage related emissions in all countries of the world. Wetlands International, Ede, The Netherlands. Database received by pers. comm., 2010.
- JRC/PBL (2011). EDGAR version 4.2 FT2008. Joint Research Centre/PBL Netherlands Environmental Assessment Agency. Internet: edgar.jrc.ec.europa.eu/
- Kammen, D.M. (2005). Strategies for a sustainable, CO₂ neutral energy economy. Solar to Fuel – Future Challenges and Solutions. Lawrence Berkeley National Laboratory, March 28, 2005.
- Kirchgessner, D.A., S.D. Piccot and J.D. Winkler (1993). Estimate of global methane emissions from coal mines. *Chemosphere*, 26, 453-472.
- Knopman, D. and K. Smythe (2007). 2004-2006 SF₆ data summary. Project Memorandum PM-2327-NEMA, 25 June 2007. Internet: epa.gov/highgwp/electricpower-sf6/documents/04-06_data_summary.pdf
- Kroeze, C. (1994). Nitrous oxide (N₂O). Emission inventory and options for control in the Netherlands. RIVM, Bilthoven. Report no. 773001 004.
- Leip, A., R. Koeble, G. Marchi, M. Kempen, T. Heckeley and W. Britz (2007). Linking an economic model for European agriculture with a mechanistic model to estimate nitrogen losses from cropland soil in Europe, *Biogeosciences Discussion*, 4, 2215-2278, 2007.

- Lerner, J., E. Matthews and I. Fung (1988). Methane emission from animals: a global high resolution database, *Global Biogeochemical Cycles* 2, 139-156.
- Lu, C.-H. (2006). SF₆ Emission Reduction: What Taiwan is Doing. Proceedings of the 4th International Conference on SF₆ and the Environment, San Antonio, Texas, Nov. 28-30, 2006. Internet: www.epa.gov/highgwp/electricpower-sf6/workshops/conf06/index.html
- Mais, M. and C.M. Brenninkmeijer (1998). Atmospheric SF₆: Trends, Sources, and Prospects. *Environ. Sci. Technol.*, 32, 3077-3086.
- Marland, G., T.A. Boden and R.J. Andres (2006). Global, Regional, and National Fossil Fuel CO₂ Emissions. In *Trends: A Compendium of Data on Global Change*. Carbon Dioxide Information Analysis Center (CDIAC), Oak Ridge National Laboratory, US Department of Energy, Oak Ridge, Tenn. Internet: cdiac.ornl.gov/trends/emis/tre_glob.htm
- McCulloch, A. and A.A. Lindley (2007). Global emissions of HFC-23 estimated to year 2015. *Atmospheric Environment*, 41, 1560-1566.
- Mitra, A., S. Sharma, S. Bhattacharya, A. Garg, S. Devotta and K. Sen. (eds.). (2004). *Climate Change and India : Uncertainty Reduction in Greenhouse Gas Inventory Estimates*. Hyderabad, Universities Press.
- Murray, S., L. Burke, D. Tunstall and P. Gilruth (1999). Drylands population assessment II. Draft November 1999.
- Neue, H.U. (1997). Fluxes of methane from rice fields and potential for mitigation. *Soil Use and Management*, 13, 258-267.
- New, M.G., M. Hulme and P.D. Jones (1999). Representing 20th century space-time climate variability. I: Development of a 1961-1990 mean monthly terrestrial climatology. *J. Climate*, 12, 829-856.
- NOAA (2011). Global Gas Flaring Estimates. Global/Country Results 1994-2010. Internet: www.ngdc.noaa.gov/dmsp/interest/gas_flares.html.
- Olivier, J.G.J., A.F. Bouwman, J.J.M. Berdowski, C. Veldt, J.P.J. Bloos, A.J.H. Visschedijk, C.W.M. Van der Maas and P.Y.J. Zandveld (1999). Sectoral emission inventories of greenhouse gases for 1990 on a per country basis as well as on 1°x1°. *Environmental Science & Policy*, 2, 241-264.
- Olivier, J.G.J., J.J.M. Berdowski, J.A.H.W. Peters, J. Bakker, A.J.H. Visschedijk and J.P.J. Bloos (2001). Applications of EDGAR. Including a description of EDGAR 3.2: reference database with trend data for 1970-1995. RIVM, Bilthoven. RIVM report 773301 001/NRP report 410200 051. Internet: www.rivm.nl/bibliotheek/rapporten/410200051.html
- Olivier, J.G.J. and J.J.M. Berdowski (2001). Global emissions sources and sinks. In: Berdowski, J., R. Guicherit and B.J. Heij (eds.), *The Climate System*, pp. 33-78, A.A. Balkema Publishers/Swets & Zeitlinger Publishers, Lisse, The Netherlands, ISBN 90 5809 255 0.
- Olivier, J.G.J. (2002). On the Quality of Global Emission Inventories, Approaches, Methodologies, Input Data and Uncertainties, Thesis Utrecht University, Utrecht, ISBN 90 393 3103 0. Internet: www.library.uu.nl/digiarchief/dip/diss/2002-1025-131210/inhoud.htm
- Olivier, J.G.J., J.A. Van Aardenne, F. Dentener, V. Pagliari, L.N. Ganzeveld and J.A.H.W. Peters (2005). Recent trends in global greenhouse gas emissions: regional trends 1970-2000 and spatial distribution of key sources in 2000. *Environm.. Sc.*, 2 (2-3), 81-99. DOI: 10.1080/15693430500400345.
- Olivier, J.G.J., G. Janssens-Maenhout, J.A.H.W. Peters and J. Wilson (2011). Long-term trend in global CO₂ emissions. 2011 report. PBL report no. 500253004, JRC technical note no. JRC5918, ISBN 978-90-78645-68-9.
- Page, S.E., F. Siegert, J.O. Rieley, H-D.V. Boehm, A. Jaya and S. Limin (2002). The amount of carbon released from peat and forest fires in Indonesia during 1997. *Nature*, 420, 61-65.
- PBL (2011). Environmental Data Compendium 2011 (in Dutch). Internet: www.compendiumvoordeleefomgeving.nl
- Pérez, I. (2005). Greenhouse Gases: Inventories, Abatement Costs and Markets for Emission Permits in European Agriculture. A Modelling Approach, European University Studies, Series V Economics and Management 3184, Frankfurt am Main: Peter Lang, Europäischer Verlag der Wissenschaften, 2005.
- Rudd, H.J. and N.A. Hill (2001). Measures to Reduce Emissions of VOCs during Loading and Unloading of Ships in the EU. AEAT, Culham, UK. Report no. AEAT/ENV/R/0469.

- Schultz, M.G., A. Heil, J.J. Hoelzemann, A. Spessa, K. Thonicke, J.G. Goldammer, A.C. Held, J.M.C. Pereira and M. van het Bolscher (2008). Global wildland fire emissions from 1960 to 2000, *Global Biogeochem. Cycles*, 22, doi:10.1029/2007GB003031.
- SEMI (1998, 2009). International Fabs on Disk database, October 1998; World Fab Forecast, January 2009.
- SEMI (2007). SEMI and the FPD Industry it Serves. Presentation at TAITA Seminar, 7 September, 2007
- SIA (2006). Total Semiconductor World Market Sales and Shares for 1982–2005. Semiconductor Industry Association (SIA), San Jose. Internet: www.sia-online.org/galleries/press_release_files/shares.pdf
- SRIC (2005). Adipic acid, nitric acid and caprolactam production data 1974-2004. SRI Consulting, Gaithersburg, Maryland. Tables from the Directory of Chemical Producers, dated 2 December 2005.
- Thakur, P.C., I.J. Graham-Bryce, W.G. Karis and K.M. Sullivan (1994). Global methane emissions from the world coal industry, *Environmental Monitoring and Assessment*, 31, 73-91.
- Thakur, P.C., H.G. Little and W.G. Karis (1996). Global Coalbed Methane Recovery and Use, in: Riemer, P. and A. Smith (eds.) (1996). *Proceedings of the International Energy Agency Greenhouse Gases Mitigation Options Conference*, Pergamon-Elsevier, 789-794.
- UN (2006a). Industrial Commodity Production Statistics 1970-2001. UN Statistics Division, New York.
- UN (2006b). World Population Prospects. The 2004 Revision. UN Population Division, New York.
- UN (2010). Energy Statistics Database, UN Statistics Division. Internet: data.un.org (search 'charcoal').
- UNFCCC (2008, 2010). Emissions data (1990-2006/2008) from CRF data files submitted by Annex I countries to the UN Climate Convention as part of their 2008/2010 National Inventory Report submission. UNFCCC, Bonn. Internet: unfccc.int/national_reports/annex_i_ghg_inventories/items/2715.php
- UNEP Risø Centre (2011) CDM/JI Pipeline Analysis and Database. Internet: cdmpipeline.org/
- USGS (2007, 2010). US Geological Survey Minerals Yearbook, US Geological Survey, Reston, Virginia. Internet: minerals.usgs.gov/minerals/pubs/commodity
- Van der Werf, G.R., J.T. Randerson, L. Giglio, G.J. Collatz, P.S. Kasibhatla and A.F. Arellano (2006). Interannual variability in global biomass burning emissions from 1997 to 2004. *Atmos. Chem. Phys.*, 6, 3423–3441.
- Van der Werf, G.R., J.T. Randerson, L. Giglio, G.J. Collatz, M. Mu, P.S. Kasibhatla, D.C. Morton, R.S. DeFries, Y. Jin and T.T. van Leeuwen (2010). Global fire emissions and the contribution of deforestation, savanna, forest, agricultural, and peat fires (1997–2009). *Atmos. Chem. Phys.*, 10, 11707-11735, doi:10.5194/acp-10-11707-2010.
- Van Drecht, G., A. Bouwman, J. Knoop, A. Beusen and C. Meinardi (2003). Global modeling of the fate of nitrogen from point and nonpoint sources in soils, groundwater, and surface water. *Global Biogeochemical Cycles*, 17, 1115, doi:10.1029/2003GB002060.
- Van Drecht, G., A.F. Bouwman, J. Harrison and J.M. Knoop (2009). Global nitrogen and phosphate in urban wastewater for the period 1970 to 2050. *Global Biogeochemical Cycles*, 23, GB0A03, doi:10.1029/2009GB003458.
- Weiss, D., W. Shotyk, J. Rieley, S. Page, M. Gloor, S. Reese and A. Martinez-Cortizas (2002). The geochemistry of major and selected trace elements in a forested peat bog, Kalimantan, SE Asia, and its implications for past atmospheric dust deposition. *Geochimica et Cosmochimica Acta*, 66, 2307-2323..
- WSA (2008, 2010). *Steel Statistical Yearbook*. 2008/2010. World Steel Association (WSA), Brussels, Belgium. [And older yearbooks from the International Iron and Steel Institute.]
- Yevich, R. and J. Logan (2003). An assessment of biofuel use and burning of agricultural waste in the developing world. *Global biogeochemical cycles*, 17, 1095, doi:10.1029/2002GB001952.
- Zhou, J., M. Jiang and G. Chen (2007). Estimation of methane and nitrous oxide emissions from livestock and poultry in China during 1949-2003. *Energy Policy*, 35, 3759-3767.

TOTAL GREENHOUSE-GAS EMISSIONS

1990 Greenhouse-gas emissions

 million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
World *	20 966.3	451.2	839.2	5 987.4	28 244.0	75.8%	2 075.4	3 185.8	1 068.8	270.2	6 600.2	31.4%
<i>Annex I Parties</i>	13 908.1	206.4	456.6	850.5	15 421.6	91.5%	1 043.2	842.7	555.4	30.5	2 471.8	42.2%
<i>Annex II Parties</i>	9 803.0	78.9	271.8	379.1	10 532.6	93.8%	442.3	542.1	444.2	14.6	1 443.3	30.6%
<i>North America</i>	5 301.0	24.3	70.2	136.0	5 531.5	96.3%	282.0	191.6	229.3	8.2	711.2	39.7%
<i>Europe</i>	3 154.2	39.2	129.8	183.3	3 506.5	91.1%	127.9	210.8	182.5	2.2	523.4	24.4%
<i>Asia Oceania</i>	1 347.8	15.4	71.8	59.7	1 494.7	91.2%	32.4	139.7	32.4	4.2	208.7	15.5%
<i>Annex I EIT</i>	3 975.9	123.4	172.4	470.1	4 741.7	86.5%	593.0	276.0	99.7	15.9	984.5	60.2%
<i>Non-Annex I Parties</i>	6 444.4	244.7	382.6	5 136.9	12 208.6	54.8%	1 031.4	2 343.1	513.4	239.7	4 127.6	25.0%
<i>Annex I Kyoto Parties</i>	8 785.6	180.8	381.1	694.8	10 042.4	89.3%	784.4	631.2	333.4	25.1	1 774.0	44.2%
Int. marine bunkers	357.9	-	-	-	357.9	100.0%	0.7	-	-	-	0.7	100%
Int. aviation bunkers	255.9	-	-	-	255.9	100.0%	0.0	-	-	-	0.0	100%
Non-OECD Total	9 194.8	359.1	495.3	5 520.6	15 569.8	61.4%	1 496.8	2 501.1	568.7	253.4	4 820.0	31.1%
OECD Total	11 157.6	92.1	343.9	466.7	12 060.4	93.3%	577.8	684.7	500.1	16.8	1 779.4	32.5%
Canada	432.3	2.9	9.1	25.7	470.0	92.6%	32.2	18.9	22.1	2.9	76.1	42.4%
Chile	31.1	0.7	2.0	1.0	34.7	91.5%	3.0	5.8	3.0	0.2	12.0	25.1%
Mexico	264.9	2.9	16.3	39.1	323.1	82.9%	29.0	52.5	15.3	1.5	98.3	29.5%
United States	4 868.7	21.4	61.1	110.3	5 061.6	96.6%	249.8	172.7	207.2	5.4	635.1	39.3%
OECD Americas	5 596.9	27.9	88.4	176.1	5 889.4	95.5%	314.1	249.9	247.5	10.0	821.5	38.2%
Australia	260.1	4.2	6.0	25.9	296.1	89.2%	24.6	75.6	11.3	3.6	115.0	21.4%
Israel	33.1	-	1.5	0.3	34.9	94.9%	0.1	0.7	1.1	0.0	1.9	6.3%
Japan	1 064.4	11.1	65.4	28.7	1 169.6	92.0%	6.9	40.5	19.0	0.5	66.9	10.3%
Korea	229.3	1.5	17.6	0.4	248.9	92.8%	8.8	15.0	7.5	0.1	31.3	28.0%
New Zealand	23.3	0.1	0.4	5.1	29.0	80.9%	0.9	23.6	2.1	0.0	26.7	3.4%
OECD Asia Oceania	1 610.2	16.9	90.9	60.4	1 778.5	91.5%	41.2	155.4	41.0	4.3	241.9	17.0%
Austria	56.5	0.5	3.7	0.6	61.2	93.0%	2.0	5.0	3.0	0.1	10.0	20.3%
Belgium	107.9	1.3	5.3	0.8	115.4	94.7%	2.7	6.6	3.1	0.0	12.4	21.6%
Czech Republic	155.1	3.0	5.3	2.0	165.6	95.5%	6.4	8.9	2.7	0.2	18.2	35.3%
Denmark	50.4	0.3	1.0	3.7	55.4	91.5%	0.6	5.5	1.9	-	8.0	7.6%
Estonia	36.1	-	0.6	14.1	50.8	71.1%	1.2	1.7	0.5	-	3.4	35.0%
Finland	54.4	0.2	1.2	53.7	109.5	49.9%	0.8	2.6	6.7	0.0	10.1	7.6%
France	352.3	4.1	24.6	8.0	389.1	91.6%	20.3	40.7	14.6	0.1	75.7	26.8%
Germany	950.4	13.1	26.6	40.6	1 030.6	93.5%	36.8	41.8	36.6	0.2	115.4	31.8%
Greece	70.1	0.1	6.2	0.8	77.3	90.9%	1.6	3.7	2.3	0.1	7.7	20.6%
Hungary	66.7	0.5	2.8	1.1	71.2	94.5%	2.1	5.3	2.5	0.0	10.1	21.1%
Iceland	1.9	-	0.1	17.6	19.6	9.6%	0.0	0.2	0.1	0.0	0.3	2.0%
Ireland	29.8	-	0.9	10.9	41.6	71.6%	1.2	10.8	1.9	0.0	13.9	8.7%
Italy	397.4	4.5	22.5	3.1	427.5	94.0%	8.6	21.0	17.3	0.3	47.1	18.2%
Luxembourg	10.4	-	0.8	0.0	11.2	92.9%	0.1	0.8	0.1	0.0	1.0	10.1%
Netherlands	155.8	0.7	1.3	9.5	167.3	93.6%	6.3	11.6	12.2	0.1	30.1	20.8%
Norway	28.3	2.1	0.8	1.2	32.4	94.0%	6.1	2.2	5.8	0.1	14.1	43.0%
Poland	342.1	0.0	9.9	27.5	379.6	90.1%	74.8	22.8	9.9	0.1	107.6	69.5%
Portugal	39.3	0.2	3.5	0.3	43.3	91.2%	0.7	4.3	4.7	0.1	9.9	7.2%
Slovak Republic	56.7	0.2	3.0	0.4	60.3	94.4%	1.1	4.0	1.3	0.0	6.5	17.4%
Slovenia	12.5	0.0	0.7	0.4	13.7	91.6%	1.0	1.4	0.6	0.0	3.0	32.8%
Spain	205.8	1.8	15.0	2.0	224.6	92.4%	5.4	17.7	8.9	0.8	32.8	16.4%
Sweden	52.8	0.9	2.0	15.1	70.8	75.8%	1.1	3.4	7.0	0.0	11.5	9.6%
Switzerland	41.4	0.0	2.6	2.3	46.2	89.6%	1.1	3.7	1.0	0.1	5.9	18.8%
Turkey	126.9	4.2	12.5	1.4	145.0	90.4%	7.9	24.5	11.4	0.1	43.9	18.0%
United Kingdom	549.3	9.2	11.8	13.2	583.5	95.7%	32.7	29.1	55.4	0.1	117.3	27.8%
OECD Europe	3 950.5	47.2	164.6	230.2	4 392.5	91.0%	222.5	279.3	211.6	2.6	716.0	31.1%
<i>European Union - 27</i>	4 051.9	42.4	165.0	221.3	4 480.6	91.4%	230.1	278.3	207.7	2.5	718.6	32.0%

* Total World includes Non-OECD total, OECD total as well as international bunkers.

 Sources: IEA, Sectoral Approach for CO₂ emissions from fuel combustion. EDGAR 4 database for other emissions. In general, estimates for emissions other than CO₂ from fuel combustion are subject to significantly larger uncertainties.

1990 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O					Share of energy	HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total	Share of energy					Industrial processes	Total		Share of energy
255.6	239.9	1 805.6	526.9	2 827.9	9.0%	75.8	115.6	114.1	37 977.7	62.5%	World *	
147.4	213.7	623.0	162.1	1 146.2	12.9%	61.5	86.7	83.9	19 271.8	79.4%	Annex I Parties	
115.3	166.3	408.3	108.9	798.8	14.4%	56.5	65.3	76.9	12 973.3	80.5%	Annex II Parties	
76.0	56.4	170.1	52.0	354.5	21.4%	29.6	29.4	46.2	6 702.4	84.8%	North America	
30.0	98.7	168.2	37.7	334.6	9.0%	17.1	26.4	15.8	4 423.7	75.8%	Europe	
9.3	11.2	70.0	19.3	109.7	8.4%	9.8	9.5	14.9	1 847.2	76.1%	Asia Oceania	
28.2	47.2	192.4	50.5	318.3	8.8%	5.0	20.9	5.0	6 075.5	77.7%	Annex I EIT	
88.0	26.2	1 182.5	364.8	1 661.6	5.3%	14.3	28.9	30.2	18 071.2	43.2%	Non-Annex I Parties	
73.5	166.8	435.1	113.4	788.8	9.3%	32.3	65.4	39.7	12 742.6	77.1%	Annex I Kyoto Parties	
15.6	-	-	-	15.6	100%	-	-	-	374.2	100.0%	Int. marine bunkers	
4.6	-	-	-	4.6	100%	-	-	-	260.6	100.0%	Int. aviation bunkers	
105.6	62.2	1 299.4	400.4	1 867.6	5.7%	15.9	46.5	29.8	22 349.6	49.9%	Non-OECD Total	
129.8	177.8	506.1	126.5	940.1	13.8%	60.0	69.1	84.4	14 993.4	79.8%	OECD Total	
7.0	11.8	17.0	6.8	42.6	16.4%	0.4	8.6	4.0	601.6	78.9%	Canada	
0.3	0.0	4.1	0.7	5.1	5.7%	-	0.0	0.0	51.8	67.7%	Chile	
2.2	1.0	31.0	5.8	40.1	5.6%	1.6	0.5	0.9	464.6	64.4%	Mexico	
69.0	44.6	153.1	45.1	311.9	22.1%	29.2	20.8	42.2	6 100.8	85.4%	United States	
78.5	57.5	205.2	58.5	399.7	19.7%	31.2	30.0	47.0	7 218.8	83.4%	OECD Americas	
2.7	0.8	50.4	9.2	63.1	4.2%	0.6	3.9	0.4	479.1	60.8%	Australia	
0.1	0.3	0.7	0.4	1.5	9.1%	0.0	0.0	1.0	39.4	84.8%	Israel	
6.3	10.3	9.7	9.8	36.2	17.5%	9.2	4.7	14.4	1 300.9	83.7%	Japan	
1.6	1.1	4.9	2.2	9.8	16.1%	1.9	0.8	3.5	296.1	81.4%	Korea	
0.3	-	9.9	0.3	10.5	2.4%	0.0	0.9	0.0	67.1	36.7%	New Zealand	
11.0	12.5	75.7	21.9	121.1	9.1%	11.7	10.3	19.3	2 182.7	76.9%	OECD Asia Oceania	
0.6	0.8	2.9	0.7	5.1	12.6%	0.0	1.0	0.4	77.8	76.7%	Austria	
0.7	3.9	3.3	1.1	9.0	8.1%	0.0	0.0	0.1	137.0	82.3%	Belgium	
1.9	1.3	5.2	1.3	9.7	19.8%	0.0	0.0	0.0	193.5	86.1%	Czech Republic	
0.5	1.1	5.8	0.6	8.0	6.0%	0.0	0.0	0.1	71.5	72.5%	Denmark	
0.5	-	1.2	0.2	1.9	24.9%	-	0.0	0.0	56.1	67.4%	Estonia	
1.4	1.5	3.8	0.7	7.4	19.0%	0.0	0.0	0.1	127.1	44.7%	Finland	
3.6	26.7	35.5	4.8	70.7	5.1%	4.7	1.6	3.2	544.9	69.8%	France	
11.1	20.5	33.6	8.0	73.2	15.2%	2.6	4.4	5.6	1 231.8	82.1%	Germany	
0.8	1.1	4.5	1.1	7.5	11.1%	0.5	1.7	0.1	94.8	76.6%	Greece	
0.7	3.2	5.4	0.8	10.1	6.7%	0.0	0.7	0.0	92.0	76.2%	Hungary	
0.0	0.0	0.3	0.0	0.4	6.1%	-	1.0	0.0	21.3	8.9%	Iceland	
0.2	0.9	6.6	0.3	8.2	3.0%	0.0	0.0	0.0	63.7	49.1%	Ireland	
2.4	7.2	15.6	5.2	30.3	7.8%	2.0	0.9	1.2	509.0	81.1%	Italy	
0.0	-	0.3	0.1	0.4	12.4%	0.0	0.0	-	12.6	83.9%	Luxembourg	
0.7	5.8	7.2	1.3	15.0	4.7%	2.8	3.1	0.3	218.6	74.8%	Netherlands	
0.4	2.1	1.9	0.5	4.9	8.1%	-	6.3	2.3	60.0	61.5%	Norway	
2.1	3.4	19.0	2.9	27.3	7.5%	0.0	0.4	0.1	515.0	81.3%	Poland	
0.5	0.5	2.9	0.9	4.8	11.2%	0.0	0.0	0.1	58.1	70.2%	Portugal	
1.1	1.0	2.9	0.4	5.5	20.2%	-	0.1	-	72.4	81.8%	Slovak Republic	
0.1	-	1.0	0.2	1.3	9.5%	-	0.8	0.0	18.8	72.6%	Slovenia	
1.9	3.0	15.5	4.5	24.9	7.6%	2.0	3.8	0.4	288.4	74.5%	Spain	
1.0	0.8	4.0	0.9	6.7	15.1%	0.0	0.7	0.2	89.9	62.1%	Sweden	
0.4	0.2	1.6	0.6	2.8	15.1%	0.0	0.3	0.6	55.9	76.9%	Switzerland	
3.9	0.2	22.3	2.6	29.0	13.6%	-	0.5	2.0	220.4	64.9%	Turkey	
3.5	22.6	22.8	6.4	55.3	6.3%	2.6	1.6	1.1	761.3	78.1%	United Kingdom	
40.3	107.8	225.2	46.1	419.4	9.6%	17.1	28.8	18.0	5 591.9	76.2%	OECD Europe	
37.5	112.4	224.8	45.3	420.1	8.9%	17.1	22.6	13.1	5 672.1	76.9%	European Union - 27	

