



For a thriving New England

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Director Jared Chicoine
Office of Strategic Initiatives
107 Pleasant Street
Johnson Hall, 3rd Floor
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Dear Director Chicoine:

Conservation Law Foundation appreciates the opportunity to submit written comments on the New Hampshire 10-Year State Energy Strategy. In the three years since the current Energy Strategy was launched, the state has made strides forward in a number of important areas outlined in the strategy, including energy efficiency, grid modernization, and distributed generation. It is a credit to the hard work of the state and numerous stakeholders, including consumer and low-income advocates, as well as the New Hampshire utilities, that we have achieved a number of the milestones set out in 2014. It is also clear that the transformation of the energy industry continues at a rapid pace. In order to avoid falling behind, New Hampshire must continue a rapid forge ahead. Consequently, certain updates and amendments to the strategy may be appropriate.

These comments are not intended to be comprehensive. We believe that the state can fruitfully continue many of the efforts already identified in the State Energy Strategy, including, for example, completing the grid modernization efforts underway at the Public Utilities Commission. In these comments we highlight just a few areas where the state stands well-positioned to capitalize over the next 5-10 years. However, we would be glad to engage in a broader conversation should your office decide to move forward with revisions to the strategy.

In the event that the Office of Strategic Initiatives decides to move forward with revisions to the New Hampshire 10-Year State Energy Strategy, we urge a transparent and inclusive process for developing updates to the energy strategy, consistent with the process carried out in 2013 and 2014, which included the convening of an advisory council and solicitation of comments on the non-final draft strategy document.

CONSERVATION LAW FOUNDATION

CLF is New England's leading environmental advocacy organization. We are a nonprofit, non-partisan, member-supported organization with offices throughout New England. CLF has thousands of contributing members across the region, including New Hampshire. Since 1966, CLF has worked to protect New England's people, natural resources, and communities. CLF



promotes clean, renewable, and efficient energy production and use throughout New England and has substantial experience and deep expertise in this field.

Consistent with its mission to promote thriving, resilient communities, CLF is dedicated to advancing solutions that strengthen New England's – and New Hampshire's – environmental and economic vitality. To this end, CLF has developed extensive expertise concerning energy projects, markets, and regulatory policy. As a participant in the NEPOOL stakeholder process, CLF has participated in the formation and refinement of New England's energy markets and planning of the region's electric transmission grid. CLF's involvement in New Hampshire energy matters, including but not limited to proceedings before the Public Utilities Commission and the Site Evaluation Committee, has spanned the past two decades and includes intervention and participation in numerous dockets such as Public Utilities Commission Docket Nos.: DR 97-211, DE 01-057, DE 07-064, DE 08-103, DE 08-145, DE 09-033, DE 10-160, DE 10-188, DE 11-215, DE 11-250, DE 13-108, DE 13-275, DE 14-120, DE 14-238, DE 15-124, IR 15-072, IR 15-124, IR 15-137, IR 15-296, DE 16-241, DE 16-576, and DE 17-136.

CLF previously submitted comments on the May 1, 2014 draft New Hampshire 10-Year State Energy Strategy. Those comments were dated July 25, 2014.

COMMENTS

CLEAN ENERGY JOBS MEAN LOCAL JOBS

Clean, local energy brings well-paid, local jobs. What's more, these jobs are well-suited to New Hampshire's younger generation, helping to maintain New Hampshire's vibrant population and its strong tax base. We should prioritize local clean energy resources and jobs over the next decade.

New, large-scale clean energy development is being launched in the state by a number of major energy project investors. New Hampshire can capitalize on both the direct and indirect benefits of that corporate investment trend. Combined, all of the solar projects currently being proposed in New Hampshire will total 210 MW of capacity, triple the state's solar capacity in 2016. NextEra Energy, the largest builder of solar generation in the country, is a key part of that investment trend. Several solar arrays planned by NextEra will eclipse the state's entire current solar output. New Hampshire should continue to support large-scale clean energy development that is consistent with the character of our communities, respectful of our resources, and beneficial to our economy.

The following chart of proposed large solar projects in New Hampshire was published in the New Hampshire Business Review on October 26, 2017.¹ The chart shows proposed projects in the early stages as well as projects with contracts in place.

Proposed Solar Projects in NH

BID/PROJECT NAME	DEVELOPER	LOCATION	CAPACITY	POWER TO	STATUS
Berlin Solar	Freepoint/SunEast	Berlin	20 MW	MA	Bid submitted
Campton 1 Solar	Freepoint/SunEast	Campton	20 MW	MA	Bid submitted
Campton 2 Solar	Freepoint/SunEast	Campton	20 MW	MA	Bid submitted
Thornton Solar	Freepoint/SunEast	Thornton	20 MW	MA	Bid submitted
Peterborough Solar	Freepoint/SunEast	Peterborough	20 MW	MA	Bid submitted
Claremont Solar	Freepoint/SunEast	Claremont	20 MW	MA	Bid submitted
Chariot Solar	NextEra	Hinsdale	50 MW	MA	Bid submitted
Chinook Solar	NextEra	Fitzwilliam	30 MW	MA, CT, RI	Won bid, contract signed
W. Portsmouth Street Solar	NextEra	Concord	10 MW	CT	Won bid, contract signed

