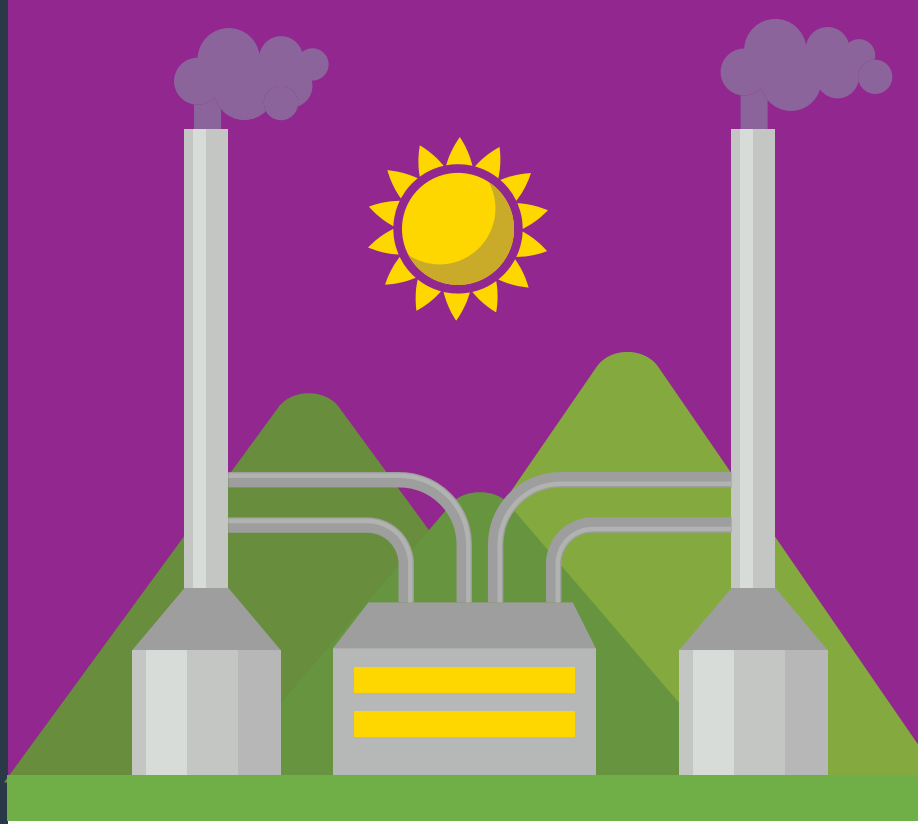
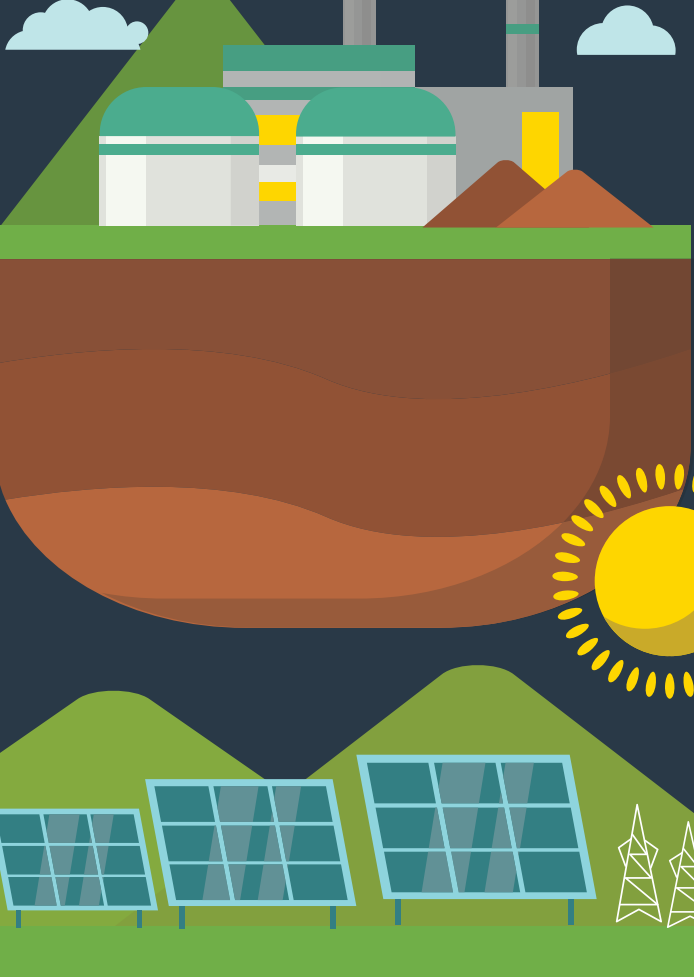


AMERICAN  
**PUBLIC  
POWER**  
ASSOCIATION

Powering Strong Communities



# AMERICA'S ELECTRICITY GENERATION CAPACITY

2023 UPDATE



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## 2023 UPDATE

Prepared by  
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American Public Power Association  
May 2023



Powering Strong Communities

The American Public Power Association is the voice of not-for-profit, community-owned utilities that power 2,000 towns and cities nationwide. We represent public power before the federal government to protect the interests of the more than 49 million people that public power utilities serve, and the 96,000 people they employ. More at [www.PublicPower.org](http://www.PublicPower.org).

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# EXECUTIVE SUMMARY

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

**Generation capacity** refers to the maximum potential power output of an electricity generation source, i.e., 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 facility, and is measured in megawatt-hours (MWh). This report covers generation capacity only.

All capacity figures in this report only represent utility-scale capacity and do not include distributed and other small-scale generating capacity.

This year we also included American Samoa, Puerto Rico, Guam, and the Virgin Islands in our analysis.

## Current Capacity

Currently, the U.S. has nearly 1.3 million megawatts generation capacity. The largest fuel source is natural gas, accounting for just under 44% of all generation capacity. Coal, with a share of 17%, represents the second largest source of generation capacity. Wind, nuclear, hydro, and solar together account for more than one-third of capacity.

## Under Development

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

Over 466,000 MW of new generation capacity is under development in the United States — a 13% increase over 2022, and the second year in a row with an increase in capacity over 10%. Of this capacity, 129,742 MW is under construction or permitted, and 338,373 MW is proposed or pending application.

A 49% plurality of all new generation capacity under development is for solar energy, followed by wind (34%) and natural gas (9%). However, three quarters of the wind capacity is in the "proposed" stage, which is the earliest and most uncertain stage of development and includes units that are least likely to be built. Sixty-one percent of the

generation capacity most likely to come online, permitted plants and plants that are under construction, are in solar

A large majority of all future capacity is owned by non-utility generators.

## Surge of Solar and Wind

Solar capacity has increased dramatically — with nearly 38,000 MW gained since the beginning of 2020, and over 27,000 MW under construction and projected to come online in 2023, a 32% increase from the current U.S. solar capacity and a 147% increase since the beginning of 2020. For the second year in a row, solar was the leading source of new utility-scale capacity.

The net gain of wind capacity since the beginning of 2020 is over 39,000 MW, which is a 37% increase over the past three years.

Solar and wind are also the top resources in all four future capacity addition categories. Over 227,000 MW of solar capacity is proposed, pending application, permitted, or currently under construction, and there is nearly 158,000 MW of wind capacity in the pipeline.

## Retirements and Cancellations

This report also provides information on retirements and planned retirements and cancellations over the past several years. More than 30,000 MW of planned capacity developments were canceled in 2022. Wind and natural gas projects account for more than half of the cancellations from 2015-2022.

Capacity additions (27,755 MW) outpace the total capacity retired (16,121 MW) in 2022. A majority (78%) of the capacity retired in 2022 was from coal-fired facilities, with nearly 13,000 MW retired. Coal retirements in 2022 are double the capacity of coal plants retired in 2021. More than 41,000 MW in coal capacity is planned to be retired through 2027, which represents nearly a fifth of the current generating capacity of all coal-fired facilities.