1990 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Non-OECD Total	9 194.8	359.1	495.3	5 520.6	15 569.8	61.4%	1 496.8	2 501.1	568.7	253.4	4 820.0	31.1%
Algeria	51.7	12.1	3.0	0.2	67.0	95.2%	24.4	3.7	3.1	0.0	31.2	78.2%
Angola	4.0	6.9	0.1	7.4	18.4	59.0%	6.8	14.0	1.1	0.1	22.1	31.0%
Benin	0.3	0.0	0.1	37.9	38.3	0.7%	0.7	1.9	0.5	2.0	5.1	13.9%
Botswana	2.9	-	-	0.4	3.3	87.6%	0.4	5.5	0.2	0.1	6.1	6.1%
Cameroon	2.7	3.7	0.3	63.4	70.1	9.1%	3.3	7.7	1.6	3.4	16.0	20.7%
Congo	0.7	1.5	0.0	49.8	52.0	4.3%	1.8	2.4	0.3	2.7	7.2	25.3%
Dem. Rep. of Congo	3.0	0.0	0.3	1 188.1	1 191.4	0.2%	3.6	26.8	4.0	63.9	98.3	3.7%
Côte d'Ivoire	2.6	0.0	0.2	129.5	132.4	2.0%	1.6	2.1	1.5	6.9	12.1	13.5%
Egypt	79.2	3.7	6.8	1.1	90.8	91.3%	10.4	10.5	6.0	0.0	26.9	38.7%
Eritrea	-	-	0.0	0.0	0.0	0.0%	0.3	1.5	0.3	-	2.1	15.0%
Ethiopia	2.2	-	0.2	0.4	2.8	79.5%	3.2	32.6	4.2	-	40.0	8.1%
Gabon	0.9	3.4	0.1	4.1	8.5	51.0%	3.0	0.1	0.2	0.2	3.5	86.2%
Ghana	2.7	-	0.3	12.7	15.7	17.2%	1.8	3.7	1.7	0.7	7.9	22.5%
Kenya	5.5	-	0.9	2.1	8.5	65.0%	4.9	13.4	2.1	-	20.3	23.9%
Libyan Arab Jamahiriya	27.4	14.1	1.5	0.1	43.1	96.2%	14.8	1.1	0.8	0.0	16.7	88.7%
Morocco	19.6	-	2.5	0.3	22.4	87.6%	1.0	5.4	2.9	-	9.2	10.4%
Mozambique	1.1	-	0.0	17.4	18.5	5.8%	1.7	7.7	1.5	0.9	11.8	14.6%
Namibia	-	-	0.0	0.0	0.0	0.0%	0.1	3.3	0.1	-	3.6	2.2%
Nigeria	29.2	38.6	1.4	9.4	78.6	86.2%	33.8	22.0	8.8	0.4	65.1	51.9%
Senegal	2.0	-	0.2	0.1	2.3	88.0%	1.0	3.7	1.0	-	5.6	17.4%
South Africa	254.7	14.4	4.9	2.6	276.6	97.3%	23.6	19.1	8.4	2.2	53.4	44.3%
Sudan	5.5	-	0.1	4.0	9.6	57.2%	5.1	39.1	2.9	-	47.1	10.9%
United Rep. of Tanzania	1.7	-	0.3	44.9	46.9	3.6%	2.4	19.8	2.3	2.4	26.9	8.9%
Togo	0.6	-	0.2	7.4	8.1	7.0%	0.8	1.5	0.4	0.4	3.1	24.9%
Tunisia	12.1	0.0	2.5	0.1	14.7	82.2%	1.2	1.8	1.0	0.0	4.1	30.5%
Zambia	2.6	-	0.4	142.6	145.5	1.8%	1.7	19.2	0.8	7.5	29.1	5.7%
Zimbabwe	16.0	-	0.5	0.8	17.3	92.5%	1.2	8.1	0.9	0.0	10.3	11.4%
Other Africa	14.7	-	0.5	268.1	283.3	5.2%	14.9	104.9	11.2	13.2	144.3	10.4%
Africa	545.4	98.4	27.4	1 995.1	2 666.3	24.1%	169.7	382.6	69.8	107.0	729.1	23.3%
Bangladesh	13.6	-	0.2	10.4	24.1	56.2%	5.8	69.4	11.6	0.4	87.1	6.6%
Brunei Darussalam	3.4	0.0	0.0	10.7	14.2	23.9%	3.0	0.0	0.1	0.5	3.6	83.5%
Cambodia	-	-	-	0.0	0.0	0.0%	1.0	13.2	0.8	-	15.1	6.9%
Chinese Taipei	114.3	1.2	8.8	0.8	125.2	92.3%	1.0	1.4	3.9	0.0	6.3	16.2%
India	582.3	14.0	23.5	52.0	671.8	88.8%	67.2	366.9	77.0	2.5	513.6	13.1%
Indonesia	142.2	10.2	7.8	694.2	854.4	17.8%	37.4	82.0	26.2	6.6	152.2	24.6%
DPR of Korea	114.0	2.0	8.1	3.1	127.2	91.2%	12.4	5.6	2.7	1.0	21.6	57.1%
Malaysia	48.9	1.5	2.8	106.7	159.9	31.5%	9.1	6.9	3.0	4.6	23.6	38.4%
Mongolia	12.7	-	0.3	30.5	43.5	29.1%	0.6	6.4	0.2	1.1	8.3	7.7%
Myanmar	4.0	0.0	0.2	742.9	747.1	0.5%	3.1	39.0	4.5	37.4	84.0	3.7%
Nepal	0.9	-	0.1	0.2	1.2	75.1%	1.3	17.3	1.7	0.0	20.3	6.4%
Pakistan	58.6	0.6	3.6	0.4	63.2	93.7%	15.4	64.6	10.8	0.0	90.8	16.9%
Philippines	38.1	0.0	3.0	5.1	46.2	82.5%	3.7	28.6	9.0	0.2	41.6	8.9%
Singapore	28.8	0.2	0.9	0.3	30.2	96.0%	0.4	0.1	0.5	0.0	1.0	41.2%
Sri Lanka	3.7	-	0.3	1.0	5.0	74.3%	0.6	8.6	2.3	0.0	11.5	5.1%
Thailand	80.1	0.0	8.7	13.2	102.0	78.5%	14.5	61.3	8.6	0.5	85.0	17.1%
Vietnam	17.2	1.1	1.7	6.1	26.1	70.1%	6.6	46.8	7.0	0.0	60.5	10.9%
Other Asia	10.2	0.0	0.2	40.3	50.8	20.2%	2.3	15.9	3.3	1.6	23.1	9.9%
Asia	1 273.0	30.9	70.3	1 718.0	3 092.1	42.2%	185.4	833.9	173.3	56.6	1 249.1	14.8%
People's Rep. of China	2 211.3	26.4	170.2	83.4	2 491.3	89.8%	353.5	523.3	135.7	4.4	1 016.9	34.8%
Hong Kong, China	32.8	0.7	0.9	0.1	34.4	97.4%	0.1	-	1.4	-	1.5	6.0%
China	2 244.1	27.1	171.1	83.5	2 525.7	89.9%	353.6	523.3	137.2	4.4	1 018.5	34.7%

1990 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O				Share of energy	HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total		Industrial processes			Total	Share of energy	
105.6	62.2	1 299.4	400.4	1 867.6	5.7%	15.9	46.5	29.8	22 349.6	49.9%	Non-OECD Total
0.3	0.4	2.5	0.7	3.9	7.9%	-	-	0.3	102.4	86.4%	Algeria
0.1	-	15.7	2.0	17.7	0.7%	-	-	-	58.2	30.6%	Angola
0.1	-	1.8	1.8	3.7	2.5%	-	-	-	47.2	2.2%	Benin
0.0	-	4.9	0.5	5.4	0.6%	-	-	-	14.8	22.5%	Botswana
0.2	-	7.0	3.3	10.5	1.5%	-	0.9	-	97.4	10.1%	Cameroon
0.0	-	2.1	2.3	4.4	0.9%	-	-	-	63.6	6.4%	Congo
0.7	-	31.4	55.1	87.2	0.8%	-	-	-	1 376.9	0.5%	Dem. Rep. of Congo
0.2	-	1.7	5.8	7.6	2.3%	-	-	-	152.2	2.9%	Côte d'Ivoire
0.5	1.4	8.4	1.6	11.9	4.2%	-	1.3	0.8	131.7	71.2%	Egypt
0.0	-	1.0	0.0	1.0	3.0%	-	-	-	3.1	10.9%	Eritrea
0.7	-	23.1	1.5	25.3	2.6%	-	-	-	68.0	9.0%	Ethiopia
0.0	-	0.1	0.2	0.3	8.7%	-	-	-	12.3	59.9%	Gabon
0.3	-	3.8	1.1	5.1	5.0%	-	0.6	-	29.4	16.2%	Ghana
0.4	-	8.5	0.4	9.3	4.5%	-	-	-	38.1	28.3%	Kenya
0.1	-	0.8	0.3	1.2	11.6%	-	-	0.3	61.3	92.1%	Libyan Arab Jamahiriya
0.2	-	4.4	0.6	5.2	3.5%	-	-	-	36.8	56.5%	Morocco
0.3	-	8.5	1.8	10.6	2.4%	-	-	-	40.9	7.5%	Mozambique
0.1	-	2.4	0.1	2.5	2.1%	-	-	-	6.1	2.2%	Namibia
1.2	-	15.5	2.3	19.0	6.1%	-	-	0.2	163.0	63.0%	Nigeria
0.1	-	2.6	0.3	2.9	3.5%	-	-	-	10.9	28.5%	Senegal
2.0	1.0	13.5	5.1	21.5	9.2%	0.0	0.4	1.1	353.0	83.5%	South Africa
0.4	-	32.7	2.9	36.0	1.1%	-	-	-	92.8	11.9%	Sudan
0.4	-	17.3	3.5	21.1	1.7%	-	-	-	95.0	4.7%	United Rep. of Tanzania
0.1	-	1.6	0.5	2.2	3.8%	-	-	-	13.4	10.6%	Togo
0.1	0.4	1.2	0.2	2.0	7.0%	-	-	-	20.8	64.9%	Tunisia
0.2	0.5	25.8	8.6	35.0	0.5%	-	-	-	209.7	2.1%	Zambia
0.2	-	6.0	0.5	6.8	3.6%	-	-	-	34.3	50.7%	Zimbabwe
1.9	-	86.3	19.0	107.2	1.8%	-	-	-	534.8	5.9%	Other Africa
10.7	3.7	330.3	122.0	466.7	2.3%	0.0	3.2	2.7	3 868.0	21.3%	Africa
1.3	-	12.2	1.7	15.2	8.4%	-	-	-	126.4	16.3%	Bangladesh
0.0	-	0.1	0.5	0.6	1.0%	-	-	-	18.3	34.9%	Brunei Darussalam
0.2	-	3.3	0.4	3.9	5.4%	-	-	-	19.0	6.6%	Cambodia
0.4	0.5	2.4	0.7	4.0	10.3%	0.0	0.1	1.9	137.5	85.0%	Chinese Taipei
18.4	1.1	121.1	18.7	159.5	11.6%	1.7	2.1	5.8	1 354.5	50.3%	India
3.7	0.1	54.9	30.2	88.9	4.2%	-	0.7	1.1	1 097.3	17.6%	Indonesia
0.6	-	5.6	2.6	8.7	6.9%	0.0	-	-	157.6	81.9%	DPR of Korea
0.3	-	8.2	5.1	13.6	1.9%	0.0	0.0	0.6	197.7	30.2%	Malaysia
0.1	-	3.3	1.8	5.2	1.8%	-	-	-	56.9	23.5%	Mongolia
0.4	-	8.4	35.4	44.2	0.9%	-	-	-	875.3	0.9%	Myanmar
0.5	-	2.8	0.3	3.6	13.7%	-	-	-	25.1	10.7%	Nepal
2.1	0.6	13.7	2.0	18.4	11.6%	-	-	1.0	173.5	44.2%	Pakistan
1.0	-	7.1	1.6	9.7	9.9%	-	-	0.2	97.6	43.8%	Philippines
0.1	-	0.1	0.3	0.4	16.8%	0.0	0.1	0.4	32.1	91.8%	Singapore
0.2	-	1.2	0.3	1.8	14.0%	-	-	-	18.3	25.0%	Sri Lanka
2.8	-	14.4	2.3	19.5	14.6%	-	-	1.4	207.9	46.9%	Thailand
0.9	-	9.5	1.2	11.6	7.4%	-	-	-	98.2	26.2%	Vietnam
0.4	-	10.3	2.3	13.0	3.2%	-	-	-	86.9	14.9%	Other Asia
33.4	2.4	278.5	107.3	421.6	7.9%	1.7	3.0	12.3	4 779.9	31.9%	Asia
21.3	10.1	253.4	33.6	318.4	6.7%	6.0	4.7	1.7	3 839.0	68.1%	People's Rep. of China
0.1	-	-	0.2	0.4	37.2%	-	-	0.4	36.7	91.9%	Hong Kong, China
21.4	10.1	253.4	33.9	318.8	6.7%	6.0	4.7	2.1	3 875.7	68.3%	China

1990 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Bahrain	11.7	0.0	0.1	0.1	11.9	98.6%	1.6	0.0	0.1	0.0	1.8	90.0%
Islamic Rep. of Iran	179.6	22.3	7.4	0.7	210.0	96.1%	31.1	17.7	7.9	0.0	56.7	54.8%
Iraq	52.8	13.1	6.1	3.1	75.2	87.8%	15.2	3.3	2.9	0.0	21.4	71.0%
Jordan	9.2	-	0.8	0.0	10.0	91.7%	0.1	0.3	0.4	-	0.9	13.7%
Kuwait	28.7	2.5	0.4	0.0	31.7	98.6%	4.7	0.1	0.6	0.0	5.3	88.4%
Lebanon	5.5	-	0.4	0.0	5.9	92.5%	0.1	0.2	0.4	-	0.7	11.7%
Oman	9.9	4.8	0.0	14.0	28.7	51.2%	5.6	0.3	0.2	-	6.2	91.0%
Qatar	14.1	2.0	0.1	0.0	16.2	98.9%	4.1	0.1	0.2	0.0	4.4	93.0%
Saudi Arabia	158.9	3.9	5.7	0.2	168.7	96.5%	24.7	1.8	3.0	0.1	29.7	83.3%
Syrian Arab Republic	28.2	4.1	1.4	0.1	33.8	95.5%	4.5	2.6	1.3	0.0	8.4	53.4%
United Arab Emirates	51.8	4.7	1.5	0.1	58.1	97.3%	12.7	0.3	0.4	-	13.4	95.0%
Yemen	6.4	0.0	0.5	0.0	7.0	92.4%	0.7	2.2	1.0	-	3.9	17.0%
Middle East	556.8	57.4	24.5	18.4	657.2	93.5%	105.0	28.8	18.7	0.1	152.6	68.8%
Albania	6.2	0.1	0.3	0.7	7.3	86.5%	0.8	1.6	0.2	0.0	2.5	31.0%
Armenia	20.5	-	0.7	0.4	21.5	95.1%	1.3	1.3	0.3	0.0	2.9	45.4%
Azerbaijan	64.2	0.0	0.6	0.3	65.1	98.7%	5.8	4.3	1.4	0.0	11.4	50.6%
Belarus	124.6	0.0	1.9	44.0	170.4	73.1%	1.1	14.3	3.3	0.0	18.7	6.1%
Bosnia-Herzegovina	23.7	-	0.2	0.4	24.3	97.5%	2.8	1.6	0.2	0.0	4.6	60.1%
Bulgaria	74.9	1.1	4.1	0.3	80.4	94.5%	1.3	5.5	8.8	0.1	15.7	8.4%
Croatia	21.6	0.2	1.4	0.1	23.2	93.8%	1.6	1.8	0.8	0.0	4.2	37.8%
Cyprus	3.8	-	0.5	0.0	4.3	88.6%	0.0	0.2	0.2	-	0.4	3.3%
Georgia	33.3	0.0	0.3	0.4	34.0	97.9%	1.7	2.6	0.7	0.0	5.0	34.5%
Gibraltar	0.2	-	-	0.0	0.2	99.8%	0.0	-	0.0	-	0.0	12.0%
Kazakhstan	236.4	6.1	6.7	16.2	265.5	91.4%	33.7	25.6	3.2	6.8	69.2	48.6%
Kyrgyzstan	22.5	0.0	0.7	0.7	23.8	94.2%	0.7	4.3	0.6	0.2	5.8	12.2%
Latvia	18.6	-	0.9	5.2	24.8	75.3%	1.6	3.2	0.6	0.0	5.5	30.0%
Lithuania	33.1	0.0	1.8	6.1	41.0	80.8%	1.6	4.9	1.1	0.0	7.6	21.3%
FYR of Macedonia	8.5	-	0.3	0.1	8.9	95.7%	0.3	1.1	0.2	0.1	1.7	18.7%
Malta	2.3	-	0.0	0.0	2.3	99.6%	0.0	0.1	0.1	-	0.2	1.6%
Republic of Moldova	30.2	-	1.3	0.2	31.6	95.4%	1.4	2.2	0.5	0.0	4.1	34.8%
Romania	167.1	0.5	9.0	2.0	178.4	93.9%	18.1	15.7	3.6	0.0	37.4	48.3%
Russian Federation	2 178.8	83.2	98.4	355.0	2 715.4	83.3%	422.5	132.5	54.3	15.1	624.5	67.7%
Serbia	61.4	0.2	2.2	0.6	64.5	95.6%	4.5	6.2	1.2	0.0	11.9	37.9%
Tajikistan	10.9	0.0	0.6	0.1	11.5	94.5%	0.8	2.9	0.6	0.0	4.3	18.4%
Turkmenistan	46.6	0.9	0.6	0.6	48.7	97.6%	26.4	2.8	0.6	0.0	29.8	88.5%
Ukraine	687.9	34.5	32.6	12.0	767.0	94.2%	58.4	54.1	9.5	0.2	122.3	47.8%
Uzbekistan	119.8	1.8	3.6	1.7	126.8	95.9%	17.1	13.2	2.6	0.0	32.9	52.0%
Non-OECD Europe and Eurasia	3 997.1	128.6	168.6	446.7	4 741.0	87.0%	603.7	301.6	94.7	22.6	1 022.7	59.0%
Argentina	100.4	3.2	1.8	17.3	122.7	84.4%	13.6	78.2	7.1	3.0	102.0	13.4%
Bolivia	5.1	0.8	0.2	149.1	155.3	3.8%	2.8	11.4	0.9	7.3	22.4	12.4%
Brazil	194.3	5.8	17.1	905.2	1 122.3	17.8%	25.0	209.5	41.4	43.7	319.6	7.8%
Colombia	45.0	1.4	3.9	52.0	102.3	45.4%	6.9	36.1	4.7	2.5	50.2	13.7%
Costa Rica	2.6	-	0.2	0.1	2.9	88.8%	0.2	3.2	0.4	-	3.8	4.5%
Cuba	33.7	0.9	1.8	4.5	40.9	84.7%	1.3	8.2	2.6	0.1	12.1	10.4%
Dominican Republic	7.7	-	0.5	0.6	8.8	87.4%	0.5	4.2	1.2	0.0	6.0	8.2%
Ecuador	13.2	1.7	0.8	1.0	16.7	89.3%	2.4	7.3	1.3	0.0	11.0	22.0%
El Salvador	2.2	-	0.3	0.3	2.8	80.2%	0.3	1.6	0.7	-	2.7	12.2%
Guatemala	3.3	0.0	0.5	3.8	7.6	43.5%	0.8	2.9	1.0	0.2	4.8	16.1%
Haiti	0.9	-	0.2	0.0	1.1	82.1%	0.7	1.7	0.9	-	3.3	22.2%
Honduras	2.1	-	0.1	5.0	7.3	29.3%	0.3	2.9	0.5	0.2	4.0	8.8%
Jamaica	7.2	-	0.3	0.1	7.5	95.4%	0.2	0.6	0.4	-	1.2	18.8%
Netherlands Antilles	2.7	-	-	0.0	2.8	98.3%	0.1	0.0	0.0	-	0.1	56.6%
Nicaragua	1.8	-	0.1	0.4	2.3	79.5%	0.3	3.8	0.7	-	4.8	5.9%
Panama	2.4	-	0.1	0.4	2.9	80.9%	0.1	2.3	0.4	-	2.8	4.7%
Paraguay	1.9	-	0.2	37.2	39.3	4.9%	0.8	12.0	0.7	2.0	15.5	5.3%
Peru	19.2	0.4	1.0	19.4	40.1	49.0%	1.7	7.9	3.0	0.9	13.6	12.4%
Trinidad and Tobago	11.4	0.5	0.2	0.0	12.2	97.8%	2.4	0.1	0.6	0.0	3.0	77.9%
Uruguay	3.7	0.0	0.2	0.4	4.4	85.2%	0.1	15.0	0.7	-	15.8	0.7%
Venezuela	105.1	1.9	2.8	39.8	149.6	71.5%	18.8	19.4	4.0	1.8	43.9	42.7%
Other Latin America	12.4	0.0	1.0	22.1	35.5	35.0%	0.2	2.6	1.8	0.8	5.4	4.0%
Latin America	578.4	16.7	33.4	1 259.0	1 887.5	31.5%	79.5	430.9	75.0	62.6	648.0	12.3%

1990 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O				Share of energy	HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total		Industrial processes	Total	Share of energy			
0.0	-	0.0	0.0	0.1	19.5%	-	2.5	-	16.3	81.9%	Bahrain
2.0	0.3	14.5	2.1	18.8	10.5%	-	0.2	2.4	288.1	81.6%	Islamic Rep. of Iran
0.2	-	3.0	0.5	3.8	6.4%	-	-	0.3	100.6	80.9%	Iraq
0.0	-	0.3	0.1	0.5	6.7%	-	-	-	11.4	82.2%	Jordan
0.1	-	0.0	0.2	0.3	25.3%	0.0	-	0.3	37.5	95.9%	Kuwait
0.0	-	0.2	0.1	0.4	8.8%	-	-	-	7.0	80.0%	Lebanon
0.0	-	0.2	0.1	0.3	14.6%	-	-	-	35.2	57.8%	Oman
0.0	-	0.0	0.1	0.1	20.9%	-	-	-	20.7	97.1%	Qatar
0.6	-	3.1	1.8	5.5	10.0%	0.0	-	2.4	206.3	91.1%	Saudi Arabia
0.2	0.2	3.2	0.5	4.1	5.1%	-	-	-	46.3	79.9%	Syrian Arab Republic
0.1	-	0.2	0.4	0.7	18.5%	-	0.4	0.5	73.0	95.0%	United Arab Emirates
0.1	-	1.8	0.2	2.1	2.8%	-	-	-	13.0	55.3%	Yemen
3.4	0.5	26.6	6.1	36.7	9.2%	0.0	3.1	5.8	855.4	84.5%	Middle East
0.0	-	1.1	0.2	1.3	3.0%	-	-	-	11.1	64.2%	Albania
0.0	-	0.6	0.2	0.8	4.6%	-	-	-	25.2	86.5%	Armenia
0.1	-	2.1	0.4	2.7	3.3%	-	0.2	-	79.4	88.3%	Azerbaijan
0.9	2.1	12.5	0.9	16.4	5.2%	-	0.0	-	205.4	61.6%	Belarus
0.9	-	0.9	0.2	2.0	43.8%	-	0.6	-	31.5	86.7%	Bosnia-Herzegovina
0.6	2.3	5.7	0.8	9.4	6.6%	-	0.0	-	105.5	73.9%	Bulgaria
0.4	0.9	2.2	0.3	3.8	9.7%	-	0.9	-	32.0	74.0%	Croatia
0.0	-	0.2	0.0	0.2	6.6%	-	-	-	5.0	77.1%	Cyprus
0.1	0.8	1.6	0.3	2.8	3.4%	-	-	-	41.9	84.0%	Georgia
0.0	-	-	0.0	0.0	21.3%	-	-	-	0.2	95.5%	Gibraltar
3.6	-	18.3	11.6	33.5	10.7%	-	-	-	368.2	76.0%	Kazakhstan
0.8	-	2.2	0.6	3.6	21.4%	-	-	-	33.2	72.0%	Kyrgyzstan
0.2	-	2.5	0.3	3.0	7.3%	0.0	0.0	-	33.3	61.6%	Latvia
0.3	0.8	3.9	0.4	5.3	5.6%	0.0	0.0	-	53.9	65.0%	Lithuania
0.1	-	0.6	0.1	0.9	14.6%	-	-	-	11.4	78.3%	FYR of Macedonia
0.0	-	0.0	0.0	0.1	12.0%	-	-	-	2.6	90.0%	Malta
0.1	-	1.4	0.3	1.7	4.9%	-	-	-	37.5	84.6%	Republic of Moldova
0.9	4.1	13.4	1.5	19.8	4.3%	-	2.0	0.0	237.7	78.5%	Romania
15.0	15.2	84.9	35.9	150.9	9.9%	5.0	15.9	4.9	3 516.6	76.8%	Russian Federation
0.4	0.7	3.3	0.6	4.9	8.8%	0.0	0.8	-	82.1	81.1%	Serbia
0.0	-	1.2	0.2	1.4	2.3%	-	2.8	-	20.0	58.6%	Tajikistan
0.1	0.1	1.8	0.2	2.2	3.5%	-	-	-	80.7	91.7%	Turkmenistan
3.6	13.0	32.6	4.7	53.9	6.7%	0.0	0.2	-	943.4	83.1%	Ukraine
0.2	0.2	7.8	1.0	9.2	2.0%	-	-	-	169.0	82.2%	Uzbekistan
28.3	40.1	200.7	60.7	329.8	8.6%	5.0	23.4	4.9	6 126.8	77.7%	Non-OECD Europe and Eurasia
0.9	0.1	32.4	5.1	38.5	2.4%	0.2	1.9	0.1	265.5	44.5%	Argentina
0.1	-	7.5	7.0	14.6	0.6%	-	-	-	192.3	4.6%	Bolivia
4.1	4.1	102.5	45.0	155.8	2.7%	1.9	5.0	1.5	1 606.1	14.3%	Brazil
0.6	0.2	16.3	3.1	20.2	3.1%	-	0.0	0.0	172.8	31.2%	Colombia
0.1	0.1	1.5	0.1	1.8	2.8%	-	-	-	8.5	33.2%	Costa Rica
0.8	0.7	7.3	0.9	9.6	8.1%	-	-	-	62.6	58.6%	Cuba
0.1	-	1.7	0.3	2.1	4.8%	-	-	-	16.9	48.9%	Dominican Republic
0.2	-	2.7	0.3	3.2	4.9%	-	-	-	30.9	56.6%	Ecuador
0.1	-	1.1	0.2	1.3	6.1%	-	-	-	6.8	39.0%	El Salvador
0.2	-	1.9	0.4	2.5	7.2%	0.0	-	-	14.9	28.6%	Guatemala
0.1	-	0.8	0.1	0.9	6.2%	-	-	-	5.4	32.3%	Haiti
0.1	-	2.0	0.4	2.4	3.6%	-	-	-	13.7	18.8%	Honduras
0.1	-	0.3	0.1	0.5	12.8%	-	-	-	9.2	80.9%	Jamaica
0.0	-	0.0	0.1	0.1	9.9%	-	-	-	3.0	93.9%	Netherlands Antilles
0.1	-	2.8	0.2	3.1	2.4%	-	-	-	10.2	21.5%	Nicaragua
0.0	-	0.9	0.1	1.0	3.5%	-	-	-	6.7	37.6%	Panama
0.1	-	6.6	2.3	9.0	1.6%	-	-	-	63.8	4.5%	Paraguay
0.2	0.2	3.9	1.2	5.6	4.1%	-	-	-	59.2	36.4%	Peru
0.0	-	0.1	0.1	0.2	10.9%	-	-	-	15.4	92.6%	Trinidad and Tobago
0.1	-	5.9	0.1	6.1	1.5%	-	-	-	26.2	15.2%	Uruguay
0.4	0.0	9.2	2.5	12.0	3.0%	1.0	1.9	0.3	208.8	60.4%	Venezuela
0.1	-	2.5	1.0	3.6	2.6%	-	0.3	0.0	44.8	28.5%	Other Latin America
8.4	5.4	209.9	70.4	294.0	2.8%	3.1	9.1	2.0	2 843.8	24.0%	Latin America

