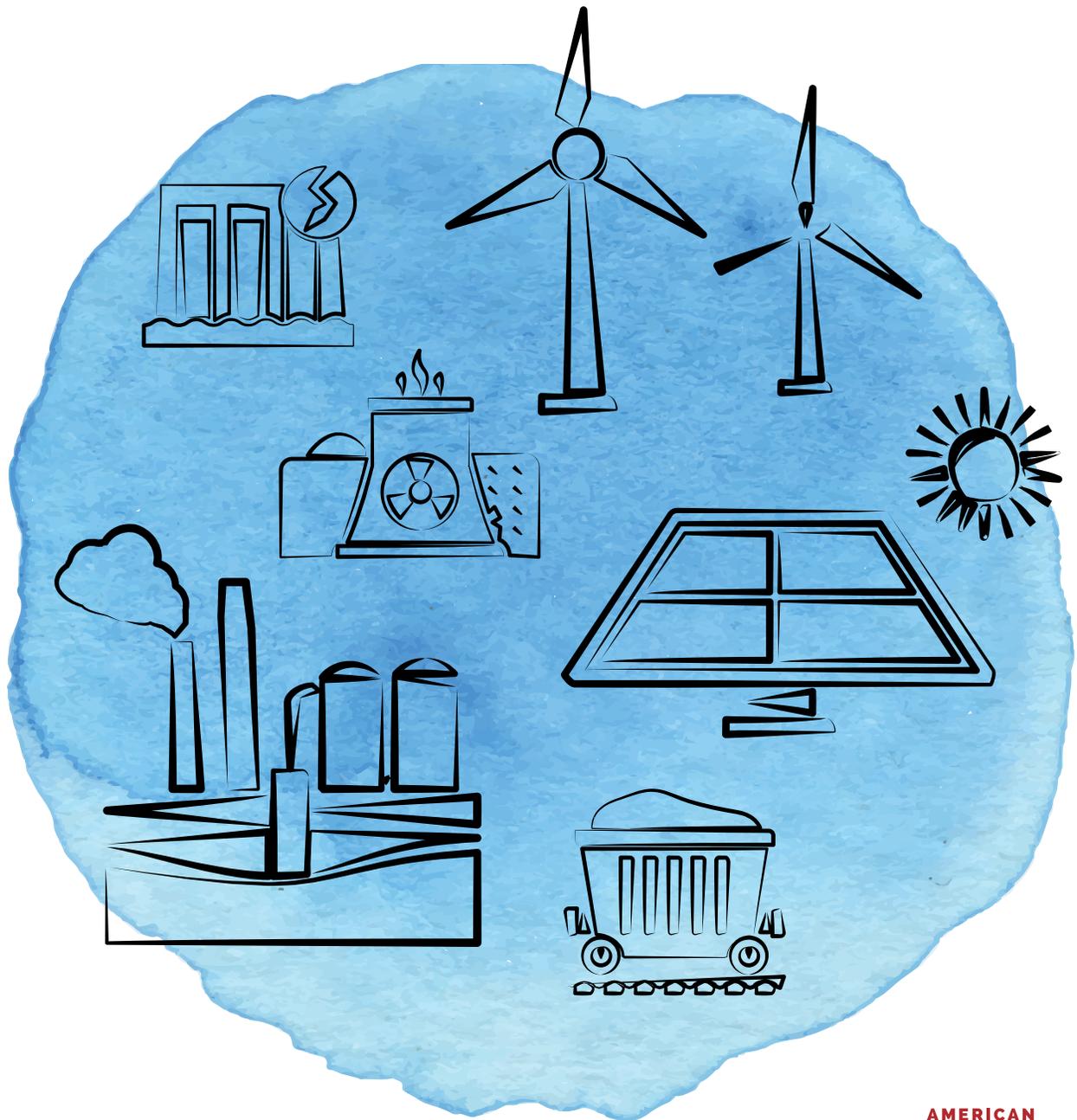


America's Electricity Generation Capacity 2020 Update



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Executive Summary

The American Public Power Association presents the fourteenth annual report on current and imminent electricity generation capacity in the United States by types of fuel, location, and ownership type.

Currently, the US has just over 1.2 million megawatts of generation capacity. **Generation capacity refers to the maximum potential power output of a generation source, and is the amount of power a plant can produce if it were running at full power. Capacity is measured in megawatts (MW). This should not be confused with generation, which is the actual power output of a generation plant, and is measured in megawatt-hours (MWh). This report covers generation capacity only.**

The largest fuel source is natural gas, accounting for more than 44 percent of all generation capacity. Coal, with a share of just under 21 percent, represents the second largest source of generation capacity. Nuclear, hydro, and wind together account for just over one-quarter of capacity. Solar currently constitutes over three percent of all capacity.

This report analyzes prospective generation capacity in four categories: under construction, permitted, application pending, and proposed.

Over 348,000 MW of new generation capacity is under development in the United States — 90,152 MW that is under construction or permitted, and 257,925 MW that is proposed or pending application.

Wind and natural gas both account for 36 percent of the new generating capacity under construction or permitted, and solar accounts for most of the remaining capacity in these categories. Natural gas, solar, and wind projects account for 94 percent of all capacity under construction. Of the capacity slated to begin operating in 2020, 99 percent will be fueled by these three resources, with wind and solar accounting for more than 70 percent of new capacity.

This report also provides information on retirements and planned retirements, cancellations, and capacity that has been added over the past several years.

This report shows that the overall capacity mix in the United States continues to slowly shift towards natural gas, solar, and wind.

Please note that all capacity figures in this report represent utility-scale capacity only, and does not include distributed and other small-scale generating capacity.

Source: Data analyzed for this report was taken from the ABB Velocity Suite database, accessed February 2020.

Current Generation Capacity

Table 1.1 shows the sources from which electricity is currently generated in the US. Current nameplate capacity includes capacity labeled as standby, but not mothballed or out of service.

Table 1.1
2020 Electric Generation Capacity, by Fuel

Fuel Type	Nameplate Capacity (MW)	Share
Natural Gas	533,742.80	44.32%
Coal	250,436.47	20.80%
Nuclear	106,330.64	8.83%
Wind	103,775.38	8.62%
Hydro	100,799.42	8.37%
Solar	41,668.08	3.46%
Distillate Fuel Oil	22,476.86	1.87%
Residual Fuel Oil	15,261.80	1.27%
Wood/Wood Waste Solids	5,003.06	0.42%
Wood Waste Liquids	4,704.65	0.39%
Geothermal	3,853.25	0.32%
Waste	2,704.95	0.22%
Landfill Gas	2,542.73	0.21%
Petroleum Coke	2,472.70	0.21%
Kerosene	2,152.70	0.18%
Other Gas	1,418.30	0.12%
Waste Heat	1,322.83	0.11%
Blast Furnace Gas	847.60	0.07%
Jet Fuel	536.24	0.04%
Biomass Gases	480.83	0.04%
Purchased Steam	437.40	0.04%
Other	335.34	0.03%
Agriculture Byproduct	283.90	0.02%
Biomass Liquids	189.29	0.02%
Biomass Solids	186.66	0.02%
Waste Oil and Other Oil	119.91	0.01%
Liquified Natural Gas	50.63	0.00%
Refuse	15.40	0.00%
Biomass Other	10.66	0.00%
Propane	1.63	0.00%
Total	1,204,162.09	

Table 1.2 shows how America's current generation capacity is distributed through the various regions defined by the North American Electric Reliability Corporation. US territories are not included in these regions nor in the data in this report.

