



ENERGY

Electricity Usage

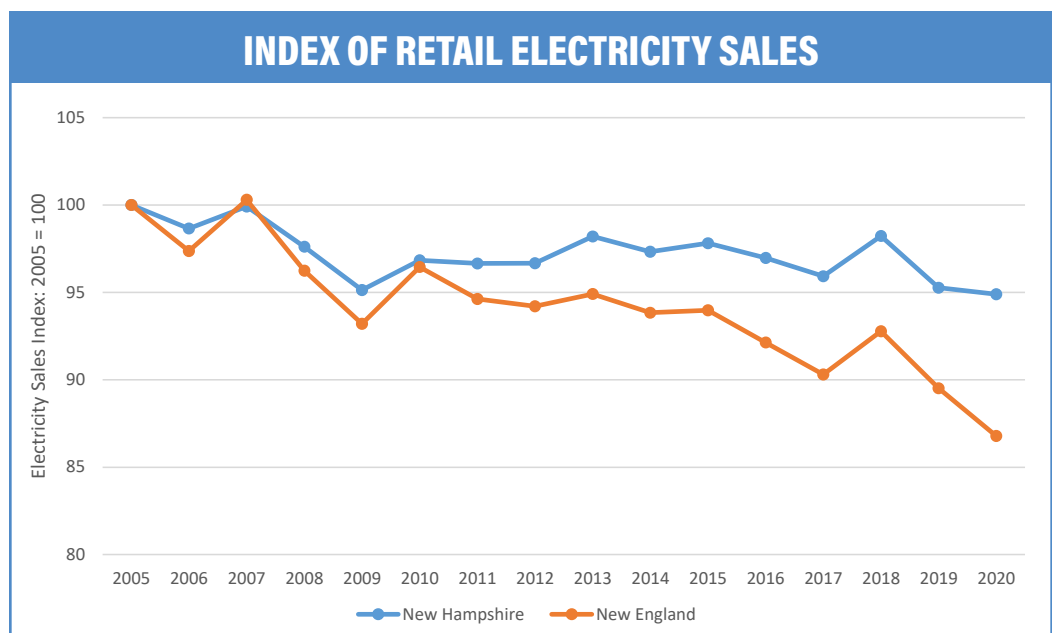
From 2019 to 2020, retail sales of electricity in New Hampshire fell 0.4 percent. Electricity sales have fallen 5.1 percent since 2005, and fallen in four of the last five years. Most of this decline is driven by improved energy efficiency, although the coronavirus pandemic contributed to the decline in 2020, as reduced economic activity decreased electricity usage. Commercial electricity sales were most affected by the pandemic, declining 5.8 percent from 2019 to 2020. Industrial electricity sales fell 2.7 percent, while residential sales increased 6.1 percent, the largest increase since 2002. Residential electricity sales increased as a result of pandemic-related changes to work, school, and commuting patterns. New Hampshire residents were more likely to stay home during the pandemic; many residents either weren't working or shifted to working or attending school from home, resulting in increased residential electricity usage.

The decrease in retail electricity sales was smaller in New Hampshire than in New England overall. In New England, retail electricity sales fell 3.1 percent, compared to 0.4 percent in New Hampshire. Although electricity sales have fallen slightly faster in New England than in New Hampshire since 2005, the disparity between the declines in 2020 was unusually large. An increase in remote work during the pandemic is likely part of the reason why New Hampshire's

electricity usage did not fall as much as electricity usage throughout New England. More New Hampshire residents are employed outside of the state – primarily in Massachusetts – than there are residents from other states employed in New Hampshire. In the second quarter of 2019, 128,000 New Hampshire residents worked in a different state, while just 84,900 residents of other states were employed in New Hampshire, a difference of 43,100 workers.¹ With remote work more prevalent in 2020, the outflow of commuters from New Hampshire was not nearly as large, and some electricity usage shifted from other New England states to New Hampshire.

Renewable Energy

Electricity generated in New Hampshire from renewable sources declined 9.3 percent in 2020, from 1.65 billion kWh to 1.39 billion kWh. Electricity generated from renewable sources has declined by 30 percent since 2016, and has fallen in each of the past four years. This has been the result of a decline in electricity produced from biomass,



Source: U.S. Energy Information Administration

¹ U.S. Census Bureau, OnTheMap, Longitudinal Employer-Household Dynamics Program.

which in New Hampshire is primarily wood waste from the lumber industry. Biomass consumption generated 1.69 billion kWh of electricity in 2016, but in 2020 generated just 0.87 billion kWh, a decline of nearly 50 percent. Biomass has struggled to remain competitive with other electricity production methods in recent years. Four biomass plants closed in 2019, after the Federal Energy Regulatory Commission ruled that a law intended to subsidize the industry violated federal regulations.²