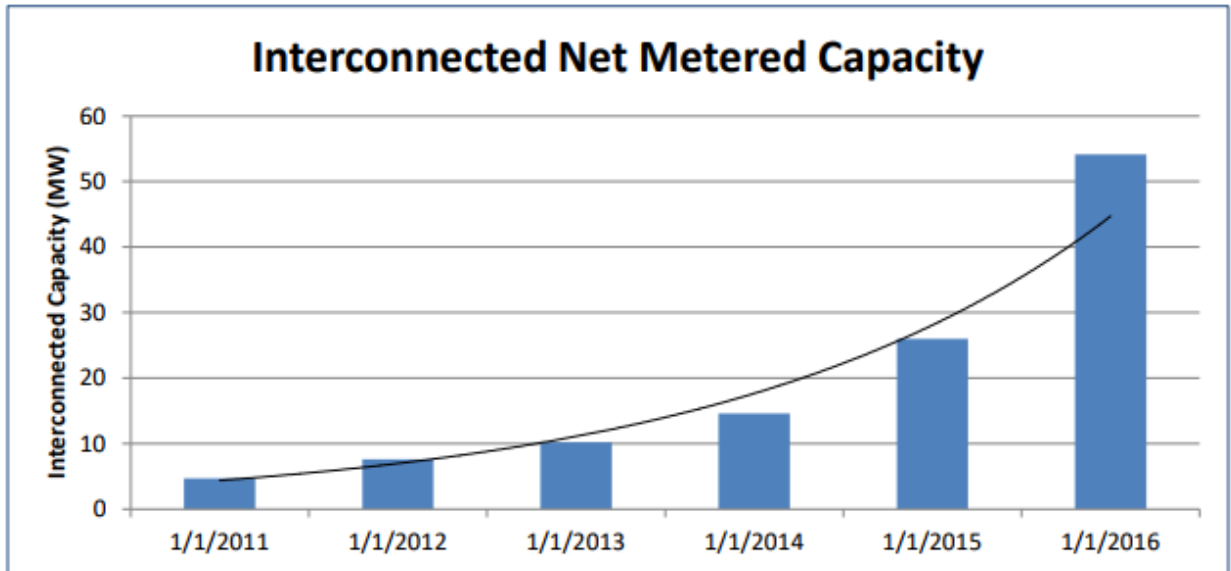
Source: Bid documents

These projects are expected to provide both short-term and long-term jobs, as well as tax revenues.

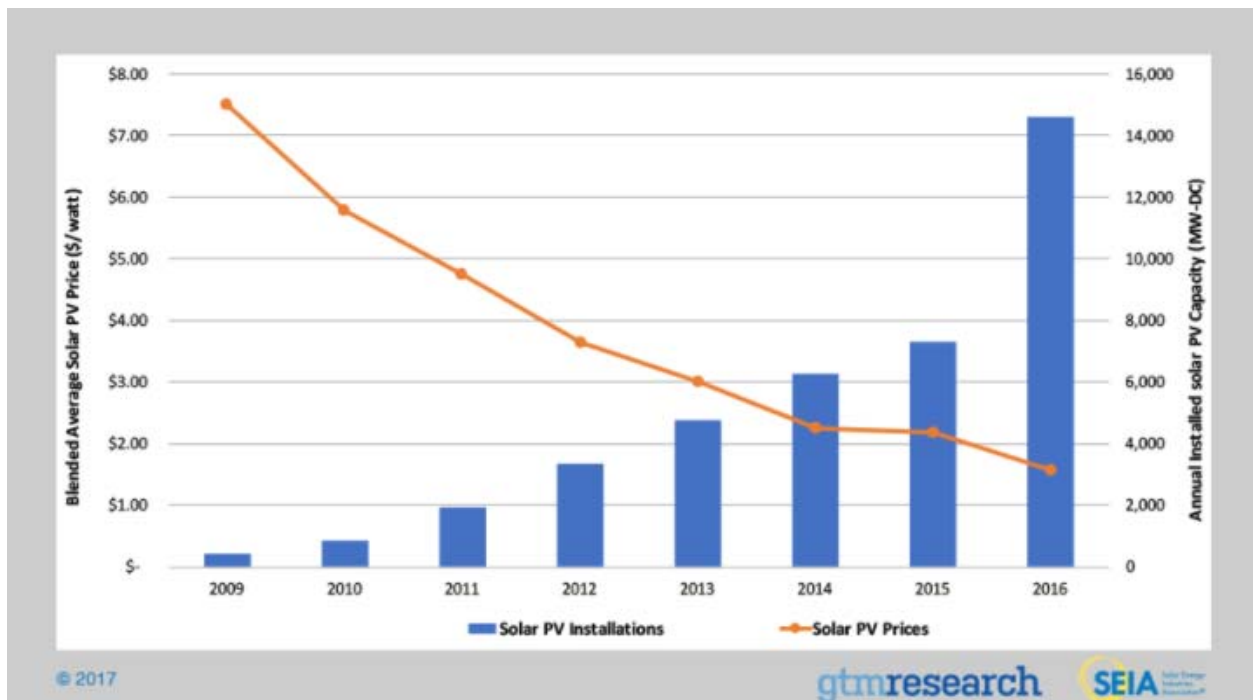
Distributed generation is also in the early stages of taking off in the state. This industry offers significant cash-flow and is a jobs-creator for New Hampshire. According to the Public Utilities Commission, the state's installed capacity of net metered facilities roughly doubled between January 1, 2015 and January 1, 2016.²

¹ <http://www.nhbr.com/October-27-2017/Regions-renewable-needs-spark-a-NH-solar-surge/>

² Annual Report of the New Hampshire Renewable Energy Fund, October 1, 2017, p. 26, available at <https://www.puc.nh.gov/Sustainable%20Energy/Renewable%20Energy%20Fund/2017%20REF%20Report%20to%20Legislature.pdf>.



