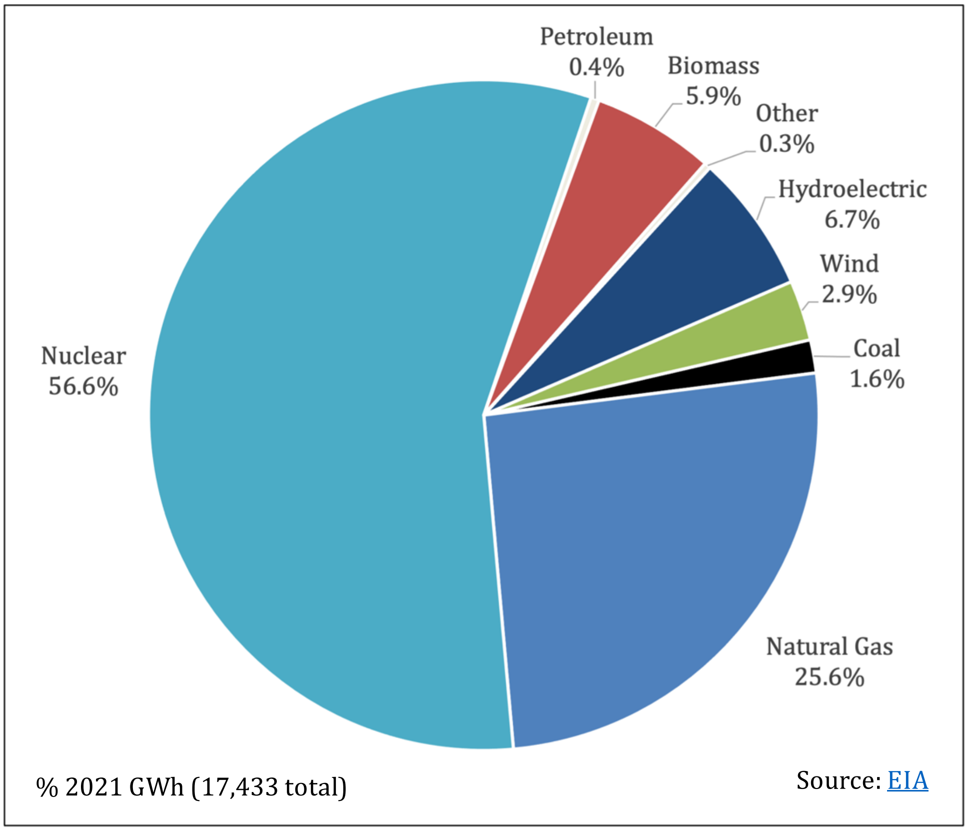
State Brief: New Hampshire

BACKGROUND

New Hampshire's Net Annual Electric Generation, 2021



The largest source of New Hampshire's net electricity generation is nuclear, contributing nearly 60% of the state's net generation in 2021. New Hampshire is home to New England's largest nuclear power reactor. Natural gas accounts for the second largest source of net-electricity generation, and the two resources supply over 80% of New Hampshire's electricity generation. Coal has been a historically minor contributor to the state's electricity mix, and in 2016 wind generation exceeded that from coal for the first time. Hydroelectric and biomass resources provided by the state's abundant woodlands make up the bulk of New Hampshire's renewable energy generation. In 2020, New Hampshire had the fifth highest retail electricity prices in the lower 48 states. Only 1 in 10 homes rely on electricity to meet heating demands with more than 40% relying on fuel oil, about 10 times the national average. New Hampshire generates more electricity than it consumes and exports its excess capacity to neighboring states and Canada.

In 2022, the Solar Energy Industries Association (SEIA) ranked New Hampshire 40th in the country in terms of installed capacity (175 MW) and 43rd for projected growth (376 MW) over the next five years. The 2021 U.S. Energy and Employment Report found that New Hampshire has 10,253 traditional energy workers (1.9% of total state employment). In 2021, New Hampshire ranked thirty-seventh nationally for clean energy jobs , with 15,323 New Hampshirites employed by the industry. Of these workers, 10,838 were employed in energy efficiency, 3,215 in renewables, and 868 in clean vehicles.[1]

The three members of the New Hampshire Public Utilities Commission (PUC) are appointed by the Governor. All three commissioners were appointed by the current governor, Governor Chris Sununu, a Republican. The PUC has full authority over the state's investor-owned utilities (IOUs), but no authority over municipal utilities. The state's electric cooperatives can choose to opt in or out of PUC oversight. Republicans control both chambers of the New Hampshire General Court.

[1] Clean vehicles include hybrid electric vehicles, plug-in hybrid vehicles, electric vehicles, natural gas vehicles, and hydrogen and fuel cell vehicles.

POLICY STRENGTHS AND OPPORTUNITIES

The National Renewable Energy Laboratory (NREL) developed the notion of "policy stacking,"[2] an important framework for policymakers to consider. The basic idea behind policy stacking is that there is an interdependency and sequencing of state policy that, when done effectively, can yield greater market certainty, private sector investment, and likelihood of achieving stated public policy objectives.

