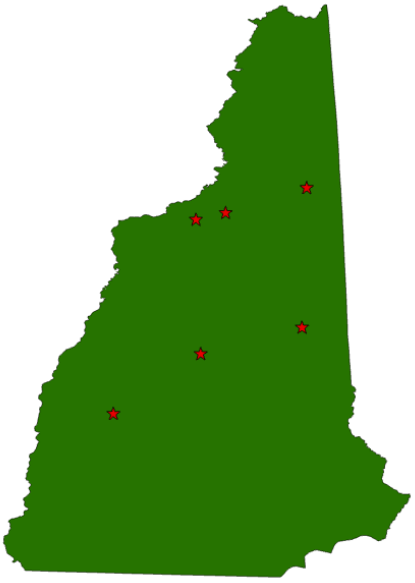
Economic Contributions of Wood-based Biomass Power Generation Industries in New Hampshire
2022 Version



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Executive Summary

Renewable energy generation technologies can provide fuel diversity to the state and New England generation supply through use of local renewable fuels and resources that serve to displace and thereby lower regional dependence on fossil fuels. In 2023, approximately 56% of the total electricity generated in New Hampshire came from nuclear power, 25% came from natural gas, 18% from renewable energy sources, and the remaining was supplied by petroleum and coal. Biomass contributed the second largest share of renewable electricity generated in New Hampshire in 2023 with wood and wood-derived fuel making 82% of it. Unlike many other renewable sources, woody biomass can provide consistent, around-the-clock baseload power. When harvested and managed sustainably, wood-based biomass helps reduce greenhouse gas emissions compared to fossil fuels, supports employment and income in rural, forest-dependent communities, provides a market outlet for low-value forest materials, helps divert waste from landfills, and can contribute to improved forest health.

This report analyzes the economic contributions of New Hampshire's wood-based biomass power generation industry, providing an overview of the state's electric power generation sector and its role in the broader economy. The analysis is part of a series of coordinated comparable reports produced for multiple Northeast Midwest U.S states along with California, Georgia and Virginia. Forest resource statistics used in the report were drawn from the U.S. Forest Service's Forest Inventory and Analysis (FIA) data, while economic modeling was conducted using the 2022 Impact Analysis for Planning (IMPLAN) data via the cloud-based platform.

To isolate the economic effects of wood-based biomass power generation specifically, the study applied IMPLAN's detailed impact analysis activity type which is analogous to its Analysis-by-Parts (ABP) technique. IMPLAN does not provide a dedicated sector for wood-based biomass power; instead, these activities are included under the broader "electric power generation using biomass" sector (Sector 45). This sector also encompasses electricity generation from other biomass sources, including agricultural byproducts, landfill gas, municipal solid waste, black liquor, and sludge waste. Using the detailed impact analysis activity

type, we developed a customized sector profile based on budgetary spending patterns and labor income specific to wood-based biomass power generation. Supplementary data for analysis were drawn from the Michigan Department of Natural Resources' 2022 and 2024 mail surveys of biomass power producers across a 20-state Northeast-Midwest region along with California, Georgia and Virginia as well as a review of recent literature on biomass energy in the United States.

The economic contribution estimates presented in this report are expressed in constant 2022 dollars. In 2022, New Hampshire generated approximately 0.7 million megawatt hours of electricity using wood and wood-derived fuel. This was about fifty-two percent less than the amount generated from woody-biomass in 2017. The estimated cost of producing electricity from wood and wood-derived fuels per MWh was estimated to be $87 in 2022 (Obtained from the mail survey of biomass power facilities located in the twenty state Northeast Midwest region in 2024).

In 2022, the wood-based biomass power generation industry in New Hampshire directly employed 45 people and generated ~$62 million in direct output to the state's economy. Including ripple effects, the industry created a total of 503 jobs and contributed $127 million in total output to the state's economy. In terms of tax contributions, the industry generated $9.5 million at the state and local levels and $8.7 million at the federal level in 2022. The social accounting matrix multiplier for the industry output was found to be 2.1. This means that for $1 million in output in the state's wood-based biopower industry, an additional $1.1 million in output was supported in the rest of the economy. In terms of employment, the top three industries affected by the state's wood-based biomass power generation industry included the commercial logging industry, support activities for agriculture and forestry industry, and electric power generation using biomass industry.

In comparison, the biomass power generation industry directly employed 100 individuals and generated $103 million (in 2022 dollars) in direct output in 2017. This represents a decline of 55% in direct employment and 40% in direct output between 2017 and 2022 in wood-based

biomass power generation industry in New Hampshire. Similarly, total employment decreased by 58% and output decreased by 41% in 2022 compared to 2017.

Glossary

Biomass fuels: "Biomass fuels" means plant-derived fuel including clean and untreated wood such as brush, stumps, lumber ends and trimmings, wood pallets, bark, wood chips or pellets, shavings, sawdust and slash, agricultural crops, biogas, or liquid biofuels, but shall exclude any materials derived in whole or in part from construction and demolition debris.

Woody Biomass: It encompasses biomass obtained from the trees and woody plants, including limbs, tops, needles, leaves, and other woody parts, grown in a forest, woodland, or rangeland environment, that are the by-products of forest management.