This means that there is an increasingly significant number of rooftop solar jobs in the state. This coincides with a nationwide trend that parallels a dramatic drop in the price of solar photovoltaics, as depicted below.



At the same time, there is substantial room for further job growth. As the Public Utilities Commission explained in the June 23, 2017 net metering order in DE 16-576 (at 72) “the penetration level of DG in the State is quite low in both absolute and relative terms.”³ This indicates that, while the total installed capacity of rooftop solar in New Hampshire has grown dramatically, creating education, installation, and maintenance jobs across the state, there remains substantial space for continued job growth.

In comparison to fossil fuel-fired generation, distributed generation like rooftop solar keeps more jobs in-state. Distributed generation resources are generally installed incrementally over many years, and require large supplies of local human resources. In contrast, fossil fuel facilities like a coal or gas-fired power plant are installed very infrequently and after a short, finite period of temporary construction jobs, very few jobs remain in-state. What does remain in-state is the burden of continuously paying for imported fuels not found in New Hampshire. This creates an indefinite cash-outflow situation for the state’s economy, in contrast to distributed generation which is relatively labor intensive and has no associated fuel costs.

In addition, facilitating private investment in distributed generation is saving New Hampshire electric customers money. In 2016, behind-the-meter solar alone saved New England customers approximately \$60 million. Distributed solar, also called behind-the-meter solar because it is installed behind the residential or business customer’s electric meter and intended principally to generate electricity for on-site usage, brings down the region’s electrical usage at times of highest demand. This means that the costliest (and often dirtiest) generating units are not called on during times of peak summer demand, saving all New England customers money. In addition, by reducing regional load, distributed solar defers or eliminates the need for costly new generation investments that would raise market costs for the region. Solar of all kinds contributes to energy diversity, but distributed solar is well-suited to serve localized resiliency purposes and to avoid local distribution costs, particularly when combined with energy storage. And the more energy we produce and use locally, the less we pay for transmission required to deliver electricity from distant power plants. In all of these ways, private investment in distributed generation brings economic stimulus for the state.

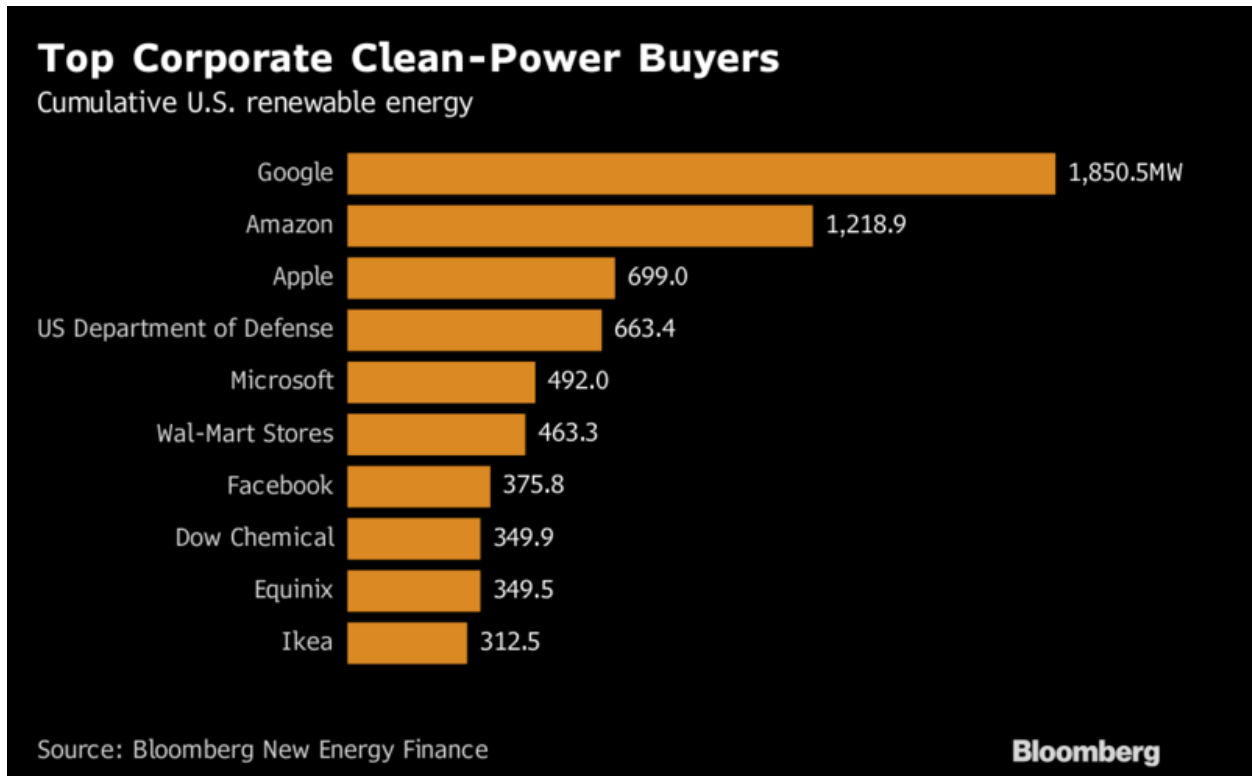
According to the U.S. Energy Information Agency (EIA), of New Hampshire's 2015 net electricity generation, 17% came from a range of renewable energy resources, including solar, wind, and biomass.⁴ But as more clean energy comes online in the state, both in the form of large, centralized and small, distributed generating facilities, New Hampshire can become a powerhouse of clean energy and clean energy jobs.

