

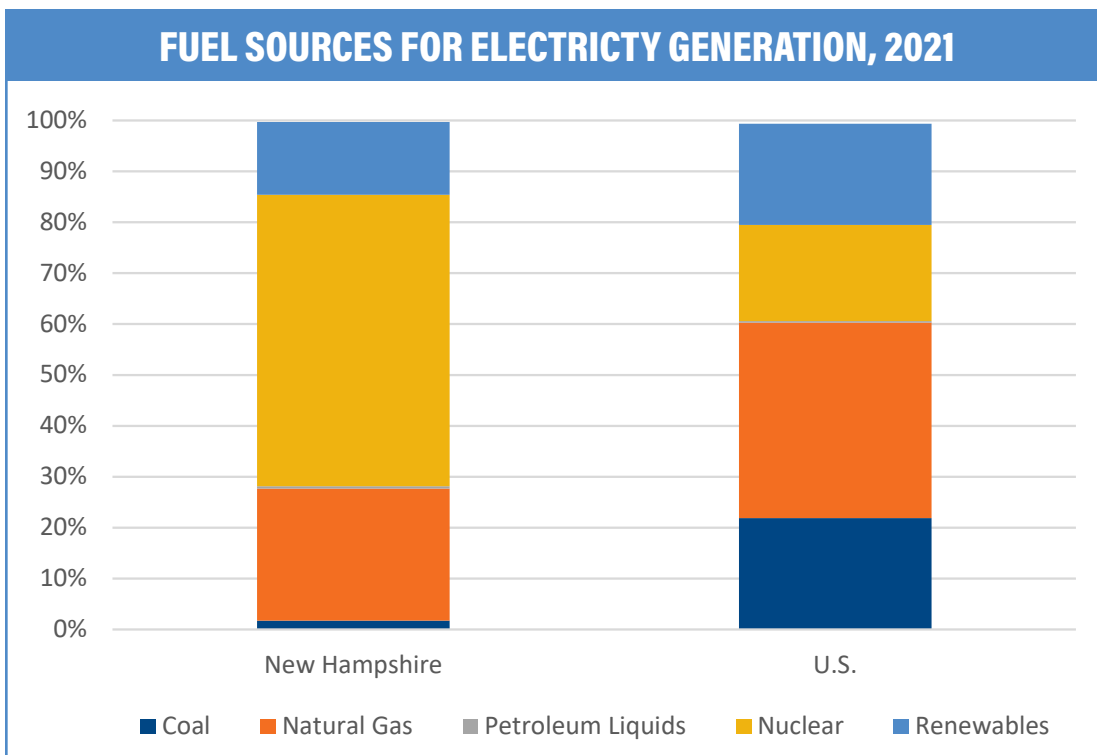
# ENVIRONMENT & AGRICULTURE

Consumer Affairs, a private provider of consumer guides and customer reviews, rated New Hampshire as the third greenest state in the U.S., behind Washington and Oregon, and just ahead of Vermont and Maine.<sup>1</sup> States were evaluated using four criteria: the percent of the total energy generated by renewable resources and nuclear, carbon emissions per capita, municipal solid waste generated per capita and the percent of waste that is recycled or composted. New Hampshire ranked in the top 10 in all metrics compiled by Consumer Affairs, including fifth in the percentage of total energy generated by renewable resources and nuclear.

Nuclear and renewable energy were the source of more than 70 percent of the electricity generated in New Hampshire in 2021, nearly twice the national average of 39 percent.<sup>2</sup> This likely contributed to New Hampshire’s relatively low greenhouse gas emissions per capita, which tied with Washington for ninth lowest in the U.S. With 70 percent of