2000 Greenhouse-gas emissions

 million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
World *	23 492.9	427.2	1 003.2	5 300.8	30 224.1	79.1%	2 137.7	3 007.8	1 144.1	176.0	6 465.6	33.1%
<i>Annex I Parties</i>	13 761.8	169.0	379.2	836.5	15 146.6	92.0%	913.4	685.9	456.9	37.0	2 093.2	43.6%
<i>Annex II Parties</i>	11 006.0	59.7	273.0	351.5	11 690.1	94.7%	432.8	536.1	334.4	15.1	1 318.5	32.8%
<i>North America</i>	6 230.9	26.6	81.6	106.4	6 445.6	97.1%	279.1	208.5	160.0	6.5	654.1	42.7%
<i>Europe</i>	3 221.7	25.4	125.6	168.0	3 540.6	91.7%	116.8	193.7	150.3	1.8	462.6	25.2%
<i>Asia Oceania</i>	1 553.4	7.6	65.8	77.1	1 703.9	91.6%	36.9	133.9	24.1	6.8	201.8	18.3%
<i>Annex I EIT</i>	2 553.2	106.8	89.1	483.9	3 233.0	82.3%	471.2	127.3	97.8	21.9	718.2	65.6%
<i>Non-Annex I Parties</i>	8 905.9	258.2	624.0	4 464.3	14 252.3	64.3%	1 223.3	2 321.9	687.2	139.0	4 371.4	28.0%
<i>Annex I Kyoto Parties</i>	7 802.4	143.9	289.5	712.2	8 948.0	88.8%	670.7	469.9	296.5	32.5	1 469.6	45.6%
Int. marine bunkers	480.0	-	-	-	480.0	100.0%	0.9	-	-	-	0.9	100%
Int. aviation bunkers	345.2	-	-	-	345.2	100.0%	0.1	-	-	-	0.1	100%
Non-OECD Total	10 033.8	351.5	644.5	4 863.9	15 893.6	65.3%	1 595.4	2 349.8	728.8	159.3	4 833.2	33.0%
OECD Total	12 633.9	75.7	358.7	436.9	13 505.3	94.1%	541.3	658.0	415.3	16.7	1 631.4	33.2%
Canada	532.8	4.0	10.4	26.3	573.5	93.6%	46.8	23.3	28.3	2.0	100.4	46.6%
Chile	52.5	1.0	2.2	0.3	56.1	95.5%	4.3	6.9	5.6	0.1	16.9	25.1%
Mexico	349.3	5.4	18.6	42.7	416.2	85.2%	29.3	53.5	18.7	1.2	102.7	28.5%
United States	5 698.1	22.6	71.2	80.1	5 872.0	97.4%	232.4	185.2	131.7	4.4	553.7	42.0%
OECD Americas	6 632.8	33.1	102.5	149.5	6 917.8	96.4%	312.7	268.9	184.4	7.8	773.8	40.4%
Australia	338.8	3.2	6.2	42.5	390.7	87.5%	31.4	78.5	11.5	6.4	127.7	24.6%
Israel	54.8	-	3.2	0.2	58.2	94.0%	0.1	1.0	1.5	0.0	2.7	5.0%
Japan	1 184.0	4.4	59.1	29.7	1 277.2	93.0%	4.5	31.8	10.8	0.4	47.5	9.4%
Korea	437.7	1.9	25.5	0.5	465.6	94.4%	5.9	12.5	12.4	0.1	30.9	19.1%
New Zealand	30.6	0.0	0.5	4.9	36.0	84.9%	1.1	23.5	1.9	0.1	26.6	4.0%
OECD Asia Oceania	2 045.8	9.6	94.6	77.8	2 227.7	92.3%	43.0	147.5	38.0	6.9	235.4	18.3%
Austria	61.8	0.4	3.7	0.5	66.3	93.7%	1.9	4.4	2.6	0.0	9.0	21.7%
Belgium	118.6	0.2	5.2	0.6	124.6	95.3%	1.6	6.5	2.9	0.0	11.0	14.7%
Czech Republic	121.9	4.0	4.1	1.2	131.1	96.0%	5.7	4.3	2.9	0.1	12.9	43.8%
Denmark	50.6	0.4	1.6	3.3	56.0	91.3%	1.1	5.4	1.7	-	8.1	13.0%
Estonia	14.6	-	0.4	11.4	26.5	55.3%	0.8	0.6	0.7	-	2.1	38.3%
Finland	54.2	0.5	1.1	52.2	107.9	50.6%	0.8	2.1	7.4	0.0	10.3	7.4%
France	376.9	1.7	20.6	7.6	406.7	93.1%	34.2	38.3	13.0	0.1	85.6	39.9%
Germany	827.1	5.1	23.1	36.6	892.0	93.3%	21.2	31.8	23.0	0.2	76.1	27.8%
Greece	87.4	0.0	7.1	0.5	95.0	92.0%	1.9	3.7	2.5	0.1	8.1	23.3%
Hungary	54.2	0.5	1.9	1.0	57.6	94.9%	2.4	3.0	2.8	0.0	8.2	28.9%
Iceland	2.1	-	0.1	17.6	19.8	10.8%	0.0	0.2	0.1	0.0	0.3	1.7%
Ireland	40.9	-	1.7	9.5	52.1	78.4%	1.3	11.8	1.8	0.0	14.9	8.6%
Italy	426.0	4.2	22.1	2.4	454.7	94.6%	7.5	18.3	20.7	0.2	46.7	16.1%
Luxembourg	8.0	-	0.6	0.0	8.7	92.6%	0.1	0.8	0.1	0.0	1.0	10.2%
Netherlands	172.1	0.6	1.3	7.4	181.4	95.2%	4.9	10.1	9.1	0.1	24.3	20.2%
Norway	33.5	1.7	1.0	0.9	37.1	95.0%	11.6	2.2	3.3	0.1	17.2	67.4%
Poland	290.9	0.2	9.0	26.3	326.4	89.2%	48.7	14.7	9.3	0.1	72.8	66.9%
Portugal	59.4	0.2	4.2	0.3	64.1	93.0%	0.9	4.4	6.6	0.5	12.3	7.4%
Slovak Republic	37.4	0.4	2.1	0.4	40.3	93.8%	0.9	1.8	1.7	0.0	4.4	21.1%
Slovenia	14.1	-	1.5	0.3	15.8	89.1%	1.1	1.1	0.7	0.0	2.9	37.3%
Spain	283.9	2.1	18.2	1.6	305.7	93.5%	4.3	20.0	10.4	0.5	35.1	12.2%
Sweden	52.8	1.5	2.0	14.7	70.9	76.5%	1.2	3.3	6.9	0.0	11.5	10.6%
Switzerland	42.5	0.0	1.7	0.5	44.8	95.0%	0.9	3.2	1.0	0.0	5.1	17.8%
Turkey	200.6	2.5	17.1	1.2	221.4	91.7%	9.3	22.4	24.5	0.0	56.3	16.6%
United Kingdom	523.8	6.8	10.3	11.8	552.6	96.0%	21.5	27.2	37.2	0.1	85.9	25.0%
OECD Europe	3 955.3	33.1	161.7	209.7	4 359.7	91.5%	185.7	241.7	192.9	2.0	622.2	29.8%
<i>European Union - 27</i>	3 831.2	30.8	150.5	202.0	4 214.4	91.6%	180.6	227.4	180.5	2.4	590.9	30.6%

* Total World includes Non-OECD total, OECD total as well as international bunkers.

 Sources: IEA, Sectoral Approach for CO₂ emissions from fuel combustion. EDGAR 4 database for other emissions. In general, estimates for emissions other than CO₂ from fuel combustion are subject to significantly larger uncertainties.

2000 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O				Share of energy	HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total					Total	Share of energy	
295.1	183.1	1 802.2	495.3	2 775.8	10.6%	293.1	100.7	117.1	39 976.4	65.9%	World *
156.8	131.5	541.5	166.6	996.4	15.7%	227.7	73.8	84.6	18 622.3	80.6%	Annex I Parties
132.8	91.6	424.4	112.4	761.3	17.4%	207.4	46.2	74.2	14 097.7	82.5%	Annex II Parties
91.4	31.3	191.5	53.4	367.6	24.9%	118.9	21.8	50.9	7 658.9	86.5%	North America
27.9	54.2	156.8	35.7	274.7	10.2%	51.5	13.8	15.6	4 358.7	77.8%	Europe
13.6	6.2	76.0	23.3	119.1	11.4%	37.0	10.6	7.7	2 080.1	77.5%	Asia Oceania
20.0	35.6	95.5	50.9	201.9	9.9%	19.3	27.0	9.4	4 208.9	74.9%	Annex I EIT
112.6	51.7	1 260.8	328.7	1 753.7	6.4%	65.4	26.9	32.5	20 502.3	51.2%	Non-Annex I Parties
69.3	98.0	342.8	115.6	625.7	11.1%	113.9	58.5	37.7	11 253.4	77.2%	Annex I Kyoto Parties
20.3	-	-	-	20.3	100%	-	-	-	501.2	100.0%	Int. marine bunkers
5.4	-	-	-	5.4	100%	-	-	-	350.6	100.0%	Int. aviation bunkers
116.0	69.7	1 286.1	363.4	1 835.2	6.3%	70.6	50.0	35.8	22 718.4	53.2%	Non-OECD Total
153.3	113.4	516.2	132.0	914.9	16.8%	222.5	50.7	81.3	16 406.1	81.7%	OECD Total
8.3	3.8	22.5	6.3	40.9	20.3%	6.2	7.1	4.9	733.1	80.7%	Canada
0.8	0.7	5.3	0.8	7.6	10.1%	-	0.0	0.0	80.6	72.6%	Chile
2.8	1.2	32.5	6.7	43.2	6.5%	3.3	0.6	0.8	566.8	68.3%	Mexico
83.1	27.5	169.0	47.1	326.7	25.4%	112.7	14.7	45.9	6 925.8	87.2%	United States
94.9	33.3	229.3	60.9	418.4	22.7%	122.2	22.4	51.7	8 306.3	85.2%	OECD Americas
4.0	1.7	56.6	13.3	75.6	5.3%	2.5	1.2	0.5	598.2	63.1%	Australia
0.3	0.2	0.9	0.6	1.9	13.6%	0.7	0.1	1.0	64.6	85.3%	Israel
9.2	4.4	8.7	9.7	32.0	28.7%	34.1	9.0	7.2	1 407.0	85.4%	Japan
3.1	6.8	4.7	3.3	18.0	17.2%	8.4	2.2	4.1	529.0	84.8%	Korea
0.4	-	10.8	0.3	11.5	3.4%	0.3	0.4	0.1	74.9	42.8%	New Zealand
16.9	13.2	81.7	27.2	138.9	12.2%	46.1	12.8	12.7	2 673.8	79.1%	OECD Asia Oceania
0.6	0.8	2.5	0.8	4.8	13.3%	1.0	0.1	0.3	81.5	79.4%	Austria
0.8	4.8	3.1	1.1	9.8	8.0%	1.0	0.0	0.1	146.7	82.6%	Belgium
5.0	1.2	3.2	1.0	10.5	47.7%	0.4	0.0	0.0	155.0	88.1%	Czech Republic
0.6	1.0	4.9	0.6	7.1	8.1%	0.7	0.0	0.1	71.9	73.3%	Denmark
0.2	-	0.6	0.1	0.8	20.0%	0.0	0.0	0.0	29.4	53.0%	Estonia
1.6	1.3	3.2	0.6	6.7	24.6%	0.4	0.0	0.1	125.5	45.5%	Finland
4.0	10.0	33.6	4.6	52.1	7.6%	9.4	1.1	2.4	557.3	74.8%	France
6.5	9.6	30.5	5.8	52.5	12.4%	11.3	1.7	5.6	1 039.1	82.8%	Germany
1.0	0.8	3.7	1.1	6.6	14.6%	2.4	0.3	0.1	112.5	80.2%	Greece
0.3	1.8	4.0	0.7	6.9	5.0%	0.4	0.3	0.0	73.5	78.1%	Hungary
0.0	-	0.3	0.0	0.4	9.8%	0.0	0.1	0.0	20.7	10.5%	Iceland
0.3	0.7	7.0	0.4	8.4	3.9%	0.4	0.4	0.1	76.3	55.6%	Ireland
2.8	8.1	14.1	5.6	30.6	9.2%	7.1	0.4	1.3	540.8	81.5%	Italy
0.1	-	0.3	0.1	0.4	19.1%	0.1	0.0	-	10.2	80.8%	Luxembourg
0.9	5.7	6.2	1.3	14.2	6.2%	6.2	1.0	0.3	227.3	78.5%	Netherlands
0.4	1.8	1.8	0.7	4.8	7.7%	0.2	4.6	1.0	64.8	72.9%	Norway
3.5	4.4	17.0	2.5	27.4	12.8%	0.7	0.5	0.2	427.9	80.2%	Poland
0.8	0.5	2.8	1.7	5.8	14.0%	0.4	0.0	0.1	82.7	74.2%	Portugal
0.5	1.1	1.2	0.3	3.1	15.8%	0.1	0.1	-	48.1	81.6%	Slovak Republic
0.2	-	0.8	0.2	1.2	14.3%	0.1	0.2	0.0	20.2	76.0%	Slovenia
2.6	2.5	17.4	4.9	27.4	9.4%	3.3	2.3	2.5	376.3	77.8%	Spain
1.1	0.7	3.8	0.8	6.5	17.7%	0.6	0.7	0.2	90.3	62.7%	Sweden
0.5	0.2	1.4	0.5	2.6	18.9%	0.8	0.1	0.3	53.7	81.8%	Switzerland
3.9	4.3	21.6	3.3	33.0	11.9%	1.0	0.6	1.0	313.2	69.1%	Turkey
3.3	5.6	20.2	5.0	34.1	9.6%	6.3	0.9	1.2	681.0	81.5%	United Kingdom
41.5	67.0	205.2	43.9	357.5	11.6%	54.2	15.5	16.8	5 426.0	77.7%	OECD Europe
38.0	66.2	191.2	42.2	337.7	11.2%	52.9	10.8	14.6	5 221.3	78.2%	European Union - 27

2000 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Non-OECD Total	10 033.8	351.5	644.5	4 863.9	15 893.6	65.3%	1 595.4	2 349.8	728.8	159.3	4 833.2	33.0%
Algeria	62.4	14.9	3.7	0.2	81.2	95.2%	35.4	4.2	4.1	0.0	43.8	80.9%
Angola	5.1	10.5	0.2	6.2	22.0	70.9%	10.2	3.9	1.5	0.1	15.8	65.0%
Benin	1.4	-	0.1	25.2	26.7	5.3%	0.8	2.1	0.8	0.8	4.5	18.1%
Botswana	4.2	-	0.1	0.4	4.7	88.5%	0.5	3.2	0.2	0.0	3.9	11.5%
Cameroon	2.8	2.1	0.4	56.2	61.4	8.0%	2.5	8.6	2.2	2.6	15.8	15.6%
Congo	0.6	3.6	0.0	43.1	47.3	8.8%	3.9	1.6	0.5	2.1	8.0	48.7%
Dem. Rep. of Congo	1.7	0.0	0.1	912.7	914.4	0.2%	5.4	14.5	5.3	38.5	63.7	8.5%
Côte d'Ivoire	6.1	0.2	0.3	138.2	144.8	4.3%	2.6	2.2	2.1	7.3	14.2	18.6%
Egypt	110.2	3.4	11.2	1.1	125.9	90.2%	15.1	13.3	7.5	0.0	35.8	42.0%
Eritrea	0.6	-	0.0	0.0	0.7	91.3%	0.3	2.0	0.4	-	2.7	12.3%
Ethiopia	3.2	-	0.4	0.5	4.1	77.4%	7.1	33.3	5.8	-	46.2	15.4%
Gabon	1.4	4.5	0.1	2.2	8.2	71.5%	3.7	0.1	0.3	0.0	4.1	89.9%
Ghana	5.1	-	0.8	8.6	14.6	35.1%	2.8	4.0	2.5	0.3	9.6	28.9%
Kenya	6.8	-	0.7	3.2	10.6	63.7%	6.5	12.5	3.3	-	22.3	29.0%
Libyan Arab Jamahiriya	39.7	8.0	1.5	0.1	49.3	96.7%	11.1	0.8	1.0	0.0	13.0	85.6%
Morocco	28.3	-	3.5	0.3	32.1	88.0%	0.4	5.4	3.8	-	9.6	4.2%
Mozambique	1.3	-	0.1	41.5	43.0	3.1%	2.1	6.1	1.9	2.9	13.0	15.9%
Namibia	1.9	-	0.0	0.0	1.9	97.7%	0.1	4.3	0.2	-	4.6	2.3%
Nigeria	39.4	48.0	1.1	9.0	97.5	89.6%	44.8	24.9	12.5	0.4	82.6	54.3%
Senegal	3.6	-	0.4	0.1	4.1	87.3%	1.1	4.7	1.3	-	7.1	15.4%
South Africa	298.2	12.8	4.9	2.6	318.5	97.7%	27.2	18.9	11.1	2.2	59.4	45.8%
Sudan	5.5	0.0	0.1	4.1	9.7	56.8%	6.7	53.4	4.3	-	64.4	10.3%
United Rep. of Tanzania	2.6	-	0.4	47.6	50.5	5.1%	3.7	19.4	3.5	2.5	29.1	12.8%
Togo	1.0	-	0.3	6.1	7.3	13.1%	1.3	1.3	0.6	0.3	3.4	38.8%
Tunisia	18.0	0.4	2.8	0.1	21.4	86.1%	3.4	2.1	1.4	0.0	6.9	49.0%
Zambia	1.7	-	0.3	110.8	112.8	1.5%	2.2	10.5	1.0	4.4	18.1	12.1%
Zimbabwe	12.7	0.3	0.4	0.9	14.4	90.3%	1.2	7.1	1.3	0.0	9.7	12.8%
Other Africa	19.3	2.1	0.7	235.2	257.4	8.3%	20.2	99.1	15.1	9.3	143.7	14.1%
Africa	684.6	110.8	34.6	1 656.5	2 486.6	32.0%	222.3	363.4	95.7	73.6	755.1	29.4%
Bangladesh	25.3	-	1.6	7.5	34.4	73.4%	7.9	65.7	15.5	0.1	89.2	8.9%
Brunei Darussalam	4.6	0.3	0.1	7.5	12.5	39.4%	3.8	0.0	0.1	-	3.9	97.6%
Cambodia	2.4	-	-	3.2	5.6	43.0%	1.1	12.5	1.3	0.1	15.0	7.5%
Chinese Taipei	217.3	1.0	9.4	0.8	228.6	95.5%	1.3	1.1	5.3	0.0	7.7	16.6%
India	972.5	7.7	42.0	57.3	1 079.5	90.8%	82.1	376.0	101.1	2.4	561.6	14.6%
Indonesia	264.0	8.5	12.9	890.7	1 176.1	23.2%	45.6	78.9	39.9	3.4	167.8	27.2%
DPR of Korea	68.8	-	2.3	2.7	73.8	93.2%	10.2	3.9	3.1	0.1	17.3	58.7%
Malaysia	111.1	2.5	5.3	90.0	208.9	54.4%	17.8	5.6	4.8	1.0	29.2	60.8%
Mongolia	8.8	-	0.1	38.6	47.5	18.5%	0.3	8.5	0.3	0.2	9.2	2.9%
Myanmar	8.1	0.0	0.2	455.3	463.7	1.8%	6.2	44.3	5.7	10.9	66.9	9.2%
Nepal	3.1	-	0.1	0.1	3.4	91.2%	1.4	17.6	2.2	-	21.2	6.6%
Pakistan	97.3	2.0	4.7	0.4	104.3	95.2%	24.6	76.9	15.4	0.1	117.1	21.0%
Philippines	67.9	0.0	5.4	2.9	76.2	89.1%	6.1	31.5	12.2	0.0	49.9	12.3%
Singapore	40.2	0.2	0.6	0.4	41.3	97.8%	0.9	0.0	0.8	0.0	1.7	52.9%
Sri Lanka	10.6	-	0.5	0.6	11.7	91.2%	0.6	6.2	2.8	-	9.6	6.7%
Thailand	161.8	0.0	11.9	8.7	182.4	88.7%	16.4	54.5	12.5	0.1	83.4	19.6%
Vietnam	44.0	1.3	6.8	6.8	58.8	77.0%	14.4	51.4	9.6	0.0	75.4	19.1%
Other Asia	11.3	0.3	0.3	51.8	63.6	18.2%	2.4	16.0	4.0	0.9	23.3	10.3%
Asia	2 119.2	23.8	104.0	1 625.3	3 872.3	55.3%	243.1	850.5	236.5	19.4	1 349.6	18.0%
People's Rep. of China	3 037.3	14.9	352.4	100.5	3 505.1	87.1%	377.3	485.7	176.8	3.5	1 043.4	36.2%
Hong Kong, China	39.8	1.3	0.6	0.1	41.8	98.4%	0.8	-	1.9	-	2.7	28.9%
China	3 077.2	16.2	353.0	100.5	3 546.9	87.2%	378.1	485.7	178.8	3.5	1 046.1	36.1%

