



# NECEC Response to New Hampshire Draft State Energy Strategy

July 2014

The New England Clean Energy Council (NECEC) respectfully offers these comments on the Draft New Hampshire State Energy Strategy for the Office of Energy and Planning's consideration. NECEC is the lead voice for hundreds of clean energy companies across New England, influencing the energy policy agenda and growing the clean energy economy. NECEC's mission is to accelerate New England's clean energy economy to global leadership by building an active community of stakeholders and a world-class cluster of clean energy companies. NECEC is the only organization in New England that covers all of the clean energy market segments, representing the business perspectives of investors and clean energy companies across every stage of development. Council members span the broad spectrum of the clean energy industry, including energy efficiency, demand response, renewable energy, combined heat and power, energy storage, fuel cells and advanced and "smart" technologies. Our members also include venture investors, major financial institutions, universities, industry associations, utilities, labor and large commercial end users. NECEC works with the New Hampshire Sustainable Energy Association in New Hampshire, where many of our members are operating and investing, and more are interested in doing so.

## INTRODUCTION

New Hampshire is at a pivotal point as it develops a long-term energy strategy. Given the changing economics of energy production, proliferation of distributed energy resources, anticipated environmental regulatory requirements, and customer expectations and needs for resilient, reliable, safe and affordable energy produces and services, New Hampshire should take the opportunity to explore a transition to a clean energy future and the economic development benefits it can bring to the state. The New Hampshire Draft State Energy Strategy is a laudable step toward achieving that goal. While the following issues and areas are addressed to some extent in the Draft State Energy Strategy, NECEC offers these comments to identify critical elements that should be included and addressed in a long-term plan for the clean energy future of the State of New Hampshire.

New England has seen notable clean energy progress in the last half dozen years with more than double the amount of renewable energy from wind, solar, biomass and other renewables, and nation-leading progress in energy efficiency. Yet New Hampshire is still in very early stages of a transition to a clean energy-based economy with only about 5 percent of the state's net electricity generation coming from Class 1 renewable resources last year<sup>1</sup>. While energy efficiency has the potential to bend the demand curve leading to a lowering of energy bills and the avoidance of capital investments in new generation and transmission, our efficiency investments are not even capturing the tip of the iceberg each year. The New England region is just beginning to develop a world-class industry that creates clean energy technologies, products and services to serve a rapidly growing global clean energy market. If fostered and supported, this sector can continue to thrive not only in surrounding states, but in New Hampshire as well, creating more clean energy jobs that range from the development and manufacturing of innovative clean energy technologies to be deployed throughout the world, to on-the-ground use of renewable energy and energy efficiency that saves energy consumers money throughout the state and larger region.

New Hampshire needs strong goals and guidelines that emphasize clean energy and policies that support its continued growth and positive contributions to the region's economy, energy system and

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<sup>1</sup> ISO New England, *New Hampshire 2013-2014 State Profile*

environment. The New Hampshire State Energy Strategy should encourage leaders to make a commitment to evolving policies that enable energy markets to drive innovation, scale clean energy in a cost-effective manner and advance the state to a 21<sup>st</sup> century energy system. The State Energy Strategy should focus on major clean energy issues, namely **Renewable Energy, Energy Efficiency, Innovation, the 21<sup>st</sup> Century Electricity System, and Carbon Reductions**. Moreover, it should suggest policies that will grow New Hampshire's clean energy economy to a position of leadership and advance the state on its path to a clean energy future that creates a more sustainable and resilient economy, drives job growth, and protects the environment. It is essential that New Hampshire's State Energy Strategy acknowledge and stress the importance of the following:

- **Renewable Energy:** Renewable energy is New Hampshire's only indigenous energy resource and is becoming increasingly cost-effective as markets have grown. The New Hampshire State Energy Strategy should stress the importance of consistent policies that extend and expand standards, renewable credits, financing mechanisms, competitive procurement structures, as well as support for large projects, community-scale, distributed generation and new technologies, to increase renewable energy and related companies and jobs.
- **Energy Efficiency:** Energy efficiency is our least cost energy resource. The New Hampshire State Energy Strategy should support policies that create and grow market opportunities for energy efficiency, expand codes and disclosures that accelerate building efficiency investments, expand programs for deeper building retrofits and adoption of new technologies, and consider new "green bank" and PACE (property assessed clean energy) financing models to lower capital costs and accelerate return on energy efficiency investment.
- **Innovation:** The State Energy Strategy should recommend creating and expanding policies and programs to support innovation, entrepreneurial development and market acceleration for next generation clean energy technologies and innovative business models.
- **21<sup>st</sup> Century Electricity System:** The Strategy should encourage policies that will foster the creation of a modernized electric grid, with two-way information and power flows, that can link and serve as a platform for both centralized power plants and customer-sited distributed generation, while enabling demand reduction, and new innovations and energy services.
- **Carbon Reduction:** The New Hampshire State Energy Strategy should emphasize the importance of staying in and strengthening the Regional Green House Gas Initiative, exploring options to expand RGGI to other states and other sectors of the economy, and developing policies and roadmaps for natural gas to be a bridge, not a barrier, to a long-term low-carbon economy. New Hampshire's participation in RGGI to date is delivering \$100 million in net benefits to the state's energy consumers<sup>2</sup>.

## Renewable Energy

New England, and by extension New Hampshire, is at the end of the energy pipeline and sends billions of dollars outside the regional economy each year to pay for imported fossil fuels for electricity and transportation, making the region vulnerable to high and volatile energy prices. Diversifying the state's energy supply with renewable energy is a key way New Hampshire can keep its energy dollars in the state and region, and the most efficient way to allow energy consumers to secure the stable energy prices that aren't subject to price volatility, needed to grow our economy and to clean our environment.

Over the last decade, the region's electric grid has shifted from one predominantly fueled by oil, coal and nuclear to one fueled by natural gas. With nearly 50 percent of our energy coming from natural gas<sup>3</sup>, the region is exposed to significant price volatility and seasonal supply constraints. Natural gas cannot become a larger part of the mix without increasing our vulnerability. To meet our long-term GHG

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<sup>2</sup> The Analysis Group, *The Economic Impacts of the Regional Greenhouse Gas Initiative on Ten Northeast and Mid-Atlantic States*

<sup>3</sup> ISO-NE, *2014 Regional Electricity Outlook*

reduction goals and continue to scale the value and competitiveness of renewables, gas fired generation as a percentage of the mix needs to be reduced over the long term by adding a diverse array of renewables and other non-emitting resources to the region's and New Hampshire's energy supply.

The good news it is that the amount of renewable energy powering our region has been steadily growing, due in large part to forward-thinking public policy and increasingly innovative and competitive energy markets that are driving distributed generation, as well as large utility scale renewable energy power plants. These market signals and increasingly competitive procurement mechanisms have contributed to double-digit annual cost declines for renewables, with onshore wind already becoming competitive with other forms of generation. It is expected that by 2020, 15 percent of the region's energy will come from renewable sources and hydro. However, many of New Hampshire's current renewable energy policies, standards and programs, which were designed to achieve 2025 goals, are in need of extension and expansion. The New Hampshire State Energy Strategy should encourage policies to drive the development of renewable energy beyond 2025, and must prioritize the next major clean energy transition in the 2025 to 2030 timeframe with the following policy suggestions:

- Expand the state's Renewable Portfolio Standard by an accelerating annual rate, and extend it past 2030
- Commit to supporting programs that spur onshore renewable energy deployment, such as competitive solicitations, Long Term Contracting, Renewable Energy Credits, bulk community-buying programs such as "solarize," new financing structures that lower capital cost and financing terms, and growing private sector competition combine to drive down the cost of renewable energy for consumers.
- Implement innovative policies to spur the same shifts for the region's largest energy resource—offshore wind. With five to ten gigawatts of potential energy resources, offshore wind is truly New England's ticket to mastering its energy future and achieving a carbon free economy. New Hampshire State Energy Strategy should encourage cooperation with other New England states to create a roadmap that lays out policies and programs that create markets for offshore wind to achieve grid parity by 2030.

### **Energy Efficiency**

Energy efficiency is the easiest, cleanest and cheapest way to reduce New Hampshire's energy needs, save energy consumers money, and create local jobs. The combination of old housing stock and high energy prices compared to the rest of the country makes energy efficiency a no brainer for the state. The New England's nation-leading energy efficiency policies have spurred more than \$3.3 billion in energy efficiency investments. This investment is expected to deliver \$19.5 billion dollars in economic benefits, and billions of dollars that will recirculate into the New England economy.<sup>4</sup> Despite such achievements, the region and New Hampshire have just barely begun to tap the potential of energy efficiency.