*Data analyzed for this report was taken from the Hitachi Energy Velocity Suite database, accessed January and February 2023.*

# 1. Current Generation Capacity

Current nameplate capacity includes capacity labeled as operating and restarted as well as capacity that is on standby and mothballed.

**Table 1.1** shows the sources from which electricity is currently generated in the U.S. Natural gas facilities make up a plurality of America's current capacity, followed by coal, wind, and nuclear resources.

**Table 1.1**  
**2023 Electric Generation Capacity, by Fuel Type**

Fuel Type	Nameplate Capacity (MW)	Share
Natural Gas	558,041.86	43.70%
Coal	218,328.17	17.10%
Wind	144,808.58	11.34%
Nuclear	102,434.09	8.02%
Hydro	101,330.28	7.93%
Solar	83,164.14	6.51%
Distillate Fuel Oil	23,099.14	1.81%
Residual Fuel Oil	16,898.20	1.32%
Wood/Wood Waste Solids	4,838.26	0.38%
Wood Waste Liquids	4,548.05	0.36%
Geothermal	4,076.89	0.32%
Waste	2,632.94	0.21%
Petroleum Coke	2,412.70	0.19%
Landfill Gas	2,262.75	0.18%
Kerosene	2,088.40	0.16%
Other Gas	1,425.15	0.11%
Waste Heat	1,285.03	0.10%
Blast Furnace Gas	855.70	0.07%
Biomass Gases	524.52	0.04%
Other	452.74	0.04%
Jet Fuel	390.94	0.03%
Purchased Steam	344.50	0.03%
Agriculture Byproduct	283.90	0.02%
Biomass Liquids	190.29	0.01%
Waste Oil and Other Oil	142.31	0.01%
Biomass Solids	140.16	0.01%
Liquified Natural Gas	50.63	0.00%
Liquified Propane Gas	21.00	0.00%
Biomass Other	15.40	0.00%
Refuse	15.40	0.00%
Propane	3.43	0.00%
<b>Total</b>	<b>1,277,105.53</b>	

**Table 1.2** shows how America's current generation capacity is distributed throughout different regions of the U.S. These regions include both current and former defined regions of the North American Electric Reliability Corporation as well as U.S. territories, in accordance with how the Electricity Information Administration collects and reports this information.

**Table 1.2**  
**2023 Current Electricity Generation Capacity, by Region**

Region	Nameplate Capacity (MW)	Share
SERC	371,170.83	29.06%
WECC	248,292.02	19.44%
RFC	246,342.16	19.29%
ERCOT	140,766.93	11.02%
SPP	86,237.58	6.75%
NPCC	85,572.18	6.70%
MRO	84,107.33	6.59%
U.S. Territories	7,984.32	0.63%
HCC	3,354.03	0.26%
ASCC	3,278.16	0.26%
<b>Total</b>	<b>1,277,105.53</b>	

## Regions

(see map in Appendix)

**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

**U.S. Territories:** These areas are not a part of NERC, but are included in the total electricity generation, including Puerto Rico, American Samoa, Guam, and the Virgin Islands.

**Table 1.3** shows the utility-scale capacity additions from 2015-2022. More than 97% of the 234,845 MW in additions were from natural gas, wind, and solar facilities.

**Table 1.3**  
**Generation Capacity Additions by Fuel Type, 2015-2022**

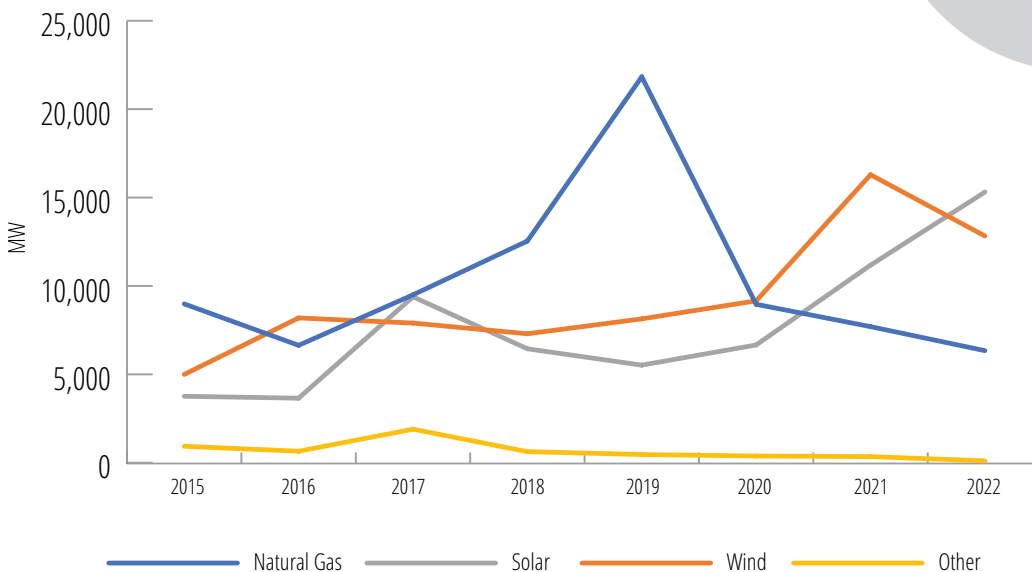
Fuel Type	Nameplate Capacity (MW)	Share	Fuel Type	Nameplate Capacity (MW)	Share
Natural Gas	80,072.02	34.10%	Liquefied Natural Gas	50.63	0.02%
Wind	80,017.79	34.07%	Biomass Liquids	50.00	0.02%
Solar	69,823.04	29.73%	Other	33.20	0.01%
Nuclear	1,286.90	0.55%	Other Gas	23.95	0.01%
Hydro	1,183.70	0.50%	Coal	22.50	0.01%
Distillate Fuel Oil	595.05	0.25%	Liquefied Propane Gas	21.00	0.01%
Wood/Wood Waste Solids	559.51	0.24%	Biomass Solids	8.70	0.00%
Geothermal	479.90	0.20%	Biomass Other	6.34	0.00%
Landfill Gas	156.90	0.07%	Jet Fuel	2.00	0.00%
Biomass Gases	144.50	0.06%	Propane	1.80	0.00%
Waste	116.29	0.05%			
Waste Heat	114.60	0.05%			
Wood Waste Liquids	75.00	0.03%			
			<b>Total</b>	<b>234,845.31</b>	

**Figure 1.1** shows the capacity additions by fuel type from 2015-2022.

Between 2016 and 2019, natural gas was the leading resource. In 2020, more solar and wind capacity came on-line than natural gas. Since 2021, more solar capacity has come online than any other energy source. The share of natural gas has increased slightly over the past year.

**Since 2021, more solar capacity has come online than any other source.**

**Figure 1.1 Capacity Additions by Year, 2015-2022**



**Table 1.4** shows the fuel types of the nearly 28,000 MW of generation capacity that began operating in 2022. Wind and solar make up over three-quarters of the new capacity. This continues a trend where solar and wind make up an ever-increasing share of new generation capacity. Natural gas makes up 23% of the new capacity, which is a 6% increase from 2021.

