

NAVIGANT

ENERGY

New Hampshire State Energy Strategy



Draft State Energy Strategy



May 16th, 2014

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1. » Strategy Context and Process Overview



2. » Strategy Recommendations

- a. Energy Efficiency
- b. Grid Modernization
- c. Renewable Energy
- d. Alternative Fuel Choices
- e. Transportation Options



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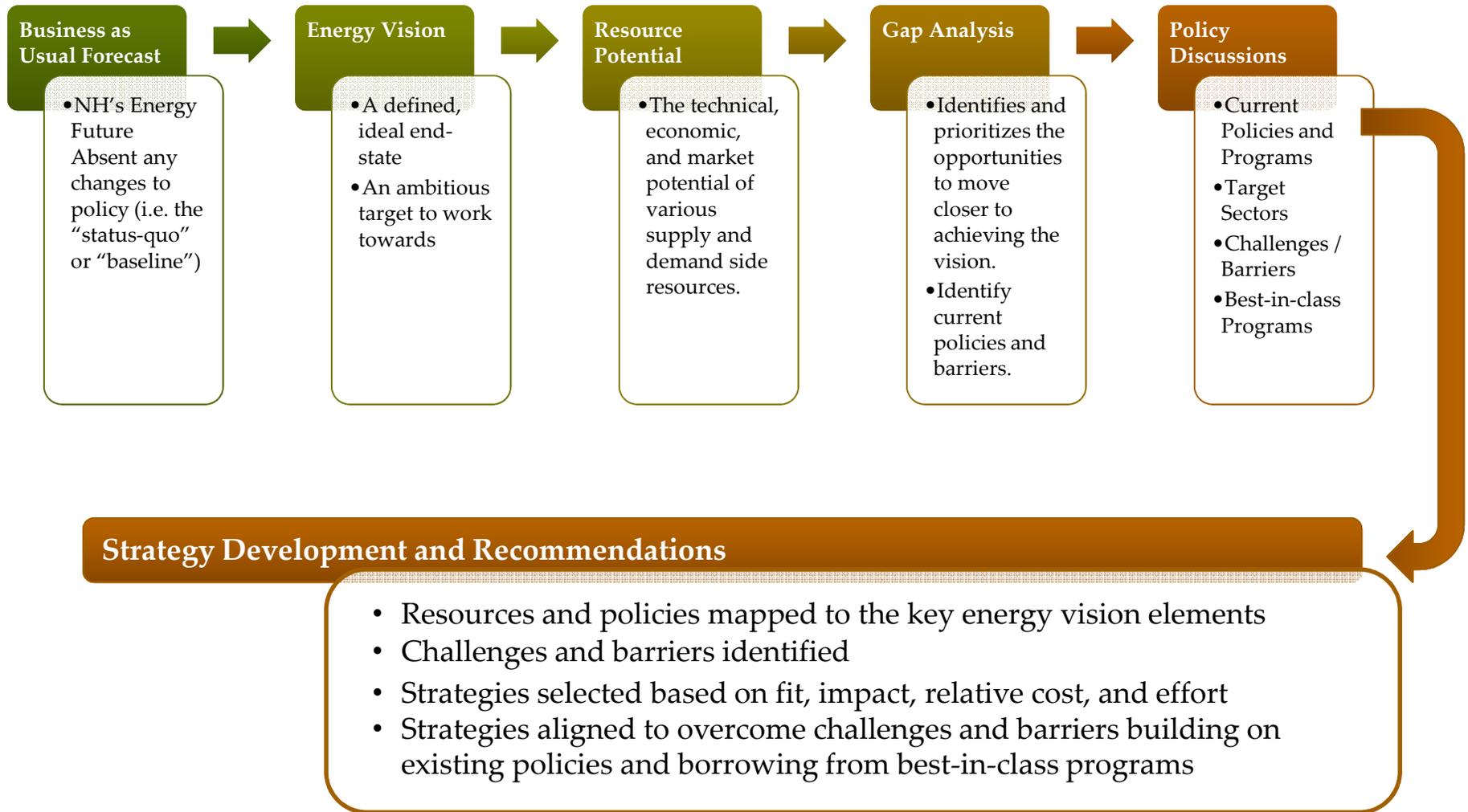
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The Draft Strategy was written with consideration of the following items :

- SB191 reflects the Legislature's desire to be more informed about the State's energy future and to have policy recommendations to help get there.
- Our charge did not include a specific goal to work toward. As a result, this process required us to define the vision/goals, and develop the strategies to achieve them.
- NH is not an energy island and some issues are not directly within the state's control. Therefore, the strategy focuses on actions the state can take:
 - Ensure New Hampshire proactively represents its interests on regional matters
 - Align incentive structures to achieve the vision
 - Promote consumer awareness of the options available
 - Remove barriers blocking private investment
 - Use limited public funds more effectively to spur private investment (and to help those who can't afford to take action)
- The Final Strategy will help inform agency and private activities, but many of the recommended strategies will require legislation to be implemented.

