

Power Generator Database and Market Intelligence

Ed 3 2016

Market Intelligence

Overview of World Generation Capacity and Power Prediction

This NRG Expert product provides a by country/fuel overview of global generating capacity, its evolution and power forecasts. The electrical generating sector came into being in the last two decades of the 19th century in the industrial countries, with the first small installations of public capacity in the 1890s in the USA, UK and Japan, mainly for street lighting. In those early years and in years before, manufactured town gas was a more important energy source in the cities. Electric power grew slowly during the first half of the 20th century, supplied by a myriad of small local companies mostly operating in towns. The Second World War was to change this and with the explosion of industrial activity that it unleashed, electricity became a major national priority. Many countries nationalised their electricity industries or grouped them into large consolidated utilities. Until then electricity had been generated and distributed locally but now transmission entered the picture. Transmission lines were constructed to transport bulk power at high voltages over long distances from large centralised generating facilities to industrial and population load centres where it was distributed at low voltage.

Global generating capacity rose from approximately 134 GW in 1938, to 213 GW in 1950 after the Second World War, and then to 5,082 GW in 2010. Although the figures were small compared with today, the years of WW 2 and the following period, from 1938 to 1950 were a time of enormous change in the electrical sector in which the seeds of today's industry were sown. There was heavy destruction to the industry in Europe and Japan in the first half of the 1940s, while in the USA capacity grew from 37.6 GW in 1938 to 50.1 GW in 1945. In the years after the war reconstruction commenced, with global capacity growing to 217 GW by 1950. Global capacity is forecast to reach 7,390 GW in 2020.

How can NRG Expert Help?

NRG Expert's Power Generator Database and Market Intelligence Ed 3 2016 – contains a by country/fuel database of:

- Generation Capacity by Fuel (1990-2030)
- Net Generation by Fuel (1990-2030)
- Total Net Consumption (1990-2015)
- Proven reserves (1990-2015 where available)
- Power plant listings

Snapshot example of certain years for Denmark:

NRGExpert		Denmark								
Annual Capacity by Fuel Type (MW)		1990	1991	1992	1993	1994	1995	1996	1997	1998
Coal		6962.56	6951.43	6940.30	6929.16	6918.03	6906.90	6895.77	6884.64	6873.50
Oil		849.07	845.04	841.02	837.03	833.06	829.10	825.16	821.24	817.34
Diesel										
Gas		935.47	944.92	954.47	964.11	973.85	983.68	993.62	1003.66	1013.79
MultiFuel		7691.20	8055.52	8409.72	8318.64	8581.76	7954.32	7053.64	7078.94	7104.24
Conventional Thermal		16438.30	16796.91	17145.51	17048.94	17306.69	16674.00	15768.19	15788.48	15808.88
Hydro		9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11
Pumped Storage										
Nuclear										
Wind		347.12	417.96	463.50	496.89	538.38	623.39	852.10	1143.56	1460.32
Solar Thermal										
Solar PV						0.10	0.10	0.10	0.20	0.40
Ocean/tidal										
Solar / Tide /Wave						0.10	0.10	0.10	0.20	0.40
Biomass		60.72	60.72	60.72	60.72	60.72	60.72	70.84	80.96	91.08
MSW & other waste										
Biomass + Biowaste		60.72	60.72	60.72	60.72	60.72	60.72	70.84	80.96	91.08
Geothermal										
Total		16855.25	17284.69	17678.83	17615.76	17915.01	17367.32	16700.44	17022.51	17369.89
Net Annual Generation by Fuel Type (Billion kWh)		1990	1991	1992	1993	1994	1995	1996	1997	1998
Conventional Thermal		23.69	33.40	27.60	30.34	36.04	32.57	48.23	38.66	34.68
Hydro		0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.03
Pumped Storage										
Nuclear										
Wind		0.58	0.71	0.87	0.99	1.08	1.12	1.17	1.84	2.69
Solar / Tide / Wave		0.02								
Biomass + Biowaste		0.20	0.34	0.50	0.69	0.77	0.89	1.15	1.33	1.44
Geothermal										
Total		24.52	34.46	28.99	32.04	37.92	34.61	50.57	41.85	38.83
Annual Consumption (Billion kWh)		1990	1991	1992	1993	1994	1995	1996	1997	1998
Total		28.92	29.96	30.51	30.79	31.39	31.46	31.92	32.42	32.20

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