As New Hampshire works to maintain and enhance its attractive status to high-tech companies, supporting clean energy investments is a necessity. According to Bloomberg New

³ https://puc.nh.gov/Regulatory/Docketbk/2016/16-576/ORDERS/16-576_2017-06-23_ORDER_26029.PDF

⁴ <https://www.eia.gov/state/?sid=NH>

Energy Finance, corporations have agreed to buy 1.9 GW of clean power in the U.S. this year, and are on pace to match the 2.6 GW signed last year.⁵ High-tech corporations are among the top purchasers of clean energy.⁶



The direct and indirect benefits brought by both distributed and centralized clean energy are substantial and growing. New Hampshire can capitalize on these benefits for significant job and revenue growth during the coming years. In order to accomplish this goal, we should strengthen the Renewable Portfolio Standard and support continued reasonable compensation for behind-the-meter solar.

RECOGNIZE THAT ENERGY EFFICIENCY IS ECONOMIC EFFICIENCY

Energy efficiency is a frugal, common sense energy measure. Energy efficiency is widely considered the lowest-hanging fruit to reduce energy costs for consumers, including both families and businesses. In order to fulfill the governor’s objective of lowering bills and costs

⁵ <https://www.bloomberg.com/news/articles/2017-10-19/bezos-christens-wind-farm-as-u-s-companies-buy-more-clean-power>

⁶ Id.



for New Hampshire electric customers, the state must invest in sensible and cost-effective energy efficiency measures and policies. And when we save money through cheap, cost-reducing energy efficiency, New Hampshire’s families and business can use that money for other necessities and economy-stimulating investments.⁷

Energy efficiency is the cheapest among all energy resources, and it is a key tool used to constrain prices in regional electricity markets. It is also one of few tools that the State of New Hampshire controls to reduce New Hampshire’s share of regional electricity grid costs.

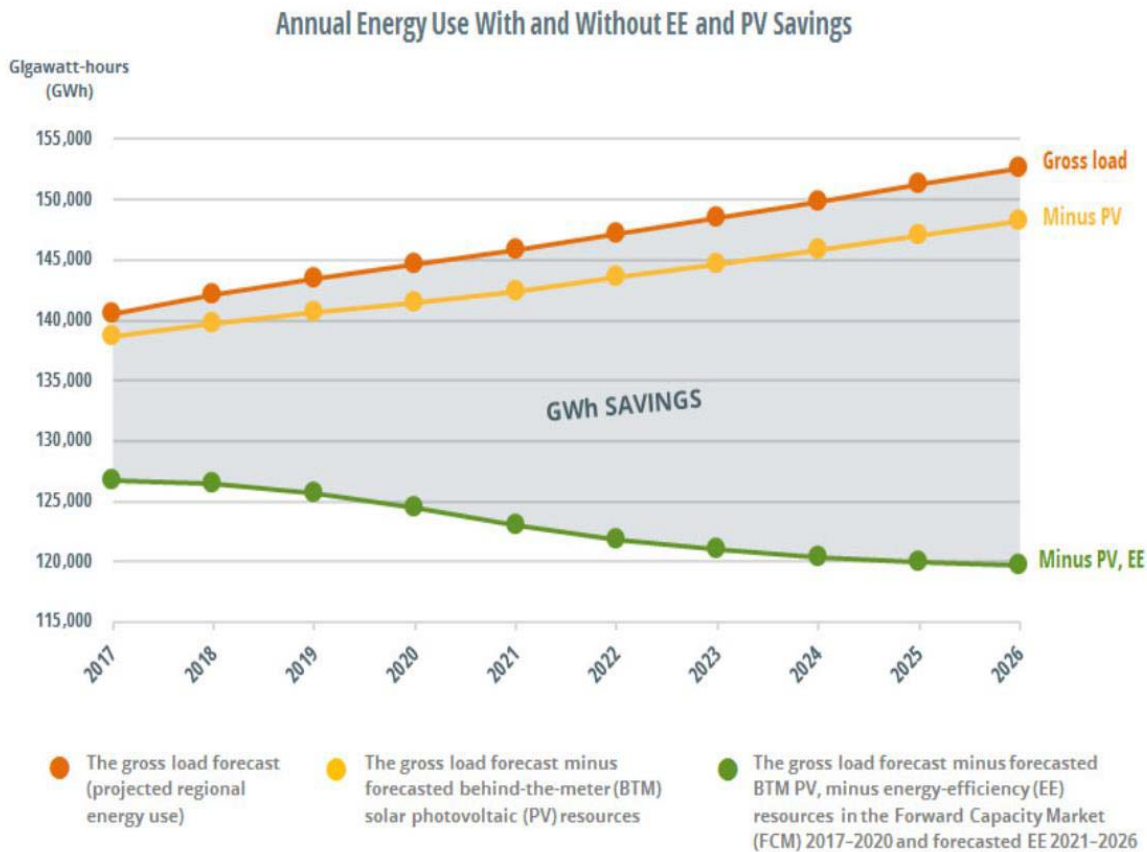
Energy efficiency reduces loads on the New England grid, saving money region-wide. ISO-NE’s 2017 Capacity, Energy, Loads, and Transmission (“CELT”) report projects that aggressive regional deployment of behind-the-meter renewables and energy efficiency projects will result in peak load reductions on the order of hundreds of megawatts.⁸ For example, the 2017 CELT projects a net peak load of 26,298 MW in summer 2020, while the 2016 CELT had forecast a net peak load of 26,789 MW, a difference of 491 MW. Energy efficiency is a major driver keeping demand for electricity essentially flat in New England, which means that we don’t have to build new generation or transmission lines to accommodate a growing hunger for electricity, saving us money on costly investments that ISO-NE would otherwise require us to pay for.

