ref2016.d032416a

Report Annual Energy Outlook 2016
Scenario ref2016 Reference case
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9. Electricity Generating Capacity

(gigawatts)

Net Summer Capacity 1/	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2015-2040
Electric Power Sector 2/																												
Power Only 3/																												
Coal 4/	290.8	277.7	226.2	220.9	217.3	209.9	208.4	202.2	200.2	199.8	193.9	189.3	186.7	185.8	183.4	180.0	177.0	175.3	173.1	172.5	172.2	172.2	171.1	170.4	170.4	170.4	169.5	-2.0%
Oil and Natural Gas Steam 4, 5/	91.9	91.0	95.4	96.5	95.0	94.7	89.9	84.4	79.8	72.5	67.8	65.6	62.7	61.5	56.7	55.1	54.0	54.0	54.0	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	-2.2%
Combined Cycle	198.1	202.3	210.9	221.3	225.6	222.5	220.6	218.1	214.3	216.2	224.6	231.5	240.5	246.9	254.9	262.7	267.7	271.6	275.7	279.7	284.3	287.9	295.0	298.7	306.6	313.8	318.7	1.8%
Combustion Turbine/Diesel	138.7	138.3	140.2	143.9	144.7	142.5	140.1	139.0	138.5	138.2	138.0	137.4	136.8	136.7	135.3	135.0	134.2	134.0	133.7	134.9	135.8	136.8	138.5	139.8	140.5	141.3	141.8	0.1%
Nuclear Power 6/	99.1	99.8	99.8	99.0	97.0	97.5	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	0.0%
Pumped Storage	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	0.0%
Fuel Cells	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0%
Renewable Sources 7/	162.1	176.2	193.2	200.4	204.9	220.4	237.7	267.0	279.4	285.2	285.9	287.3	288.2	291.7	295.8	299.2	304.3	313.6	326.0	333.6	342.1	356.1	358.2	375.7	378.7	386.1	398.4	3.3%
Distributed Generation (Natural Gas) 8/	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.3	1.4	1.6	1.8	1.9	2.1	2.3	2.6	2.9	- -
Total	**1,003.4**	**1,007.8**	**988.3**	**1,004.9**	**1,007.3**	**1,010.3**	**1,018.7**	**1,032.7**	**1,034.2**	**1,034.0**	**1,032.3**	**1,033.4**	**1,037.3**	**1,045.1**	**1,048.7**	**1,054.7**	**1,060.0**	**1,071.3**	**1,085.5**	**1,096.3**	**1,110.1**	**1,128.9**	**1,138.9**	**1,160.9**	**1,172.7**	**1,188.3**	**1,205.3**	**0.7%**
Combined Heat and Power 9/																												
Coal	3.8	3.7	3.6	3.6	3.4	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	-0.4%
Oil and Natural Gas Steam 5/	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0%
Combined Cycle	25.1	25.0	25.1	26.8	26.8	26.8	26.8	26.8	26.8	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	0.3%
Combustion Turbine/Diesel	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	0.0%
Renewable Sources 7/	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0%
Total	**33.1**	**32.9**	**33.0**	**34.7**	**34.4**	**34.4**	**34.4**	**34.4**	**34.4**	**34.3**	**34.3**	**34.3**	**34.3**	**34.3**	**34.3**	**34.3**	**34.3**	**34.3**	**34.3**	**34.3**	**34.3**	**34.3**	**34.3**	**34.3**	**34.3**	**34.3**	**34.3**	**0.2%**
Cumulative Planned Additions 10/																												
Coal	- -	- -	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	- -
Oil and Natural Gas Steam 5/	- -	- -	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Combined Cycle	- -	- -	8.6	20.9	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	- -
Combustion Turbine/Diesel	- -	- -	2.1	4.3	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	- -
Nuclear Power	- -	- -	0.0	0.0	0.0	2.2	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	- -
Pumped Storage	- -	- -	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Fuel Cells	- -	- -	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Renewable Sources 7/	- -	- -	17.1	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	- -