In theory, but not always in practice, clean energy policies can be categorized into one of three tiers of the policy stack. Tier 1, market preparation policies, remove technical, legal, regulatory, and infrastructure-related barriers to clean energy technology adoption. Tier 2, market creation policies, create a market and/or signal state support for clean energy technologies. Tier 3, market expansion policies, create incentives and other programs to expand an existing clean energy market by encouraging or facilitating technology uptake by additional market participants.

For example, before financial incentives for combined heat and power (CHP) will be successful, two key considerations for deployment are having clear interconnection standards and favorable stand-by rates for customers who opt to add CHP. In this example, states should adopt policies to address interconnection and stand-by rates before adopting financial incentive programs.

MODERNIZING UTILITIES AND EMPOWERING CONSUMERS

Digital technologies have enabled utilities to better manage the grid and provide opportunities for consumers to customize their services to fit their priorities. These technologies allow a two-way flow of information between the electric grid and grid operators and between utilities and their customers.

Emerging technologies improve system reliability and resiliency by enabling better tracking and management of resources. These technologies allow grid operators to incorporate central and distributed energy resources, energy storage technologies, and electric vehicles, and assist in addressing the challenges associated with planning, congestion, asset utilization, and energy and system efficiency.

On the customer's side of the meter, dynamic pricing, advanced metering infrastructure, and other technologies allow an exchange of information and electricity between a consumer and their electric provider. Grid modernization is associated with greater consumer choice by allowing customers to meet their energy priorities by producing their own energy or through contracting innovative clean energy services from different providers.

Grid modernization will require a suite of state and federal policy changes to support advancements in grid technologies, grid management, and utility regulation.

In 2019, Governor Sununu signed Senate Bill 284, establishing a statewide online energy data platform. The bill requires data be secured through the Green Button Connect program. Also in 2019, the PUC released a report outlining recommendations on how to implement grid modernization across the state. New Hampshire has been active in promoting grid modernization efforts. To remain a leader, there are supportive policies that New Hampshire's policymakers can adopt to support and advance in-state modernization efforts.

The Infrastructure Investment and Jobs Act of 2021 (IIJA) is a landmark federal spending bill that includes earmarked funding for grid modernization projects. This funding includes $11 billion for Department of Energy grants directed specifically towards electric infrastructure to enhance resiliency (including grid hardening against severe weather and cybersecurity improvements), $2.5 billion for transmission development, and $3 billion for the Smart Grid Investment Matching Grant Program.[3]

There are policies that New Hampshire's policymakers could adopt to support in-state grid modernization efforts:

[2] V.A. Krasko and E. Doris, *National Renewable Energy Laboratory*, 2012. Strategic Sequencing for State Distributed PV Policies: A Quantitative Analysis of Policy Impacts and Interactions. http://www.nrel.gov/docs/fy13osti/56428.pdf.

[3] For more information on the grid-related earmarks included in the IIJA, see Potomac Law Group's January 2022 analysis: "The Infrastructure, Investment & Jobs Act of 2021: What's in It For You? (Part V: Grid Infrastructure and Resiliency)" https://www.potomaclaw.com/news-Infrastructure-Investment-Jobs-Act-of-2021-Whats-In-It-For-You-Part-V-Grid-Infrastructure-and-Resiliency.

1. Develop a grid modernization strategy through a stakeholder process. Alternatively, states might decide to require that utilities develop and propose a ten-year grid modernization plan to the public utilities commission within a specified timeframe. Utilities would then be required to implement that plan within another specified timeframe. Strategies and/or plans should outline a clear set of grid modernization goals and describe methods to measure, report, verify, and enforce progress towards those goals.

2. States might also provide incentives or cost recovery mechanisms for utilities that meet grid modernization goals. Policymakers could consider directing the PUC to evaluate alternative ratemaking mechanisms, performance-based regulation, and/or new utility business models that support grid modernization.

3. Require that utilities' integrated resource plans (IRPs) include plans to enhance cybersecurity, integrate distributed energy resources (including electric vehicles and energy storage), increase smart meter deployment and demand response and/or demand-side management (DSM) programs, and measure and report on the results of grid modernization efforts. New Hampshire statute requires an assessment of some of these components in submitted IRPs but does not require implementation or improvements based on the assessment.

4. State departments of workforce services or their equivalent can be directed to work with utilities and other stakeholders to develop training programs for grid technicians and engineers. With new grid technology and distributed energy systems coming online, a new generation of workers can be trained to meet evolving needs, which will keep jobs local and contribute to economic development.[4]

The adoption of incentives for or a requirement to integrate a certain amount of renewable energy and energy storage on the grid alongside enhancing energy conservation and electric vehicle policies can support modernization efforts.

MAINSTREAMING RENEWABLES

As the renewable energy industry has matured, technology has improved, and global production of equipment has increased, renewable energy is increasingly seen as the least cost and lowest risk form of energy (excluding energy efficiency). With increased deployment, utilities are learning more about how to integrate renewables effectively, investors are becoming more comfortable with the technologies, and building code officials are recognizing common standards and best practices for integrating distributed renewable energy resources. In the U.S., the expansion of renewable energy has been one of the most consequential shifts in electricity generation over the last decade. The U.S. Energy Information Administration (EIA) predicts that most of the growth in U.S. electricity generation in 2022 and 2023 will be from new renewable energy sources. For these reasons, it is in the interest of policymakers to ensure that their states are well positioned to benefit from this shift.