2000 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O				Share of energy	HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total		Industrial processes	Total	Share of energy			
116.0	69.7	1 286.1	363.4	1 835.2	6.3%	70.6	50.0	35.8	22 718.4	53.2%	Non-OECD Total
0.4	0.6	2.7	0.8	4.5	8.3%	0.1	-	0.3	129.9	87.1%	Algeria
0.2	-	2.5	0.3	3.0	6.1%	0.0	-	-	40.7	63.8%	Angola
0.1	-	2.0	1.3	3.3	3.5%	-	-	-	34.6	6.8%	Benin
0.1	-	2.3	0.2	2.5	2.9%	-	-	-	11.2	42.1%	Botswana
0.2	-	7.5	3.0	10.7	2.1%	-	0.5	-	88.5	8.6%	Cameroon
0.1	-	1.4	1.9	3.4	1.8%	0.0	-	-	58.8	13.9%	Congo
1.1	-	16.6	40.7	58.5	2.0%	-	-	-	1 036.6	0.8%	Dem. Rep. of Congo
0.2	-	2.0	6.2	8.5	2.5%	-	-	-	167.5	5.5%	Côte d'Ivoire
0.6	3.3	12.2	2.1	18.2	3.4%	0.1	1.4	1.1	182.5	70.8%	Egypt
0.0	-	1.3	0.1	1.4	3.3%	-	-	-	4.7	20.8%	Eritrea
1.5	-	23.5	1.8	26.7	5.4%	0.0	-	-	77.0	15.2%	Ethiopia
0.0	-	0.1	0.1	0.3	18.0%	0.0	-	-	12.5	76.4%	Gabon
0.4	-	3.8	1.0	5.3	8.4%	0.0	0.1	-	29.6	28.2%	Ghana
0.6	-	8.1	0.6	9.2	6.0%	-	-	-	42.2	32.7%	Kenya
0.2	-	0.7	0.4	1.3	13.3%	-	-	0.2	63.8	92.5%	Libyan Arab Jamahiriya
0.4	-	4.5	0.7	5.6	7.2%	-	-	-	47.3	61.5%	Morocco
0.3	-	6.6	2.7	9.6	3.2%	0.0	0.0	-	65.6	5.6%	Mozambique
0.1	-	3.2	0.2	3.5	2.4%	-	-	-	10.0	20.6%	Namibia
1.9	-	16.2	2.9	21.0	8.9%	0.1	-	0.2	201.3	66.6%	Nigeria
0.1	-	3.3	0.3	3.8	3.0%	-	-	-	15.0	32.0%	Senegal
2.6	1.5	13.7	5.4	23.2	11.1%	0.3	0.5	1.0	402.9	84.6%	South Africa
0.6	-	40.3	2.8	43.8	1.4%	-	-	-	117.9	10.8%	Sudan
0.5	-	14.9	3.2	18.6	2.7%	-	-	-	98.2	6.9%	United Rep. of Tanzania
0.1	-	1.3	0.4	1.8	5.9%	-	-	-	12.6	19.1%	Togo
0.2	0.4	1.5	0.3	2.4	8.4%	-	-	-	30.7	71.6%	Tunisia
0.2	0.5	15.2	5.8	21.7	1.0%	0.0	-	-	152.6	2.7%	Zambia
0.2	-	5.0	0.4	5.6	4.4%	-	-	-	29.6	48.8%	Zimbabwe
2.6	-	73.1	15.6	91.3	2.8%	0.0	-	-	492.4	9.0%	Other Africa
15.6	6.2	285.6	101.3	408.8	3.8%	0.5	2.5	2.8	3 656.3	28.3%	Africa
1.5	-	16.2	1.9	19.6	7.4%	-	-	-	143.3	24.2%	Bangladesh
0.0	-	0.1	0.3	0.4	2.6%	0.1	-	-	16.9	51.6%	Brunei Darussalam
0.2	-	2.6	0.4	3.3	6.2%	-	-	-	23.9	15.7%	Cambodia
0.9	0.5	2.1	1.2	4.7	19.9%	0.1	4.1	1.6	246.8	89.4%	Chinese Taipei
23.4	1.6	149.9	24.6	199.5	11.7%	8.1	2.0	3.4	1 854.1	58.6%	India
4.2	0.2	59.9	26.3	90.7	4.7%	-	0.2	0.8	1 435.6	22.5%	Indonesia
0.4	-	2.0	0.8	3.3	12.9%	1.8	-	-	96.2	82.5%	DPR of Korea
0.5	0.5	8.4	3.6	12.9	3.7%	0.0	0.1	0.4	251.6	52.4%	Malaysia
0.1	-	4.6	0.4	5.1	2.7%	-	-	-	61.8	14.9%	Mongolia
0.7	-	10.0	20.5	31.2	2.3%	-	-	-	561.8	2.7%	Myanmar
0.6	-	3.2	0.4	4.2	13.4%	-	-	-	28.8	17.5%	Nepal
3.1	0.7	17.8	3.2	24.8	12.4%	-	-	0.3	246.5	51.5%	Pakistan
1.2	0.0	8.9	2.2	12.2	9.6%	-	-	0.2	138.5	54.3%	Philippines
0.1	5.6	0.0	0.3	6.0	1.5%	0.7	0.4	0.3	50.4	82.1%	Singapore
0.3	-	1.4	0.4	2.0	12.4%	-	-	-	23.3	49.4%	Sri Lanka
3.7	0.4	13.5	2.5	20.1	18.7%	-	-	0.5	286.4	63.5%	Thailand
1.2	-	16.6	1.8	19.6	6.1%	-	-	-	153.9	39.6%	Vietnam
0.5	-	8.3	2.1	10.8	4.5%	0.0	-	-	97.8	14.8%	Other Asia
42.6	9.5	325.5	93.0	470.6	9.0%	10.8	6.8	7.6	5 717.6	42.5%	Asia
29.3	15.6	303.6	44.0	392.4	7.5%	38.1	8.0	10.8	4 997.8	69.2%	People's Rep. of China
0.2	-	-	0.3	0.5	32.9%	-	-	0.2	45.2	93.2%	Hong Kong, China
29.5	15.6	303.6	44.3	392.9	7.5%	38.1	8.0	10.9	5 042.9	69.4%	China

2000 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Bahrain	14.1	0.0	0.0	0.1	14.3	98.8%	2.1	0.0	0.3	0.0	2.4	86.6%
Islamic Rep. of Iran	316.7	19.4	12.4	0.8	349.2	96.2%	48.6	19.8	11.3	0.0	79.7	61.0%
Iraq	81.8	12.6	0.9	3.3	98.7	95.7%	16.1	2.8	3.4	0.0	22.3	72.3%
Jordan	14.3	-	1.1	0.0	15.5	92.4%	0.2	0.4	0.8	-	1.4	16.5%
Kuwait	49.1	3.5	0.7	0.0	53.4	98.6%	9.4	0.1	0.7	0.0	10.2	91.9%
Lebanon	14.1	-	1.2	0.1	15.4	91.7%	0.1	0.2	0.6	-	0.9	12.1%
Oman	19.8	4.1	0.6	18.0	42.4	56.2%	9.4	0.5	0.4	-	10.3	90.9%
Qatar	24.0	6.0	0.5	0.0	30.5	98.3%	12.6	0.1	0.4	0.0	13.1	96.0%
Saudi Arabia	252.4	6.8	8.2	0.3	267.8	96.8%	34.8	1.9	4.9	0.2	41.8	83.2%
Syrian Arab Republic	39.9	5.4	2.1	0.2	47.6	95.2%	8.0	2.7	1.9	-	12.6	63.1%
United Arab Emirates	85.8	2.6	2.7	0.1	91.2	96.9%	18.6	0.5	0.8	-	19.9	93.5%
Yemen	13.2	1.2	0.7	0.0	15.2	95.0%	1.9	2.7	1.5	-	6.1	31.5%
Middle East	925.3	61.6	31.1	23.0	1 041.1	94.8%	161.7	31.7	27.0	0.3	220.7	73.3%
Albania	3.2	0.0	0.0	0.6	3.8	82.8%	0.4	1.8	0.2	0.2	2.6	14.7%
Armenia	3.4	-	0.1	0.3	3.8	88.8%	1.3	0.9	0.4	0.0	2.6	50.9%
Azerbaijan	29.1	0.3	0.1	0.2	29.7	98.9%	4.3	4.1	1.5	0.0	10.0	43.5%
Belarus	58.7	0.0	1.4	43.0	103.1	56.9%	0.9	8.4	4.0	0.0	13.3	7.0%
Bosnia-Herzegovina	13.7	-	0.2	0.4	14.2	96.2%	0.9	1.0	0.3	0.5	2.7	35.3%
Bulgaria	42.0	0.9	2.7	0.3	46.0	93.3%	1.3	2.4	9.8	0.3	13.8	9.3%
Croatia	17.7	0.0	1.5	0.0	19.2	92.1%	1.9	1.1	0.9	0.0	3.9	47.2%
Cyprus	6.3	-	0.6	0.0	6.9	91.5%	0.0	0.3	0.3	-	0.6	3.8%
Georgia	4.6	0.0	0.2	0.3	5.1	90.9%	1.4	2.1	0.6	0.0	4.1	33.3%
Gibraltar	0.4	-	-	0.0	0.4	99.9%	0.0	-	0.0	-	0.0	11.9%
Kazakhstan	112.5	13.5	2.1	0.6	128.7	97.9%	23.3	9.4	3.8	2.1	38.6	60.3%
Kyrgyzstan	4.5	0.0	0.2	0.5	5.2	85.9%	0.3	2.5	0.7	0.0	3.5	7.3%
Latvia	6.8	-	0.2	4.6	11.7	58.5%	1.4	0.8	0.6	0.0	2.8	49.1%
Lithuania	11.2	0.0	0.3	6.0	17.6	63.9%	1.8	1.9	1.3	0.0	5.0	36.3%
FYR of Macedonia	8.4	-	0.2	0.1	8.7	96.3%	0.5	0.7	0.3	0.0	1.5	30.5%
Malta	2.1	-	0.0	0.0	2.1	99.5%	0.0	0.1	0.2	-	0.2	1.0%
Republic of Moldova	6.5	-	0.1	0.1	6.7	96.2%	1.7	1.1	0.4	0.0	3.3	51.3%
Romania	86.3	1.1	4.9	1.5	93.7	93.2%	12.2	8.4	4.4	0.1	25.1	48.6%
Russian Federation	1 505.5	68.0	43.6	380.0	1 997.1	78.8%	337.3	58.1	49.2	21.0	465.5	72.5%
Serbia	42.5	0.0	1.2	0.7	44.4	95.8%	3.3	4.0	1.2	0.2	8.7	37.8%
Tajikistan	2.2	-	0.0	0.1	2.3	96.4%	0.5	2.1	0.7	0.0	3.3	13.7%
Turkmenistan	36.2	2.0	0.2	0.4	38.9	98.3%	16.3	4.2	0.8	0.0	21.2	76.6%
Ukraine	292.0	31.6	15.6	7.8	347.0	93.3%	54.8	20.8	9.5	0.2	85.2	64.3%
Uzbekistan	117.6	2.3	1.8	1.6	123.2	97.3%	22.8	11.0	3.2	0.0	37.1	61.6%
Non-OECD Europe and Eurasia	2 413.2	119.7	77.3	449.2	3 059.4	82.8%	488.4	147.1	94.2	24.8	754.6	64.7%
Argentina	139.0	1.9	4.2	9.2	154.3	91.3%	16.3	71.6	9.2	2.0	99.1	16.4%
Bolivia	7.3	0.7	0.4	131.2	139.6	5.7%	3.2	10.6	1.2	4.8	19.8	16.0%
Brazil	302.8	4.6	20.8	606.8	935.0	32.9%	27.7	245.5	53.8	16.0	343.0	8.1%
Colombia	58.7	1.4	5.1	41.4	106.6	56.4%	10.7	36.7	5.9	1.8	55.1	19.5%
Costa Rica	4.5	-	0.5	0.1	5.1	88.2%	0.2	2.2	0.5	-	2.9	6.9%
Cuba	26.5	1.3	0.7	3.5	32.0	86.6%	1.1	7.0	2.5	-	10.6	10.3%
Dominican Republic	17.4	-	1.3	0.4	19.1	91.4%	1.0	3.7	1.5	-	6.2	16.5%
Ecuador	18.5	2.2	1.1	0.9	22.8	91.2%	2.9	8.4	1.6	0.0	12.8	22.3%
El Salvador	5.2	-	0.4	0.2	5.9	88.7%	0.4	1.4	1.0	-	2.8	14.1%
Guatemala	8.8	0.0	0.8	108.5	118.0	7.5%	1.0	8.1	1.3	9.0	19.4	5.1%
Haiti	1.4	-	0.2	0.0	1.6	86.6%	0.7	2.3	1.2	-	4.1	17.5%
Honduras	4.4	-	0.4	3.3	8.2	54.0%	0.3	2.5	0.7	-	3.4	9.2%
Jamaica	9.7	-	0.4	0.1	10.2	95.0%	0.3	0.6	0.5	-	1.4	19.6%
Netherlands Antilles	4.1	-	-	0.0	4.1	98.9%	0.1	0.0	0.0	-	0.1	55.6%
Nicaragua	3.5	-	0.2	0.4	4.1	85.4%	0.4	4.2	1.0	-	5.6	6.5%
Panama	4.5	-	0.3	0.4	5.3	86.2%	0.2	2.1	0.5	-	2.8	5.8%
Paraguay	3.3	-	0.3	26.3	29.9	10.9%	0.7	12.4	1.0	1.1	15.2	4.8%
Peru	26.5	0.3	1.6	20.7	49.2	54.6%	1.5	10.1	3.7	1.0	16.3	9.3%
Trinidad and Tobago	21.1	0.2	0.4	0.0	21.6	98.2%	4.3	0.1	1.0	0.1	5.5	77.6%
Uruguay	5.3	0.0	0.3	0.4	6.0	87.8%	0.2	17.2	0.8	-	18.2	0.8%
Venezuela	126.7	6.7	3.9	38.6	175.9	75.9%	28.4	22.2	5.3	1.6	57.5	49.4%
Other Latin America	15.1	-	0.9	16.8	32.8	46.1%	0.2	2.4	2.5	0.2	5.2	3.8%
Latin America	814.4	19.3	44.4	1 009.3	1 887.4	44.2%	101.6	471.3	96.6	37.5	707.1	14.4%

2000 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O				Share of energy	HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total		Industrial processes	Total	Share of energy			
0.0	-	0.0	0.1	0.1	26.8%	-	0.2	-	17.0	95.3%	Bahrain
2.1	0.5	18.4	3.1	24.1	8.8%	-	0.1	1.7	454.8	85.0%	Islamic Rep. of Iran
0.3	-	3.3	0.8	4.5	7.4%	-	-	0.2	125.6	88.3%	Iraq
0.1	-	0.3	0.2	0.6	8.5%	0.0	-	-	17.5	83.3%	Jordan
0.1	-	0.1	0.3	0.5	27.9%	0.1	-	0.4	64.6	96.2%	Kuwait
0.1	-	0.3	0.2	0.6	14.0%	-	-	-	16.9	84.6%	Lebanon
0.1	-	0.3	0.1	0.5	14.8%	0.0	-	-	53.2	62.5%	Oman
0.1	-	0.1	0.1	0.3	26.9%	-	-	-	43.9	97.2%	Qatar
0.9	-	2.8	2.4	6.0	14.4%	0.1	-	1.3	316.9	93.1%	Saudi Arabia
0.3	0.2	3.6	0.6	4.7	6.1%	-	-	-	64.9	82.5%	Syrian Arab Republic
0.2	-	0.5	0.5	1.1	15.5%	-	0.2	0.7	113.2	94.8%	United Arab Emirates
0.2	-	2.1	0.4	2.7	9.2%	-	-	-	24.0	69.1%	Yemen
4.5	0.7	31.8	8.7	45.7	9.8%	0.3	0.6	4.1	1 312.4	87.9%	Middle East
0.1	-	0.7	0.5	1.3	5.6%	0.0	-	-	7.7	47.0%	Albania
0.0	-	0.4	0.1	0.5	1.1%	0.0	-	-	6.9	68.3%	Armenia
0.1	-	1.6	0.4	2.0	3.9%	0.0	0.0	-	41.8	81.0%	Azerbaijan
0.5	1.7	8.1	0.6	10.8	4.2%	0.1	0.0	-	127.4	47.2%	Belarus
0.2	-	0.7	0.9	1.7	9.7%	0.1	0.3	-	19.0	77.6%	Bosnia-Herzegovina
0.3	1.0	2.2	0.9	4.4	6.8%	0.1	0.0	-	64.3	69.2%	Bulgaria
0.2	0.9	1.5	0.3	2.9	7.6%	0.0	0.1	-	26.1	75.7%	Croatia
0.0	-	0.2	0.1	0.3	9.7%	0.1	-	-	7.8	81.4%	Cyprus
0.1	0.6	1.1	0.2	2.0	3.4%	0.0	-	-	11.2	54.1%	Georgia
0.0	-	-	0.0	0.0	28.9%	-	-	-	0.4	97.1%	Gibraltar
1.9	-	9.8	4.2	16.0	12.0%	0.1	-	-	183.3	82.5%	Kazakhstan
0.1	-	1.2	0.3	1.6	8.0%	0.0	-	-	10.2	47.2%	Kyrgyzstan
0.1	-	0.9	0.2	1.2	11.5%	0.2	0.0	-	15.9	52.7%	Latvia
0.1	1.3	2.0	0.2	3.7	3.0%	0.2	0.0	-	26.4	49.8%	Lithuania
0.1	-	0.4	0.2	0.7	8.5%	0.1	-	-	10.9	81.6%	FYR of Macedonia
0.0	-	0.0	0.0	0.1	10.3%	0.1	-	-	2.5	85.8%	Malta
0.0	-	0.6	0.2	0.8	5.2%	0.0	-	-	10.8	76.0%	Republic of Moldova
0.7	3.2	6.0	1.5	11.3	6.5%	0.1	0.7	0.0	130.9	76.6%	Romania
7.3	10.2	36.1	39.6	93.2	7.8%	16.8	24.9	9.0	2 606.5	73.6%	Russian Federation
0.4	0.5	2.5	0.7	4.2	10.7%	1.7	0.3	-	59.2	78.1%	Serbia
0.0	-	0.9	0.2	1.1	1.0%	0.0	0.8	-	7.4	35.4%	Tajikistan
0.1	0.5	2.1	0.2	2.9	2.1%	0.0	-	-	63.0	86.5%	Turkmenistan
1.1	8.8	12.0	2.7	24.6	4.5%	0.1	0.2	0.2	457.3	83.0%	Ukraine
0.6	0.1	7.5	1.0	9.2	6.7%	0.2	-	-	169.7	84.4%	Uzbekistan
14.1	28.8	98.3	55.1	196.4	7.2%	19.8	27.4	9.2	4 066.7	74.6%	Non-OECD Europe and Eurasia
1.4	0.1	36.0	4.4	42.0	3.4%	0.1	0.1	0.2	295.8	53.6%	Argentina
0.1	-	5.5	5.8	11.3	0.8%	-	-	-	170.7	6.6%	Bolivia
5.1	7.7	122.7	32.1	167.6	3.0%	0.1	4.1	0.8	1 450.6	23.4%	Brazil
0.6	0.3	17.1	2.9	20.9	3.1%	-	0.0	0.0	182.6	39.1%	Colombia
0.1	0.1	1.3	0.2	1.7	5.0%	0.0	-	-	9.7	49.3%	Costa Rica
0.4	0.6	5.7	0.6	7.3	5.5%	0.0	-	-	50.0	58.6%	Cuba
0.2	-	1.6	0.4	2.2	8.4%	-	-	-	27.5	67.7%	Dominican Republic
0.2	-	3.5	0.4	4.1	3.8%	0.0	-	-	39.7	59.9%	Ecuador
0.1	-	1.0	0.2	1.4	7.8%	0.0	-	-	10.1	56.7%	El Salvador
0.3	-	8.2	6.0	14.4	1.8%	0.2	-	-	152.0	6.6%	Guatemala
0.1	-	1.2	0.1	1.4	5.3%	-	-	-	7.2	30.8%	Haiti
0.1	-	2.6	0.4	3.1	2.8%	-	-	-	14.8	32.7%	Honduras
0.1	-	0.4	0.2	0.6	8.9%	0.0	-	-	12.3	82.0%	Jamaica
0.0	-	0.0	0.1	0.1	15.5%	-	-	-	4.3	96.3%	Netherlands Antilles
0.1	-	2.9	0.3	3.3	2.7%	-	-	-	13.0	30.6%	Nicaragua
0.0	-	0.9	0.1	1.0	4.7%	-	-	-	9.1	52.1%	Panama
0.2	-	6.1	1.5	7.8	1.9%	-	-	-	52.9	7.8%	Paraguay
0.2	0.0	5.9	1.6	7.7	3.1%	0.1	-	-	73.3	39.0%	Peru
0.0	-	0.1	0.1	0.2	10.5%	-	-	-	27.4	93.3%	Trinidad and Tobago
0.1	-	6.1	0.1	6.3	1.6%	0.0	-	-	30.6	18.2%	Uruguay
0.5	0.0	10.1	2.6	13.2	3.7%	0.5	0.5	0.2	247.8	65.5%	Venezuela
0.1	-	2.4	0.8	3.2	3.2%	0.0	0.0	0.0	41.3	37.3%	Other Latin America
9.9	8.9	241.2	61.0	320.9	3.1%	1.1	4.7	1.2	2 922.5	32.3%	Latin America

2005 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
World *	27 188.3	452.9	1 311.6	7 084.9	36 037.7	76.7%	2 533.7	3 170.3	1 225.4	283.9	7 213.3	35.1%
<i>Annex I Parties</i>	14 149.8	177.7	412.3	667.7	15 407.5	93.0%	912.3	663.2	446.3	20.9	2 042.7	44.7%
<i>Annex II Parties</i>	11 327.7	49.8	282.2	333.6	11 993.3	94.9%	404.7	526.0	306.1	11.4	1 248.2	32.4%
<i>North America</i>	6 330.5	22.0	87.8	111.9	6 552.2	97.0%	256.5	216.7	162.9	6.4	642.5	39.9%
<i>Europe</i>	3 353.9	18.5	131.1	163.3	3 666.8	92.0%	106.0	184.1	122.1	1.8	414.0	25.6%
<i>Asia Oceania</i>	1 643.3	9.3	63.3	58.4	1 774.3	93.1%	42.1	125.2	21.2	3.2	191.8	22.0%
<i>Annex I EIT</i>	2 603.0	125.6	106.8	332.7	3 168.1	86.1%	497.2	115.5	107.7	9.4	729.8	68.1%
<i>Non-Annex I Parties</i>	12 074.5	275.2	899.3	6 417.3	19 666.3	62.8%	1 620.3	2 507.1	779.1	263.0	5 169.5	31.3%
<i>Annex I Kyoto Parties</i>	8 097.0	156.4	309.1	554.6	9 117.1	90.5%	690.4	442.8	277.2	17.7	1 428.2	48.3%
Int. marine bunkers	556.1	-	-	-	556.1	100.0%	1.0	-	-	-	1.0	100%
Int. aviation bunkers	407.8	-	-	-	407.8	100.0%	0.1	-	-	-	0.1	100%
Non-OECD Total	13 168.7	381.1	936.8	6 658.6	21 145.1	64.1%	2 013.1	2 522.7	827.1	269.9	5 632.9	35.7%
OECD Total	13 055.6	71.9	374.8	426.3	13 928.6	94.2%	519.5	647.6	398.3	14.0	1 579.3	32.9%
Canada	558.8	3.0	10.2	42.8	614.9	91.4%	46.0	26.1	31.2	3.3	106.7	43.2%
Chile	58.5	0.4	1.9	0.3	61.1	96.3%	4.5	7.2	6.4	0.2	18.2	24.6%
Mexico	385.5	3.7	19.8	52.0	460.9	84.4%	36.5	54.3	20.4	2.1	113.3	32.2%
United States	5 771.7	19.0	77.7	69.1	5 937.4	97.5%	210.5	190.6	131.7	3.1	535.8	39.3%
OECD Americas	6 774.5	26.1	109.5	164.2	7 074.3	96.1%	297.5	278.2	189.6	8.7	774.0	38.4%
Australia	389.1	3.5	6.1	22.6	421.3	93.2%	37.7	70.1	11.4	2.8	122.0	30.9%
Israel	60.2	0.0	2.3	0.2	62.7	96.0%	0.7	1.1	1.7	0.0	3.5	19.6%
Japan	1 220.7	5.7	56.6	30.7	1 313.7	93.4%	3.5	30.2	8.3	0.3	42.2	8.2%
Korea	467.9	11.0	27.8	0.5	507.2	94.4%	6.4	12.3	13.2	0.1	32.0	20.0%
New Zealand	33.6	0.1	0.5	5.1	39.3	85.6%	1.0	24.9	1.6	0.0	27.5	3.6%
OECD Asia Oceania	2 171.4	20.3	93.4	59.1	2 344.2	93.5%	49.2	138.6	36.1	3.3	227.2	21.7%
Austria	75.0	0.5	3.8	0.5	79.8	94.6%	1.8	4.1	2.4	0.0	8.4	21.9%
Belgium	112.6	0.1	5.2	0.6	118.5	95.1%	1.2	5.7	2.7	0.0	9.6	12.7%
Czech Republic	119.6	3.7	3.9	1.0	128.1	96.2%	5.0	3.9	3.2	0.0	12.0	41.4%
Denmark	48.3	0.4	1.6	3.0	53.3	91.3%	1.3	5.2	1.5	-	8.0	16.4%
Estonia	16.9	-	0.4	10.3	27.5	61.3%	0.9	0.6	0.7	-	2.2	41.3%
Finland	55.3	0.5	1.3	51.3	108.4	51.5%	0.8	2.0	6.9	0.0	9.8	8.3%
France	388.4	2.8	21.3	7.6	420.2	93.1%	34.4	36.9	11.5	0.1	82.9	41.5%
Germany	811.8	3.7	20.9	35.4	871.9	93.5%	16.5	29.6	15.4	0.2	61.7	26.7%
Greece	95.0	0.0	7.6	0.4	103.0	92.2%	1.9	3.6	2.6	0.0	8.2	23.3%
Hungary	56.4	0.3	2.0	1.0	59.7	94.9%	2.3	2.6	2.9	0.0	7.9	29.4%
Iceland	2.2	-	0.1	17.6	19.8	11.0%	0.0	0.2	0.1	0.0	0.3	1.2%
Ireland	43.6	-	2.4	8.9	54.8	79.5%	1.8	11.8	1.4	0.0	15.0	12.1%
Italy	460.8	0.6	25.3	2.3	489.1	94.4%	6.1	16.2	17.7	0.1	40.1	15.2%
Luxembourg	11.3	-	0.5	0.0	11.9	95.3%	0.1	0.9	0.1	0.0	1.1	10.6%
Netherlands	182.7	0.7	1.5	6.5	191.3	95.8%	5.0	9.2	6.9	0.1	21.3	23.7%
Norway	36.3	1.2	0.9	0.7	39.2	95.8%	12.4	2.1	2.3	0.1	16.9	73.2%
Poland	292.9	0.5	7.3	25.4	326.2	90.0%	46.2	15.4	9.0	0.0	70.6	65.4%
Portugal	62.8	0.0	4.5	0.3	67.7	92.8%	1.6	4.3	6.9	0.8	13.6	11.8%
Slovak Republic	38.1	0.2	2.2	0.4	40.8	93.6%	0.8	1.5	1.7	0.0	4.1	20.4%
Slovenia	15.6	-	1.7	0.3	17.6	88.8%	1.1	1.1	0.7	0.0	3.0	37.4%
Spain	339.7	1.1	20.9	1.5	363.2	93.8%	4.0	20.6	11.3	0.4	36.3	11.0%
Sweden	50.3	0.9	2.1	14.6	67.9	75.4%	1.2	3.2	7.1	0.0	11.5	10.3%
Switzerland	44.6	0.0	1.9	0.4	47.0	95.1%	0.9	3.2	0.8	0.0	5.0	19.2%
Turkey	216.4	2.3	23.3	1.4	243.3	89.9%	10.4	21.6	32.3	0.1	64.4	16.2%
United Kingdom	533.1	5.9	9.4	11.4	559.8	96.3%	14.8	25.1	24.4	0.0	64.4	23.0%
OECD Europe	4 109.7	25.4	171.9	203.0	4 510.1	91.7%	172.8	230.8	172.6	2.0	578.1	29.9%
<i>European Union - 27</i>	3 978.9	22.9	157.5	195.3	4 354.6	91.9%	165.9	217.5	153.9	2.0	539.3	30.8%

* Total World includes Non-OECD total, OECD total as well as international bunkers.