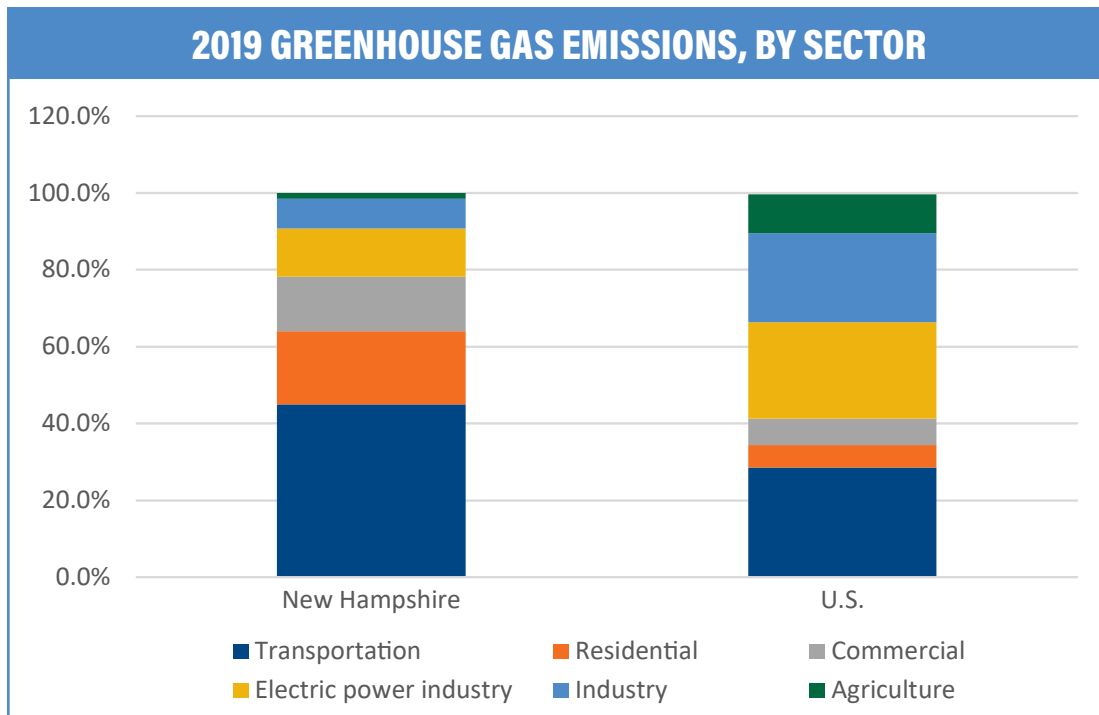
electricity created without fossil fuels, electricity generated in New Hampshire produced fewer greenhouse gases than electricity generated in the U.S. overall. In 2019, electricity generation accounted for 12.5 percent of greenhouse gas emissions in New Hampshire, while in the U.S., electricity accounted for 25.1 percent of emissions.<sup>3</sup>

Low emissions from electricity generation were offset by higher emissions in other sectors. Transportation activities were the largest source of emissions in New Hampshire, accounting for 45.0 percent of emissions in 2019, compared to 28.5 percent in the U.S. overall. With a relatively small, rural population, New Hampshire is reliant on privately-owned cars, rather than public transportation, walking or biking for transportation needs, resulting in high per capita transportation-related emissions. New Hampshire also produces relatively few emissions from industry, agriculture, and electricity generation, resulting in a higher share from transportation.



Source: U.S. Energy Information Administration

1 Kathryn Parkman, "Greenest States in the U.S.," *Consumer Affairs*. <https://www.consumeraffairs.com/solar-energy/greenest-states-in-us.html>  
 2 U.S. Energy Information Administration, Electricity Data Browser. <https://www.eia.gov/electricity/data/browser/>  
 3 U.S. Environmental Protection Agency, Greenhouse Gas Inventory Data Explorer. <https://cfpub.epa.gov/ghgdata/inventoryexplorer/#electricpowerindustry/entiresector/allgas/category/all>