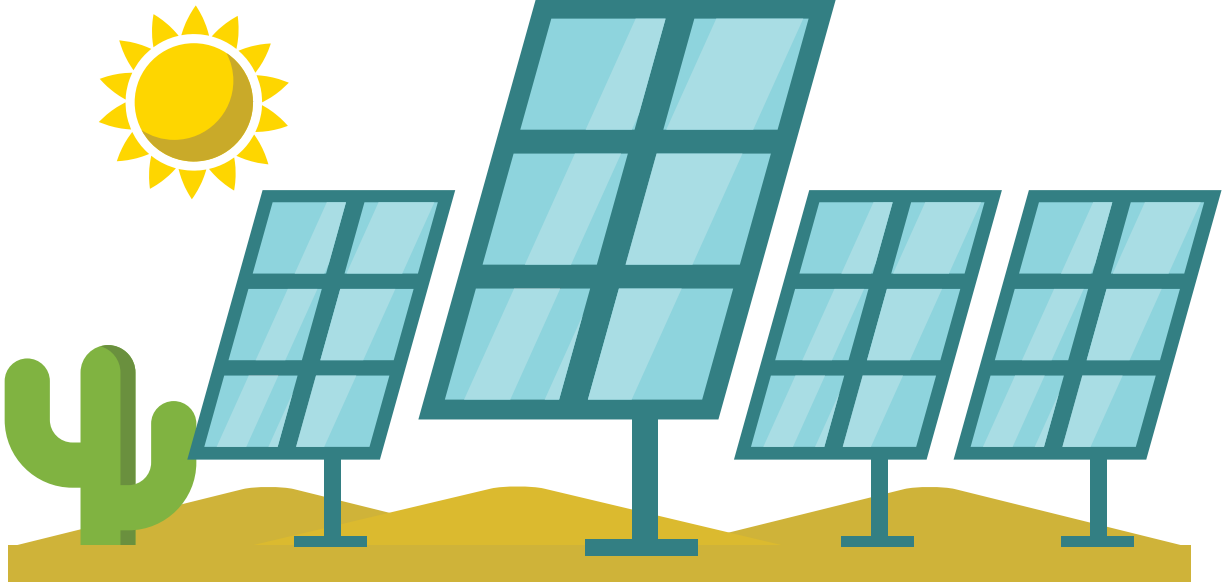
**Table 1.4**  
**Generation Capacity Additions by Fuel Type, 2022**

Fuel Type	Nameplate Capacity (MW)	Share
Solar	11,381.62	41.01%
Wind	9,933.26	35.79%
Natural Gas	6,275.70	22.61%
Geothermal	89.90	0.32%
Distillate Fuel Oil	26.60	0.10%
Hydro	17.04	0.06%
Wood/Wood Waste Solids	12.60	0.05%
Landfill Gas	10.78	0.04%
Biomass Gases	4.70	0.02%
Biomass Other	3.00	0.01%
<b>Total</b>	<b>27,755.20</b>	

**Table 1.5** shows the 46,848 MW of capacity that are under preparation, testing, and construction and scheduled to come online in 2023. The largest share of capacity slated to come online in 2023 is from solar facilities, which make up 58% of this group. This is 15,680 MW more solar scheduled to come online in 2023 than what came online in 2022. Natural gas and wind capacity make up 40% of projected new capacity in 2023.

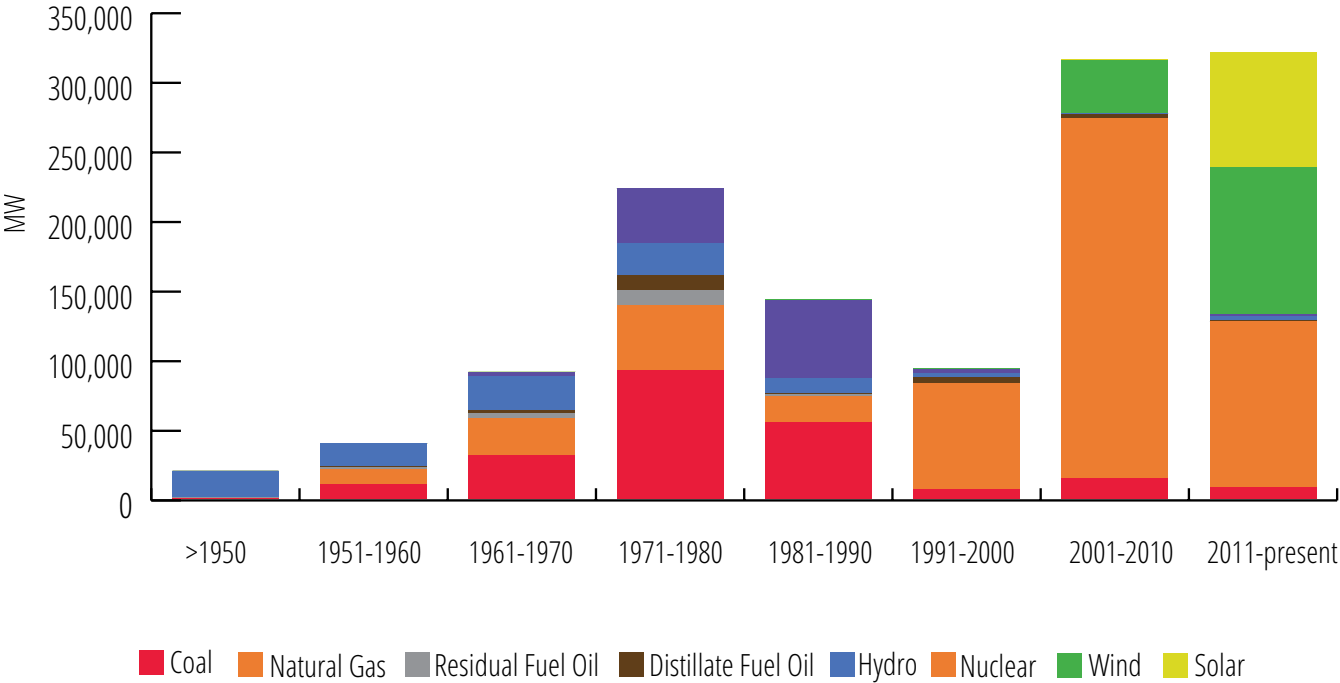
**Table 1.5**  
**Projected Generation Capacity Additions, 2023**

Fuel Type	Nameplate Capacity (MW)	Share
Solar	27,061.01	57.76%
Natural Gas	9,963.20	21.27%
Wind	8,562.95	18.28%
Nuclear	1,100.00	2.35%
Geothermal	37.00	0.08%
Hydro	38.06	0.08%
Biomass Solids	36	0.08%
Waste Heat	28.6	0.06%
Distillate Fuel Oil	9.9	0.02%
Biomass Gases	4.8	0.01%
Landfill Gas	4.6	0.01%
Other	2.80	0.01%
Biomass Other	2	0.00%
<b>Total</b>	<b>46,848.11</b>	



**Figure 1.2** shows the age of generating capacity facilities by fuel type. Most hydro and coal facilities are at least 40 years old, having come online by 1980. Almost all domestic nuclear capacity became operational between 1969-1990. While natural gas capacity dates to the 1950s, the bulk of natural gas capacity is less than 25 years old. Most solar and wind capacity came online in the past 10 years.

**Figure 1.2 Age of Electric Generation Facilities, by Type**





## 2. Future Generating Capacity by Development Stage

Tables 2.1–2.4 show the fuel makeup of generation capacity under construction, permitted, with an application pending, or proposed.

Table 2.1 shows the sources for the 60,491 MW of generation capacity under construction. Wind and solar account for more than three-quarters of the capacity under construction, with natural gas making up nearly all the rest. Solar makes up 15% more of the fuel share than it did in 2022, and 10,000 MW more solar facilities are under construction in 2023 than were in this phase last year.