Table 1.2
2020 Electricity Generation Capacity, by Region

Region	Nameplate Capacity (MW)	Share
SERC	359,235.35	29.83%
RFC	246,103.50	20.44%
WECC	234,072.33	19.44%
ERCOT	119,012.12	9.88%
NPCC	86,170.25	7.16%
SPP	78,897.79	6.55%
MRO	74,081.02	6.15%
HCC	3,417.61	0.28%
ASCC	3,172.13	0.26%
Total	1,204,162.09	

Regions Defined by NERC (see map in Appendix 1)

ASCC: Alaska Systems Coordinating Council
 ERCOT: Electric Reliability Council of Texas
 FRCC: Florida Reliability Coordinating Council
 HCC: Hawaii Coordinating Council
 NPCC: Northeast Power Coordinating Council
 MRO: Midwest Reliability Organization
 RFC: Reliability First Corporation
 SERC: Southeastern Electric Reliability Council
 SPP: Southwest Power Pool
 WECC: Western Electricity Coordinating Council

Table 1.3 shows the utility-scale capacity additions from 2014-2019. Nearly 97 percent of the 144,753 MW additions were fueled by natural gas, wind, and solar.

Table 1.3
Generation Capacity Additions by Fuel Type, 2014-2019

Fuel Type	Nameplate Capacity (MW)	Share
Natural Gas	63,927.69	44.16%
Wind	43,056.87	29.75%
Solar	32,892.66	22.72%
Nuclear	1,269.90	0.88%
Hydro	1,065.66	0.74%
Distillate Fuel Oil	507.20	0.35%
Wood/Wood Waste Solids	447.73	0.31%
Geothermal	303.30	0.21%
Landfill Gas	252.50	0.17%
Waste Heat	228.73	0.16%
Wood Waste Liquids	155.60	0.11%
Biomass Gases	151.96	0.10%
Coal	128.70	0.09%
Waste	114.30	0.08%
Liquefied Natural Gas	50.63	0.03%
Biomass Liquids	50.00	0.03%
Other	47.30	0.03%
Purchased Steam	45.00	0.03%
Other Gas	25.70	0.02%
Refuse	15.40	0.01%
Biomass Solids	11.70	0.01%
Jet Fuel	2.00	0.00%
Biomass Other	1.60	0.00%
Agriculture Byproduct	1.00	0.00%
Total	144,753.13	

Table 1.4 shows that nearly 18,000 MW of generation capacity began operating in 2019, with natural gas and wind accounting for over three-quarters of the new capacity, and solar making up almost all of the rest.

Table 1.4
Generation Capacity Additions by Fuel Type, 2019

Fuel Type	Nameplate Capacity (MW)	Share
Natural Gas	7,339.80	40.84%
Wind	6,181.45	34.40%
Solar	4,278.67	23.81%
Distillate Fuel Oil	76.70	0.43%
Wood/Wood Waste Solids	40.30	0.22%
Hydro	17.50	0.10%
Coal	17.00	0.09%
Geothermal	10.00	0.06%
Landfill Gas	7.42	0.04%
Biomass Gases	2.00	0.01%
Total	17,970.84	

Figure 1.1 shows the capacity additions by fuel type from 2014-2019.

Figure 1.1
Capacity Additions by Year, 2014-2019

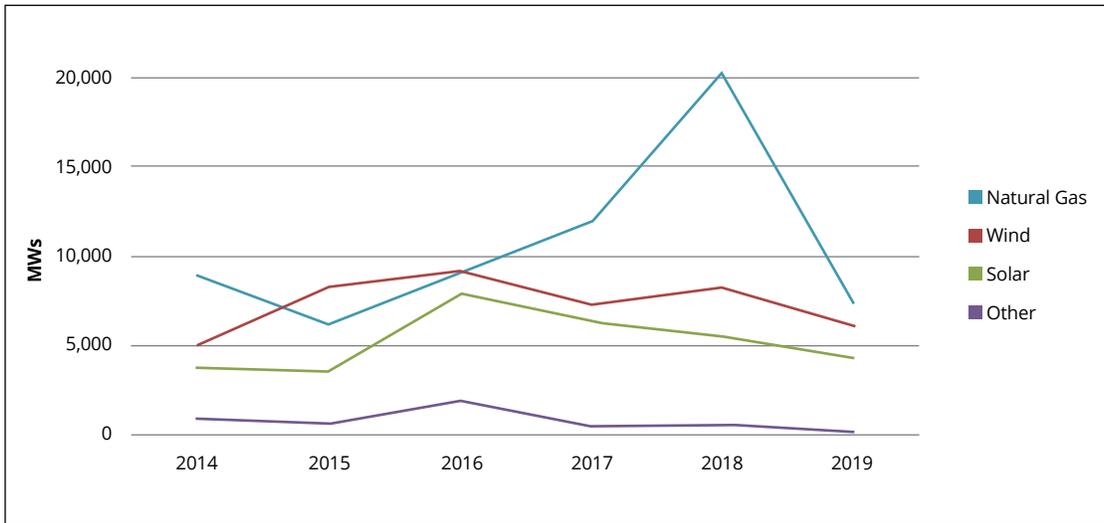
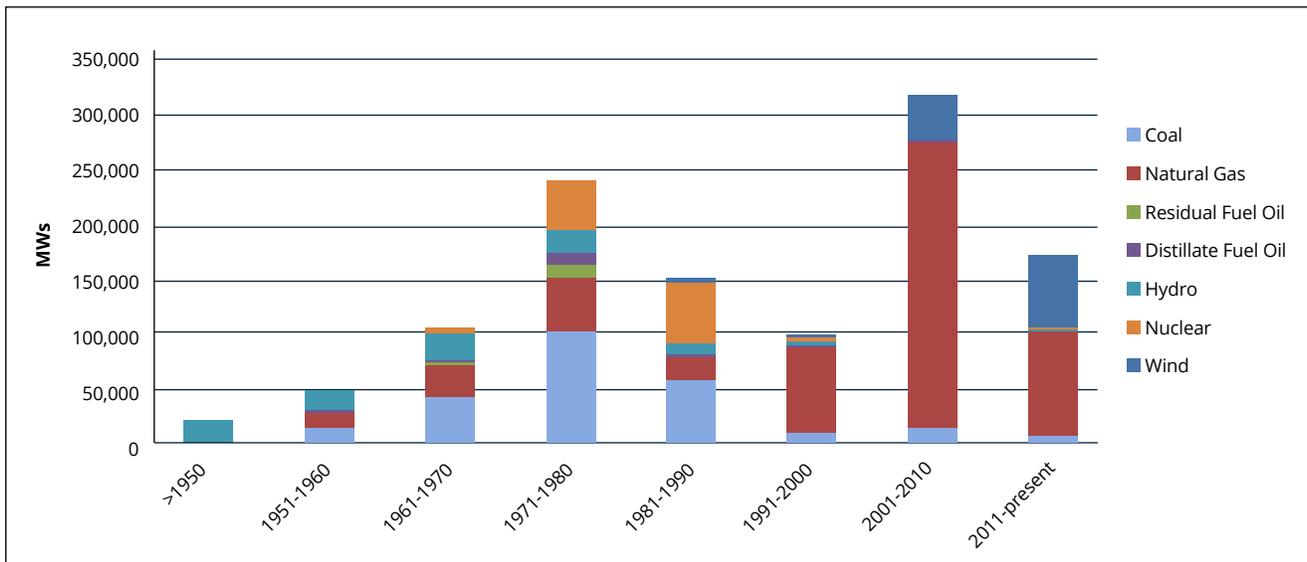


Figure 1.2 shows the age of traditional forms of generating capacity – coal, nuclear, hydro, natural gas, and oil. Most hydro and coal capacity is 40 years old or more, having come online by 1980. Almost all domestic nuclear capacity became operational between 1969 and 1990. While natural gas capacity dates back to the 1950s, the bulk of natural gas capacity is less than 25 years old. This chart does not show many forms of renewable generation, almost all of which came online after the turn of the 21st century.

