

2015

# Key World Energy STATISTICS

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# KEY WORLD ENERGY STATISTICS



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# The International Energy Agency

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The IEA, which was established in November 1974, has over the years gained recognition as one of the world's most authoritative sources for energy statistics. Its all-encompassing annual studies of oil, natural gas, coal, electricity and renewables are indispensable tools for energy policy makers, companies involved in the energy field and scholars.

In 1997 the IEA produced a handy, pocket-sized summary of key energy data. This new edition responds to the enormously positive reaction to the books since then. **Key World Energy Statistics** from the IEA contains timely, clearly-presented data on the supply, transformation and consumption of all major energy sources. The interested businessman, journalist or student will have at his or her fingertips the annual Australian production of coal, the electricity production in Japan, the price of diesel oil in Spain and thousands of other useful energy facts.

Gathering and analysing statistics is one of the important IEA functions. But the Agency – an autonomous body within the Organisation for Economic Co-operation and Development – also:

- administers a plan to guard member countries against the risk of a major disruption of oil supplies
- coordinates national efforts to conserve energy and develop alternative energy sources, as well as to limit pollution and energy-related climate change
- disseminates information on the world energy market and seeks to promote stable international trade in energy.

# TABLE OF CONTENTS

Due to newly available revisions from China's National Bureau of Statistics, data for 2011, 2012 and 2013 for China have been revised in this publication. As such, care should be used when interpreting energy trends between 2010 and 2011. For the years 2000-2010, revisions will be published in the next edition of this publication.

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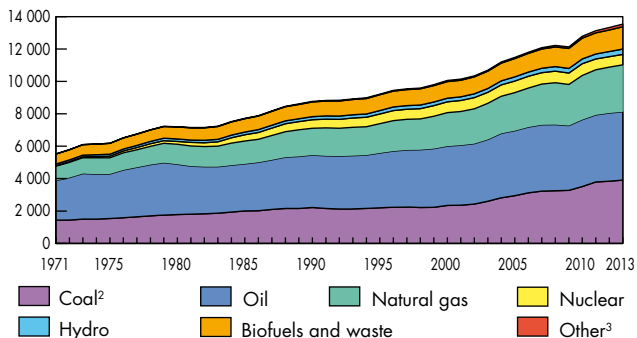
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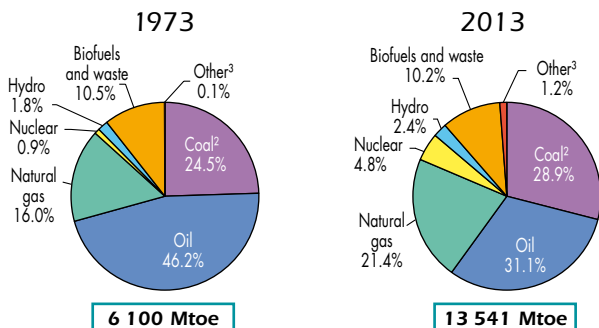
# TOTAL PRIMARY ENERGY SUPPLY

## World

World<sup>1</sup> total primary energy supply (TPES) from 1971 to 2013 by fuel (Mtoe)



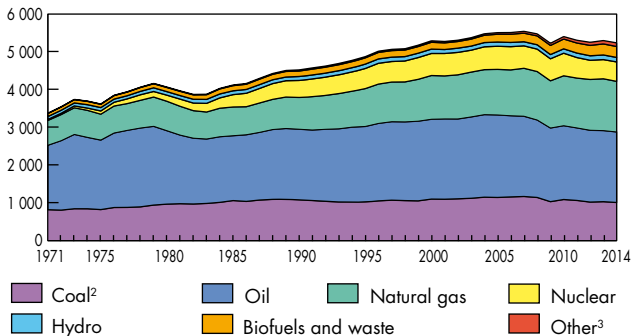
## 1973 and 2013 fuel shares of TPES



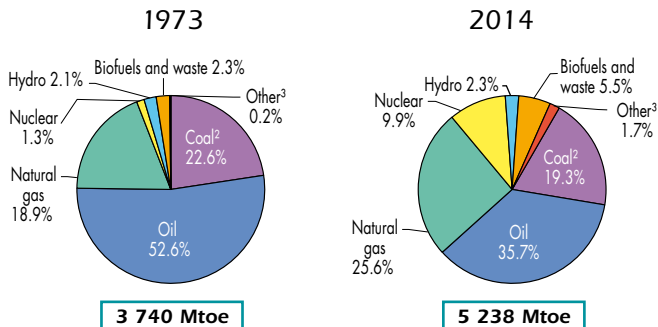
1. World includes international aviation and international marine bunkers.
2. In these graphs, peat and oil shale are aggregated with coal.
3. Includes geothermal, solar, wind, heat, etc.

## OECD

OECD total primary energy supply<sup>1</sup> from 1971 to 2014 by fuel (Mtoe)



## 1973 and 2014 fuel shares of TPES<sup>1</sup>



1. Excludes electricity trade.

2. In these graphs, peat and oil shale are aggregated with coal.

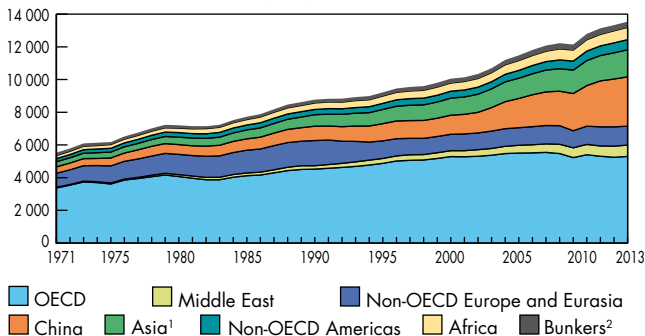
3. Includes geothermal, solar, wind, heat, etc.



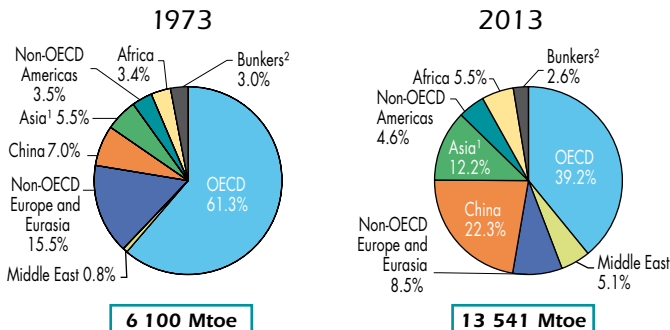
# TOTAL PRIMARY ENERGY SUPPLY

## World

World total primary energy supply from 1971 to 2013  
by region (Mtoe)



## 1973 and 2013 regional shares of TPES



1. Asia excludes China.

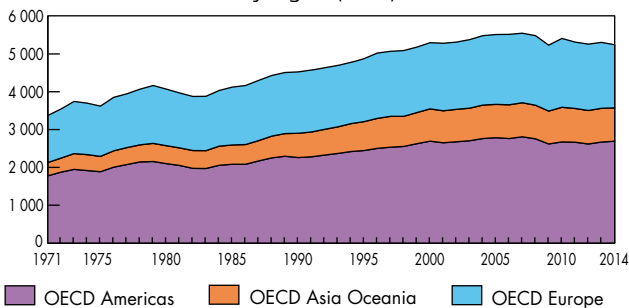
2. Includes international aviation and international marine bunkers.

# BY REGION

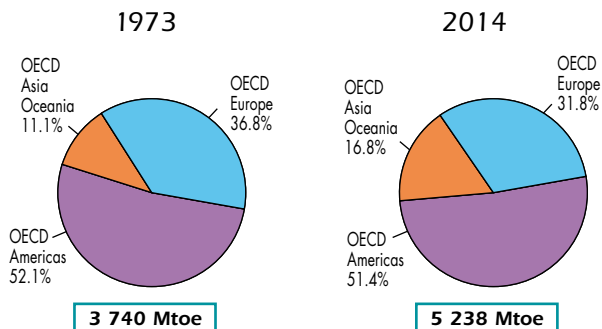
1

## OECD

OECD total primary energy supply<sup>1</sup> from 1971 to 2014 by region (Mtoe)



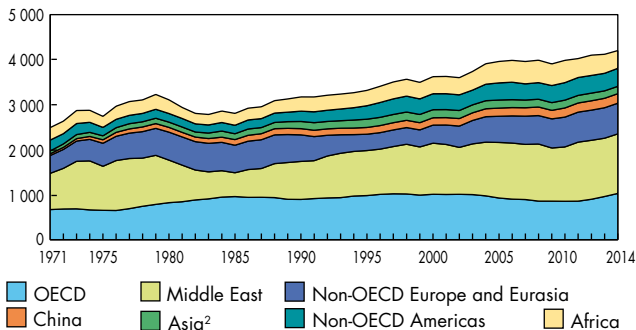
## 1973 and 2014 regional shares of TPES<sup>1</sup>



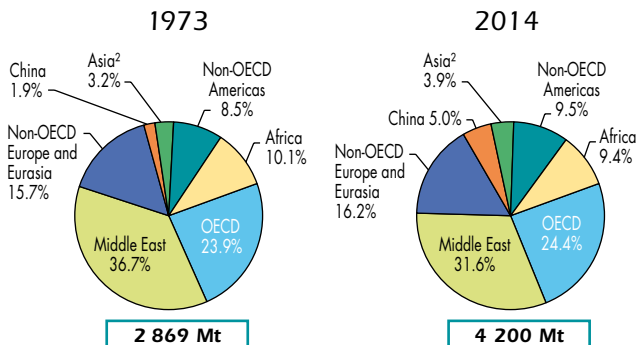
1. Excludes electricity trade.

## Crude oil production

Crude oil<sup>1</sup> production from 1971 to 2014  
by region (Mt)



### 1973 and 2014 regional shares of crude oil<sup>1</sup> production



- Includes crude oil, NGL, feedstocks, additives and other hydrocarbons.
- Asia excludes China.

# Producers, net exporters and net importers of crude oil<sup>1</sup>

1



| Producers              | Mt           | % of world total |
|------------------------|--------------|------------------|
| Saudi Arabia           | 542          | 12.9             |
| Russian Federation     | 529          | 12.6             |
| United States          | 509          | 12.1             |
| People's Rep. of China | 212          | 5.0              |
| Canada                 | 208          | 5.0              |
| Islamic Rep. of Iran   | 166          | 4.0              |
| Iraq                   | 160          | 3.8              |
| Kuwait                 | 158          | 3.8              |
| United Arab Emirates   | 157          | 3.7              |
| Venezuela              | 151          | 3.6              |
| Rest of the world      | 1 408        | 33.5             |
| <b>World</b>           | <b>4 200</b> | <b>100.0</b>     |

2014 provisional data

| Net exporters        | Mt           |
|----------------------|--------------|
| Saudi Arabia         | 377          |
| Russian Federation   | 236          |
| United Arab Emirates | 125          |
| Iraq                 | 117          |
| Nigeria              | 108          |
| Kuwait               | 103          |
| Canada               | 100          |
| Venezuela            | 98           |
| Angola               | 84           |
| Mexico               | 62           |
| Others               | 519          |
| <b>Total</b>         | <b>1 929</b> |

2013 data

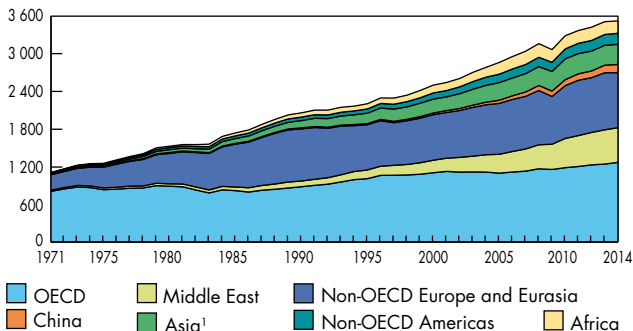
| Net importers          | Mt           |
|------------------------|--------------|
| United States          | 391          |
| People's Rep. of China | 280          |
| India                  | 189          |
| Japan                  | 178          |
| Korea                  | 123          |
| Germany                | 91           |
| Italy                  | 65           |
| Spain                  | 60           |
| France                 | 56           |
| Netherlands            | 54           |
| Others                 | 507          |
| <b>Total</b>           | <b>1 994</b> |

2013 data

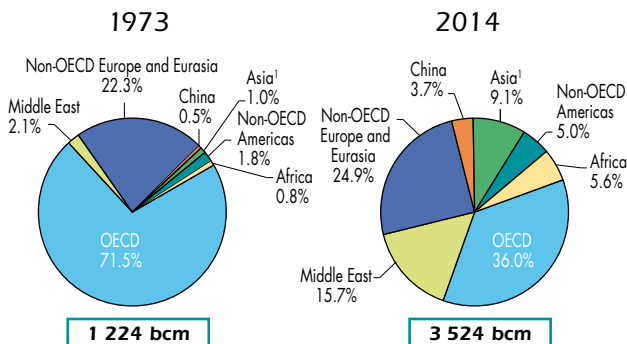
1. Includes crude oil, NGL, feedstocks, additives and other hydrocarbons.

## Natural gas production

Natural gas production from 1971 to 2014 by region  
(billion cubic metres, bcm)



### 1973 and 2014 regional shares of natural gas production



1. Asia excludes China.

# Producers, net exporters and net importers<sup>1</sup> of natural gas

1



| Producers              | bcm          | % of world total |
|------------------------|--------------|------------------|
| United States          | 730          | 20.7             |
| Russian Federation     | 644          | 18.3             |
| Islamic Rep. of Iran   | 169          | 4.8              |
| Canada                 | 162          | 4.6              |
| Qatar                  | 160          | 4.5              |
| People's Rep. of China | 130          | 3.7              |
| Norway                 | 113          | 3.2              |
| Turkmenistan           | 87           | 2.5              |
| Saudi Arabia           | 84           | 2.4              |
| Algeria                | 80           | 2.3              |
| Rest of the world      | 1 165        | 33.0             |
| <b>World</b>           | <b>3 524</b> | <b>100.0</b>     |

2014 provisional data

| Net exporters      | bcm        |
|--------------------|------------|
| Russian Federation | 179        |
| Qatar              | 119        |
| Norway             | 107        |
| Turkmenistan       | 57         |
| Canada             | 56         |
| Algeria            | 45         |
| Indonesia          | 34         |
| Netherlands        | 30         |
| Nigeria            | 25         |
| Australia          | 25         |
| Others             | 159        |
| <b>Total</b>       | <b>836</b> |

2014 provisional data

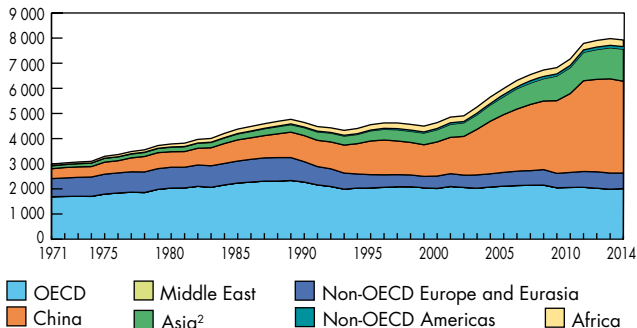
| Net importers          | bcm        |
|------------------------|------------|
| Japan                  | 128        |
| Germany                | 68         |
| Italy                  | 56         |
| People's Rep. of China | 50         |
| Korea                  | 49         |
| Turkey                 | 48         |
| France                 | 38         |
| United States          | 33         |
| United Kingdom         | 32         |
| Spain                  | 28         |
| Others                 | 286        |
| <b>Total</b>           | <b>816</b> |

2014 provisional data

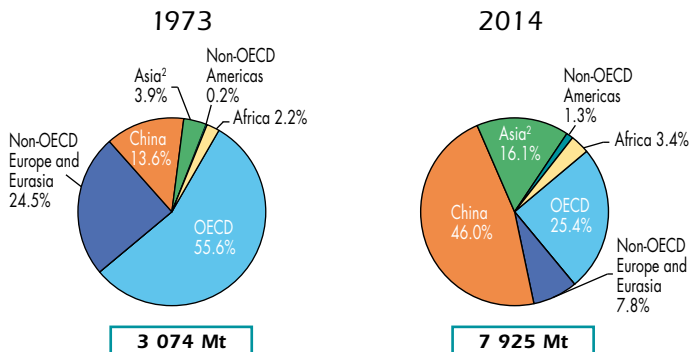
1. Net exports and net imports include pipeline gas and LNG.

# Coal production

Coal<sup>1</sup> production from 1971 to 2014  
by region (Mt)



## 1973 and 2014 regional shares of coal<sup>1</sup> production



1. Includes steam coal, coking coal, lignite and recovered coal.
2. Asia excludes China.

# Producers, net exporters and net importers of coal<sup>1</sup>

1



| Producers              | Mt           | % of world total |
|------------------------|--------------|------------------|
| People's Rep. of China | 3 650        | 46.1             |
| United States          | 916          | 11.6             |
| India                  | 668          | 8.4              |
| Australia              | 491          | 6.2              |
| Indonesia              | 471          | 5.9              |
| Russian Federation     | 334          | 4.2              |
| South Africa           | 253          | 3.2              |
| Germany                | 187          | 2.4              |
| Poland                 | 137          | 1.7              |
| Kazakhstan             | 115          | 1.5              |
| Rest of the world      | 703          | 8.8              |
| <b>World</b>           | <b>7 925</b> | <b>100.0</b>     |

2014 provisional data

| Net exporters      | Mt           |
|--------------------|--------------|
| Indonesia          | 409          |
| Australia          | 375          |
| Russian Federation | 130          |
| Colombia           | 80           |
| United States      | 78           |
| South Africa       | 75           |
| Kazakhstan         | 29           |
| Canada             | 27           |
| Mongolia           | 19           |
| DPR of Korea       | 15           |
| Others             | 18           |
| <b>Total</b>       | <b>1 255</b> |

2014 provisional data

| Net importers          | Mt           |
|------------------------|--------------|
| People's Rep. of China | 286          |
| India                  | 238          |
| Japan                  | 188          |
| Korea                  | 131          |
| Chinese Taipei         | 67           |
| Germany                | 56           |
| United Kingdom         | 40           |
| Turkey                 | 30           |
| Malaysia               | 23           |
| Thailand               | 21           |
| Others                 | 215          |
| <b>Total</b>           | <b>1 295</b> |

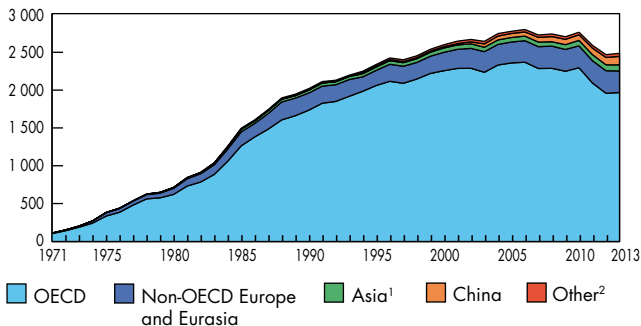
2014 provisional data

1. Includes steam coal, coking coal, lignite and recovered coal.

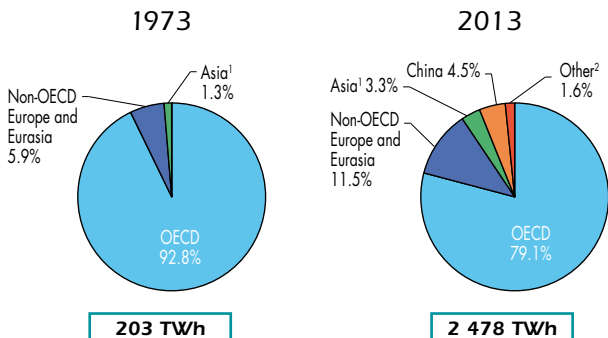


## Nuclear production

Nuclear production from 1971 to 2013  
by region (TWh)



### 1973 and 2013 regional shares of nuclear production



1. Asia excludes China.

2. Other includes Africa, Non-OECD Americas and the Middle East.

# Producers of nuclear electricity

1



| Producers              | TWh          | % of world total |
|------------------------|--------------|------------------|
| United States          | 822          | 33.2             |
| France                 | 424          | 17.1             |
| Russian Federation     | 173          | 7.0              |
| Korea                  | 139          | 5.6              |
| People's Rep. of China | 112          | 4.5              |
| Canada                 | 103          | 4.2              |
| Germany                | 97           | 3.9              |
| Ukraine                | 83           | 3.3              |
| United Kingdom         | 71           | 2.9              |
| Sweden                 | 66           | 2.7              |
| Rest of the world      | 388          | 15.6             |
| <b>World</b>           | <b>2 478</b> | <b>100.0</b>     |

2013 data

| Net installed capacity | GW         |
|------------------------|------------|
| United States          | 99         |
| France                 | 63         |
| Japan                  | 42         |
| Russian Federation     | 24         |
| Korea                  | 21         |
| People's Rep. of China | 16         |
| Canada                 | 14         |
| Ukraine                | 13         |
| Germany                | 12         |
| Sweden                 | 9          |
| Rest of the world      | 59         |
| <b>World</b>           | <b>372</b> |

2013 data

Sources: IEA, International Atomic Energy Agency.