**Table 2.1**  
Plants Under Construction, by Fuel Type

Fuel Type	Nameplate Capacity (MW)	Share
Solar	33,295.87	55.04%
Wind	12,847.45	21.24%
Natural Gas	11,913.80	19.70%
Nuclear	2,200.00	3.64%
Biomass Solids	51.00	0.08%
Hydro	40.57	0.07%
Geothermal	37.00	0.06%
Wood/Wood Waste Solids	28.80	0.05%
Waste Heat	28.60	0.05%
Biomass Gases	25.80	0.04%
Distillate Fuel Oil	9.90	0.02%
Landfill Gas	4.60	0.01%
Waste Oil and Other Oil	3.00	0.00%
Other	2.80	0.00%
Biomass Other	2.00	0.00%
<b>Total</b>	<b>60,491.19</b>	

**10,000 MW more solar facilities are under construction in 2023 than were in this phase last year.**

Table 2.2 shows the fuel makeup for plants that have received permits but have not yet started construction. Solar is the leading resource choice for permitted plants, accounting for more than two-thirds of the 67,228 MW of permitted capacity. Wind and natural gas account for another 29% of capacity in this category. The total permitted capacity is more than 11,000 MW higher than what was in the permitted phase in 2022.

**Table 2.2**  
Permitted Plants, by Fuel Type

Fuel Type	Nameplate Capacity (MW)	Share
Solar	44,565.48	66.29%
Wind	11,214.76	16.68%
Natural Gas	7,990.26	11.89%
Hydro	2,867.85	4.27%
Nuclear	360.00	0.54%
Geothermal	180.00	0.27%
Agriculture Byproduct	49.90	0.07%
<b>Total</b>	<b>67,228.25</b>	

Table 2.3 shows the fuel mix for the 67,032 MW of capacity awaiting approval of applications. Solar makes up a majority of the capacity in this category, with wind accounting for another quarter.

**Table 2.3**  
Plants Pending Application, by Fuel Type

Fuel Type	Nameplate Capacity (MW)	Share
Solar	41,029.95	61.21%
Wind	17,320.16	25.84%
Natural Gas	5,165.42	7.71%
Hydro	3,477.28	5.19%
Geothermal	40.00	0.06%
<b>Total</b>	<b>67,032.80</b>	

SECTION 2: FUTURE GENERATING CAPACITY BY DEVELOPMENT STAGE

**Table 2.4** shows the resource mix for the 271,340 MW of capacity in the proposal stage. This is the earliest and most uncertain stage of development and includes units that are least likely to be built. Over 116,000 MW — 43% — of the proposed capacity is wind, followed by over 108,000 MW of solar.

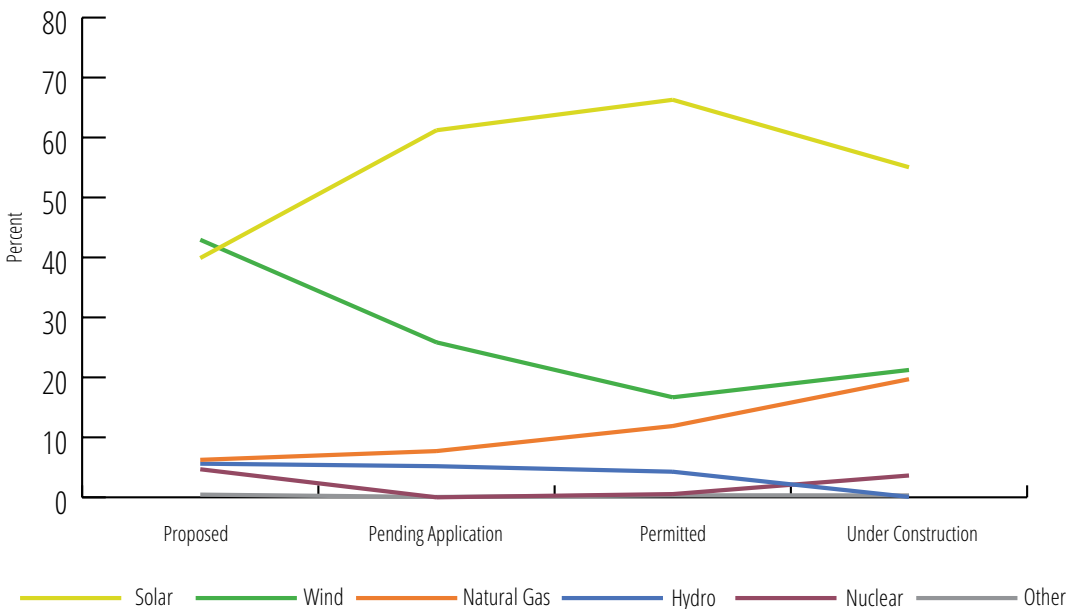
**Table 2.4**  
**Proposed Plants, by Fuel Type**

Fuel Type	Nameplate Capacity (MW)	Share
Wind	116,536.03	42.95%
Solar	108,208.01	39.88%
Natural Gas	16,971.50	6.25%
Hydro	15,213.43	5.61%
Nuclear	12,707.40	4.68%
Residual Fuel Oil	632.40	0.23%
Other	587.58	0.22%
Other Gas	300.00	0.11%
Geothermal	108.20	0.04%
Waste Heat	71.50	0.03%
Distillate Fuel Oil	3.00	0.00%
Biomass Other	0.93	0.00%
<b>Total</b>	<b>271,339.98</b>	



**Figure 2.1** tracks the major fuel sources in each stage of development. This chart shows that past the proposal process, solar dominates the share of new capacity. The share of wind capacity falls during the proposal to permitting process. Natural gas' share of capacity increases at later stages of development.

**Figure 2.1 Share of Fuel Type by Stage of Development, 2023**



# 3. Future Generating Capacity by Region

Tables 3.1–3.4 show new plants that are under construction or planned for construction in each region (See Appendix for definition of regions and included states).

Table 3.1 shows that SERC and WECC account for a majority (54%) of the capacity under construction, while another 34% are in RFC and ERCOT. The increase in capacity under construction predominantly comes from a 5,776 MW increase in SERC.

**Table 3.1**  
Plants Under Construction, by Region

Region	Nameplate Capacity (MW)	Share
SERC	19,285.76	31.88%
WECC	13,466.69	22.26%
RFC	10,737.77	17.75%
ERCOT	10,066.33	16.64%
NPCC	2,678.54	4.43%
MRO	2,537.93	4.20%
SPP	1,494.28	2.47%
HCC	196.50	0.32%
U.S. Territories	27.40	0.05%

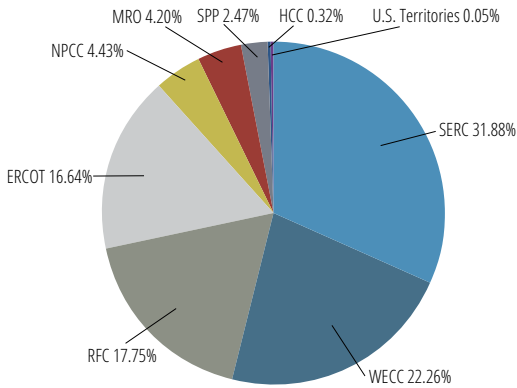
**Total** **60,491.19**

Table 3.2 shows ERCOT has the most capacity permitted, followed by RFC, SERC, and WECC.

**Table 3.2**  
Permitted Plants, by Region

Region	Nameplate Capacity (MW)	Share
ERCOT	26,397.10	39.26%
RFC	13,557.45	20.17%
SERC	9,655.76	14.36%
WECC	9,526.20	14.17%
MRO	4,129.88	6.14%
NPCC	2,695.86	4.01%
SPP	1,119.60	1.67%
HCC	97.00	0.14%
ASCC	29.40	0.04%
U.S. Territories	20.00	0.03%

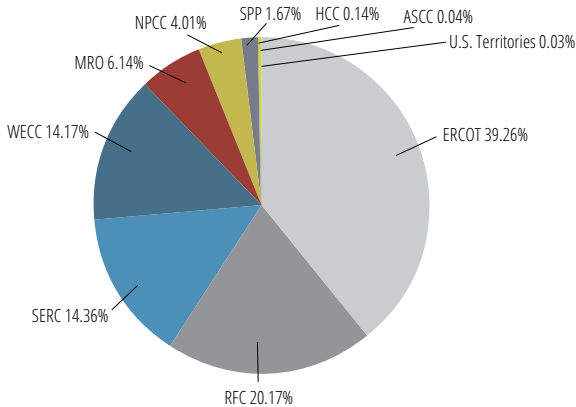
**Total** **67,228.25**



### Regions

(see map in Appendix)

- 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
- U.S. Territories:** These areas are not a part of NERC, but are included in the total electricity generation, including Puerto Rico, American Samoa, Guam, and the U.S. Virgin Islands.