Biopower: Biopower technologies convert biomass fuels into heat and electricity. There are three main methods of releasing the energy stored in biomass to produce biopower: burning, bacterial decay, and conversion to gas/liquid fuel.

Net Electric Power Generation: Generation is a measure of electricity produced over time. Some portion of the electricity produced by the power plants is used internally to operate these plants. Net generation excludes electricity use for power plant operations.

Renewable Portfolio Standard (RPS): It is a regulatory requirement that electricity providers must supply a specified minimum share of their total electricity sales from eligible renewable energy sources.

Power Plant Capacity: It is the maximum level of electricity that a power plant can supply at a specific point in time under certain conditions.

Nameplate Capacity: Nameplate generator capacity is determined by the generator's manufacturer and indicates the maximum output of electricity a generator can produce without exceeding design thermal limits.

Kilowatt (kW): A standard unit for measuring electricity. 1 kW is equivalent to 1,000 Watts.

Kilowatt-hour (kWh): One kW of electricity generated or used for one hour.

Megawatt (MW): 1,000 kW

Megawatt hour (MWh): 1,000 kWh

Economic Contribution Terms

Direct effects/contributions: The economic activities (e.g., output, employment, labor income, and value-added) associated with an industry or sector in the study area. These can describe the current economic sectors or changes to those sectors.

Employment: The number of full- and part-time jobs associated with an industry plus self-employed individual.

Indirect effects/contributions: The impact of local industries purchasing goods and services from other industries, leading to others' outputs, employment, and labor income.

Induced effects/contributions: The impact of labor income (employee compensation and proprietor income) via goods and services purchased due to the direct and indirect spending by industries.

Labor income: The dollar total of employee compensation and proprietor income; the latter is associated with self-employed individuals.

Output: The dollar measure of production within an area; it is also viewed as sales.

Type I multiplier: These multipliers are derived by dividing the sum of direct and indirect effects by the direct effects.

Social Accounting Matrix (SAM) multipliers: These multipliers are derived by dividing the sum of direct, indirect, and induced effects by the direct effects. The social accounts include payments made between households, households, government and more. These are available for output, employment, labor income, and value-added and are used to assess the effects of changes in industry activity (i.e., "ripple effects").

Total effects/contributions: The sum of direct, indirect, and induced effects.

Value-added (also known as gross state product, or GSP): The sum of labor income, other property income (e.g., rents and profits), and indirect business taxes (e.g., excise and sales taxes). It is the difference between an industry's total output and the cost of its intermediate inputs. The sum of value-added for all economic sectors within the state equals the total GSP.

Forest Inventory and Analysis Terms

Forestland: It is a land that has at least 10 percent canopy cover of trees of any size or has had at least 10 percent canopy cover of trees in the past that will be naturally or artificially regenerated. To qualify as forest land, an area must be at least 1 acre in size and have a minimum width of 120 feet to ensure continuity of forest conditions.

Merchantable net bole volume: It is the volume of sound wood in the merchantable bole (from the 1-foot stump to merchantable top), after deductions for rot, missing sections, or other defects.

Annual net growth: It is the average annual increase in net volume of live or growing-stock trees on forest land during the inventory period.

Annual removals: It is the average annual net volume of trees removed from forest land during the inventory period due to harvest, land-clearing, or other land-use changes.

Annual mortality: It is the average annual net volume of live trees that died from natural causes during the inventory period.

Introduction

Renewable energy plays an increasingly important role in the U.S. electricity sector, driven by concerns over greenhouse gas emissions from fossil fuels, energy security, and the potential for local and rural economic development. In 2023, the United States generated 4.18 trillion kilowatt-hours (kWh) of electricity, with approximately 60% produced from fossil fuels, 19% from nuclear energy, and 21% from renewable sources (U.S. Energy Information Administration [EIA], 2025a). Renewable electricity generation more than doubled over the past two decades, increasing from 357 billion kWh in 2000 to over 900 billion kWh in 2022 (EIA, 2025b).

This expansion of renewable energy has been supported by state and local policies, including renewable portfolio standards (RPS) and voluntary renewable energy goals. These policies aim to increase the share of renewable energy in electricity generation, reduce emissions, and stimulate local investment. In addition, some states have adopted clean energy standards (CES), which often encompass RPS requirements while also including broader low-emission technologies (National Conference of State Legislatures, 2025). As of 2025, 28 states, along with the District of Columbia, have enacted RPS mandates (Lawrence Berkeley National Laboratory, 2025). Three additional states and one U.S. territory (Guam) have adopted voluntary renewable energy targets, further reinforcing the nationwide momentum toward cleaner energy systems (National Conference of State Legislatures 2025). Additionally, sixteen states have established a broader 100% CES in combination with RPS (Lawrence Berkeley National Laboratory, 2025). Figure 1 highlights the states with 100% CES commitments and the range of RPS targets currently in place.

