

US POWER GENERATION DURING 2009 by Willem Post, dated 27 September, 2010

Source	Plant Capacity End 2009	Capacity Factor, CF	Power Generation during 2009	
	MW		kWh/yr	%
Coal	310,000	0.653	1,774,000,000,000	44.900
Gas	440,000	0.240	926,370,000,000	23.400
Nuclear	101,000	0.900	799,000,000,000	20.200
Hydro	99,000	0.322	276,600,000,000	7.000
Wind	35,159	0.230	70,800,000,000	1.800
Biomass-Wood	5,990	0.700	36,744,000,000	0.930
Biomass-Other	2,700	0.700	16,594,000,000	0.420
Oil	6,440	0.700	39,510,000,000	1.000
Geothermal	3,086	0.550	14,870,000,000	0.370
CT solar	450	0.260	1,025,000,000	0.026
PV solar	1,250	0.165	1,807,000,000	0.046
US Total	1,005,075	0.439	3,957,320,000,000	100.092
Vermont			6,000,000,000	
ISO-NE			130,000,000,000	

Various sources state different values; some values in the above table are from years before 2009

Gas fired boilers usually can also fire oil.

Gas includes gas-fired boilers, peaking gas turbines and combined cycle gas turbines

Gas CF is low because it includes peaking gas turbines

Hydro includes conventional hydro and pumped-storage hydro

Wind CF is a little low because of capacity additions during the year.

Biomass-Wood includes: Wood and Wood-derived fuel (biogas)

Biomass-Other includes: MSW biogenic; Landfill and farm methane; Sludge waste; Various biomass solids, liquids and gases

CFs for Biomass-Wood, Biomass-Other, Oil were assumed to calculate plant capacities

Oil capacity (calculated at an assumed CF) is low because many fired gas instead of oil in 2009

Concentrated thermal solar using parabolic mirrors, etc., is also called thermal solar

PV solar CF is an assumed US average; for Vermont it is 0.143; Germany 0.11-0.12; Spain/Portugal 0.16-0.17 fixed, 0.20-0.23 tracking

Tracking CT solar and PV solar systems have about 25% greater CFs than stationary systems

<http://sunpluggers.com/news/ontarios-feed-in-tariff-powers-big-solar-gain-as-us-capacity-also-rises-0857>

[http://www.eia.doe.gov/electricity/page/co2\\_report/co2report.html](http://www.eia.doe.gov/electricity/page/co2_report/co2report.html)

<http://en.wikipedia.org/wiki/File:USEnFlow02-quads.gif>

<http://www.eia.doe.gov/oiaf/1605/ggprpt/carbon.html>

[http://en.wikipedia.org/wiki/Energy\\_in\\_the\\_United\\_States](http://en.wikipedia.org/wiki/Energy_in_the_United_States)

<http://www.instituteforenergyresearch.org/2010/07/21/electricity-generation-coals-share-down-in-2009-lowest-since-1978/>

[http://en.wikipedia.org/wiki/Electricity\\_generation](http://en.wikipedia.org/wiki/Electricity_generation)

[http://en.wikipedia.org/wiki/Geothermal\\_energy\\_in\\_the\\_United\\_States](http://en.wikipedia.org/wiki/Geothermal_energy_in_the_United_States)

<http://www.census.gov/compendia/statab/2010/tables/10s0910.pdf>

<http://www.renewableenergyworld.com/rea/news/article/2010/06/italy-surpasses-us-in-solar-pv>

[http://en.wikipedia.org/wiki/Municipal\\_solid\\_waste](http://en.wikipedia.org/wiki/Municipal_solid_waste)

[http://www.eia.doe.gov/cneaf/solar.renewables/page/trends/table1\\_13.pdf](http://www.eia.doe.gov/cneaf/solar.renewables/page/trends/table1_13.pdf)