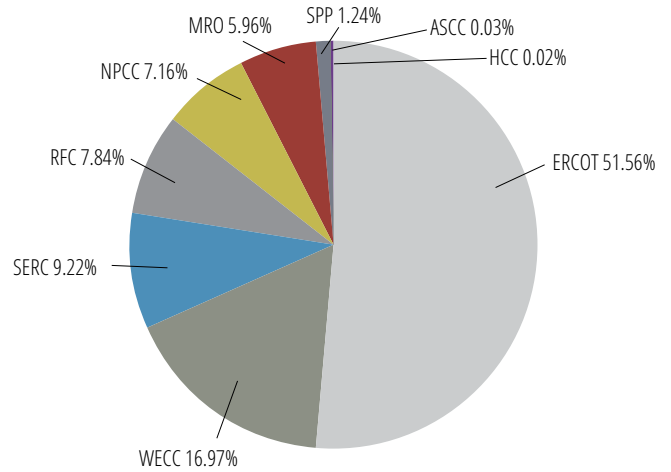


**SECTION 3: FUTURE GENERATING CAPACITY BY REGION**

**Tables 3.3 and 3.4** show plants in the pending application and proposed categories. ERCOT has a majority of the capacity in the pending application stage (52%), while NPCC has the largest share of capacity in the proposed stage (35%).

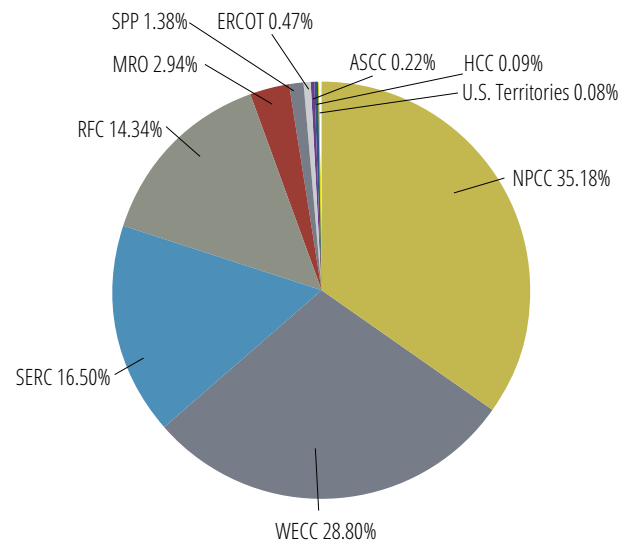
**Table 3.3  
Plants Pending Application, by Region**

Region	Nameplate Capacity (MW)	Share
ERCOT	34,563.77	51.56%
WECC	11,375.10	16.97%
SERC	6,177.23	9.22%
RFC	5,253.60	7.84%
NPCC	4,798.82	7.16%
MRO	3,997.45	5.96%
SPP	832.04	1.24%
ASCC	19.80	0.03%
HCC	15.00	0.02%
<b>Total</b>	<b>67,032.80</b>	



**Table 3.4  
Proposed Plants, by Region**

Region	Nameplate Capacity (MW)	Share
NPCC	95,469.95	35.18%
WECC	78,136.86	28.80%
SERC	44,760.00	16.50%
RFC	38,921.14	14.34%
MRO	7,978.81	2.94%
SPP	3,741.10	1.38%
ERCOT	1,267.60	0.47%
ASCC	600.00	0.22%
HCC	250.52	0.09%
U.S. Territories	214.00	0.08%
<b>Total</b>	<b>271,339.98</b>	



## SECTION 3: FUTURE GENERATING CAPACITY BY REGION

**Table 3.5** shows the share of future generation by region compared with generation in 2022 in each of those regions. SERC, which generates a third of electricity in the U.S., has the highest share of plants under construction. ERCOT, which generates 11% of electricity in the U.S., has the highest share of permitted plants and plants pending application.

**Table 3.5**  
**New Capacity Compared to Current Generation, by Region**

Region	Under Construction		Permitted Plants		Pending Application		Proposed		2022 U.S. Generation	
	MW	Share	MW	Share	MW	Share	MW	Share	MWh (in millions)	Share
SERC	19,286	32%	9,656	14%	6,177	9%	44,760	17%	1,271.4	33%
WECC	13,467	22%	9,526	14%	11,375	17%	78,137	29%	630.7	16%
RFC	10,738	18%	13,557	20%	5,254	8%	38,921	14%	891.3	23%
ERCOT	10,066	17%	26,397	39%	34,564	52%	1,268	0%	420.6	11%
NPCC	2,679	4%	2,696	4%	4,799	7%	95,470	35%	213.2	6%
MRO	2,538	4%	4,130	6%	3,997	6%	7,979	3%	211.0	5%
SPP	1,494	2%	1,120	2%	832	1%	3,741	1%	211.9	5%
HCC	197	0%	97	0%	15	0%	251	0%	8.3	0%
ASCC	-	-	29	0%	20	0%	600	0%	1.0	0%
U.S. Territories	27	0%	20	0%	-	-	214	0%	-	-

2022 Generation Source: Hitachi Energy Velocity Suite Database, accessed April 2023. Does not include U.S. territories.



Tables 3.6 and 3.7 show the fuels of choice for proposed capacity by development stage.

As seen in Table 3.6, for plants most likely to be built — those already under construction or permitted — solar, wind, and natural gas account for over 95% of this capacity. Solar makes up nearly two-thirds of this capacity.

**Table 3.6**  
**Permitted Plants and Plants Under Construction, by Fuel Type**

Fuel Type	Nameplate Capacity (MW)	Share
Solar	77,861.35	60.96%
Wind	24,062.21	18.84%
Natural Gas	19,904.06	15.58%
Hydro	2,908.42	2.28%
Nuclear	2,560.00	2.00%
Geothermal	217.00	0.17%
Biomass Solids	51.00	0.04%
Agriculture Byproduct	49.90	0.04%
Wood/Wood Waste Solids	28.80	0.02%
Waste Heat	28.60	0.02%
Biomass Gases	25.80	0.02%
Distillate Fuel Oil	9.90	0.01%
Landfill Gas	4.60	0.00%
Waste Oil and Other Oil	3.00	0.00%
Other	2.80	0.00%
Biomass Other	2.00	0.00%
<b>Total</b>	<b>127,719.43</b>	

Four regions — ERCOT, SERC, RFC, and WECC — together account for approximately 88% of the capacity under construction and permitted. Solar is the leading resource in all four regions, followed by wind in ERCOT and WECC and natural gas in SERC and RFC. All 2,560 MW of nuclear power capacity under construction or permitted is in SERC, and over 90% of the 2,908 MW of hydropower is in WECC.

As seen in Table 3.7, solar is the leading resource for proposed and pending application capacity, with wind making up most of the remaining capacity.