The chart below depicts the significant extent to which energy efficiency, together with behind-the-meter solar, impact regional load forecasts, lowering regional capacity requirements and thereby reducing prices in the capacity markets—and ultimately reducing bills for consumers. This chart appeared in a recent presentation by the Department of Environmental Services reporting on the benefits and costs of using RGGI funds on energy efficiency programming.⁹

⁷ We attach a joint op-ed written by the NH utilities, CLF, and other stakeholders who participated in the recent energy efficiency proceeding, about the many agreed-upon benefits of energy efficiency. The op-ed was published in the Concord Monitor on October 15, 2016, and is available online at <http://www.concordmonitor.com/Energy-Efficiency-Standard-Provides-Opportunity-for-New-Hampshire-5390672>.

⁸ https://www.iso-ne.com/static-assets/documents/2017/05/2017_celt_report.xls

⁹ Presentation of the NH Department of Environmental Services, “Reducing Carbon Dioxide from Power Plants: Benefits and Costs of the Regional Greenhouse Gas Initiative”, Sept. 12, 2017, at 30 (attached).



Not only does energy efficiency save New Hampshire money by saving the entire region money, if New Hampshire does not invest in energy efficiency, our state’s portion of the region’s grid costs will rise. ISO-NE allocates grid costs to states on a load-ratio basis, that is, according to a state’s percentage of overall regional demand for electricity. As other states in the region continue to ramp up policies that reduce their share of regional load – including through energy efficiency, behind-the-meter solar, and energy storage – New Hampshire’s share of the region’s load will rise. If New Hampshire does not keep pace by supporting load-reducing measures including energy efficiency, it will be left bearing a disproportionate burden for regional grid costs. As grid costs are high in New England, and can represent a significant portion of the monthly bill, this would place an undue and unnecessary burden on New Hampshire families and businesses. With small up-front investments in energy efficiency, New Hampshire will lower its costs—and keep them from rising.

Energy efficiency also makes sense because it supports local jobs. Each year, across New Hampshire, we spend more than \$6 billion on energy. A large percentage of those dollars immediately leaves the state’s economy to pay for out-of-state fossil fuels. Energy efficiency

helps us recapture some of those dollars. While energy efficiency is substantially cheaper than other energy resources, it supports many more local jobs than energy resources like fossil fuel-fired generation. When we maintain a thriving and stable local energy efficiency economy, we provide good jobs for New Hampshire’s younger generation.

An important aspect of energy efficiency is that it supports a better quality of life for New Hampshire’s low to moderate income families, and increases property values. By allocating a substantial portion of the state’s energy efficiency funds to programs that benefit lower-income residents—as currently planned energy efficiency programs do—we increase quality of life, productivity, and well-being among these populations, ensuring that no one is left behind. We also increase the value of properties by improving the quality of homes in disadvantaged communities.

The 2018 to 2020 energy efficiency programs proposed by the New Hampshire utilities in Public Utilities Commission Docket No. DE 17-136 will result in customer energy cost savings of more than \$867 million. These savings are roughly 4.7 times the cost of the programs, which is an excellent return on investment for electric customers. These programs will support 1,233 jobs, and avoid more than 2.8 million tons of greenhouse gas emissions and other pollutants. In addition, they will improve quality of life, property values, and human welfare throughout the state, including among populations most at need. Beyond the utility-run programs, other energy efficiency measures including the adoption of modern building codes support additional jobs and further improve human welfare, economic productivity, and property values.

Over the next 5 to 10 years, the state should make increasingly significant investments in energy efficiency and strengthen energy efficiency policies including building codes. By re-investing RGGI monies to fund energy efficiency programming, we can maximize the value of those dollars for New Hampshire.¹⁰ New Hampshire currently lags behind other states in the region on energy efficiency, and cannot afford to neglect this area of energy investment.¹¹ The returns are too great to forego. Without these modest investments, the state leaves low-risk investment value on the table and weakens the New Hampshire economy.

TARGET PEAK ENERGY REDUCTIONS FOR LOWER ENERGY BILLS

Targeting peak energy is a matter of smart economic policy. New Hampshire needs to begin strategic peak energy reductions in order to rapidly and meaningfully lower electric bills. Demand for electricity typically spikes during a limited number of hours a year, and those hours constitute “peak demand.” On average, 10% of electric system capacity is built to meet demand

¹⁰ For more details on the value RGGI offers the NH economy, please see the attached Fact Sheet by Acadia Center on the impacts of RGGI in New Hampshire.

¹¹ More information on how New Hampshire compares to other states in the area of energy efficiency can be found in ACEEE’s 2017 State Energy Efficiency Scorecard, available at <http://aceee.org/research-report/u1710>.

in just 1% of hours during the year. This drives up costs for New Hampshire electric customers, whether they are businesses or families.