The New Hampshire State Energy strategy should make pursuing all cost-effective energy efficiency a policy priority. It should stress the importance of applying innovative approaches to drive energy efficiency adoption, embracing new technologies, financing mechanisms and business models that can open the door to broader and deeper impact energy efficiency projects that scale across neighborhoods, communities and municipalities. In addition, the New Hampshire State Energy Strategy should encourage the following policies to create and promote more market opportunities for energy efficiency, while educating homeowners, building owners and businesses about energy efficiency and its associated economic and environmental benefits.

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<sup>4</sup> ENE, *Energy Vision*

- Set a standard to reduce system peak energy
- Establish Home Energy Ratings, which would be disclosed before the sale of any home and Building Energy Reporting and Disclosure Ordinances, requiring larger buildings to report annual energy and water use, and update and enforce compliance with more stringent building energy codes
- Accelerate the introduction of new technologies, models and projects into energy efficiency markets, such as treating voltage optimization<sup>5</sup> and combined heat and power (CHP) as an energy efficiency resource, expanding deep energy retrofits, and supporting investments in next generation building controls.

To further expand energy efficiency, the New Hampshire State Energy Strategy should explore innovative “green bank” financing programs, similar to those in Connecticut and New York, that utilize public/private structures to lower financing costs and offer long-term repayments to enable deep energy efficiency projects (often combined with onsite renewable generation) that pay for themselves from day one. New Hampshire has begun this process with recent legislation to expand its nascent PACE program.

### **Clean Energy Innovation and Regional Competitiveness**

New England’s clean energy researchers, entrepreneurs, engineers, business executives, labor and investors are driving economic growth, stimulating creation of new jobs and businesses, and helping create a cleaner energy system as they develop new and innovative clean technologies. The new innovations being developed by the region’s leading entrepreneurs can not only keep New England and New Hampshire on a clean energy path but can also solve some of the world’s greatest energy challenges. With its density of academic and research institutions, and with one of the leading innovation economies in the entire world, New England will always attract talented business people who want to start companies in the region. New Hampshire will benefit greatly from attracting these entrepreneurs to the state specifically. With these innovation resources as a solid foundation, there are numerous steps the New Hampshire State Energy Strategy can take to further and foster clean energy research and entrepreneurship to ensure that innovative clean energy companies start, grow and stay in the state.

Clean energy innovation and company growth mirrors many aspects of other innovation sectors that have been strong parts of the New England economy, including information technology and life sciences. The region’s states have played a variety of roles to support growth of these industries, and to address funding, siting and institutional barriers to regional growth. Clean energy innovations have particular challenges that need the public and private sectors to take a combination of actions. The private sector in New Hampshire needs to lead with entrepreneurs and investors taking appropriate private sector risks, and the state’s public sector needs to provide additional support and market structure assistance at two stages:

- 1) Initial seed funding and access to technical and venture development assistance to enable technical and business proofs of concept that are often a prerequisite for private investment; and even more so
- 2) Partnership and funding at pilot / demonstration and early commercial scale-up – a stage only partially supported by private capital, and where ventures look for sites to deploy and scale their company in close proximity to partnerships and markets.

The New Hampshire State Energy Strategy should strongly encourage the creation and expansion of policies and programs to support innovation, entrepreneurial development and market acceleration for next generation technologies. This can be done through the creation of an economic development agency or state clean energy center (similar to the Massachusetts Clean Energy Center), whose sole

mission is to expand the clean energy economy and provide support for clean energy innovation. Such an entity should support:

- Programs that fund research and early-stage company milestones: Grant and/or investment programs for incubators, accelerators and individual clean energy companies at formation, seed and early stages to solve the financing and venture assistance gap.
- Programs and mechanisms that support pilot / demonstration / site assessment / manufacturing projects: These include a variety of economic development tools such as tax treatment and special development zones; competitive opportunities for partial public sector funding for pilot, demonstration and first-of-a-kind projects and manufacturing investments; as well as regulatory changes that enable utilities and other major companies to invest in pilot and demonstration projects for promising new cleantech technologies.
- State subsidized internship programs: Provide stipends for companies to hire summer interns, are an example of a low-cost, high-impact way to support cleantech startups, while building a stronger more experienced clean energy workforce and keeping talent in the state.
- “Leading by Example” Early Adopter programs that involve State agencies and assets, and also provides State assistance to municipalities, colleges, universities and others to be first customers for new cleantech innovations.