Other forms of renewable energy have increased capacity, although not enough to offset declines in biomass consumption. Wind power generated 525 million kWh of electricity in 2020, a 21 percent increase over the previous year. The 29 MW Antrim Wind Project, completed in December 2019, was largely responsible for the increase in electricity generated by wind power.³

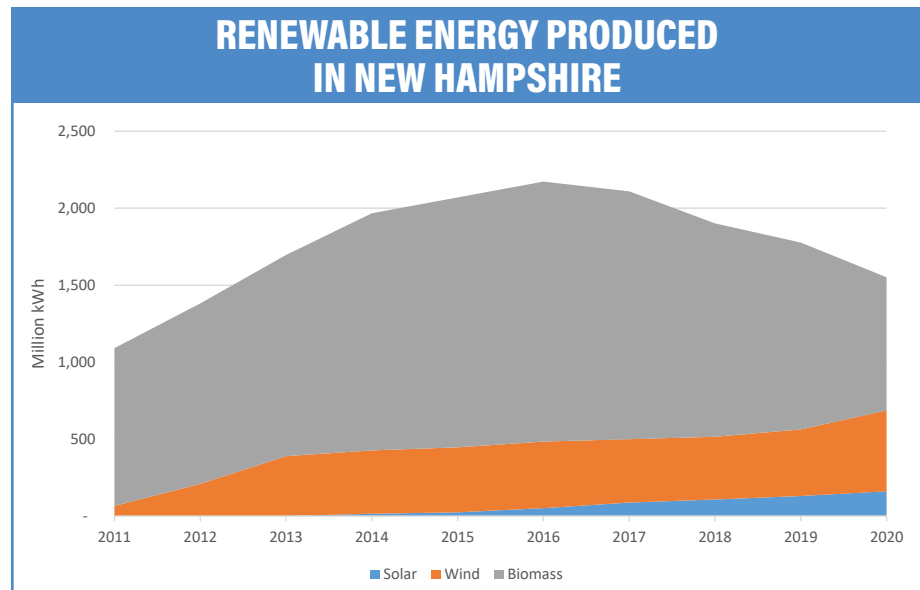
Solar electricity production has tripled since 2016, although it accounts for just one percent of all electricity produced in New Hampshire. The Solar Energy Industries Association (SEIA) ranked New Hampshire is having the 38th largest capacity for solar electricity production, down from 34th in 2019.⁴ Although SEIA forecasted the solar industry in New Hampshire would triple over the next five years, increasing capacity by 356 MW, this projected growth ranked 44th among all states.

Solar energy production in New Hampshire has been driven by small-scale producers, who typically use “net metering,” which reimburses the

producer for the amount of electricity sent back out to the utility distribution system. However, small-scale producers generally produce only enough electricity to offset their own electricity use.⁵ For residential and commercial users, New Hampshire has a one MW cap on most solar arrays eligible to use net metering. In 2021, the net-metering cap for municipalities was raised to five MW.⁶

Plans for New Hampshire’s first utility-scale producer of solar power, the 30 MW Chinook Solar Array in Fitzwilliam, NH, were approved by the New Hampshire Site Evaluation Committee in late 2020, but the developer of the solar array, NextEra Energy Resources, announced in March 2022 that the project would not move forward.⁷ An even larger array, the 50 MW Chariot Solar array in Hinsdale, NH, has requested approval from the Site Evaluation Committee. If approved, construction will begin in 2022, with the project completed and generating power by the end of 2023.

– Greg David



Source: U.S. Energy Information Administration

2 Ethan Dewitt, Concord Monitor, “Biomass Plants Drop Subsidy Lawsuits After Tough Federal Ruling,” 9/2/2019. <https://www.concordmonitor.com/New-Hampshire-biomass-plants-drop-subsidy-lawsuits-after-tough-federal-ruling-28870989>.
3 TransAlta, “Antrim Wind Project,” <https://transalta.com/plants-operation/antrim/>.
4 Solar Energy Industries Association, State Solar Spotlight, New Hampshire. <https://www.seia.org/state-solar-policy/new-hampshire-solar>.
5 New Hampshire Public Utilities Commission, Net Metering. https://www.puc.nh.gov/sustainable%20energy/Net%20Metering/Net_Metering.html
6 Annie Roepeik, NHPR, “Gov. Sununu Signs New Energy Metering Expansion for Towns, Breaking Three-Year Logjam,” 8/26/2021. <https://www.nhpr.org/nh-news/2021-08-26/gov-sununu-signs-net-energy-metering-expansion>.
7 Molly Bolan, Keene Sentinel, “Company pulls the plug on large-scale solar project planned for Fitzwilliam,” 3/30/2022. https://www.sentinel-source.com/news/local/company-pulls-the-plug-on-large-scale-solar-project-planned-for-fitzwilliam/article_c0b4004f-d01d-5ce6-a05c-e8bbb2be102c.html.