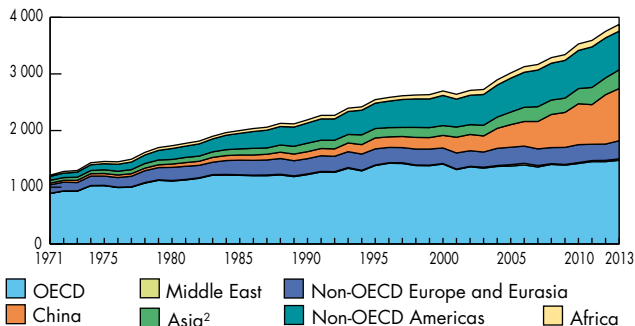
| Country (top-ten producers)    | % of nuclear in total domestic electricity generation |
|--------------------------------|---|
| France                         | 74.7  |
| Sweden                         | 43.4  |
| Ukraine                        | 43.0  |
| Korea                          | 25.8  |
| United Kingdom                 | 19.8  |
| United States                  | 19.2  |
| Russian Federation             | 16.3  |
| Canada                         | 15.8  |
| Germany                        | 15.5  |
| People's Rep. of China         | 2.1   |
| Rest of the world <sup>1</sup> | 7.9   |
| <b>World</b>                   | <b>10.6</b>   |

2013 data

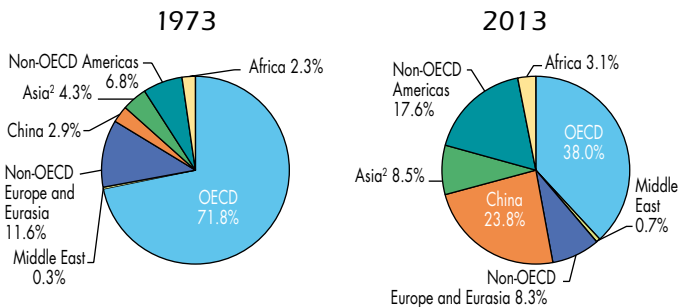
1. Excludes countries with no nuclear production.

# Hydro production

Hydro production<sup>1</sup> from 1971 to 2013  
by region (TWh)



## 1973 and 2013 regional shares of hydro production<sup>1</sup>



**1 296 TWh**

**3 874 TWh**

1. Includes electricity production from pumped storage.
2. Asia excludes China.

# Producers of hydro electricity<sup>1</sup>

1



| Producers              | TWh          | % of world total |
|------------------------|--------------|------------------|
| People's Rep. of China | 920          | 23.8             |
| Canada                 | 392          | 10.1             |
| Brazil                 | 391          | 10.1             |
| United States          | 290          | 7.5              |
| Russian Federation     | 183          | 4.7              |
| India                  | 142          | 3.7              |
| Norway                 | 129          | 3.3              |
| Japan                  | 85           | 2.2              |
| Venezuela              | 84           | 2.2              |
| France                 | 76           | 2.0              |
| Rest of the world      | 1 182        | 30.4             |
| <b>World</b>           | <b>3 874</b> | <b>100.0</b>     |

2013 data

1. Includes electricity production from pumped storage.

2. Excludes countries with no hydro production.

| Net installed capacity | GW           |
|------------------------|--------------|
| People's Rep. of China | 194          |
| United States          | 102          |
| Brazil                 | 86           |
| Canada                 | 76           |
| Russian Federation     | 50           |
| Japan                  | 49           |
| India                  | 40           |
| Norway                 | 31           |
| France                 | 25           |
| Italy                  | 22           |
| Rest of the world      | 359          |
| <b>World</b>           | <b>1 034</b> |

2013 data

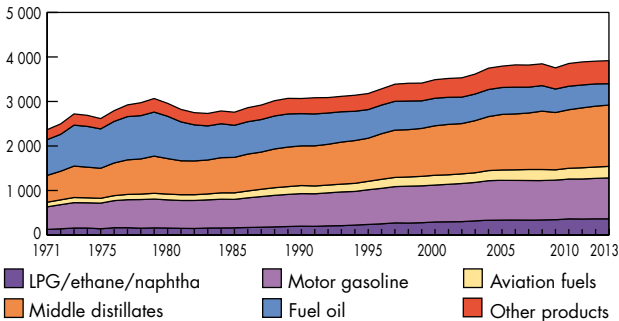
Sources: IEA, United Nations.

| Country (top-ten producers)    | % of hydro in total domestic electricity generation |
|--------------------------------|---|
| Norway                         | 96.1  |
| Brazil                         | 68.6  |
| Venezuela                      | 67.8  |
| Canada                         | 60.1  |
| Russian Federation             | 17.3  |
| People's Rep. of China         | 16.9  |
| France                         | 13.2  |
| India                          | 11.9  |
| Japan                          | 8.1   |
| United States                  | 6.7   |
| Rest of the world <sup>2</sup> | 15.6  |
| <b>World</b>                   | <b>16.6</b>   |

2013 data

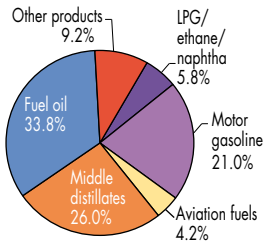
## Refining by product

World refinery output from 1971 to 2013  
by product (Mt)



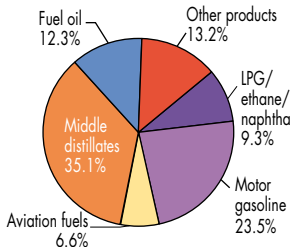
## 1973 and 2013 shares of refinery output by product

1973



2 719 Mt

2013



3 916 Mt

## Producers, net exporters and net importers of oil products

2



| Producers              | Mt           | % of world total |
|------------------------|--------------|------------------|
| United States          | 801          | 20.5             |
| People's Rep. of China | 460          | 11.7             |
| Russian Federation     | 265          | 6.8              |
| India                  | 228          | 5.8              |
| Japan                  | 171          | 4.4              |
| Korea                  | 126          | 3.2              |
| Brazil                 | 111          | 2.8              |
| Germany                | 98           | 2.5              |
| Islamic Rep. of Iran   | 95           | 2.4              |
| Canada                 | 93           | 2.4              |
| Rest of the world      | 1 468        | 37.5             |
| <b>World</b>           | <b>3 916</b> | <b>100.0</b>     |

2013 data

| Net exporters            | Mt         |
|--------------------------|------------|
| Russian Federation       | 115        |
| United States            | 81         |
| India                    | 53         |
| Saudi Arabia             | 34         |
| Kuwait                   | 30         |
| Qatar                    | 20         |
| Venezuela                | 19         |
| Korea                    | 16         |
| Belarus                  | 14         |
| Canada                   | 13         |
| Others                   | 146        |
| <b>Total<sup>1</sup></b> | <b>541</b> |

2013 data

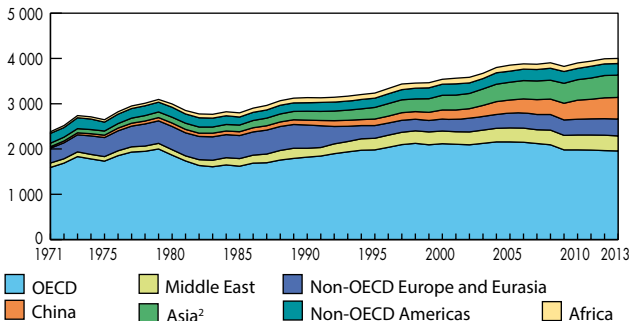
| Net importers            | Mt         |
|--------------------------|------------|
| Japan                    | 29         |
| Indonesia                | 26         |
| France                   | 22         |
| People's Rep. of China   | 21         |
| Singapore                | 21         |
| Mexico                   | 19         |
| Germany                  | 18         |
| Australia                | 17         |
| Hong Kong, China         | 17         |
| Brazil                   | 16         |
| Others                   | 268        |
| <b>Total<sup>1</sup></b> | <b>474</b> |

2013 data

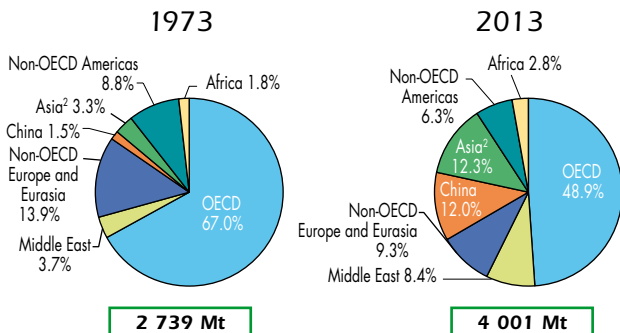
1. The discrepancy between total net exports and total net imports arises from different data sources and possible misallocation of bunkers into exports for some countries.

## Refining by region

World refinery intake<sup>1</sup> from 1971 to 2013  
by region (Mt)



## 1973 and 2013 regional shares of refinery intake<sup>1</sup>



1. Includes crude oil, NGL, refinery feedstocks, additives and other hydrocarbons.  
2. Asia excludes China.

# Refinery capacity, net exporters and net importers of oil<sup>1</sup>

2



| Crude distillation capacity         | kb/cd         | % of world total |
|-------------------------------------|---------------|------------------|
| United States                       | 17 726        | 18.6             |
| People's Rep. of China <sup>2</sup> | 12 957        | 13.6             |
| Russian Federation                  | 5 992         | 6.3              |
| Japan                               | 4 349         | 4.6              |
| India                               | 4 394         | 4.6              |
| Korea                               | 3 051         | 3.2              |
| Saudi Arabia                        | 2 506         | 2.6              |
| Germany                             | 2 022         | 2.1              |
| Italy                               | 2 014         | 2.1              |
| Brazil                              | 2 006         | 2.1              |
| Rest of the world                   | 38 370        | 40.2             |
| <b>World</b>                        | <b>95 387</b> | <b>100.0</b>     |

2014 data

| Net exporters        | Mt           |
|----------------------|--------------|
| Saudi Arabia         | 410          |
| Russian Federation   | 351          |
| Kuwait               | 132          |
| United Arab Emirates | 121          |
| Venezuela            | 117          |
| Canada               | 113          |
| Iraq                 | 106          |
| Nigeria              | 101          |
| Angola               | 80           |
| Qatar                | 71           |
| Others               | 518          |
| <b>Total</b>         | <b>2 120</b> |

2013 data

| Net importers          | Mt           |
|------------------------|--------------|
| United States          | 310          |
| People's Rep. of China | 302          |
| Japan                  | 207          |
| India                  | 136          |
| Germany                | 108          |
| Korea                  | 107          |
| France                 | 78           |
| Singapore              | 66           |
| Spain                  | 56           |
| Italy                  | 54           |
| Others                 | 695          |
| <b>Total</b>           | <b>2 119</b> |

2013 data

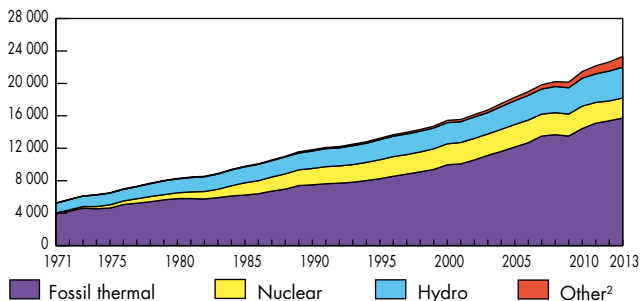
1. Includes crude oil and oil products.

2. Includes unlisted small teapot refineries estimated at 500 kb/cd (i.e. calendar day).

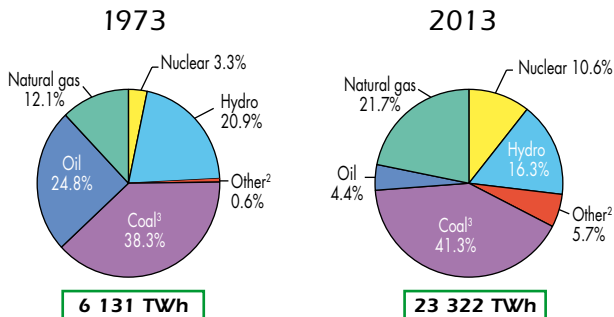


## Electricity generation by fuel

World electricity generation<sup>1</sup> from 1971 to 2013  
by fuel (TWh)



### 1973 and 2013 fuel shares of electricity generation<sup>1</sup>



1. Excludes electricity generation from pumped storage.

2. Includes geothermal, solar, wind, heat, etc.

3. In these graphs, peat and oil shale are aggregated with coal.

## Electricity production from fossil fuels

2



| Coal <sup>1</sup>      | TWh          |
|------------------------|--------------|
| People's Rep. of China | 4 111        |
| United States          | 1 712        |
| India                  | 869          |
| Japan                  | 337          |
| Germany                | 293          |
| South Africa           | 237          |
| Korea                  | 223          |
| Russian Federation     | 162          |
| Australia              | 161          |
| Poland                 | 140          |
| Rest of the world      | 1 388        |
| <b>World</b>           | <b>9 633</b> |

2013 data

| Oil                  | TWh          |
|----------------------|--------------|
| Japan                | 150          |
| Saudi Arabia         | 134          |
| Islamic Rep. of Iran | 71           |
| Mexico               | 48           |
| Kuwait               | 39           |
| United States        | 37           |
| Pakistan             | 36           |
| Iraq                 | 28           |
| Indonesia            | 27           |
| Brazil               | 27           |
| Rest of the world    | 431          |
| <b>World</b>         | <b>1 028</b> |

2013 data

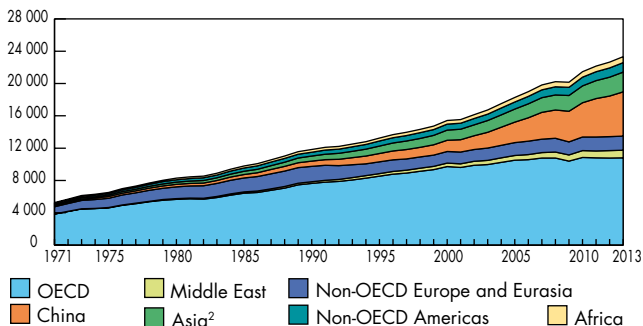
| Natural gas          | TWh          |
|----------------------|--------------|
| United States        | 1 158        |
| Russian Federation   | 530          |
| Japan                | 402          |
| Islamic Rep. of Iran | 178          |
| Mexico               | 166          |
| Saudi Arabia         | 150          |
| Korea                | 145          |
| Egypt                | 129          |
| Thailand             | 117          |
| Italy                | 109          |
| Rest of the world    | 1 982        |
| <b>World</b>         | <b>5 066</b> |

2013 data

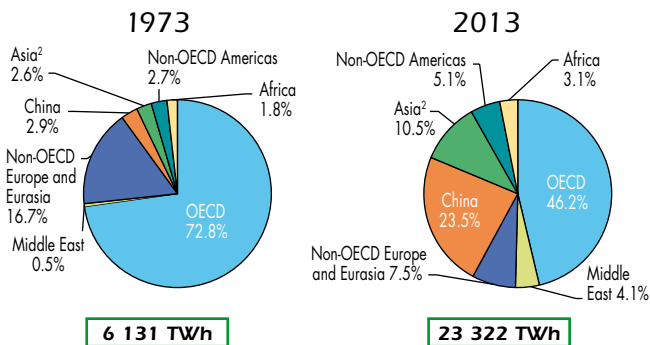
1. In this table, peat and oil shale are aggregated with coal.

## Electricity generation by region

World electricity generation<sup>1</sup> from 1971 to 2013  
by region (TWh)



### 1973 and 2013 regional shares of electricity generation<sup>1</sup>



1. Excludes electricity generation from pumped storage.
2. Asia excludes China.

# Producers, net exporters and net importers of electricity

2



| Producers <sup>1</sup> | TWh           | % of world total |
|------------------------|---------------|------------------|
| People's Rep. of China | 5 437         | 23.3             |
| United States          | 4 287         | 18.4             |
| India                  | 1 193         | 5.1              |
| Russian Federation     | 1 058         | 4.5              |
| Japan                  | 1 038         | 4.5              |
| Canada                 | 652           | 2.8              |
| Germany                | 627           | 2.7              |
| Brazil                 | 570           | 2.4              |
| France                 | 567           | 2.4              |
| Korea                  | 538           | 2.3              |
| Rest of the world      | 7 355         | 31.6             |
| <b>World</b>           | <b>23 322</b> | <b>100.0</b>     |

2013 data

| Net exporters          | TWh        |
|------------------------|------------|
| Canada                 | 50         |
| France                 | 48         |
| Paraguay               | 47         |
| Germany                | 32         |
| Czech Republic         | 17         |
| Russian Federation     | 14         |
| People's Rep. of China | 11         |
| Sweden                 | 10         |
| Ukraine                | 10         |
| Islamic Rep. of Iran   | 8          |
| Others                 | 61         |
| <b>Total</b>           | <b>308</b> |

2013 data

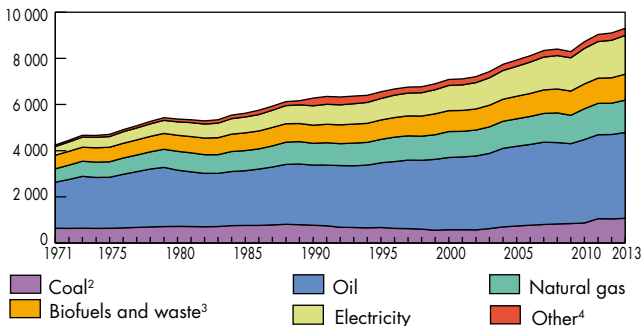
| Net importers  | TWh        |
|----------------|------------|
| United States  | 59         |
| Italy          | 42         |
| Brazil         | 40         |
| Netherlands    | 18         |
| Finland        | 16         |
| United Kingdom | 14         |
| Argentina      | 14         |
| Hungary        | 12         |
| Thailand       | 11         |
| Belgium        | 10         |
| Others         | 107        |
| <b>Total</b>   | <b>343</b> |

1. Gross production minus production from pumped storage plants. 2013 data

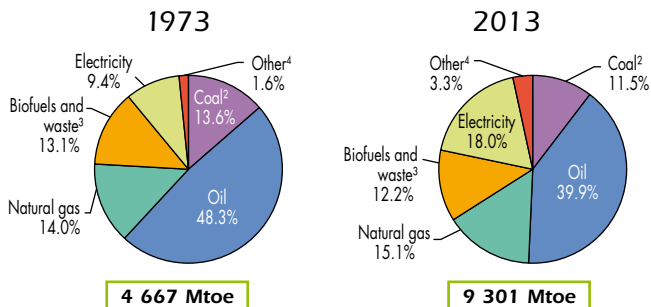
# TOTAL FINAL CONSUMPTION

## World

World<sup>1</sup> total final consumption from 1971 to 2013 by fuel (Mtoe)



## 1973 and 2013 fuel shares of total final consumption



1. World includes international aviation and international marine bunkers.

2. In these graphs, peat and oil shale are aggregated with coal.

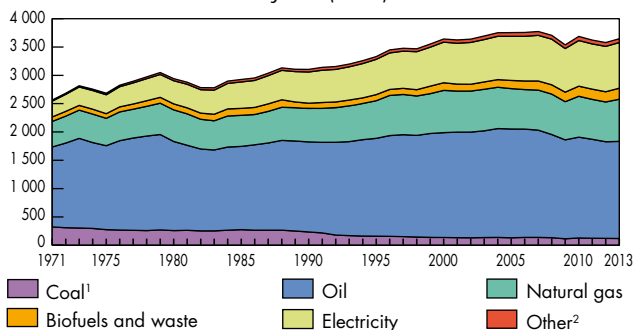
3. Data for biofuels and waste final consumption have been estimated for a number of countries.

4. Includes geothermal, solar, wind, heat, etc.

# BY FUEL

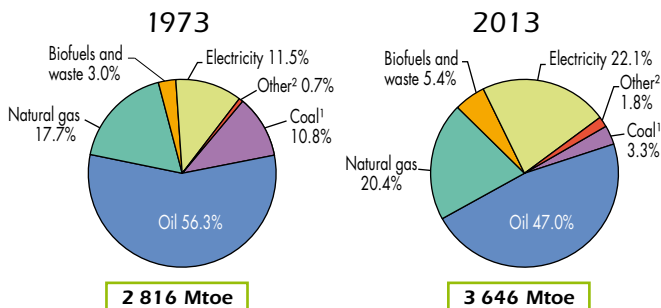
## OECD

OECD total final consumption from 1971 to 2013  
by fuel (Mtoe)



3

## 1973 and 2013 fuel shares of total final consumption

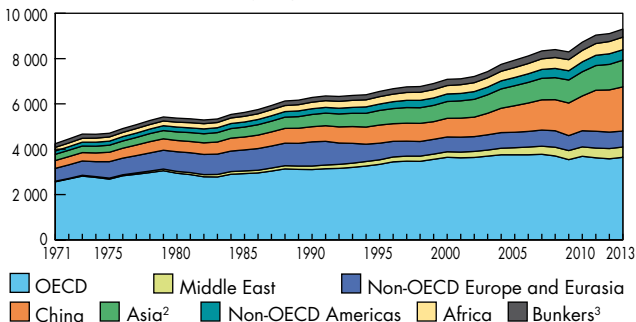


1. In these graphs, peat and oil shale are aggregated with coal.
2. Includes geothermal, solar, wind, heat, etc.

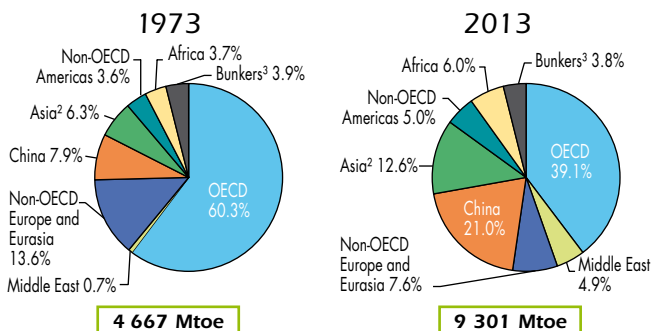
# TOTAL FINAL CONSUMPTION

## World

World total final consumption<sup>1</sup> from 1971 to 2013  
by region (Mtoe)



## 1973 and 2013 regional shares of total final consumption<sup>1</sup>

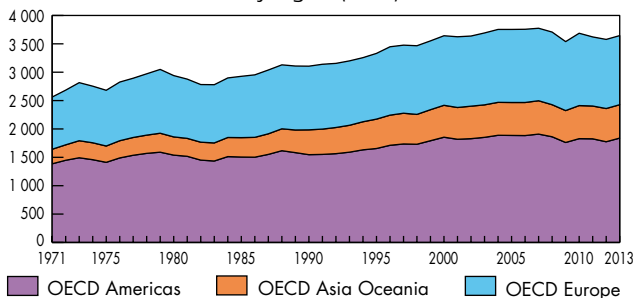


1. Data for biofuels and waste final consumption have been estimated for a number of countries.  
 2. Asia excludes China.  
 3. Includes international aviation and international marine bunkers.