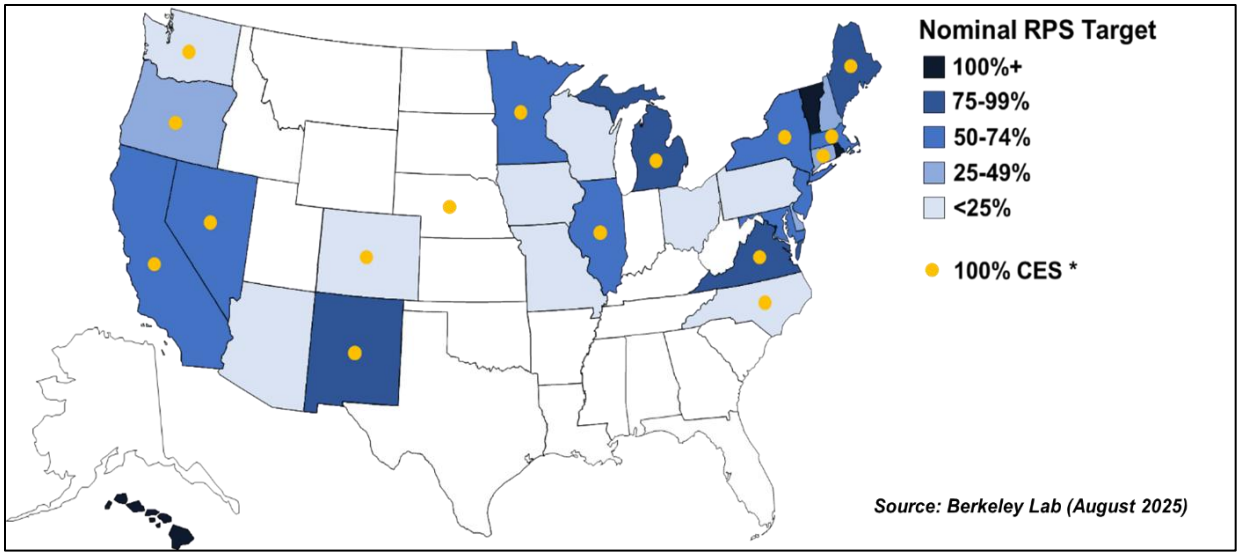

Figure1. Map of US depicting states with 100% Clean Energy Standards (CES) and associated Renewable Portfolio Standard targets (Source: Lawrence Berkeley National Laboratory, 2025).

In New Hampshire RPS was established in 2008 requiring utilities to meet 4% renewable electricity sales by 2008. This standard was subsequently updated in the years that followed with current requirement of meeting 25.2% renewable electricity sales by 2025. This can be achieved by utilities via renewable energy certificate (REC) purchases or by making alternative compliance payments into the state renewable energy fund (New Hampshire Department of Energy 2025). In 2023, approximately 18% of New Hampshire's in-state electricity generation came from renewable energy sources mainly hydroelectric power, followed by biomass. About 82% of the state's biomass-fueled generation came from wood and wood-derived fuels (US EIA 2025d). Woody biomass offers unique benefits. It provides baseload power, reduces greenhouse gas emissions, supports rural economies, and creates a market for forest residues and byproducts from forest management, wildfire reduction, and wood product manufacturing (National renewable energy laboratory 2023, USDA Forests and Rangelands 2023, Gan and Smith 2007). Biomass power can also help offset the costs of forest restoration and hazardous fuel treatments (Page-Dumroese et al. 2022).

Despite its benefits, electricity generation from woody biomass in the U.S. has remained relatively stable over the past two decades, with a slight decline in recent years (Figure 2). In New Hampshire, woody biomass contributed about 5.7% of the total electricity produced in the

state in 2000. By 2022, it declined to about 3.8% of the total electricity produced in the state (US EIA 2023h). Nationwide, the number of power plants utilizing wood and wood-derived fuels declined from 247 in 2017 to 219 in 2022, and further to 197 in 2024 (U.S. EIA 2025d). In New Hampshire, there were eight biomass power facilities utilizing wood and wood-derived fuels in 2017. By 2022, this declined to six biopower facilities (Figure 3) (U.S. EIA 2025d). Table 1 provides the names, locations, sector classifications, and full fuel portfolios of facilities using wood and wood-derived fuels in New Hampshire in 2022.

