

## NUCLEAR ENERGY

In 2008 nuclear energy provided over 21% of total electricity supply in OECD countries. However, the use of nuclear energy varies widely. In all, 17 of the 30 OECD countries use nuclear energy at present, with seven generating one-third or more of their power from this source. Collectively, OECD countries produce about 83% of the world's nuclear energy. The remainder is produced in 14 non-OECD economies.

### Definition

The table gives the nuclear electricity generation in terawatt hours (TWh) in each of the OECD member countries and in selected non-OECD countries. The chart shows the percentage share of nuclear in total electricity generation, in each country and in the OECD as a whole.

### Overview

After growing strongly in the 1970s and 1980s, nuclear energy has since stagnated. Only a few new nuclear power plants have been ordered in the last 20 years, with the Czech Republic, Japan and Korea being the only OECD countries where new nuclear plants have entered operation since 2000. However, Finland, France, Japan, Korea, the Slovak Republic and the United States all presently have one or more nuclear plants under construction.

The role of nuclear energy in reducing greenhouse gas emissions and in increasing energy diversification and security of supply has been increasingly recognised over the last few years. This has led to renewed interest in building new nuclear plants in several countries. As a result, nuclear capacity is now expected to grow more strongly over the next 10 to 20 years and beyond. Much of this growth is expected to be in non-OECD countries. China in particular has begun a rapid expansion of nuclear capacity, starting construction of 10 additional units during the last year. India and the Russian Federation also have several new plants under construction. Among OECD members, Canada, the Czech Republic, Finland, France, Japan, Korea, Turkey, the United Kingdom and the United States are actively planning to construct additional nuclear capacity, while several others (Hungary, Italy, Mexico, the Netherlands, Poland and Switzerland) have also begun considering new nuclear plants.

Recent projections by the OECD Nuclear Energy Agency (NEA) indicate that, in the high case scenario, worldwide nuclear capacity could grow from 372 GWe (gigawatts electrical) in 2007 (of which 310 GWe is in OECD countries) to about 470 GWe by 2020. In this scenario, nuclear capacity could reach around 600 GWe by 2030 and 1 400 GWe by 2050, potentially increasing the nuclear share of global electricity production from 14% at present to 22-25% by 2050. However, the NEA low case scenario projects only around 400 GWe by 2030 and 580 GWe by 2050. This reflects uncertainties about success with the construction and operation of the next generation of nuclear plants, public and political acceptance of nuclear energy, and the extent to which other low-carbon energy sources are successfully developed.

The table also provides information on the number of nuclear power plants in operation and under construction as of 31 October 2009.

### Comparability

Some generation data are provisional and may be subject to revision. Generation data for Japan are for the fiscal year. The number of plants connected to the grid includes two units in Canada and one in Japan that have been shut down for an extended period but are expected to return to operation.

### Sources

- Data for non-OECD countries provided by the International Atomic Energy Agency (IAEA).
- NEA (2009), *Nuclear Energy Data 2009*, OECD, Paris.

### Further information

#### Analytical publications

- NEA (2008), *Nuclear Energy Outlook 2008*, OECD, Paris.
- IEA (2009), *World Energy Outlook 2009*, IEA, Paris.
- IEA (2008), *Energy Technology Perspectives: Scenarios and Strategies to 2050*, IEA, Paris.
- NEA and IAEA (2008), *Uranium 2007: Resources, Production and Demand*, OECD, Paris.
- NEA (2007), *Innovation in Nuclear Energy Technology*, OECD, Paris.

#### Web sites

- Nuclear Energy Agency, [www.nea.fr](http://www.nea.fr).