Source: U.S. Environmental Protection Agency

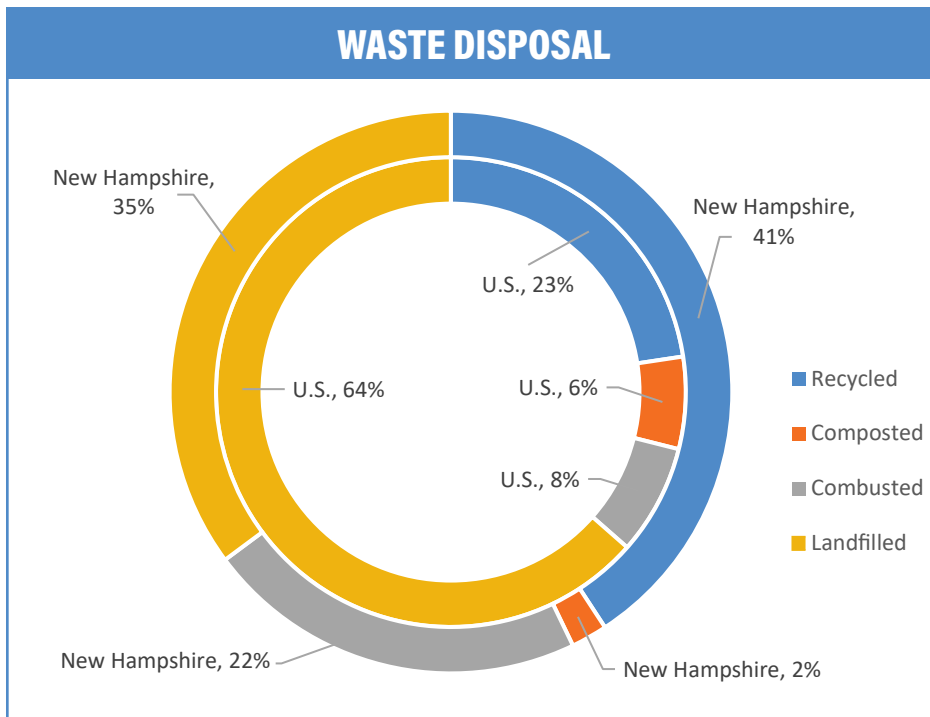
Residential emissions accounted for 19.0 percent of emissions in New Hampshire, compared to 5.8 percent in the U.S. overall. New Hampshire’s cold climate is largely responsible for high residential emissions. Residences in New Hampshire (and other northern states) require heating during the winter, mostly from fossil fuel sources such as fuel oil or propane. Residences in warmer regions of the U.S. require less heating. Although residences in warmer regions typically require more air conditioning than New Hampshire residences, air conditioners contribute to emissions from the electricity generation sector, rather than the residential sector.

New Hampshire ranked fourth in the U.S. in municipal solid waste generated per capita and seventh in waste recycled or composted, although waste metrics were based on an analysis of 2011 waste data. In 2011, New Hampshire disposed of 1.14 million tons of municipal solid waste (MSW), 0.87 tons per capita.<sup>4</sup> This was well below the national average of 1.2 tons of waste per capita.

New Hampshire not only generated less waste per capita, less of this waste ended up in landfills. Of the waste disposed of in New Hampshire in 2011, 41 percent was recycled, two percent composted, and 22 percent combusted (incinerated), with the remaining 35 percent landfilled. Nationwide, 23 percent of waste was recycled, six percent composted and eight percent combusted, with the remaining 64 percent landfilled.

More recent data shows a different picture, both in New Hampshire and in the U.S. It’s unclear if this was the result of methodological changes or changing trends for MSW disposal. In New Hampshire, the amount of waste disposed of by combustion or into landfills was 1.09 million tons in 2018,<sup>5</sup> compared to 0.65 million tons in 2011. Despite this increase, waste per capita in New Hampshire remained below the national average. In 2018, Americans generated 4.9 pounds of MSW per person per day (0.89 tons per capita), compared to 4.4 pounds in New Hampshire (0.80 tons per capita). Waste per capita in

4 Dolly Shin, *Generation and Disposition of Municipal Solid Waste (MSW) in the United States – A National Survey*, Columbia University Earth Engineering Center. [https://furtherwithfood.org/wp-content/uploads/2020/07/Generation-and-Disposition-of-Municipal-Solid-Waste-in-the-US-A-National-Survey\\_Shin\\_2014.pdf](https://furtherwithfood.org/wp-content/uploads/2020/07/Generation-and-Disposition-of-Municipal-Solid-Waste-in-the-US-A-National-Survey_Shin_2014.pdf)  
 5 New Hampshire Department of Environmental Services, 2020-2021 Biennial Solid Waste Report, November 2022. <https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/r-wmd-22-04.pdf>



Source: Columbia University

New Hampshire fell to 4.2 pounds per day in 2020, (0.76 tons per capita), likely a result of reduced economic activity during the coronavirus pandemic.