Figure 1.2
Age of Traditional Forms of Electric Generation



Future Generating Capacity: Fuel Mix

Tables 2.1 – 2.4 show the fuel makeup of America's future generation capacity.

Table 2.1 shows the sources for the 47,067 MW of generation capacity under construction. Wind, natural gas, and solar account for the lion's share of capacity under construction.

Table 2.1
Plants Under Construction, by Fuel Type

Fuel Type	Nameplate Capacity (MW)	Share
Wind	19,597.46	41.64%
Natural Gas	14,844.49	31.54%
Solar	9,967.69	21.18%
Nuclear	2,200.00	4.67%
Wood/Wood Waste Solids	140.00	0.30%
Hydro	130.45	0.28%
Biomass Gases	50.86	0.11%
Agriculture Byproduct	49.90	0.11%
Biomass Solids	36.50	0.08%
Waste Heat	28.60	0.06%
Other	14.80	0.03%
Waste	2.27	0.00%
Distillate Fuel Oil	2.00	0.00%
Landfill Gas	2.00	0.00%
Total	47,067.02	

Table 2.2 shows the fuel makeup for plants that have received permits but that have not yet started construction. Natural gas is the leading resource choice for permitted plants, accounting for nearly 41 percent of the 43,085 MW of new capacity, with wind and solar accounting for another 53 percent.

Table 2.2
Permitted Plants, by Fuel Type

Fuel Type	Nameplate Capacity (MW)	Share
Natural Gas	17,639.70	40.94%
Wind	12,868.89	29.87%
Solar	9,990.28	23.19%
Hydro	1,965.70	4.56%
Nuclear	360.00	0.84%
Geothermal	213.00	0.49%
Wood/Wood Waste Solids	44.00	0.10%
Landfill Gas	3.20	0.01%
Total	43,084.78	

Table 2.3 shows the fuel mix for the 69,243 MW of capacity awaiting approval of applications. Once again, solar, wind, and natural gas account for the overwhelming majority of resources, with solar leading the way at over 40 percent.

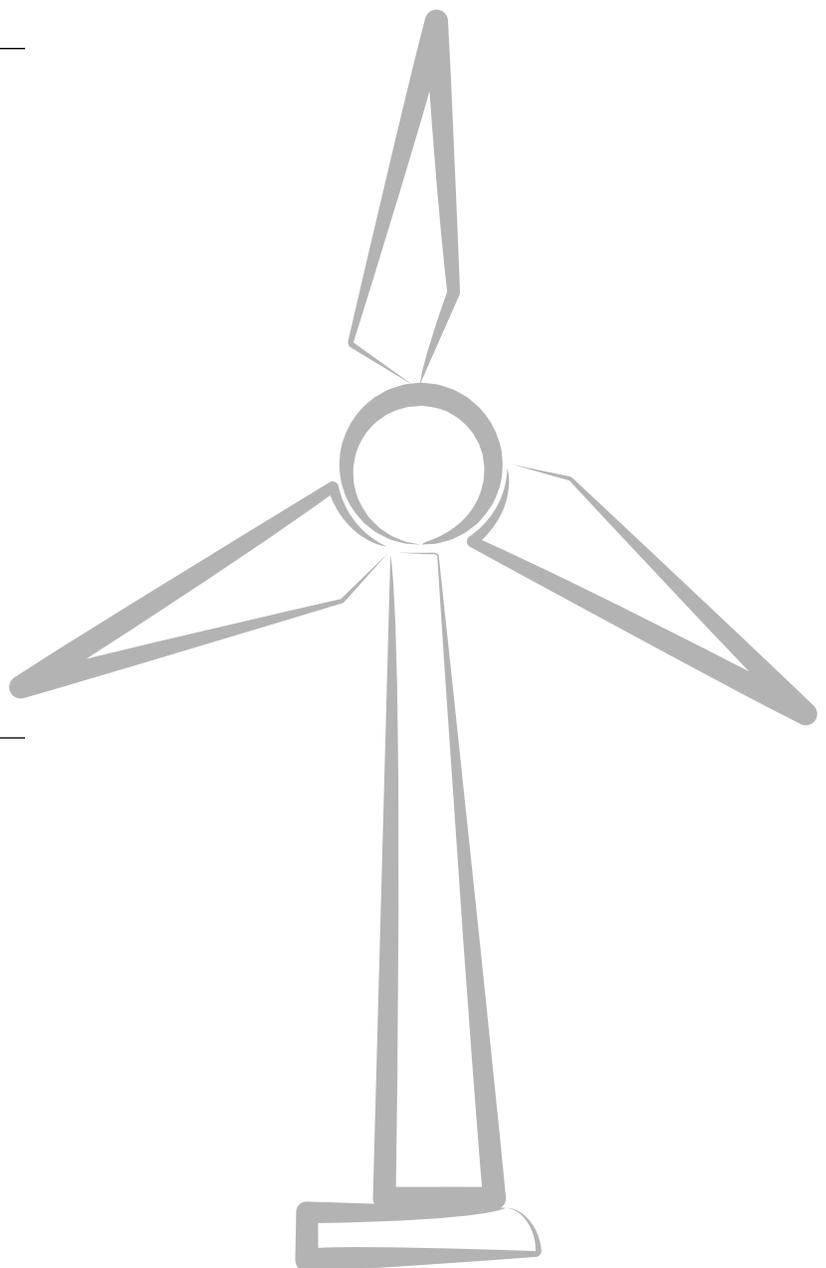
Table 2.3
Plants Pending Application, by Fuel Type

Fuel Type	Nameplate Capacity (MW)	Share
Solar	27,835.80	40.20%
Wind	23,584.25	34.06%
Natural Gas	13,928.90	20.12%
Nuclear	2,716.00	3.92%
Hydro	1,074.15	1.55%
Geothermal	102.00	0.15%
Distillate Fuel Oil	2.20	0.00%
Total	69,243.30	

Table 2.4 shows the resource mix for the 188,682 MW of capacity still in the planning stage. This is the earliest and most uncertain stage of development, and includes units that are least likely to be built. Solar and wind account for 35 and 34 percent of the capacity, respectively.