Over the last six months we've worked through the process together.



Following today's presentation, work leading to the final strategy will continue this summer.

Today, we are presenting the strategy and getting feedback from the advisory council and public.

In June, OEP will travel outside of Concord to get additional public input.

July 25th is the deadline for all comments on the Draft Strategy.

On September 1st, OEP will release the Final Strategy.

This Fall: Implementation work begins!

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Despite long standing programs, numerous studies have identified substantial remaining cost effective efficiency.

Energy Efficiency Context

- NH has had efficiency programs in place for over 10 years.
- In 2009, GDS conducted study for the PUC on the potential for energy efficiency in NH. Study noted: significant additional cost-effective, efficiency remaining, but NH cannot capture them without program and/or policy changes.
- In 2011, VEIC and GDS conducted a study for the EESE Board on efficiency and clean energy issues. It reaffirmed the savings being left on the table, and recommended specific program/policy changes.
- In 2013, VEIC and GDS prepared report detailing how NH could increase annual efficiency savings by 715.4 Million kWh by adopting an EERS or other goal-setting approach. Noted: NH is missing out on \$355M annually in energy savings and related economic growth.
- This Draft Strategy builds on these studies and reports, again recommending that NH do more to reap the benefits of cost-effective, energy efficiency.

The strategy development process identified several challenges facing the vision for energy efficiency.

Efficiency Vision Elements & Challenges

- More extensive deployment of “deep” energy retrofits
 - Misaligned utility incentive structures lead to low market penetration for efficiency, and to only implementing low hanging fruit
 - Inadequate, conflicting or unclear goals for utilities
- Retrofit efforts incorporate latest in energy efficient technologies
 - High upfront cost of energy efficient technology
 - Need for fuel blind incentives to allow whole building approach
- Diverse market-based financing mechanisms
- Consumer base understands what drives their energy bills and appropriately values efficiency
 - Lack of consumer awareness on the benefits of energy efficiency
 - Consumer confusion on where to find information and how to access programs

The following points summarize a strategy to achieve the vision for energy efficiency.

Energy Efficiency Strategy

- **Address utility disincentives through rate redesign.** Utilities currently have a strong incentive to sell more energy to maximize profits, which directly conflicts with their charge to administer efficiency programs that reduce sales.
- **Establish an Energy Efficiency Resource Standard (EERS)** following the guidelines and metrics outlined in the 2013 VEIC Report: Increasing Energy Efficiency in New Hampshire: Realizing our Potential.
- **Revise the performance incentive for utilities within the CORE program.** The revised formula should include tiered incentives that reward greater levels of efficiency, and should clearly support goals established for the programs through the EERS.
- **Establish a Green Bank model to better leverage private financing and increase program coordination.** The state should investigate whether a “Green Bank” could leverage existing public funds to increase private investment for energy efficiency and help provide coordination of various financing programs to decrease consumer confusion.
- **Market the value of high efficiency buildings to consumers.** A portion of the budget of each program should be allocated to marketing and consumer education. Messaging should focus on the financial benefits and increased comfort of high efficiency buildings.

Several other program options could be considered.

Other Considerations for Energy Efficiency

- **Advance PACE Financing** - Coordinate with any Green Bank model that the state pursues
- **Building Codes and Compliance** – NH should strive to adopt the most recent code, and work with municipalities and the building industry to find creative ways to help them with the challenge of compliance
- **Consider expanding NHSaves model to create All Fuels Efficiency Program, with Thermal SBC** - Engage additional private sector energy suppliers in the delivery of efficiency programs

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The current grid doesn't facilitate the flow of information needed to create informed, empowered consumers.

Grid Modernization Context

- The grid planning and investment policies and tools that exist today were developed back when utilities were vertically integrated and relied on large scale centralized generation.
- Those policies have not kept pace with changes in energy technologies, regulatory frameworks (restructuring), and public policy goals, and can present barriers to pursuing clean energy and demand side resources.
- Facilitating development of new clean heat and power sources, energy efficiency, electric vehicles and maximizing consumer value will require a smarter, more nimble, two-way system.

The vision for grid modernization centered around three key elements:

Grid Modernization Elements & Challenges

- Give consumers information about their energy consumption while protecting their privacy
 - Limited deployment of smart meter technology
 - Concerns over privacy and health
- Empower consumers to respond to energy prices and market conditions
 - Few time of use and demand response programs
- Increase reliability through increased information and appropriate technology
 - Need more programs to encourage storage adoption

The following points summarize a strategy to achieve the vision for grid modernization.

