

Table 7.8d Capacity Factors and Usage Factors at Electric Generators: Industrial Sector
(Percent)

	Capacity Factors ^a											Usage Factors ^b		
	Coal ^{c,d}	Petroleum ^{c,e}	Natural Gas ^f			Nuclear Electric Power	Conventional Hydroelectric Power	Bio-mass ^{c,g}	Geo-thermal	Solar			Hydroelectric Pumped Storage	Battery Storage
			Combined Cycle	Gas Turbine	Steam Turbine					Photo-voltaic ^h	Thermal	Wind ⁱ		
2008 Year	51.8	32.6	55.2	53.1	45.2	—	54.9	63.1	—	—	—	—	—	—
2009 Year	46.6	33.4	52.9	54.3	46.9	—	61.6	61.7	—	—	—	—	—	—
2010 Year	54.3	33.9	62.4	69.6	54.3	—	55.9	62.2	—	19.3	—	—	—	—
2011 Year	50.6	29.5	61.1	69.7	56.8	—	61.0	60.2	—	30.3	—	11.6	—	—
2012 Year	48.8	38.2	64.5	71.0	57.0	—	43.4	60.9	—	25.2	—	25.6	—	—
2013 Year	49.8	30.0	70.7	75.1	50.2	—	61.1	60.7	—	25.6	—	25.6	—	—
2014 Year	49.9	27.5	67.5	71.0	48.8	—	52.4	60.9	—	24.3	—	26.4	—	—
2015 Year	48.2	28.1	66.1	72.7	41.2	—	57.6	62.2	—	20.6	—	25.1	—	—
2016 Year	46.3	25.2	69.7	73.0	40.3	—	51.4	61.7	—	16.7	—	25.3	—	—
2017 Year	46.7	24.4	68.9	74.9	37.7	—	55.9	62.7	—	14.8	—	27.0	—	.9
2018 Year	45.6	26.2	71.8	75.3	40.8	—	62.8	63.6	—	12.1	—	25.8	—	.8
2019 Year	41.6	26.3	73.4	75.9	44.2	—	55.0	62.2	—	17.2	—	25.3	—	15.3
2020 Year	41.9	23.2	67.0	74.5	44.0	—	53.2	61.2	—	16.3	—	39.7	—	2.4
2021 January	39.8	20.9	73.1	75.7	46.0	—	54.2	65.7	—	9.9	—	21.5	—	(s)
February	39.4	22.0	57.9	71.6	40.1	—	43.0	62.1	—	12.1	—	27.2	—	.4
March	38.2	21.1	52.6	67.6	43.5	—	64.6	64.2	—	17.6	—	32.2	—	.4
April	39.1	20.8	54.8	70.3	41.7	—	57.8	62.4	—	21.1	—	26.6	—	(s)
May	43.2	22.7	60.3	67.8	42.0	—	53.0	60.5	—	22.0	—	20.7	—	(s)
June	46.2	18.9	64.1	81.1	44.2	—	39.0	61.6	—	22.2	—	22.0	—	.4
July	44.4	18.6	71.1	81.3	46.7	—	47.9	61.5	—	20.4	—	14.3	—	.4
August	42.5	19.0	68.1	81.3	48.5	—	43.8	62.4	—	20.1	—	12.7	—	.4
September	44.1	16.7	59.3	76.4	46.5	—	48.9	61.7	—	19.9	—	23.3	—	.5
October	39.8	17.4	63.7	71.9	46.2	—	47.9	58.2	—	14.5	—	20.5	—	.4
November	44.4	20.4	69.0	72.5	46.8	—	53.8	61.3	—	12.4	—	27.5	—	(s)
December	42.8	17.3	70.1	71.4	48.4	—	44.2	63.2	—	8.6	—	30.5	—	.7
Average	42.0	19.6	63.8	74.1	45.1	—	49.9	62.1	—	16.3	—	23.2	—	.4
2022 January	42.5	26.9	72.7	74.0	45.7	—	49.3	63.0	—	12.8	—	29.6	—	2.9
February	42.5	30.4	66.5	74.3	39.2	—	59.0	63.2	—	16.8	—	36.4	—	2.8
March	42.4	21.8	65.2	68.5	41.4	—	71.2	60.0	—	19.7	—	34.7	—	2.5
April	38.6	26.0	61.9	65.4	43.8	—	68.1	58.7	—	22.8	—	33.8	—	3.1
May	44.0	28.3	62.6	70.2	41.3	—	54.4	57.7	—	25.5	—	27.9	—	3.0
June	45.2	26.6	64.2	77.1	43.2	—	42.1	59.6	—	27.1	—	20.3	—	2.5
July	44.8	25.2	68.2	81.8	43.8	—	33.9	60.4	—	26.0	—	17.3	—	2.3
August	44.4	26.4	69.0	82.4	44.2	—	39.1	58.8	—	24.0	—	12.3	—	2.3
September	40.6	25.3	64.3	75.5	39.7	—	40.2	56.2	—	21.4	—	15.3	—	2.4
October	38.4	25.5	67.6	68.0	38.3	—	33.1	52.7	—	19.0	—	26.8	—	2.4
November	38.3	28.7	72.5	70.4	41.9	—	41.1	58.4	—	14.3	—	33.3	—	2.4
December	41.8	24.7	69.1	70.5	37.4	—	58.9	59.0	—	9.9	—	27.9	—	2.4
Average	42.0	26.3	67.0	73.2	41.7	—	49.1	59.0	—	19.9	—	26.2	—	2.6
2023 January	R 39.3	21.8	66.2	74.2	43.9	—	58.2	61.0	—	13.0	—	26.0	—	—
February	38.6	22.5	68.2	75.6	44.9	—	54.9	60.3	—	16.3	—	R 34.5	—	—
March	34.6	26.1	63.8	R 74.1	45.9	—	54.9	56.1	—	19.7	—	31.7	—	—
April	35.4	R 21.3	52.5	65.5	42.9	—	47.0	R 53.5	—	23.6	—	31.9	—	—
May	35.7	R 19.3	57.4	71.0	R 43.2	—	51.2	R 57.7	—	26.3	—	R 23.8	—	—
June	39.6	R 21.2	66.9	77.6	R 48.4	—	R 42.1	56.4	—	27.5	—	19.8	—	—
July	39.8	22.5	68.6	75.8	50.5	—	47.3	R 54.4	—	28.0	—	R 16.9	—	—
August	37.2	22.5	69.4	R 78.3	50.1	—	47.9	57.0	—	26.2	—	R 19.6	—	—
September	37.2	20.6	68.7	77.8	51.4	—	43.6	53.0	—	23.2	—	19.5	—	—
October	35.5	R 16.7	64.4	R 71.4	46.0	—	48.6	R 51.3	—	20.1	—	24.4	—	—
November	35.3	18.3	R 67.7	R 76.5	49.4	—	47.7	59.4	—	15.1	—	R 28.5	—	—
December	36.9	19.5	70.6	79.8	52.1	—	51.3	60.7	—	12.1	—	27.2	—	—
Average	37.1	21.0	65.4	74.8	47.4	—	49.6	56.7	—	20.9	—	25.2	—	—