While the IIJA doesn't provide money for specific renewable energy projects, the energy funding in the Act will benefit renewable energy development. Grid resiliency, energy storage, and updated transmission are all essential to the successful integration of renewable energy generation.

To reduce barriers to customer and utility participation in the renewable energy market, New Hampshire might consider several policy options.

Customer-Oriented Policies

1. **Interconnection, Net Metering, and Streamlined Permitting –** In general, customers want a clear, streamlined, affordable, and predictable system for connecting renewable energy systems to the grid. To ensure this, New Hampshire's policymakers could consider adopting the Interstate Renewable Energy Council's (IREC)'s model interconnection procedures, crediting customer generators at the full retail rate, and removing net metering system size limitations and the aggregate capacity limit. The state might also consider building on existing standards to establish statewide standards for streamlined permitting of small solar and storage systems. Allowing aggregated net metering would be beneficial to agricultural operations, commercial properties, and public entities like state and local governments, universities, and schools. The state might also

[4] For a discussion of specific workforce needs states might explore see: GridWise Alliance and U.S. Department of Energy. 2020. "Grid Modernization Index Insights into a Transformation: Principles for the Next Decade of Progress."

consider establishing either statewide standards for streamlined permitting processes, or resources to support local governments that voluntarily implement a streamlined program. In May of 2021, NREL launched the SolarAPP+, an online platform designed to automate the solar permitting process. By running compliance checks and processing permit approvals, the service is intended to drastically reduce permit wait times. Currently restricted to rooftop solar, thirteen communities in Arizona and California have adopted the platform, processing nearly 5,000 permits for more than 31 MW of generation with an estimated 4,700 hours saved in permit review time. State incentives, such as tax credits, financial incentives, or loans can be tied to systems that are established within a designated streamlined permitting jurisdiction.

2. **Shared Renewables –** Due to building and property attributes and ownership issues, many customers are unable to install renewable energy technologies where they live or work. Allowing shared, or community, renewable energy projects addresses these barriers. These projects have multiple owners or subscribers who pay for a portion of the project or the generation provided by the system. Low credit ratings often deter participation in renewable energy markets; this can affect low- and moderate-income (LMI) households' adoption of renewable energy solutions. Supportive policies for shared renewables can be designed to encourage participation by LMI households; this can increase adoption of renewable technologies and reduce energy costs. Low-income participation can be encouraged either through a percentage mandate for the overall annual contracted capacity, or by offering a higher rate of payment for the portion of shared solar capacity attributed to low-income customers. Senate Bill 165 of 2019 requires the PUC to approve at least two new LMI community solar projects in each utility territory each year. States that have a shared renewable program may want to coordinate this program with implementation of the federal Weatherization Assistance Program (WAP) to provide recipients of assistance with participation in a shared renewable system.

3. **Energy Assistance Programs –** Programs such as the Low-income Home Energy Assistance Program (LIHEAP) and WAP provide assistance for paying utility bills and reducing household energy costs. Including distributed energy resources as eligible for funding under these programs can reduce energy costs and increase energy security for those LMI families who are able to benefit from WAP and LIHEAP. Colorado, for example, includes rooftop solar in their WAP program. For approval to add solar to a state's implementation of WAP, a state must show that the investment would be cost-effective – achieving a Savings to Investment Ratio (SIR) of 1.0 or more.[5] Since 2010, New Hampshire has received $16.9 million from WAP and $4.9 million from the State Energy Program (SEP) which has helped to fund a number of energy initiatives in the state.

4. **Funding Distributed Generation (DG) for Community Organizations –** Organizations or groups that provide support services for LMI communities can be provided funding to install solar or other distributed energy resources. Sites such as homeless shelters, food banks, clinics, and community centers often have enough rooftop area for solar installations. After installation, these resources can reduce an organization's utility bills, freeing up funds for other activities that support the community.

5. **On-Bill Financing/Pay As You Save (PAYS) –** PAYS programs enable LMI consumers to invest in energy upgrades with no upfront payment. The utility or a third party will pay the initial costs to install the upgrade with the cost of that upgrade recovered through the utility bill. Because repayment includes consideration of the cost savings resulting from the energy upgrade, customers see monetary benefits almost immediately. Once equipment costs are recovered, the equipment belongs to the customer. State policies that reduce lending risk by creating a loan loss reserve and/or a credit enhancement fund can encourage lending to customers that might otherwise not qualify for a loan and can keep interest rates low.