**Table 3.7**  
**Plants Pending Application and Proposed, by Fuel Type**

Fuel Type	Nameplate Capacity (MW)	Share
Solar	149,237.95	44.10%
Wind	133,856.19	39.56%
Natural Gas	22,136.92	6.54%
Hydro	18,690.71	5.52%
Nuclear	12,707.40	3.76%
Residual Fuel Oil	632.40	0.19%
Other	587.58	0.17%
Other Gas	300.00	0.09%
Geothermal	148.20	0.04%
Waste Heat	71.50	0.02%
Distillate Fuel Oil	3.00	0.00%
Biomass Other	0.93	0.00%
<b>Total</b>	<b>338,372.78</b>	

For the third consecutive year, a renewable resource is the leading resource in every region in this category. Solar is the leading resource proposed or pending application in ERCOT, HCC, RFC, SERC, SPP, WECC, and in Guam and Puerto Rico. Wind is the primary resource in MRO and NPCC, and hydro is the only resource proposed or pending application in ASCC.

## 4. Future Generating Capacity by Ownership Type

Tables 4.1–4.4 summarize the future generating capacity based on ownership. Non-utility generators account for most of the capacity in all four categories. Investor-owned utilities have more than doubled their capacity under construction since 2022.

**Table 4.1**  
**Plants Under Construction, by Owner Type**

Owner Type	Nameplate Capacity (MW)	Share
Non-utility generators	45,774.89	75.67%
Investor-owned	9,952.00	16.45%
Co-op	3,735.90	6.18%
Public power	1,027.30	1.70%
Federal	1.10	0.00%
<b>Total</b>	<b>60,491.19</b>	

**Table 4.2**  
**Permitted Plants, by Owner Type**

Owner Type	Nameplate Capacity (MW)	Share
Non-utility generators	62,185.25	92.50%
Investor-owned	3,924.30	5.84%
Public power	757.20	1.13%
Federal	360.00	0.54%
Co-op	1.50	0.00%
<b>Total</b>	<b>67,228.25</b>	

**Table 4.3**  
**Plants Pending Application, by Owner Type**

Owner Type	Nameplate Capacity (MW)	Share
Non-utility generators	64,946.60	96.89%
Investor-owned	1,811.20	2.70%
Co-op	275.00	0.41%
<b>Total</b>	<b>67,032.80</b>	

Non-utility generators have nearly 31,000 MW more capacity in proposed plants than they did in 2022.

**Table 4.4**  
**Proposed Plants, by Owner Type**

Owner Type	Nameplate Capacity (MW)	Share
Non-utility generators	252,578.42	93.09%
Investor-owned	8,628.77	3.18%
Federal	5,313.00	1.96%
Public power	4,309.79	1.59%
Co-op	510.00	0.19%
<b>Total</b>	<b>271,339.98</b>	

**Investor-owned utilities have more than doubled their capacity under construction since 2022.**

## 5. Future Generating Capacity by Regional Transmission Organization

Tables 5.1–5.4 show future generating capacity by regional transmission organization (RTO). A significant plurality of the proposed and under construction capacity is slated to be constructed in non-RTO regions. The Electric Reliability Council of Texas (ERCOT) is the RTO with the most capacity in the application pending and permitted stages.

**Table 5.1**  
**Plants Under Construction, by RTO**

RTO	Nameplate Capacity (MW)	Share
Non-RTO	24,641.44	40.74%
Midcontinent ISO	10,810.17	17.87%
ERCOT	10,066.33	16.64%
PJM	6,785.08	11.22%
California ISO	3,720.26	6.15%
SPP	1,789.08	2.96%
New York ISO	1,636.78	2.71%
New England ISO	1,042.06	1.72%
<b>Total</b>	<b>60,491.19</b>	

**Table 5.2**  
**Permitted Plants, by RTO**

RTO	Nameplate Capacity (MW)	Share
ERCOT	26,786.00	39.84%
PJM	16,279.07	24.21%
Non-RTO	10,336.56	15.38%
Midcontinent ISO	5,373.57	7.99%
California ISO	3,361.30	5.00%
SPP	2,403.15	3.57%
New York ISO	2,333.10	3.47%
New England ISO	355.50	0.53%
<b>Total</b>	<b>67,228.25</b>	

**Table 5.3**  
**Plants Pending Application, by RTO**

RTO	Nameplate Capacity (MW)	Share
ERCOT	34,766.31	51.86%
Non-RTO	11,408.67	17.02%
PJM	7,293.81	10.88%
Midcontinent ISO	5,743.56	8.57%
New York ISO	2,768.49	4.13%
New England ISO	2,024.72	3.02%
California ISO	1,794.30	2.68%
SPP	1,232.95	1.84%
<b>TTotal</b>	<b>67,032.80</b>	

**Table 5.4**  
**Proposed Plants, by RTO**

RTO	Nameplate Capacity (MW)	Share
Non-RTO	95,066.78	35.04%
New York ISO	77,774.70	28.66%
PJM ISO	39,432.82	14.53%
Midcontinent ISO	25,658.26	9.46%
California ISO	15,503.21	5.71%
New England ISO	11,784.99	4.34%
SPP	5,031.63	1.85%
ERCOT ISO	1,087.60	0.40%
<b>Total</b>	<b>271,339.98</b>	



## 6. Generating Capacity Retirements and Cancellations

**Tables 6.1 and 6.2** show generation capacity retirements by fuel type. From 2015-2022, 153,193 MW of capacity was retired. Over half of this capacity was from coal-fired plants, and over a quarter was in natural gas.

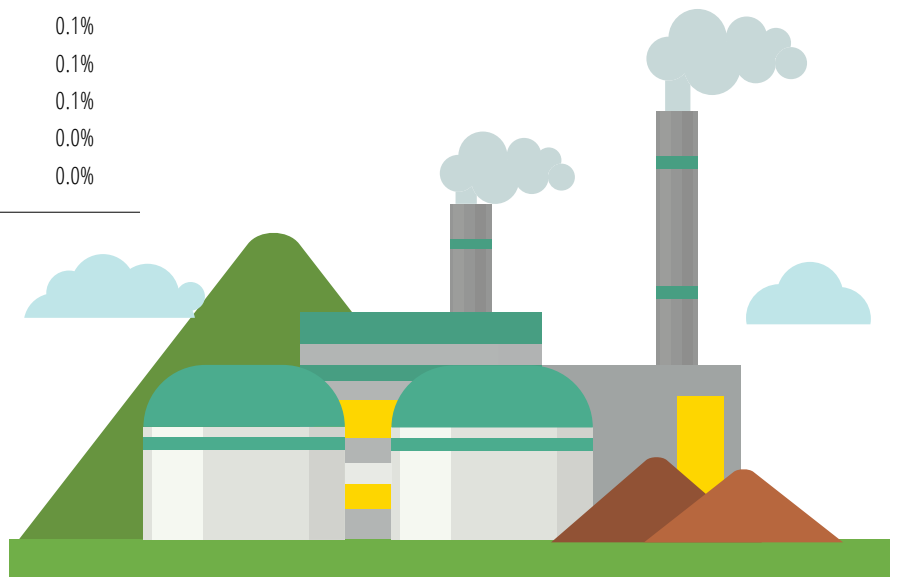
**Table 6.1**  
**Retired Plants by Fuel Type, 2015-2022**

Fuel Type	Nameplate Capacity (MW)	Share
Coal	92,913.51	60.7%
Natural Gas	39,092.83	25.5%
Nuclear	6,696.68	4.4%
Residual Fuel Oil	4,323.00	2.8%
Distillate Fuel Oil	4,004.33	2.6%
Wind	1,410.70	0.9%
Wood/Wood Waste Solids	826.25	0.5%
Hydro	636.75	0.4%
Landfill Gas	590.00	0.4%
Kerosene	403.80	0.3%
Petroleum Coke	364.50	0.2%
Solar	335.30	0.2%
Wood Waste Liquids	309.50	0.2%
Geothermal	251.90	0.2%
Waste	243.30	0.2%
Agriculture Byproduct	130.20	0.1%
Biomass Solids	120.80	0.1%
Waste Heat	111.30	0.1%
Purchased Steam	110.40	0.1%
Other Gas	106.25	0.1%
Blast Furnace Gas	82.00	0.1%
Jet Fuel	82.00	0.1%
Biomass Gases	46.65	0.0%
Other	1.00	0.0%
<b>Total</b>	<b>153,192.94</b>	

Retirements have nearly doubled since 2021, when 8,719 MW was retired. Coal capacity made up nearly 80% of retirements in 2022.

