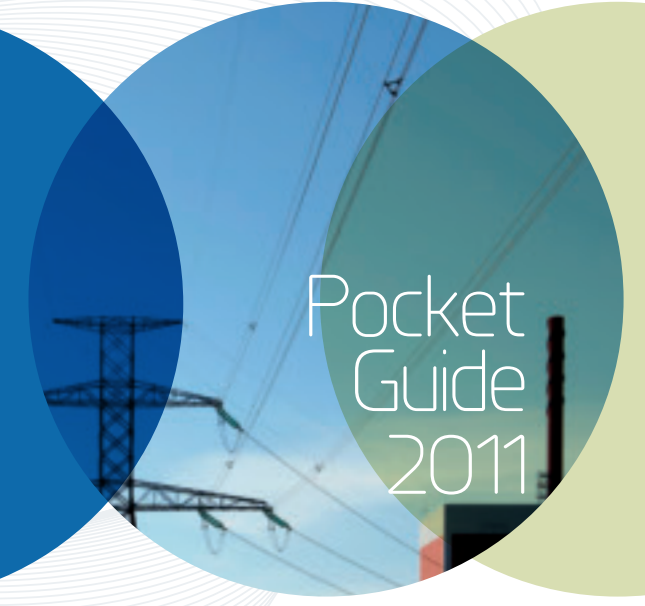
TVO



Pocket Guide 2011

Teollisuuden Voima Oyj

Company

Teollisuuden Voima Oyj is a non-listed public company founded in 1969 to produce electricity for its shareholders at cost price. TVO's nuclear power plant produces about one sixth of the electricity consumed in Finland. Electricity is generated at the two Olkiluoto nuclear power plant units Olkiluoto 1 and Olkiluoto 2 (OL1 and OL2) in Eurajoki and at the Meri-Pori coal-fired power plant in Pori. A new unit, Olkiluoto 3 (OL3), is under construction in Olkiluoto. In July 2010 the Finnish Parliament ratified the Government's favourable decision-in-principle on the Company's application for the construction of its fourth nuclear power plant unit Olkiluoto 4 (OL4). The planning of OL4 progressed in 2010 to the preparation stage.

We support sustainable wellbeing of the society by producing electricity to Finnish people through a safe, economical and environmentally benign process. Our vision is to be an acknowledged Finnish nuclear power company, a pioneer in its field. Our operation is based on our vision, ethical principles and values, and on the safety culture that we maintain. Our safety culture consists of practices, procedures and attitudes. The promotion of safety culture is one of our most important tasks.

The Olkiluoto nuclear power plant produced ca. 14.1 TWh of electricity in 2010. This was about one sixth of all electricity consumed in Finland. TVO's share of the electricity produced at the Meri-Pori coal-fired plant was ca. 1.6 TWh. The production of the wind power plant totalled 0.001 TWh.

The net output of OL1 was 880 MW. The net output of OL2 is expected to increase from 860 MW to ca. 880 MW after the maintenance outage to be implemented in the spring 2011. TVO's share of the electricity produced at the Meri-Pori coal-fired power plant is 45%.

COMPANY SHAREHOLDERS AND HOLDINGS 31 DECEMBER, 2010

HOLDING %	A SERIES	B SERIES	C SERIES	TOTAL
EVP Energia Oy	6.5	6.6	6.5	6.5
Fortum Power and Heat Oy	26.6	25.0	26.6	25.9
Karhu Voima Oy	0.1	0.1	0.1	0.1
Kemira Oyj	1.9	-	1.9	1.0
Oy Mankala Ab	8.1	8.1	8.1	8.1
Pohjolan Voima Oy	56.8	60.2	56.8	58.4
	100.00	100.00	100.00	100.00

The A series shares entitle the shareholders to the electricity generated by the current plant units, the B series shares to the electricity to be produced at the new plant unit OL3, and the C series shares to the electricity generated by the Meri-Pori coal-fired power plant.