6. **Corporate Procurement** – Many Fortune 100 and 500 companies have established either climate goals or commitments to purchase renewable energy. Since 2016, over 41 gigawatts (GW) of renewable contracts have been announced by corporate entities. In 2020 alone, corporations signed 100 agreements for over 10 GW of renewable energy. It is prudent to incorporate corporate renewable purchase commitments into the integrated resource plans (IRPs) that utilities submit to regulators to plan for resource needs over multiple decades. By

[5] For guidance on the state approval process see the WAP Memorandum 024 (2017), the Solar Template for Incorporating Solar Photovoltaics into WAP (2018), and the Preliminary Assessment Guide for Integrating Renewable Energy into Weatherization (2019).

integrating these renewable purchase commitments into the IRP process, regulators can avoid over-building resources and stranding generation assets.

Utility-Oriented Policies

Some states have created programs that aim to reduce greenhouse gas (GHG) emissions and increase investments in clean energy resources. Utilities are also setting their own GHG reduction goals and are increasingly investing in clean energy resources. New Hampshire has a mandatory RPS of 25.2% by 2025. New Hampshire is a member of the Regional Greenhouse Gas Initiative (RGGI), an emissions trading scheme that reduces the region's carbon emissions and incentivizes the development of energy efficiency measures and renewable energy projects.

To further increase utility adoption of clean energy technologies, New Hampshire's policymakers might consider the following:

1. **Accelerating and Amending Renewable Portfolio Standards** – States can revisit existing RPS policies to increase targets and/or accelerate target dates to continue to spur the development of renewable resources and save ratepayers money. Additionally, states might add one or more carve-outs to further incentivize the development of distributed generation and offshore resources. Embedding an RPS within broader clean electricity or emissions standard can allow technological flexibility.

2. **Emissions Standards** – Emissions targets can take a technology neutral approach that looks at the total emissions of the utility portfolio and drives emissions down with a combination of renewables, traditional fuels, efficiency, and technological advances. Emissions reductions can be achieved through 1) a carbon portfolio standard approach, or 2) a market-based approach. A portfolio emissions standard sets emissions reduction targets to be achieved over time. This can be implemented through the IRP process or by establishing a maximum allowable rate of emissions per unit. Under a market-based approach, a state or a group of states might set a certain emissions reduction target, for example, 50% below 2005 levels by 2030. This reduction is achieved by the distribution of annual emission allowances that decrease to the point that the standard is met in 2030. One of the advantages of a market-based program is that it is designed to reduce emissions in the most economically efficient manner possible. Such a standard can also address other concerns such as pollution, asthma risk, environmental justice, and water use.

3. **Clean Peak Standards (CPS)** – Clean Peak Standards aim to increase the share of clean energy resources used to meet peak demand and decrease energy bills over the long-term by reducing peak demand in the hours when energy costs are highest. These objectives can be met through different policy options, including planning and procurement that focuses on peak demand; a moratorium on the construction of new peaking units or a phase out of existing units; incentives – including carve-outs in states with RPSs – for clean energy resources delivered during peak times; and/or adopting a new clean peak standard that sets a target for clean energy deliveries during peak times.

ENERGY STORAGE

Energy storage offers a unique opportunity to manage supply and demand dynamically while also maximizing the value of grid resources. By deploying storage to strategic locations, utilities can more effectively manage their energy portfolios. First, storage allows utilities to manage intermittent demand – helping reduce peak demand requirements. Because the generation resources that provide peak power are the system's most expensive, reducing peak demand can save consumers money. Second, the responsiveness of energy storage can allow utilities to implement voltage regulation and other ancillary services, which are useful for improving system efficiency. Third, because storage technologies can both store and dispatch power, storage enables better integration of intermittent power generation resources like renewable energy to the grid.

On the customer side of the meter, the flexibility of battery storage combined with advanced metering infrastructure allows customers to control, for instance, how and when they use energy from the grid or from solar panels installed on their home or business. In most cases, this can provide greater cost savings than standalone solar systems. Energy storage can also help the commercial sector avoid costly demand charges. As utilities around the country consider implementing or extending demand charges to other sectors, energy storage will become more relevant as a customer cost-saving investment. Combined with time-varying rates or real-time pricing programs, state policy can further support customer choice and open a new market for energy services. Further, prices that better reflect the time-varying and location-dependent costs of producing and delivering electricity can lead to several economic and environmental gains.

Two major trends have enabled increased deployment of energy storage: declining costs and technological advances. State policies can help maximize the benefits of energy storage by establishing both a framework for easy integration of storage resources onto the grid and a marketplace that monetizes the benefits of energy storage for cost-effective investment.

Enacted in 2019, House Bill 464 allows municipalities to adopt property tax exemptions for solar and energy storage systems. Also in 2019, the PUC issued Order No. 26,209, which created a pilot program allowing utilities to install and own energy storage systems located on residential customers' property. The pilot program is intended to allow a study of the benefits provided by distributed storage infrastructure.

New federal funding through the IIJA provides a unique opportunity to fund energy storage projects. According to an analysis by the Energy Storage Association, the IIJA provides $505 million for grants to support energy storage demonstration projects, $6.15 billion for building out the U.S. battery supply chain, and $14.7 billion for grid resilience programs that include energy storage as a qualified technology.