Grid Modernization Strategy

- The PUC should **open a docket** to explore appropriate Grid Modernization for the state.
- The electric utilities should **implement consumer education programs** on the benefits of the smart grid.
 - Engage other key stakeholders in NH, such as the EESE Board and low-income advocates.
- **Utilize existing Distributed Energy Resources statute (RSA 374-G)** to increase deployment of energy storage and other innovative technologies by utilities.

Several other program options could be considered.

Grid Modernization Other Challenges

- **Micro-grids:** Long term strategy; technology is new, and it relies on the larger infrastructure investments first.
 - Keep in mind as regulatory frameworks and policies are developed to facilitate micro-grids in the longer term.
- **Expanded Demand Response/Real-Time Pricing Programs:** Another long-term strategy that requires the infrastructure investments (real time metering) first.
 - Although paybacks are likely to be significant, accelerating this strategy in the medium term would require significant investment of time and capital.

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Without a revised strategy, New Hampshire is not forecast to meet its renewable portfolio standard of 25% renewable generation by 2025.

Renewable Energy Context

- A balance between grid-scale and distributed resources is essential to the reliability, security, and affordability of the NH energy system.
- A desire for cleaner energy sources, and for in-state economic benefits.
- Reducing the state's reliance on imported fuels will generate significant economic benefits, as the dollars are kept in state, rather than exported.

The vision for renewable energy describes a future with abundant distributed generation at the household and community level.

Renewable Energy Vision Elements & Challenges

- Many individual households and businesses produce power themselves
 - Upfront cost of Distributed Generation
 - Can be difficult to secure financing
- There is abundant distributed generation
 - Intermittent power generation
 - DG interconnection can be expensive and time consuming
- NH achieves its renewable portfolio standard
 - Inadequate / improperly structured RPS, REC Prices, and ACP means renewables get built in NH to meet RPS out of state

The following points summarize a strategy to achieve the vision for renewable energy.

Renewable Energy Strategy

- Develop **model processes for implementing property tax exemptions** for renewable energy systems, as allowed under RSA 72:61-72.
- Explore using the existing **Renewable Energy Fund (REF) to leverage private financing.**
- **Open a docket** to examine whether **rate design changes** including dynamic pricing mechanisms could better incent DG by recognizing the value that it provides to the grid.
 - The docket should include evaluation of demand response and storage.
- Investigate whether the **RPS targets and ACPs for each source** are aligned with the economic potential of that source.
- Examine whether a **Feed in Tariff** would provide a better incentive than the current net metering structure.

NH could consider several other options specific to each type of renewable power.

Other Considerations for Renewable Energy

- **Encourage Large Scale Solar**
 - Low ACP prices need to be addressed
 - DG Statute is underutilized
- **Biomass for Thermal/CHP Uses**
 - More efficient to use biomass for direct thermal loads/CHP than for electric generation
- **Terrestrial Wind**
 - Additional development should focus on community scale development
- **Offshore Wind**
 - The high cost of offshore wind in combination with NH's limited coastline create an extremely limited market. Changes in technology may prove fruitful in years beyond the horizon of this strategy.
- **Small Scale Hydroelectric**
 - Limited potential in remote locations not near load centers constrains the ability of this technology to contribute to NH's electricity profile.

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Consumer choice for thermal fuels is limited by geographic location and the upfront cost of new technology.

Fuel Choice Context

- Disparities in fuel availability and price are impacting the competitiveness of some communities in attracting and retaining businesses.
- Residential consumers are similarly impacted by high prices for fuels when they don't have an option to switch (particularly heating oil).
- Increasing fuel availability can help consumers control costs by allowing them to switch fuels during times of price volatility.
 - To the extent that these new fuel choices are in-state resources such as biomass or other renewable technology, enabling their use will also increase the overall security of the energy system and generate economic returns.

The energy vision looks to increase fuel choice regardless of geography and move consumers to more flexible systems.

Fuel Choice Vision Elements & Challenges

- Residents and businesses of NH have many choices in the fuels they use
 - Changing thermal fuels requires upfront investment
 - Consumers awareness regarding the availability and fit of alternative sources of thermal energy
- Consumers' options for home heating are no longer strictly limited by their geographic location
 - Consumer awareness on renewable thermal options may not reach rural areas
 - Natural Gas distribution is limited by supply infrastructure
- Consumers use the diversity of available fuels and the interconnected relationship of energy used across the electric and thermal sectors
 - Upfront costs of electric thermal systems
 - Consumer awareness of the benefits of a flexible fuel system

The following points summarize the strategy for promoting choice in alternative fuels.