Sources: IEA, Sectoral Approach for CO₂ emissions from fuel combustion. EDGAR 4 database for other emissions. In general, estimates for emissions other than CO₂ from fuel combustion are subject to significantly larger uncertainties.

2005 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O					Share of energy	HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total	Share of energy					Industrial processes	Total		Share of energy
313.1	163.7	1 953.7	566.9	2 997.4	10.4%	534.8	93.3	131.2	47 007.7	64.9%	World *	
144.6	123.0	537.2	141.5	946.3	15.3%	347.2	64.2	73.5	18 881.3	81.5%	Annex I Parties	
122.5	78.1	420.7	103.6	724.8	16.9%	312.3	35.4	62.0	14 376.1	82.8%	Annex II Parties	
80.4	27.5	202.6	50.3	360.8	22.3%	198.2	15.2	46.1	7 815.1	85.6%	North America	
27.8	45.7	148.6	35.9	258.0	10.8%	67.4	11.5	10.9	4 428.5	79.2%	Europe	
14.3	4.9	69.4	17.4	106.0	13.5%	46.6	8.7	5.0	2 132.4	80.1%	Asia Oceania	
18.5	41.1	94.8	34.4	188.8	9.8%	32.0	28.2	9.8	4 156.8	78.1%	Annex I EIT	
139.5	40.7	1 416.5	425.4	2 022.0	6.9%	187.6	29.1	57.7	27 132.3	52.0%	Non-Annex I Parties	
67.3	91.6	328.0	94.3	581.1	11.6%	157.5	54.6	29.9	11 368.5	79.3%	Annex I Kyoto Parties	
22.7	-	-	-	22.7	100%	-	-	-	579.8	100.0%	Int. marine bunkers	
6.4	-	-	-	6.4	100%	-	-	-	414.3	100.0%	Int. aviation bunkers	
142.6	68.2	1 440.1	442.8	2 093.7	6.8%	201.7	53.7	61.7	29 188.8	53.8%	Non-OECD Total	
141.4	95.5	513.6	124.1	874.6	16.2%	333.2	39.6	69.5	16 824.8	82.0%	OECD Total	
7.2	2.1	23.6	7.2	40.2	18.0%	11.9	6.2	4.2	784.1	78.5%	Canada	
0.8	0.9	6.0	0.9	8.6	9.6%	-	0.0	0.0	87.9	73.0%	Chile	
3.4	1.2	31.9	7.1	43.6	7.8%	7.1	-	0.4	625.4	68.6%	Mexico	
73.1	25.4	179.0	43.1	320.6	22.8%	186.3	9.0	42.0	7 031.0	86.4%	United States	
84.6	29.6	240.5	58.4	413.0	20.5%	205.3	15.2	46.5	8 528.4	84.2%	OECD Americas	
4.7	1.8	48.9	7.7	63.0	7.4%	5.1	0.8	0.5	612.9	71.0%	Australia	
0.3	0.2	0.9	0.6	2.0	14.0%	1.3	0.1	0.6	70.2	87.2%	Israel	
9.2	3.1	8.3	9.4	30.0	30.6%	40.8	7.6	4.5	1 438.8	86.1%	Japan	
3.3	2.2	4.9	3.6	14.0	23.3%	4.9	2.5	4.6	565.2	86.4%	Korea	
0.5	-	12.2	0.3	13.0	3.5%	0.7	0.2	0.1	80.7	43.4%	New Zealand	
17.9	7.4	75.2	21.6	122.0	14.6%	52.9	11.2	10.2	2 767.8	81.6%	OECD Asia Oceania	
0.8	0.3	2.3	0.8	4.2	19.1%	1.9	0.2	0.2	94.7	82.5%	Austria	
0.8	3.9	2.9	1.2	8.8	8.9%	1.9	0.0	0.1	138.9	82.6%	Belgium	
2.4	1.1	3.3	0.9	7.6	31.2%	1.1	0.0	0.0	148.8	87.8%	Czech Republic	
0.6	-	4.6	0.6	5.8	10.1%	1.2	0.0	0.0	68.4	73.9%	Denmark	
0.2	-	0.6	0.2	1.0	23.3%	0.0	0.0	0.0	30.7	58.6%	Estonia	
1.9	1.6	3.0	0.6	7.1	26.5%	0.8	0.0	0.1	126.1	46.4%	Finland	
4.0	6.9	32.8	4.6	48.2	8.2%	12.7	0.7	1.6	566.3	75.9%	France	
5.9	10.4	29.5	5.7	51.5	11.4%	14.7	1.4	5.4	1 006.6	83.2%	Germany	
1.0	0.5	3.5	1.0	6.0	16.0%	1.9	0.1	0.1	119.4	82.0%	Greece	
0.3	1.8	4.2	0.7	7.0	4.8%	1.2	0.3	0.0	76.1	78.0%	Hungary	
0.0	0.0	0.3	0.0	0.4	10.2%	0.0	0.1	0.0	20.7	10.7%	Iceland	
0.3	-	6.8	0.4	7.5	4.4%	0.9	0.2	0.1	78.4	58.3%	Ireland	
3.3	7.5	12.5	5.3	28.7	11.6%	9.1	0.4	0.9	568.2	82.9%	Italy	
0.1	-	0.3	0.1	0.5	20.0%	0.1	0.0	-	13.5	85.4%	Luxembourg	
0.9	5.6	5.8	1.3	13.5	6.4%	3.1	0.4	0.1	229.7	82.4%	Netherlands	
0.4	1.9	1.8	0.8	5.0	7.4%	0.3	4.6	0.3	66.3	75.9%	Norway	
4.1	4.8	17.4	2.6	29.0	14.2%	1.7	0.6	0.2	428.3	80.2%	Poland	
0.7	0.5	2.6	2.1	6.0	11.8%	0.6	0.0	0.1	88.1	73.9%	Portugal	
0.4	1.2	1.3	0.3	3.3	13.4%	0.3	0.1	-	48.6	81.4%	Slovak Republic	
0.2	-	0.8	0.2	1.1	13.3%	0.4	0.1	0.0	22.1	76.1%	Slovenia	
3.0	1.7	16.6	5.0	26.3	11.4%	6.3	2.0	0.7	434.8	80.0%	Spain	
1.1	0.5	3.5	0.8	5.9	19.0%	1.1	0.7	0.2	87.4	61.3%	Sweden	
0.4	0.1	1.4	0.5	2.5	17.5%	1.6	0.1	0.3	56.4	81.7%	Switzerland	
3.6	3.9	21.8	3.4	32.6	10.9%	2.9	0.5	1.6	345.4	67.4%	Turkey	
2.7	4.1	18.4	5.0	30.2	9.0%	9.0	0.6	0.6	664.5	83.7%	United Kingdom	
39.0	58.5	197.9	44.1	339.6	11.5%	75.0	13.1	12.7	5 528.6	78.6%	OECD Europe	
35.9	58.4	184.4	41.8	320.5	11.2%	72.7	8.2	10.4	5 305.8	79.2%	European Union - 27	

2005 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Non-OECD Total	13 168.7	381.1	936.8	6 658.6	21 145.1	64.1%	2 013.1	2 522.7	827.1	269.9	5 632.9	35.7%
Algeria	78.5	11.3	5.5	0.2	95.5	94.0%	36.5	4.5	4.7	0.0	45.6	80.0%
Angola	7.0	8.5	0.5	5.6	21.6	71.6%	10.6	3.9	1.9	0.0	16.4	64.6%
Benin	2.7	-	0.1	20.2	23.0	11.5%	0.9	2.0	1.0	0.5	4.4	20.5%
Botswana	4.4	-	0.2	0.4	5.0	88.4%	0.5	3.9	0.3	0.0	4.7	10.2%
Cameroon	2.9	1.7	0.4	35.6	40.6	11.5%	2.2	8.0	2.5	0.9	13.7	16.3%
Congo	0.9	3.2	0.0	37.6	41.7	9.8%	3.8	1.8	0.5	1.5	7.7	49.9%
Dem. Rep. of Congo	2.3	0.0	0.2	833.8	836.3	0.3%	5.9	14.1	6.3	31.3	57.7	10.3%
Côte d'Ivoire	5.8	0.1	0.3	114.3	120.5	4.9%	3.3	2.0	2.4	4.8	12.5	26.4%
Egypt	151.9	3.1	14.4	1.1	170.5	90.9%	24.7	14.8	8.3	0.0	47.8	51.6%
Eritrea	0.6	-	0.0	0.0	0.6	94.6%	0.4	1.8	0.4	-	2.6	16.1%
Ethiopia	4.8	-	0.7	0.6	6.1	79.0%	7.8	38.3	6.9	-	53.0	14.7%
Gabon	2.1	4.2	0.1	6.2	12.6	50.2%	3.5	0.1	0.3	0.4	4.3	81.5%
Ghana	6.4	-	0.8	9.6	16.8	38.1%	2.9	3.7	2.9	0.4	10.0	29.6%
Kenya	7.2	-	1.1	3.8	12.1	59.8%	7.2	14.5	3.9	-	25.6	28.2%
Libyan Arab Jamahiriya	42.5	8.3	1.7	0.1	52.6	96.5%	14.3	0.8	1.1	0.0	16.3	87.7%
Morocco	38.6	-	4.6	0.3	43.5	88.7%	0.9	5.5	4.2	0.0	10.6	8.3%
Mozambique	1.5	-	0.2	34.9	36.6	4.1%	3.4	6.0	2.3	2.0	13.7	25.0%
Namibia	2.9	-	0.0	0.0	2.9	98.5%	0.1	4.9	0.2	0.0	5.3	2.3%
Nigeria	50.4	37.6	1.1	8.1	97.2	90.5%	43.3	26.1	14.5	0.2	84.1	51.5%
Senegal	4.6	-	1.1	0.1	5.8	79.9%	1.2	5.0	1.6	-	7.7	15.0%
South Africa	330.3	15.6	6.3	4.7	356.9	96.9%	30.5	20.0	12.5	2.4	65.3	46.6%
Sudan	10.0	0.0	0.1	4.1	14.2	70.5%	6.6	58.9	5.2	-	70.7	9.3%
United Rep. of Tanzania	5.1	0.0	0.6	65.1	70.9	7.3%	5.1	20.7	4.2	3.6	33.6	15.3%
Togo	1.0	-	0.3	7.4	8.7	11.2%	1.5	1.2	0.7	0.4	3.7	39.6%
Tunisia	19.5	0.5	3.1	0.2	23.3	85.9%	3.6	2.1	1.5	0.0	7.2	50.0%
Zambia	2.1	-	0.3	124.2	126.6	1.6%	2.4	12.3	1.2	5.4	21.2	11.1%
Zimbabwe	10.4	0.4	0.3	1.0	12.0	89.6%	1.1	7.1	1.5	0.0	9.7	11.4%
Other Africa	25.0	2.5	1.1	246.7	275.2	10.0%	26.1	105.7	17.3	9.6	158.6	16.4%
Africa	821.7	96.8	45.1	1 565.8	2 529.4	36.3%	250.3	389.7	110.2	63.4	813.6	30.8%
Bangladesh	36.5	-	2.3	7.6	46.4	78.7%	9.7	66.5	17.9	0.1	94.2	10.3%
Brunei Darussalam	5.1	0.2	0.1	12.1	17.5	30.1%	3.9	0.0	0.1	0.5	4.5	86.2%
Cambodia	3.7	-	-	31.1	34.8	10.7%	1.2	15.5	1.6	2.3	20.5	5.6%
Chinese Taipei	258.9	0.7	10.0	0.9	270.6	96.0%	1.4	1.1	5.8	0.0	8.3	17.0%
India	1 160.4	19.5	60.4	48.7	1 289.0	91.5%	93.5	375.9	113.3	1.8	584.5	16.0%
Indonesia	336.4	5.6	15.4	2 054.9	2 412.4	14.2%	49.0	98.3	50.8	61.6	259.7	18.9%
DPR of Korea	74.3	-	3.0	2.7	79.9	92.9%	11.8	4.3	3.2	0.1	19.3	60.9%
Malaysia	152.8	3.2	8.1	113.2	277.3	56.3%	22.1	5.8	5.7	2.8	36.5	60.7%
Mongolia	9.5	0.0	0.1	42.8	52.4	18.1%	0.4	5.6	0.3	0.0	6.3	5.9%
Myanmar	13.4	0.0	0.2	387.8	401.5	3.3%	9.7	54.3	6.4	7.8	78.2	12.4%
Nepal	3.0	-	0.1	0.2	3.4	89.4%	1.4	18.4	2.5	0.0	22.3	6.4%
Pakistan	117.2	2.0	7.7	0.4	127.4	93.6%	34.1	87.0	17.6	0.1	138.7	24.6%
Philippines	71.3	0.0	6.9	2.2	80.4	88.7%	5.6	33.6	14.0	0.0	53.2	10.5%
Singapore	44.1	0.2	0.1	0.4	44.8	98.9%	1.4	0.0	0.9	0.0	2.3	60.7%
Sri Lanka	13.4	-	0.7	0.5	14.6	92.2%	0.6	6.7	3.0	-	10.3	6.1%
Thailand	219.1	0.0	17.4	13.0	249.4	87.8%	19.1	56.1	13.7	0.5	89.4	21.3%
Vietnam	80.8	1.1	14.9	9.9	106.7	76.7%	28.1	55.1	10.9	0.3	94.3	29.8%
Other Asia	15.6	0.6	0.4	68.7	85.2	19.0%	2.9	18.6	5.1	1.9	28.4	10.1%
Asia	2 615.5	33.2	147.8	2 797.0	5 593.6	47.4%	295.8	902.8	272.5	79.7	1 550.8	19.1%
People's Rep. of China	5 062.4	28.3	556.1	109.6	5 756.3	88.4%	606.0	516.9	201.6	3.3	1 327.8	45.6%
Hong Kong, China	40.7	1.5	0.4	0.1	42.8	98.8%	0.8	-	2.1	-	2.8	26.8%
China	5 103.1	29.7	556.5	109.7	5 799.0	88.5%	606.8	516.9	203.7	3.3	1 330.6	45.6%

2005 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O				Share of energy	HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total		Industrial processes	Total	Share of energy			
142.6	68.2	1 440.1	442.8	2 093.7	6.8%	201.7	53.7	61.7	29 188.8	53.8%	Non-OECD Total
0.4	0.7	2.9	0.9	4.9	8.2%	0.2	-	0.3	146.5	86.5%	Algeria
0.2	-	2.6	0.3	3.1	6.6%	0.0	-	-	41.1	63.9%	Angola
0.1	-	1.8	1.0	2.9	4.2%	-	-	-	30.3	12.1%	Benin
0.1	-	2.8	0.2	3.1	2.9%	-	-	-	12.8	39.1%	Botswana
0.2	-	6.8	2.0	9.0	2.6%	-	0.4	-	63.8	11.2%	Cameroon
0.1	-	1.8	1.7	3.6	1.9%	0.0	-	-	53.0	15.1%	Congo
1.3	-	16.3	37.1	54.7	2.3%	-	-	-	948.7	1.0%	Dem. Rep. of Congo
0.2	-	2.1	5.1	7.5	3.1%	-	-	-	140.4	6.7%	Côte d'Ivoire
1.3	3.2	15.2	2.3	22.0	6.0%	0.3	1.7	1.1	243.4	74.4%	Egypt
0.0	-	1.1	0.1	1.2	4.1%	-	-	-	4.4	24.1%	Eritrea
1.6	-	26.8	1.9	30.3	5.3%	0.0	-	-	89.3	15.9%	Ethiopia
0.0	-	0.1	0.3	0.5	10.2%	0.0	-	-	17.4	56.9%	Gabon
0.4	-	3.4	1.0	4.8	9.3%	0.0	0.0	-	31.6	31.0%	Ghana
0.6	-	9.4	0.6	10.6	5.7%	-	-	-	48.3	31.2%	Kenya
0.2	-	0.7	0.5	1.3	11.9%	-	-	0.3	70.5	92.5%	Libyan Arab Jamahiriya
0.5	-	4.8	0.8	6.1	8.0%	-	-	-	60.2	66.4%	Morocco
0.3	-	6.5	2.5	9.3	3.5%	0.1	0.2	-	60.0	8.8%	Mozambique
0.1	-	3.5	0.2	3.9	3.4%	-	-	-	12.1	26.2%	Namibia
2.0	-	16.6	3.0	21.6	9.4%	0.3	-	0.3	203.5	65.5%	Nigeria
0.1	-	3.6	0.4	4.0	3.0%	-	-	-	17.5	33.8%	Senegal
2.9	2.1	14.4	5.8	25.2	11.5%	0.5	0.5	1.5	450.0	84.3%	South Africa
0.6	-	44.8	3.3	48.7	1.3%	-	-	-	133.6	12.9%	Sudan
0.6	-	16.7	4.2	21.4	2.7%	-	-	-	125.9	8.6%	United Rep. of Tanzania
0.1	-	1.1	0.5	1.7	6.7%	-	-	-	14.2	18.1%	Togo
0.2	0.3	1.6	0.3	2.4	9.0%	-	-	-	32.9	72.4%	Tunisia
0.2	0.4	17.4	6.7	24.7	1.0%	0.0	-	-	172.5	2.7%	Zambia
0.2	-	5.1	0.4	5.7	3.9%	-	-	-	27.4	44.1%	Zimbabwe
3.0	-	77.4	16.6	97.1	3.1%	0.1	-	-	531.0	10.6%	Other Africa
17.9	6.8	306.9	99.7	431.3	4.1%	1.6	2.9	3.6	3 782.2	31.4%	Africa
1.6	-	17.8	2.1	21.5	7.4%	-	-	-	162.0	29.5%	Bangladesh
0.0	-	0.1	0.6	0.7	1.7%	0.3	-	-	22.9	40.1%	Brunei Darussalam
0.3	-	3.8	2.0	6.1	4.1%	-	-	-	61.3	8.4%	Cambodia
1.3	0.7	1.7	1.4	5.1	25.9%	0.1	3.2	3.3	290.6	90.3%	Chinese Taipei
26.0	1.8	156.3	27.2	211.2	12.3%	9.8	1.1	4.6	2 100.2	61.9%	India
4.5	0.2	80.8	71.1	156.6	2.9%	-	0.1	0.9	2 829.7	14.0%	Indonesia
0.5	-	2.1	0.8	3.4	13.7%	2.8	-	-	105.4	82.1%	DPR of Korea
0.7	0.4	9.7	4.5	15.3	4.6%	0.0	0.3	0.6	330.2	54.2%	Malaysia
0.1	-	3.3	0.2	3.5	3.4%	-	-	-	62.2	16.0%	Mongolia
0.8	-	13.2	17.7	31.7	2.5%	-	-	-	511.4	4.7%	Myanmar
0.6	-	3.5	0.5	4.5	13.1%	-	-	-	30.2	16.8%	Nepal
3.3	0.7	19.9	3.2	27.1	12.2%	-	-	0.8	294.0	53.3%	Pakistan
0.8	0.0	9.5	2.1	12.4	6.2%	-	-	0.4	146.3	53.1%	Philippines
0.1	0.7	0.0	0.3	1.1	7.9%	1.4	0.8	0.3	50.7	90.3%	Singapore
0.3	-	1.3	0.5	2.1	13.0%	-	-	-	26.9	53.1%	Sri Lanka
4.5	0.5	14.6	3.0	22.6	20.1%	-	-	1.1	362.5	66.9%	Thailand
1.4	-	19.1	2.3	22.8	6.1%	-	-	-	223.9	49.8%	Vietnam
0.5	-	10.5	3.0	14.0	3.9%	0.1	-	-	127.6	15.4%	Other Asia
47.2	5.0	367.1	142.4	561.7	8.4%	14.5	5.6	12.0	7 738.1	38.7%	Asia
45.8	17.9	347.1	52.3	463.2	9.9%	146.7	10.6	29.0	7 733.5	74.3%	People's Rep. of China
0.2	-	-	0.3	0.4	39.7%	-	-	0.1	46.1	93.6%	Hong Kong, China
46.0	17.9	347.1	52.6	463.6	9.9%	146.7	10.6	29.1	7 779.6	74.4%	China