# BY REGION

## OECD

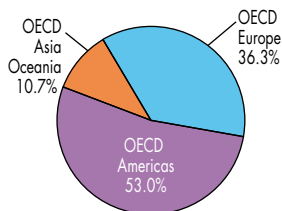
OECD total final consumption from 1971 to 2013  
by region (Mtoe)



3

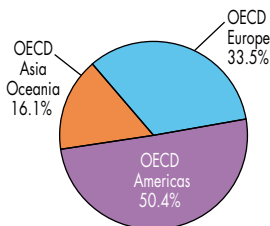
## 1973 and 2013 regional shares of total final consumption

1973



2 816 Mtoe

2013



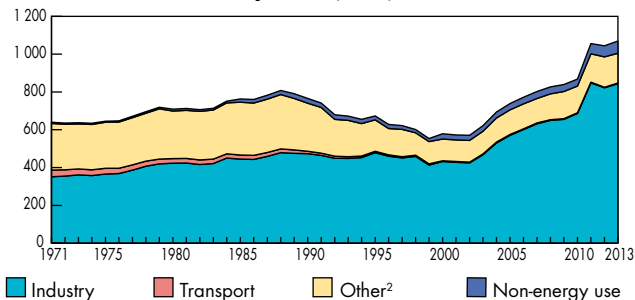
3 646 Mtoe



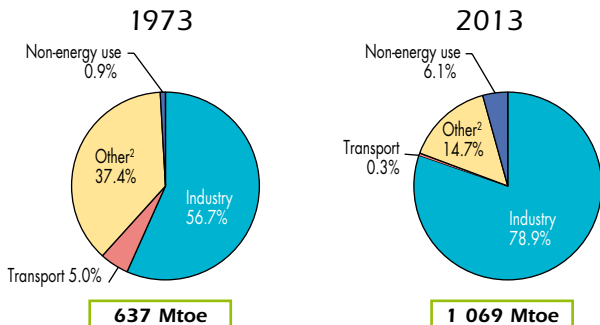
# TOTAL FINAL CONSUMPTION

## Coal<sup>1</sup>

Total final consumption from 1971 to 2013  
by sector (Mtoe)



## 1973 and 2013 shares of world coal<sup>1</sup> consumption

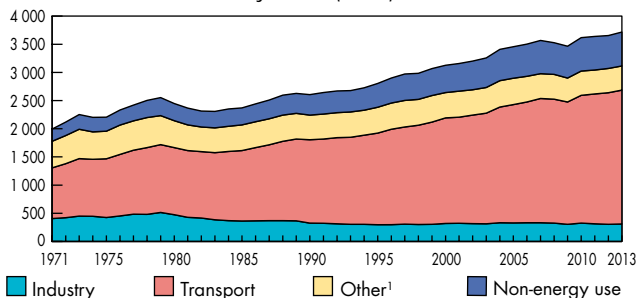


- In these graphs, peat and oil shale are aggregated with coal.
- Includes agriculture, commercial and public services, residential, and non-specified other.

# BY SECTOR

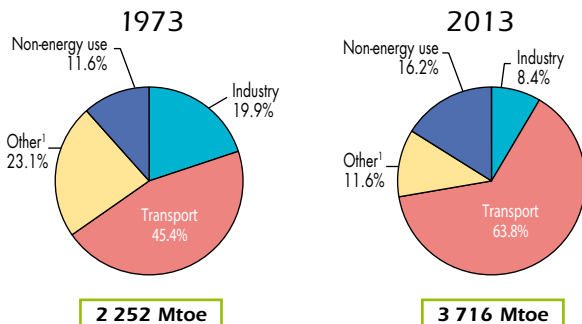
## Oil

Total final consumption from 1971 to 2013  
by sector (Mtoe)



3

## 1973 and 2013 shares of world oil consumption

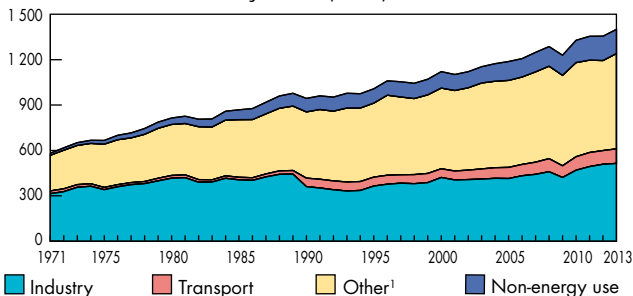


1. Includes agriculture, commercial and public services, residential, and non-specified other.

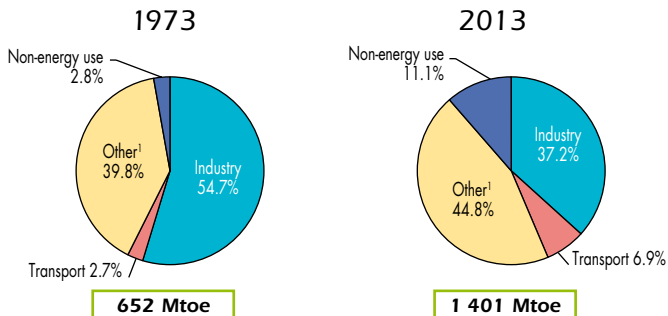
# TOTAL FINAL CONSUMPTION

## Natural gas

Total final consumption from 1971 to 2013  
by sector (Mtoe)



## 1973 and 2013 shares of world natural gas consumption

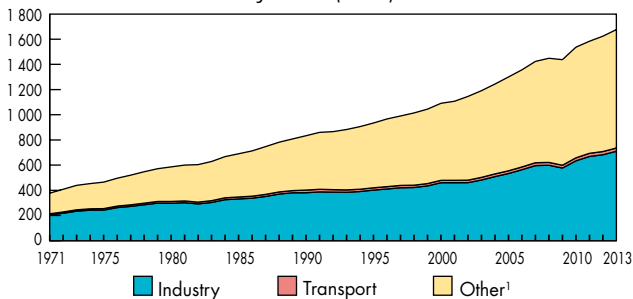


1. Includes agriculture, commercial and public services, residential, and non-specified other.

# BY SECTOR

## Electricity

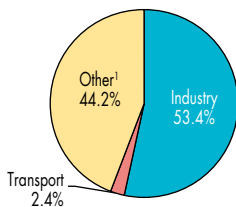
Total final consumption from 1971 to 2013  
by sector (Mtoe)



3

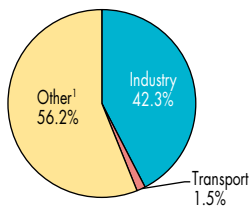
## 1973 and 2013 shares of world electricity consumption

1973



440 Mtoe

2013



1 677 Mtoe

1. Includes agriculture, commercial and public services, residential, and non-specified other.

## SIMPLIFIED ENERGY

## World

1973

(Mtoe)

| SUPPLY AND CONSUMPTION  | Coal <sup>1</sup> | Crude oil      | Oil products   | Natural gas   | Nuclear      | Hydro         | Biofuels and waste <sup>2</sup> | Other <sup>3</sup> | Total          |
|-------------------------|-------------------|----------------|----------------|---------------|--------------|---------------|---------------------------------|--------------------|----------------|
| Production              | 1474.35           | 2938.38        | -              | 990.98        | 53.05        | 110.31        | 640.07                          | 6.13               | 6213.26        |
| Imports                 | 140.06            | 1561.97        | 409.59         | 73.40         | -            | -             | 0.13                            | 8.15               | 2193.29        |
| Exports                 | -130.35           | -1613.00       | -442.94        | -72.56        | -            | -             | -0.19                           | -8.31              | -2267.35       |
| Stock changes           | 12.47             | -19.81         | -16.37         | -15.09        | -            | -             | 0.06                            | -                  | -38.75         |
| <b>TPEs</b>             | <b>1496.52</b>    | <b>2867.54</b> | <b>-49.73</b>  | <b>976.74</b> | <b>53.05</b> | <b>110.31</b> | <b>640.06</b>                   | <b>5.96</b>        | <b>6100.45</b> |
| Transfers               | -                 | -46.76         | 48.78          | -             | -            | -             | -                               | -                  | 2.02           |
| Statistical diff.       | 6.06              | 12.13          | -6.19          | 4.78          | -            | -             | -0.17                           | -0.19              | 16.41          |
| Electricity plants      | -555.65           | -22.91         | -318.13        | -160.00       | -52.95       | -110.31       | -2.40                           | 503.76             | -718.59        |
| CHP plants              | -86.40            | -              | -28.62         | -50.84        | -0.10        | -             | -0.91                           | 100.94             | -65.93         |
| Heat plants             | -7.81             | -              | -0.90          | -0.68         | -            | -             | -0.80                           | 7.11               | -3.08          |
| Blast furnaces          | -81.53            | -              | -2.72          | -             | -            | -             | -0.06                           | -                  | -84.30         |
| Gas works               | 9.85              | -0.60          | -9.07          | -6.18         | -            | -             | -                               | -                  | -6.01          |
| Coke ovens <sup>4</sup> | -99.53            | -              | -0.68          | -0.19         | -            | -             | -0.02                           | -                  | -100.42        |
| Oil refineries          | -                 | -2782.93       | 2762.10        | -             | -            | -             | -                               | -                  | -20.82         |
| Petchem. plants         | -                 | 5.09           | -5.37          | -             | -            | -             | -                               | -                  | -0.28          |
| Liquefaction plants     | -0.73             | 0.23           | -              | -             | -            | -             | -                               | -                  | -0.50          |
| Other transf.           | -                 | -              | -0.12          | -0.03         | -            | -             | -26.16                          | -                  | -26.30         |
| Energy ind. own use     | -34.93            | -2.59          | -158.81        | -105.99       | -            | -             | -0.20                           | -57.68             | -360.19        |
| Losses                  | -9.06             | -7.07          | -0.27          | -6.03         | -            | -             | -0.25                           | -43.15             | -65.83         |
| <b>TFC</b>              | <b>636.80</b>     | <b>22.14</b>   | <b>2230.27</b> | <b>651.57</b> | <b>-</b>     | <b>-</b>      | <b>609.10</b>                   | <b>516.76</b>      | <b>4666.63</b> |
| Industry                | 360.91            | 16.41          | 432.59         | 356.29        | -            | -             | 86.71                           | 286.90             | 1539.81        |
| Transport <sup>5</sup>  | 31.96             | -              | 1020.82        | 17.72         | -            | -             | 0.24                            | 10.60              | 1081.34        |
| Other                   | 237.92            | 0.00           | 520.41         | 259.19        | -            | -             | 522.15                          | 219.26             | 1758.93        |
| Non-energy use          | 6.01              | 5.73           | 256.45         | 18.37         | -            | -             | -                               | -                  | 286.56         |

1. In this table, peat and oil shale are aggregated with coal.

2. Data for biofuels and waste final consumption have been estimated for a number of countries.

3. Includes geothermal, solar, wind, heat, etc.

4. Also includes patent fuel, BKB and peat briquette plants.

5. Includes international aviation and international marine bunkers.

# BALANCE TABLE

## World

2013

(Mtoe)

| SUPPLY AND CONSUMPTION  | Coal <sup>1</sup> | Crude oil      | Oil products   | Natural gas    | Nuclear       | Hydro         | Biofuels and waste <sup>2</sup> | Other <sup>3</sup> | Total           |
|-------------------------|-------------------|----------------|----------------|----------------|---------------|---------------|---------------------------------|--------------------|-----------------|
| Production              | 3958.10           | 4215.64        | -              | 2908.64        | 646.50        | 325.96        | 1375.55                         | 163.72             | 13594.11        |
| Imports                 | 830.67            | 2246.09        | 1177.25        | 873.04         | -             | -             | 15.89                           | 59.94              | 5202.89         |
| Exports                 | -863.26           | -2181.50       | -1237.91       | -895.12        | -             | -             | -13.84                          | -56.95             | -5248.57        |
| Stock changes           | -18.30            | -0.68          | -3.03          | 15.37          | -             | -             | -0.50                           | -                  | -7.14           |
| <b>TPES</b>             | <b>3907.21</b>    | <b>4279.54</b> | <b>-63.69</b>  | <b>2901.94</b> | <b>646.50</b> | <b>325.96</b> | <b>1377.10</b>                  | <b>166.71</b>      | <b>13541.28</b> |
| Transfers               | -0.61             | -181.33        | 224.41         | -0.00          | -             | -             | -                               | -                  | 42.47           |
| Statistical diff.       | -4.20             | 13.41          | -7.36          | 9.90           | -             | -             | -0.24                           | 1.46               | 12.96           |
| Electricity plants      | -2098.90          | -39.85         | -211.12        | -746.72        | -638.87       | -325.96       | -87.17                          | 1701.35            | -2447.25        |
| CHP plants              | -175.68           | -0.01          | -16.74         | -322.41        | -7.63         | -             | -55.66                          | 326.91             | -251.23         |
| Heat plants             | -135.11           | -0.81          | -11.03         | -98.20         | -             | -             | -11.28                          | 176.57             | -79.86          |
| Blast furnaces          | -223.58           | -              | -0.43          | -0.04          | -             | -             | -0.03                           | -                  | -224.08         |
| Gas works               | -7.14             | -              | -3.13          | 3.51           | -             | -             | -0.07                           | -                  | -6.84           |
| Coke ovens <sup>4</sup> | -70.14            | -              | -2.68          | -0.00          | -             | -             | -0.13                           | -                  | -72.95          |
| Oil refineries          | -                 | -4076.24       | 4004.94        | -              | -             | -             | -                               | -                  | -71.30          |
| Petchem. plants         | -                 | 31.55          | -31.47         | -              | -             | -             | -                               | -                  | 0.07            |
| Liquefaction plants     | -8.53             | 11.33          | -              | -15.63         | -             | -             | -                               | -                  | -12.82          |
| Other transf.           | -0.43             | 4.96           | -0.64          | -7.25          | -             | -             | -78.20                          | -0.74              | -82.30          |
| Energy ind. own use     | -109.94           | -11.00         | -186.70        | -303.74        | -             | -             | -13.80                          | -204.07            | -829.24         |
| Losses                  | -3.56             | -8.76          | -0.82          | -20.68         | -             | -             | -0.15                           | -183.90            | -217.87         |
| <b>TFC</b>              | <b>1069.41</b>    | <b>22.79</b>   | <b>3693.55</b> | <b>1400.68</b> | <b>-</b>      | <b>-</b>      | <b>1130.35</b>                  | <b>1984.28</b>     | <b>9301.06</b>  |
| Industry                | 844.02            | 12.78          | 298.34         | 520.72         | -             | -             | 193.55                          | 833.02             | 2702.44         |
| Transport <sup>5</sup>  | 3.22              | 0.02           | 2373.66        | 96.22          | -             | -             | 64.52                           | 25.86              | 2563.52         |
| Other                   | 157.35            | 0.20           | 430.60         | 628.53         | -             | -             | 872.28                          | 1125.40            | 3214.34         |
| Non-energy use          | 64.81             | 9.80           | 590.95         | 155.20         | -             | -             | -                               | -                  | 820.76          |

1. In this table, peat and oil shale are aggregated with coal.

2. Data for biofuels and waste final consumption have been estimated for a number of countries.

3. Includes geothermal, solar, wind, heat, etc.

4. Also includes patent fuel, BKB and peat briquette plants.

5. Includes international aviation and international marine bunkers.

## SIMPLIFIED ENERGY

## OECD

1973

(Mtoe)

| SUPPLY AND CONSUMPTION  | Coal <sup>1</sup> | Crude oil      | Oil products   | Natural gas   | Nuclear      | Hydro        | Biofuels and waste <sup>2</sup> | Other <sup>3</sup> | Total          |
|-------------------------|-------------------|----------------|----------------|---------------|--------------|--------------|---------------------------------|--------------------|----------------|
| Production              | 819.10            | 710.51         | -              | 706.22        | 49.22        | 78.94        | 87.29                           | 6.13               | 2457.41        |
| Imports                 | 121.92            | 1277.50        | 336.20         | 62.55         | -            | -            | 0.03                            | 7.55               | 1805.76        |
| Exports                 | -111.10           | -63.59         | -172.72        | -50.38        | -            | -            | -0.01                           | -7.01              | -404.81        |
| Intl. marine bunkers    | -                 | -              | -73.65         | -             | -            | -            | -                               | -                  | -73.65         |
| Intl. aviation bunkers  | -                 | -              | -24.64         | -             | -            | -            | -                               | -                  | -24.64         |
| Stock changes           | 14.54             | -10.78         | -11.36         | -12.07        | -            | -            | 0.06                            | -                  | -19.62         |
| <b>TPES</b>             | <b>844.46</b>     | <b>1913.65</b> | <b>53.83</b>   | <b>706.32</b> | <b>49.22</b> | <b>78.94</b> | <b>87.36</b>                    | <b>6.66</b>        | <b>3740.45</b> |
| Transfers               | -                 | -41.28         | 42.49          | -             | -            | -            | -                               | -                  | 1.22           |
| Statistical diff.       | 14.80             | 11.29          | 2.56           | -5.61         | -            | -            | -                               | -                  | 23.04          |
| Electricity plants      | -387.59           | -20.61         | -228.38        | -108.33       | -49.12       | -78.94       | -1.43                           | 364.70             | -509.71        |
| CHP plants              | -52.07            | -              | -7.89          | -11.64        | -0.10        | -            | -0.75                           | 30.94              | -41.51         |
| Heat plants             | -7.81             | -              | -0.90          | -0.68         | -            | -            | -0.80                           | 7.11               | -3.08          |
| Blast furnaces          | -65.52            | -              | -2.72          | -             | -            | -            | -                               | -                  | -68.24         |
| Gas works               | 11.02             | -0.60          | -8.72          | -6.37         | -            | -            | -                               | -                  | -4.68          |
| Coke ovens <sup>4</sup> | -25.70            | -              | -0.68          | -0.19         | -            | -            | -0.02                           | -                  | -26.59         |
| Oil refineries          | -                 | -1865.97       | 1868.42        | -             | -            | -            | -                               | -                  | 2.45           |
| Petrochem. plants       | -                 | 4.88           | -5.16          | -             | -            | -            | -                               | -                  | -0.28          |
| Liquefaction plants     | -                 | 0.02           | -              | -             | -            | -            | -                               | -                  | 0.02           |
| Other transf.           | -                 | -              | -0.12          | -0.03         | -            | -            | -                               | -                  | -0.15          |
| Energy ind. own use     | -24.53            | -0.99          | -128.88        | -72.36        | -            | -            | -0.07                           | -33.38             | -260.20        |
| Losses                  | -3.80             | -              | -0.23          | -2.63         | -            | -            | -                               | -30.54             | -37.20         |
| <b>TFC</b>              | <b>303.27</b>     | <b>0.39</b>    | <b>1583.63</b> | <b>498.48</b> | <b>-</b>     | <b>-</b>     | <b>84.30</b>                    | <b>345.49</b>      | <b>2815.56</b> |
| Industry                | 182.79            | 0.39           | 312.91         | 250.44        | -            | -            | 42.26                           | 169.41             | 958.18         |
| Transport               | 7.34              | -              | 665.68         | 17.00         | -            | -            | -                               | 5.30               | 695.32         |
| Other                   | 110.05            | -              | 393.09         | 225.47        | -            | -            | 42.04                           | 170.78             | 941.43         |
| Non-energy use          | 3.10              | -              | 211.95         | 5.58          | -            | -            | -                               | -                  | 220.63         |