Table 2.4
Proposed Plants, by Fuel Type

Fuel Type	Nameplate Capacity (MW)	Share
Solar	66,105.39	35.04%
Wind	64,364.25	34.11%
Natural Gas	27,401.00	14.52%
Hydro	14,745.38	7.81%
Nuclear	14,562.40	7.72%
Residual Fuel Oil	632.40	0.34%
Other	459.80	0.24%
Geothermal	190.90	0.10%
Coal	77.00	0.04%
Distillate Fuel Oil	45.83	0.02%
Landfill Gas	23.09	0.01%
Waste Heat	19.90	0.01%
Biomass Other	15.22	0.01%
Biomass Gases	10.63	0.01%
Biomass Liquids	10.00	0.01%
Wood/Wood Waste Solids	8.50	0.00%
Other Gas	5.50	0.00%
Biomass Solids	4.60	0.00%
Total	188,681.78	



Future Generating Capacity: Development Stages

Figure 2.1 tracks the major fuel sources in each stage of development. This chart demonstrates that wind, solar, and natural gas together are dominant across all stages of development, with almost all capacity planned and under construction being fueled by these three resources.

Note how much more varied the fuel resources at each stage of development were in 2015, as displayed in Figure 2.2. The share of solar has increased significantly, and both wind and solar have begun to roughly equal natural gas in terms of planned development.

Figure 2.1
Share of Fuel Type: Stage of Development, 2020

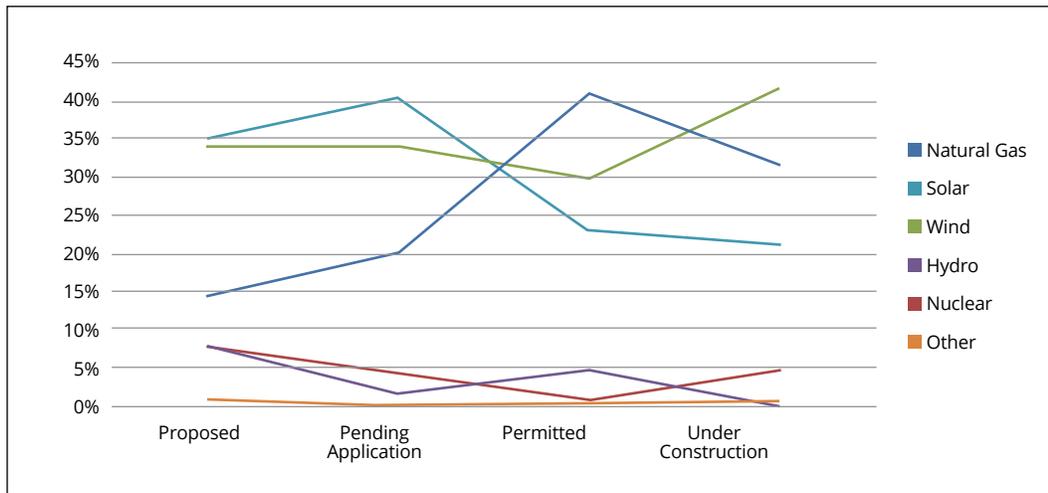
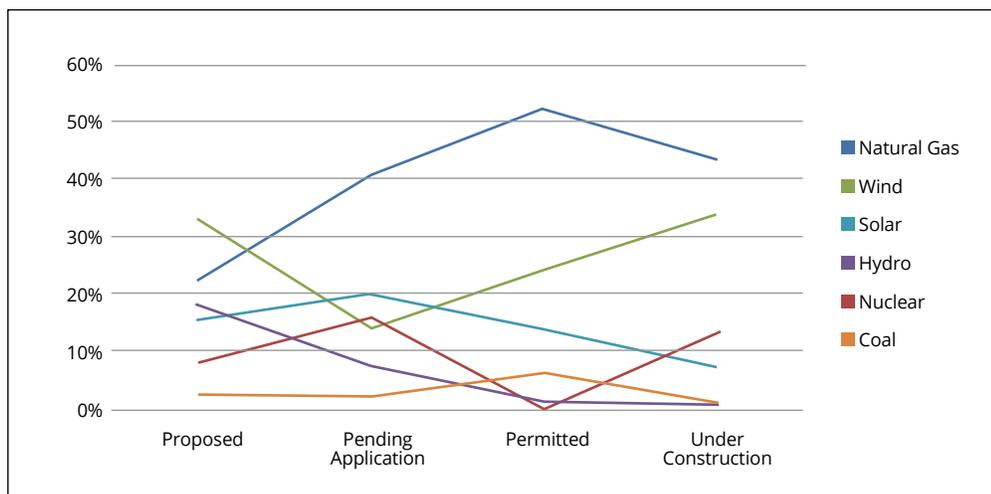


Figure 2.2
Share of Fuel Type: Stage of Development, 2015



Future Generating Capacity: Regional Mix

Tables 3.1 – 3.4 show new plants that are being built or planned for construction in each North American Electric Reliability Corporation region. (See Appendix 1 for definition of regions and included states.)

Table 3.1 shows that SERC and WECC have the most capacity under construction, while RFC and MRO together account for nearly one-third of the capacity under construction.

Table 3.1
Plants Under Construction, by Region

Region	Nameplate Capacity (MW)	Share
SERC	11,432.37	24.29%
WECC	10,454.18	22.21%
RFC	9,378.84	19.93%
MRO	6,021.72	12.79%
ERCOT	5,853.24	12.44%
NPCC	2,496.56	5.30%
SPP	1,364.00	2.90%
HCC	56.10	0.12%
ASCC	10.00	0.02%
Total	47,067.02	

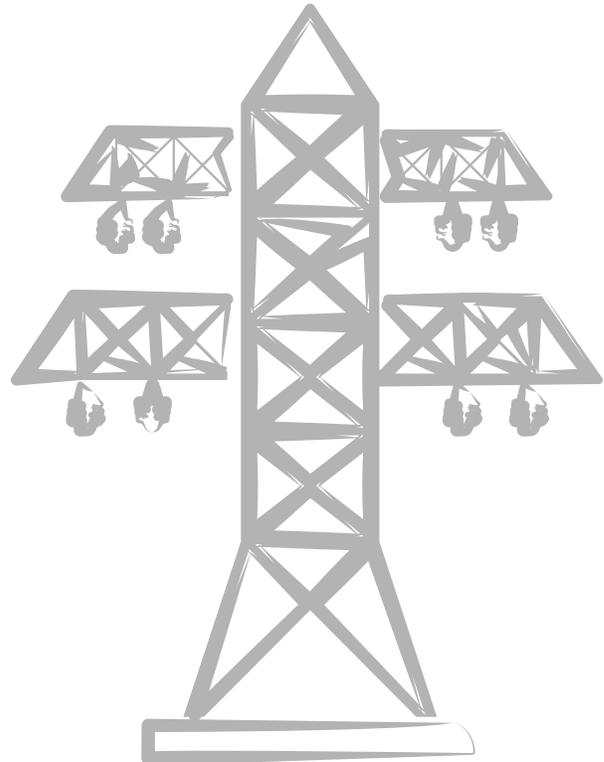
Regions Defined by NERC (see map in Appendix 1)

ASCC: Alaska Systems Coordinating Council (not shown on map)
 ERCOT: Electric Reliability Council of Texas
 FRCC: Florida Reliability Coordinating Council
 HCC: Hawaii Coordinating Council (not shown on map)
 NPCC: Northeast Power Coordinating Council
 MRO: Midwest Reliability Organization
 RFC: Reliability First Corporation
 SERC: Southeastern Electric Reliability Council
 SPP: Southwest Power Pool
 WECC: Western Electricity Coordinating Council

Table 3.2 shows that SERC has more permitted capacity than any other region. RFC, WECC, and ERCOT have most of the remaining permitted capacity.