There are several policy opportunities to take advantage of the growing technological advances in and declining costs of energy storage. The recommendations here draw heavily from IREC's 2017 report, "Charging Ahead – An Energy Storage Guide for Policymakers." Policymakers in New Hampshire could consider the following:

1. Amend existing interconnection and net metering policies to ensure that storage can connect to the grid through a transparent and simple process. IREC has produced a series of interconnection protocols that states can adopt. States can establish best practices for interconnection in statute, or legislation can provide an instruction to the utilities commission to implement these best practices. Senate Bill 91, enacted in 2021, directed the PUC to adopt rules clarifying policy for the interconnection of energy storage. The bill incorporates several best practices to ensure a simple, transparent, and reasonable process for interconnecting storage systems.

2. Clarify the classification of energy storage as an energy management technology and not as "generation" to encourage utility investment in restructured markets. Most states that have restructured utility markets exclude utility ownership of generation.

3. Enacted in 2020, House Bill 715 directs the PUC to open an investigation into compensating energy storage projects for avoided transmission and distribution costs while allowing participation in wholesale markets. The report to the legislature is due within two years of the date the proceeding is opened. The legislature might also instruct the PUC to evaluate the value of energy storage in multiple strategic locations across the utility system and consider a requirement to deploy storage where it is cost-effective or identify the price point at which it will be cost-effective. Ensure that cost-effectiveness calculations include all the benefits storage can deliver to the system, including frequency regulation and avoided investments in new infrastructure.

4. Require the inclusion of energy storage as a critical piece of the energy system as both a demand and supply management resource. Some states have required that utilities evaluate the cost effectiveness of non-wires alternatives (NWAs) to large transmission and generation investments. Alternatively, states might want to require that utilities develop a distribution investment plan that identifies the locations on the distribution system where energy storage or other distributed resources would offer the greatest value.

5. Consider creating a mandatory energy storage procurement target or requirement for energy storage with a documented process for periodic review of progress towards that goal. Procurement targets can limit the amount of utility-owned storage; require that a certain amount of storage be targeted to low-income customers; and create carve-outs for storage at the transmission, distribution, and customer levels. Procurement targets can jump-start market creation, spur fast learning, and guide the development of a regulatory framework.

6. Finance and incentivize energy storage for customers and utilities. Incentives could enable customers to use storage to manage their electric load and store locally produced renewable energy. Incentives in the form of rebates, grants, and tax credits can provide a bridge to scalable deployment of storage. Incentives can be designed to decline as storage values become more readily monetized and/or as the cost of storage decreases.

Policymakers could allow utilities that provide incentives to customers to recover the costs of installing smart meters. This would enable dynamic and time-varying energy management from multiple distributed battery systems. This could also signal to customers the value of leveraging storage and better align customer costs with system costs. Financing energy storage installations for commercial customers could help reduce their demand charges. Policymakers might want to start first with a policy that provides grants to pilot projects. Policy might also target solar system owners. Financial incentives should be designed to ensure that the state will meet other goals including emissions and peak demand reductions, and equitable access to clean energy.

7. Clear data access policies that allow third parties to provide energy management services based on signals from the utility can greatly increase the value of efforts to monetize the value stream offered by energy storage. State policy should include measures to protect customer data, while also encouraging the use of this information to facilitate additional improvements to grid management and customer services. To address this, policymakers can develop legislation or rules that clarify who owns the energy data associated with customer energy usage; protect customer privacy; outline the process for allowing direct access to data by third parties; and promote access to the highest resolution of data possible.

8. Add energy storage as an eligible technology under existing clean energy policies like renewable portfolio standards or energy efficiency programs. Massachusetts became the first state in the nation to include energy storage in its three-year energy efficiency plan in 2019.

THE BUILT ENVIRONMENT

In the U.S., buildings consume nearly 40% of total energy used.[6] Energy efficiency plays a prominent role in state energy and climate policies. Energy efficiency reduces energy demand and emissions and creates savings for utility customers. Coupled with beneficial electrification, which involves replacing direct fossil fuel use with electricity, there is great potential to reduce energy costs, reduce pollution, and provide more resilient, comfortable, and healthy buildings. Energy efficiency includes a multitude of measures to reduce the energy consumption of a building. These measures range from installing energy efficient appliances to full building renovations updating a building envelope.

Increasing levels of low carbon resources supplying the electric grid are reducing emissions associated with the electric sector. When policies are adopted to shift from energy uses based on fossil fuels (such as natural gas) for building heating, water heating, and appliances, to highly efficient electric alternatives, states can maximize achieving the dual objectives of energy efficiency and reduced emissions. This reduces overall energy usage, leading to emissions reductions, and in some cases, lower energy costs.

New Hampshire has taken several steps to incorporate energy efficiency and beneficial electrification into its built environment. The state has adopted, as a mandatory building code, the IRC 2015 Residential Energy Code and the IECC 2015 Commercial Energy Code, containing requirements for commercial and residential energy efficiency and conservation. House Bill 1472, enacted in 2018, transferred the administration of the state energy code for new construction from the PUC to municipalities. New Hampshire has granted performance incentives to electric and gas utilities and established mechanisms of revenue decoupling. The legislature also renewed its directive for the PUC to offer energy efficiency programs through NHSaves in 2022 with the passage of House Bill 549. This legislation was taken up following the PUC's decision to cut funding for NHSaves.