1. In this table, peat and oil shale are aggregated with coal.

2. Data for biofuels and waste final consumption have been estimated for a number of countries.

3. Includes geothermal, solar, wind, heat, etc.

4. Also includes patent fuel, BKB and peat briquette plants.

# BALANCE TABLE

## OECD

### 2013

(Mtoe)

| SUPPLY AND CONSUMPTION  | Coal <sup>1</sup> | Crude oil       | Oil products    | Natural gas     | Nuclear       | Hydro         | Biofuels and waste <sup>2</sup> | Other <sup>3</sup> | Total           |
|-------------------------|-------------------|-----------------|-----------------|-----------------|---------------|---------------|---------------------------------|--------------------|-----------------|
| Production              | 952.72            | 996.24          | -               | 1 020.39        | 511.35        | 121.54        | 286.35                          | 88.42              | 3 977.02        |
| Imports                 | 408.65            | 1 417.27        | 569.15          | 648.50          | -             | -             | 14.35                           | 39.15              | 3 097.06        |
| Exports                 | -351.55           | -364.22         | -579.58         | -315.45         | -             | -             | -7.50                           | -38.14             | -1 656.45       |
| Intl. marine bunkers    | -                 | -               | -72.24          | -               | -             | -             | -0.03                           | -                  | -72.27          |
| Intl. aviation bunkers  | -                 | -               | -87.97          | -               | -             | -             | -                               | -                  | -87.97          |
| Stock changes           | 19.45             | 3.08            | 2.43            | 17.46           | -             | -             | -0.22                           | -                  | 42.21           |
| <b>TPES</b>             | <b>1 029.27</b>   | <b>2 052.37</b> | <b>-168.21</b>  | <b>1 370.91</b> | <b>511.35</b> | <b>121.54</b> | <b>292.95</b>                   | <b>89.43</b>       | <b>5 299.61</b> |
| Transfers               | -                 | -71.46          | 103.67          | -               | -             | -             | -                               | -                  | 32.20           |
| Statistical diff.       | -7.77             | 8.09            | -14.93          | 4.87            | -             | -             | -0.02                           | 1.47               | -8.29           |
| Electricity plants      | -741.28           | -10.07          | -53.91          | -366.91         | -504.27       | -121.54       | -44.56                          | 760.96             | -1 081.57       |
| CHP plants              | -77.25            | -               | -10.96          | -106.11         | -7.09         | -             | -44.97                          | 144.50             | -101.88         |
| Heat plants             | -4.56             | -               | -0.89           | -8.61           | -             | -             | -6.24                           | 16.26              | -4.04           |
| Blast furnaces          | -53.82            | -               | -0.43           | -0.04           | -             | -             | -                               | -                  | -54.28          |
| Gas works               | -1.98             | -               | -2.82           | 3.40            | -             | -             | -0.06                           | -                  | -1.45           |
| Coke ovens <sup>4</sup> | -6.27             | -               | -1.16           | -               | -             | -             | -0.13                           | -                  | -7.57           |
| Oil refineries          | -                 | -2 003.09       | 1 985.51        | -               | -             | -             | -                               | -                  | -17.58          |
| Petrochem. plants       | -                 | 27.40           | -27.91          | -               | -             | -             | -                               | -                  | -0.51           |
| Liquefaction plants     | -0.98             | 0.59            | -               | -               | -             | -             | -                               | -                  | -0.39           |
| Other transf.           | -0.21             | 3.40            | -               | -4.28           | -             | -             | -0.43                           | -0.74              | -2.26           |
| Energy ind. own use     | -15.14            | -0.05           | -100.79         | -145.07         | -             | -             | -1.30                           | -74.96             | -337.31         |
| Losses                  | -0.93             | -               | -0.03           | -2.69           | -             | -             | -0.02                           | -65.33             | -69.02          |
| <b>TFC</b>              | <b>119.09</b>     | <b>7.18</b>     | <b>1 707.13</b> | <b>745.47</b>   | <b>-</b>      | <b>-</b>      | <b>195.22</b>                   | <b>871.58</b>      | <b>3 645.67</b> |
| Industry                | 96.31             | 2.21            | 95.32           | 248.36          | -             | -             | 74.59                           | 278.68             | 795.46          |
| Transport               | 0.15              | -               | 1 111.81        | 28.73           | -             | -             | 44.16                           | 9.04               | 1 193.89        |
| Other                   | 19.84             | -               | 195.56          | 435.94          | -             | -             | 76.47                           | 583.86             | 1 311.67        |
| Non-energy use          | 2.79              | 4.97            | 304.45          | 32.44           | -             | -             | -                               | -                  | 344.65          |

1. In this table, peat and oil shale are aggregated with coal.

2. Data for biofuels and waste final consumption have been estimated for a number of countries.

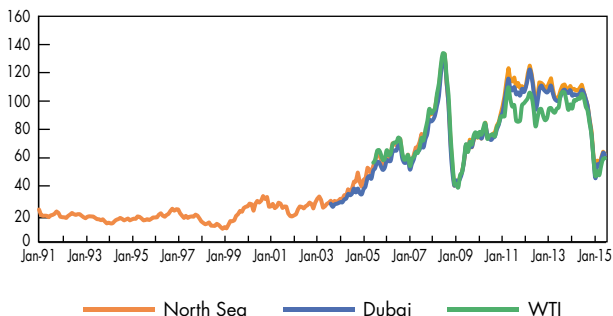
3. Includes geothermal, solar, wind, heat, etc.

4. Also includes patent fuel, BKB and peat briquette plants.



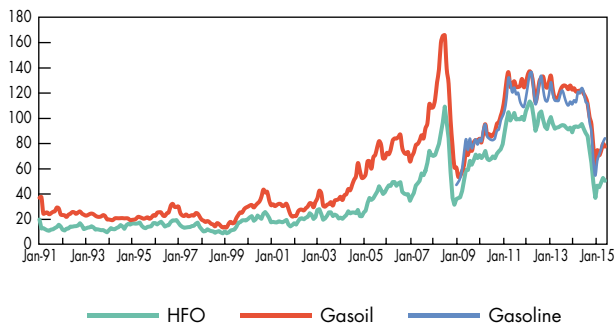
## Crude oil

Average key crude oil spot prices in USD/barrel



## Oil products

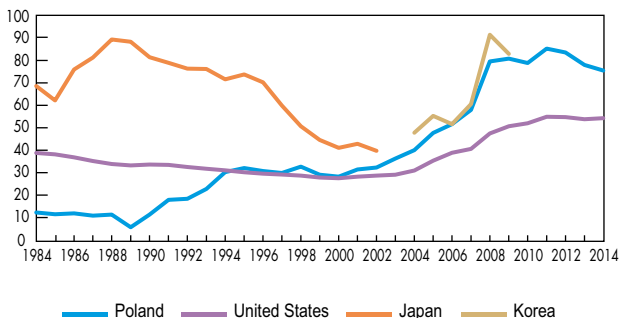
Average Rotterdam oil product spot prices in USD/barrel



Source for all prices: Based on Argus. Copyright © 2015 Argus Media Ltd - All rights reserved.

## Coal

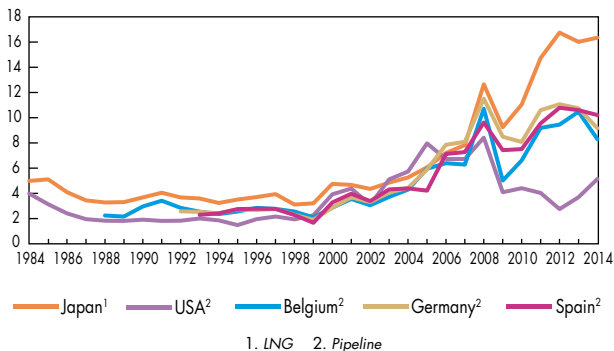
### Average steam coal prices for electricity generation in USD/tonne



5

## Natural gas

### Average natural gas import prices in USD/MBtu



1. LNG 2. Pipeline

ENERGY PRICES<sup>1</sup> IN SELECTED

|                 | Heavy fuel oil<br>for industry <sup>2</sup><br>(tonne) | Light fuel oil<br>for households<br>(1 000 litres) | Automotive<br>diesel oil <sup>3</sup><br>(litre) | Unleaded<br>premium <sup>4</sup><br>(litre) |
|-----------------|--|--|--|---|
| Australia       | ..   | ..   | ..   | 1.027                                       |
| Austria         | 403.86   | 820.13   | 0.892  | 1.317                                       |
| Belgium         | 342.30   | 671.17   | 1.156  | 1.573                                       |
| Canada          | 354.70   | 899.94   | 0.916  | 0.925                                       |
| Chile           | ..   | 1 052.54   | ..   | 1.144                                       |
| Czech Republic  | 279.23   | 748.54   | 1.062  | 1.255                                       |
| Denmark         | 574.09   | 1 390.08   | 1.153  | 1.641                                       |
| Estonia         | ..   | 884.82   | 1.037  | 1.197                                       |
| Finland         | ..   | 974.33   | 1.164  | 1.546                                       |
| France          | 437.15   | 815.35   | 1.090  | 1.494                                       |
| Germany         | 320.00   | 680.42   | 1.206  | 1.521                                       |
| Greece          | 431.35   | 1 018.66   | 1.056  | 1.605                                       |
| Hungary         | 490.29   | x  | 1.042  | 1.273                                       |
| Ireland         | 712.02   | 785.35   | 1.125  | 1.485                                       |
| Israel          | c  | 1 613.59   | c  | 1.678                                       |
| Italy           | 455.59   | 1 352.10   | 1.308  | 1.700                                       |
| Japan           | 597.43   | 711.71   | 0.843  | 1.164                                       |
| Korea           | 561.61   | 906.94   | ..   | 1.704                                       |
| Luxembourg      | ..   | 629.27   | 0.992  | 1.277                                       |
| Mexico          | 280.66   | x  | 0.816  | 0.931                                       |
| Netherlands     | 564.00   | 1 158.39   | 1.158  | 1.718                                       |
| New Zealand     | 407.00   | ..   | 0.617  | 1.444                                       |
| Norway          | ..   | 1 268.36   | 1.276  | 1.775                                       |
| Poland          | 483.81   | 849.26   | 0.984  | 1.204                                       |
| Portugal        | 667.57   | 1 205.67   | 1.211  | 1.556                                       |
| Slovak Republic | 332.65   | ..   | 1.090  | 1.435                                       |
| Slovenia        | x  | 958.86   | 1.106  | 1.447                                       |
| Spain           | 405.23   | 760.34   | 1.044  | 1.342                                       |
| Sweden          | 907.53   | ..   | 1.288  | 1.549                                       |
| Switzerland     | ..   | 791.37   | 1.327  | 1.526                                       |
| Turkey          | 652.60   | 1 250.74   | 1.540  | 1.758                                       |
| United Kingdom  | c  | 725.19   | 1.467  | 1.650                                       |
| United States   | 353.77   | 788.05   | 0.771  | 0.652                                       |

1. Prices are for 1st quarter 2015 or latest available quarter for oil products, and annual 2014 for other products.

2. Low sulphur fuel oil; high sulphur fuel oil for Canada, Ireland, Mexico, New Zealand, Turkey and the United States.

3. For commercial purposes.

# OECD COUNTRIES in USD/unit

| Nat. gas for industry<br>(MWh GCV <sup>5</sup> ) | Nat. gas for households<br>(MWh GCV <sup>5</sup> ) | Steam coal for industry <sup>6</sup><br>(tonne) | Electricity for industry<br>(MWh) | Electricity for households<br>(MWh) |                 |
|--|--|---|-----------------------------------|-------------------------------------|-----------------|
| ..   | ..   | ..  | ..                                | ..                                  | Australia       |
| 45.31  | 92.48  | 220.51  | 135.11                            | 266.93                              | Austria         |
| 35.69  | 86.77  | ..  | 128.10                            | 243.86                              | Belgium         |
| 15.98  | 34.92  | ..  | ..                                | ..                                  | Canada          |
| ..   | 102.67   | ..  | 103.84                            | 151.44                              | Chile           |
| 42.80  | 76.99  | c   | 122.84                            | 174.44                              | Czech Republic  |
| ..   | 117.98   | ..  | 101.80                            | 403.12                              | Denmark         |
| 47.39  | 64.23  | ..  | 117.89                            | 168.90                              | Estonia         |
| 45.78  | ..   | 270.17  | 104.52                            | 201.35                              | Finland         |
| 49.16  | 89.44  | ..  | 125.96                            | 207.12                              | France          |
| 44.61  | 94.68  | ..  | 179.25                            | 395.05                              | Germany         |
| 56.53  | 139.79   | ..  | 142.76                            | 235.64                              | Greece          |
| 51.16  | 49.00  | ..  | 123.29                            | 158.21                              | Hungary         |
| 48.62  | 100.46   | ..  | 166.38                            | 305.27                              | Ireland         |
| c  | x  | x   | ..                                | ..                                  | Israel          |
| ..   | ..   | ..  | 327.78                            | 306.82                              | Italy           |
| ..   | ..   | 114.91  | 188.12                            | 253.26                              | Japan           |
| 68.76  | 73.52  | ..  | ..                                | 109.61                              | Korea           |
| 44.83  | 69.15  | x   | 98.85                             | 218.39                              | Luxembourg      |
| ..   | 35.38  | x   | 121.46                            | 90.08                               | Mexico          |
| 43.19  | 102.58   | ..  | 118.08                            | 252.43                              | Netherlands     |
| ..   | ..   | c   | ..                                | 236.05                              | New Zealand     |
| x  | x  | ..  | 54.60                             | 127.10                              | Norway          |
| 43.83  | 72.62  | 92.59   | 99.93                             | 192.15                              | Poland          |
| 59.77  | 130.94   | 180.79  | 155.96                            | 291.56                              | Portugal        |
| 44.16  | 70.75  | ..  | 156.96                            | 213.98                              | Slovak Republic |
| 51.74  | 88.55  | c   | 115.11                            | 212.72                              | Slovenia        |
| 44.44  | 118.87   | ..  | ..                                | ..                                  | Spain           |
| 54.93  | 153.95   | ..  | 81.73                             | 214.45                              | Sweden          |
| 73.55  | 112.65   | 112.30  | 128.74                            | 209.29                              | Switzerland     |
| 38.74  | 47.54  | 90.68   | 130.81                            | 169.59                              | Turkey          |
| 40.06  | 83.43  | 167.60  | 157.24                            | 255.66                              | United Kingdom  |
| 18.27  | 36.14  | 80.06   | 70.14                             | 125.02                              | United States   |

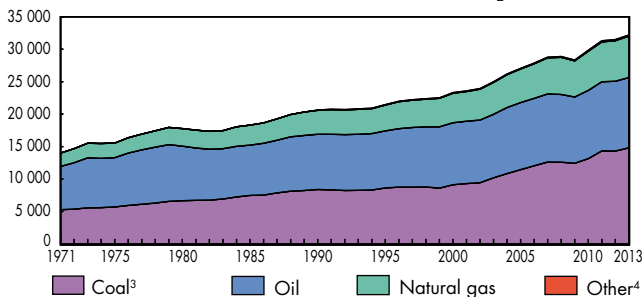
4. Unleaded premium gasoline (95 RON); unleaded regular for Japan.

5. Gross calorific value. 6. Brown coal for Turkey.

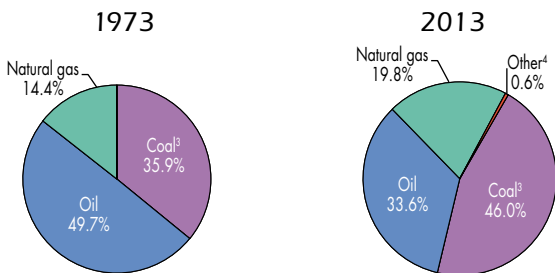
.. not available x not applicable c confidential

## CO<sub>2</sub> Emissions by fuel

World<sup>1</sup> CO<sub>2</sub> emissions from fuel combustion<sup>2</sup> from 1971 to 2013 by fuel (Mt of CO<sub>2</sub>)



## 1973 and 2013 fuel shares of CO<sub>2</sub> emissions from fuel combustion<sup>2</sup>



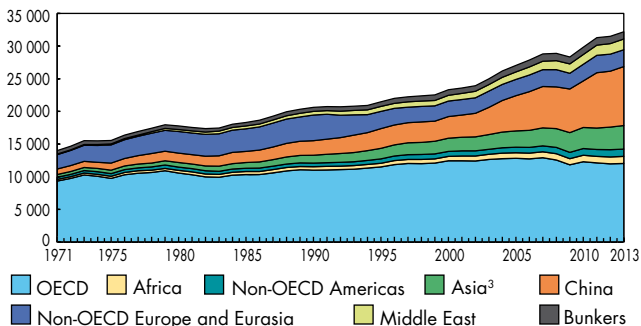
**15 515 Mt of CO<sub>2</sub>**

**32 190 Mt of CO<sub>2</sub>**

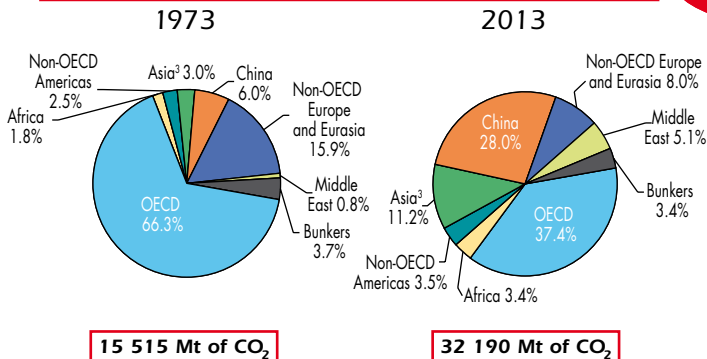
- World includes international aviation and international marine bunkers.
- CO<sub>2</sub> emissions from fuel combustion are based on the IEA energy balances and on the 2006 IPCC Guidelines, excluding emissions from non-energy.
- In these graphs, peat and oil shale are aggregated with coal.
- Includes industrial waste and non-renewable municipal waste.

# CO<sub>2</sub> Emissions by region

World<sup>1</sup> CO<sub>2</sub> emissions from fuel combustion<sup>2</sup> 1971 to 2013 by region (Mt of CO<sub>2</sub>)



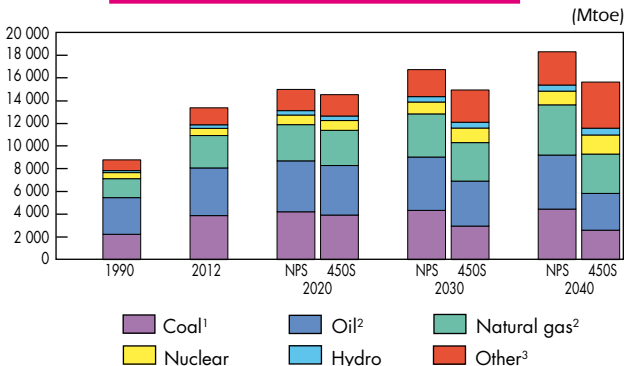
## 1973 and 2013 regional shares of CO<sub>2</sub> emissions from fuel combustion<sup>2</sup>



- World includes international aviation and international marine bunkers, which are shown together as Bunkers.
- CO<sub>2</sub> emissions from fuel combustion are based on the IEA energy balances and on the 2006 IPCC Guidelines, excluding emissions from non-energy.
- Asia excludes China.

# OUTLOOK FOR WORLD TPES

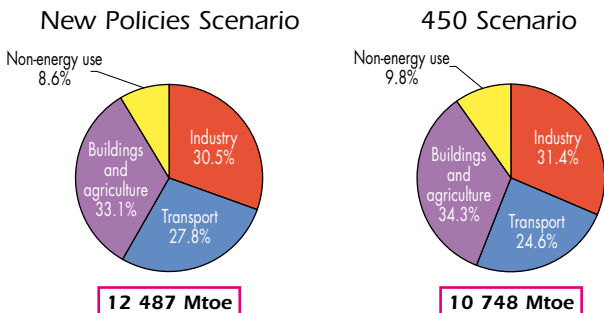
## TPES Outlook by fuel



NPS: New Policies Scenario  
(based on policies under consideration)

450S: 450 Scenario<sup>4</sup>  
(based on policies needed to limit global average temperature increase to 2 °C)

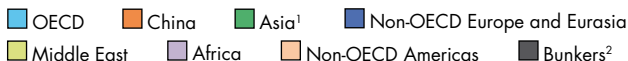
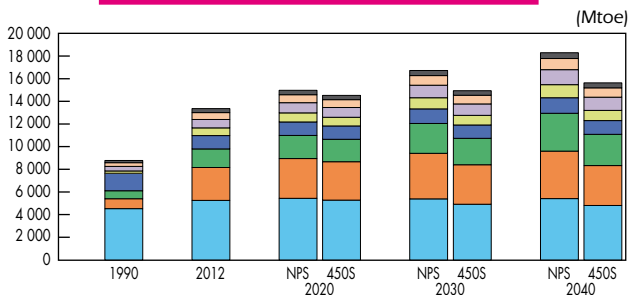
## Total final consumption by sector in 2040



1. In these graphs, peat and oil shale are aggregated with coal.
2. Includes international aviation and international marine bunkers.
3. Includes biofuels and waste, geothermal, solar, wind, tide, etc.
4. Based on a plausible post-2014 climate-policy framework to stabilise the long-term concentration of global greenhouse gases at 450 ppm CO<sub>2</sub>-equivalent.

# TO 2040

## TPES Outlook by region

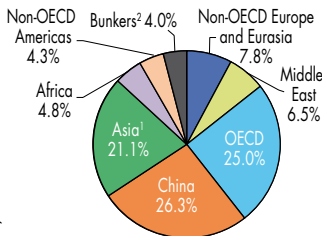


NPS: New Policies Scenario  
(based on policies under consideration)

450S: 450 Scenario<sup>3</sup>  
(based on policies needed to limit global average temperature increase to 2 °C)

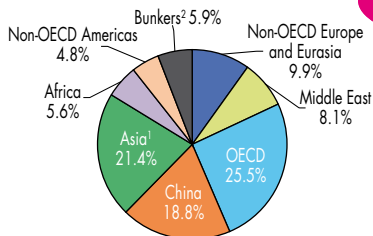
## CO<sub>2</sub> emissions by region in 2040

### New Policies Scenario



**38 037 Mt of CO<sub>2</sub>**

### 450 Scenario



**19 300 Mt of CO<sub>2</sub>**

1. Asia excludes China.

2. Includes international aviation and international marine bunkers.

3. Based on a plausible post-2014 climate-policy framework to stabilise the long-term concentration of global greenhouse gases at 450 ppm CO<sub>2</sub>-equivalent. CO<sub>2</sub> emissions are from fossil fuel combustion only.