The nuclear power generated by TVO produces wellbeing to 144 municipalities through direct shareholders. These municipalities own shares in the more than 50 energy companies, which distribute electricity from Olkiluoto throughout Finland.

Industry shareholders in TVO:

Kemira Oyj
(incl. Pension Fund)
Oy Metsä-Botnia Ab
M-Real Oyj
Myllykoski Oyj
Outokumpu Oyj
Rautaruukki Oyj
Stora Enso Oyj
UPM-Kymmene Oyj
Kumera Oy
Yara Suomi Oy
(incl. Pension Fund)

Electricity and energy company shareholders in TVO:

Helsingin Energia
Vantaan Energia
Kymenlaakson Sähkö
Kerava Energia
Mäntsälän Sähkö
Nurmijärven Sähkö
Porvoon Energia
Sallila Energia
Paneliankosken Voima
Lammaisten Sähkö
Leppäkosken Sähkö
Vatajankosken Sähkö
Lankosken Sähkö
Pori Energia
Rauman Energia
Kymenlaakson Sähkö
Suur-Savon Sähkö
Lahti Energia
Haminan Energia
Kaakon Energia
Imatran Seudun Sähkö
KSS Energia
Pohjois-Karjalan Sähkö
Etelä-Savon Energia
Savon Voima
Alajärven Sähkö
Järviseudun Sähkövoima
Lehtimäen Sähkö
Korpelan Voima
Kokkolan Energia
Kruunupyyn kunta
Pietarsaaren kaupunki
Seinäjoen Energia
Nykarleby Kraftverk
Vaasan Sähkö
Vetelin Sähkölaitos
Virnpelin Voima
Hiirikosken Energia
Ääneseudun Energia
Iin Energia
Oulun Seudun Sähkö
Oulun Energia
Rovakaira
Torniolaakson Sähkö

Important dates for Teollisuuden Voima Oyj

23.1.1969	Teollisuuden Voima Oy was founded by 16 companies.
31.1.1974	The Ministry of Trade and Industry granted a construction license for Olkiluoto 1 (OL1) pursuant to the Atomic Energy Act.
1.2.1974	The construction of the OL1 unit started.
12.8.1974	The foundation stone of OL1 was laid.
4.8.1975	The Ministry of Trade and Industry granted a construction license for Olkiluoto 2 (OL2) pursuant to the Atomic Energy Act.
28.8.1975	The construction of the OL2 unit started.
6.7.1978	The Council of State granted an operating licence for OL1.
2.9.1978	OL1 was connected to the national grid for the first time. The power plant unit achieved full capacity for the first time on 8 January 1979.
1.9.1979	The Council of State granted an operating licence for OL2.
10.10.1979	OL1 was declared to be in commercial operation.
18.2.1980	OL2 was connected to the national grid for the first time. The power plant unit achieved full capacity for the first time on 11 November 1980.
1.7.1982	OL2 was declared to be in commercial operation.
17.5.1984	The Council of State granted permission to increase the power level for both power plant units.
29.9.1987	Spent fuel was transferred for the first time from the plant to the Interim Storage Facility for Spent Fuel (KPA-Store).
29.3.1988	Agreement on the participation with a 45 per cent share in the Meri-Pori coal-fired power plant project was signed.
15.12.1988	The Council of State granted an operating licence for 10 years to both power plant units.
29.9.1989	The total production of Olkiluoto nuclear power plant reached 100 TWh.
16.3.1990	A training simulator was taken into use at Olkiluoto.

Important dates for Teollisuuden Voima Oyj

8.5.1992 The first transfer of waste to the low and intermediate level nuclear waste repository (VLJ) was made.

26.9.1993 The Meri-Pori coal-fired power plant produced electricity to the national grid for the first time.

1.1.1996 Posiva Oy started operation.

19.3.1998 The total production of Olkiluoto nuclear power plant reached 200 TWh.

1998 A four-year modernization programme of the power plant units was completed. The project enhanced the nominal power level by 18.3 per cent to 840 MW.

