POLICY PROFILE

Renewable Portfolio Standard

New Hampshire

Policy Description

On July 10, 2007, the New Hampshire Public Utilities Commission (PUC) passed the state's first Renewable Portfolio Standard (RPS), requiring fuel diversity through the use of local renewable fuels and resources that serve to displace and reduce dependence on fossil fuels.[1] Through the RPS, electric providers are obligated to generate a percentage of their retail load through renewable energy sources, shown in the table below. The percentage of each class that an electric provider is obligated to generate is also shown in the table below.

RPS Obligations							
Year	Total Requirement	Class I	Class I - Thermal	Total Class I	Class II	Class III	Class IV
2020	20.70%	8.90%	1.60%	10.50%	0.70%	8.00%	1.50%
2021	21.60%	9.60%	1.80%	11.40%	0.70%	8.00%	1.50%
2022	22.50%	10.30%	2.00%	12.30%	0.70%	8.00%	1.50%
2023	23.40%	11.00%	2.20%	13.20%	0.70%	8.00%	1.50%
2024	24.30%	11.90%	2.20%	14.10%	0.70%	8.00%	1.50%
2025 and after	25.20%	12.80%	2.20%	15.00%	0.70%	8.00%	1.50%

The use of renewable fuels in certain technologies, such as combined heat and power (CHP) systems, qualifies for compliance in New Hampshire's RPS. These systems provide both economic and environmental benefits. Data from the U.S. Department of Energy's (DOE's) Energy Information Administration (EIA) show a 13.4 million metric ton reduction in New Hampshire's carbon dioxide (CO_2) emissions between 1990 and 2017.[2] The expansion of CHP systems throughout the state played a role in these reductions.

For RPS compliance, the statute divides renewable energy sources into four separate classes.[3]

- *Class I Non-Thermal Resources: Systems built after January 1, 2006, producing renewable energy*
  Technologies include wind, hydrogen derived from biomass fuels or methane gas, ocean thermal, hydro wave or tidal energy, and generation from an eligible biomass or methane source including but not limited to CHP systems.
- *Class I Thermal Resources: Thermal systems constructed after January 1, 2013, where the thermal energy can be metered qualify as part of a utility's compliance obligation for electric resources*
  This energy must be delivered as heat, steam, or hot water directly to the end-user and used for heating, cooling, humidity control, manufacturing, or other thermal end-uses. (This is a relatively unique approach that expands the use of qualifying thermal energy for RPS compliance and is explained further in the Policy Development section on the next page.)
- *Class II Resources: Solar energy systems built after January 1, 2006, including photovoltaic (PV) and battery storage systems*
- *Class III Resources: Existing biomass or methane systems, including CHP, built before January 1, 2006*
  Biomass systems must have a nameplate capacity of 25 megawatts (MW) or less, and methane systems 10 MW or less.
- *Class IV Resources: Created to acknowledge the value of New Hampshire's hydroelectric generation and support the continued operation of small hydroelectric facilities, eligible facilities must have been constructed prior to 2006 with a maximum output of 5 MW*

[1] *Chapter 362-F Electric Renewable Portfolio Standard*, accessed October 15, 2020, www.gencourt.state.nh.us/rsa/html/XXXIV/362-F/362-F-mrg.htm
[2] State Carbon Dioxide Emissions Data - U.S. Energy Information Administration (EIA), accessed January 20, 2021, https://www.eia.gov/environment/emissions/state/
[3] *New Hampshire Public Utilities Commission RPS*, accessed October 15, 2020, www.puc.nh.gov/sustainable%20energy/renewable_portfolio_standard_program.htm

Since enacting the RPS, the New Hampshire PUC has required electric providers to meet customer load demands by generating or acquiring renewable energy certificates (RECs). New Hampshire utilizes a REC trading and tracking mechanism from the Independent System Operator in New England (ISO-NE) referred to as the New England Power Pool Generation Information System (NEPOOL GIS). This system allows for the trading of the renewable attribute of a megawatt-hour (MWh) separately from its energy value. This means that each MWh generated by a qualifying facility converts to a REC, and these RECs can be sold at various prices depending on the market price for each state and REC Class to facilities or utilities looking to meet their renewable energy goals. Some eligible New Hampshire facilities have opted to sell into the Massachusetts REC market due to higher market prices.

ACP Rate ($/MWh)	
Year	2020
Class I	$57.61
Class I - Thermal	$26.18
Class II	$57.61
Class III	$34.54
Class IV	$29.06

On an annual basis, the PUC reviews electricity providers' compliance with the RPS. If an electricity provider cannot—or chooses not to—purchase or obtain sufficient RECs to comply with the RPS requirements, it must make Alternative Compliance Payments (ACPs) in order to meet the requirement. The fees are shown in the table to the right. ACPs help fund the Renewable Energy Fund (REF), which is used to support thermal and electrical renewable energy initiatives in the state.

Policy Development

New Hampshire led the nation with the first comprehensive program for renewable thermal technology in a Renewable Portfolio Standard.[4] Not only can facilities generate RECs from qualifying electric generators, they can now access an additional revenue stream through qualifying thermal generators. In addition to these two revenue streams, facilities also have the option to net meter, providing a third source of income from just one system. Over the past five years, approximately 40 thermal projects have become eligible to generate and sell thermal RECs. Most of the projects are large commercial wood biomass facilities, and there are also nine geothermal projects generating Class I Thermal RECs. In 2018, Keene State College became the first facility to generate thermal RECs from a liquid biofuel. According to the RPS review conducted in November 2018, there are currently no electric- or thermal-led CHP facilities certified eligible for the New Hampshire RPS. The legislature's recommendation to the PUC on this topic states, "consider establishing a study committee to investigate the development of Combined Heat and Power (CHP) provisions, or revision of emissions requirements, to encourage more development of renewable thermal-led CHP facilities."

Policy Outcomes

The University of New Hampshire (UNH) CHP plant, located in Durham, New Hampshire, is a successful example of CHP implementation. The plant provides heat and power for roughly 5.8 million square feet of buildings. The plant has three individual generation sources: a 4.6 MW gas turbine, a 7.9 MW gas turbine, and a 595 kW steam turbine. The 4.6 MW turbine runs off landfill gas, qualifying as Class I technology and receiving Class I RECs. These RECs partially fund UNH's energy efficiency measures, which account for more than $3 million in additional energy savings. Because the system was commissioned prior to 2013, it does not qualify for thermal RECs. The excess heat from the 7.9 MW turbine is used to generate 150 psi steam with a Heat Recovery Steam Generator (HRSG). That steam is fed into the 595 kW turbine and absorption chillers during the cooling season and—following a pressure reduction—heats campus buildings.[5] The project provides significant environmental benefits, including a reduction of 36,000 tons of carbon dioxide equivalent (CO_2e) per year, or a greenhouse gas emission reduction of 21%.

University of New Hampshire, Durham
PHOTO COURTESY OF UNH

For More Information

U.S. DOE NEW ENGLAND CHP TECHNICAL ASSISTANCE PARTNERSHIP (CHP TAP)
www.nechptap.org

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[4] *Renewable Portfolio Standard 2018 Review,* November 2018, https://www.puc.nh.gov/20181101-RPS-Review-2018-FINAL-REPORT-2018-11-01.pdf
[5] *UNH Project Profile*, July 2019, accessed October 15, 2020, https://chptap.ornl.gov/profile/254/UNH-Project_Profile.pdf