## Selected indicators for 2013

| Region/<br>Country/<br>Economy | Popu-<br>lation<br>(million) | GDP<br>(billion<br>2005 USD) | GDP<br>(PPP)<br>(billion<br>2005 USD) | Energy<br>prod.<br>(Mtoe) | Net<br>imports<br>(Mtoe) | TPES<br>(Mtoe)        | Elec.<br>cons. <sup>1</sup><br>(TWh) | CO <sub>2</sub><br>emissions <sup>2</sup><br>(Mt<br>of CO <sub>2</sub> ) |
|--------------------------------|------------------------------|------------------------------|---------------------------------------|---------------------------|--------------------------|-----------------------|--------------------------------------|--|
| World                          | 7 118                        | 56 519                       | 86 334                                | 13 594                    | -                        | 13 541 <sup>(3)</sup> | 21 538                               | 32 190 <sup>(4)</sup>  |
| OECD                           | 1 261                        | 40 615                       | 40 316                                | 3 977                     | 1 441                    | 5 300                 | 10 179                               | 12 038   |
| Middle East                    | 218                          | 1 490                        | 4 299                                 | 1 791                     | -1 059                   | 689                   | 841                                  | 1 647  |
| Non-OECD Europe and Eurasia    | 341                          | 1 679                        | 4 164                                 | 1 861                     | -677                     | 1 156                 | 1 538                                | 2 573  |
| China                          | 1 367                        | 5 105                        | 14 257                                | 2 566                     | 532                      | 3 023                 | 5 165                                | 9 023  |
| Asia                           | 2 348                        | 3 754                        | 13 293                                | 1 473                     | 247                      | 1 655                 | 2 155                                | 3 607  |
| Non-OECD Americas              | 472                          | 2 468                        | 5 546                                 | 796                       | -164                     | 619                   | 1 011                                | 1 128  |
| Africa                         | 1 111                        | 1 408                        | 4 459                                 | 1 129                     | -365                     | 747                   | 649                                  | 1 075  |
| Albania                        | 2.90                         | 11.35                        | 25.97                                 | 2.03                      | 0.58                     | 2.32                  | 7.33                                 | 3.64   |
| Algeria                        | 39.21                        | 127.19                       | 450.07                                | 137.67                    | -89.19                   | 47.58                 | 48.78                                | 113.87   |
| Angola                         | 21.47                        | 58.79                        | 143.15                                | 98.01                     | -82.35                   | 15.36                 | 5.32                                 | 18.49  |
| Argentina                      | 41.45                        | 331.26                       | 666.21                                | 71.43                     | 12.01                    | 80.59                 | 131.59                               | 182.28   |
| Armenia                        | 2.98                         | 6.88                         | 19.95                                 | 0.81                      | 2.14                     | 2.90                  | 5.60                                 | 5.24   |
| Australia                      | 23.27                        | 949.05                       | 895.13                                | 343.90                    | -209.70                  | 129.14                | 234.27                               | 388.68   |
| Austria                        | 8.48                         | 349.52                       | 317.07                                | 12.11                     | 21.12                    | 33.22                 | 72.19                                | 65.13  |
| Azerbaijan                     | 9.42                         | 30.63                        | 139.12                                | 59.35                     | -44.74                   | 13.88                 | 19.71                                | 29.45  |
| Bahrain                        | 1.33                         | 23.32                        | 50.40                                 | 22.04                     | -7.87                    | 13.73                 | 24.58                                | 28.30  |
| Bangladesh                     | 157.00                       | 97.26                        | 397.83                                | 28.73                     | 5.53                     | 33.87                 | 46.05                                | 59.56  |
| Belarus                        | 9.47                         | 46.51                        | 143.73                                | 3.99                      | 23.57                    | 27.28                 | 34.54                                | 58.25  |
| Belgium                        | 11.11                        | 420.46                       | 375.84                                | 14.91                     | 49.37                    | 56.35                 | 89.09                                | 89.11  |
| Benin                          | 10.32                        | 6.02                         | 15.93                                 | 2.23                      | 2.02                     | 4.06                  | 0.97                                 | 5.22   |
| Bolivia                        | 10.67                        | 14.12                        | 56.38                                 | 21.92                     | -13.71                   | 8.17                  | 7.34                                 | 17.31  |
| Bosnia and Herzegovina         | 3.83                         | 13.03                        | 28.54                                 | 4.62                      | 1.92                     | 6.45                  | 12.31                                | 21.50  |
| Botswana                       | 2.02                         | 14.20                        | 27.44                                 | 1.33                      | 1.31                     | 2.39                  | 3.40                                 | 5.48   |
| Brazil                         | 200.00                       | 1 166.72                     | 2 596.47                              | 252.92                    | 45.70                    | 293.68                | 516.63                               | 452.39   |
| Brunei Darussalam              | 0.42                         | 10.10                        | 25.84                                 | 16.99                     | -13.78                   | 3.04                  | 3.99                                 | 6.85   |

1. Gross production + imports – exports – losses.

2. CO<sub>2</sub> emissions from fuel combustion only. Emissions are calculated using the IEA's energy balances and the Revised 2006 IPCC Guidelines.

| TPES/<br>pop.<br>(toe/capita) | TPES/<br>GDP<br>(toe/000<br>2005 USD) | TPES/<br>GDP (PPP)<br>(toe/000<br>2005 USD) | Elec.<br>cons./pop.<br>(kWh/<br>capita) | CO <sub>2</sub> /<br>TPES<br>(t CO <sub>2</sub> /<br>toe) | CO <sub>2</sub> /<br>pop.<br>(t CO <sub>2</sub> /<br>capita) | CO <sub>2</sub> /<br>GDP<br>(kg CO <sub>2</sub> /<br>2005 USD) | CO <sub>2</sub> /<br>GDP (PPP)<br>(kg CO <sub>2</sub> /<br>2005 USD) | Region/<br>Country/<br>Economy |
|-------------------------------|---------------------------------------|---|---|---|--|--|--|--------------------------------|
| 1.90                          | 0.24                                  | 0.16  | 3026                                    | 2.38  | 4.52   | 0.57   | 0.37   | World                          |
| 4.20                          | 0.13                                  | 0.13  | 8072                                    | 2.27  | 9.55   | 0.30   | 0.30   | OECD                           |
| 3.17                          | 0.46                                  | 0.16  | 3863                                    | 2.39  | 7.57   | 1.11   | 0.38   | Middle East                    |
| 3.39                          | 0.69                                  | 0.28  | 4510                                    | 2.23  | 7.54   | 1.53   | 0.62   | Non-OECD Europe and Eurasia    |
| 2.21                          | 0.59                                  | 0.21  | 3778                                    | 2.98  | 6.60   | 1.77   | 0.63   | China                          |
| 0.71                          | 0.44                                  | 0.12  | 918                                     | 2.18  | 1.54   | 0.96   | 0.27   | Asia                           |
| 1.31                          | 0.25                                  | 0.11  | 2142                                    | 1.82  | 2.39   | 0.46   | 0.20   | Non-OECD Americas              |
| 0.67                          | 0.53                                  | 0.17  | 584                                     | 1.44  | 0.97   | 0.76   | 0.24   | Africa                         |
| 0.80                          | 0.20                                  | 0.09  | 2532                                    | 1.57  | 1.26   | 0.32   | 0.14   | Albania                        |
| 1.21                          | 0.37                                  | 0.11  | 1244                                    | 2.39  | 2.90   | 0.90   | 0.25   | Algeria                        |
| 0.72                          | 0.26                                  | 0.11  | 248                                     | 1.20  | 0.86   | 0.31   | 0.13   | Angola                         |
| 1.94                          | 0.24                                  | 0.12  | 3175                                    | 2.26  | 4.40   | 0.55   | 0.27   | Argentina                      |
| 0.97                          | 0.42                                  | 0.15  | 1880                                    | 1.81  | 1.76   | 0.76   | 0.26   | Armenia                        |
| 5.55                          | 0.14                                  | 0.14  | 10067                                   | 3.01  | 16.70  | 0.41   | 0.43   | Australia                      |
| 3.92                          | 0.10                                  | 0.10  | 8515                                    | 1.96  | 7.68   | 0.19   | 0.21   | Austria                        |
| 1.47                          | 0.45                                  | 0.10  | 2092                                    | 2.12  | 3.13   | 0.96   | 0.21   | Azerbaijan                     |
| 10.30                         | 0.59                                  | 0.27  | 18455                                   | 2.06  | 21.24  | 1.21   | 0.56   | Bahrain                        |
| 0.22                          | 0.35                                  | 0.09  | 293                                     | 1.76  | 0.38   | 0.61   | 0.15   | Bangladesh                     |
| 2.88                          | 0.59                                  | 0.19  | 3648                                    | 2.14  | 6.15   | 1.25   | 0.41   | Belarus                        |
| 5.07                          | 0.13                                  | 0.15  | 8023                                    | 1.58  | 8.02   | 0.21   | 0.24   | Belgium                        |
| 0.39                          | 0.67                                  | 0.25  | 94                                      | 1.28  | 0.51   | 0.87   | 0.33   | Benin                          |
| 0.77                          | 0.58                                  | 0.14  | 687                                     | 2.12  | 1.62   | 1.23   | 0.31   | Bolivia                        |
| 1.69                          | 0.50                                  | 0.23  | 3214                                    | 3.33  | 5.62   | 1.65   | 0.75   | Bosnia and Herzegovina         |
| 1.18                          | 0.17                                  | 0.09  | 1684                                    | 2.29  | 2.71   | 0.39   | 0.20   | Botswana                       |
| 1.47                          | 0.25                                  | 0.11  | 2583                                    | 1.54  | 2.26   | 0.39   | 0.17   | Brazil                         |
| 7.28                          | 0.30                                  | 0.12  | 9553                                    | 2.25  | 16.39  | 0.68   | 0.27   | Brunei Darussalam              |

3. TPES for world includes international aviation and international marine bunkers as well as electricity and heat trade.

4. CO<sub>2</sub> emissions for world include emissions from international aviation and international marine bunkers.

| Region/<br>Country/<br>Economy | Popu-<br>lation<br>(million) | GDP<br>(billion<br>2005 USD) | GDP<br>(PPP)<br>(billion<br>2005 USD) | Energy<br>prod.<br>(Mtoe) | Net<br>imports<br>(Mtoe) | TPES<br>(Mtoe) | Elec.<br>cons. <sup>1</sup><br>(TWh) | CO <sub>2</sub><br>emissions <sup>2</sup><br>(Mt<br>of CO <sub>2</sub> ) |
|--------------------------------|------------------------------|------------------------------|---------------------------------------|---------------------------|--------------------------|----------------|--------------------------------------|--|
| Bulgaria                       | 7.27                         | 34.93                        | 91.78                                 | 10.63                     | 6.64                     | 16.91          | 33.71                                | 39.32  |
| Cambodia                       | 15.14                        | 10.73                        | 39.67                                 | 4.09                      | 1.95                     | 5.97           | 3.33                                 | 5.18   |
| Cameroon                       | 22.25                        | 22.02                        | 54.28                                 | 8.99                      | -1.52                    | 7.35           | 6.18                                 | 5.90   |
| Canada                         | 35.15                        | 1 327.40                     | 1 325.34                              | 435.07                    | -184.55                  | 253.20         | 545.59                               | 536.32   |
| Chile                          | 17.64                        | 172.01                       | 288.55                                | 14.98                     | 25.21                    | 38.69          | 68.18                                | 82.01  |
| China, People's Rep. of        | 1 360.00                     | 4 864.00                     | 13 927.71                             | 2 565.67                  | 503.90                   | 3 009.47       | 5 121.93                             | 8 977.10   |
| Colombia                       | 48.32                        | 212.33                       | 517.36                                | 125.55                    | -96.05                   | 31.65          | 55.73                                | 68.34  |
| Congo                          | 4.45                         | 8.72                         | 22.49                                 | 14.98                     | -12.57                   | 2.44           | 1.03                                 | 2.34   |
| Costa Rica                     | 4.87                         | 28.45                        | 58.26                                 | 2.47                      | 2.53                     | 4.84           | 9.20                                 | 7.13   |
| Côte d'Ivoire                  | 20.32                        | 21.93                        | 56.21                                 | 12.60                     | 0.52                     | 13.09          | 5.46                                 | 8.68   |
| Croatia                        | 4.26                         | 44.92                        | 68.26                                 | 3.63                      | 4.13                     | 7.72           | 15.98                                | 16.01  |
| Cuba                           | 11.27                        | 62.80                        | 122.56                                | 5.85                      | 6.05                     | 11.71          | 16.20                                | 29.79  |
| Curaçao <sup>5</sup>           | 0.15                         | 1.85                         | 1.66                                  | 0.00                      | 3.48                     | 1.82           | 0.77                                 | 4.45   |
| Cyprus <sup>5</sup>            | 0.87                         | 17.81                        | 19.38                                 | 0.11                      | 2.32                     | 1.93           | 4.10                                 | 5.62   |
| Czech Republic                 | 10.51                        | 154.01                       | 257.72                                | 30.16                     | 11.75                    | 41.95          | 66.08                                | 101.13   |
| DPR of Korea                   | 24.90                        | 27.79                        | 104.32                                | 24.10                     | -9.65                    | 14.45          | 16.44                                | 47.68  |
| Dem. Rep. of the Congo         | 67.51                        | 19.46                        | 47.08                                 | 21.62                     | -0.24                    | 21.20          | 7.98                                 | 2.63   |
| Denmark                        | 5.61                         | 265.14                       | 185.10                                | 16.84                     | 2.25                     | 17.45          | 33.91                                | 38.81  |
| Dominican Republic             | 10.40                        | 50.81                        | 109.26                                | 1.02                      | 7.01                     | 7.52           | 15.59                                | 19.69  |
| Ecuador                        | 15.74                        | 58.24                        | 147.70                                | 29.73                     | -15.00                   | 15.34          | 20.88                                | 39.50  |
| Egypt                          | 82.06                        | 128.55                       | 784.16                                | 82.82                     | -3.95                    | 77.54          | 148.72                               | 184.32   |
| El Salvador                    | 6.34                         | 19.42                        | 42.42                                 | 2.27                      | 2.05                     | 4.22           | 5.57                                 | 5.78   |
| Eritrea                        | 6.33                         | 1.25                         | 6.53                                  | 0.64                      | 0.18                     | 0.82           | 0.31                                 | 0.55   |
| Estonia                        | 1.32                         | 15.89                        | 25.45                                 | 5.65                      | 0.90                     | 6.09           | 8.78                                 | 18.86  |
| Ethiopia                       | 94.10                        | 27.74                        | 111.91                                | 45.32                     | 3.02                     | 47.94          | 6.11                                 | 8.50   |
| Finland                        | 5.44                         | 212.43                       | 174.80                                | 18.16                     | 16.54                    | 33.04          | 84.36                                | 49.19  |
| FYR of Macedonia               | 2.11                         | 7.54                         | 20.21                                 | 1.44                      | 1.31                     | 2.80           | 7.37                                 | 8.30   |
| France                         | 65.90                        | 2 351.95                     | 2 048.28                              | 136.25                    | 124.00                   | 253.32         | 486.48                               | 315.57   |
| Gabon                          | 1.67                         | 11.60                        | 27.75                                 | 13.68                     | -11.04                   | 2.37           | 1.93                                 | 2.83   |
| Georgia                        | 4.49                         | 9.69                         | 27.69                                 | 1.43                      | 2.56                     | 3.90           | 9.29                                 | 6.63   |

1. Gross production + imports – exports – losses.

2. CO<sub>2</sub> emissions from fuel combustion only. Emissions are calculated using the IEA's energy balances and the Revised 2006 IPCC Guidelines.

| TPES/<br>pop.<br>(toe/capita) | TPES/<br>GDP<br>(toe/000<br>2005 USD) | TPES/<br>GDP (PPP)<br>(toe/000<br>2005 USD) | Elec.<br>cons./pop.<br>(kWh/<br>capita) | CO <sub>2</sub> /<br>TPES<br>(t CO <sub>2</sub> /<br>toe) | CO <sub>2</sub> /<br>pop.<br>(t CO <sub>2</sub> /<br>capita) | CO <sub>2</sub> /<br>GDP<br>(kg CO <sub>2</sub> /<br>2005 USD) | CO <sub>2</sub> /<br>GDP (PPP)<br>(kg CO <sub>2</sub> /<br>2005 USD) | Region/<br>Country/<br>Economy |
|-------------------------------|---------------------------------------|---|---|---|--|--|--|--------------------------------|
| 2.33                          | 0.48                                  | 0.18  | 4640                                    | 2.33  | 5.41   | 1.13   | 0.43   | Bulgaria                       |
| 0.39                          | 0.56                                  | 0.15  | 220                                     | 0.87  | 0.34   | 0.48   | 0.13   | Cambodia                       |
| 0.33                          | 0.33                                  | 0.14  | 278                                     | 0.80  | 0.27   | 0.27   | 0.11   | Cameroon                       |
| 7.20                          | 0.19                                  | 0.19  | 15520                                   | 2.12  | 15.26  | 0.40   | 0.40   | Canada                         |
| 2.19                          | 0.22                                  | 0.13  | 3865                                    | 2.12  | 4.65   | 0.48   | 0.28   | Chile                          |
| 2.21                          | 0.62                                  | 0.22  | 3766                                    | 2.98  | 6.60   | 1.85   | 0.64   | China, People's Rep. of        |
| 0.65                          | 0.15                                  | 0.06  | 1153                                    | 2.16  | 1.41   | 0.32   | 0.13   | Colombia                       |
| 0.55                          | 0.28                                  | 0.11  | 231                                     | 0.96  | 0.53   | 0.27   | 0.10   | Congo                          |
| 0.99                          | 0.17                                  | 0.08  | 1888                                    | 1.47  | 1.46   | 0.25   | 0.12   | Costa Rica                     |
| 0.64                          | 0.60                                  | 0.23  | 269                                     | 0.66  | 0.43   | 0.40   | 0.15   | Côte d'Ivoire                  |
| 1.81                          | 0.17                                  | 0.11  | 3754                                    | 2.07  | 3.76   | 0.36   | 0.23   | Croatia                        |
| 1.04                          | 0.19                                  | 0.10  | 1438                                    | 2.54  | 2.64   | 0.47   | 0.24   | Cuba                           |
| 11.79                         | 0.98                                  | 1.10  | 5000                                    | 2.45  | 28.91  | 2.41   | 2.69   | Curaçao <sup>5</sup>           |
| 2.23                          | 0.11                                  | 0.10  | 4739                                    | 2.91  | 6.49   | 0.32   | 0.29   | Cyprus <sup>5</sup>            |
| 3.99                          | 0.27                                  | 0.16  | 6287                                    | 2.41  | 9.62   | 0.66   | 0.39   | Czech Republic                 |
| 0.58                          | 0.52                                  | 0.14  | 660                                     | 3.30  | 1.92   | 1.72   | 0.46   | DPR of Korea                   |
| 0.31                          | 1.09                                  | 0.45  | 118                                     | 0.12  | 0.04   | 0.14   | 0.06   | Dem. Rep. of the Congo         |
| 3.11                          | 0.07                                  | 0.09  | 6042                                    | 2.22  | 6.91   | 0.15   | 0.21   | Denmark                        |
| 0.72                          | 0.15                                  | 0.07  | 1499                                    | 2.62  | 1.89   | 0.39   | 0.18   | Dominican Republic             |
| 0.97                          | 0.26                                  | 0.10  | 1327                                    | 2.57  | 2.51   | 0.68   | 0.27   | Ecuador                        |
| 0.94                          | 0.60                                  | 0.10  | 1812                                    | 2.38  | 2.25   | 1.43   | 0.24   | Egypt                          |
| 0.67                          | 0.22                                  | 0.10  | 879                                     | 1.37  | 0.91   | 0.30   | 0.14   | El Salvador                    |
| 0.13                          | 0.66                                  | 0.13  | 49                                      | 0.67  | 0.09   | 0.44   | 0.08   | Eritrea                        |
| 4.62                          | 0.38                                  | 0.24  | 6655                                    | 3.10  | 14.29  | 1.19   | 0.74   | Estonia                        |
| 0.51                          | 1.73                                  | 0.43  | 65                                      | 0.18  | 0.09   | 0.31   | 0.08   | Ethiopia                       |
| 6.07                          | 0.16                                  | 0.19  | 15510                                   | 1.49  | 9.04   | 0.23   | 0.28   | Finland                        |
| 1.33                          | 0.37                                  | 0.14  | 3498                                    | 2.97  | 3.94   | 1.10   | 0.41   | FYR of Macedonia               |
| 3.84                          | 0.11                                  | 0.12  | 7382                                    | 1.25  | 4.79   | 0.13   | 0.15   | France                         |
| 1.42                          | 0.20                                  | 0.09  | 1153                                    | 1.20  | 1.69   | 0.24   | 0.10   | Gabon                          |
| 0.87                          | 0.40                                  | 0.14  | 2070                                    | 1.70  | 1.48   | 0.68   | 0.24   | Georgia                        |