15.11.2000 An application for a decision-in-principle on the new nuclear power plant unit was submitted to the Council of State.

18.5.2001 The Finnish Parliament ratified the Government's favourable decision-in-principle on Posiva Oy's project to construct a final disposal repository for spent nuclear fuel at Olkiluoto in Eurajoki.

19.7.2001 The Finnish Environment Institute registered TVO in the EMAS system (Eco Management and Audit Scheme).

24.5.2002 The Finnish Parliament ratified the Government's favourable decision-in-principle of 17 January 2002 on the construction of a new nuclear power plant unit in either Olkiluoto, Eurajoki or Hästholmen, Loviisa.

16.10.2003 Olkiluoto was chosen as the site for the new power plant unit.

18.12.2003 TVO's Board of Directors decided on an investment in the new nuclear power plant unit Olkiluoto 3 (OL3). The Company awarded the contract for the construction of a pressurized water reactor plant unit of some 1,600 MW to the Consortium comprising AREVA NP GmbH, AREVA NP SAS and Siemens AG.

16.2.2004 Excavation work started on the OL3 site.

15.11.2004 TVO´s wind power unit was inaugurated in Olkiluoto.

17.2.2005 The Government granted a construction licence for OL3.

26.4.2005 The total electricity production of OL1 and OL2 reached 300 TWh.

12.9.2005	The foundation stone of OL3 was laid.
31.1.2006	Olkiluoto´s new Visitor Centre was opened.
1.6.2006	A modernization programme of the Olkiluoto power plant units was completed. The nominal power level is 860 MW after modernization.
19.11.2007	The Olkiluoto 100 MW gas turbine plant constructed jointly by Fingrid Oyj and Teollisuuden Voima Oy (TVO) was inaugurated.
31.12.2007	TVO was registered in the Trade Register as a public company as of 31 December 2007. The official name of the Company is Teollisuuden Voima Oyj.
25.4.2008	TVO filed with the Government an application for a decision-in-principle on the construction of a fourth nuclear power plant unit (OL4) in Olkiluoto. Posiva Oy filed at the same time an application for a decision-in-principle on the expansion of the final disposal repository to accommodate spent fuel from OL4.
2.9.2008	The 30-year anniversary of nuclear energy production in Olkiluoto was celebrated. A total of 350 TWh of electricity has been produced in Olkiluoto over the three decades.
May 2009	The Association for Finnish Work awarded the Key Flag, a symbol of Finnish know-how, to the electricity generated by TVO.
11.11.2009	Olkiluoto 3 site reached rooftop height.
18.2.1910	The Olkiluoto 2 unit has produced electricity to the national grid for 30 years.
1.7.2010	The Finnish Parliament ratified the Government's favourable decision-in-principle on the construction of the new Olkiluoto 4 (OL4) plant unit in Olkiluoto, Eurajoki.
31.12.2010	The total electricity production of TVO's nuclear power plant units OL1 and OL2 amounted to 14,144 TWh (billion kilowatt hours), which is about one sixth of the electricity consumed in Finland. The overall production of the plant units during their service life exceeded 380 TWh.

KEY FIGURES

	2010	2009
Electrical output TWh		
Olkiluoto	14.1	14.5
Olkiluoto wind power plant	0.001	0.002
Olkiluoto gas turbine plant	0.001	0.001
Meri-Pori	1.6	0.8
Turnover (EUR million)	355	296
Loan portfolio (EUR million)	2,684	2,587
Investments (EUR million)	339	803
Deposits in the State Nuclear Waste Management Fund (TVO's share, EUR million)	1,123	1,067
Personnel, average	798	797

Nuclear Waste Management

The Company makes deposits into the State Nuclear Waste Management Fund as stipulated in the Nuclear Energy Act to cover the costs of nuclear waste management. TVO's share of the deposits in the Fund was 1,123 (1070) million EUR at the end of the year 2010, which corresponds to the future costs of the management of waste generated by the end of 2010.