The amount of waste combusted in New Hampshire declined since 2011. New Hampshire had two waste-to-energy facilities that burned municipal waste to generate electricity, but one of these facilities closed in 2013.<sup>6</sup> The remaining active waste-to-energy facility in New Hampshire incinerated 189,000 tons of waste in 2021, about 75 percent of what was combusted in 2011.<sup>7</sup>

## Renewable Energy

In 2020, New Hampshire ranked 36th among all states in solar energy, with the capacity to produce 159 MW of electricity from solar arrays.<sup>8</sup> Although the state added 32.5 MW of solar capacity in 2021, it fell to 40th in total capacity, an indication that solar arrays are being installed in other states at a faster rate. The Solar Energy Industries Association projects that New Hampshire’s solar capacity will increase more than 300 percent over the next five years, but the projected increase ranks 43rd in the U.S., suggesting that New Hampshire will continue to lag behind other states in solar capacity in the near future.

Wind power generates more electricity than solar in New Hampshire, with capacity of 214 MW. There are no wind farms currently under construction in New Hampshire, but plans to develop offshore wind farms could substantially increase New Hampshire’s wind power generation capacity. Along with Maine, Massachusetts, and the U.S. Department of the Interior, New Hampshire has been working on plans to build offshore wind farms in the Gulf of Maine, although this project remains in early stages of development.

The Department of the Interior issued a request for interest in August 2022, gauging commercial interest in obtaining wind energy leases in the Gulf of Maine, while the University of Maine has proposed a research array of 12 floating turbines capable of producing 144 MW of electricity.<sup>9</sup>

Although it will be years before large-scale wind farms in the Gulf of Maine start to generate electricity, the University of Maine estimates that wind farms in the Gulf of Maine could generate 156 GW of electricity from wind power, roughly seven times the capacity of all electricity producers in New Hampshire, Maine, and Massachusetts.<sup>10,11</sup> As the U.S. transitions away from fossil fuels, offshore wind could be the primary source of renewable energy for New Hampshire and other New England states.

– Greg David

6 Waste Management, Wheelabrator to Close Claremont Facility. <https://www.wm.com/about/wm-monday/wheelabrator.jsp>  
 7 Wheelabrator Technologies, Wheelabrator Concord. <https://www.wtienergy.com/plant-locations/waste-energy/wheelabrator-concord>  
 8 Solar Energy Industries Association, State Solar Spotlight. <https://www.seia.org/sites/default/files/2023-01/New%20Hampshire.pdf>  
 9 U.S. Department of the Interior, Bureau of Ocean Energy Management. Gulf of Maine. <https://www.boem.gov/renewable-energy/state-activities/maine/gulf-maine>  
 10 University of Maine Advanced Structures and Composites Center, Offshore Wind in Maine. [https://composites.umaine.edu/wp-content/uploads/sites/20/2016/12/UMaineCompositesCenter\\_OffshoreWind\\_12122016.pdf](https://composites.umaine.edu/wp-content/uploads/sites/20/2016/12/UMaineCompositesCenter_OffshoreWind_12122016.pdf)  
 11 156 GW is the amount of power that is physically possible to generate, it is likely not economically feasible to generate that much power in the Gulf of Maine.