5. Please refer to geographical coverage section for more details.

| Region/<br>Country/<br>Economy | Popu-<br>lation<br>(million) | GDP<br>(billion<br>2005 USD) | GDP<br>(PPP)<br>(billion<br>2005 USD) | Energy<br>prod.<br>(Mtoe) | Net<br>imports<br>(Mtoe) | TPES<br>(Mtoe) | Elec.<br>cons. <sup>1</sup><br>(TWh) | CO <sub>2</sub><br>emissions <sup>2</sup><br>(Mt<br>of CO <sub>2</sub> ) |
|--------------------------------|------------------------------|------------------------------|---------------------------------------|---------------------------|--------------------------|----------------|--------------------------------------|--|
| Germany                        | 82.10                        | 3 161.94                     | 2 933.04                              | 120.38                    | 207.31                   | 317.66         | 576.49                               | 759.60   |
| Ghana                          | 25.91                        | 19.93                        | 89.12                                 | 9.62                      | -0.09                    | 8.99           | 10.00                                | 13.65  |
| Gibraltar                      | 0.03                         | 1.12                         | 0.96                                  | 0.00                      | 3.98                     | 0.18           | 0.18                                 | 0.50   |
| Greece                         | 11.03                        | 199.82                       | 225.03                                | 9.31                      | 16.17                    | 23.40          | 55.14                                | 68.89  |
| Guatemala                      | 15.47                        | 36.21                        | 97.26                                 | 8.69                      | 3.20                     | 12.04          | 8.71                                 | 12.22  |
| Haiti                          | 10.32                        | 4.88                         | 15.14                                 | 3.33                      | 0.84                     | 4.10           | 0.51                                 | 2.17   |
| Honduras                       | 8.10                         | 12.77                        | 32.05                                 | 2.52                      | 2.72                     | 5.20           | 5.66                                 | 8.45   |
| Hong Kong, China               | 7.19                         | 241.03                       | 329.62                                | 0.10                      | 28.46                    | 13.93          | 42.65                                | 46.05  |
| Hungary                        | 9.89                         | 113.12                       | 175.57                                | 10.21                     | 12.00                    | 22.56          | 38.49                                | 39.50  |
| Iceland                        | 0.32                         | 19.20                        | 12.20                                 | 5.27                      | 0.81                     | 5.89           | 17.74                                | 2.03   |
| India                          | 1 250.00                     | 1 489.78                     | 5 846.09                              | 523.34                    | 254.70                   | 775.45         | 978.82                               | 1 868.62   |
| Indonesia                      | 250.00                       | 452.34                       | 2 058.78                              | 459.99                    | -245.76                  | 213.64         | 197.92                               | 424.61   |
| Islamic Rep. of Iran           | 77.45                        | 242.55                       | 1 041.76                              | 298.93                    | -55.78                   | 228.40         | 223.67                               | 525.92   |
| Iraq                           | 33.42                        | 84.13                        | 430.57                                | 157.58                    | -107.36                  | 50.02          | 60.74                                | 137.98   |
| Ireland                        | 4.60                         | 217.27                       | 172.94                                | 2.27                      | 12.34                    | 13.06          | 26.22                                | 34.36  |
| Israel                         | 8.06                         | 196.18                       | 236.86                                | 6.44                      | 19.24                    | 23.94          | 52.86                                | 68.17  |
| Italy                          | 60.65                        | 1 754.56                     | 1 627.97                              | 36.76                     | 123.20                   | 155.37         | 310.76                               | 338.22   |
| Jamaica                        | 2.72                         | 11.06                        | 18.75                                 | 0.51                      | 2.68                     | 2.94           | 3.06                                 | 7.45   |
| Japan                          | 127.33                       | 4 784.55                     | 4 070.52                              | 27.96                     | 437.00                   | 454.65         | 997.78                               | 1 235.06   |
| Jordan                         | 6.46                         | 18.45                        | 65.60                                 | 0.27                      | 7.59                     | 7.73           | 15.18                                | 22.82  |
| Kazakhstan                     | 17.04                        | 92.42                        | 340.80                                | 169.07                    | -85.45                   | 81.54          | 83.35                                | 244.89   |
| Kenya                          | 44.35                        | 28.05                        | 106.83                                | 17.59                     | 4.84                     | 21.49          | 7.33                                 | 11.70  |
| Korea                          | 50.22                        | 1 199.00                     | 1 556.46                              | 43.60                     | 234.11                   | 263.83         | 523.69                               | 572.25   |
| Kosovo                         | 1.82                         | 5.09                         | 12.40                                 | 1.79                      | 0.57                     | 2.36           | 5.30                                 | 8.31   |
| Kuwait                         | 3.37                         | 98.15                        | 240.31                                | 170.47                    | -134.04                  | 35.07          | 53.58                                | 84.10  |
| Kyrgyzstan                     | 5.72                         | 3.58                         | 15.84                                 | 1.76                      | 2.31                     | 3.95           | 10.79                                | 8.88   |
| Latvia                         | 2.01                         | 17.85                        | 33.37                                 | 2.14                      | 2.63                     | 4.35           | 6.99                                 | 6.93   |
| Lebanon                        | 4.47                         | 32.35                        | 66.12                                 | 0.25                      | 7.13                     | 7.07           | 16.89                                | 20.64  |
| Libya                          | 6.20                         | 37.99                        | 74.34                                 | 61.70                     | -44.31                   | 16.99          | 24.58                                | 43.23  |
| Lithuania                      | 2.96                         | 31.19                        | 58.23                                 | 1.64                      | 5.44                     | 6.97           | 10.84                                | 10.73  |
| Luxembourg                     | 0.55                         | 43.20                        | 36.46                                 | 0.14                      | 4.21                     | 3.97           | 7.71                                 | 9.77   |

1. Gross production + imports – exports – losses.

2. CO<sub>2</sub> emissions from fuel combustion only. Emissions are calculated using the IEA's energy balances and the Revised 2006 IPCC Guidelines.

| TPES/<br>pop.<br>(toe/capita) | TPES/<br>GDP<br>(toe/000<br>2005 USD) | TPES/<br>GDP (PPP)<br>(toe/000<br>2005 USD) | Elec.<br>cons./pop.<br>(kWh/<br>capita) | CO <sub>2</sub> /<br>TPES<br>(t CO <sub>2</sub> /<br>toe) | CO <sub>2</sub> /<br>pop.<br>(t CO <sub>2</sub> /<br>capita) | CO <sub>2</sub> /<br>GDP<br>(kg CO <sub>2</sub> /<br>2005 USD) | CO <sub>2</sub> /<br>GDP (PPP)<br>(kg CO <sub>2</sub> /<br>2005 USD) | Region/<br>Country/<br>Economy |
|-------------------------------|---------------------------------------|---|---|---|--|--|--|--------------------------------|
| 3.87                          | 0.10                                  | 0.11  | 7022                                    | 2.39  | 9.25   | 0.24   | 0.26   | Germany                        |
| 0.35                          | 0.45                                  | 0.10  | 386                                     | 1.52  | 0.53   | 0.68   | 0.15   | Ghana                          |
| 5.57                          | 0.16                                  | 0.19  | 5545                                    | 2.71  | 15.12  | 0.45   | 0.52   | Gibraltar                      |
| 2.12                          | 0.12                                  | 0.10  | 5000                                    | 2.94  | 6.25   | 0.34   | 0.31   | Greece                         |
| 0.78                          | 0.33                                  | 0.12  | 563                                     | 1.01  | 0.79   | 0.34   | 0.13   | Guatemala                      |
| 0.40                          | 0.84                                  | 0.27  | 49                                      | 0.53  | 0.21   | 0.44   | 0.14   | Haiti                          |
| 0.64                          | 0.41                                  | 0.16  | 699                                     | 1.63  | 1.04   | 0.66   | 0.26   | Honduras                       |
| 1.94                          | 0.06                                  | 0.04  | 5933                                    | 3.31  | 6.41   | 0.19   | 0.14   | Hong Kong, China               |
| 2.28                          | 0.20                                  | 0.13  | 3890                                    | 1.75  | 3.99   | 0.35   | 0.22   | Hungary                        |
| 18.16                         | 0.31                                  | 0.48  | 54759                                   | 0.34  | 6.26   | 0.11   | 0.17   | Iceland                        |
| 0.62                          | 0.52                                  | 0.13  | 783                                     | 2.41  | 1.49   | 1.25   | 0.32   | India                          |
| 0.85                          | 0.47                                  | 0.10  | 792                                     | 1.99  | 1.70   | 0.94   | 0.21   | Indonesia                      |
| 2.95                          | 0.94                                  | 0.22  | 2888                                    | 2.30  | 6.79   | 2.17   | 0.50   | Islamic Rep. of Iran           |
| 1.50                          | 0.59                                  | 0.12  | 1817                                    | 2.76  | 4.13   | 1.64   | 0.32   | Iraq                           |
| 2.84                          | 0.06                                  | 0.08  | 5697                                    | 2.63  | 7.47   | 0.16   | 0.20   | Ireland                        |
| 2.97                          | 0.12                                  | 0.10  | 6562                                    | 2.85  | 8.46   | 0.35   | 0.29   | Israel                         |
| 2.56                          | 0.09                                  | 0.10  | 5124                                    | 2.18  | 5.58   | 0.19   | 0.21   | Italy                          |
| 1.08                          | 0.27                                  | 0.16  | 1126                                    | 2.53  | 2.75   | 0.67   | 0.40   | Jamaica                        |
| 3.57                          | 0.10                                  | 0.11  | 7836                                    | 2.72  | 9.70   | 0.26   | 0.30   | Japan                          |
| 1.20                          | 0.42                                  | 0.12  | 2350                                    | 2.95  | 3.53   | 1.24   | 0.35   | Jordan                         |
| 4.79                          | 0.88                                  | 0.24  | 4893                                    | 3.00  | 14.38  | 2.65   | 0.72   | Kazakhstan                     |
| 0.48                          | 0.77                                  | 0.20  | 165                                     | 0.54  | 0.26   | 0.42   | 0.11   | Kenya                          |
| 5.25                          | 0.22                                  | 0.17  | 10428                                   | 2.17  | 11.39  | 0.48   | 0.37   | Korea                          |
| 1.29                          | 0.46                                  | 0.19  | 2908                                    | 3.52  | 4.56   | 1.63   | 0.67   | Kosovo                         |
| 10.41                         | 0.36                                  | 0.15  | 15905                                   | 2.40  | 24.96  | 0.86   | 0.35   | Kuwait                         |
| 0.69                          | 1.10                                  | 0.25  | 1887                                    | 2.25  | 1.55   | 2.48   | 0.56   | Kyrgyzstan                     |
| 2.16                          | 0.24                                  | 0.13  | 3472                                    | 1.59  | 3.44   | 0.39   | 0.21   | Latvia                         |
| 1.58                          | 0.22                                  | 0.11  | 3780                                    | 2.92  | 4.62   | 0.64   | 0.31   | Lebanon                        |
| 2.74                          | 0.45                                  | 0.23  | 3963                                    | 2.54  | 6.97   | 1.14   | 0.58   | Libya                          |
| 2.36                          | 0.22                                  | 0.12  | 3663                                    | 1.54  | 3.63   | 0.34   | 0.18   | Lithuania                      |
| 7.29                          | 0.09                                  | 0.11  | 14150                                   | 2.46  | 17.93  | 0.23   | 0.27   | Luxembourg                     |

| Region/<br>Country/<br>Economy | Popu-<br>lation<br>(million) | GDP<br>(billion<br>2005 USD) | GDP<br>(PPP)<br>(billion<br>2005 USD) | Energy<br>prod.<br>(Mtoe) | Net<br>imports<br>(Mtoe) | TPES<br>(Mtoe) | Elec.<br>cons. <sup>1</sup><br>(TWh) | CO <sub>2</sub><br>emissions <sup>2</sup><br>(Mt<br>of CO <sub>2</sub> ) |
|--------------------------------|------------------------------|------------------------------|---------------------------------------|---------------------------|--------------------------|----------------|--------------------------------------|--|
| Malaysia                       | 29.72                        | 207.95                       | 597.67                                | 94.63                     | -0.89                    | 88.98          | 132.95                               | 207.25   |
| Malta                          | 0.42                         | 7.08                         | 10.05                                 | 0.01                      | 2.14                     | 0.73           | 2.01                                 | 2.33   |
| Mauritius                      | 1.26                         | 8.66                         | 19.21                                 | 0.22                      | 1.71                     | 1.38           | 2.70                                 | 3.83   |
| Mexico                         | 118.40                       | 1 044.04                     | 1 596.47                              | 216.51                    | -21.72                   | 191.27         | 254.53                               | 451.76   |
| Moldova                        | 3.56                         | 4.04                         | 14.32                                 | 0.31                      | 2.79                     | 3.07           | 4.81                                 | 6.70   |
| Mongolia                       | 2.84                         | 5.10                         | 23.08                                 | 16.34                     | -11.78                   | 5.22           | 5.46                                 | 18.66  |
| Montenegro                     | 0.62                         | 2.91                         | 6.67                                  | 0.76                      | 0.28                     | 1.03           | 3.49                                 | 2.27   |
| Morocco                        | 33.01                        | 84.97                        | 208.28                                | 1.87                      | 18.83                    | 18.88          | 28.98                                | 50.34  |
| Mozambique                     | 25.83                        | 11.19                        | 24.60                                 | 16.63                     | -4.11                    | 10.78          | 11.53                                | 2.95   |
| Myanmar                        | 53.26                        | 20.96                        | 96.03                                 | 23.19                     | -6.50                    | 16.57          | 8.71                                 | 13.34  |
| Namibia                        | 2.30                         | 10.52                        | 19.02                                 | 0.44                      | 1.33                     | 1.74           | 3.78                                 | 3.43   |
| Nepal                          | 27.80                        | 11.37                        | 53.78                                 | 8.62                      | 1.78                     | 10.29          | 3.57                                 | 5.14   |
| Netherlands                    | 16.80                        | 720.79                       | 646.76                                | 69.40                     | 24.62                    | 77.39          | 114.62                               | 156.23   |
| New Zealand                    | 4.46                         | 129.72                       | 120.02                                | 16.20                     | 4.62                     | 19.51          | 40.35                                | 30.73  |
| Nicaragua                      | 6.08                         | 8.31                         | 24.33                                 | 2.13                      | 1.41                     | 3.53           | 3.56                                 | 4.21   |
| Niger                          | 17.83                        | 5.18                         | 14.08                                 | 3.01                      | -0.12                    | 2.80           | 0.89                                 | 1.85   |
| Nigeria                        | 174.00                       | 183.31                       | 838.22                                | 255.66                    | -121.63                  | 133.59         | 24.52                                | 61.00  |
| Norway                         | 5.08                         | 337.86                       | 244.66                                | 191.62                    | -158.11                  | 32.71          | 118.49                               | 35.29  |
| Oman                           | 3.63                         | 46.39                        | 132.51                                | 75.68                     | -50.19                   | 24.35          | 23.37                                | 57.92  |
| Pakistan                       | 182.00                       | 143.82                       | 722.31                                | 65.16                     | 21.25                    | 86.04          | 81.53                                | 134.83   |
| Panama                         | 3.86                         | 29.91                        | 64.66                                 | 0.99                      | 6.64                     | 4.02           | 7.76                                 | 9.21   |
| Paraguay                       | 6.80                         | 13.12                        | 47.44                                 | 7.45                      | -2.59                    | 4.94           | 9.52                                 | 4.93   |
| Peru                           | 30.38                        | 124.83                       | 308.21                                | 21.69                     | -3.01                    | 21.65          | 38.81                                | 45.52  |
| Philippines                    | 98.39                        | 155.60                       | 554.20                                | 24.49                     | 20.74                    | 44.60          | 67.53                                | 89.63  |
| Poland                         | 38.50                        | 415.43                       | 719.11                                | 70.92                     | 25.86                    | 97.59          | 149.79                               | 292.44   |
| Portugal                       | 10.46                        | 188.59                       | 221.60                                | 5.77                      | 17.20                    | 21.78          | 48.99                                | 44.92  |
| Qatar                          | 2.17                         | 129.89                       | 259.93                                | 223.98                    | -181.31                  | 40.18          | 32.51                                | 72.40  |
| Romania                        | 19.98                        | 121.24                       | 248.23                                | 25.91                     | 5.92                     | 31.82          | 49.85                                | 68.84  |
| Russian Federation             | 143.00                       | 993.52                       | 2 206.46                              | 1 340.21                  | -592.94                  | 730.89         | 938.42                               | 1 543.12   |
| Saudi Arabia                   | 28.83                        | 520.66                       | 1 336.45                              | 614.48                    | -419.78                  | 192.18         | 264.00                               | 472.38   |
| Senegal                        | 14.13                        | 11.25                        | 27.31                                 | 1.81                      | 2.19                     | 3.71           | 3.12                                 | 6.00   |

1. Gross production + imports – exports – losses.

2. CO<sub>2</sub> emissions from fuel combustion only. Emissions are calculated using the IEA's energy balances and the Revised 2006 IPCC Guidelines.

| TPES/<br>pop.<br>(toe/capita) | TPES/<br>GDP<br>(toe/000<br>2005 USD) | TPES/<br>GDP (PPP)<br>(toe/000<br>2005 USD) | Elec.<br>cons./pop.<br>(kWh/<br>capita) | CO <sub>2</sub> /<br>TPES<br>(t CO <sub>2</sub> /<br>toe) | CO <sub>2</sub> /<br>pop.<br>(t CO <sub>2</sub> /<br>capita) | CO <sub>2</sub> /<br>GDP<br>(kg CO <sub>2</sub> /<br>2005 USD) | CO <sub>2</sub> /<br>GDP (PPP)<br>(kg CO <sub>2</sub> /<br>2005 USD) | Region/<br>Country/<br>Economy |
|-------------------------------|---------------------------------------|---|---|---|--|--|--|--------------------------------|
| 2.99                          | 0.43                                  | 0.15  | 4474                                    | 2.33  | 6.97   | 1.00   | 0.35   | Malaysia                       |
| 1.74                          | 0.10                                  | 0.07  | 4740                                    | 3.17  | 5.50   | 0.33   | 0.23   | Malta                          |
| 1.09                          | 0.16                                  | 0.07  | 2148                                    | 2.78  | 3.04   | 0.44   | 0.20   | Mauritius                      |
| 1.62                          | 0.18                                  | 0.12  | 2150                                    | 2.36  | 3.82   | 0.43   | 0.28   | Mexico                         |
| 0.86                          | 0.76                                  | 0.21  | 1353                                    | 2.18  | 1.88   | 1.66   | 0.47   | Moldova                        |
| 1.84                          | 1.02                                  | 0.23  | 1923                                    | 3.57  | 6.57   | 3.66   | 0.81   | Mongolia                       |
| 1.65                          | 0.35                                  | 0.15  | 5620                                    | 2.22  | 3.66   | 0.78   | 0.34   | Montenegro                     |
| 0.57                          | 0.22                                  | 0.09  | 878                                     | 2.67  | 1.53   | 0.59   | 0.24   | Morocco                        |
| 0.42                          | 0.96                                  | 0.44  | 446                                     | 0.27  | 0.11   | 0.26   | 0.12   | Mozambique                     |
| 0.31                          | 0.79                                  | 0.17  | 164                                     | 0.80  | 0.25   | 0.64   | 0.14   | Myanmar                        |
| 0.76                          | 0.17                                  | 0.09  | 1641                                    | 1.97  | 1.49   | 0.33   | 0.18   | Namibia                        |
| 0.37                          | 0.91                                  | 0.19  | 128                                     | 0.50  | 0.18   | 0.45   | 0.10   | Nepal                          |
| 4.61                          | 0.11                                  | 0.12  | 6823                                    | 2.02  | 9.30   | 0.22   | 0.24   | Netherlands                    |
| 4.37                          | 0.15                                  | 0.16  | 9048                                    | 1.58  | 6.89   | 0.24   | 0.26   | New Zealand                    |
| 0.58                          | 0.42                                  | 0.15  | 585                                     | 1.19  | 0.69   | 0.51   | 0.17   | Nicaragua                      |
| 0.16                          | 0.54                                  | 0.20  | 50                                      | 0.66  | 0.10   | 0.36   | 0.13   | Niger                          |
| 0.77                          | 0.73                                  | 0.16  | 141                                     | 0.46  | 0.35   | 0.33   | 0.07   | Nigeria                        |
| 6.44                          | 0.10                                  | 0.13  | 23324                                   | 1.08  | 6.95   | 0.10   | 0.14   | Norway                         |
| 6.70                          | 0.52                                  | 0.18  | 6434                                    | 2.38  | 15.95  | 1.25   | 0.44   | Oman                           |
| 0.47                          | 0.60                                  | 0.12  | 448                                     | 1.57  | 0.74   | 0.94   | 0.19   | Pakistan                       |
| 1.04                          | 0.13                                  | 0.06  | 2007                                    | 2.29  | 2.38   | 0.31   | 0.14   | Panama                         |
| 0.73                          | 0.38                                  | 0.10  | 1400                                    | 1.00  | 0.73   | 0.38   | 0.10   | Paraguay                       |
| 0.71                          | 0.17                                  | 0.07  | 1278                                    | 2.10  | 1.50   | 0.36   | 0.15   | Peru                           |
| 0.45                          | 0.29                                  | 0.08  | 686                                     | 2.01  | 0.91   | 0.58   | 0.16   | Philippines                    |
| 2.53                          | 0.23                                  | 0.14  | 3890                                    | 3.00  | 7.60   | 0.70   | 0.41   | Poland                         |
| 2.08                          | 0.12                                  | 0.10  | 4685                                    | 2.06  | 4.30   | 0.24   | 0.20   | Portugal                       |
| 18.52                         | 0.31                                  | 0.15  | 14988                                   | 1.80  | 33.38  | 0.56   | 0.28   | Qatar                          |
| 1.59                          | 0.26                                  | 0.13  | 2495                                    | 2.16  | 3.45   | 0.57   | 0.28   | Romania                        |
| 5.11                          | 0.74                                  | 0.33  | 6562                                    | 2.11  | 10.79  | 1.55   | 0.70   | Russian Federation             |
| 6.67                          | 0.37                                  | 0.14  | 9157                                    | 2.46  | 16.39  | 0.91   | 0.35   | Saudi Arabia                   |
| 0.26                          | 0.33                                  | 0.14  | 221                                     | 1.62  | 0.42   | 0.53   | 0.22   | Senegal                        |