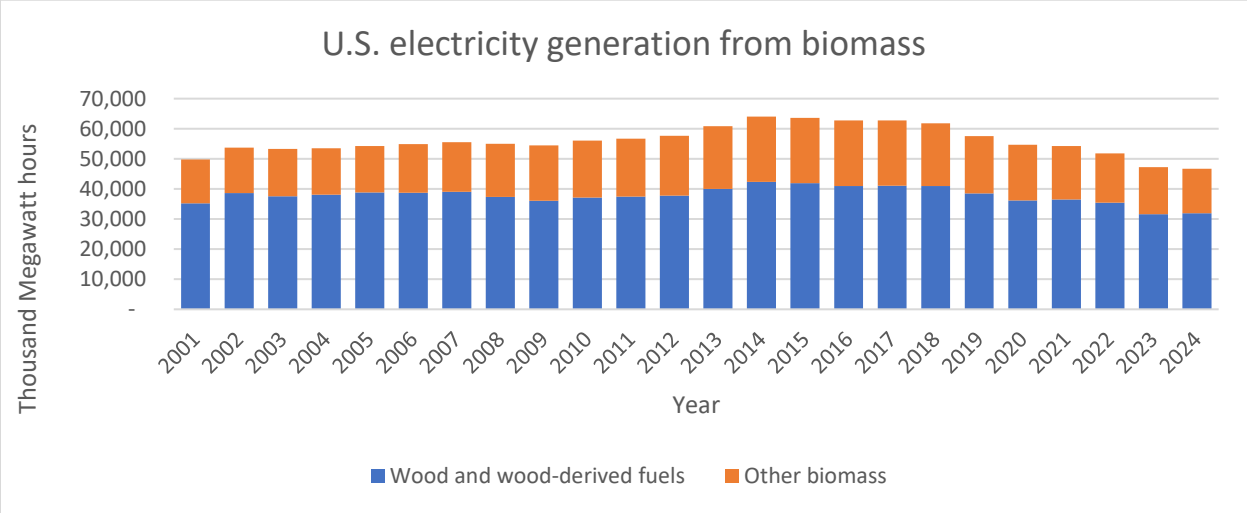

Figure 2. U.S. electricity generation from biomass, 2001 to 2024. (Source: U.S. Energy Information Administration 2025d).

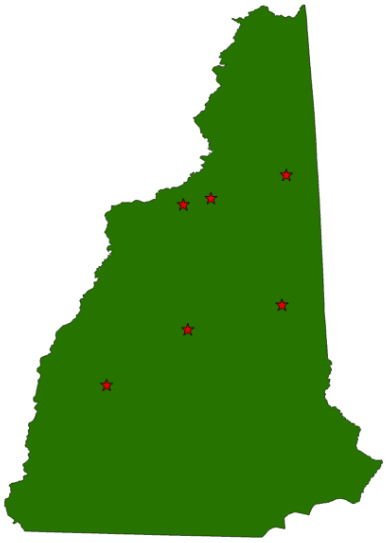

Figure 3. Map depicting locations of biomass power plants using wood and wood-derived fuels in New Hampshire in 2022 (Source: U.S. Energy Information Administration 2025d).

Table 1: List of New Hampshire's power generation facilities using wood-based fuels in 2022.

Plant Name	Street Address	City	County	Sector Name	Fuel Type Used*
Bridgewater Power LP	Route #3	Bridgewater	Grafton	IPP Non-CHP	DFO,WDS
NE Renewable Springfield, LLC	54 Fisher Corner Road	Springfield	Sullivan	IPP Non-CHP	WDS
NE Renewable Whitefield, LLC	260 Airport Road	Whitefield	Coos	IPP Non-CHP	WDS
NE Renewable Bethlehem, LLC	1241 Whitefield Road	Bethlehem	GRAFTON	IPP Non-CHP	WDS
NE Renewable Tamworth, LLC	469 Plains Rd	Tamworth	Carroll	IPP Non-CHP	WDS
Burgess BioPower	One Community Street	Berlin	Coos	IPP Non-CHP	DFO,WDS

*Fuel Type Codes: WDS = Wood and Wood-Derived Solids; DFO = Distillate Fuel Oil.

Estimating the economic contributions of the wood-based biomass power generation industry is essential for highlighting its broader impacts on regional and state economies, and for supporting efforts to sustain and expand the industry. In 2022, the Michigan Department of Natural Resources (MI DNR) Forest Resources Division commissioned a research team from

Michigan State University's Department of Forestry along with collaborators from North Carolina State University, Oklahoma State University, the University of Idaho, SUNY College of Environmental Science and Forestry, and Michigan Biopower to assess the economic contributions of this industry for calendar years 2017 and 2022.

As part of this project, the research team developed a 2022 regional report analyzing the economic contributions of the wood-based biomass power generation industry across a 20-state Northeast and Midwest regions. In addition to the regional analysis, individual state reports are prepared for the participating states which include California, Connecticut, Georgia, Illinois, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New York, Pennsylvania, Vermont, Virginia, and Wisconsin. These reports summarize the industry's economic contributions within each state.

This report presents the results for New Hampshire, focusing on the industry's economic role in the state's economy. The sections that follow provide an overview of Michigan's electric power generation industry, a brief description of the state's forest resources, an explanation of the methods used in this analysis, and a summary of the findings from the 2022 study.

Electric power generation in New Hampshire in 2017

In 2022, the electric power industry in New Hampshire produced a total of 18.8 million Megawatt hours of electricity. Nuclear power was the major source of electricity generated across the state followed by natural gas, hydroelectric power, and wood and wood derived fuels respectively (Figure 4). Out of the total electricity generated, approximately 4% or 0.7 million Megawatt hours were produced using wood and wood-derived fuel (Figure 4) (US EIA 2025d).