Olkiluoto Nuclear Power Plant

The nuclear power plant of Teollisuuden Voima Oyj is located in Olkiluoto, Eurajoki, on the west coast of Finland. There are two existing nuclear power plant units on the site, Olkiluoto 1 (OL1) and Olkiluoto 2 (OL2). The plant units were delivered by the Swedish AB ASEA-ATOM (nowadays Westinghouse Atom AB).

A third unit, Olkiluoto 3 (OL3), is under construction. It is supplied by the Consortium of AREVA NP GmbH, AREVA NP SAS and Siemens AG.

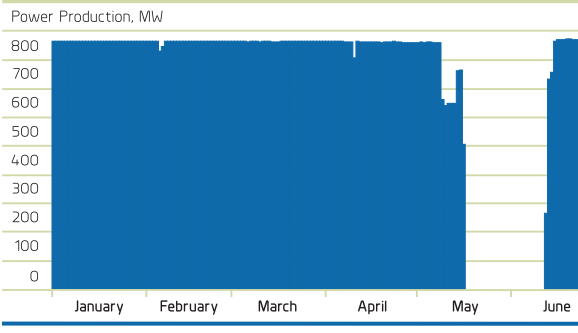
Electrical output of Olkiluoto 1 and Olkiluoto 2 in 2010

In 2010 the Olkiluoto 1 unit produced 6 976 893.8 MWh of electricity and the capacity factor was 91.8 per cent.

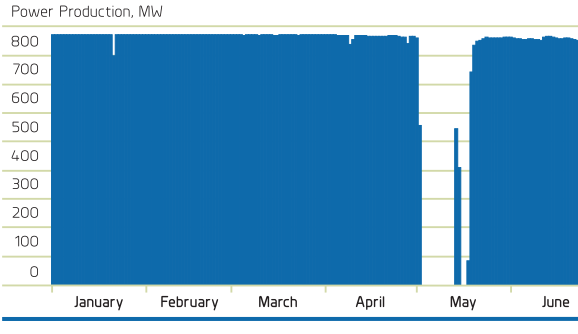
In 2010 the Olkiluoto 2 unit produced 7 167 337.1 MWh of electricity and the capacity factor was 95.2 per cent.

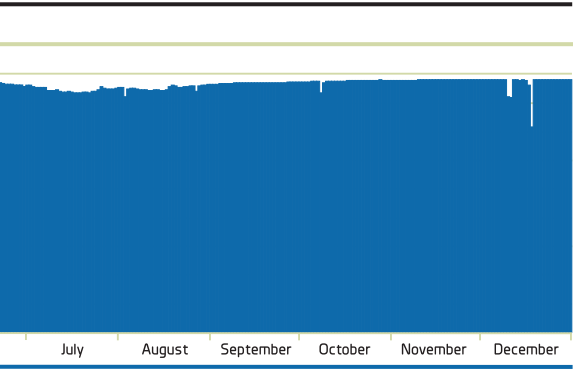
The total production of the Olkiluoto nuclear power plant reached 100 TWh on 29.9.1989. A production volume of 200 TWh was reached on 19.3.1998 and 300 TWh on 26.4.2005. At the end of the year 2010 the power plant´s total production was over 380 TWh.