TOXIC RELEASE INVENTORY	2017	2018	2019	2020	2021
On-site Disposal or Other Releases (Pounds)					
New Hampshire	148,227	208,475	145,104	100,229	144,775
Annual percent change	-17.2%	40.6%	-30.4%	-30.9%	44.4%
New England	12,437,243	11,548,475	9,382,768	7,818,276	8,087,645
Annual percent change	40.8%	-7.1%	-18.8%	-16.7%	3.4%
U.S. (1,000 pounds)	3,554,214	3,282,126	2,962,214	2,703,929	2,888,299
Annual percent change	11.8%	-7.7%	-9.7%	-8.7%	6.8%

Off-site Disposal or Other Releases (Pounds)					
New Hampshire	165,435	232,354	247,990	348,070	262,141
Annual percent change	6.5%	40.5%	6.7%	40.4%	-24.7%
New England	6,383,692	7,349,050	7,068,401	6,484,248	6,280,336
Annual percent change	-17.9%	15.1%	-3.8%	-8.3%	-3.1%
U.S. (1,000 pounds)	389,076	419,906	423,293	341,558	389,942
Annual percent change	-3.7%	7.9%	0.8%	-19.3%	14.2%

Total On-site and Off-site Disposal or Other Releases (Pounds)					
New Hampshire	313,661	440,829	393,094	448,299	406,916
Annual percent change	-6.2%	40.5%	-10.8%	14.0%	-9.2%
New England	18,820,934	18,897,526	16,451,169	14,302,525	14,367,981
Annual percent change	13.3%	0.4%	-12.9%	-13.1%	0.5%
U.S. (1,000 pounds)	3,943,290	3,702,032	3,385,507	3,045,486	3,278,241
Annual percent change	10.1%	-6.1%	-8.6%	-10.0%	7.6%

Source: U.S. Environmental Protection Agency, ELMI Analysis. Last Update 1/20/2023

FOREST INVENTORY DATA	2017	2018	2019	2020	2021
Number of all live trees on forest land by Species group and Tree class code (in number)					
Growing stock	3,747,237,184	3,735,483,767	3,733,910,625	3,704,467,769	
Rough cull	504,200,124	500,825,911	469,425,181	452,077,727	
Rotten cull	23,082,695	22,536,693	21,223,651	21,009,569	
Total	4,274,520,003	4,258,846,371	4,224,559,456	4,177,555,065	

Source: U.S. Forest Service, ELMI Analysis. Last Update 1/20/2023

MAPLE SYRUP PRODUCTION	2017	2018	2019	2020	2021
New Hampshire (1,000 gallons)	160	163	148	154	127
United States (1,000 gallons)	4,385	4,199	4,180	4,111	3,721

FRUIT AND VEGETABLE CROPS	2017	2018	2019	2020	2021
Apples <sup>1</sup> Yield per Acre <sup>2</sup> (Bushels)					
New Hampshire	469	314	321	302	312
New England	367	NA	324	269	310
Strawberries Yield per Acre <sup>3</sup>					
New Hampshire	6,800	5,900	5,700	5,800	5,800
New England	NA	2,490	1,700	5,500	5,300
Pumpkins Yield per Acre <sup>4</sup>					
New Hampshire	14,300	12,500	18,000	11,700	9,800
New England	11,900	8,900	9,800	10,300	9,300
Tomatoes Yield per Acre <sup>4</sup>					
New Hampshire	13,000	13,700	11,600	13,000	15,200
New England	13,000	10,600	9,100	9,400	10,300
Sweet Corn Yield per Acre (Dozen <sup>5</sup> )					
New Hampshire	906	800	824	776	812
New England	718	800	765	718	753
<sup>1</sup> Apple production from commercial orchards with 100 or more trees.					
<sup>2</sup> Yield based on total production, which includes unharvested production and fruit production but not sold due to market conditions					
<sup>3</sup> Total tabulated pounds produced per bearing acre harvested.					
<sup>4</sup> Total tabulated pounds produced per acre harvested.					
<sup>5</sup> Standard weight used for a dozen ears is 8.5 pounds					
Source: USDA - National Agricultural Statistics Service, ELMi Analysis. Last Update 1/20/2023					
Prepared by: New Hampshire Employment Security, Economic and Labor Market Information Bureau					
www.nhes.nh.gov/elmi   (603) 228-4124					