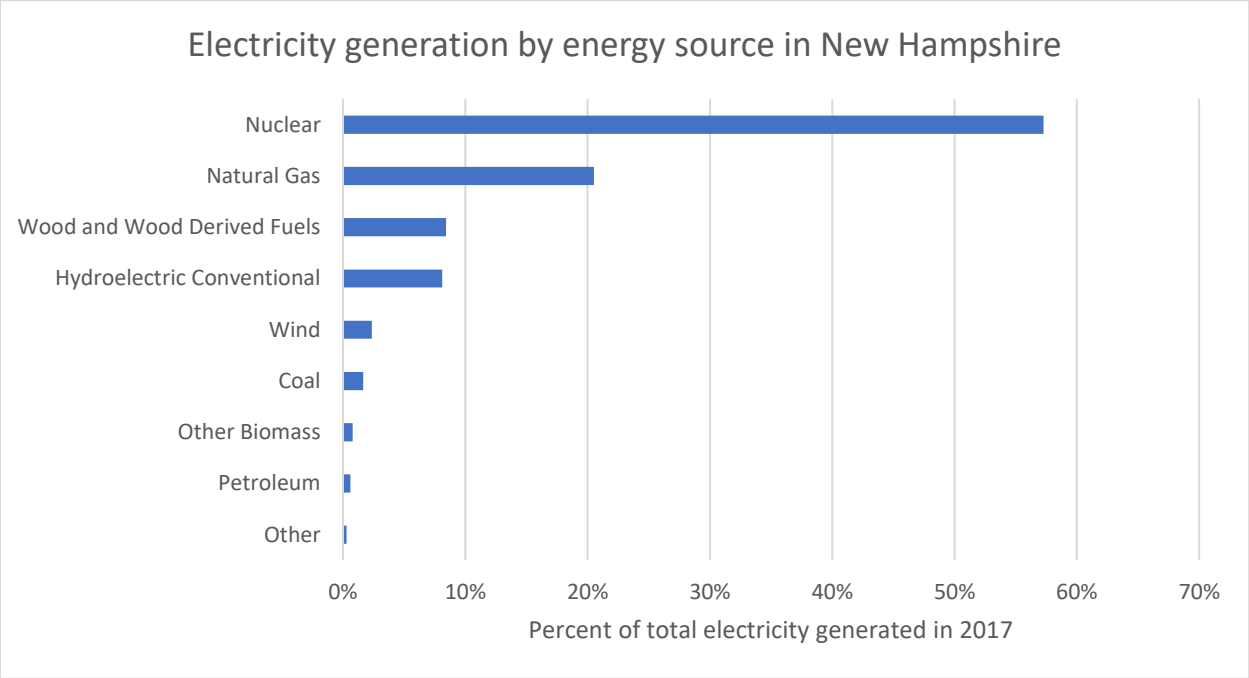

Figure 4. Percentage of total electricity generated in New Hampshire in 2022 by energy source (Source: U.S. Energy Information Administration 2025d).

Collectively the electric power generation, transmission, and distribution industry employed 1,789 people in 2022 which is equivalent to 0.2% of total jobs in the state the same year (IMPLAN 2022). The direct economic effects resulting from various power-generating industries within the state including biomass are listed in Table 2.

Table 2. The direct economic effects of power generating industries in New Hampshire based on 2022 IMPLAN data.

IMPLAN Sector Code (Electric Power Generation)	Energy Source	Employment	Labor Income (Millions of 2022 dollars)	Value-Added	Output
39	Hydroelectric	195	$37	$103	$174
40	Fossil fuel	94	$19	$84	$171
41	Nuclear	414	$100	$246	$454
42	Solar	16	$3	$9	$15
43	Wind	10	$2	$20	$32
44	Geothermal	-	$-	$-	$-
45	Biomass	74	$10	$40	$101
46	All other	26	$5	$2	$4
47	Electric power transmission and distribution	960	$193	$816	$1,639
	Total electric power generation, transmission, and distribution	1,789	$371	$1,319	$2,589
	Total All Sectors	**906,656**	**70,941**	**112,353**	**191,181**

Forest Resources of New Hampshire

New Hampshire has approximately 4.7 million acres of forestland which covers 80% of the state's land area (USDA Forest Service, Forest Inventory and Analysis 2023). Most of the forests in the state (72.8%) are under private ownership, followed by the federal government (17.6%) and state and local governments (9.6%) respectively (Figure 5). Maple/beech/birch are the major forest type groups found in the state followed by White/red/jack pine forest types and Oak/hickory forest type groups respectively (Table 3).