The IIJA provides $500 million for grants to fund energy efficiency and renewable energy upgrades in public schools, $3.5 billion for the Weatherization Assistance Program, and further funds the Energy Efficiency and Conservation Block Grant program by $550 million and the State Energy Program by $500 million.

Policymakers in New Hampshire can consider a variety of policies to encourage energy efficiency and beneficial electrification:

[6] For additional information, see ACEEE Building Policies and Codes.

Energy Efficiency Policies

1. **Building Codes** – The Department of Energy projects that, over time, improvements in building codes can have the greatest single impact in energy efficiency within the built environment. On average, commercial buildings waste 30% of energy used.[7] Because buildings will be around for generations, energy efficiency within the built environment is a matter of statewide and long-term importance. States can set requirements for energy systems, require statements of energy use, and set performance standards for energy use or emissions. Building codes can be required by state legislation or implemented by home rule, where local governments set more strict building codes than mandated by the state.

2. **Appliance Efficiency Standards** – Appliance efficiency standards set minimum requirements for efficiency in everything from washing machines to water heaters. Efficiency standards save consumers money on utility bills and reduce energy demand on the grid, most importantly reducing peak energy demand. Many states choose to adopt the federal appliance efficiency standards that were in effect on January 1, 2017[8]. These include, among other things, standards on metal halide lamp fixtures, residential furnaces and boilers, and external AC to DC power supplies.

3. **Energy Saving Performance Contracts (ESPCs)** – ESPCs are a financing mechanism for energy efficiency upgrades. ESPCs are often used within large institutions, such as college or government campuses, allowing them to meet their energy and environmental goals. An energy service company will pay the upfront cost of efficiency upgrades and execute the project, often guaranteeing the projected energy savings. The large institution will then pay back the service company with savings from their utility bills. This allows institutions to pay for their upgrades from their operating budget, instead of finding new financing, such as loans or bonds, for capital upgrades. Essentially, they pay their upgrade costs with their energy savings.

   New Hampshire has allowed ESPCs for municipalities and state agencies since the passage of House Bill 1129 in 2014. Prospective entities must submit project proposals through a request for proposal (RFP) process administered by the Department of Administration Services.

4. **Low-Income Energy Efficiency Programs** – While equity should be incorporated into all policy development, it is often necessary to ensure that specific programs are targeted towards historically underserved populations. Recent research suggests that weatherization can reduce energy use by 25-35%, allowing households to reduce their financial energy burden. The federal Weatherization Assistance Program (WAP) provides energy efficiency upgrades for income qualified homeowners. However, in many states there is difficulty in reaching individuals who may be eligible. Lawmakers can pass legislation requiring outreach and education to groups eligible for WAP.

   The Fuel Assistance Program, administered by the New Hampshire Department of Energy, is the state's branch of the federal LIHEAP program, offering assistance with heating costs for qualifying residents.

5. **Energy Efficiency Resource Standards (EERS)** – EERS require utilities to demonstrate a reduction in energy demand from programs offered to their consumers. Because this means selling less electricity and reducing revenues, there is not always an incentive for the utility to make their consumers more productive or efficient users of electricity. If legislatures want to ensure a more productive and efficient energy distribution system that takes advantage of the latest technological innovations, they may want to require that a utility demonstrate a percent reduction in demand through efficiency or "demand side" programs. Legislators can also instruct their utility regulators to consider energy efficiency when approving rate cases, by allowing cost-recovery of energy efficiency improvements on a customer's utility bill.

   New Hampshire's 2018-2020 EERS required utilities to reduce electricity sales by 1.3% and natural gas sales by 0.8% in 2020 through increased efficiency. This provides significant opportunity for policymakers in New Hampshire to set new efficiency targets.

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[7] For more information, see the Office of Energy Efficiency & Renewable Energy's Commercial Buildings Integration (CBI) Program.

[8] Based upon research conducted by the Center for the New Energy Economy.

6. **Revenue Decoupling and Performance-Based Incentives** – Utilities earn revenue by selling electricity. As a result, there is no incentive for them to promote energy efficiency because it leads to a reduction in sales, and therefore a reduction in revenue. Revenue decoupling disconnects revenue from the amount of electricity sold. Rather than selling as much electricity as they can, they are allowed a set amount of revenue regardless of the amount of electricity sold. While this doesn't directly incentivize energy efficiency, it removes the inherent disincentive to promote energy efficiency.

   Incentive policies may be layered on top of a decoupling policy. For example, if a utility meets set energy reduction targets, performance-based incentives, as determined by a PUC board, provide monetary incentives for meeting those targets. This also ensures that customers benefit from the extra revenue from electrification by saving on their bills. Although New Hampshire has decoupling policies as noted above, as the electricity generation mix changes, it is important to incorporate a regular review of decoupling and incentive policies to ensure they are still meeting their intended purpose.