OLKILUOTO 1



OLKILUOTO 2




July
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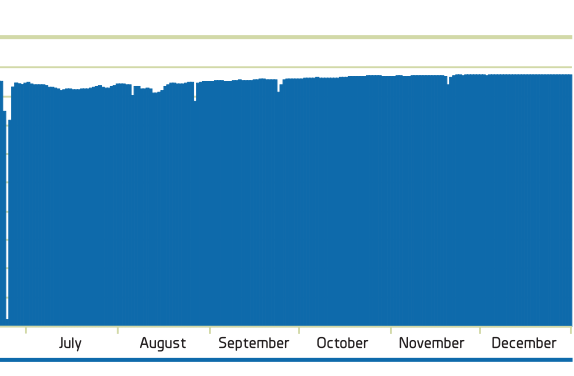
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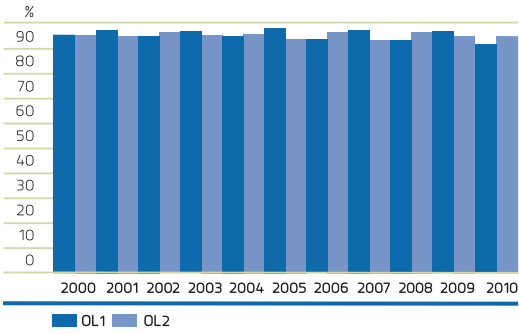
CAPACITY FACTORS OF OL1 AND OL2 UNITS

IN 2000–2010



OUTAGE DURATIONS AND COSTS OF OLKILUOTO NPP

IN 2000–2010

YEAR	DURATION, DAYS OL1	DURATION, DAYS OL2	COSTS OL1 + OL2, EUR MILLION
2000	14	14	18
2001	8	15	13
2002	13	8	15
2003	10	14	15
2004	16	9	14
2005	7	21	15
2006	22	8	15
2007	9	17	12
2008	20	8	13
2009	8.5	16.5	17
2010	26.5	11.5	17

Technical data on Olkiluoto 1 and Olkiluoto 2 NPP*

Electrical output, net MW	
– OL1	880
– OL2	860
(880 MW after the outage in May)	
Reactor thermal power, MW	2,500
Number of fuel assemblies	500
Total fuel amount, tU	86–90
Average power density, kW/kgU	24–25
Number of control rods	121
Reactor pressure vessel	
– inner diameter, mm	5,540
– inner height, mm	20,593
Reactor pressure, bar	70
Steam flow, kg/s	1,260
Turbine rated speed, rpm	3,000
Generator, water cooled	
– OL1, MVA	950
– OL2, MVA	905
Cooling water flow	
– OL1, m^3/s	ca. 40
– OL2, m^3/s	ca. 30
Volume of plant buildings	
– OL1, m^3	483,000
– OL2, m^3	475,000
Containment	
– design pressure, bar	4.7
– gas volume, m^3	7,375
– water volume, m^3	2,700

* The figures are the same for both plant units, except for those separately defined.

Key figures of Olkiluoto 3

Reactor thermal power, MW	4,300
Electrical output, net, MWe	about 1,600
Total efficiency %	over 37
Annual electricity generation, TWh	ca. 13
Reactor pressure, bar	154
Total fuel weight, t	128
Annual fuel consumption, t	ca. 32
Volume of plant buildings, m^3	950,000
Reactor pressure vessel, height, m	13
Reactor containment building, height, m	63

NUCLEAR POWER PLANTS IN THE WORLD

AT THE END OF 2010

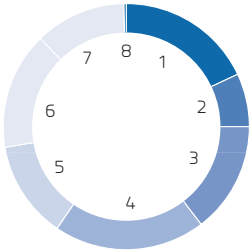
COUNTRY	REACTORS IN OPERATION		REACTORS UNDER CONSTRUCTION	
	Number of Units	Total Capacity MW(e)	Number of Units	Total Capacity MW(e)
Argentina	2	935	1	692
Armenia	1	375		
Belgium	7	5,926		
Brazil	2	1,884	1	1,245
Bulgaria	2	1,906	2	1,906
Canada	18	12,569		
China	13	10,048	27	27,230
Czech Rep.	6	3,678		
Finland	**4**	**2,716**	**1**	**1,600**
France	58	63,130	1	1,600
Germany	17	20,490		
Hungary	4	1,889		
India	19	4,189	6	3,766
Iran, Isl. Rep.			1	915
Japan	54	46,821	2	2,650
Korea Rep.	21	18,698	5	5,560
Mexico	2	1,300		
Netherlands	1	487		
Pakistan	2	425	1	300
Romania	2	1,300		
Russia	32	22,693	11	9,153
Slovakia	4	1,816	2	782
Slovenia	1	666		
South Africa	2	1,800		
Spain	8	7,514		
Sweden	10	9,303		
Switzerland	5	3,238		
Taiwan, CN	6	4,982	2	2,600
UK	19	10,137		
Ukraine	15	13,107	2	1,900
USA	104	100,747	1	1,165
Worldwide	441	374,769	66	63,064