RETAIL SALES OF ELECTRICITY	2016	2017	2018	2019	2020
Sales to Ultimate Customers (million kWh)					
New Hampshire:					
Total	10,905	10,787	11,046	10,712	10,671
Percent change	-0.9%	-1.1%	2.4%	-3.0%	-0.4%
Residential	4,438	4,441	4,641	4,507	4,784
Percent change	-2.0%	0.1%	4.5%	-2.9%	6.1%
Commercial	4,466	4,390	4,443	4,281	4,034
Percent change	-0.6%	-1.7%	1.2%	-3.6%	-5.8%
Industrial	2,000	1,956	1,963	1,904	1,853
Percent change	1.0%	-2.2%	0.4%	-3.0%	-2.7%
New England:					
Total	117,802	115,458	118,634	114,458	110,964
Percent change	-2.0%	-2.0%	2.8%	-3.5%	-3.1%
Residential	46,532	45,849	48,099	46,173	48,170
Percent change	-2.0%	-1.5%	4.9%	-4.0%	4.3%
Commercial	53,753	52,190	52,924	51,503	47,480
Percent change	0.7%	-2.9%	1.4%	-2.7%	-7.8%
Industrial	17,965	16,867	17,054	16,234	14,846
Percent change	-4.1%	-6.1%	1.1%	-4.8%	-8.5%

Source: U.S. Energy Information Administration, ELM I Analysis. Last Update 9/16/2021

ELECTRICITY GENERATED	2016	2017	2018	2019	2020
Net Electrical Energy Generated, New Hampshire (million kWh)	19,282	17,447	17,087	18,027	16,351
As percentage of energy purchased	176.8%	161.7%	154.7%	168.3%	153.2%

Energy by type (million kWh)					
Coal	422	287	660	343	128
Hydro	1,145	1,413	1,355	1,462	1,228
Natural Gas	4,744	3,580	2,992	3,583	3,638
Nuclear	10,761	9,991	10,062	10,907	9,865
Petroleum	39	105	178	30	42
Renewables	2,122	2,022	1,793	1,647	1,393
As percentage of total generated by type: ^a					
Coal	2.2%	1.6%	3.9%	1.9%	0.8%
Hydro	5.9%	8.1%	7.9%	8.1%	7.5%
Natural Gas	24.6%	20.5%	17.5%	19.9%	22.2%
Nuclear	55.8%	57.3%	58.9%	60.5%	60.3%
Petroleum	0.2%	0.6%	1.0%	0.2%	0.3%
Renewables	11.0%	11.6%	10.5%	9.1%	8.5%

^a Other energy sources, accounting for less than one percent of generation, include municipal solid waste, purchased steam, and miscellaneous technologies.

Source: U.S. Energy Information Administration, ELM I Analysis. Last Update 11/19/2021

ENERGY AND FUEL CONSUMPTION	2016	2017	2018	2019	2020
Energy Consumption					
Total consumption (trillion BTU)	306.9	317.6	325.4	319.8	
Annual percent change	-2.9%	3.5%	2.5%	-1.7%	
United States rank	46	46	46	46	
Types of energy consumption (percent of total)					
Residential	30.7%	31.4%	32.9%	32.9%	
Commercial	23.0%	22.1%	22.5%	22.2%	
Industrial	13.3%	14.5%	12.9%	12.7%	
Transportation	33.0%	32.1%	31.7%	32.3%	

Fuel Consumed to Generate Electricity (In equivalent barrels of oil)					
New Hampshire total (thousand barrels)	25,123,903	22,330,614	21,661,228	23,830,939	22,101,529
Oil	67	163	298	49	58
Coal	631	432	943	509	186
Gas	5,998,430	4,597,817	3,817,685	4,502,807	4,609,295
Nuclear	19,124,775	17,732,202	17,842,302	19,327,574	17,491,990
Source: U.S. Energy Information Administration, ELMI Analysis. Last Update 9/16/2021					
These data are made available every two years					

ENERGY EXPENDITURES AND PRICES	2016	2017	2018	2019	2020
Energy Expenditures Per Capita					
United States rank (including DC)	31	33	33	33	
Energy Prices (\$ per million BTU)					
United States rank (including DC) (1 = lowest)	47	47	47	46	
Petroleum prices (\$ per million BTU)					
United States rank (including DC) (1 = lowest)	46	37	36	34	
Electric prices (\$ per million BTU)					
United States rank (including DC) (1 = lowest)	46	46	46	46	
Source: U.S. Energy Information Administration, ELMI Analysis. Last Update 9/16/2021					
These data are made available every two years					
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