**Table 6.2**  
**Retired Plants by Fuel Type, 2022**

Fuel Type	Nameplate Capacity (MW)	Share
Coal	12,646.10	78.4%
Natural Gas	1,917.50	11.9%
Nuclear	823.00	5.1%
Distillate Fuel Oil	419.80	2.6%
Wind	167.95	1.0%
Landfill Gas	60.05	0.4%
Waste Heat	34.00	0.2%
Kerosene	32.60	0.2%
Wood Waste Liquids	7.50	0.0%
Hydro	6.10	0.0%
Other Gas	5.50	0.0%
Solar	1.70	0.0%
<b>Total</b>	<b>16,121.80</b>	



**SECTION 6: GENERATING CAPACITY RETIREMENTS AND CANCELLATIONS**

**Table 6.3** reflects planned retirements that have been publicly announced over the next 5 years. Nearly 71,000 MW of current operating capacity is scheduled to retire by 2027, over half of which is coal-fired, and just over one-third is natural gas.

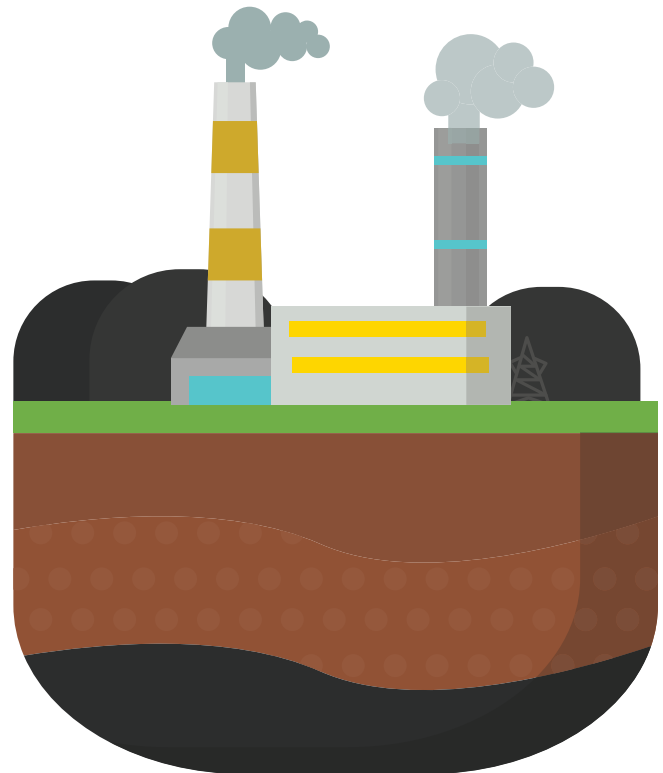
**Table 6.3**  
**Planned Retirements to 2027, by Fuel Type**

Fuel Type	Nameplate Capacity (MW)	Share
Coal	41,327.90	58.26%
Natural Gas	24,746.70	34.89%
Nuclear	2,323.22	3.28%
Residual Fuel Oil	1,276.30	1.80%
Distillate Fuel Oil	524.30	0.74%
Kerosene	238.30	0.34%
Landfill Gas	144.60	0.20%
Waste	138.00	0.19%
Hydro	77.63	0.11%
Wind	42.54	0.06%
Geothermal	35.00	0.05%
Waste Heat	27.30	0.04%
Wood/Wood Waste Solids	13.00	0.02%
Waste Oil and Other Oil	10.20	0.01%
Solar	5.10	0.01%
Biomass Gases	1.30	0.00%
<b>Total</b>	<b>70,931.38</b>	

As shown in **Table 6.4**, 30,619 MW of planned capacity additions were canceled in 2022. Solar, wind, and natural gas make up most of this canceled capacity.

**Table 6.4**  
**Plant Cancellations, 2022**

Fuel Type	Nameplate Capacity (MW)	Share
Solar	10,801.60	35.28%
Wind	8,194.00	26.76%
Natural Gas	7,373.32	24.08%
Nuclear	3,550.00	11.59%
Hydro	525.70	1.72%
Biomass Solids	77.00	0.25%
Geothermal	62.00	0.20%
Distillate Fuel Oil	20.80	0.07%
Biomass Other	10.54	0.03%
Landfill Gas	3.80	0.01%
<b>Total</b>	<b>30,618.76</b>	



**SECTION 6: GENERATING CAPACITY RETIREMENTS AND CANCELLATIONS**

Since 2015, over 360,000 MW of planned capacity additions were ultimately canceled, well above the capacity that was added. Wind and natural gas each represent nearly 30% of this canceled capacity, and solar makes up most of the remaining canceled capacity.

**Table 6.5  
Plant Cancellations, 2015-2022**

Fuel Type	Nameplate Capacity (MW)	Share
Wind	104,314.40	29.0%
Natural Gas	102,620.27	28.5%
Solar	80,917.27	22.5%
Nuclear	25,740.00	7.1%
Hydro	23,257.16	6.5%
Coal	11,799.00	3.3%
Other	3,571.27	1.0%
Geothermal	2,764.40	0.8%
Wood/Wood Waste Solids	1,274.63	0.4%
Petroleum Coke	1,196.00	0.3%
Waste	1,025.10	0.3%
Blast Furnace Gas	500.00	0.1%
Biomass Solids	352.45	0.1%
Landfill Gas	230.06	0.1%
Other Gas	207.50	0.1%
Biomass Gases	103.22	0.0%
Distillate Fuel Oil	102.38	0.0%
Agriculture Byproduct	93.70	0.0%
Biomass Other	67.68	0.0%
Waste Heat	67.64	0.0%
Jet Fuel	60.00	0.0%
Biomass Liquids	19.00	0.0%
<b>Total</b>	<b>360,283.12</b>	

**Since 2015, over 360,000 MW of planned capacity additions were ultimately canceled**



SECTION 6: GENERATING CAPACITY RETIREMENTS AND CANCELLATIONS

Figure 6.1 shows additions, cancellations, and retirements from 2015 to 2022. While additions exceeded retirements, cancellations far exceeded additions. Most cancellations are in wind and natural gas capacity.