Electrification Policies

1. **Strategically Targeting Beneficial Electrification** – Target areas of beneficial electrification in buildings can be home heating and hot water systems, systems that typically use gas as a power source. According to the Environment and Energy Study Institute, new electric heat pump technology can heat space and water at efficiencies of 200 to 300 percent, compared to 67 percent efficiency in typical Energy Star gas water heaters.[9] This allows savings on electricity bills, as well as decreased greenhouse gas emissions.

2. **Tools Advancing Electrification Policies** – Primarily, building codes and incentive programs are used to advance electrification policies. In many states, the primary jurisdiction for these codes are local governments, however some state legislatures have incorporated requirements for local jurisdictions. Incentive programs managed by cities, utilities, or states can be targeted at replacement of fossil fuel resources with high efficiency electric appliances including water heaters, furnaces, ovens, and ranges. Heat pump water heaters and space heating systems are being incentivized as high efficiency replacements for traditionally fossil-based equipment. In conjunction with utility regulatory policy, these technologies can serve as demand response management tools by utilities in exchange for compensation to the ratepaying home or business owner.

   As a note, cities across the country are implementing new building codes promoting beneficial electrification by limiting or banning the installation of natural gas in new construction. At the same time, some states are passing pre-emptive legislation to disallow municipalities from banning new gas hookups.[10] State legislatures can work to pass enabling legislation, allowing specific municipalities to make independent decisions on electrification building codes.

Programmatically, there will always be greatest benefit by combining measures – so incentives that bundle improvements will generate greater gains than individual measures. For example, a high efficiency heat pump will be much more effective and efficient when coupled with insulation. The entire system will increase in efficiency, rather than just the mechanical component.

ELECTRIFICATION OF THE TRANSPORTATION SECTOR

An estimated 58% of new car sales will be electric by 2040. Therefore, a key part of building a modernized grid involves designing infrastructure that will facilitate easy connection of electric vehicles (EVs) to the grid. One of the most important barriers to increased adoption of EVs is the consumer's awareness of the availability of EV charging stations. Ultimately, drivers want to be sure that their car will get them where they need to go. The good news is that both supportive policies for developing charging infrastructure and technological advancements have eased this "range anxiety."

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[9] For more information, see EESI's Beneficial Electrification.

[10] See, "Battle Brews over Banning Natural Gas to Homes." The Wall Street Journal, 1 June 2021, https://www.wsj.com/articles/battle-brews-over-banning-natural-gas-to-homes-11622334674.

Enacted in 2018, Senate Bill 517 created an EV Charging Stations Infrastructure Commission to investigate ways to promote zero emission vehicles in the state. The commission was required to study many of the opportunities discussed below. The New Hampshire Electric Co-op currently offers a handful of incentives for EVs and charging stations, but the state does not offer such incentives. The American Council for an Energy-Efficient Economy (ACEEE) published a State Transportation Electrification Scorecard in 2021 that evaluates states' progress in electrifying transportation in six key policy areas and offers nationally applicable policy recommendations. New Hampshire is unranked in the 2021 report; however, the report does provide an overview of the current state of the state's EV policies and infrastructure.

The IIJA provides nearly $5 billion over the next five years to support the electrification of the transportation sector. In 2022, $615 million will be made available for the installation of charging stations along designated alternative fuel corridors. The Act also provides approximately $1.1 billion for grants to state and local governments to assist with the purchase or lease of low- or no-emission vehicles for transportation fleets. To be eligible, a state must have a Zero-Emission Fleet Transition Plan in place.

There are opportunities to expand the market for EVs in New Hampshire:

1. **Charging Infrastructure Plan** – Locating charging infrastructure is different from locating conventional fueling stations. While some drivers will need to charge more quickly, others will refuel when they are parked for longer periods of time, for example when shopping at the mall or going to work. Charging infrastructure plans should attempt to pair the appropriate level of charging (level 2 or direct current fast charging) with a reasonable amount of time a person will be at that location. Legislation could direct a state agency to develop an infrastructure plan through a stakeholder process.

   Regional collaborations around the U.S. are emerging to coordinate the development of electric transportation infrastructure. New Hampshire is a member of the Transportation and Climate Initiative (TCI) of Northeast and Mid-Atlantic States, which is exploring regional policy options to reduce emissions from the transportation sector.

2. **Parking Infrastructure Requirements** – In tandem with the development of a statewide plan, legislation could set requirements for parking lots and other infrastructure. Some states have adopted permitting standards for parking lots, requiring, for instance, that for every 100 parking spaces, there must be at least one EV charging space. Legislation could also incentivize utilities to develop make-ready locations. These locations supply power to the point where a utility or third-party developer might install an EV charging station. New Hampshire's statewide building energy code could also be updated to include requirements for EV charging infrastructure.

3. **EV and Charging Equipment Financing and Financial Incentives** – Providing financial incentives and innovative financing options can help spur greater market penetration of EVs. Sales, property, and income tax credits are some of the simplest methods for addressing the high up-front costs of EVs and EV charging equipment. While sales tax credits are typically applied at the time of purchase, property and income tax credits may do less to address upfront cost barriers, as the credit is not applied at the time of purchase.[11] States have adopted other financial incentives including low-interest loans, grants, vouchers, and rebates. A handful of states qualify EV charging equipment under their property assessed clean energy (PACE) programs. A simple solution is to increase and expand existing tax credits to incentivize commercial, publicly available charging stations.