Distributed Generation 8/	- -	- -	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Total	**- -**	**- -**	**28.1**	**45.2**	**46.4**	**48.6**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**50.8**	**- -**
Cumulative Unplanned Additions 10/																												
Coal	- -	- -	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	- -
Oil and Natural Gas Steam 5/	- -	- -	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Combined Cycle	- -	- -	0.0	0.0	3.9	4.4	5.2	5.9	6.2	8.1	17.4	26.0	35.8	42.2	50.4	58.2	63.4	67.3	71.5	76.4	81.5	85.1	92.2	96.2	104.4	111.6	117.2	- -
Combustion Turbine/Diesel	- -	- -	0.0	1.5	1.9	2.0	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.7	2.9	3.0	3.2	3.3	4.5	6.0	7.0	8.7	10.1	11.0	13.0	14.5	- -
Nuclear Power	- -	- -	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Pumped Storage	- -	- -	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Fuel Cells	- -	- -	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Renewable Sources 7/	- -	- -	0.0	4.8	9.4	24.9	42.3	71.6	84.0	89.8	90.5	91.8	92.8	96.3	100.4	103.8	108.9	118.2	130.6	138.1	146.7	160.7	162.8	180.4	183.3	190.7	203.1	- -
Distributed Generation 8/	- -	- -	0.0	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.3	1.4	1.6	1.8	1.9	2.1	2.3	2.6	2.9	- -
Total	**- -**	**- -**	**0.0**	**6.7**	**15.6**	**31.8**	**50.3**	**80.3**	**93.1**	**100.9**	**110.9**	**121.0**	**131.8**	**141.9**	**154.6**	**166.1**	**176.6**	**190.0**	**206.9**	**220.7**	**236.1**	**254.8**	**265.9**	**289.0**	**301.3**	**318.1**	**337.8**	**- -**
Cumulative Electric Power Sector Additions 10	**- -**	**- -**	**28.1**	**51.9**	**61.9**	**80.4**	**101.1**	**131.1**	**143.9**	**151.7**	**161.7**	**171.8**	**182.6**	**192.7**	**205.4**	**216.9**	**227.4**	**240.8**	**257.6**	**271.5**	**286.9**	**305.6**	**316.7**	**339.8**	**352.1**	**368.9**	**388.6**	**- -**
Cumulative Retirements 11/																												
Coal	- -	- -	44.7	48.6	51.9	60.1	61.6	67.6	69.6	69.6	75.6	79.7	82.4	83.3	85.7	89.1	92.1	93.8	96.0	96.5	96.9	96.9	98.0	98.6	98.6	98.6	99.6	- -
Oil and Natural Gas Steam 5/	- -	- -	1.0	1.6	3.5	4.8	9.7	15.4	19.9	27.6	32.3	34.9	37.8	38.9	43.8	45.3	46.4	46.4	46.4	48.1	48.1	48.1	48.1	48.1	48.1	48.1	48.1	- -
Combined Cycle	- -	- -	0.0	0.0	0.2	3.8	6.5	9.7	13.8	13.9	14.8	16.5	17.3	17.3	17.5	17.5	17.7	17.7	17.9	18.7	19.2	19.2	19.2	19.5	19.8	19.8	20.5	- -
Combustion Turbine/Diesel	- -	- -	0.2	0.3	0.5	2.9	5.5	6.6	7.1	7.5	7.7	8.3	8.9	9.1	10.7	11.2	12.2	12.5	12.9	12.9	13.5	13.5	13.5	13.6	13.8	15.0	16.0	- -
Nuclear Power	- -	- -	0.0	0.9	2.9	4.6	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	- -
Pumped Storage	- -	- -	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Fuel Cells	- -	- -	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Renewable Sources 7/	- -	- -	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	- -
Total	**- -**	**- -**	**46.0**	**51.6**	**59.4**	**76.5**	**88.9**	**104.9**	**116.1**	**124.3**	**136.0**	**144.9**	**151.9**	**154.2**	**163.2**	**168.8**	**174.0**	**176.0**	**178.7**	**181.8**	**183.3**	**183.3**	**184.4**	**185.4**	**185.9**	**187.1**	**189.8**	**- -**
Total Electric Power Sector Capacity	**1,036.5**	**1,040.8**	**1,021.2**	**1,039.6**	**1,041.8**	**1,044.7**	**1,053.0**	**1,067.1**	**1,068.6**	**1,068.3**	**1,066.6**	**1,067.7**	**1,071.6**	**1,079.4**	**1,083.0**	**1,088.9**	**1,094.2**	**1,105.6**	**1,119.8**	**1,130.5**	**1,144.4**	**1,163.1**	**1,173.1**	**1,195.2**	**1,207.0**	**1,222.6**	**1,239.6**	**0.7%**