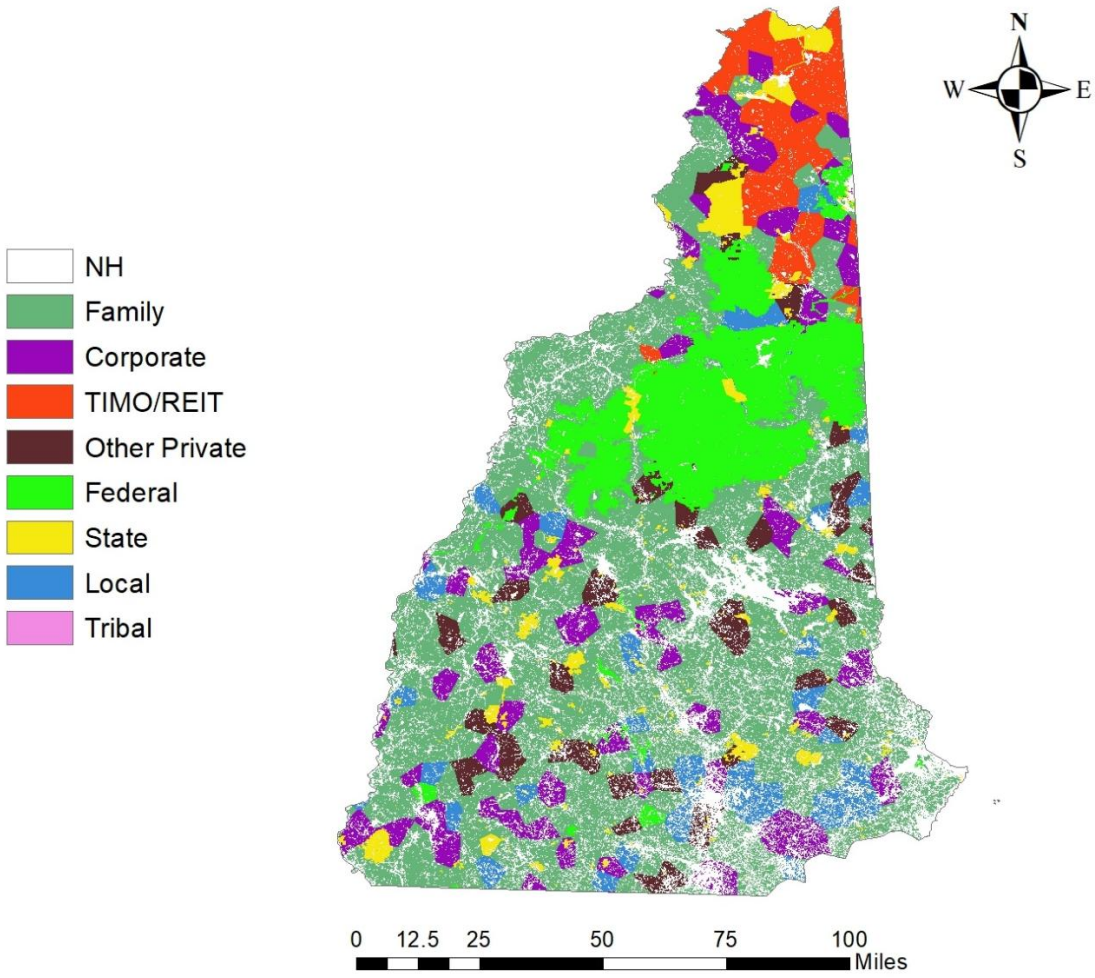

Figure 5. Forest ownership in New Hampshire (Data source: Sass et al. 2020).

Table 3. Forestland area in New Hampshire by forest type (Source: USDA Forest Service, Forest Inventory and Analysis 2023).

Forest Type Group	Acres	Percentage
Maple / beech / birch group	2,406,315	51%
White / red / jack pine group	563,016	12%
Oak / hickory group	527,946	11%
Spruce / fir group	487,379	10%
Oak / pine group	362,030	8%
Aspen / birch group	213,544	5%
Others	166,642	4%
Total	4,726,872	100%

The merchantable net bole volume of live trees in New Hampshire is estimated to be 10.9 billion cubic feet (Table 4). The average annual net growth is 188 million cubic feet, annual removals are 104 million cubic feet, and annual mortality is 70 million cubic feet. Annual growth in the timberlands exceeded the removals by a ratio of 1.8, meaning that for each cubic foot of timber harvested in the region, about 1.8 cubic feet of timber grew in the timberlands. However, this ratio varies by ownership type. The growth to removals ratio in national forests is 14.0. In private forests, it is 1.6, 6.7 in the case of forests under state and local government, and 4.4 in forests under other federal ownership (Table 4). This suggests variation in management focus on timberlands owned by different forest ownership types. Across the state, the annual removals are close to 1% of the standing volume and annual mortality in the timberlands is lower than annual removals (Table 4).

Table 4. Characteristics of state growing stock in New Hampshire in 2023 (million cubic feet) (Source: USDA Forest Service, Forest Inventory and Analysis 2023).

Ownership	Net Volume	Annual Net Growth	Annual Removals	Annual Mortality	Growth/Removals
Total	10,906	188	104	70	1.8
National Forest	1,404	18	1	12	14.0
Other federal	125	2	0	1	4.4
State and local	962	16	2	7	6.7
Private	8,415	152	95	50	1.6

Methods

The analysis was conducted using impact analysis for planning (IMPLAN) software and 2022 IMPLAN data using the Analysis-by-Parts (ABP) technique accomplished through detailed industry impact analysis activity type in IMPLAN. The ABP technique was chosen because it allows the user to create a customized industry sector by using the information about that sector's budgetary spending pattern and labor income (Lucas 2022). So far IMPLAN does not have a separate sector to represent wood-based biomass power generation. Instead, it is incorporated as a part of the electric power generation using the biomass industry. This means that it includes power generation from all sources of biomass including agricultural byproducts, landfill gas, municipal solid waste, woody biomass, black liquor, and sludge waste as illustrated in Table 2. To separate the economic contributions associated with wood-based power generation from power generation using all forms of biomass, the analysis-by-parts (ABP) technique was used. The resulting economic contributions are measured in terms of full- and part-time employment, industry output, value-added, labor income, other property income, and business taxes.