Source: IAEA, February 2011

Electricity in Finland

ELECTRIC ENERGY SUPPLY IN 2010

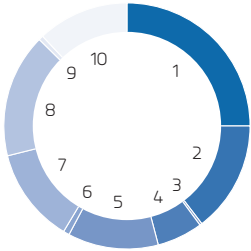
TOTAL 87.5 TWH



1	TVO	**18%**
2	Other nuclear power	**7%**
3	Hydro power	**14.6%**
4	Back pressure (district heating)	**19.9%**
5	Back pressure (industry)	**12.8%**
6	Condensing etc.	**15.4%**
7	Net import	**12.0%**
8	Wind power	**0.3%**

ELECTRIC ENERGY SUPPLY BY SOURCES IN 2010

TOTAL 87.5 TWH



1	Nuclear power	**25.0%**
2	Hydro power	**14.6%**
3	Wind power	**0.3%**
4	Peat	**6.0%**
5	Bio fuel	**11.9%**
6	Waste fuels	**0.8%**
7	Natural gas	**12.5%**
8	Coal	**16.3%**
9	Oil	**0.6%**
10	Net import	**12.0%**

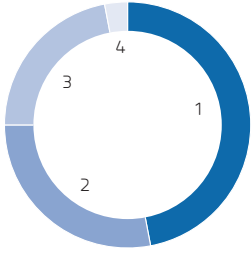
Total electricity consumption 2010

The total electricity consumption was 87.5 TWh in Finland in 2010. Industry accounts for 45% of electricity consumption in Finland. Electricity is needed, for example, for driving processes and equipment, lighting, heating and communication. Households use electricity mainly for refrigeration appliances and heating.

As with renewable energy sources such as hydropower, wood and wind, nuclear power provides a way to produce electricity with no carbon dioxide emissions to boost the greenhouse effect. Nuclear power is a very competitive alternative for producing new electricity capacity.

