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

(Percent)

	Capacity Factors[a]												Usage Factors[b]	
			Natural Gas[f]							Solar				
	Coal[c,d]	Petroleum[c,e]	Combined Cycle	Gas Turbine	Steam Turbine	Nuclear Electric Power	Conventional Hydroelectric Power	Biomass[c,g]	Geothermal	Photovoltaic[h]	Thermal	Wind[i]	Hydroelectric Pumped Storage	Battery Storage
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	39.4	21.8	66.2	74.2	43.9	–	58.2	61.0	–	13.0	–	26.0	–	.0
February	38.6	22.5	68.2	75.6	44.9	–	54.9	60.3	–	16.3	–	34.4	–	.0
March	34.6	26.1	63.8	74.2	45.9	–	54.9	56.1	–	19.7	–	31.7	–	.0
April	35.4	21.3	52.5	65.5	42.9	–	47.0	53.4	–	23.6	–	31.9	–	.0
May	35.7	19.2	57.4	71.0	43.3	–	51.2	57.4	–	26.3	–	23.7	–	.0
June	39.6	21.1	66.9	77.6	48.7	–	42.2	56.4	–	27.5	–	19.8	–	.0
July	39.8	22.5	68.6	75.8	50.5	–	47.3	54.5	–	28.0	–	16.8	–	.0
August	37.7	22.5	69.4	78.4	50.1	–	47.9	57.0	–	26.2	–	19.5	–	.0
September	37.2	20.6	68.7	77.8	51.4	–	43.6	53.0	–	23.2	–	19.5	–	.0
October	35.5	16.8	64.4	71.5	46.0	–	48.6	51.7	–	20.1	–	24.4	–	.0
November	35.3	18.3	67.6	75.5	49.4	–	47.7	59.4	–	15.1	–	28.4	–	.0

[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.

– =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."