Peak demand policies or programs can significantly lower costs for customers, strengthen electric services reliability, and reduce the costs of achieving environmental goals. Navigant carried out a study on the value of peak demand policies to Illinois and Massachusetts in 2015. Navigant’s analysis showed that at a minimum, every dollar spent on reducing peak demand can save consumers at least \$2 to \$3.¹² These benefits can be higher, however, in some cases exceeding a \$4 return on a \$1 investment.¹³ The benefit-cost ratio tends to increase as peak load is reduced by measures such as energy efficiency, demand response, or the deployment of behind-the-meter generation and storage resources.¹⁴

Peak demand reductions are particularly effective at reducing capacity costs, transmission costs, and emissions. By eliminating or lowering the highest levels of demand (peak demand), we avoid calling on the least efficient, most costly, and dirtiest generating units in the region. The two main avenues to reduce wholesale capacity charges in this way are to shift capacity cost allocations and to reduce the total electric generating capacity required on a region-wide basis to ensure that we can meet demand, known as ISO-NE’s installed capacity requirement (ICR).¹⁵ Transmission costs can also be reduced by lowering the highest levels of demand. Similar to capacity, there are two main ways to reduce transmission charges: directly reducing electric load (such as through energy efficiency or demand response) and non-transmission alternatives (NTAs), which can include distributed energy or energy storage.¹⁶ Peak demand reduction also can reduce energy prices for hours with high price spikes by reducing generating costs.¹⁷

OSI and the Public Utilities Commission should facilitate the development and deployment of peak demand reduction strategies as soon as is feasible.

REDUCE RELIANCE ON FUELS THAT HARM HEALTH AND DIMINISH THE STATE ECONOMY

Economic inefficiencies and the need to build a clean energy future for New Hampshire require that we no longer prop up coal-fired electric generation and that we avoid the trap of expanded, unnecessary reliance on natural gas. As discussed below, it is essential that New Hampshire embrace a market-based approach that awards efficiency and does not put electric ratepayers at risk for investments made by public utilities. In addition to protecting New

¹² Navigant, “Peak Demand Reduction Strategy” (2015), available at <https://info.aee.net/hubfs/PDF/aee-peak-demand-reduction-strategy.pdf?t=1509398833303> at 5-6.

¹³ Id.

¹⁴ Id.

¹⁵ Navigant, “Peak Demand Reduction Strategy” (2015), at 7, available at <https://info.aee.net/hubfs/PDF/aee-peak-demand-reduction-strategy.pdf?t=1509398833303>

¹⁶ See id.

¹⁷ Id.

Hampshire ratepayers, proceeding on this path will advance cleaner, more efficient energy sources that benefit the public's health and reduce greenhouse gas emissions.

A. Ensure Aging Fossil-Fired Power Plants are Subject to Competition

Eversource's aging fossil-fired power plants – Merrimack, Schiller and Newington Stations – are a significant reason why Eversource's energy services rate is higher than that of other electric utilities.¹⁸ These aging plants are less efficient than other sources of electricity and therefore not as competitive in the market place. As a result, the plants do not generate electricity much of the time. In addition to being uncompetitive, these plants are a significant source of greenhouse gas emissions and other pollution.¹⁹

Eversource is the last remaining electric utility in New Hampshire to continue to own and operate electric generating facilities. As a result, Eversource has been in a position to rely on default energy services ratepayers to cover the cost of owning and operating its aging, inefficient power plant fleet. Fortunately, however, following activity in the Legislature and before the Public Utilities Commission enabling Eversource to proceed with the sale of its generating assets, Eversource's fossil-fueled power plants, as well as its fleet of hydroelectric facilities, were recently the subject of a PUC-supervised auction.²⁰ Should the PUC approve the auction results and Eversource's sale of its generating fleet (to two different purchasers – one for the fossil-fired plants, another for the hydroelectric plants), Eversource will finally exit the electric generating business and – at long last completing the electricity market restructuring required by RSA 374-F – will serve only electricity transmission and distribution functions.

With the completion of restructuring, the generation of electricity in New Hampshire will be within the sole province of competitive energy suppliers. Accordingly, Eversource's existing power generating facilities will no longer be supported by ratepayers and thereby buffered from private market forces. New Hampshire's Ten Year Energy Strategy should support this final implementation of restructuring, protecting ratepayers from the risks inherent in the ownership and operation of electricity generation by public utilities, and favoring market competition to

¹⁸ See, e.g., <https://www.puc.nh.gov/ceps/shop.aspx> (comparing current residential energy rates of Eversource (\$0.11660 per KWh) with the rates of Liberty Utilities (\$0.08644 per KWh), the NH Electric Co-op (\$0.07466 per KWh) and Unital (\$0.07886 per KWh)); <https://www.puc.nh.gov/ceps/ResidentialCompare.aspx?choice=Eversource> (comparing Eversource's residential energy services rate of \$0.11660 per KWh (July 2017 through Dec. 2017) to the numerous lower rates of competitive energy suppliers)

¹⁹ On January 12, 2017, EPA New England released its 2015 toxics release inventory data for New Hampshire, showing that of the 137 facilities reporting, Merrimack Station was the facility that reported the largest quantity of on- and off-site environmental releases. See <https://www.epa.gov/newsreleases/epa-analysis-shows-decreased-toxic-chemical-releases-new-hampshire-2015>. Schiller Station reported the second highest quantity of releases, and Newington Station reported the ninth highest. *Id.*

²⁰ See, e.g., N.H. PUC Docket No. DE 17-124 at http://www.puc.state.nh.us/Consumer/Eversource_auction.html.

“reduc[e] costs to consumers while maintaining safe and reliable electric service with minimum adverse impacts on the environment.” RSA 374-F:1.