2005 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Bahrain	18.1	0.0	0.2	0.1	18.5	98.3%	2.5	0.0	0.3	0.0	2.8	88.7%
Islamic Rep. of Iran	426.8	21.8	15.9	0.7	465.3	96.4%	66.2	20.9	12.6	0.1	99.8	66.3%
Iraq	83.3	12.6	1.3	3.4	100.6	95.4%	14.0	3.0	3.7	0.0	20.6	67.9%
Jordan	17.9	-	1.7	0.0	19.6	91.2%	0.5	0.4	1.0	-	1.8	26.5%
Kuwait	70.1	4.4	0.9	0.1	75.5	98.7%	11.8	0.2	0.8	0.0	12.8	92.6%
Lebanon	14.5	-	1.9	0.0	16.5	88.0%	0.1	0.3	0.7	-	1.0	11.6%
Oman	27.8	4.7	1.2	20.0	53.7	60.5%	13.5	0.5	0.5	-	14.5	92.7%
Qatar	37.6	4.2	0.7	0.0	42.5	98.3%	18.0	0.1	0.5	0.0	18.6	96.8%
Saudi Arabia	332.7	7.3	11.3	0.3	351.6	96.7%	43.4	1.9	5.7	0.2	51.3	84.6%
Syrian Arab Republic	55.2	2.3	2.0	0.2	59.6	96.4%	6.2	3.5	2.3	0.0	11.9	51.7%
United Arab Emirates	108.1	1.9	4.1	0.1	114.2	96.3%	20.7	0.6	1.0	-	22.3	92.8%
Yemen	18.8	1.8	0.8	0.0	21.4	96.3%	2.2	3.7	1.9	-	7.8	28.6%
Middle East	1 211.1	60.9	41.9	25.1	1 338.9	95.0%	198.9	35.0	30.8	0.4	265.1	75.0%
Albania	4.6	0.0	0.2	0.6	5.4	84.9%	0.6	1.7	0.2	0.0	2.5	22.2%
Armenia	4.1	-	0.3	0.3	4.7	87.0%	1.5	1.1	0.4	0.0	3.0	50.8%
Azerbaijan	32.5	0.3	0.7	0.3	33.8	97.1%	5.5	5.0	1.6	0.0	12.1	45.6%
Belarus	62.1	0.0	2.2	42.6	106.9	58.1%	1.0	8.1	4.9	0.0	14.0	6.8%
Bosnia-Herzegovina	15.7	0.2	0.5	0.4	16.7	95.1%	1.2	1.2	0.3	0.0	2.7	45.2%
Bulgaria	46.0	0.4	4.2	0.4	51.0	90.9%	1.4	2.1	9.2	0.1	12.8	11.3%
Croatia	20.7	0.0	1.8	0.0	22.6	91.9%	2.2	1.3	1.0	0.0	4.5	48.9%
Cyprus	7.0	-	0.7	0.0	7.7	90.5%	0.0	0.3	0.3	-	0.6	2.2%
Georgia	4.3	0.0	0.2	0.3	4.9	89.5%	1.6	2.2	0.6	0.0	4.4	36.1%
Gibraltar	0.4	-	-	0.0	0.4	99.9%	0.0	-	0.0	-	0.0	6.7%
Kazakhstan	156.6	16.2	4.5	0.4	177.7	97.2%	35.1	11.9	4.7	2.2	53.9	65.2%
Kyrgyzstan	5.0	0.0	0.4	0.5	5.9	85.4%	0.2	2.6	0.7	0.0	3.6	6.8%
Latvia	7.6	-	0.3	4.3	12.2	61.8%	1.7	0.9	0.6	0.0	3.1	53.7%
Lithuania	13.5	0.0	0.4	6.1	20.1	67.6%	1.8	1.9	1.4	0.0	5.0	35.1%
FYR of Macedonia	8.8	-	0.3	0.1	9.2	95.6%	0.5	0.7	0.3	0.0	1.4	32.7%
Malta	2.7	-	0.0	0.0	2.7	99.6%	0.0	0.0	0.2	-	0.2	0.8%
Republic of Moldova	7.9	-	0.3	0.1	8.3	94.6%	1.7	1.0	0.8	0.0	3.5	47.8%
Romania	91.9	0.7	6.0	1.5	100.1	92.5%	11.9	8.8	5.2	0.0	26.0	46.0%
Russian Federation	1 516.2	98.7	52.5	233.1	1 900.4	85.0%	376.7	51.0	57.2	8.8	493.8	76.3%
Serbia	49.1	0.0	1.3	0.7	51.0	96.2%	3.0	3.4	1.1	0.0	7.6	39.8%
Tajikistan	2.4	0.0	0.1	0.0	2.5	93.0%	0.5	2.7	0.7	0.0	3.9	12.5%
Turkmenistan	46.0	2.6	0.3	0.5	49.4	98.5%	22.6	6.1	0.9	0.0	29.5	76.5%
Ukraine	305.6	21.2	21.8	6.2	354.8	92.1%	44.2	16.4	10.0	0.3	70.9	62.4%
Uzbekistan	108.4	4.6	2.4	1.5	116.9	96.6%	25.4	13.4	3.5	0.0	42.4	60.0%
Non-OECD Europe and Eurasia	2 519.1	144.9	101.5	300.1	3 065.6	86.9%	540.3	143.5	105.8	11.6	801.3	67.4%
Argentina	151.0	0.9	5.1	9.7	166.8	91.1%	17.9	71.9	8.7	1.5	100.0	17.9%
Bolivia	9.6	0.3	0.6	219.3	229.8	4.3%	7.2	10.4	1.3	10.9	29.8	24.1%
Brazil	322.2	4.2	19.2	1 462.7	1 808.3	18.0%	37.9	302.6	58.8	92.9	492.2	7.7%
Colombia	56.9	1.0	4.9	24.5	87.4	66.3%	11.1	39.6	6.5	0.5	57.7	19.3%
Costa Rica	5.4	-	0.6	0.1	6.0	89.2%	0.3	1.7	0.4	-	2.4	10.5%
Cuba	24.6	1.3	0.7	3.2	29.8	86.9%	0.9	5.9	2.5	-	9.3	9.4%
Dominican Republic	17.4	-	1.1	0.3	18.8	92.6%	1.1	3.9	1.7	-	6.7	16.2%
Ecuador	23.6	2.5	1.4	2.1	29.6	88.1%	3.4	9.9	1.8	0.1	15.1	22.2%
El Salvador	6.4	-	0.4	0.2	7.1	90.3%	0.4	1.7	1.1	-	3.2	13.0%
Guatemala	11.4	0.0	1.2	37.5	50.2	22.8%	1.1	4.1	1.5	1.7	8.4	12.6%
Haiti	2.0	-	0.2	0.0	2.2	89.0%	0.7	2.3	1.3	-	4.3	17.2%
Honduras	6.9	-	0.5	2.7	10.2	68.4%	0.4	4.1	0.7	-	5.2	7.5%
Jamaica	10.4	-	0.5	0.1	11.1	94.2%	0.2	0.7	0.5	-	1.3	11.7%
Netherlands Antilles	4.2	-	-	0.0	4.3	98.9%	0.1	0.0	0.1	-	0.1	55.6%
Nicaragua	4.0	-	0.2	0.4	4.7	85.9%	0.4	4.5	1.1	-	6.0	6.8%
Panama	5.5	-	0.4	0.4	6.3	86.9%	0.1	2.5	0.5	-	3.2	4.2%
Paraguay	3.4	-	0.3	20.5	24.2	14.2%	0.9	13.0	1.1	0.8	15.8	5.6%
Peru	28.9	0.2	2.0	11.4	42.5	68.4%	1.8	10.5	4.0	0.3	16.6	10.5%
Trinidad and Tobago	33.9	0.3	0.3	0.0	34.5	99.0%	9.4	0.1	1.3	0.2	11.1	85.3%
Uruguay	5.3	-	0.3	0.4	6.0	88.3%	0.5	18.4	0.8	0.0	19.8	2.5%
Venezuela	148.2	4.8	2.8	48.5	204.2	74.9%	25.2	24.6	5.6	2.1	57.5	43.9%
Other Latin America	17.0	-	1.0	16.7	34.7	49.0%	0.2	2.5	2.7	0.2	5.7	3.6%
Latin America	898.2	15.5	43.9	1 861.0	2 818.6	32.4%	121.0	534.9	104.1	111.4	871.4	13.9%

2005 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O				Share of energy	HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total					Total	Share of energy	
0.0	-	0.0	0.1	0.1	27.2%	-	0.3	-	21.6	95.4%	Bahrain
2.5	0.6	20.1	4.0	27.2	9.1%	-	0.1	2.4	594.7	87.0%	Islamic Rep. of Iran
0.4	-	2.2	0.9	3.5	10.8%	-	-	0.1	124.8	88.4%	Iraq
0.1	-	0.4	0.2	0.7	9.4%	0.1	-	-	22.2	83.0%	Jordan
0.2	-	0.1	0.4	0.7	27.6%	0.5	-	0.4	89.8	96.3%	Kuwait
0.1	-	0.4	0.2	0.6	12.9%	-	-	-	18.1	81.0%	Lebanon
0.1	-	0.4	0.1	0.6	16.5%	0.2	-	-	69.0	66.8%	Oman
0.1	-	0.0	0.1	0.3	29.2%	-	-	-	61.3	97.6%	Qatar
1.0	-	3.0	2.5	6.4	14.8%	0.2	-	2.0	411.5	93.4%	Saudi Arabia
0.3	0.3	4.3	0.7	5.5	4.8%	-	-	-	77.0	83.0%	Syrian Arab Republic
0.2	-	0.5	0.7	1.4	16.7%	-	0.3	0.8	139.0	94.2%	United Arab Emirates
0.4	-	2.4	0.5	3.3	12.3%	-	-	-	32.4	71.6%	Yemen
5.2	0.9	33.7	10.4	50.2	10.4%	1.0	0.7	5.6	1 661.6	88.8%	Middle East
0.1	-	0.8	0.2	1.0	7.2%	0.1	-	-	9.0	58.0%	Albania
0.0	-	0.5	0.1	0.6	1.0%	0.3	-	-	8.6	65.4%	Armenia
0.2	-	2.0	0.4	2.6	6.2%	0.1	0.2	-	48.8	78.9%	Azerbaijan
0.6	2.2	8.5	0.6	11.9	5.1%	0.4	0.0	-	133.3	47.7%	Belarus
0.1	-	0.7	0.2	1.0	12.7%	0.4	0.1	-	21.0	82.2%	Bosnia-Herzegovina
0.3	0.9	2.0	0.6	4.0	8.8%	0.4	0.0	-	68.1	70.7%	Bulgaria
0.2	0.8	1.5	0.3	2.8	8.5%	0.0	0.0	-	30.0	77.4%	Croatia
0.0	-	0.2	0.1	0.3	13.0%	0.2	-	-	8.8	79.8%	Cyprus
0.1	0.7	1.1	0.2	2.0	3.2%	0.0	-	-	11.3	53.1%	Georgia
0.0	-	-	0.0	0.0	34.4%	-	-	-	0.5	97.3%	Gibraltar
2.6	-	11.0	4.5	18.1	14.2%	0.3	-	-	250.0	84.2%	Kazakhstan
0.2	-	1.1	0.2	1.5	11.0%	0.0	-	-	11.0	49.4%	Kyrgyzstan
0.2	-	1.0	0.2	1.3	12.0%	0.9	0.0	-	17.5	53.6%	Latvia
0.1	2.0	2.1	0.2	4.5	2.7%	0.6	0.0	-	30.2	51.1%	Lithuania
0.1	-	0.4	0.1	0.6	17.6%	0.1	-	-	11.3	82.5%	FYR of Macedonia
0.0	-	0.0	0.0	0.1	11.6%	0.1	-	-	3.1	86.2%	Malta
0.1	-	0.6	0.2	0.9	6.0%	0.0	-	-	12.7	75.5%	Republic of Moldova
0.7	2.9	6.5	1.3	11.4	6.0%	0.4	0.3	0.0	138.2	76.1%	Romania
7.3	13.5	33.7	23.5	78.1	9.4%	24.2	26.6	9.3	2 532.4	78.9%	Russian Federation
0.2	0.5	2.9	0.4	4.1	5.0%	4.3	0.1	-	67.1	78.0%	Serbia
0.0	-	1.2	0.2	1.4	1.1%	0.0	0.4	-	8.2	35.0%	Tajikistan
0.1	0.6	3.3	0.3	4.3	1.8%	0.1	-	-	83.3	85.6%	Turkmenistan
1.4	9.8	11.9	2.9	26.0	5.6%	0.2	0.2	0.3	452.4	82.3%	Ukraine
0.5	0.1	8.4	1.1	10.1	5.0%	0.6	-	-	170.0	81.7%	Uzbekistan
15.1	34.0	101.6	37.8	188.5	8.0%	33.9	28.0	9.6	4 126.9	78.0%	Non-OECD Europe and Eurasia
1.7	0.2	44.4	3.7	50.0	3.4%	0.2	0.1	0.3	317.3	54.0%	Argentina
0.1	-	5.5	9.7	15.3	0.7%	-	-	-	274.9	6.3%	Bolivia
5.9	2.5	157.5	72.4	238.2	2.5%	1.8	5.6	1.2	2 547.3	14.5%	Brazil
0.6	0.3	18.3	2.1	21.3	3.0%	-	0.0	0.1	166.5	41.9%	Colombia
0.1	0.0	1.1	0.2	1.4	5.0%	0.1	-	-	9.9	57.5%	Costa Rica
0.3	0.7	5.0	0.5	6.4	4.2%	0.1	-	-	45.7	59.2%	Cuba
0.2	-	1.7	0.4	2.3	8.6%	-	-	-	27.9	67.2%	Dominican Republic
0.2	-	3.9	0.5	4.6	3.8%	0.1	-	-	49.4	60.0%	Ecuador
0.1	-	1.0	0.2	1.4	8.3%	0.1	-	-	11.7	59.1%	El Salvador
0.3	-	3.0	2.1	5.4	5.6%	0.5	-	-	64.5	19.9%	Guatemala
0.1	-	1.2	0.1	1.5	6.7%	-	-	-	7.9	35.4%	Haiti
0.1	-	2.5	0.5	3.1	3.4%	-	-	-	18.4	40.3%	Honduras
0.1	-	0.4	0.2	0.7	11.1%	0.1	-	-	13.1	81.5%	Jamaica
0.0	-	0.0	0.0	0.1	17.7%	-	-	-	4.4	96.6%	Netherlands Antilles
0.1	-	3.1	0.3	3.5	3.2%	-	-	-	14.2	32.0%	Nicaragua
0.1	-	1.0	0.1	1.2	4.9%	-	-	-	10.7	52.7%	Panama
0.2	-	7.4	1.5	9.0	1.8%	-	-	-	49.0	9.2%	Paraguay
0.2	-	6.2	1.3	7.7	2.8%	0.3	-	-	67.1	46.3%	Peru
0.0	-	0.1	0.1	0.3	11.7%	-	-	-	45.9	95.2%	Trinidad and Tobago
0.1	-	6.8	0.1	7.0	1.5%	0.1	-	-	32.8	17.9%	Uruguay
0.6	0.0	11.2	3.1	14.9	4.3%	0.7	0.3	0.2	277.9	64.3%	Venezuela
0.1	-	2.4	0.8	3.3	3.7%	0.0	0.0	0.0	43.7	39.6%	Other Latin America
11.2	3.6	283.7	100.0	398.5	2.8%	4.0	6.0	1.9	4 100.4	25.5%	Latin America

2008 Greenhouse-gas emissions

 million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
World *	29 454.0	441.4	1 526.7	5 370.3	36 792.4	81.3%	2 808.2	3 395.3	1 272.6	145.5	7 621.6	36.8%
<i>Annex I Parties</i>	13 912.9	150.1	413.5	537.0	15 013.5	93.7%	949.8	653.9	451.7	4.4	2 059.9	46.1%
<i>Annex II Parties</i>	10 956.6	50.6	268.8	274.5	11 550.4	95.3%	409.5	530.3	300.1	3.8	1 243.6	32.9%
<i>North America</i>	6 137.9	23.9	80.7	61.4	6 303.8	97.7%	260.8	225.8	163.4	1.5	651.5	40.0%
<i>Europe</i>	3 239.3	22.3	126.8	160.5	3 548.8	91.9%	105.3	180.2	115.3	0.6	401.4	26.2%
<i>Asia Oceania</i>	1 579.4	4.5	61.3	52.6	1 697.8	93.3%	43.4	124.3	21.3	1.7	190.7	22.8%
<i>Annex I EIT</i>	2 690.2	96.8	117.6	261.2	3 165.9	88.0%	525.5	99.5	114.7	0.6	740.3	71.0%
<i>Non-Annex I Parties</i>	14 493.3	291.3	1 113.2	4 833.3	20 731.1	71.3%	1 857.2	2 741.4	820.9	141.0	5 560.6	33.4%
<i>Annex I Kyoto Parties</i>	7 995.8	128.4	311.9	437.8	8 873.8	91.6%	716.9	424.6	278.5	3.2	1 423.3	50.4%
Int. marine bunkers	608.1	-	-	-	608.1	100.0%	1.1	-	-	-	1.1	100%
Int. aviation bunkers	439.7	-	-	-	439.7	100.0%	0.1	-	-	-	0.1	100%
Non-OECD Total	15 607.5	369.2	1 152.8	5 019.2	22 148.8	72.1%	2 280.0	2 740.5	878.6	140.1	6 039.2	37.8%
OECD Total	12 798.7	72.1	373.9	351.1	13 595.8	94.7%	527.0	654.8	394.0	5.4	1 581.2	33.3%
Canada	551.1	4.8	9.2	5.9	570.9	97.4%	43.8	28.9	33.2	0.3	106.2	41.2%
Chile	67.8	0.5	2.3	0.4	71.0	96.1%	4.3	7.8	5.6	0.4	18.0	23.7%
Mexico	403.7	6.4	24.0	36.8	470.9	87.1%	39.0	54.6	20.5	1.0	115.1	33.9%
United States	5 586.8	19.1	71.5	55.5	5 732.8	97.8%	217.0	196.9	130.2	1.2	545.3	39.8%
OECD Americas	6 609.3	30.8	106.9	98.6	6 845.7	97.0%	304.1	288.2	189.5	2.9	784.6	38.8%
Australia	393.1	1.8	6.4	15.9	417.2	94.7%	39.0	69.5	12.4	1.3	122.2	31.9%
Israel	66.4	0.1	2.2	0.2	68.8	96.5%	1.0	1.1	1.8	-	3.9	26.4%
Japan	1 152.6	2.6	54.3	31.6	1 241.1	93.1%	3.3	29.7	7.6	0.3	41.0	8.2%
Korea	501.7	5.7	28.4	0.5	536.3	94.6%	7.0	12.6	11.3	0.1	31.1	22.5%
New Zealand	33.7	0.1	0.5	5.2	39.5	85.5%	1.1	25.1	1.3	0.0	27.6	4.0%
OECD Asia Oceania	2 147.4	10.3	91.8	53.4	2 302.9	93.7%	51.4	138.0	34.4	1.8	225.6	22.8%
Austria	70.2	0.3	4.3	0.5	75.4	93.6%	2.0	4.0	2.3	0.0	8.3	24.4%
Belgium	111.0	0.4	5.2	0.6	117.2	95.0%	1.4	5.5	2.6	0.0	9.5	14.5%
Czech Republic	116.8	4.0	4.2	1.0	126.1	95.8%	5.1	3.5	3.3	0.0	11.9	42.9%
Denmark	48.4	0.3	1.7	2.9	53.3	91.4%	1.3	5.1	1.4	-	7.9	16.6%
Estonia	17.7	0.8	0.5	9.6	28.6	64.7%	0.9	0.7	0.7	-	2.3	40.9%
Finland	57.2	0.5	1.3	50.9	109.9	52.5%	0.8	2.0	6.7	0.0	9.5	8.7%
France	370.6	3.0	21.2	7.6	402.5	92.8%	35.3	36.0	11.5	0.1	82.9	42.5%
Germany	804.1	5.0	22.5	34.6	866.2	93.4%	15.3	29.0	13.2	0.2	57.6	26.5%
Greece	94.3	0.0	7.2	0.4	101.8	92.6%	1.8	3.7	2.6	0.0	8.2	22.4%
Hungary	53.0	0.6	2.1	1.0	56.7	94.5%	2.1	2.3	2.9	0.0	7.4	28.8%
Iceland	2.2	-	0.1	17.6	19.9	11.1%	0.0	0.2	0.2	0.0	0.4	1.0%
Ireland	43.9	-	2.4	8.5	54.8	80.1%	2.0	11.3	1.1	0.0	14.4	13.6%
Italy	435.1	2.7	24.6	2.2	464.6	94.2%	6.2	15.6	15.5	0.0	37.3	16.6%
Luxembourg	10.5	-	0.6	0.0	11.1	94.9%	0.1	0.9	0.1	0.0	1.1	11.2%
Netherlands	182.8	0.8	1.3	6.0	191.0	96.2%	5.3	9.6	5.5	0.1	20.5	26.0%
Norway	37.5	0.9	1.0	0.7	40.0	95.9%	13.0	2.1	2.1	0.1	17.2	75.6%
Poland	298.6	0.2	9.7	25.2	333.7	89.6%	41.2	15.5	8.7	0.0	65.4	62.9%
Portugal	53.3	0.1	3.7	0.4	57.4	92.9%	1.7	4.4	7.0	0.0	13.0	12.7%
Slovak Republic	36.2	0.5	2.8	0.4	39.9	92.0%	0.9	1.3	1.7	0.0	4.0	23.0%
Slovenia	16.7	-	1.8	0.2	18.8	89.1%	1.1	1.1	0.7	0.0	2.9	38.8%
Spain	317.6	0.6	16.8	1.4	336.4	94.6%	3.3	20.2	12.8	0.1	36.5	9.2%
Sweden	44.6	1.9	2.1	14.6	63.2	73.6%	1.2	3.2	6.9	0.0	11.4	11.0%
Switzerland	43.9	0.0	1.9	0.4	46.2	95.0%	1.1	3.2	0.7	0.0	4.9	21.6%
Turkey	263.5	2.7	27.1	1.3	294.6	90.4%	14.8	24.1	36.7	0.0	75.7	19.6%
United Kingdom	512.1	5.7	9.0	11.2	538.0	96.2%	13.5	24.2	23.1	0.0	60.8	22.1%
OECD Europe	4 041.9	31.1	175.2	199.1	4 447.3	91.6%	171.5	228.7	170.1	0.7	570.9	30.0%
<i>European Union - 27</i>	3 868.2	28.4	157.0	191.4	4 245.0	91.8%	160.2	212.9	147.4	0.7	521.1	30.7%

* Total World includes Non-OECD total, OECD total as well as international bunkers.

 Sources: IEA, Sectoral Approach for CO₂ emissions from fuel combustion. EDGAR 4 database for other emissions. In general, estimates for emissions other than CO₂ from fuel combustion are subject to significantly larger uncertainties.

2008 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O					Share of energy	HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total	Share of energy					Industrial processes	Total		Share of energy
324.8	138.9	2 122.4	486.4	3 072.4	10.6%	651.7	97.2	155.3	48 390.7	68.3%	World *	
138.1	103.6	519.3	116.6	877.7	15.7%	447.2	62.6	76.1	18 537.0	81.7%	Annex I Parties	
113.7	62.0	408.3	91.3	675.3	16.8%	403.7	32.5	64.1	13 969.7	82.5%	Annex II Parties	
73.0	25.5	197.7	43.0	339.2	21.5%	255.6	14.2	46.7	7 611.1	85.3%	North America	
27.4	31.7	143.6	33.8	236.5	11.6%	87.4	10.8	12.3	4 297.3	79.0%	Europe	
13.3	4.8	67.0	14.5	99.6	13.4%	60.7	7.5	5.0	2 061.3	79.6%	Asia Oceania	
19.1	38.8	88.7	21.8	168.4	11.4%	39.4	29.5	10.2	4 153.7	80.2%	Annex I EIT	
154.6	35.2	1 603.1	369.8	2 162.8	7.1%	204.5	34.6	79.2	28 772.7	58.4%	Non-Annex I Parties	
66.3	74.7	313.8	73.8	528.6	12.5%	202.4	53.7	31.7	11 113.6	80.1%	Annex I Kyoto Parties	
25.1	-	-	-	25.1	100%	-	-	-	634.3	100.0%	Int. marine bunkers	
6.9	-	-	-	6.9	100%	-	-	-	446.7	100.0%	Int. aviation bunkers	
158.1	63.4	1 620.8	375.1	2 217.3	7.1%	224.6	60.4	82.0	30 772.3	59.8%	Non-OECD Total	
134.7	75.4	501.6	111.4	823.1	16.4%	427.2	36.8	73.3	16 537.4	81.8%	OECD Total	
7.2	1.7	23.4	4.3	36.6	19.7%	15.5	5.9	4.2	739.4	82.1%	Canada	
1.0	1.4	6.3	1.3	10.0	10.1%	-	0.0	0.0	98.9	74.3%	Chile	
3.8	1.1	32.2	6.4	43.6	8.7%	8.8	-	0.5	638.9	70.9%	Mexico	
65.8	23.8	174.3	38.7	302.6	21.7%	240.1	8.3	42.5	6 871.7	85.7%	United States	
77.8	28.0	236.3	50.6	392.8	19.8%	264.4	14.2	47.2	8 348.9	84.1%	OECD Americas	
4.6	1.9	46.3	5.2	58.0	8.0%	6.9	0.8	0.5	605.6	72.4%	Australia	
0.3	0.0	1.0	0.5	1.8	15.4%	1.7	0.1	0.6	76.9	88.0%	Israel	
8.3	2.9	8.1	9.0	28.2	29.4%	52.9	6.5	4.4	1 374.1	84.9%	Japan	
3.5	1.1	5.4	3.5	13.6	25.9%	2.5	2.7	5.9	592.1	87.5%	Korea	
0.4	-	12.6	0.3	13.3	3.2%	1.0	0.2	0.1	81.6	43.3%	New Zealand	
17.1	5.9	73.3	18.6	115.0	14.9%	64.9	10.4	11.6	2 730.3	81.5%	OECD Asia Oceania	
0.9	0.3	2.3	0.8	4.2	20.7%	2.5	0.2	0.2	90.7	80.9%	Austria	
0.8	4.2	2.8	1.2	9.0	8.9%	2.5	0.0	0.1	138.3	82.1%	Belgium	
2.0	0.8	3.1	0.8	6.7	30.2%	1.5	0.0	0.0	146.1	87.6%	Czech Republic	
0.6	-	4.5	0.6	5.7	10.7%	1.6	0.0	0.0	68.6	73.9%	Denmark	
0.2	-	0.6	0.2	1.0	21.0%	0.0	0.0	0.0	31.9	61.5%	Estonia	
2.1	1.5	2.9	0.6	7.1	29.9%	1.0	0.0	0.1	127.6	47.5%	Finland	
3.9	5.2	32.0	4.5	45.7	8.6%	16.9	0.6	1.8	550.2	75.0%	France	
5.8	9.7	28.7	5.8	50.0	11.6%	19.5	1.1	6.5	1 000.8	83.0%	Germany	
0.9	0.4	3.4	1.0	5.7	16.1%	1.0	0.1	0.1	117.0	83.0%	Greece	
0.3	0.0	3.9	0.6	4.8	7.0%	1.7	0.0	0.0	70.6	79.4%	Hungary	
0.0	0.0	0.3	0.0	0.4	10.6%	0.1	0.3	0.0	21.0	10.7%	Iceland	
0.3	-	6.5	0.4	7.2	4.7%	1.2	0.1	0.1	77.7	59.4%	Ireland	
3.2	1.4	11.8	5.2	21.6	14.9%	11.9	0.4	1.0	536.8	83.3%	Italy	
0.1	-	0.3	0.1	0.5	19.2%	0.1	0.0	-	12.8	83.6%	Luxembourg	
0.8	1.8	5.8	1.2	9.6	8.6%	4.0	0.3	0.1	225.5	84.2%	Netherlands	
0.4	1.0	1.8	0.9	4.1	9.2%	0.4	4.5	0.2	66.5	77.8%	Norway	
3.9	4.9	16.6	2.7	28.1	13.9%	2.4	0.6	0.3	430.4	79.9%	Poland	
0.6	0.8	2.7	0.9	4.9	12.3%	0.9	0.0	0.1	76.4	72.8%	Portugal	
0.4	1.3	1.2	0.3	3.2	13.8%	0.4	0.1	-	47.7	79.8%	Slovak Republic	
0.2	-	0.8	0.2	1.2	13.6%	0.5	0.1	0.0	23.4	76.9%	Slovenia	
2.7	1.2	15.8	4.4	24.2	11.3%	8.6	1.9	0.9	408.4	79.4%	Spain	
1.1	0.5	3.4	0.8	5.7	19.0%	1.5	0.7	0.2	82.6	59.1%	Sweden	
0.5	0.2	1.4	0.5	2.5	18.0%	2.1	0.1	0.4	56.3	80.7%	Switzerland	
5.3	2.8	22.3	3.5	33.9	15.6%	4.0	0.6	1.9	410.6	69.7%	Turkey	
2.6	3.6	17.3	5.0	28.5	9.1%	11.8	0.5	0.5	640.1	83.4%	United Kingdom	
39.7	41.5	192.1	42.1	315.4	12.6%	97.9	12.2	14.5	5 458.2	78.5%	OECD Europe	
35.0	43.4	177.8	39.6	295.8	11.8%	95.0	7.1	12.0	5 175.9	79.1%	European Union - 27	

