NUCLEAR ENERGY

In 2007 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 eight generating one-third or more of their power from this source. Collectively, OECD countries produce about 85% of the world's nuclear energy. The remainder is produced in 14 non-OECD economies.

Definition

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

The number of nuclear power plants in operation and under construction as at 31 October 2008 is also given.

Comparability

Some generation data are provisional and may be subject to revision. Generation data for Japan are for the fiscal year. Number of plants connected to the grid includes two units in Canada and one in Japan in long-term shutdown.

Long-term trends

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, in particular, China, India and the Russian Federation, which each have several new plants under construction. Among OECD members, Japan, Korea and the United States are expected to add significantly to their nuclear capacity, with others also considering additional 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 16% at present to around 22% by 2050. However, the NEA low case scenario projects only around 400 GWe by 2030 and 580 GWe by 2050, reflecting 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.

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Nuclear electricity generation and nuclear power plants

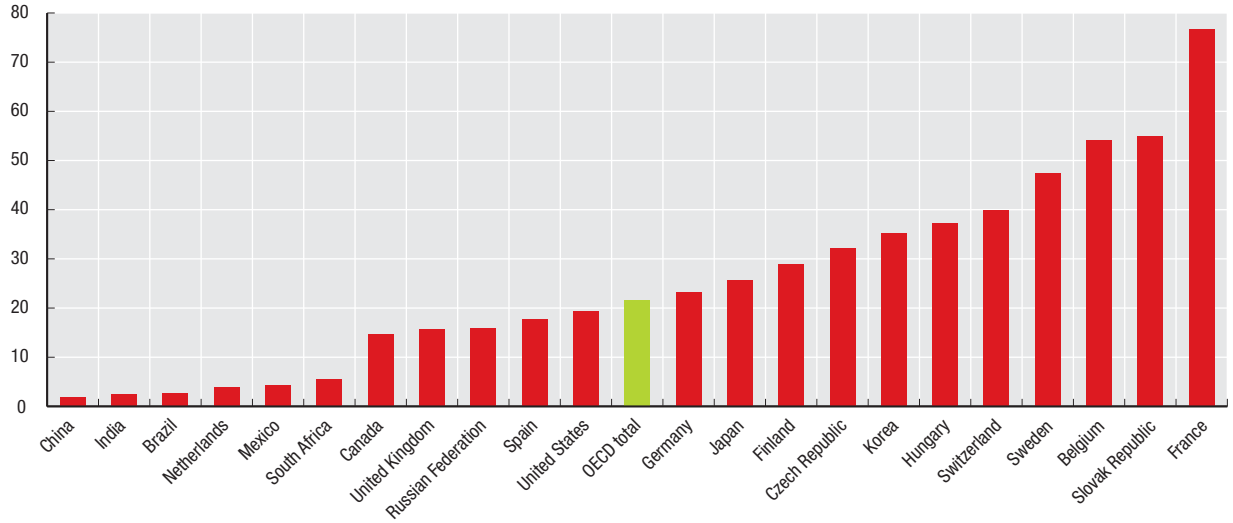
Year 2007 *Number, as at 31 October 2008*

	Terawatt hours net	As a percentage of total electricity generation	Plants connected to the grid	Plants under construction
Australia	–	–	–	–
Austria	–	–	–	–
Belgium	45.9	54.1	7	–
Canada	88.6	14.7	20	–
Czech Republic	26.2	32.2	6	–
Denmark	–	–	–	–
Finland	22.5	29.0	4	1
France	418.6	76.8	59	1
Germany	133.2	23.2	17	–
Greece	–	–	–	–
Hungary	13.8	37.2	4	–
Iceland	–	–	–	–
Ireland	–	–	–	–
Italy	–	–	–	–
Japan	251.6	25.6	56	2
Korea	136.3	35.2	20	6
Luxembourg	–	–	–	–
Mexico	10.4	4.4	2	–
Netherlands	4.0	4.0	1	–
New Zealand	–	–	–	–
Norway	–	–	–	–
Poland	–	–	–	–
Portugal	–	–	–	–
Slovak Republic	14.1	54.9	5	2
Spain	53.4	17.8	8	–
Sweden	64.3	47.4	10	–
Switzerland	26.3	39.9	5	–
Turkey	–	–	–	–
United Kingdom	57.3	15.7	19	–
United States	806.0	19.4	104	1
EU27 total	888.6	28.2	146	6
OECD total	2 172.5	21.6	347	13
Brazil	12.4	2.8	2	–
China	62.6	1.9	11	6
India	15.9	2.5	17	6
Indonesia	–	–	–	–
Russian Federation	147.8	16.0	31	8
South Africa	12.6	5.5	2	–

StatLink http://dx.doi.org/10.1787/542451087418

Nuclear electricity generation

As a percentage of total electricity generation, 2007



StatLink http://dx.doi.org/10.1787/536366223458