The information about industry spending patterns for the biomass power generation industry using woody biomass was obtained from Dahal et al. (2020) and corroborated or supplemented (where applicable) with the information collected through the mail survey of biomass power generation plants located in the twenty state Northeast-Midwest region. In fall 2022 and 2024, Michigan Department of Natural Resources conducted a mail survey of 120 biomass power industries located in the 20-state Northeast-Midwest region along with California, Georgia, and Virginia to collect the financial and resources utilization data for the year 2017 and 2022 respectively. Overall, 11 responses were obtained in the 2022 survey (9.2% response rate), and five responses were obtained in the 2024 survey (4.2% response rate). The data obtained from these responses were used to inform and supplement the industry spending pattern for wood-based biomass power generation industries for regional and state level reports for participating states. The average operation and maintenance expenditure for the wood-based biomass power generation industry used for the economic contribution analysis is listed in Table 5.

The 2024 survey asked respondents to indicate the total amount of electricity produced in 2022 using wood and wood-derived fuel along with the total cost of production. This information was used to estimate the cost per megawatt hour of electricity produced. It was estimated to be $87/MWh on average when weighed by the size of production for respondents who responded to the survey. This cost falls within the range of levelized cost of electricity generation from biomass ($77.16 to $95.16) as listed by the US energy information administration in the Annual Energy Outlook (2023). Hence, we used $87/MWh of electricity production as the cost of generating biopower from woody biomass for our 2022 analysis. The details of the survey method along with the information collected are included in the twenty-state Northeast-Midwest biopower economic contribution analysis report.

The per unit cost of electricity produced using wood and wood-derived fuel was multiplied by the total electricity produced using wood and wood-derived fuel within a state to obtain the direct output from the wood-based biomass power-generating industry in that state. Information about the total electricity produced by the electric power generation industry using wood and wood-derived fuels in 2022 was obtained from US EIA (2025d).

In New Hampshire, 0.7 million Megawatt hours of electricity were generated using wood and wood-derived fuel in 2022. At the rate of $87/MWh of electricity produced, this translated into a direct output of $61.9 million for the wood-based biomass power generation industry in the state. The direct output was then allocated into intermediate input and value-added following the percentage breakdown of output into its component parts for IMPLAN sector 45 (electricity generation using biopower industry) using 2022 IMPLAN data for New Hampshire. According to it, approximately 60.0% of the output of the biomass power generation industry was comprised of intermediate inputs and 40.0% was value-added. Value added was further broken into employee compensation (8.5%), proprietor income (1.8%), other property type income (18.7%), and taxes on production and imports (11.0%) following IMPLAN sector 45's percentage breakdown for New Hampshire. To estimate direct employment, the industry's total output was divided by the output per worker value for IMPLAN sector 45 (from New hampshire's 2022 dataset). Using this method, the wood-based biomass power generation industry supported an estimated 45 jobs in New Hampshire in 2022.

When estimating the economic contribution of the biomass power generation industry in IMPLAN using the ABP technique, the local purchase percentage (LPP) for all other items in the industry spending pattern except woody biomass, was set to default SAM value. For woody biomass, LPP was set to 100%. This is because all wood used by the biomass power generation industry is sourced locally as per the findings obtained from the mail survey (within 60 miles radius). Since it is not possible to precisely identify the location of production, transport, and purchase of other items included in the industry spending pattern for the wood-based biomass power generation industry, LPP was set to default SAM values for those items. Like Dahal et al. (2020), we estimated total taxes (including emission fee) to be 1.85% of total operation and maintenance cost, which amounted to $1.1 million. This was modeled separately, and the resulting indirect and induced effects obtained from tax contributions were added to the total economic contribution summary for the state.

Table 5. Percentage distribution of annual operation and maintenance expenditures for the wood-based biomass power generation industry. Percentages are based on Dahal et al. (2020) and supplemented with data collected from a mail survey of wood-based power generation facilities in the Northeast and Midwest United States.

IMPLAN Sector	Cost category (sector)	Percentage
16	Biomass	58.6%
20	Natural Gas	0.05%
39	Utilities	2.8%
49	Water	1.6%
60	Building expenses	0.4%
154	Oil and diesel	0.8%
162	Chemical	1.3%
167	Supplies (consumable, urea, ammonia)	1.9%
384	Office supplies and expenses	0.2%
408	Gasoline (retail)	0.1%
433	Communication	0.2%
444	Insurance	1.6%
453	Equipment rental	0.1%
457	Outside support services (water treatment, vendor services)	0.6%
462	Consulting fees	0.4%
470	Office administrative service	1.0%
474	Travel and entertainment	0.1%
476	Janitorial	0.3%
479	Ash freight and waste management	3.0%
512	Vehicle repair	0.1%
515	Maintenance	7.2%
50001	Employee compensation	15.6%
	Total taxes (including emission fee)	1.8%
	Total operation and maintenance cost	100.0%

Results

The results obtained from the economic contribution analysis indicated that in New Hampshire, the wood-based biomass power generation industry directly employed 45 individuals in 2022 with a labor income of $6.4 million, value-added of $24.8 million, and an output or sales of $61.9 million in 2022 US dollars (Table 6). Including ripple effects, the industry supported a total of 503 jobs with $37.2 million in labor income. The industry contributed a total of $66.3 million in value-added and $127.2 million in total output to the economy of New Hampshire (Table 6). The top three industries affected in terms of employment by wood-based biomass power generation industry in the state include commercial logging (IMPLAN sector 16), support activities for agriculture and forestry (IMPLAN sector 19), and electric power generation using biomass industry (IMPLAN sector 45).