Table 3.2
Permitted Plants, by Region

Region	Nameplate Capacity (MW)	Share
SERC	12,211.15	28.34%
RFC	11,625.43	26.98%
WECC	7,624.92	17.70%
ERCOT	5,870.10	13.62%
MRO	2,316.70	5.38%
SPP	1,745.30	4.05%
NPCC	1,653.97	3.84%
ASCC	37.20	0.09%
Total	43,084.78	



Tables 3.3 and 3.4 show plants in the pending application and proposed categories. ERCOT has the majority of capacity the pending application stage, while WECC has the most capacity in the proposed stage.

Table 3.3
Plants Pending Application, by Region

Region	Nameplate Capacity (MW)	Share
ERCOT	39,953.90	57.70%
WECC	10,668.35	15.41%
SERC	5,564.77	8.04%
RFC	5,403.95	7.80%
NPCC	4,417.33	6.38%
SPP	2,003.20	2.89%
MRO	1,212.00	1.75%
ASCC	19.80	0.03%
Total	69,243.30	

Table 3.4
Proposed Plants, by Region

Region	Nameplate Capacity (MW)	Share
WECC	57,591.78	30.52%
NPCC	38,117.82	20.20%
SERC	34,343.57	18.20%
RFC	33,666.67	17.84%
MRO	9,349.32	4.96%
SPP	8,261.72	4.38%
ERCOT	6,257.49	3.32%
ASCC	625.00	0.33%
HCC	462.80	0.25%
N/A	5.62	0.00%
Total	188,681.78	

Tables 3.5 and 3.6 show the fuels of choice for proposed capacity by development stage.

As seen in Table 3.5, for plants most likely to be built — those already under construction or permitted — natural gas and wind account for more than 72 percent of the capacity, with solar contributing nearly all the rest.

Table 3.5
Permitted Plants and Plants Under Construction, by Fuel Type

Fuel Type	Nameplate Capacity (MW)	Share
Natural Gas	32,484.19	36.03%
Wind	32,466.35	36.01%
Solar	19,957.97	22.14%
Nuclear	2,560.00	2.84%
Hydro	2,096.15	2.33%
Geothermal	213.00	0.24%
Wood/Wood Waste Sol-ids	184.00	0.20%
Biomass Gases	50.86	0.06%
Agriculture Byproduct	49.90	0.06%
Biomass Solids	36.50	0.04%
Waste Heat	28.60	0.03%
Other	14.80	0.02%
Landfill Gas	5.20	0.01%
Waste	2.274	0.00%
Distillate Fuel Oil	2.00	0.00%
Total	90.151.79	

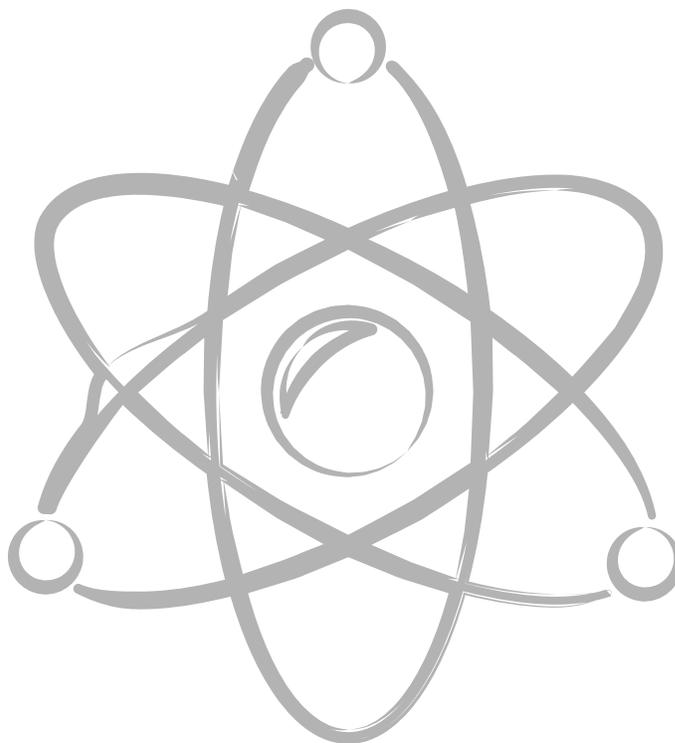
Three regions – RFC, SERC, and WECC – together account for approximately 70 percent of the capacity under construction and permitted, with ERCOT accounting for 13 percent. Wind is the leading resource in every region except for RFC and SERC, which have natural gas leading the way. These two regions together account for approximately three-quarters of the natural gas capacity permitted or under construction. All 2,560 MW of nuclear power under construction or permitted are located in SERC.

As seen in **Table 3.6**, solar is the leading resource for proposed and pending application capacity, though natural gas and wind again comprise the majority of the remaining projects for these two categories.

Table 3.6
Plants Pending Application and Proposed, by Fuel Type

Fuel Type	Nameplate Capacity (MW)	Share
Solar	93,941.19	36.42%
Wind	87,948.50	34.10%
Natural Gas	41,329.90	16.02%
Nuclear	17,278.40	6.70%
Hydro	15,819.52	6.13%
Residual Fuel Oil	632.40	0.25%
Other	459.80	0.18%
Geothermal	292.90	0.11%
Coal	77.00	0.03%
Distillate Fuel Oil	48.03	0.02%
Landfill Gas	23.09	0.01%
Waste Heat	19.90	0.01%
Biomass Other	15.22	0.01%
Biomass Gases	10.63	0.00%
Biomass Liquids	10.00	0.00%
Wood/Wood Waste Sol-ids	8.50	0.00%
Other Gas	5.50	0.00%
Biomass Solids	4.60	0.00%
Total	257,925.08	

In every region except RFC – where once again natural gas is the primary resource – wind or solar are the leading resources. Solar is the primary resource in ERCOT, HCC, SERC, and WECC, and wind is the primary resource in MRO, NPCC, and SPP.



Future Generating Capacity: Ownership Type

Analysis of future generating capacity by ownership is summarized in **Tables 4.1 – 4.4**. Non-utility generators account for most of the capacity in all four categories.