2008 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Non-OECD Total	15 607.5	369.2	1 152.8	5 019.2	22 148.8	72.1%	2 280.0	2 740.5	878.6	140.1	6 039.2	37.8%
Algeria	88.1	12.2	7.1	0.2	107.6	93.2%	36.5	4.8	5.0	0.0	46.3	78.8%
Angola	12.2	6.4	0.6	7.3	26.4	70.4%	11.0	4.0	2.1	0.2	17.3	63.8%
Benin	3.8	-	0.6	32.6	37.0	10.3%	1.0	3.2	1.0	1.8	7.1	13.4%
Botswana	4.5	-	0.1	0.4	5.1	89.4%	0.5	3.1	0.3	0.0	3.9	11.8%
Cameroon	4.3	1.8	0.4	51.3	57.7	10.5%	2.6	12.4	2.4	2.5	19.9	13.3%
Congo	1.5	2.8	0.0	26.8	31.1	13.7%	3.7	1.5	0.6	0.8	6.6	56.1%
Dem. Rep. of Congo	2.8	0.0	0.2	935.5	938.5	0.3%	6.3	17.4	6.5	39.3	69.4	9.1%
Côte d'Ivoire	6.5	0.1	0.3	135.6	142.4	4.6%	3.6	2.2	1.9	6.8	14.5	24.7%
Egypt	174.0	2.9	16.9	1.4	195.2	90.6%	28.6	15.2	8.0	0.0	51.8	55.2%
Eritrea	0.5	-	0.0	0.0	0.5	92.7%	0.5	1.8	0.4	-	2.8	19.6%
Ethiopia	6.8	-	0.7	0.7	8.3	82.6%	10.1	42.7	7.5	-	60.3	16.7%
Gabon	2.3	3.1	0.1	22.6	28.1	19.4%	2.8	0.2	0.4	1.9	5.2	53.9%
Ghana	7.3	-	0.8	39.0	47.1	15.6%	3.0	13.6	2.9	3.0	22.5	13.5%
Kenya	8.6	-	1.5	4.1	14.2	60.6%	7.7	15.5	4.3	-	27.4	28.1%
Libyan Arab Jamahiriya	47.0	7.2	2.6	0.1	57.0	95.2%	15.8	0.8	1.2	0.0	17.9	88.6%
Morocco	42.1	-	4.4	0.3	46.8	89.9%	1.3	5.5	4.4	0.0	11.3	11.8%
Mozambique	2.0	-	0.3	14.6	16.9	11.9%	4.3	1.7	2.6	0.0	8.5	50.4%
Namibia	4.2	-	0.0	0.0	4.2	98.9%	0.1	4.5	0.3	-	4.9	2.6%
Nigeria	49.6	27.5	2.0	25.4	104.4	73.8%	39.5	40.0	14.8	1.6	95.8	41.2%
Senegal	5.1	-	1.3	0.1	6.4	78.9%	1.5	6.0	1.6	-	9.1	16.5%
South Africa	388.4	12.3	6.9	1.2	408.8	98.0%	31.6	20.3	13.1	2.1	67.2	47.1%
Sudan	12.1	0.1	0.1	4.1	16.3	74.3%	6.5	88.7	5.8	-	101.0	6.4%
United Rep. of Tanzania	5.8	0.1	0.6	23.8	30.3	19.3%	5.6	15.3	4.4	0.1	25.4	22.2%
Togo	1.1	-	0.3	16.9	18.3	6.0%	1.6	2.3	0.7	1.2	5.9	27.9%
Tunisia	20.9	0.8	3.3	0.2	25.1	86.1%	3.9	2.2	0.8	0.0	6.9	56.0%
Zambia	1.6	-	0.4	59.4	61.4	2.6%	2.5	2.3	1.3	-	6.1	40.3%
Zimbabwe	8.8	0.3	0.2	1.0	10.3	88.4%	1.0	5.9	1.5	0.0	8.5	12.2%
Other Africa	29.5	2.3	1.2	617.1	650.0	4.9%	29.2	185.0	18.6	39.5	272.4	10.7%
Africa	941.2	79.8	53.1	2 021.3	3 095.5	33.0%	262.6	518.2	114.4	100.8	996.0	26.4%
Bangladesh	46.4	-	2.1	5.6	54.2	85.7%	11.3	67.4	19.2	0.0	97.8	11.5%
Brunei Darussalam	7.5	0.6	0.1	5.5	13.7	59.0%	4.5	0.0	0.1	-	4.6	97.5%
Cambodia	4.6	-	0.0	122.6	127.3	3.6%	1.2	20.6	1.7	9.1	32.7	3.7%
Chinese Taipei	261.3	1.3	8.7	0.9	272.2	96.5%	1.4	1.1	6.1	0.0	8.6	15.8%
India	1 431.3	28.8	70.7	43.6	1 574.3	92.7%	104.2	380.0	120.6	1.5	606.2	17.2%
Indonesia	343.5	4.7	16.2	1 295.2	1 659.5	21.0%	57.5	88.8	54.5	10.0	210.9	27.3%
DPR of Korea	69.4	-	3.1	2.7	75.1	92.3%	11.1	4.4	3.3	0.0	18.7	59.1%
Malaysia	181.7	3.4	8.6	86.8	280.5	66.0%	23.1	5.4	6.0	0.7	35.1	65.7%
Mongolia	11.2	0.1	0.1	45.3	56.7	19.9%	0.5	6.0	0.3	0.0	6.9	7.8%
Myanmar	11.9	0.1	0.3	227.2	239.5	5.0%	10.3	58.9	6.9	0.5	76.5	13.4%
Nepal	2.8	-	0.1	0.1	3.1	91.2%	1.5	18.9	2.7	0.0	23.1	6.3%
Pakistan	133.0	2.3	16.9	0.6	152.7	88.6%	37.9	93.9	18.7	0.0	150.6	25.2%
Philippines	71.0	0.0	5.6	1.8	78.4	90.5%	5.9	35.3	15.1	0.0	56.4	10.5%
Singapore	46.1	0.2	0.2	0.4	46.8	98.8%	1.4	0.0	0.9	0.0	2.3	59.3%
Sri Lanka	12.2	-	0.8	0.5	13.5	90.4%	0.6	7.6	3.2	-	11.4	5.2%
Thailand	237.8	0.0	15.8	13.5	267.1	89.0%	21.4	61.0	14.5	0.6	97.4	22.0%
Vietnam	102.1	0.9	17.5	8.2	128.7	80.0%	36.9	57.7	11.8	0.1	106.4	34.7%
Other Asia	14.5	0.7	0.4	52.5	68.2	22.4%	3.1	17.4	5.7	0.5	26.8	11.7%
Asia	2 988.3	43.1	167.2	1 913.2	5 111.8	59.3%	333.7	924.4	291.3	23.0	1 572.4	21.2%
People's Rep. of China	6 506.8	56.7	713.3	113.4	7 390.2	88.8%	738.3	577.8	217.5	3.6	1 537.2	48.0%
Hong Kong, China	42.2	1.3	0.4	0.1	44.1	98.8%	0.8	-	2.2	-	3.0	25.6%
China	6 549.0	58.0	713.8	113.5	7 434.3	88.9%	739.1	577.8	219.7	3.6	1 540.2	48.0%

2008 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O				Share of energy	HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total		Industrial processes			Total	Share of energy	
158.1	63.4	1 620.8	375.1	2 217.3	7.1%	224.6	60.4	82.0	30 772.3	59.8%	Non-OECD Total
0.5	1.2	3.0	1.0	5.7	8.0%	0.2	-	0.4	160.2	85.7%	Algeria
0.2	-	2.7	0.4	3.3	6.7%	0.0	-	-	47.1	63.4%	Angola
0.1	-	3.2	1.8	5.1	2.5%	-	-	-	49.2	9.9%	Benin
0.1	-	1.8	0.1	2.0	5.0%	-	-	-	10.9	46.4%	Botswana
0.2	-	12.1	3.4	15.6	1.5%	-	0.4	-	93.7	9.5%	Cameroon
0.1	-	1.4	1.2	2.7	2.7%	0.0	-	-	40.5	19.9%	Congo
1.3	-	20.3	42.2	63.9	2.1%	-	-	-	1 071.9	1.0%	Dem. Rep. of Congo
0.2	-	2.5	6.1	8.8	2.8%	-	-	-	165.7	6.3%	Côte d'Ivoire
1.5	4.3	16.8	2.4	25.0	6.0%	0.4	1.9	1.3	275.7	75.1%	Egypt
0.1	-	1.1	0.1	1.2	5.7%	-	-	-	4.5	23.8%	Eritrea
1.7	-	32.5	2.6	36.8	4.7%	0.0	-	-	105.4	17.7%	Ethiopia
0.0	-	0.2	1.1	1.4	2.9%	0.0	-	-	34.7	24.0%	Gabon
0.5	-	15.4	3.8	19.7	2.3%	0.0	-	-	89.3	12.1%	Ghana
0.6	-	10.2	0.7	11.6	5.5%	-	-	-	53.2	31.9%	Kenya
0.2	-	0.7	0.5	1.4	11.9%	-	-	0.3	76.5	91.7%	Libyan Arab Jamahiriya
0.5	-	5.0	0.8	6.4	8.6%	-	-	-	64.5	68.2%	Morocco
0.3	-	1.1	0.7	2.1	15.8%	0.1	0.2	-	27.8	23.9%	Mozambique
0.1	-	2.6	0.1	2.9	5.1%	-	-	-	12.0	37.0%	Namibia
2.0	-	31.5	5.6	39.2	5.2%	0.5	0.0	0.4	240.3	49.3%	Nigeria
0.1	-	4.6	0.5	5.3	2.5%	-	-	-	20.8	32.2%	Senegal
3.0	0.0	14.4	5.5	22.9	13.2%	0.7	0.5	1.7	501.7	86.8%	South Africa
0.6	-	80.8	7.6	89.0	0.7%	-	-	-	206.4	9.3%	Sudan
0.6	-	10.0	1.5	12.1	5.1%	-	-	-	67.7	17.9%	United Rep. of Tanzania
0.1	-	2.5	1.1	3.7	3.8%	-	-	-	27.9	10.3%	Togo
0.2	0.3	1.7	0.3	2.5	8.6%	-	-	-	34.6	74.4%	Tunisia
0.3	0.2	5.2	2.3	7.9	3.3%	0.0	-	-	75.4	5.7%	Zambia
0.2	-	3.7	0.2	4.2	5.3%	-	-	-	22.9	45.2%	Zimbabwe
3.3	-	171.3	44.2	218.8	1.5%	0.1	-	-	1 141.3	5.6%	Other Africa
19.1	6.0	458.4	137.7	621.2	3.1%	2.1	3.0	4.2	4 722.0	27.6%	Africa
1.7	-	18.5	2.2	22.3	7.5%	-	-	-	174.4	34.1%	Bangladesh
0.0	-	0.1	0.2	0.3	4.8%	0.4	-	-	19.0	66.3%	Brunei Darussalam
0.3	-	7.9	7.1	15.2	1.7%	-	-	-	175.1	3.5%	Cambodia
1.3	0.7	1.7	1.2	4.9	26.8%	0.1	3.8	4.3	293.8	90.3%	Chinese Taipei
28.3	1.7	162.3	29.2	221.5	12.8%	13.6	1.6	5.3	2 422.4	65.7%	India
4.3	0.2	63.8	28.9	97.3	4.5%	-	0.1	1.0	1 968.8	20.8%	Indonesia
0.4	-	2.2	0.7	3.3	13.3%	3.7	-	-	100.8	80.2%	DPR of Korea
0.9	0.6	9.5	2.9	13.8	6.4%	0.0	0.5	0.7	330.6	63.2%	Malaysia
0.2	-	3.7	0.1	4.0	4.3%	-	-	-	67.5	17.7%	Mongolia
0.8	-	12.7	10.3	23.8	3.5%	-	-	-	339.8	6.8%	Myanmar
0.6	-	3.5	0.5	4.6	13.3%	-	-	-	30.8	16.0%	Nepal
3.6	0.0	21.4	3.5	28.4	12.6%	-	-	1.0	332.8	53.1%	Pakistan
0.8	0.0	9.7	2.2	12.7	6.5%	-	-	0.4	147.9	52.5%	Philippines
0.1	0.7	0.0	0.3	1.1	7.8%	1.9	1.0	0.4	53.6	89.2%	Singapore
0.3	-	1.4	0.5	2.1	13.1%	-	-	-	27.0	48.5%	Sri Lanka
3.7	0.5	14.9	3.0	22.2	16.9%	-	-	1.3	388.0	67.8%	Thailand
1.9	-	20.3	2.3	24.5	7.6%	-	-	-	259.6	54.6%	Vietnam
0.6	-	8.5	1.8	10.9	5.2%	0.1	-	-	106.0	17.9%	Other Asia
49.8	4.4	362.0	96.7	512.9	9.7%	19.7	7.0	14.4	7 238.0	47.2%	Asia
54.9	14.6	375.4	60.4	505.3	10.9%	153.0	13.5	44.7	9 644.0	76.3%	People's Rep. of China
0.2	-	-	0.3	0.5	41.3%	-	-	0.1	47.7	93.4%	Hong Kong, China
55.1	14.6	375.4	60.7	505.8	10.9%	153.0	13.5	44.9	9 691.7	76.4%	China

2008 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Bahrain	22.3	0.0	0.1	0.2	22.7	98.7%	2.9	0.0	0.2	0.0	3.2	92.0%
Islamic Rep. of Iran	522.7	20.1	20.3	0.8	563.9	96.3%	74.2	20.8	13.4	0.2	108.6	68.3%
Iraq	92.9	12.8	2.2	3.4	111.4	94.9%	15.2	3.5	3.9	0.0	22.6	67.2%
Jordan	18.4	-	1.7	0.0	20.2	91.3%	0.7	0.5	1.1	-	2.2	30.9%
Kuwait	73.9	3.4	0.9	0.1	78.2	98.8%	11.6	0.2	0.8	0.0	12.6	92.1%
Lebanon	15.8	-	2.0	0.0	17.9	88.5%	0.1	0.3	0.7	-	1.1	11.1%
Oman	36.3	3.6	1.7	21.2	62.8	63.6%	14.5	0.5	0.6	-	15.6	92.8%
Qatar	53.8	4.1	1.5	0.0	59.4	97.5%	27.5	0.1	0.5	0.0	28.2	97.6%
Saudi Arabia	386.6	8.0	13.2	0.4	408.2	96.7%	46.8	2.0	6.1	0.2	55.1	84.8%
Syrian Arab Republic	67.6	1.6	2.1	0.2	71.6	96.7%	5.7	4.4	2.4	0.0	12.5	45.5%
United Arab Emirates	144.4	1.8	6.5	0.2	152.8	95.7%	22.2	0.6	1.1	-	23.9	92.8%
Yemen	21.4	2.3	1.3	0.0	25.0	94.6%	2.3	3.9	2.1	-	8.3	27.6%
Middle East	1 456.3	57.7	53.6	26.5	1 594.1	95.0%	223.7	36.7	33.1	0.5	294.1	76.1%
Albania	3.9	0.0	0.4	0.6	4.8	80.0%	0.6	1.6	0.2	0.0	2.5	25.8%
Armenia	5.3	-	0.3	0.4	6.0	88.2%	1.8	1.2	0.3	-	3.2	55.4%
Azerbaijan	29.4	0.9	0.8	0.2	31.4	96.7%	9.8	5.4	1.7	0.0	16.9	57.9%
Belarus	64.2	0.0	3.1	42.4	109.7	58.5%	1.1	8.3	6.0	0.0	15.3	7.0%
Bosnia-Herzegovina	19.5	0.3	0.6	0.4	20.8	95.3%	1.5	1.3	0.3	0.0	3.0	47.8%
Bulgaria	49.1	0.0	3.6	0.4	53.1	92.4%	1.5	1.9	8.8	0.0	12.3	12.4%
Croatia	21.0	0.0	3.4	0.1	24.4	86.0%	2.4	1.4	1.1	0.0	4.9	48.6%
Cyprus	7.6	-	0.7	0.0	8.3	90.9%	0.0	0.2	0.4	-	0.6	2.6%
Georgia	4.8	0.0	0.2	0.3	5.3	90.6%	1.8	2.4	0.5	0.0	4.7	39.2%
Gibraltar	0.5	-	-	0.0	0.5	99.9%	0.0	-	0.0	-	0.0	6.3%
Kazakhstan	207.9	15.2	5.1	0.3	228.6	97.6%	42.5	13.9	5.2	1.2	62.8	67.6%
Kyrgyzstan	5.9	0.0	0.6	0.4	6.9	85.4%	0.3	2.7	0.7	-	3.7	7.0%
Latvia	7.9	-	0.4	4.2	12.5	63.6%	1.8	0.8	0.6	0.0	3.2	55.5%
Lithuania	14.2	0.0	0.5	6.1	20.9	68.2%	1.8	1.9	1.4	0.0	5.2	34.2%
FYR of Macedonia	9.0	-	0.3	0.1	9.4	95.6%	0.5	0.6	0.3	0.0	1.4	33.6%
Malta	2.6	-	0.0	0.0	2.6	99.5%	0.0	0.0	0.2	-	0.2	0.4%
Republic of Moldova	7.1	-	0.4	0.1	7.5	93.7%	1.8	0.8	0.8	-	3.4	52.5%
Romania	92.1	0.9	6.7	1.5	101.2	91.9%	12.5	8.8	5.5	0.0	26.8	46.4%
Russian Federation	1 593.4	76.3	55.1	163.5	1 888.3	88.4%	405.7	41.7	62.8	0.3	510.6	79.5%
Serbia	49.9	0.0	1.4	0.7	52.0	95.9%	3.1	2.6	1.1	0.0	6.7	45.7%
Tajikistan	3.0	-	0.2	0.0	3.2	93.9%	0.5	3.2	0.8	-	4.5	11.8%
Turkmenistan	55.8	2.9	0.4	0.5	59.6	98.6%	25.2	6.7	0.9	-	32.8	76.7%
Ukraine	309.3	13.4	23.7	5.7	352.1	91.6%	47.5	10.3	10.4	0.1	68.3	69.5%
Uzbekistan	114.9	4.5	3.0	1.5	124.0	96.3%	27.4	15.2	3.7	-	46.3	59.1%
Non-OECD Europe and Eurasia	2 678.1	114.6	110.9	229.4	3 133.0	89.1%	590.9	133.0	113.7	1.8	839.5	70.4%
Argentina	173.8	1.0	6.0	7.4	188.2	92.9%	17.1	71.9	7.6	1.1	97.7	17.5%
Bolivia	12.3	0.2	0.7	93.3	106.3	11.7%	9.4	10.1	1.3	0.2	21.0	44.5%
Brazil	361.5	3.6	26.2	449.9	841.2	43.4%	41.2	315.9	61.2	2.9	421.3	9.8%
Colombia	58.3	1.0	5.0	36.6	100.9	58.8%	12.1	42.2	6.9	1.9	63.1	19.2%
Costa Rica	6.6	-	0.5	0.1	7.2	91.1%	0.3	1.4	0.5	-	2.2	12.1%
Cuba	25.2	1.4	0.8	3.1	30.5	87.3%	0.9	5.0	2.5	-	8.4	10.1%
Dominican Republic	19.2	-	1.5	0.3	21.0	91.4%	1.2	3.7	1.9	-	6.7	17.1%
Ecuador	26.5	2.7	1.5	0.9	31.6	92.4%	3.4	9.6	1.8	0.0	14.8	22.7%
El Salvador	6.2	-	0.5	0.3	7.0	88.1%	0.5	1.7	1.0	-	3.1	15.3%
Guatemala	11.3	0.0	1.3	20.9	33.5	33.7%	1.2	3.4	1.6	0.1	6.4	19.4%
Haiti	2.3	-	0.2	0.0	2.6	90.3%	0.9	2.2	1.3	-	4.5	20.0%
Honduras	7.6	-	0.7	2.4	10.7	71.2%	0.5	4.1	0.8	-	5.4	8.5%
Jamaica	11.9	-	0.4	0.1	12.4	95.5%	0.2	0.7	0.5	-	1.3	11.8%
Netherlands Antilles	4.3	-	-	0.0	4.3	98.9%	0.1	0.0	0.1	-	0.1	52.2%
Nicaragua	4.2	-	0.2	0.4	4.8	86.3%	0.4	4.6	1.2	-	6.2	6.8%
Panama	6.2	-	0.4	0.4	7.0	88.4%	0.1	2.7	0.6	-	3.4	4.0%
Paraguay	3.7	-	0.3	12.0	16.0	23.0%	1.8	11.4	1.2	0.1	14.5	12.3%
Peru	35.6	0.1	2.7	6.5	44.9	79.5%	2.1	11.4	3.6	0.0	17.1	12.2%
Trinidad and Tobago	39.2	0.3	0.4	0.0	39.9	99.0%	11.7	0.1	1.4	0.3	13.5	86.6%
Uruguay	7.7	-	0.2	0.4	8.4	91.8%	0.6	19.1	0.8	0.0	20.6	3.0%
Venezuela	153.4	5.8	3.8	64.7	227.8	69.9%	24.4	26.8	5.5	3.4	60.0	40.6%
Other Latin America	17.8	-	0.9	15.2	33.9	52.5%	0.2	2.4	2.9	0.2	5.8	3.7%
Latin America	994.7	16.0	54.2	715.3	1 780.1	56.8%	130.1	550.3	106.4	10.4	797.1	16.3%