Figure 6.1 Additions, Cancellations, and Retirements, 2015-2022

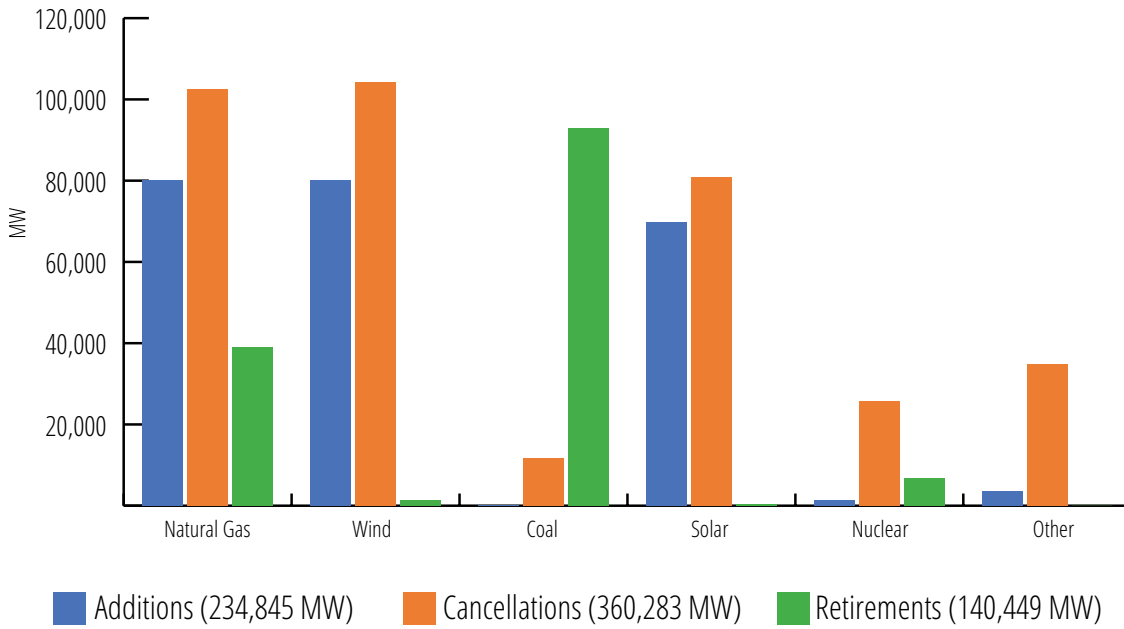
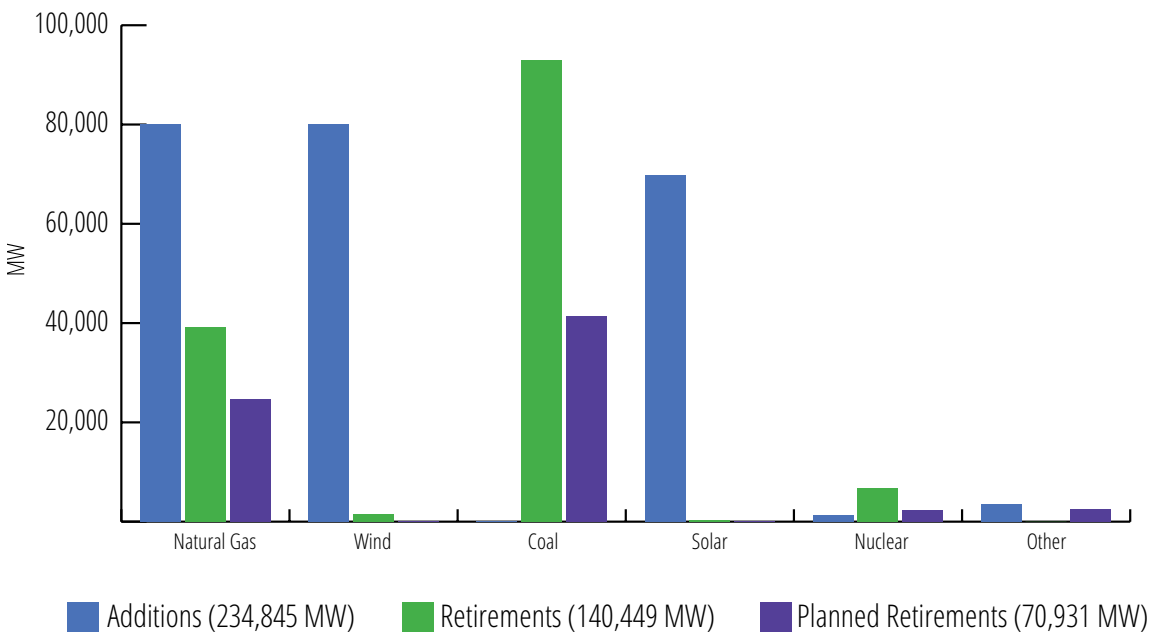
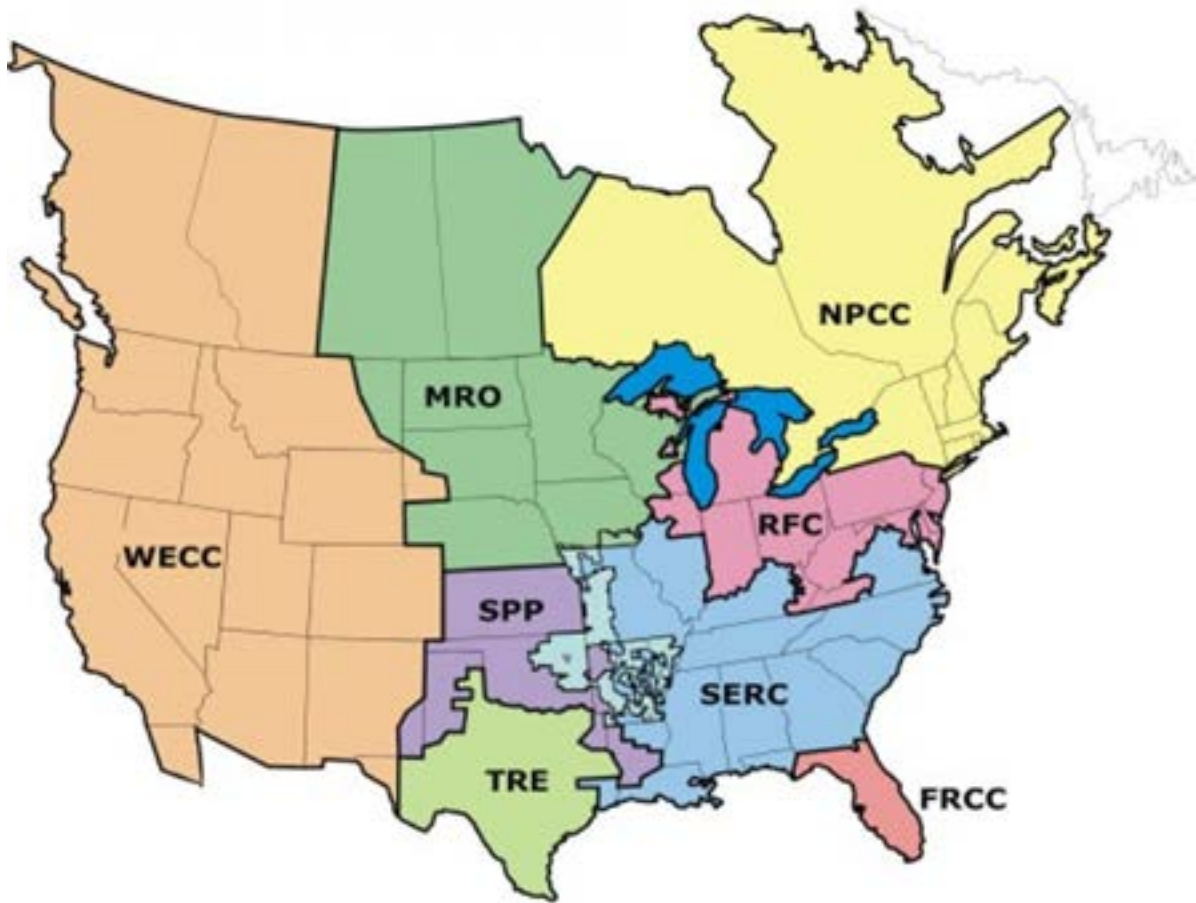


Figure 6.2 shows additions and retirements from 2015-2022 as well as planned retirements to 2027. Additions make up for more than both current as well as planned retirements.

Figure 6.2 Additions and Retirements, 2015-2022, plus Planned Retirements to 2027



## Appendix: Regional Definitions



The regions in this report align with the following current and former regions as 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

U.S. Territories: These regions are not a part of NERC, but are included in the total electricity generation, including Puerto Rico, American Samoa, Guam, and the U.S. Virgin Islands

\* 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.



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