

NAVIGANT

ENERGY

New Hampshire State Energy Strategy

Draft Energy Vision



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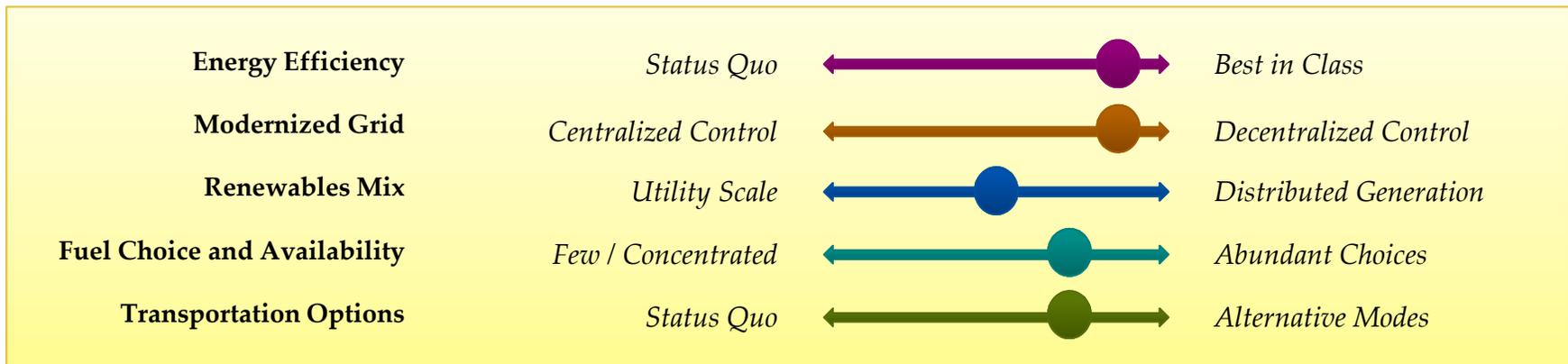


Navigant has prepared the following vision for energy in NH.

In 2025, consumers are empowered to manage their energy use by taking full advantage of the information, market mechanisms, energy efficient technologies, diverse fuel sources, and transportation options available to them. These services extend from the city centers and coastal areas of Southern New Hampshire to the rural corners of the Western regions and the North Country - closing the gap in disparity of energy services across the state. The results of these widespread consumer empowerment initiatives are lower energy bills, greater choice for the consumer, increased self-reliance, and a cleaner, more sustainable and resilient energy system.

From an economic perspective, New Hampshire’s stable energy policies leverage public funds ten to one – inspiring investor confidence, creating high quality jobs, and attracting new residents and businesses to the state. Efficient transit systems help make New Hampshire tourist friendly and the state’s high efficiency building stock, skilled workforce, and well managed natural resources make it regionally competitive and help keep dollars in state. As an active participant in New England’s broader energy economy, in-state suppliers of energy services receive the proper signals to drive their business decisions toward creating an efficient and secure energy system that delivers cost-effective, clean energy to all.

The energy vision for New Hampshire can be described as it relates to the following five attributes:



New Hampshire's energy future features best in class efficiency measures to help consumers and businesses lower their bills and emissions.

Energy Efficiency

Status Quo



Best in Class

Energy Efficiency

Across New Hampshire, many of the newest homes as well as commercial and public buildings produce as much energy as they consume - putting the state on track to meet a net-zero energy code in later years. Additionally, many older buildings have benefited from deep energy retrofits, owing to an informed consumer base that understands what drives their energy bills and appropriately values the short and long term benefits of higher efficiency homes and businesses. These efforts incorporate the latest in energy efficient technologies, resulting from flexible policies and diverse market-based financing mechanisms that allow customers of all income levels to access the technologies they wish to use. Because of these efforts, every dollar spent on energy in New Hampshire adds value to the lives of its residents and the prosperity of its businesses.

Examples of Implementation

- **Building design for efficiency**
- **Advanced building envelope materials (high efficiency insulation, windows, walls materials, roofing)**
- **High efficiency appliances and building systems (HVAC, white goods, consumer and commercial electronics)**
- **Extensive deep efficiency retrofits**
- **Combined heat and power**
- **Market demand (driven by informed consumer base)**
- **Flexible financing mechanisms**

New Hampshire's grid and information systems empower consumers to manage their energy bills while improving security and resiliency.