Table 4.1
Plants Under Construction, by Owner Type

Type	Nameplate Capacity (MW)	Share
Non-utility Generators	38,603.02	82.02%
Investor-Owned Utility	6,720.20	14.28%
Public Power	1,055.20	2.24%
Co-Op	686.70	1.46%
Federal	1.90	0.00%
Total	47,067.02	

Table 4.2
Permitted Plants, by Owner Type

Type	Nameplate Capacity (MW)	Share
Non-utility Generators	36,580.41	84.90%
Investor-Owned Utility	3,935.06	9.13%
Co-Op	1,253.00	2.91%
Public Power	956.30	2.22%
Federal	360	0.84%
Total	43,084.77	

Table 4.3
Plants Pending Application, by Owner Type

Type	Nameplate Capacity (MW)	Share
Non-utility Generators	65,892.54	95.16%
Co-Op	1,458.20	2.11%
Investor-Owned Utility	1,248.96	1.80%
Public Power	643.60	0.93%
Total	69,243.30	

Table 4.4
Proposed Plants, by Owner Type

Type	Nameplate Capacity (MW)	Share
Non-utility Generators	166,058.83	88.01%
Investor-Owned Utility	11,086.46	5.88%
Public Power	8,238.12	4.37%
Federal	2,439.57	1.29%
Co-Op	858.80	0.46%
Total	188,681.78	

SECTION 5

Future Generating Capacity: Regional Transmission Organizations

Tables 5.1 – 5.4 show future generating capacity by regional transmission organization (RTO). A significant plurality of the proposed capacity is slated to be constructed in non-RTO regions. At more advanced stages, over 30 percent of the new capacity is being developed in non-RTO regions, while much of the capacity within RTO regions that is under construction or permitted is in PJM, Midcontinent ISO, and ERCOT. For plants pending application, over 58 percent is in ERCOT, much of which is solar and wind generation.

Table 5.1
Plants Under Construction, by RTO

RTO	Nameplate Capacity (MW)	Share
Non-RTO	15,114.57	32.11%
Midcontinent ISO	11,456.52	24.34%
PJM ISO	7,075.87	15.03%
ERCOT ISO	5,853.24	12.44%
California ISO	2,775.57	5.90%
SPP	2,314.72	4.92%
New York ISO	2,260.89	4.80%
New England ISO	215.63	0.46%
Total	47,067.02	

Table 5.2
Permitted Plants, by RTO

RTO	Nameplate Capacity (MW)	Share
PJM ISO	15,039.78	34.91%
Non-RTO	12,753.29	29.60%
ERCOT ISO	5,870.10	13.62%
Midcontinent ISO	3,343.94	7.76%
SPP	2,272.60	5.27%
California ISO	2,164.90	5.02%
New England ISO	1,216.77	2.82%
New York ISO	423.40	0.98%
Total	43,084.78	

Table 5.3
Plants Pending Application, by RTO

RTO	Nameplate Capacity (MW)	Share
ERCOT ISO	40,437.90	58.40%
Non-RTO	10,271.26	14.83%
PJM ISO	6,534.95	9.44%
New York ISO	3,616.80	5.22%
California ISO	3,455.70	4.99%
Midcontinent ISO	2,512.96	3.63%
SPP	1,613.20	2.33%
New England ISO	800.53	1.16%
Total	69,243.30	

Table 5.4
Proposed Plants, by RTO

RTO	Nameplate Capacity (MW)	Share
Non-RTO	80,234.56	42.52%
PJM ISO	30,018.21	15.91%
New York ISO	26,629.61	14.11%
Midcontinent ISO	17,750.42	9.41%
SPP	10,423.84	5.52%
California ISO	9,388.06	4.98%
New England ISO	8,159.59	4.32%
ERCOT ISO	6,077.49	3.22%
Total	188,681.78	

Retirements and Cancellations

Tables 6.1 and 6.2 show generation capacity retirements by fuel type. Between 2014 and 2019, 116,651 MW of capacity was retired. Over half of this capacity was coal-fired, with most of the remainder being natural gas.

Table 6.1
Retired Plants by Fuel Type, 2014-2019

Fuel Type	Capacity (MW)	Share
Coal	66,202.90	57.2%
Natural Gas	34,634.32	29.9%
Residual Fuel Oil	3,802.90	3.3%
Nuclear	3,443.93	3.0%
Distillate Fuel Oil	3,387.28	2.9%
Hydro	743.75	0.6%
Wind	651.00	0.6%
Petroleum Coke	488.50	0.4%
Wood/Wood Waste Solids	481.95	0.4%
Kerosene	352.60	0.3%
Landfill Gas	287.38	0.2%
Wood Waste Liquids	266.60	0.2%
Geothermal	221.30	0.2%
Waste	161.30	0.1%
Agriculture Byproduct	130.20	0.1%
Solar	85.82	0.1%
Blast Furnace Gas	82.00	0.1%
Biomass Solids	72.80	0.1%
Biomass Gases	32.70	0.0%
Other Gas	32.00	0.0%
Waste Heat	31.80	0.0%
Other	28.30	0.0%
Purchased Steam	25.00	0.0%
Jet Fuel	5.10	0.0%
Total	115,651.42	

Nearly 18,000 MW of capacity was retired in 2019, over three-quarters of which were fueled by coal.

Table 6.2
Retired Plants by Fuel Type, 2019

Fuel Type	Capacity (MW)	Share
Coal	13,666.30	76.3%
Natural Gas	1,699.40	9.5%
Nuclear	1,640.83	9.2%
Residual Fuel Oil	230.00	1.3%
Wood/Wood Waste Solids	163.70	0.9%
Hydro	141.50	0.8%
Distillate Fuel Oil	116.90	0.7%
Wood Waste Liquids	98.90	0.6%
Waste	61.50	0.3%
Landfill Gas	37.62	0.2%
Waste Heat	31.80	0.2%
Kerosene	16.30	0.1%
Biomass Gases	1.40	0.0%
Jet Fuel	0.40	0.0%
Total	17,906.54	

Approximately 51,400 MW of current operating capacity is scheduled to retire by 2024, nearly half of which is coal-fired. Almost all planned natural gas retirements are powered by steam or gas combustion turbines. Over 7,000 MW of nuclear capacity is also slated to be retired.

Table 6.3 reflects planned retirements that have been publicly announced.

Table 6.3
Planned Retirements to 2024, by Fuel Type

Fuel Type	Capacity (MW)	Share
Coal	23,819.90	46.35%
Natural Gas	15,783.60	30.71%
Nuclear	7,110.53	13.84%
Residual Fuel Oil	2,670.90	5.20%
Hydro	713.10	1.39%
Distillate Fuel Oil	519.00	1.01%
Wind	329.70	0.64%
Jet Fuel	223.50	0.43%
Landfill Gas	78.20	0.15%
Wood/Wood Waste Solids	70.40	0.14%
Geothermal	35.00	0.07%
Kerosene	18.60	0.04%
Wood Waste Liquids	7.50	0.01%
Biomass Gases	6.90	0.01%
Biomass Solids	2.00	0.00%
Other	1.50	0.00%
Total	51,390.33	

Over 33,000 MW of planned capacity additions were canceled in 2019.

Table 6.4
Plant Cancellations, 2019

Fuel Type	Capacity (MW)	Share
Wind	12,177.60	36.6%
Solar	8,290.89	25.0%
Natural Gas	5,618.90	16.9%
Coal	3,845.00	11.6%
Nuclear	2,340.00	7.0%
Hydro	632.81	1.9%
Geothermal	208.00	0.6%
Other	40.00	0.1%
Biomass Gases	30.10	0.1%
Landfill Gas	16.88	0.1%
Waste Heat	16.83	0.1%
Distillate Fuel Oil	10.00	0.0%
Total	33,227.01	





Since 2014, almost 300,000 MW of planned capacity additions were ultimately canceled, well above the capacity that was added. Wind represents over 30 percent of this canceled capacity.