NEWS

- June 6, 2022: Impacts of Bitcoin Mining in New Hampshire
- June 6, 2022: State Looking for Public Input on Proposed Electric Vehicle Plan
- May 21, 2022: NH Delegation Welcomes $1M to Continuum in North Conway to Support Wood Energy
- May 3, 2022: After Turmoil, New Energy Efficiency Plans Approved by PUC
- April 18, 2022: New Hampshire Legislation Aims to Preempt State's Net-Metering Study
- February 15, 2022: Eyes are on New Hampshire for Wind Power Potential
- November 10, 2021: Here's What's Next for the Infrastructure Package in New Hampshire

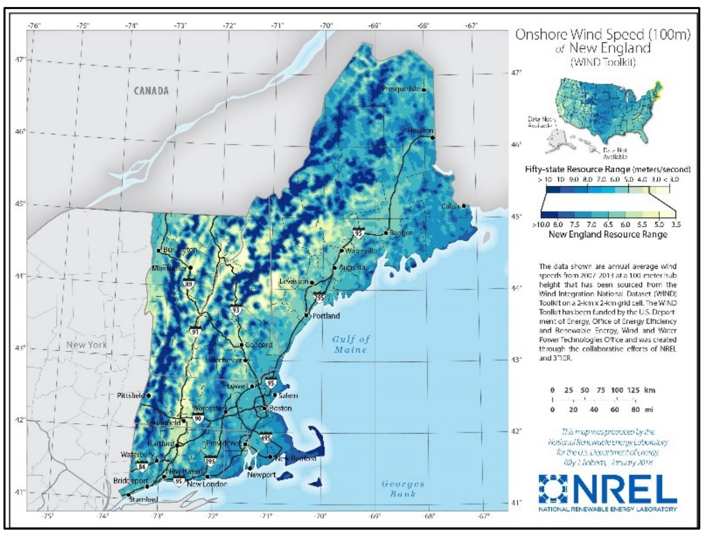
[11] A study by the Congressional Research Service suggests that tax credits are important tools for ensuring increased adoption of alternative-fueled vehicles.

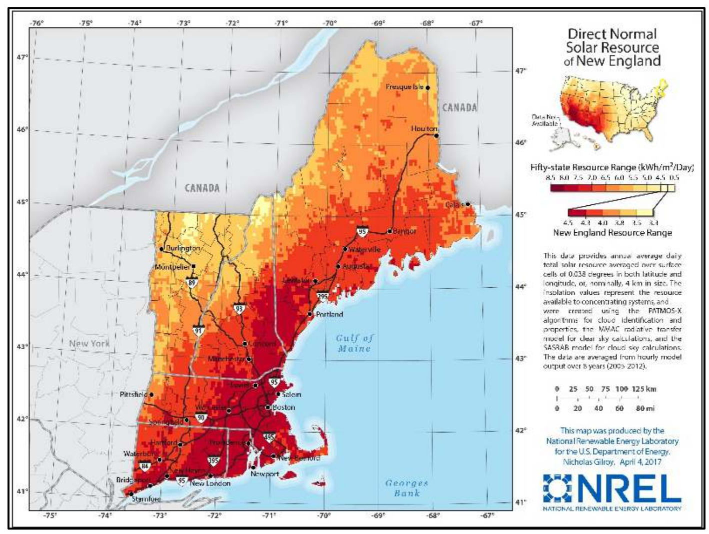
OTHER RESOURCES

- American Wind Energy Association (AWEA): https://www.awea.org/resources/fact-sheets/state-facts-sheets
- Clean Energy NH: https://www.cleanenergynh.org/
- The American Council for an Energy-Efficient Economy State and Local Policy Database, New Hampshire: https://database.aceee.org/state/new-hampshire
- The Database of State Incentives for Renewables and Efficiency, New Hampshire: https://programs.dsireusa.org/system/program?state=NH
- U.S. Department of Energy's Alternative Fuels Data Center, New Hampshire: https://afdc.energy.gov/states/nh
- U.S. Energy Information Administration, New Hampshire: https://www.eia.gov/state/?sid=NH
- American Clean Power Association, New Hampshire State Fact Sheet: https://cleanpower.org/wp-content/uploads/2022/06/New-Hampshire_clean_energy_factsheet.pdf
- SPOT for Clean Energy, New Hampshire: https://spotforcleanenergy.org/state/new-hampshire/

NEW ENGLAND'S WIND AND SOLAR RESOURCES

WIND https://windexchange.energy.gov/states/NH
SOLAR https://www.nrel.gov/gis/solar.html





Our Resources

CNEE Homepage: https://cnee.colostate.edu/

The SPOT for Clean Energy: https://spotforcleanenergy.org/

The Advanced Energy Legislation (AEL) Tracker: https://www.aeltracker.org/

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