| Region/<br>Country/<br>Economy | Popu-<br>lation<br>(million) | GDP<br>(billion<br>2005 USD) | GDP<br>(PPP)<br>(billion<br>2005 USD) | Energy<br>prod.<br>(Mtoe) | Net<br>imports<br>(Mtoe) | TPES<br>(Mtoe) | Elec.<br>cons. <sup>1</sup><br>(TWh) | CO <sub>2</sub><br>emissions <sup>2</sup><br>(Mt<br>of CO <sub>2</sub> ) |
|--------------------------------|------------------------------|------------------------------|---------------------------------------|---------------------------|--------------------------|----------------|--------------------------------------|--|
| Serbia                         | 7.16                         | 28.41                        | 71.35                                 | 11.36                     | 3.59                     | 14.89          | 31.84                                | 45.31  |
| Singapore                      | 5.40                         | 199.22                       | 366.48                                | 0.64                      | 73.51                    | 26.10          | 47.73                                | 46.56  |
| Slovak Republic                | 5.41                         | 64.99                        | 118.22                                | 6.66                      | 10.43                    | 17.21          | 28.16                                | 32.38  |
| Slovenia                       | 2.06                         | 38.40                        | 50.48                                 | 3.56                      | 3.25                     | 6.85           | 14.08                                | 14.34  |
| South Africa                   | 53.16                        | 323.75                       | 589.43                                | 165.72                    | -19.80                   | 141.27         | 230.08                               | 420.40   |
| South Sudan <sup>5</sup>       | 11.30                        | 10.95                        | 36.98                                 | 5.23                      | -4.51                    | 0.68           | 0.45                                 | 1.47   |
| Spain                          | 46.59                        | 1 172.45                     | 1 232.55                              | 34.50                     | 89.88                    | 116.73         | 251.80                               | 235.66   |
| Sri Lanka                      | 20.48                        | 41.05                        | 171.90                                | 5.43                      | 5.18                     | 10.03          | 10.82                                | 13.74  |
| Sudan <sup>5</sup>             | 37.96                        | 29.27                        | 110.35                                | 15.65                     | -0.94                    | 14.43          | 7.93                                 | 13.58  |
| Sweden                         | 9.60                         | 436.37                       | 347.72                                | 35.08                     | 16.57                    | 49.26          | 133.16                               | 37.50  |
| Switzerland                    | 8.09                         | 477.25                       | 340.99                                | 12.95                     | 15.20                    | 26.73          | 63.16                                | 41.54  |
| Syrian Arab Republic           | 22.85                        | 41.21                        | 109.09                                | 7.53                      | 5.87                     | 12.91          | 21.77                                | 33.47  |
| Chinese Taipei                 | 23.41                        | 481.26                       | 800.38                                | 13.51                     | 97.82                    | 108.63         | 244.79                               | 248.70   |
| Tajikistan                     | 8.21                         | 3.95                         | 17.77                                 | 1.72                      | 0.77                     | 2.46           | 13.64                                | 3.31   |
| Tanzania                       | 49.25                        | 23.30                        | 100.68                                | 21.06                     | 2.72                     | 23.59          | 4.49                                 | 9.70   |
| Thailand                       | 67.01                        | 230.37                       | 831.20                                | 78.07                     | 56.82                    | 134.06         | 166.66                               | 247.45   |
| Togo                           | 6.82                         | 2.89                         | 8.17                                  | 2.57                      | 0.69                     | 3.21           | 1.02                                 | 1.67   |
| Trinidad and Tobago            | 1.34                         | 19.27                        | 35.19                                 | 39.90                     | -19.78                   | 19.60          | 9.27                                 | 22.95  |
| Tunisia                        | 10.89                        | 43.34                        | 104.37                                | 7.30                      | 3.46                     | 10.41          | 15.62                                | 23.65  |
| Turkey                         | 75.77                        | 654.07                       | 1 057.98                              | 32.35                     | 86.67                    | 116.49         | 209.22                               | 283.84   |
| Turkmenistan                   | 5.24                         | 18.64                        | 63.24                                 | 76.54                     | -49.81                   | 26.26          | 13.64                                | 66.02  |
| Ukraine                        | 45.49                        | 97.27                        | 344.58                                | 85.93                     | 31.68                    | 116.14         | 163.77                               | 265.05   |
| United Arab Emirates           | 9.35                         | 234.97                       | 482.62                                | 201.67                    | -113.14                  | 69.53          | 98.58                                | 167.61   |
| United Kingdom                 | 64.11                        | 2 577.06                     | 2 227.97                              | 110.08                    | 94.53                    | 190.95         | 346.76                               | 448.71   |
| United States                  | 316.47                       | 14 451.51                    | 14 451.51                             | 1 881.03                  | 308.31                   | 2 188.36       | 4 109.84                             | 5 119.70   |
| Uruguay                        | 3.41                         | 26.60                        | 57.53                                 | 2.18                      | 2.55                     | 4.60           | 10.17                                | 7.11   |
| Uzbekistan                     | 30.24                        | 27.20                        | 134.69                                | 54.13                     | -11.20                   | 42.93          | 49.51                                | 96.16  |
| Venezuela                      | 30.41                        | 194.65                       | 476.84                                | 192.14                    | -120.82                  | 68.76          | 98.25                                | 155.57   |
| Viet Nam                       | 89.71                        | 92.28                        | 409.31                                | 69.28                     | -6.23                    | 59.93          | 117.19                               | 130.05   |
| Yemen                          | 24.41                        | 18.12                        | 83.28                                 | 18.23                     | -9.76                    | 8.27           | 6.31                                 | 23.92  |
| Zambia                         | 14.54                        | 15.32                        | 49.18                                 | 8.78                      | 0.87                     | 9.63           | 11.15                                | 3.44   |
| Zimbabwe                       | 14.15                        | 6.73                         | 4.23                                  | 9.90                      | 1.40                     | 11.29          | 7.92                                 | 13.46  |

1. Gross production + imports – exports – losses.

2. CO<sub>2</sub> emissions from fuel combustion only. Emissions are calculated using the IEA's energy balances and the Revised 2006 IPCC Guidelines.

| TPES/<br>pop.<br>(toe/capita) | TPES/<br>GDP<br>(toe/000<br>2005 USD) | TPES/<br>GDP (PPP)<br>(toe/000<br>2005 USD) | Elec.<br>cons./pop.<br>(kWh/<br>capita) | CO <sub>2</sub> /<br>TPES<br>(t CO <sub>2</sub> /<br>toe) | CO <sub>2</sub> /<br>pop.<br>(t CO <sub>2</sub> /<br>capita) | CO <sub>2</sub> /<br>GDP<br>(kg CO <sub>2</sub> /<br>2005 USD) | CO <sub>2</sub> /<br>GDP (PPP)<br>(kg CO <sub>2</sub> /<br>2005 USD) | Region/<br>Country/<br>Economy |
|-------------------------------|---------------------------------------|---|---|---|--|--|--|--------------------------------|
| 2.08                          | 0.52                                  | 0.21  | 4444                                    | 3.04  | 6.33   | 1.60   | 0.64   | Serbia                         |
| 4.83                          | 0.13                                  | 0.07  | 8840                                    | 1.78  | 8.62   | 0.23   | 0.13   | Singapore                      |
| 3.18                          | 0.26                                  | 0.15  | 5203                                    | 1.88  | 5.98   | 0.50   | 0.27   | Slovak Republic                |
| 3.32                          | 0.18                                  | 0.14  | 6833                                    | 2.09  | 6.96   | 0.37   | 0.28   | Slovenia                       |
| 2.66                          | 0.44                                  | 0.24  | 4328                                    | 2.98  | 7.91   | 1.30   | 0.71   | South Africa                   |
| 0.06                          | 0.06                                  | 0.02  | 39                                      | 2.18  | 0.13   | 0.13   | 0.04   | South Sudan <sup>5</sup>       |
| 2.51                          | 0.10                                  | 0.09  | 5404                                    | 2.02  | 5.06   | 0.20   | 0.19   | Spain                          |
| 0.49                          | 0.24                                  | 0.06  | 528                                     | 1.37  | 0.67   | 0.33   | 0.08   | Sri Lanka                      |
| 0.38                          | 0.49                                  | 0.13  | 209                                     | 0.94  | 0.36   | 0.46   | 0.12   | Sudan <sup>5</sup>             |
| 5.13                          | 0.11                                  | 0.14  | 13871                                   | 0.76  | 3.91   | 0.09   | 0.11   | Sweden                         |
| 3.30                          | 0.06                                  | 0.08  | 7808                                    | 1.55  | 5.14   | 0.09   | 0.12   | Switzerland                    |
| 0.57                          | 0.31                                  | 0.12  | 953                                     | 2.59  | 1.47   | 0.81   | 0.31   | Syrian Arab Republic           |
| 4.64                          | 0.23                                  | 0.14  | 10458                                   | 2.29  | 10.63  | 0.52   | 0.31   | Chinese Taipei                 |
| 0.30                          | 0.62                                  | 0.14  | 1662                                    | 1.35  | 0.40   | 0.84   | 0.19   | Tajikistan                     |
| 0.48                          | 1.01                                  | 0.23  | 91                                      | 0.41  | 0.20   | 0.42   | 0.10   | Tanzania                       |
| 2.00                          | 0.58                                  | 0.16  | 2487                                    | 1.85  | 3.69   | 1.07   | 0.30   | Thailand                       |
| 0.47                          | 1.11                                  | 0.39  | 150                                     | 0.52  | 0.24   | 0.58   | 0.20   | Togo                           |
| 14.62                         | 1.02                                  | 0.56  | 6913                                    | 1.17  | 17.12  | 1.19   | 0.65   | Trinidad and Tobago            |
| 0.96                          | 0.24                                  | 0.10  | 1435                                    | 2.27  | 2.17   | 0.55   | 0.23   | Tunisia                        |
| 1.54                          | 0.18                                  | 0.11  | 2761                                    | 2.44  | 3.75   | 0.43   | 0.27   | Turkey                         |
| 5.01                          | 1.41                                  | 0.42  | 2602                                    | 2.51  | 12.60  | 3.54   | 1.04   | Turkmenistan                   |
| 2.55                          | 1.19                                  | 0.34  | 3600                                    | 2.28  | 5.83   | 2.72   | 0.77   | Ukraine                        |
| 7.44                          | 0.30                                  | 0.14  | 10547                                   | 2.41  | 17.93  | 0.71   | 0.35   | United Arab Emirates           |
| 2.98                          | 0.07                                  | 0.09  | 5409                                    | 2.35  | 7.00   | 0.17   | 0.20   | United Kingdom                 |
| 6.92                          | 0.15                                  | 0.15  | 12987                                   | 2.34  | 16.18  | 0.35   | 0.35   | United States                  |
| 1.35                          | 0.17                                  | 0.08  | 2986                                    | 1.54  | 2.09   | 0.27   | 0.12   | Uruguay                        |
| 1.42                          | 1.58                                  | 0.32  | 1637                                    | 2.24  | 3.18   | 3.54   | 0.71   | Uzbekistan                     |
| 2.26                          | 0.35                                  | 0.14  | 3231                                    | 2.26  | 5.12   | 0.80   | 0.33   | Venezuela                      |
| 0.67                          | 0.65                                  | 0.15  | 1306                                    | 2.17  | 1.45   | 1.41   | 0.32   | Viet Nam                       |
| 0.34                          | 0.46                                  | 0.10  | 259                                     | 2.89  | 0.98   | 1.32   | 0.29   | Yemen                          |
| 0.66                          | 0.63                                  | 0.20  | 767                                     | 0.36  | 0.24   | 0.22   | 0.07   | Zambia                         |
| 0.80                          | 1.68                                  | 2.67  | 560                                     | 1.19  | 0.95   | 2.00   | 3.18   | Zimbabwe                       |

5. Please refer to geographical coverage section for more details.

Sources: Energy data: IEA.

Population: OECD/World Bank.

GDP and GDP(PPP) (in 2005 USD): OECD/World Bank/CEPII (Paris).

## General conversion factors for energy

| To:   | TJ                     | Gcal                   | Mtoe                   | MBtu                | GWh                    |
|-------|------------------------|------------------------|------------------------|---------------------|------------------------|
| From: | multiply by:           |                        |                        |                     |                        |
| TJ    | 1                      | $2.388 \times 10^2$    | $2.388 \times 10^{-5}$ | $9.478 \times 10^2$ | $2.778 \times 10^{-1}$ |
| Gcal  | $4.187 \times 10^{-3}$ | 1                      | $1.000 \times 10^{-7}$ | 3.968               | $1.163 \times 10^{-3}$ |
| Mtoe  | $4.187 \times 10^4$    | $1.000 \times 10^7$    | 1                      | $3.968 \times 10^7$ | $1.163 \times 10^4$    |
| MBtu  | $1.055 \times 10^{-3}$ | $2.520 \times 10^{-1}$ | $2.520 \times 10^{-8}$ | 1                   | $2.931 \times 10^{-4}$ |
| GWh   | 3.600                  | $8.598 \times 10^2$    | $8.598 \times 10^{-5}$ | $3.412 \times 10^3$ | 1                      |

## Conversion factors for mass

| To:             | kg                     | t                      | lt                     | st                     | lb                  |
|-----------------|------------------------|------------------------|------------------------|------------------------|---------------------|
| From:           | multiply by:           |                        |                        |                        |                     |
| kilogramme (kg) | 1                      | $1.000 \times 10^3$    | $9.842 \times 10^{-4}$ | $1.102 \times 10^{-3}$ | 2.205               |
| tonne (t)       | $1.000 \times 10^3$    | 1                      | $9.842 \times 10^{-1}$ | 1.102                  | $2.205 \times 10^3$ |
| long ton (lt)   | $1.016 \times 10^3$    | 1.016                  | 1                      | 1.120                  | $2.240 \times 10^3$ |
| short ton (st)  | $9.072 \times 10^2$    | $9.072 \times 10^{-1}$ | $8.929 \times 10^{-1}$ | 1                      | $2.000 \times 10^3$ |
| pound (lb)      | $4.536 \times 10^{-1}$ | $4.536 \times 10^{-4}$ | $4.464 \times 10^{-4}$ | $5.000 \times 10^{-4}$ | 1                   |

## Conversion factors for volume

| To:                           | gal U.S.               | gal U.K.               | bbl                    | ft <sup>3</sup>        | l                   | m <sup>3</sup>         |
|-------------------------------|------------------------|------------------------|------------------------|------------------------|---------------------|------------------------|
| From:                         | multiply by:           |                        |                        |                        |                     |                        |
| U.S. gallon (gal)             | 1                      | $8.327 \times 10^{-1}$ | $2.381 \times 10^{-2}$ | $1.337 \times 10^{-1}$ | 3.785               | $3.785 \times 10^{-3}$ |
| U.K. gallon (gal)             | 1.201                  | 1                      | $2.859 \times 10^{-2}$ | $1.605 \times 10^{-1}$ | 4.546               | $4.546 \times 10^{-3}$ |
| barrel (bbl)                  | $4.200 \times 10^1$    | $3.497 \times 10^1$    | 1                      | 5.615                  | $1.590 \times 10^2$ | $1.590 \times 10^{-1}$ |
| cubic foot (ft <sup>3</sup> ) | 7.481                  | 6.229                  | $1.781 \times 10^{-1}$ | 1                      | $2.832 \times 10^1$ | $2.832 \times 10^{-2}$ |
| litre (l)                     | $2.642 \times 10^{-1}$ | $2.200 \times 10^{-1}$ | $6.290 \times 10^{-3}$ | $3.531 \times 10^{-2}$ | 1                   | $1.000 \times 10^{-3}$ |
| cubic metre (m <sup>3</sup> ) | $2.642 \times 10^2$    | $2.200 \times 10^2$    | 6.290                  | $3.531 \times 10^1$    | $1.000 \times 10^3$ | 1                      |

## Selected country-specific net calorific values

### Steam Coal

| Top-ten producers in 2014 | toe/tonne |
|---------------------------|-----------|
| People's Rep. of China    | 0.479     |
| United States             | 0.530     |
| India                     | 0.395     |
| Indonesia                 | 0.575     |
| South Africa              | 0.564     |
| Australia                 | 0.597     |
| Russian Federation        | 0.602     |
| Kazakhstan                | 0.444     |
| Colombia                  | 0.650     |
| Poland                    | 0.546     |

### Crude oil<sup>1</sup>

| Top-ten producers in 2014 | toe/tonne |
|---------------------------|-----------|
| Russian Federation        | 1.005     |
| Saudi Arabia              | 1.016     |
| United States             | 1.033     |
| People's Rep. of China    | 1.000     |
| Iraq                      | 1.023     |
| Kuwait                    | 1.016     |
| Canada                    | 1.022     |
| Islamic Rep. of Iran      | 1.019     |
| Venezuela                 | 1.069     |
| United Arab Emirates      | 1.018     |

1. Excludes NGL, feedstocks, additives and other hydrocarbons.

## Default net calorific values

### Oil products

|                               | OECD Europe <sup>2</sup> | OECD Americas | OECD Asia Oceania | Non-OECD |
|-------------------------------|--------------------------|---------------|-------------------|----------|
|                               | toe/tonne                |               |                   |          |
| Refinery gas                  | 1.182                    | 1.149         | 1.149             | 1.149    |
| Ethane                        | 1.182                    | 1.180         | 1.180             | 1.180    |
| Liquefied petroleum gases     | 1.099                    | 1.130         | 1.139             | 1.130    |
| Motor gasoline excl. biofuels | 1.051                    | 1.070         | 1.065             | 1.070    |
| Aviation gasoline             | 1.051                    | 1.070         | 1.065             | 1.070    |
| Gasoline type jet fuel        | 1.027                    | 1.070         | 1.065             | 1.070    |
| Kerosene type jet fuel        | 1.027                    | 1.065         | 1.063             | 1.065    |
| Kerosene                      | 1.027                    | 1.046         | 1.025             | 1.046    |
| Gas/diesel oil excl. biofuels | 1.017                    | 1.017         | 1.017             | 1.034    |
| Fuel oil                      | 0.955                    | 0.960         | 1.017             | 0.960    |
| Naphtha                       | 1.051                    | 1.075         | 1.032             | 1.075    |
| White spirit                  | 1.041                    | 1.027         | 1.027             | 1.027    |
| Lubricants                    | 1.003                    | 1.003         | 1.025             | 1.003    |
| Bitumen                       | 0.931                    | 0.955         | 0.927             | 0.931    |
| Paraffin waxes                | 0.955                    | 0.955         | 0.955             | 0.955    |
| Petroleum coke                | 0.764                    | 0.764         | 0.807             | 0.764    |
| Non-specified oil products    | 0.955                    | 0.955         | 0.955             | 0.955    |

2. Defaults for OECD Europe were also applied to non-OECD Europe and Eurasia countries.

## Selected country-specific gross calorific values

### Natural gas

| Top-ten producers in 2014 | kJ/m <sup>3</sup> |
|---------------------------|-------------------|
| United States             | 38 118            |
| Russian Federation        | 38 230            |
| Islamic Rep. of Iran      | 39 356            |
| Canada                    | 38 850            |
| Qatar                     | 41 400            |
| People's Rep. of China    | 38 931            |
| Norway                    | 39 256            |
| Turkmenistan              | 37 889            |
| Saudi Arabia              | 38 000            |
| Algeria                   | 39 565            |

*Note: to calculate the net calorific value, the gross calorific value is multiplied by 0.9.*

## Conventions for electricity

Figures for electricity production, trade, and final consumption are calculated using the energy content of the electricity (i.e. at a rate of 1 TWh = 0.086 Mtoe). Hydro-electricity production (excluding pumped storage) and electricity produced by other non-thermal means (wind, tide/wave/ocean, photovoltaic, etc.) are accounted for similarly using 1 TWh = 0.086 Mtoe. However, the primary energy equivalent of nuclear electricity is calculated from the gross generation by assuming a 33% conversion efficiency, i.e. 1 TWh =  $(0.086 \div 0.33)$  Mtoe. For geothermal and solar thermal, if no country-specific information is reported, the primary energy equivalent is calculated as follows:

- 10% for geothermal electricity;
- 50% for geothermal heat;
- 33% for solar thermal electricity;
- 100% for solar thermal heat.