Table 6.5
Plant Cancellations, 2014-2019

Fuel Type	Capacity (MW)	Share
Wind	89,988.98	30.1%
Natural Gas	68,431.72	22.9%
Solar	67,385.36	22.6%
Hydro	26,890.08	9.0%
Nuclear	21,256.00	7.1%
Coal	12,277.50	4.1%
Other	3,593.87	1.2%
Geothermal	3,016.40	1.0%
Wood/Wood Waste Solids	1,542.33	0.5%
Waste	1,297.70	0.4%
Petroleum Coke	1,196.00	0.4%
Blast Furnace Gas	500.00	0.2%
Landfill Gas	311.00	0.1%
Biomass Solids	282.65	0.1%
Biomass Gases	150.42	0.1%
Biomass Other	100.00	0.0%
Waste Heat	78.63	0.0%
Other Gas	77.00	0.0%
Jet Fuel	60.00	0.0%
Unknown	53.60	0.0%
Distillate Fuel Oil	51.53	0.0%
Agriculture Byproduct	18.80	0.0%
Biomass Liquids	9.00	0.0%
Total	298,568.55	

Figure 6.1 shows additions, cancellations, and retirements from 2014 to 2019. While additions exceeded retirements, cancellations far exceeded additions.

Figure 6.1
Additions, Cancellations, and Retirements, 2014-2019

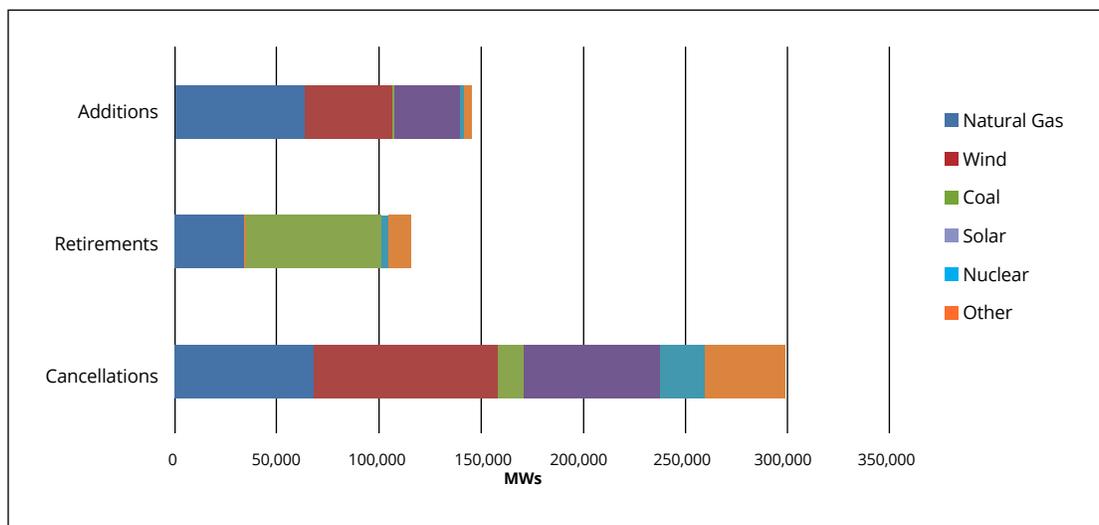
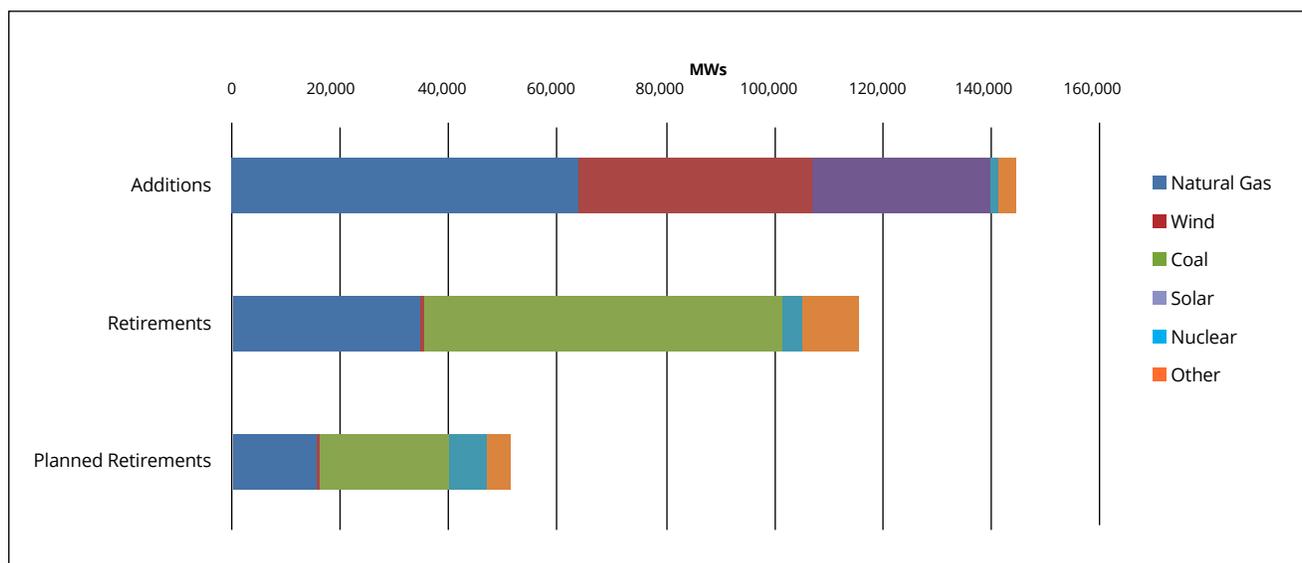


Figure 6.2 shows additions and retirements from 2014 to 2019 as well as planned retirements to 2024.

Figure 6.2
Additions and Retirements, 2014-2019, plus Planned Retirements to 2024



Distributed Generation

This report conveys information about utility-scale generation. The Energy Information Administration (EIA) also reports data on distributed capacity on two files: net metered capacity and non-net metered capacity. This refers to the method by which, if any, distributed generators are credited for excess generation. The data are reported as of calendar year 2018.

Table 7.1 shows net metered capacity. The overwhelming majority of this capacity is solar photovoltaic (PV). According to EIA, approximately 2 million customers had nearly 19,000 MW of net metered solar PV capacity as of the end of 2018.

Table 7.1
Net Metered Capacity

	Net Metered PV		Net Metered Wind		Net Metered Other	
	Capacity (MW)	Customers	Capacity (MW)	Customers	Capacity (MW)	Customers
Residential	11,357.70	1,911,892	33.63	5,368	6.35	692
Commercial	6,173.32	78,912	133.86	1,452	258.60	826
Industrial	1,378.86	5,844	52.39	110	241.42	347
Total	18,908.90	1,996,648	219.87	6,930	506.37	1,865

EIA also reports on non-net metered generating capacity. Approximately 1,200 MW of non-net metered solar capacity was in operation at the end of 2018.