Fuel Choice Strategy

- Explore ways to attract more **private financing** for clean energy projects, perhaps in coordination with efficiency financing.
- **Set targets for gas utilities** to achieve higher utilization rates for gas among on-main consumers.
- **Continue the development of the renewable thermal requirement of the RPS** to maintain momentum in adoption of renewable thermal technologies.
- **Clarify permitting requirements for trucked natural gas** transfer stations to extend gas access to off main consumers.
- **Fund outreach and education programs** on the advances in technology, costs, and benefits of alternative fuels and how they can be utilized by individual consumers.

Several other program options could be considered.

Other Considerations for Fuel Choice

- Alternative technologies for home heating and space conditioning are application specific.
 - Programs must be flexible in the technologies they support focusing on relative improvements and leaving technical recommendations to energy auditors and decisions to consumers.
- Biomass for thermal energy presents a significant economic opportunity, but the role the state should play in facilitating the growth of this market is unclear.

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Fuels used in transportation are almost exclusively purchased from out of state.

Transportation Context

- In NH, transportation is responsible for 35% of energy usage, and 100% of gas and diesel (excepting bio fuels) is imported, resulting in dollars leaving the state.
- Energy-related transportation initiatives are rarely integrated with more traditional efforts, but they are highly linked. Reducing Vehicle Miles Traveled (VMT) and transitioning to more efficient vehicles (which tend to be lighter) not only saves energy, it also reduces wear and tear on our roads and helps constrain spiraling maintenance costs
 - In the past two decades, the cost of paving materials has increased over 400%.
- Electrifying the transport sector will also save drivers money. Current estimates of cost equivalent for electric cars are \$1.65 a gallon. Shifting to electric vehicles will reduce our total expenditure on transportation fuels and slow the flow of wealth out of the state.

The vision looks to reduce fuel expenditures to save consumers money while improving the overall transportation experience.

Transportation Vision Elements & Challenges

- Increased availability of electric vehicles, plug-in hybrids, and other new transportation technologies
 - Manufacturers have little incentive to market and support alternative technologies
- Widespread vehicle charging infrastructure and alternative fuel filling stations
 - Limited access to charging stations
 - Only one public natural gas refueling station
- Enhanced options for mass transit and supportive land use
 - 21 separate mass transit organizations
 - Minimal use from out of state visitors

The strategy will work to increase customer access to alternative fuel vehicles and reduce vehicle miles traveled.

Transportation Strategy

- **Adopt CA-LEV II and ZEV emission standards**
- **Include EV and Natural Gas requirements for state vehicle procurement**
- **Install and support a wide spread EV charging infrastructure in NH, making sure that any State or local-government-owned stations are made available to the public.**
- **Work with municipalities to support alternative fuel fleets.**
- **Enhance support of municipal smart growth and transportation efforts**
- **Expand upon the I-93 task force.** Work with regional transit agencies and private partners to coordinate schedules and services using the General Transit Feed Specification
- **Continue anti-idling efforts**

Several other program options could be considered.

Other Considerations for Transportation

- **VMT pricing programs**
 - Although pilot programs are in place across North America, NH would have to innovate and become one of the first states to implement this type of system.
- **Increased fees for parking to reduce miles driven**
 - NH generally doesn't have a parking problem.
 - Even with improved public transport, many will still need to drive.
- **High occupancy vehicle lanes**
 - Without congestion - HOV lanes do little to incent ridesharing
- **Direct rebates or tax breaks for EV purchases**
 - Minimal funds available and this approach "picks winners"
- **Cash for clunkers program**
 - Requires significant funding, and would be of debatable use.
- **Increase registration fees for less fuel efficient vehicles**
 - Significant fees would be politically divisive, and actually pale in comparison to fuel economy savings.

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The draft strategy recommendations will be shared across the state in several public meetings, and the final strategy is due September 1.

In June, OEP will travel outside of Concord to get additional public input.



July 25th is the deadline for all comments on the Draft Strategy.



On September 1st, OEP will release the Final Strategy.



This Fall: Implementation work begins!

Comments due to OEP by July 25th

OEP welcomes comments sooner.

All strategy materials are at:

<http://www.nh.gov/oep/energy/programs/SB191.htm>

Please submit comments to: oepinfo@nh.gov

Key CONTACTS



©2014 Navigant Consulting, Inc.

Ben Barrington – Project Manager
Managing Consultant
Atlanta, GA
404-575-3834
ben.barrington@navigant.com

Andrew Kinross
Director
Burlington, MA
781-270-8486
akinross@navigant.com

Randy Armstrong
Senior Consultant
Burlington, MA
781-270-8408
randy.armstrong@navigant.com

Lisa Frantzis
Managing Director
Burlington, MA
781-270-8314
lfrantzis@navigant.com