- Coal** *Coal* includes all coal, both primary (including coking coal, steam coal and lignite) and derived fuels (including patent fuel, coke oven coke, gas coke, BKB, gas works gas, coke oven gas, blast furnace gas and other recovered gases). For presentational purposes, peat (including peat products) and oil shale are also included in this category where applicable.
- Steam coal** *Steam coal* comprises anthracite, other bituminous coal and sub-bituminous coal.
- Crude oil** *Crude oil* comprises crude oil, natural gas liquids, refinery feedstocks and additives as well as other hydrocarbons.
- Oil products** *Oil products* comprises refinery gas, ethane, LPG, aviation gasoline, motor gasoline, jet fuels, kerosene, gas/diesel oil, fuel oil, naphtha, white spirit, lubricants, bitumen, paraffin waxes, petroleum coke and other oil products.
- Natural gas** *Natural gas* includes both “associated” and “non-associated” gas.
- Nuclear** *Nuclear* shows the primary heat equivalent of the electricity produced by a nuclear power plant with an average thermal efficiency of 33%.
- Hydro** *Hydro* shows the energy content of the electricity produced in hydro power plants. Hydro output excludes output from pumped storage plants.
- Biofuels and waste** *Biofuels and waste* comprises solid biofuels, liquid biofuels, biogases, industrial waste and municipal waste. Biofuels are defined as any plant matter used directly as fuel or converted into fuels (e.g. charcoal) or electricity and/or heat. Included here are wood, vegetal waste (including wood waste and crops used for energy production), ethanol, animal materials/wastes and sulphite lyes. Municipal waste comprises wastes produced by residential, commercial and public services, that are collected by local authorities for disposal in a central location for the production of heat and/or power.
- Other** *Other* includes geothermal, solar, wind, tide/wave/ocean energy, electricity and heat. Unless the actual efficiency of geothermal and solar thermal is known, the quantity of geothermal and solar energy entering electricity generation is inferred from the electricity/heat production at geothermal and solar plants assuming an average thermal efficiency of:
- 10% for geothermal electricity;
  - 50% for geothermal heat;
  - 33% for solar thermal electricity;
  - 100% for solar thermal heat.

**Other (ctd.)** For solar PV, wind and tide/wave/ocean energy, the quantities entering electricity generation are equal to the electrical energy generated. Direct use of geothermal and solar heat is also included here. Electricity is accounted for at the same heat value as electricity in final consumption (i.e. 1 GWh = 0.000086 Mtoe). Heat includes heat that is produced for sale and is accounted for in the transformation sector.

**Production** *Production* is the production of primary energy, i.e. coking coal, steam coal, lignite, peat, oil shale, crude oil, NGLs, natural gas, biofuels and waste, nuclear, hydro, geothermal, solar and the heat from heat pumps that is extracted from the ambient environment. Production is calculated after removal of impurities (e.g. sulphur from natural gas).

**Imports and exports** *Imports and exports* comprise amounts having crossed the national territorial boundaries of the country, whether or not customs clearance has taken place.

**a) Oil and natural gas**

Quantities of crude oil and oil products imported or exported under processing agreements (i.e. refining on account) are included. Quantities of oil in transit are excluded. Crude oil, NGL and natural gas are reported as coming from the country of origin; refinery feedstocks and oil products are reported as coming from the country of last consignment. Re-exports of oil imported for processing within bonded areas are shown as exports of product from the processing country to the final destination.

**b) Coal**

*Imports and exports* comprise the amount of fuels obtained from or supplied to other countries, whether or not there is an economic or customs union between the relevant countries. Coal in transit is not included.

**c) Electricity**

Amounts are considered as imported or exported when they have crossed the national territorial boundaries of the country.

**International marine bunkers**

*International marine bunkers* covers those quantities delivered to 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.

|   |   |
|---|---|
| <b>International aviation bunkers</b>     | <i>International aviation bunkers</i> covers deliveries of aviation fuels to 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. For many countries this incorrectly excludes fuel used by domestically owned carriers for their international departures. |
| <b>Stock changes</b>                      | <i>Stock changes</i> reflects the difference between opening stock levels on the first day of the year and closing levels on the last day of the year of stocks on national territory held by producers, importers, energy transformation industries and large consumers. A stock build is shown as a negative number, and a stock draw as a positive number.   |
| <b>Total primary energy supply (TPES)</b> | <i>Total primary energy supply (TPES)</i> is made up of production + imports – exports – international marine bunkers – international aviation bunkers ± stock changes. For the world total, international marine bunkers and international aviation bunkers are not subtracted from TPES.  |
| <b>Transfers</b>                          | <i>Transfers</i> includes both interproduct transfers, products transferred and recycled products.  |
| <b>Statistical differences</b>            | <i>Statistical differences</i> includes the sum of the unexplained statistical differences for individual fuels, as they appear in the basic energy statistics. It also includes the statistical differences that arise because of the variety of conversion factors in the coal and oil columns.   |
| <b>Electricity plants</b>                 | <i>Electricity plants</i> refers to plants which are designed to produce electricity only. If one or more units of the plant is a CHP unit (and the inputs and outputs can not be distinguished on a unit basis) then the whole plant is designated as a CHP plant. Both main activity producers and autoproducer plants are included here.   |
| <b>Oil refineries</b>                     | <i>Oil refineries</i> shows the use of primary energy for the manufacture of finished oil products and the corresponding output. Thus, the total reflects transformation losses. In certain cases the data in the total column are positive numbers. This can be due to either problems in the primary refinery balance or to the fact that the IEA uses regional net calorific values for oil products.  |
| <b>Other transformation</b>               | <i>Other transformation</i> covers non-specified transformation not shown elsewhere, such as the transformation of primary solid biofuels into charcoal.  |



**Energy industry own use**

*Energy industry own use* contains the primary and secondary energy consumed by transformation industries for heating, pumping, traction and lighting purposes [ISIC 05, 06, 19 and 35, Group 091 and Classes 0892 and 0721].

**Losses**

*Losses* includes losses in energy distribution, transmission and transport.

**Total final consumption (TFC)**

*Total final consumption (TFC)* is the sum of consumption by the different end-use sectors. Backflows from the petrochemical industry are not included in final consumption.

**Industry**

*Industry* consumption is specified in the following subsectors (energy used for transport by industry is not included here but reported under transport):

- *Iron and steel industry* [ISIC Group 241 and Class 2431]
- *Chemical and petrochemical industry* [ISIC Divisions 20 and 21] excluding petrochemical feedstocks
- *Non-ferrous metals* basic industries [ISIC Group 242 and Class 2432]
- *Non-metallic minerals* such as glass, ceramic, cement, etc. [ISIC Division 23]
- *Transport equipment* [ISIC Divisions 29 and 30]
- *Machinery* comprises fabricated metal products, machinery and equipment other than transport equipment [ISIC Divisions 25 to 28]
- *Mining (excluding fuels) and quarrying* [ISIC Divisions 07 and 08 and Group 099]
- *Food and tobacco* [ISIC Divisions 10 to 12]
- *Paper, pulp and printing* [ISIC Divisions 17 and 18]
- *Wood and wood products* (other than pulp and paper) [ISIC Division 16]
- *Construction* [ISIC Divisions 41 to 43]
- *Textile and leather* [ISIC Divisions 13 to 15]
- *Non-specified* (any manufacturing industry not included above) [ISIC Divisions 22, 31 and 32].

**Transport**

*Transport* includes all fuels used for transport [ISIC Divisions 49 to 51]. It includes transport in industry and covers domestic aviation, road, rail, pipeline transport, domestic navigation and non-specified transport. Fuel used for ocean, coastal and inland fishing (included under fishing) and military consumption (included in other non-specified) are excluded from transport. Please note that international marine and international aviation bunkers are also included here for world total.

**Other** *Other* covers residential, commercial and public services [ISIC Divisions 33, 36-39, 45-47, 52, 53, 55, 56, 58-66, 68-75, 77-82, 84 (excluding Class 8422), 85-88, 90-99], agriculture/forestry [ISIC Divisions 01 and 02], fishing [ISIC Division 03] and non-specified consumption.

**Non-energy use** *Non-energy use* covers those fuels that are used as raw materials in the different sectors and are not consumed as a fuel or transformed into another fuel. Non-energy use also includes petrochemical feedstocks. Non-energy use is shown separately in final consumption under the heading *non-energy use*.

## Unit abbreviations

|              |                                   |             |  |
|--------------|-----------------------------------|-------------|--|
| <b>bcm</b>   | billion cubic metres              | <b>MBtu</b> | million British thermal units                  |
| <b>Gcal</b>  | gigacalorie                       | <b>Mt</b>   | million tonnes                                 |
| <b>GCV</b>   | gross calorific value             | <b>Mtoe</b> | million tonnes of oil equivalent               |
| <b>GW</b>    | gigawatt                          | <b>MWh</b>  | megawatt hour                                  |
| <b>GWh</b>   | gigawatt hour                     | <b>PPP</b>  | purchasing power parity                        |
| <b>kb/cd</b> | thousand barrels per calendar day | <b>t</b>    | metric ton = tonne = 1 000 kg                  |
| <b>kcal</b>  | kilocalorie                       | <b>TJ</b>   | terajoule                                      |
| <b>kg</b>    | kilogramme                        | <b>toe</b>  | tonne of oil equivalent = 10 <sup>7</sup> kcal |
| <b>kJ</b>    | kilojoule                         | <b>TWh</b>  | terawatt hour                                  |
| <b>kWh</b>   | kilowatt hour                     | <b>USD</b>  | United States dollar                           |

## GEOGRAPHICAL COVERAGE

|                                    |  |
|------------------------------------|--|
| <b>OECD<sup>1</sup></b>            | Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States.   |
| <b>Middle East</b>                 | Bahrain, Islamic Republic of Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates and Yemen.   |
| <b>Non-OECD Europe and Eurasia</b> | Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus <sup>2</sup> , Former Yugoslav Republic of Macedonia, Georgia, Gibraltar, Kazakhstan, Kosovo <sup>3</sup> , Kyrgyzstan, Latvia, Lithuania, Malta, Republic of Moldova, Montenegro <sup>3</sup> , Romania, Russian Federation, Serbia <sup>3</sup> , Tajikistan, Turkmenistan, Ukraine and Uzbekistan. |
| <b>China</b>                       | People's Republic of China and Hong Kong (China).  |
| <b>Asia</b>                        | Bangladesh, Brunei Darussalam, Cambodia, India, Indonesia, Democratic People's Republic of Korea, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Chinese Taipei, Thailand, Viet Nam and Other Asia.  |
| <b>Non-OECD Americas</b>           | Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Curaçao <sup>4</sup> , Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, Venezuela and Other Non-OECD Americas.  |
| <b>Africa</b>                      | Algeria, Angola, Benin, Botswana, Cameroon, Congo, Côte d'Ivoire, Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Gabon, Ghana, Kenya, Libya, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Senegal, South Africa, South Sudan, Sudan, Tanzania, Togo, Tunisia, Zambia, Zimbabwe and Other Africa.  |

1. OECD includes Estonia and Slovenia starting in 1990. Prior to 1990, data for these two countries are included in Non-OECD Europe and Eurasia.

2. 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 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 Union:

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

3. Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

4. The Netherlands Antilles was dissolved on 10 October 2010, resulting in two new constituent countries, Curaçao and Sint Maarten, with the other islands joining the Netherlands. However, due to a lack of detailed data, the IEA secretariat's data and estimates under the Netherlands Antilles still refer to the whole territory of the Netherlands Antilles as it was known prior to 10 October 2010 up to the end of 2011. Data refer only to the island of Curaçao from 2012. The other islands of the former Netherlands Antilles are added to Other Non-OECD Americas from 2012.

Note: The countries listed above are those for which the IEA secretariat has direct statistics contacts. This document is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area. In this publication "country" refers to country or territory, as the case may be.

## Ten annual publications

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### **Energy Statistics of OECD Countries, 2015 edition**

This volume contains data on energy supply and consumption in original units for coal, oil, gas, electricity, heat, renewables and waste. Complete data are available for 2012 and 2013 as well as provisional data for the most recent year (i.e. 2014). Historical tables summarise data on production, trade and final consumption by sector. The book also includes definitions of products and flows and explanatory notes on the individual country data

*Published July 2015 - Price €120*

### **Energy Balances of OECD Countries, 2015 edition**

This volume contains data on the supply and consumption of coal, oil, gas, electricity, heat, renewables and waste presented as comprehensive energy balances expressed in million tonnes of oil equivalent. Complete data are available for 2012 and 2013 as well as provisional data for the most recent year (i.e. 2014). Historical tables summarise data on production, trade and final consumption data by sector as well as key energy and economic indicators. The book also includes definitions of products and flows, explanatory notes on the individual country data and conversion factors from original units to energy units.

*Published July 2015 - Price €120*

### **Energy Statistics of Non-OECD Countries, 2015 edition**

This volume contains data for 2012 and 2013 on energy supply and consumption in original units for coal, oil, natural gas, electricity, heat, renewables and waste for over 100 non-OECD countries. Historical tables summarise data on production, trade, final consumption by sector and oil demand by product. These tables also include initial estimates for 2014 production (and trade when available) for natural gas, primary coal and oil. The book also includes definitions of products and flows and explanatory notes on the individual country data and sources.

*Published August 2015 - Price €120*

## **Energy Balances of Non-OECD Countries, 2015 edition**

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This volume contains data for 2012 and 2013 on the supply and consumption of coal, oil, natural gas, electricity, heat, renewables and waste presented as comprehensive energy balances. Data are expressed in thousand tonnes of oil equivalent for over 100 non-OECD countries. Historical tables summarise data on production, trade and final consumption by sector data as well as key energy and economic indicators. These tables also include initial estimates of 2014 production (and trade when available) for natural gas, primary coal and oil. This book includes definitions of products and flows, explanatory notes on the individual country data and conversion factors from original units to energy units.

*Published August 2015 - Price €120*

## **Electricity Information 2015**

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*Electricity Information* provides a comprehensive review of historical and current market trends in the OECD electricity sector, including 2014 provisional data. It provides an overview of the world electricity developments in 2013 covering world electricity and heat production, input fuel mix, supply and consumption, and electricity imports and exports. More detail is provided for the 34 OECD countries with information covering production, installed capacity, input energy mix to electricity and heat production, consumption, electricity trades, input fuel prices and end-user electricity prices as well as monthly OECD production and trade electricity data for 2014. It provides comprehensive statistical details on overall energy consumption, economic indicators, electricity and heat production by energy form and plant type, electricity imports and exports, sectoral energy and electricity consumption, as well as prices for electricity and electricity input fuels for each country and regional aggregate.

*Published August 2015 - Price €150*

## Coal Information 2015

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*Coal Information* provides a comprehensive review of historical and current market trends in the world coal sector, including 2014 provisional data. It provides a review of the world coal market in 2014, alongside a statistical overview of developments, which covers world coal production and coal reserves, coal demand by type, coal trade and coal prices. A detailed and comprehensive statistical picture of historical and current coal developments in the 34 OECD member countries, by region and individually is presented in tables and charts. Complete coal balances and coal trade data for selected years are presented on 22 major non-OECD coal-producing and -consuming countries, with summary statistics on coal supply and end-use statistics for about 40 countries and regions worldwide

*Published August 2015 - Price €165*

## Natural Gas Information 2015

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*Natural Gas Information* is a detailed reference work on gas supply and demand covering not only the OECD countries but also the rest of the world, this publication 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 supply and demand balance for each country and for the three OECD regions: Americas, Asia-Oceania and Europe, as well as a breakdown of gas consumption by end user. Import and export data are reported by source and destination.

*Published August 2015 - Price €165*

## Oil Information 2015

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*Oil Information* is 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 2015 - Price €165*

## **Renewables Information 2015**

*Renewables Information* provides a comprehensive review of historical and current market trends in OECD countries, including 2014 preliminary data. It provides an overview of the development of renewables and waste in the world over the 1990 to 2013 period. A greater focus is given to the OECD countries with a review of electricity generation and capacity from renewable and waste energy sources, including detailed tables. However, an overview of developments in the world and OECD renewable and waste market is also presented. The publication encompasses energy indicators, generating capacity, electricity and heat production from renewable and waste sources, as well as production and consumption of renewables and waste.

*Published August 2015 - Price €110*

## **CO<sub>2</sub> Emissions from Fuel Combustion, 2015 edition**

In recognition of fundamental changes in the way governments approach energy related environmental issues, the IEA has prepared this publication on CO<sub>2</sub> 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, which will be meeting in Paris, France from 30 November to 11 December 2015. The data in this book are designed to assist in understanding the evolution of the emissions of CO<sub>2</sub> from 1971 to 2013 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 2006 *IPCC Guidelines for National Greenhouse Gas Inventories*.

*Published November 2015 - Price €165*

## Two quarterlies

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### **Oil, Gas, Coal and Electricity, Quarterly Statistics**

This publication provides up-to-date, detailed quarterly statistics on oil, coal, natural gas and electricity for 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. The gas trade data from 1st quarter 2011 onwards corresponds to physical flows (entries/exits). 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, Quarterly Statistics**

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 crude oil import prices by crude stream, industry prices and consumer prices. The end-user prices for OECD member countries cover main petroleum products, gas, coal and electricity. Every issue includes full notes on sources and methods and a description of price mechanisms in each country. Time series availability varies with each data series.

*Published Quarterly - Price €120, annual subscription €380*



## Electronic editions

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To complement its publications, the Energy Data Centre 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, 1960-2014 Price: €550
- Energy Balances of OECD Countries, 1960-2014 Price: €550
- Energy Statistics of Non-OECD Countries, 1971-2013 Price: €550
- Energy Balances of Non-OECD Countries, 1971-2013 Price: €550
- *Combined subscription of the above four series* Price: €1 400
  
- Electricity Information 2015 Price: €550
- Coal Information 2015 Price: €550
- Natural Gas Information 2015 Price: €550
- Oil Information 2015 Price: €550
- Renewables Information 2015 Price: €400
- CO<sub>2</sub> Emissions from Fuel Combustion 2015 Price: €550

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- Energy Prices and Taxes Price: (four quarters) €900

A description of these services is available on our website:

<http://data.iea.org>

All the annual and quarterly online databases are also accessible over the internet on a pay-per-view basis. The databases can be accessed either for a single data point or for time series.

## Other online services

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### The Monthly Oil Data Service

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The IEA *Monthly Oil Data Service* provides the detailed databases of historical and projected information which is used in preparing the IEA 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 |
| ▪ Trade                               | Price: €2 000 |
| ▪ Field-by-Field Supply               | Price: €3 000 |
| ▪ <i>Complete Service</i>             | Price: €9 000 |

A description of this service is available on our website:

**[www.iea.org/statistics/mods](http://www.iea.org/statistics/mods)**

### The Monthly Gas Data Service

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The *Monthly Gas Data 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 import origins and export destinations;
- LNG trade detail available from January 2002;
- From 2011 onwards, transit volumes are included and trade data corresponds to entries/exits.

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

A description of this service is available on our website:

**[www.iea.org/statistics/mgds](http://www.iea.org/statistics/mgds)**

The IEA statistics website contains a wealth of free statistics covering oil, natural gas, coal, electricity, renewables, energy-related CO<sub>2</sub> emissions and more for over 140 countries and historic data for the last 20 years. It also contains Sankey flows to enable users to explore visually how a country's energy balance shifts over up to 40 years, starting with production and continuing through transformation to see important changes in supply mix or share of consumption. The website also includes a range of monthly data.

The IEA statistics site can be accessed at:

**[www.iea.org/statistics/](http://www.iea.org/statistics/)**

**Note:** The prices quoted for Electronic Editions are for single-user licences. Please contact us for information on multi-user licence prices.

**For more information, please feel free to contact the Energy Data Centre of the IEA by**

**E-mail: [stats@iea.org](mailto:stats@iea.org)**

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| Country/Region     | Value  | Value |
|--------------------|--------|-------|
| China, Pe          |        |       |
| United States      |        |       |
| India              |        |       |
| Russian Federation | 634    | 2.7   |
| Japan              | 623    | 2.5   |
| Canada             | 559    | 2.4   |
| Germany            | 552    | 2.3   |
| France             | 531    | 32.3  |
| Brazil             | 7 290  | 100.0 |
| Korea              |        |       |
| Rest of the world  | 22 668 |       |
| World              |        |       |

2012 data  
\*Gross production minus production from pumped storage plants.



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The precipitous fall in oil prices, continued geopolitical instability and the ongoing global climate negotiations are witness to the increasingly dynamic nature of energy markets. In a time of so much uncertainty, understanding the implications of the shifting energy landscape for economic, environmental and security priorities is vital. The **World Energy Outlook 2015 (WEO-2015)**, will present projections through 2040 based on the latest data and market developments; insights on the trajectories of fossil fuels, renewables, the power sector and energy efficiency; and analysis on trends in CO<sub>2</sub> emissions, fossil-fuel and renewable energy subsidies, and on universal access to modern energy services.

In addition, the WEO-2015 will be informed by in-depth analysis on several topical issues:

- **Special Report on Energy and Climate Change:** Given the crucial importance of COP21, this report will provide decision-makers with analysis of national climate pledges in the context of the recent downturn in fossil-fuel prices, suggest pragmatic policy measures to advance climate goals without blunting economic growth and assess adaptation needs, including in the power sectors of China and India (released 15 June).
- **Focus on India:** How India develops will have widespread implications for global energy markets. Analysis will focus on the current state of the energy sector, how it might evolve and how challenges such as improving access to electricity, expanding domestic energy production and managing increasing energy imports might be addressed. It will also assess implications for regional and global markets.
- **A lower oil price future:** The decline in oil prices and changing market conditions has prompted questions as to how the market will re-balance. This analysis will examine the implications for markets, policies, competitiveness, investment and the fuel mix if lower oil prices persist.
- **Unconventional gas in China:** In addition to an update on the opportunities and challenges that face the development of unconventional gas globally, analysis will focus on the prospects for unconventional gas in China and how this might affect China's energy outlook as well as regional and global balances.
- **Special Report on Southeast Asia:** There is significant headroom in the region for economic and energy demand growth. Analysis will focus on how these rising energy needs might be met, the investment required to expand energy infrastructure and the implications of the region's changing position in international energy trade (to be released in October).

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