TOTAL ELECTRICITY CONSUMPTION 2010

TOTAL 87.5 TWH

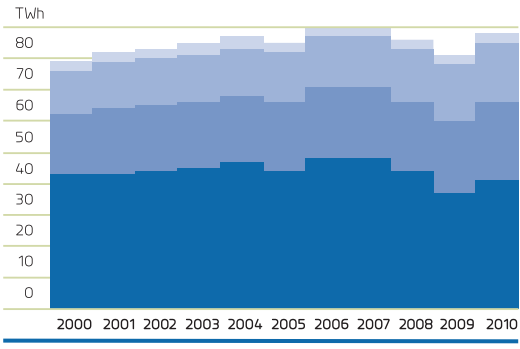


1	Industry	**47%**
2	Households and agriculture	**28%**
3	Service and construction	**22%**
4	Losses	**3%**

Source: Finnish Energy Industries, 2011 January

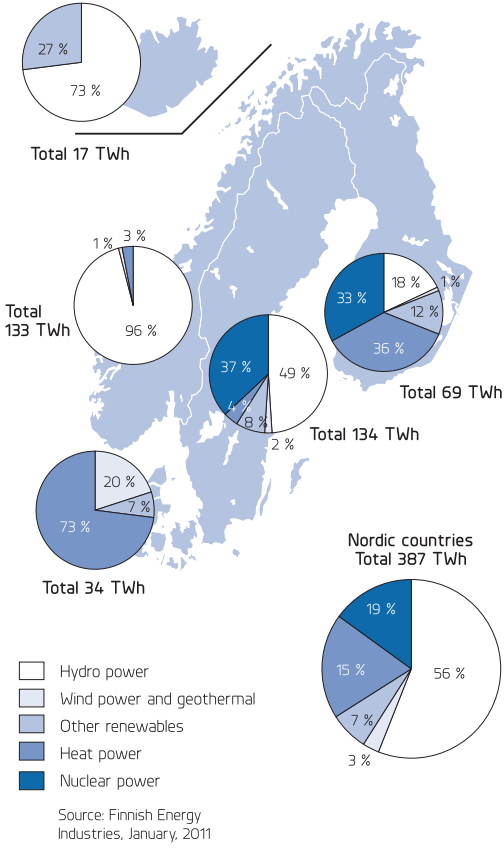
TOTAL CONSUMPTION OF ELECTRICITY

IN 2000–2010, TWH



The national 400 kV grid of Finland

Electricity generation in the Nordic Countries 2009 (%)



Source: Finnish Energy Industries, January, 2011

Glossary

ALARA
(As Low As Reasonably Achievable):
An internationally used principle regulating the amount of radiation doses at nuclear power plants.

EPR
European Pressurized water Reactor.

Euratom
A unit of the EU Commission that supervises nuclear material.

IAEA
International Atomic Energy Agency.

WANO
World Association of Nuclear Operators.

INES
(International Nuclear Event Scale): A seven-level scale used internationally to depict the seriousness of accidents and incidents at nuclear power plants. The lower levels (1-3) depict incidents that have weakened plant safety and the upper levels (4-7) accidents that could cause emissions into the environment that require protective measures against radiation.

Boiling water reactor, BWR
A light-water reactor in which water used as the coolant boils as it passes through the reactor core. The steam generated rotates the turbine.

Pressurized water reactor, PWR

A light-water reactor with such a high reactor pressure that water used as the coolant does not boil in the reactor. The hot water is conducted from the reactor to a steam generator in which the water in the secondary circuit evaporates and the steam is led to rotate the turbine.

Capacity factor

The capacity factor is the energy produced in a year by a power plant as a percentage of the energy it would have produced had it been operating at full capacity for the entire year.

Megawatt, MW

A unit of power. One megawatt equals to 1,000 kilowatts alias 1,000,000 watts.

Gigawatt, GW

A unit of power. One gigawatt equals one million kilowatts.

Terawatt, TW

A unit of power. One terawatt equals one billion kilowatts.

Terawatt-hour, TWh

A unit of energy. One terawatt-hour equals one billion kilowatt hours.

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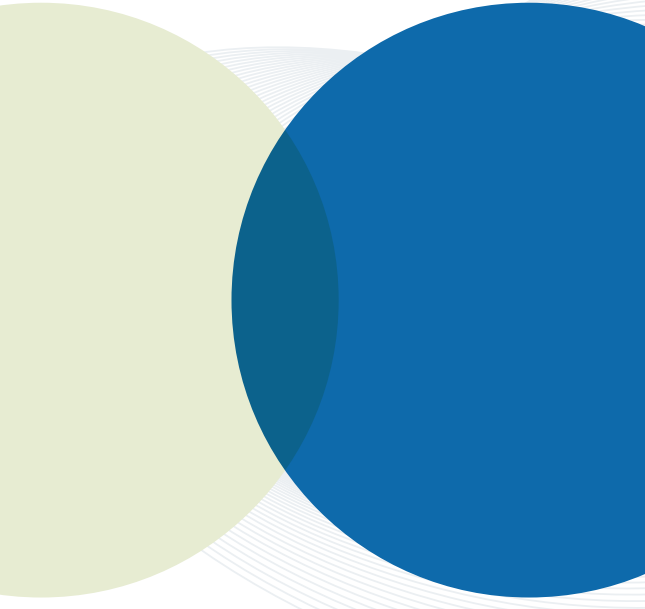

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