^a Capacity factors are a measure of how often electric generators operate over a specific period of time, using a ratio of actual output (net generation) to the maximum possible output over that same time period (using time-adjusted capacity).

^b Usage factors are a measure of how often electric generators operate over a specific period of time, using a ratio of actual output (gross generation) to the maximum possible output over that same time period (using time-adjusted capacity).

^c Steam turbine, gas turbine, internal combustion engine, combined-cycle, and other plants.

^d Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

^e Distillate fuel oil, residual fuel oil, petroleum coke, jet fuel, kerosene, other petroleum, waste oil, and, beginning in 2011, propane.

^f Natural gas, plus a small amount of supplemental gaseous fuels. Capacity factors for natural gas internal combustion engine, energy storage, fuel cell, and other plants are not displayed.

^g Wood and wood-derived fuels, municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass. Through 2000, also includes non-renewable waste (municipal solid waste from non-biogenic

sources, and tire-derived fuels).

^h Solar photovoltaic (PV) energy at utility-scale facilities. Does not include small-scale solar photovoltaic generators.

ⁱ Onshore wind plants, and, beginning in 2017, offshore wind plants.

R=Revised. —=No data reported. (s)=Less than 0.5 percent.

Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • Monthly factors are based on a time-adjusted total net summer capacity of generators in operation for the entire month. Annual factors are based on a time-weighted average of the monthly time-adjusted capacity. • For plants that use multiple energy sources or technologies, capacity is assigned to the reported combination of predominant energy source and technology. • See EIA's *Electric Power Annual*, "Technical notes," for further information. • See "Capacity factor" in Glossary. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of section. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#electricity> (Excel and CSV files) for all available annual and monthly data beginning in 2008.

Sources: U.S. Energy Information Administration (EIA), Form EIA-860, "Annual Electric Generator Report"; Form EIA-860M, "Monthly Update to the Annual Electric Generator Report"; and Form EIA-923, "Power Plant Operations Report."