2008 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O				Share of energy	HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total					Total	Share of energy	
0.0	-	0.0	0.1	0.1	24.4%	-	0.3	-	26.3	96.3%	Bahrain
1.9	0.9	20.8	2.1	25.8	7.4%	-	0.1	2.7	701.1	88.3%	Islamic Rep. of Iran
0.4	-	2.1	1.0	3.6	11.6%	-	-	0.1	137.7	88.1%	Iraq
0.1	-	0.4	0.2	0.7	8.4%	0.2	-	-	23.2	82.5%	Jordan
0.2	-	0.1	0.3	0.6	27.4%	0.8	-	0.5	92.7	96.1%	Kuwait
0.1	-	0.4	0.2	0.6	10.6%	-	-	-	19.6	81.6%	Lebanon
0.1	-	0.4	0.1	0.6	14.9%	0.3	-	-	79.3	68.7%	Oman
0.1	-	0.1	0.2	0.3	28.0%	-	-	-	87.9	97.3%	Qatar
1.0	-	3.1	2.7	6.8	14.8%	0.3	-	2.3	472.7	93.6%	Saudi Arabia
0.3	0.3	5.0	0.7	6.2	4.0%	-	-	-	90.3	83.2%	Syrian Arab Republic
0.2	-	0.5	0.7	1.4	14.8%	-	0.3	0.9	179.4	94.0%	United Arab Emirates
0.5	-	2.5	0.5	3.5	13.7%	-	-	-	36.8	71.8%	Yemen
4.8	1.2	35.4	8.9	50.2	9.5%	1.5	0.8	6.5	1 947.2	89.5%	Middle East
0.1	-	0.9	0.1	1.1	7.1%	0.1	-	-	8.5	53.7%	Albania
0.0	-	0.6	0.1	0.7	3.2%	0.5	-	-	10.4	68.0%	Armenia
0.1	-	2.1	0.4	2.6	5.4%	0.1	0.3	-	51.3	78.6%	Azerbaijan
0.7	2.3	8.9	0.6	12.5	5.6%	0.6	0.0	-	138.2	47.7%	Belarus
0.2	-	0.7	0.2	1.1	14.3%	0.6	0.1	-	25.7	83.5%	Bosnia-Herzegovina
0.3	1.1	1.9	0.5	3.8	8.4%	0.5	0.0	-	69.7	73.1%	Bulgaria
0.3	0.9	1.5	0.3	2.9	9.8%	0.1	0.0	-	32.2	73.3%	Croatia
0.0	-	0.2	0.1	0.3	14.2%	0.3	-	-	9.5	80.6%	Cyprus
0.1	0.8	1.2	0.2	2.2	3.2%	0.0	-	-	12.2	55.1%	Georgia
0.0	-	-	0.0	0.0	36.5%	-	-	-	0.5	97.5%	Gibraltar
3.2	-	12.1	3.1	18.4	17.3%	0.5	-	-	310.3	86.6%	Kazakhstan
0.2	-	1.1	0.2	1.5	11.3%	0.0	-	-	12.2	52.3%	Kyrgyzstan
0.2	-	1.0	0.2	1.4	12.4%	1.2	0.0	-	18.3	53.9%	Latvia
0.1	2.4	2.2	0.2	4.9	2.6%	0.9	0.0	-	31.9	50.6%	Lithuania
0.1	-	0.4	0.1	0.6	11.0%	0.2	-	-	11.5	82.8%	FYR of Macedonia
0.0	-	0.0	0.0	0.1	8.4%	0.2	-	-	3.0	84.8%	Malta
0.1	-	0.5	0.1	0.7	8.4%	0.0	-	-	11.6	76.8%	Republic of Moldova
0.8	2.5	6.3	1.2	10.8	7.4%	0.6	0.4	0.0	139.8	76.0%	Romania
8.1	13.0	31.0	11.3	63.4	12.7%	28.6	28.1	9.4	2 528.5	82.4%	Russian Federation
0.3	0.3	4.7	0.5	5.7	5.4%	6.0	0.1	-	70.5	75.5%	Serbia
0.0	-	1.4	0.2	1.6	1.3%	0.0	0.3	-	9.7	37.1%	Tajikistan
0.1	0.8	3.8	0.3	5.0	1.8%	0.1	-	-	97.5	86.1%	Turkmenistan
1.6	9.7	9.7	2.6	23.6	6.7%	0.3	0.2	0.4	444.9	83.6%	Ukraine
0.5	0.1	9.3	1.1	10.9	4.5%	0.8	-	-	182.1	80.9%	Uzbekistan
16.9	33.8	101.4	23.6	175.8	9.6%	42.2	29.5	9.9	4 229.8	80.4%	Non-OECD Europe and Eurasia
1.6	0.1	49.0	3.2	54.0	3.0%	0.3	0.1	0.4	340.8	56.8%	Argentina
0.1	-	4.7	3.9	8.8	1.5%	-	-	-	136.1	16.1%	Bolivia
7.0	2.3	155.7	25.8	190.8	3.7%	2.7	6.2	1.4	1 463.6	28.2%	Brazil
0.7	0.1	20.3	2.9	23.9	2.8%	-	0.0	0.1	188.0	38.3%	Colombia
0.1	0.0	1.1	0.2	1.4	5.9%	0.1	-	-	10.9	63.5%	Costa Rica
0.2	0.9	5.0	0.5	6.6	3.6%	0.2	-	-	45.7	60.6%	Cuba
0.2	-	1.8	0.4	2.4	8.9%	-	-	-	30.1	68.2%	Dominican Republic
0.2	-	3.8	0.5	4.5	3.8%	0.1	-	-	50.9	64.2%	Ecuador
0.1	-	1.1	0.2	1.5	8.1%	0.1	-	-	11.8	57.8%	El Salvador
0.3	-	2.4	1.3	4.0	7.2%	0.7	-	-	44.5	28.8%	Guatemala
0.1	-	1.2	0.2	1.5	7.9%	-	-	-	8.6	39.2%	Haiti
0.1	-	2.4	0.6	3.1	3.9%	-	-	-	19.2	42.5%	Honduras
0.1	-	0.4	0.2	0.7	14.5%	0.1	-	-	14.5	83.6%	Jamaica
0.0	-	0.0	0.1	0.1	18.1%	-	-	-	4.5	96.5%	Netherlands Antilles
0.1	-	3.0	0.3	3.4	3.4%	-	-	-	14.4	32.5%	Nicaragua
0.1	-	1.1	0.2	1.4	5.4%	-	-	-	11.8	54.5%	Panama
0.2	-	6.6	0.8	7.5	2.5%	-	-	-	38.0	14.9%	Paraguay
0.2	-	6.2	1.1	7.5	2.8%	0.5	-	-	70.0	54.3%	Peru
0.0	-	0.2	0.1	0.3	11.6%	-	-	-	53.8	95.4%	Trinidad and Tobago
0.1	-	7.1	0.2	7.4	1.8%	0.1	-	-	36.4	23.2%	Uruguay
0.7	0.0	12.5	4.0	17.2	4.2%	1.3	0.3	0.3	306.9	60.1%	Venezuela
0.1	-	2.4	0.8	3.3	4.0%	0.0	0.0	0.0	43.0	42.2%	Other Latin America
12.5	3.4	288.1	47.4	351.4	3.5%	6.1	6.6	2.2	2 943.6	39.2%	Latin America

MULTILINGUAL GLOSSARIES

français

French

Deutsch

German

Indicateurs principaux

CO₂ Méthode sectorielle (Mt de CO₂)
CO₂ Méthode de référence (Mt de CO₂)

ATEP (PJ)
ATEP (Mtep)
PIB (milliards de \$EU 2000)
PIB PPA (milliards de \$EU 2000)
Population (millions)

CO₂ / ATEP (t CO₂ par TJ)
CO₂ / PIB (kg CO₂ par \$EU 2000)
CO₂ / PIB PPA (kg CO₂ par \$EU 2000)
CO₂ / Population (t CO₂ par habitant)

Les rapports sont fondés sur la méthode sectorielle.

Hauptkennzahlen

CO₂ Sektorspezifischer Ansatz (MT CO₂)
CO₂ Referenzansatz (MT CO₂)

PEV (PJ)
PEV (Mtoe)
BIP (Mrd. 2000 US\$)
BIP Kaufkraftparität (Mrd. 2000 US\$)
Bevölkerung (Mio.)

CO₂ / PEV (t CO₂ pro TJ)
CO₂ / BIP (kg CO₂ pro 2000 US\$)
CO₂ / BIP Kaufkraftparität (kg CO₂ pro 2000 US\$)
t CO₂ pro Kopf

Verhältniszahlen basieren auf dem Sektorspezifischer Ansatz.

Emissions de CO₂ par secteur en 2009

millions de tonnes de CO₂

Méthode sectorielle

Production d'électricité et de chaleur (activité principale)
Autoproducteurs non spécifiés
Autres industries de l'énergie
Industries manufacturières et de construction
Transport

dont: transport routier

Autres secteurs

dont: résidentiel

Méthode de référence

Ecarts dus aux pertes et/ou aux transformations

Ecarts statistiques

Pour mémoire : soutes maritimes internationales

Pour mémoire : soutes aériennes internationales

La catégorie Autres inclut les déchets industriels et les déchets urbains non renouvelables.

CO₂-Emissionen nach Sektoren (2009)

Mio. Tonnen CO₂

Sektorspezifischer Ansatz

Öffentliche Elektrizitäts- und Wärmeerzeugung
Nicht zugeordnete Eigenerzeuger
Andere Energieindustrien
Verarbeitende Industrie und Baugewerbe
Verkehr

davon: Straßenverkehr

Andere Sektoren

davon: Haushalte

Referenzansatz

Differenzen infolge von Verlusten und/oder Umwandlung

Stat. Differenzen

Anmerkung: Bunkerung von Brennstoffen durch seegehende Schiffe

Anmerkung: Bunkerung von Brennstoffen im luftverkehr

Andern inklusive Industrieabfälle und nichterneuerbare städtische Abfälle.

italiano

Italian

Japanese

Japanese

Principali indicatori**主要指標**CO₂ Metodo settoriale (Mt di CO₂)CO₂ 排出量 セクター別 アプローチ (二酸化炭素 百万 トン)CO₂ Metodo di base (Mt di CO₂)CO₂ 排出量 レファレンス・アプローチ (二酸化炭素 百万 トン)

ATEP (PJ)

一次エネルギー供給 (PJ)

ATEP (Mtep)

一次エネルギー供給 (石油換算 百万 トン)

PIL (miliardi di US\$ 2000)

GDP (10億 米ドル、2000年 価格)

PIL PPA (miliardi di US\$ 2000)

GDP PPP (購買力平価ベースのGDP) (10億 米ドル、2000年 価格)

Popolazione (milioni)

人口 (百万)

CO₂ / ATEP (t di CO₂ per TJ)CO₂ 排出量 / 一次エネルギー供給 (CO₂ トン / PJ)CO₂ / PIL (kg di CO₂ per US\$ 2000)CO₂ 排出量 / GDP (CO₂ キログラム / 米ドル、2000年 価格)CO₂ / PIL PPA (kg di CO₂ per US\$ 2000)CO₂ 排出量 / GDP PPP (CO₂ キログラム / 米ドル、2000年 価格)CO₂ / Popolazione (t di CO₂ per abitante)一人当たり CO₂ 排出量 (二酸化炭素 トン / 人)

I rapporti sono basati sul metodo settoriale.

レートはセクター別アプローチを基に算出

Emissioni di CO₂ per settore in 2009**2009年の部門別二酸化炭素排出量***milioni di tonnellate di CO₂*CO₂ 百万 トン**Metodo settoriale****セクター別 アプローチ**

Produzione di elettricità e di calore (attività principale)

電気・熱供給事業者

Auto-produttori non specificati

自家発

Altri settori energetici

その他のエネルギー産業

Industrie manifatturiere e della costruzione

製造業・建設業

Settore dei trasporti

運輸業

di cui: trasporti stradali

国内道路運送業

Altri settori

その他

di cui: settore domestico

国内民生・家庭用

Metodo di base**レファレンス・アプローチ**

Differenza dovuta alle perdite e/o alle trasformaz.

転換ロス等に起因する誤差

Differenza statistica

統計誤差

Memo: bunkeraggi marittimi internazionali

メモ：国際海運バンカー

Memo: bunkeraggi aerei internazionali

メモ：国際航空バンカー

La categoria Altri comprende rifiuti industriali e rifiuti urbani non rinnovabili.

「その他」は「産業廃棄物」及び「再利用不可の都市廃棄物」を含む

español
Spanish

русский
Russian

Indicadores Básicos

CO₂ Metodo Sectorial (Mt de CO₂)
CO₂ Metodo Base (Mt de CO₂)
TPES (PJ)
TPES (Mtep)
PIB (billón de 2000 USD)
PIB PPP (billón de 2000 USD)
Población (millones)

CO₂ / TPES (t CO₂ por TJ)
CO₂ / PIB (kg CO₂ por 2000 USD)
CO₂ / PIB PPP (kg CO₂ por 2000 USD)
CO₂ / Población (t CO₂ per capita)

Los ratios estan calculados a partir del metodo sectorial.

Основные показатели

CO₂ секторный подход (млнт CO₂)
CO₂ системный подход (млнт CO₂)

ОППТЭ (PJ)
ОППТЭ (млн тнэ)
ВВП (миллиардов долларов США 2000 г.)
ВВП ППС (миллиардов долларов США 2000 г.)
Население (миллионов человек)

CO₂/ОППТЭ (т CO₂ на тнэ)
CO₂/ВВП (кг CO₂ на доллар США 2000 г.)
CO₂/ВВП ППС (кг CO₂ на доллар США 2000 г.)
CO₂/Численность населения (тнэ на человека)

коэффициенты основаны на секторном подходе.

Emisiones de CO₂ por Sector en 2009

millón de toneladas de CO₂

Metodo Sectorial

Producción de electricidad y calor (actividad principal)
Autoprodutores no especificados
Otras Industrias de Energía
Industrias Manufactureras y Construcción
Transporte
del cual: Carretera
Otros sectores
del cual: Residencial

Metodo Base

Diferencias por Pérdidas y/o Transformación
Diferencias estadísticas
Memo: Bunkers de Navegación Internacional
Memo: Bunkers de Aviación Internacional

Otros incluye residuos industriales y residuos municipales no renovables.

Выбросы CO₂ в 2009 г. по отраслям

миллионов тон CO₂

секторный подход

Электростанции и теплоцентрали общего пользования
Электростанции и теплоцентрали предприятий
Прочие топливно-энергетические отрасли
Обрабатывающие отрасли промышленности и строительство
Транспорт (включая международную морскую бункеровку)
в том числе : Автомобильный
Прочие отрасли
в том числе : Жилищно-коммунальное хозяйство

системный подход

Расхождение от потерь и/или переработки
Статистическое расхождение
К сведению : Международная морская бункеровка
К сведению : Международная воздушная бункеровка

Категория Другие включает промышленные отходы и ком.-быт. твердые отходы.

Energy Data Manager / Statistician

Possible Staff Vacancies

International Energy Agency, Paris, France

The IEA

The International Energy Agency, based in Paris, acts as energy policy advisor to 28 member countries in their effort to ensure reliable, affordable and clean energy for their citizens. Founded during the oil crisis of 1973-74, the IEA's initial role was to co-ordinate measures in times of oil supply emergencies. As energy markets have changed, so has the IEA. Its mandate has broadened to incorporate the "Three E's" of balanced energy policy making: energy security, economic development and environmental protection. Current work focuses on climate change policies, market reform, energy technology collaboration and outreach to the rest of the world, especially major consumers and producers of energy like China, India, Russia and the OPEC countries.

The Energy Statistics Division, with a staff of around 30 people, provides a dynamic environment for young people just finishing their studies or with one to two years of work experience.

Job description

The data managers/statisticians compile, verify and disseminate information on all aspects of energy including production, transformation and consumption of all fuels, renewables, the emergency reporting system, energy efficiency indicators, CO₂ emissions, and energy prices and taxes. The data managers are responsible for receiving, reviewing and inputting data submissions from Member countries and other sources into large computerised databases. They check for completeness, correct calculations, internal consistency, accuracy and consistency with definitions. Often this entails proactively investigating and helping to resolve anomalies in collaboration with national administrations of Member and Non-Member countries. The data managers/statisticians also play a key role in helping to design and implement computer macros used in the preparation of their energy statistics publication(s).

Principal Qualifications

- University degree in a topic relevant to energy, computer programming or statistics. We currently have staff with degrees in Mathematics, Statistics, Information Technology, Economics, Engineering, Physics, Chemistry, Environmental Studies, Hydrology, Public Administration and Business.
- Experience in the basic use of databases and computer software. Good computer programming skills in Visual Basic.
- Ability to work accurately, pay attention to detail and work to deadlines. Ability to deal simultaneously with a wide variety of tasks and to organise work efficiently.
- Good communication skills; ability to work well in a team and in a multicultural environment, particularly in liaising with contacts in national administrations and industry.
- Very good knowledge of one of the two official languages of the Organisation (English or French). Knowledge of other languages would be an advantage.
- Some knowledge of energy industry operations and terminology would also be an advantage, but is not required.

Nationals of any OECD Member country are eligible for appointment. Basic salaries start at 3 050 Euros per month. The possibilities for advancement are good for candidates with appropriate qualifications and experience. Tentative enquiries about future vacancies are welcomed from men and women with relevant qualifications and experience. Applications in French or English, accompanied by a curriculum vitae, should be sent to:

Personnel and Finance Division
International Energy Agency
9 rue de la Fédération
75739 Paris Cedex 15, France
Email: recruitment@iea.org

On-Line Data Services

Users can instantly access not only all the data published in this book, but also all the time series used for preparing this publication and all the other statistics publications of the IEA. The data are available on-line, either through annual subscription or pay-per-view access. More information on this service can be found on our website: <http://data.iea.org>

Ten Annual Publications

■ Energy Statistics of OECD Countries, 2011 Edition

No other publication offers such in-depth statistical coverage. It is intended for anyone involved in analytical or policy work related to energy issues. It contains data on energy supply and consumption in original units for coal, oil, natural gas, biofuels/waste and products derived from these primary fuels, as well as for electricity and heat. Complete data are available for 2008 and 2009 and supply estimates are available for the most recent year (*i.e.* 2010). Historical tables summarise data on production, trade and final consumption. Each issue includes definitions of products and flows and explanatory notes on the individual country data.

Published July 2011 - Price €120

■ Energy Balances of OECD Countries, 2011 Edition

A companion volume to *Energy Statistics of OECD Countries*, this publication presents standardised energy balances expressed in million tonnes of oil equivalent. Energy supply and consumption data are divided by main fuel: coal, oil, natural gas, nuclear, hydro, geothermal/solar, biofuels/waste, electricity and heat. This allows for easy comparison of the contributions each fuel makes to the economy and their interrelationships through the conversion of one fuel to another. All of this is essential for estimating total energy supply, forecasting, energy conservation, and analysing the potential for interfuel substitution. Complete data are available for 2008 and 2009 and supply estimates are available for the most recent year (*i.e.* 2010). Historical tables summarise key energy and economic indicators as well as data on production, trade and final consumption. Each issue includes definitions of products and flows and explanatory notes on the individual country data as well as conversion factors from original units to tonnes of oil equivalent.

Published July 2011 - Price €120

■ Energy Statistics of Non-OECD Countries, 2011 Edition

This publication offers the same in-depth statistical coverage as the homonymous publication covering OECD countries. It includes data in original units for more than 100 individual countries and nine main regions. The consistency of OECD and non-OECD countries' detailed statistics provides an accurate picture of the global energy situation for 2008 and 2009. For a description of the content, please see *Energy Statistics of OECD Countries* above.

Published August 2011 - Price €120

■ **Energy Balances of Non-OECD Countries, 2011 Edition**

A companion volume to the publication *Energy Statistics of Non-OECD Countries*, this publication presents energy balances in thousand tonnes of oil equivalent and key economic and energy indicators for more than 100 individual countries and nine main regions. It offers the same statistical coverage as the homonymous publication covering OECD countries, and thus provides an accurate picture of the global energy situation for 2008 and 2009. For a description of the content, please see *Energy Balances of OECD Countries* above.

Published August 2011 - Price €120

■ **Electricity Information 2011**

This reference document provides essential statistics on electricity and heat for each OECD member country by bringing together information on production, installed capacity, input energy mix to electricity and heat production, input fuel prices, consumption, end-user electricity prices and electricity trades.

Published August 2011 - Price €150

■ **Coal Information 2011**

This well-established publication provides detailed information on past and current evolution of the world coal market. It presents country-specific statistics for OECD member countries and selected non-OECD countries on coal production, demand, trade and prices. This publication represents a key reference tool for all those involved in the coal supply or consumption stream, as well as institutions and governments involved in market and policy analysis of the world coal market.

Published August 2011 - Price €165

■ **Natural Gas Information 2011**

A detailed reference work on gas supply and demand, covering not only the OECD countries but also the rest of the world. Contains essential information on LNG and pipeline trade, gas reserves, storage capacity and prices. The main part of the book, however, concentrates on OECD countries, showing a detailed gas supply and demand balance for each individual country and for the three OECD regions, as well as a breakdown of gas consumption by end-user. Import and export data are reported by source and destination.

Published August 2011 - Price €165

■ **Oil Information 2011**

A comprehensive reference book on current developments in oil supply and demand. The first part of this publication contains key data on world production, trade, prices and consumption of major oil product groups, with time series back to the early 1970s. The second part gives a more detailed and comprehensive picture of oil supply, demand, trade, production and consumption by end-user for each OECD country individually and for the OECD regions. Trade data are reported extensively by origin and destination.

Published August 2011 - Price €165

■ **Renewables Information 2011**

This reference document brings together in one volume essential statistics on renewables and waste energy sources. It presents a detailed and comprehensive picture of developments for renewable and waste energy sources for each of the OECD member countries, encompassing energy indicators, generating capacity, electricity and heat production from renewable and waste sources, as well as production and consumption of renewable and waste products.

Published August 2011 - Price €110

■ **CO₂ Emissions from Fuel Combustion, 2011 Edition**

In order for nations to tackle the problem of climate change, they need accurate greenhouse gas emissions data. This publication provides a basis for comparative analysis of CO₂ emissions from fossil fuel combustion, a major source of anthropogenic emissions. The data in this book are designed to assist in understanding the evolution of the emissions of CO₂ from 1971 to 2009 for more than 140 countries and regions by sector and by fuel. Emissions were calculated using IEA energy databases and the default methods and emissions factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*.

Published November 2011 - Price €165

Two Quarterlies

■ **Oil, Gas, Coal and Electricity, Quarterly Statistics**

This publication provides up-to-date, detailed quarterly statistics on oil, coal, natural gas and electricity for the OECD countries. Oil statistics cover production, trade, refinery intake and output, stock changes and consumption for crude oil, NGL and nine selected oil product groups. Statistics for electricity, natural gas and coal show supply and trade. Import and export data are reported by origin and destination. Moreover, oil as well as hard coal and brown coal production are reported on a worldwide basis.

Published Quarterly - Price €120, annual subscription €380

■ **Energy Prices and Taxes**

This publication responds to the needs of the energy industry and OECD governments for up-to-date information on prices and taxes in national and international energy markets. It contains prices at all market levels for OECD countries and certain non-OECD countries: import prices, industry prices and consumer prices. The statistics cover the main oil products, natural gas, coal and electricity, giving for imported products an average price both for importing country and country of origin. Every issue includes full notes on sources and methods and a description of price mechanisms in each country.

Published Quarterly - Price €120, annual subscription €380

Electronic Editions

■ CD-ROMs and Online Data Services

To complement its publications, the Energy Statistics Division produces CD-ROMs containing the complete databases which are used for preparing the statistics publications. State-of-the-art software allows you to access and manipulate all these data in a very user-friendly manner and includes graphic facilities. These databases are also available on the internet from our online data service.

Annual CD-ROMS / Online Databases

- | | |
|---|------------------------------------|
| ■ Energy Statistics of OECD Countries, 1960-2010 | Price: €550 (single user) |
| ■ Energy Balances of OECD Countries, 1960-2010 | Price: €550 (single user) |
| ■ Energy Statistics of Non-OECD Countries, 1971-2009 | Price: €550 (single user) |
| ■ Energy Balances of Non-OECD Countries, 1971-2009 | Price: €550 (single user) |
| ■ <i>Combined subscription of the above four series</i> | <i>Price: €1 400 (single user)</i> |
| ■ Electricity Information 2011 | Price: €550 (single user) |
| ■ Coal Information 2011 | Price: €550 (single user) |
| ■ Natural Gas Information 2011 | Price: €550 (single user) |
| ■ Oil Information 2011 | Price: €550 (single user) |
| ■ Renewables Information 2011 | Price: €400 (single user) |
| ■ CO ₂ Emissions from Fuel Combustion, 1971-2009 | Price: €550 (single user) |

Quarterly CD-ROMs / Online Databases

- | | |
|---------------------------|---|
| ■ Energy Prices and Taxes | Price: (four quarters) €900 (single user) |
|---------------------------|---|

A description of these services are available on our website: <http://data.iea.org>

Other Online Services

■ The Monthly Oil Data Service

The IEA Monthly Oil Data Service provides the detailed databases of historical and projected information which is used in preparing the IEA's monthly *Oil Market Report* (OMR). The IEA Monthly Oil Data Service comprises three packages available separately or combined as a subscriber service on the Internet. The data are available at the same time as the official release of the Oil Market Report.

The packages include:

- | | |
|---------------------------------------|------------------------------------|
| ■ Supply, Demand, Balances and Stocks | Price: €6 000 (single user) |
| ■ Trade | Price: €2 000 (single user) |
| ■ Field-by-Field Supply | Price: €3 000 (single user) |
| ■ <i>Complete Service</i> | <i>Price: €9 000 (single user)</i> |

A description of this service is available on our website: <http://www.iea.org/stats/mods.asp>

■ The Monthly Gas Data Service

The service provides monthly natural gas data for OECD countries:

- supply balances in terajoules and cubic metres;
- production, trade, stock changes and levels where available, gross inland deliveries, own use and losses;
- highly detailed trade data with about 50 imports origins and exports destinations;
- LNG trade detail available from January 2002.

The databases cover the time period January 1984 to current month with a time lag of two months for the most recent data.

- Monthly Gas Data Service: Natural Gas Balances & Trade
Historical plus 12 monthly updates Price: €800 (single user)

For more information consult: <http://data.iea.org>

Moreover, the IEA statistics website contains key energy indicators by country, graphs on the world and OECD's energy situation evolution from 1971 to the most recent year available, as well as selected databases for demonstration.

The IEA statistics website can be accessed at www.iea.org/statistics/

Notes



International
Energy Agency

Online bookshop

Buy IEA publications
online:

www.iea.org/books

PDF versions available
at 20% discount

Books published before January 2010
- except statistics publications -
are freely available in pdf

International Energy Agency • 9 rue de la Fédération • 75739 Paris Cedex 15, France

iea

Tel: +33 (0)1 40 57 66 90

E-mail:
books@iea.org

IEA Publications, 9, rue de la Fédération, 75739 Paris Cedex 15
Printed in Luxembourg by Imprimerie Centrale, October 2011
(61 2011 12 1 P1) ISBN 978-92-64-10283-5