End-Use Generators 12/																												
Coal	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.3	0.5%
Petroleum	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.0%
Natural Gas	16.2	16.5	16.8	17.1	16.8	17.1	17.4	17.8	18.2	18.6	19.1	19.7	20.2	20.9	21.5	22.2	22.9	23.6	24.3	25.1	25.8	26.6	27.3	28.0	28.5	29.0	29.5	2.4%
Other Gaseous Fuels 13/	2.4	2.4	2.4	2.4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	1.0%
Renewable Sources 7/	15.0	18.4	22.1	25.2	28.7	32.5	36.6	40.7	43.5	45.0	46.8	49.1	51.6	54.3	57.2	60.3	63.6	66.9	70.3	73.6	76.9	80.3	83.7	87.1	90.5	94.0	97.4	6.9%
Other 14/	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.0%
Total	**37.8**	**41.3**	**45.5**	**48.8**	**52.7**	**56.8**	**61.1**	**65.6**	**68.8**	**70.8**	**73.1**	**76.0**	**79.1**	**82.5**	**86.1**	**89.9**	**93.9**	**97.9**	**102.0**	**106.1**	**110.2**	**114.4**	**118.5**	**122.5**	**126.6**	**130.5**	**134.5**	**4.8%**
Cumulative Capacity Additions 10/	**- -**	**- -**	**4.1**	**7.5**	**12.5**	**16.7**	**21.0**	**25.5**	**28.7**	**30.7**	**33.0**	**35.9**	**39.0**	**42.4**	**46.0**	**49.7**	**53.8**	**57.8**	**61.9**	**66.0**	**70.1**	**74.2**	**78.3**	**82.4**	**86.4**	**90.4**	**94.3**	**- -**

1/ Net summer capacity is the steady hourly output that generating equipment is expected to supply to system load (exclusive of auxiliary power), as demonstrated by tests during summer peak demand.
2/ Includes electricity-only and combined heat and power plants that have a regulatory status.
3/ Includes plants that only produce electricity and that have a regulatory status. Includes capacity increases (uprates) at existing units.
4/ Total coal and oil and natural gas steam capacity account for the conversion of coal capacity to gas steam capacity, but the conversions are not included explicitly as additions or retirements. The totals reflect 8.8 gigawatts of planned conversions as well as additional model-projected conversions.
5/ Includes oil-, gas-, and dual-fired capacity.
6/ Nuclear capacity includes 0.1 gigawatts of uprates.
6/ Includes conventional hydroelectric, geothermal, wood, wood waste, all municipal waste, landfill gas, other biomass, solar, and wind power. Facilities co-firing biomass and coal are classified as coal.
8/ Primarily peak-load capacity fueled by natural gas.
9/ Includes combined heat and power plants whose primary business is to sell electricity and heat to the public (i.e., those that report North American Industry Classification System code 22 or that have a regulatory status).
10/ Cumulative additions after December 31, 2015.
11/ Cumulative retirements after December 31, 2015.
12/ Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors that have a non-regulatory status; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.
13/ Includes refinery gas and still gas.
14/ Includes batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, and miscellaneous technologies.
- - = Not applicable.
Note: Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.
Sources: 2014 capacity and projected planned additions: U.S. Energy Information Administration (EIA), Form EIA-860, "Annual Electric Generator Report" (preliminary).
2015: EIA, Short-Term Energy Outlook, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.
Projections: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.