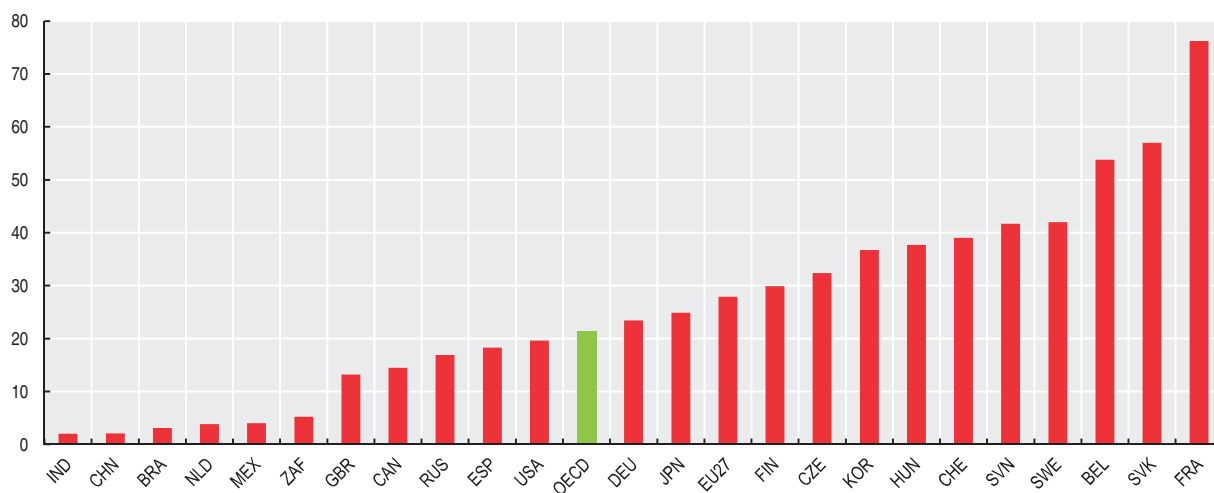
### Nuclear electricity generation and nuclear power plants

	Year 2008		Number, as at 31 October 2009	
	Terawatt hours	As a percentage of total electricity generation	Plants connected to the grid	Plants under construction
Australia	-	-	-	-
Austria	-	-	-	-
Belgium	43.4	53.8	7	-
Canada	87.9	14.5	20	-
Czech Republic	25.0	32.4	6	-
Denmark	-	-	-	-
Finland	22.1	29.9	4	1
France	418.3	76.2	59	1
Germany	140.9	23.4	17	-
Greece	-	-	-	-
Hungary	14.0	37.7	4	-
Iceland	-	-	-	-
Ireland	-	-	-	-
Italy	-	-	-	-
Japan	240.5	24.9	54	2
Korea	144.0	36.7	20	6
Luxembourg	-	-	-	-
Mexico	9.4	4.0	2	-
Netherlands	4.0	3.8	1	-
New Zealand	-	-	-	-
Norway	-	-	-	-
Poland	-	-	-	-
Portugal	-	-	-	-
Slovak Republic	15.4	57.0	4	2
Spain	56.4	18.3	8	-
Sweden	61.3	42.0	10	-
Switzerland	26.1	39.0	5	-
Turkey	-	-	-	-
United Kingdom	47.7	13.2	19	-
United States	806.2	19.6	104	1
EU27 total	888.7	27.9	145	6
OECD total	2 162.6	21.5	344	13
Brazil	14.0	3.1	2	-
Chile	-	-	-	-
China	65.3	2.1	11	16
Estonia	-	-	-	-
India	13.2	2.0	17	6
Indonesia	-	-	-	-
Israel	-	-	-	-
Russian Federation	152.1	16.9	31	9
Slovenia	6.0	41.7	1	-
South Africa	12.7	5.2	2	-

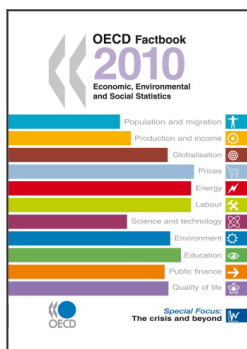
StatLink <http://dx.doi.org/10.1787/825270840530>

### Nuclear electricity generation

As a percentage of total electricity generation, 2008



StatLink <http://dx.doi.org/10.1787/820210813782>



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