Table 7.2
Non-Net Metered Capacity (in megawatts)

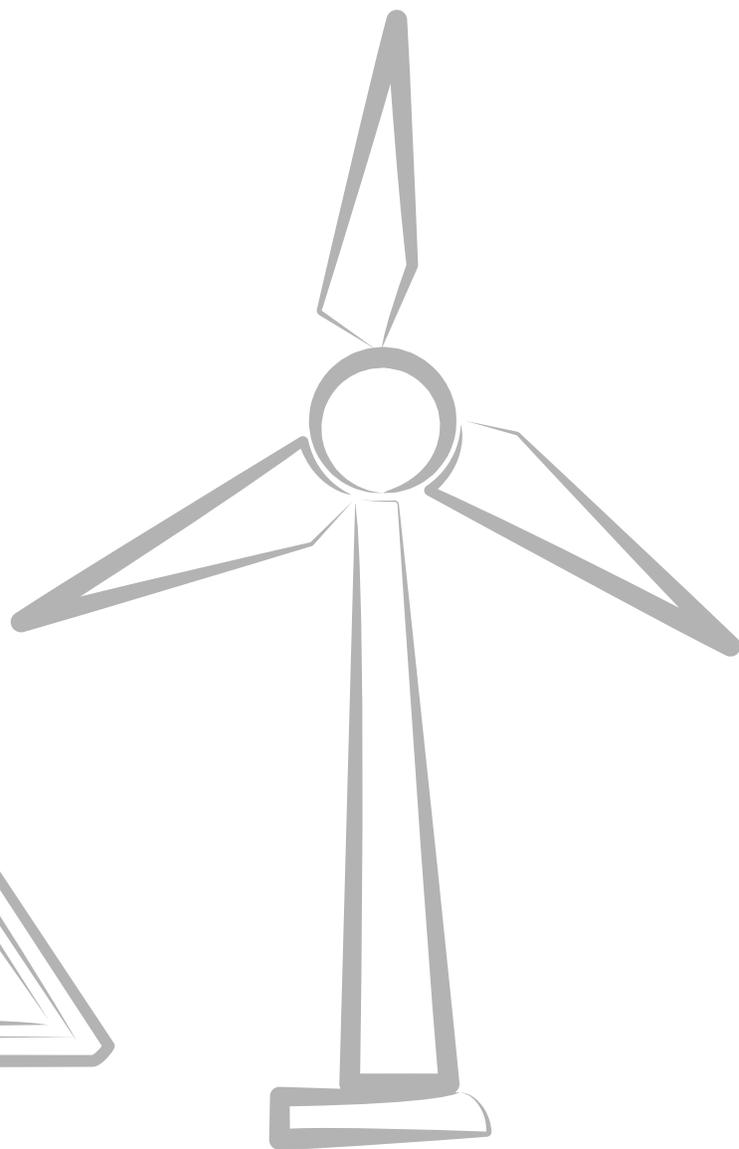
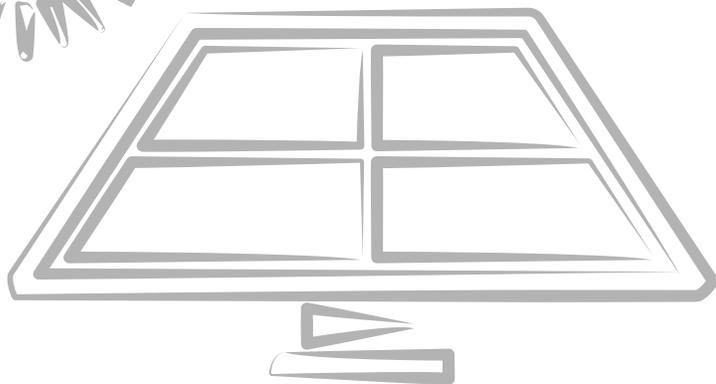
	Solar PV	Wind	Hydroelectric	Fuel Cells	Internal Combustion	Combustion Turbine	Other
Residential	277.33	2.58	5.42	0.15	69.43	0.07	0.06
Commercial	598.45	18.40	44.45	12.79	910.15	75.85	37.35
Industrial	188.88	1.44	5.50	3.96	336.97	24.57	16.27
Direct Connected	125.10	13.37	133.36	0.63	91.16	8.55	3.31
Total	1,189.77	35.79	188.74	17.53	1,407.71	109.04	57.55

Conclusion

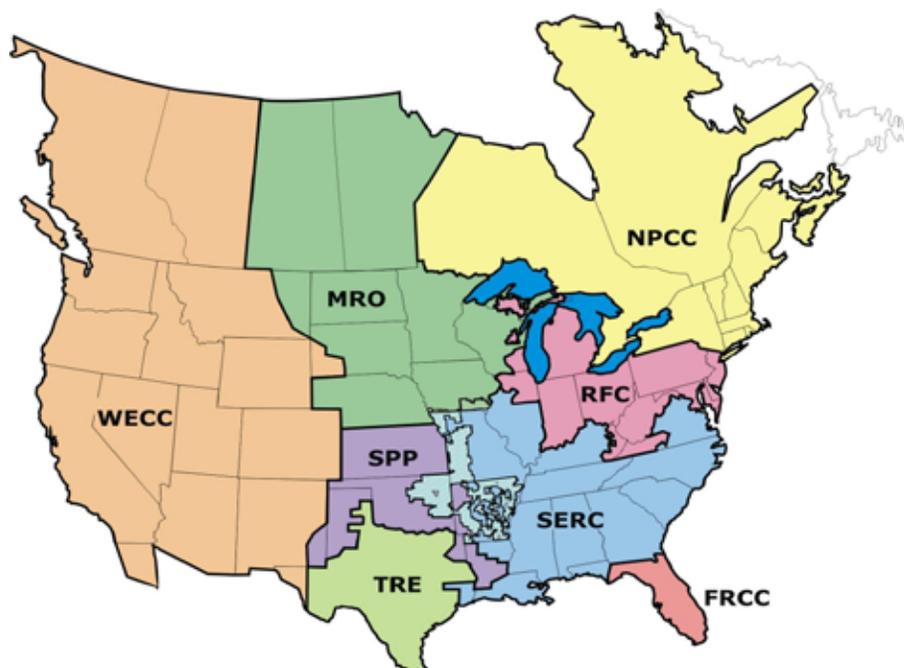
There is a continued trend of new utility-scale generation coalescing around three primary fuel types: wind, solar, and natural gas. These three resources account for well over 90 percent of the generation capacity either being constructed in the United States or being developed. These three resources also account for a significant majority of the generating capacity that has come online in the past few years.

The amount of proposed, currently under construction, and recently added wind and solar generating capacity continues to increase at a steady rate. Most of the new generating capacity in development is from these two resources, and together accounted for a slight majority of the capacity added in 2019. Comparatively, in 2018, natural gas alone accounted for two-thirds of the capacity added.

While capacity additions have fluctuated by fuel type over the past several years, the data suggest the three dominant fuel types will continue to be natural gas, wind, and solar, with little else currently in the mix.



Appendix 1: NERC Regions



This report uses regions defined by the North American Electric Reliability Council:

ASCC - Alaska Systems Coordinating Council (not shown on map)

FRCC - Florida Reliability Coordinating Council

HCC - Hawaii Coordinating Council (not shown on map)

NPCC - Northeast Power Coordinating Council

MRO - Midwest Reliability Organization

RFC - Reliability First Corporation

SERC - Southeastern Electric Reliability Council

SPP - Southwest Power Pool

TRE - Texas Reliability Entity*

WECC - Western Electricity Coordinating Council

* The Independent System Operator that operates the electric grid for nearly all of the state of Texas is the Electric Reliability Council of Texas (ERCOT), and is the name used for this region in the report. The Texas Reliability Entity (TRE) monitors and enforces compliance with reliability standards for NERC.