B. Avoid the Natural Gas Trap

As inefficient coal-fired power plants and facilities like the Vermont Yankee nuclear power plant retire across New England, certain interests have clamored to suggest that New England is on the verge of an energy supply crisis, and that the construction of new and expanded natural gas pipelines is the only solution. As described below, these claims are false. Far from serving as a temporary “bridge fuel” to a fossil-free future, major investments in new and expanded pipelines will extend the use of fossil fuels, put ratepayers at risk of more stranded costs and higher bills, and undermine the state’s ability to reduce greenhouse gas emissions consistent with the New Hampshire Climate Action Plan.

In the first instance, it is critical to note that the regional grid currently has significant surplus capacity, and price signals in the most recent capacity auctions have been at or near the auction floors. Additionally, ISO-NE set a target of 34,075 MW capacity in its most recent Forward Capacity Auction, FCA-11, but actually procured 35,835 MW in the auction—a surplus of 1,760 MW.²¹ That surplus is expected to increase by an additional 395 MW in the next capacity auction (FCA-12, in February 2018) as a result of a recent change by ISO-NE to its internal method for forecasting the output of distributed, behind-the-meter solar generation.²² And on top of that, ISO-NE’s 2017 Capacity, Energy, Loads, and Transmission (“CELT”) report projects that aggressive deployment of behind-the-meter renewables and energy efficiency projects will result in peak load reductions on the order of hundreds of megawatts.²³ For example, the 2017 CELT projects a net peak load of 26,298 MW in summer 2020, while the 2016 CELT had forecast a net peak load of 26,789 MW, a difference of 491 MW.

Despite the foregoing, certain natural gas and utility interests have proposed the need for more natural gas pipelines, and that such pipelines must be built at the risk of electric utility ratepayers. In particular, Algonquin Gas Transmission, LLC and Eversource have proposed a model in which Public Service Company of New Hampshire d/b/a Eversource – an electric utility – would acquire natural gas capacity, at the potential expense of its ratepayers, to help finance the so-called Access Northeast natural gas infrastructure expansion. In a 2016 decision, the PUC reviewed and correctly dismissed the proposed scheme as violating New Hampshire’s electricity market restructuring act, RSA Chapter 374-F. Eversource’s and Algonquin’s appeal

²¹ ISO-NE, “Forward Capacity Auction #11 Results Summary”, available at https://www.iso-ne.com/static-assets/documents/2017/03/ccp_2020_21_fca_11_cso_flow_diagram.pdf.

²² Maria Scibelli, ISO-NE, “Proposed Installed Capacity Requirement (ICR) Values for the 2021-22 Forward Capacity Auction (FCA # 12)” at 10 (Sept. 19, 2017), available at https://www.iso-ne.com/static-assets/documents/2017/09/a7_icr_and_tie_benefits_for_fca12.zip.

²³ https://www.iso-ne.com/static-assets/documents/2017/05/2017_celt_report.xls.

of that decision is currently pending before the New Hampshire Supreme Court. Whatever the outcome,²⁴ New Hampshire policy should strongly disfavor the financing of natural gas pipeline infrastructure at the risk of ratepayers and strongly *support* the continued separation of electricity generation (including the acquisition of natural gas pipeline capacity) from electricity transmission and distribution, as required by RSA Chapter 374-F.

CLF strongly contests the premise that any public financing is necessary to provide a particular type of fuel to a certain segment of New England’s merchant generation fleet. ISO-NE has already taken successful steps to adequately incentivize merchant generators to acquire sufficient fuel to serve system needs during the winter with its interim Winter Reliability Program, and will soon implement a long-term solution with the Pay for Performance standard. Analysis commissioned by CLF demonstrates more than adequate supply of natural gas through existing pipelines and liquefied natural gas imports.²⁵ The fallacy of a natural gas “crisis” in New England has been debunked repeatedly, including in a February 2017 study from Synapse Energy Economics that shows a declining need for natural gas in New England over the next fifteen years,²⁶ as well as in a report by Analysis Group published in November 2015,²⁷ and more recently in a report published in March 2017 and updated in May 2017 by the University of New Hampshire’s Carsey School of Public Policy. That report reached four key findings:²⁸

- (1) that “New England does not need to increase energy use to continue to grow its economy”;
- (2) that “[w]hile the price per kilowatt hour of electricity in New Hampshire has been higher than the national average for decades, the average residential electricity bill is equal to the national average and the average commercial electricity bill is lower than the national average”;

²⁴ The Massachusetts Supreme Judicial Court considered whether such a proposal is legal under Massachusetts’ restructuring law and concluded that it is not, noting in part that doing so “would reexpose ratepayers to the very types of risks that the Legislature sought to protect them from when it enacted the restructuring act.” *ENGIE Gas & LNG LLC v. Dep’t of Public Utilities*, 56 N.E. 3d 740, 754 (Mass. 2016).

²⁵ Greg Lander, “Solving New England’s Gas Deliverability Problem Using LNG Storage and Market Incentives” 16-17 (2015), available at <http://www.clf.org/wp-content/uploads/2016/03/Solving-New-Englands-Gas-Deliverability-Problem.pdf>.

²⁶ Synapse Energy Economics, Inc., “New England’s Shrinking Need for Natural Gas” 17 (February 7, 2017), available at <http://www.synapse-energy.com/sites/default/files/New-Englands-Shrinking-Need-for-Natural-Gas-16-109.pdf>.

²⁷ Analysis Group, *Power System Reliability in New England: Meeting Electric Resource Needs in an Era of Growing Dependence on Natural Gas* (Nov. 2015), available at <http://www.mass.gov/ago/docs/energy-utilities/reros-study-final.pdf>.