SAM multipliers for employment, labor income, value-added, and output across the region were estimated to be 11.1, 5.8, 2.7 and 2.1 respectively. The output multiplier of 2.1 indicates that every $1 million in output in the state's wood-based biopower industry supported an additional $1.1 million in output to the rest of the economy. The relatively high employment multiplier compared to output, labor income, and value-added multipliers, reflect the biomass power industry's supply chain and spending patterns. It reflects the wood-based biomass power sector's dependence on labor-intensive upstream industries, especially commercial logging and forestry support services. These industries generate many jobs per dollar of spending, but with relatively modest wages and value added per worker. Additional induced effects in service industries such as hospitals, restaurants, and retail further increase job counts. Consequently, employment multipliers are substantially higher than output, labor income, or value-added multipliers. It should be noted that IMPLAN employment is jobs including part-time, seasonal workers and proprietors head count, hence sectors that add lots of part-time, low-hour service jobs tend to increase the employment count though labor income and output remain modest.

The wood based biopower industry in New Hampshire contributed about $9.5 million in annual state and local taxes and $8.7 million in federal taxes in 2022 (Table 7).

Table 6. Economic contributions of wood-based biomass power generation industry in New Hampshire in 2022 US dollars using IMPLAN software version (3.1.1001.12) and 2022 IMPLAN data.

States Included	Economic Contributions of Wood-based Biomass Power Generation Industry				
		Employment (Jobs)	Labor Income ($MM 2022)	Value-added ($MM 2022)	Output ($MM 2022)
New Hampshire	Direct Contributions	45	$6.4	$24.8	$61.9
	Indirect Contributions	339	$22.7	$27.3	$42.5
	Induced Contributions	119	$8.1	$14.3	$22.8
	Total Contribution	503	$37.2	$66.3	$127.2
	SAM Multiplier	11.1	5.8	2.7	2.1

Table 7. Total tax contributions of wood-based biomass power generation industry in New Hampshire in 2022 US dollars ($MM) using 2022 IMPLAN data.

Impact Type	Sub-county general	Sub-county special districts	County	State	Federal	Total
Direct	$2.44	$1.84	$0.31	2.43	$2.05	$9.07
Indirect	$0.42	$0.32	$0.05	0.53	$4.70	$6.02
Induced	$0.36	$0.27	$0.04	0.50	$1.95	$3.12
Total	$3.22	$2.43	$0.40	3.46	$8.70	$18.21

Table 8. The top five industries affected in terms of employment by wood-based biomass power generation industry in New Hampshire in 2022

	Industry affected (IMPLAN Sector)	Impact			
		Direct	Indirect	Induced	Total
1	Commercial logging (16)	0	216	0	216
2	Support activities for agriculture and forestry (19)	0	49	0	49
3	Electric power generation – Biomass (45)	45	0	0	45
4	Commercial and industrial machinery and equipment repair and maintenance (515)	0	19	0	19
5	All other crop farming (10)	0	9	0	9

Summary

This study assessed the economic contributions of wood-based biomass power generation industry in New Hampshire using IMPLAN, an input-output analysis software and 2022 IMPLAN data. It provides a snapshot of the economic effects of wood-based biomass power generation industry in terms of employment generated, value-added contributed and output produced using analysis by parts technique. The ABP technique was used to separate the economic contributions of wood-based biomass power generation from the contributions of biomass power generation in general, which also includes biomass sources other than wood and wood-derived fuel. The wood-based biomass power generation industry in New Hampshire was found to directly support 45 jobs and contribute ~$62 million in output to the state's economy. Including direct, indirect, and induced effects, the industry contributed a total of 503 jobs and $127 million in output in New Hampshire.

Compared to 2017, the direct employment in wood-based biomass power generation industry in New Hampshire decreased by 55% (from 100 employees in 2017 to 45 employees in 2022) and direct output decreased by 40% (from $103 million in 2017 to $62 million in 2022) in 2022 dollars. Similarly, total employment declined by 58% and output declined by 41% in 2022 compared to 2017.

This report should also mention the impacts to indirect employment and output. This would tie nicely into the new tables 4 and 5 I mention on page 9. Again, timber tax data from the NH Dept. of Revenue for all species and products shows a decline with the decline in biomass harvesting. There is a direct correlation as loggers unable to market and sell low-grade timber (wood chips) experience reduced cashflow forcing them to downsize their companies causing a reduction in sawlog production.

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