### **Advance a 21st Century Electricity System**

New England and New Hampshire have one of the most reliable electric grids in the world, but it was built on a model of large, centralized, fossil fuel power plants and one-way power flows across a network that lacks the ability to send real-time information to the grid operator, or real-time market signals to consumers to use energy more effectively. In recent decades the use of new clean energy technologies has fundamentally changed the energy landscape. Today, consumers are increasingly asking for more control over their energy use, sources and costs and are installing “distributed” (rather than centralized) energy resources, such as rooftop solar, energy efficiency and demand response. In addition, more large-scale renewable energy generation, which operates intermittently, is replacing dispatchable fossil fuel power plants. While renewable energy and efficiency are experiencing accelerating growth and delivering benefits across the region, this dramatic shift has exposed significant limitations of our current electricity grid, with little two-way communications capability and real-time network management to effectively integrate distributed and renewable generators and changing patterns of usage.

Looking ahead to 2025, we may see 10 times the number of households with solar PV and other distributed generation technologies. There could be hundreds of thousands of electric vehicles plugging into the grid to recharge and integrate into home and neighborhood micro-grids. And there will be new technologies we cannot even imagine today. These smarter homes, appliances and buildings, as well as the potential for neighborhood and campus micro-grid systems will effectively change our electricity system from the historical centralized generation model, to a distributed network of smart local sub-networks, real-time information and communication, supported by pricing signals that help efficiently balance supply and demand.

The Northeast and the nation are just starting to consider the changes that need to take place in our electricity system to respond to the changing demands of customers and the innovative new technologies being deployed on the grid. Efforts to develop a modern, 21<sup>st</sup> century electric grid are underway in Massachusetts and New York and should be a key policy priority in New Hampshire. This effort will require changes to the regulatory framework that oversees utility investments in infrastructure, new roles for utilities as a platform and partners to clean energy products and services, all unleashing more innovation and competition to provide valuable new energy services to consumers. This modern system must include utilities and the clean energy industry working together to provide access to energy data and deliver innovation and new ways of meeting customer needs.

The discussion on the role of utilities and our electricity system has begun with how to integrate increasing amounts of distributed generation and demand side resources, reduce outages, improve efficiency and increase resiliency. This effort is also looking ahead to how to create and transition to a 21st century electricity system that will enable a cleaner, more reliable and resilient electric grid that will strengthen the New Hampshire economy and society. This transition is still in the early stages. It will need the political leadership of the state administrations as well as guidance from the State Energy Strategy to ensure a successful outcome.

The New Hampshire State Energy Strategy should underscore advancing modernization of the electricity system by promoting the following principles:

- Openness to innovations that enhance customer choice and control.
- Integration of renewables, energy efficiency, demand response, energy storage, and a host of new technologies through a more intelligent and dynamic grid in order to capture their full benefits for customers.
- Evolution of the role of utilities to become platform managers of an efficient, smart and cleaner grid that enables cost-effective energy services for customers from a variety of service providers, including third-parties.
- A utility regulatory framework that is forward-looking, performance-based, transparent and encourages planning and investment that will drive the efficiencies, innovation and the resiliency that a growing economy needs.
- Investment in the distribution grid infrastructure and integration services that become enablers to increasing levels of renewables, storage, micro grids, and grid-connected smart resources, and new technologies that are not yet part of today's energy system.
- Engagement of a broad group of stakeholders to educate, inform and garner support for the framework and investment needed to create a robust, resilient efficient and clean energy system.