Modernized Grid

Centralized Control



Decentralized Control

Modernized Grid

Beyond simply using less energy, many of the energy saving technologies embedded in New Hampshire's homes and businesses provide consumers with valuable information about their energy consumption while protecting their privacy. This gives consumers both peace of mind and the power to effectively manage their bills and contain costs. By opening lines of communication with grid operators, consumers may choose to manage their energy themselves or rely on third party providers of energy management services to respond in real time to changing energy prices and other market conditions to help them further reduce their energy bills. Access to real time data and open communications also contribute to greater reliability of New Hampshire's energy infrastructure, providing timely information to consumers so that they may plan and respond accordingly to unanticipated events and help isolate outages.

Examples of Implementation

- **Two-way communication with grid**
- **Data availability and clarity**
- **Consumer education on cost drivers**
- **Real-time energy management (self-administered or by 3rd party providers)**
- **Smart appliances and networked building systems**
- **Time-of-use (TOU) and other dynamic pricing programs**
- **Coordinated demand response**
- **Automated outage detection and isolation**

New Hampshire's future energy policies incent the expansion of distributed generation and use of local resources to meet its RPS.

Renewable Power

Utility Scale



Distributed Generation

Renewable Power

In addition to simply saving energy, many individual households and businesses produce power themselves - participating in dynamic local energy markets powered by distributed generation. These localized energy systems provide an additional measure of resilience against grid outages and other supply disruptions by seamlessly switching between various fuels and stored power. Further, by relying on renewable resources, they reduce reliance on imported fuels and foster self-sufficiency within communities across the state. In 2025, the combination of reduced demand and further development of diverse renewable power generation assets helps New Hampshire achieve its renewable portfolio standard target level.

Examples of Implementation

- **Both utility scale and distributed generation**
- **Capitalize on local resources**
- **Community power systems**
- **Ancillary services from electric storage (load shifting, frequency regulation)**
- **Financing mechanisms reduce first costs**
- **RPS Met**

Consumers across the state have affordable access to a variety of choices for both heating and transportation fuels.

Fuel Choice and Availability

Few / Concentrated



Abundant Choices

Fuel Choice and Availability

In 2025, the residents and businesses of New Hampshire have many choices in the fuels they use for power, heat, and transportation. Consumer's options for home heating are no longer strictly limited by their geographic location, offering residents greater peace of mind in the face of fluctuating fuel prices. Additionally, consumers use the diversity of available fuels and the interconnected relationship of energy used across the electric, thermal, and transportation sectors to their benefit – storing electricity in the batteries of their electric vehicles, or powering air-source heat pumps with energy generated from their rooftop solar panels as examples. By embracing a diverse and interconnected set of energy solutions, these systems promote the self-reliance of both individual communities and New Hampshire as a whole. The options for both power generation and building heating are enhanced by a boom in home-grown clean energy from New Hampshire - keeping dollars in state and reducing pollution.

Examples of Implementation

- **Fuel choices are available across the state (regardless of geography, income, etc.)**
- **Capitalize on local resources**
- **Community power and heating systems**
- **Thermal electrification (heat pumps)**
- **Fuel flexibility across sectors (electric, thermal, transportation)**

Many options for exist for AFVs, planned communities, and public transit.

Transportation Options

Status Quo



Alternative Modes

Transportation Options Vision

In the transportation sector, widespread vehicle charging infrastructure is the norm across the state and fueling stations supporting the latest technology and alternative fuels dot the highways. Using this infrastructure, residents and business take advantage of the many options for electric vehicles, plug-in hybrids, and other new transportation technologies. Access to these technologies is granted by programs that finance the incremental investment with downstream savings. Walking communities, ride shares, and enhanced public transit options exist to benefit residents of all ages (including New Hampshire's aging population as well as its youth) who prefer a lifestyle free from personal automobiles. These options return both time and money to the communities of New Hampshire and contribute to improved air quality in city centers. New Hampshire's public transit options also benefit those visiting the state, ferrying skiers and hikers alike to the state's many resorts and abundant outdoor attractions and further bolstering the state's tourism industry. Most importantly, residents of New Hampshire get where they need to go without sending money out of state, or overseas.

Examples of Implementation

- **Extensive vehicle electrification**
- **Ubiquitous charging infrastructure**
- **Flexible alternative fueling infrastructure (NG, hydrogen, etc.)**
- **Ride sharing**
- **Avoided single occupancy VMT**
- **Planned communities built around pedestrians, bikeways, and public transit**
- **Group transit supports tourism**
- **Flexible financing mechanisms leverage downstream savings for upfront investments**