## **Carbon Reductions**

From 2000 to 2010, New England saw regional carbon emissions drop 12 percent, due largely to the increase in cleaner energy generation, such as natural gas and renewables, and energy efficiency.<sup>6</sup> This reduction in carbon emissions, accelerated from 2009 to the present due in part to the region's participation in the nine-state Regional Greenhouse Gas Initiative (RGGI)—the nation's first market-based regulatory program to reduce greenhouse gas emissions. The region's carbon emissions drop has been accompanied by economic growth and a decline in energy costs, proving that reducing carbon emissions is also good for economic growth and the region's effort to rebuild its economy on clean energy. In fact, from 2000 to 2010, the economies of the ten Northeast states participating in RGGI grew twice as fast per capita as other states while per capita carbon dioxide emissions declined 25 percent faster. Recent data shows that a steady drop in electricity prices has accompanied reductions in the region's carbon emissions.<sup>7</sup>

These gains are evidence that New England and New Hampshire leadership should commit to supporting RGGI and look for opportunities to promote RGGI's expansion to other states and other sectors of the economy. The New England and New Hampshire can reduce the environmental impact of the region's electricity system by committing to supporting and continuing to strengthen RGGI. This regional initiative has provided New Hampshire with more than \$1.617 million in economic value, directly

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<sup>6</sup> ENE, *Climate Vision 2020*

<sup>7</sup> ENE, *The Regional Greenhouse Gas Initiative: Performance To-Date and the Path Ahead*

created over 458 jobs, and has saved customers more than \$100 million on electricity, natural gas, and heating oil bills so far.<sup>8</sup> These results have taken place largely because most RGGI funds have been directed to energy efficiency programs. It is vital to the growth of the state's economy that the New Hampshire State Energy Strategy supports maintaining this mechanism.

New England's foresight in establishing RGGI puts the region ahead of others for compliance with the US Environmental Protection Agency's (EPA) 111 (d) rules, which will require states to adopt initiatives to limit carbon emissions from existing power plants. As leaders of this unique regional cap and trade program, New Hampshire should join the other New England states in actively promoting RGGI's benefits and value to other states, seeking to expand RGGI where appropriate beyond the current nine states. Expansion of RGGI to other states could create a larger and more efficient market for trading, and lower costs for GHG reduction compliance within the state and the region as a whole.

The New Hampshire State Energy Strategy should also encourage the development of State and regional roadmaps, policies, standards and market mechanisms to ensure that all aspects of our energy system become cleaner and a driver for our transition to a robust, reliable and secure clean energy economy. While a number of states have global warming GHG reduction targets and are considering other state mechanisms such as a carbon tax, participating in a broad-based regional price on carbon provides a significantly more valuable market signal and opportunity to invest in the most cost-effective emissions reductions measures, as well as encourage a cleaner energy system, and should therefore be supported by the New Hampshire State Energy Strategy.

While natural gas has played a major role in reducing carbon emissions from electricity generation, the region risks becoming over dependent on it as a single source of energy. As New England faces the retirement of about 25 percent of its electric grid's current generating capacity<sup>9</sup> (coal, oil, nuclear), it will need to look to new and cleaner sources of energy to power its future. Natural gas will continue to have a role to play but New Hampshire should support New England in discussing policies and standards to ensure that all aspects of our energy system, including natural gas, become cleaner for a robust and reliable clean energy future at the end of the "natural gas bridge." The New Hampshire State Energy Strategy should support the establishment of a roadmap for the retrofitting of fossil fuel plants with carbon capture and sequestration technologies or other technology and/or fuel changes that reduce GHG emissions over time.

## Conclusion

New Hampshire has a unique opportunity to empower its communities and industries to fundamentally shift to a clean energy economy, driving this effort by ushering in new policies to further clean energy innovation, company growth and regional markets for new energy innovations and services, as well as the deployment of renewables throughout the state's electricity system. However, New Hampshire must also act regionally and collaborate with public officials throughout the region on issues like transmission, procurement from large renewable projects and clean energy imports, 21<sup>st</sup> century electricity system structures, state-wide support to innovation and entrepreneurship, common financing structures that engage the efficiency of capital markets, and other efforts to drive clean energy growth in the state. Further, the New Hampshire Draft State Energy Strategy should encourage state partnership with the clean energy companies that have added to the region's economic growth in the last decade, and those new cleantech ventures that bring promise of new solutions, ensuring that the industry is championed, engaged and represented as efforts to clean and modernize our energy system move forward.

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<sup>8</sup> The Analysis Group, *The Economic Impacts of the Regional Greenhouse Gas Initiative on Ten Northeast and Mid-Atlantic States*

<sup>9</sup> ISO-New England

There is no doubt that New England is on the right path to a clean energy future but there is still much work to be done and important steps—both near term and long term—that the New Hampshire State Energy Strategy must address to ensure the state, and by extension the region, remains on this path.