²⁸ See Cameron Wake, et al., “New Hampshire’s Electricity Future: Cost, Reliability, and Risk”, Univ. of New Hampshire, Carsey School of Public Policy at 1, attached to these comments and available at <http://scholars.unh.edu/cgi/viewcontent.cgi?article=1296&context=carsey> (emphases added).

- (3) that “New England’s electrical grid has proven itself reliable during periods of high energy demand associated with cold winter temperatures, including the extreme polar vortex event of January 2014”; and
- (4) that “[d]uring this period of rapid transformation in the global and regional energy markets, *there is significant stranded cost risk to electricity ratepayers for large infrastructure investments with uncertain return on investment. This includes publicly-funded expenditures for new natural gas capacity.*”

In sum, subsidization of natural gas generation is not necessary and would be strongly at odds with both the fundamental principles of market competition and the protection of ratepayers from economic risk, as embodied in New Hampshire’s restructuring law, RSA Chapter 374-F. It would also conflict with New Hampshire’s objective of reducing costly and harmful greenhouse gas emissions.

INVEST IN ELECTRIC

Electricity is a resource that New Hampshire already exports in large volumes.²⁹ As Next Era Energy and other energy companies make major investments in New Hampshire-based solar farms and distributed solar generation investment ramps up across the state, New Hampshire stands ready to produce much more clean energy. Recognizing that clean energy is a local economic driver, the state can further capitalize off that resource by making significant investments in the transition to electric vehicles. The expanded use of heat pumps will also drive economic savings and public health benefits.

A. Electric Vehicles

The state must take decisive steps to prepare for electrification of the transportation sector. Electric vehicles are a clean and sensible choice for New Hampshire. Drivers of electric vehicles benefit from lower fueling and maintenance costs, without the economic volatility and foreign policy dependencies associated with foreign oil and gas. Local economies benefit from fewer dollars spent on imported fuel. And everyone benefits from increased energy independence and better air quality, as electric vehicles have few to no tailpipe emissions that harm public health.³⁰ Moreover, electric vehicles can provide valuable services, such as serving

²⁹ <https://www.eia.gov/state/?sid=NH#tabs-1>

³⁰ See B. Holmes-Gen & W. Barrett, American Lung Association, “Clean Air Future: Health and Climate Benefits of Zero Emissions Vehicles” (2016), available at <http://www.lung.org/localcontent/california/documents/2016zeroemissions.pdf>.

as energy storage devices for the electric grid, with the potential to reduce electricity costs for all customers.³¹

Strategic investments in electric vehicles and associated infrastructure over the next 10 years will help keep tourism dollars flowing into and across New Hampshire, position New Hampshire as a strong competitor for high-tech jobs, and also keep energy dollars in-state rather than sending them abroad.³² Transportation fueling currently represents approximately 33% of energy consumption in the state.³³ Vehicle technology is rapidly advancing, and manufacturers are already transitioning away from production of gasoline-fueled vehicles in response to global trends and growing consumer demand for clean, affordable electric vehicles.³⁴ Electrification of this major sector will enable more energy dollars to be spent on clean, local electric energy rather than foreign oil and gas resources. Additionally, electrification of the transportation sector is necessary to meet the state's climate goals³⁵ and maintain healthy air quality for New Hampshire residents.

As other New England states make major investments in electric vehicles and infrastructure, New Hampshire cannot afford to be left behind. Unlike other states in the region, New Hampshire currently has no electric vehicle incentives, utility initiatives, or fleet electrification programs to prepare New Hampshire to ride the coming electric vehicle wave.³⁶ There have been limited investments in strategic charging infrastructure, and certain localities and businesses have developed their own incentives including free charging of electric vehicles and priority reserved parking spaces; but now it is time for the State to take a leadership role. New Hampshire should lead by example by committing to electric vehicles for future fleet procurements and providing charging infrastructure for use by the public and state employees at major state offices. Additionally, recognizing the many public benefits of electric vehicles, the

³¹ See generally D. Lowell, B. Jones, & D. Seamonds, "Plug-in Electric Vehicle Cost-Benefit Analysis: Massachusetts" (2016), available at http://mjbradley.com/sites/default/files/MA_PEV_CB_Analysis_FINAL_17nov16.pdf.

³² See Energy Information Agency, "Gasoline and Diesel Fuel Update", www.eia.gov/petroleum/gasdiesel/ (stating that 68 percent of the cost of gasoline is for crude oil and refining, plus a portion of federal taxes, leaving only about 20 percent of the cost for local economies in the form of local taxes, distribution costs, and marketing costs).

³³ Energy Information Agency, "New Hampshire State Profile and Energy Estimates", available at <https://www.eia.gov/state/?sid=NH> (estimating that in 2015, energy consumption in the transportation sector constituted 32.7% of all energy consumption in the state).

³⁴ See, e.g., Keith Bradsher, "China Hastens the World Toward an Electric Car Future", N.Y. Times (Oct. 9, 2017), available at http://www.nytimes.com/2017/10/09/business/china-hastens-the-world-toward-an-electric-car-future.html?_r=0; Bill Vlasic & Neal E. Boudette, "G.M and Ford Lay Out Plans to Expand Electric Models", N.Y. Times (Oct. 2, 2017), available at <https://www.nytimes.com/2017/10/02/business/general-motors-electric-cars.html>.

³⁵ See E.A. Stanton et al., "The RGGI Opportunity 2.0: RGGI as the Electric Sector Compliance Tool to Achieve 2030 State Climate Targets" iii (2016) ("The least-cost strategies modeled . . . to achieve an all-sector 40 percent emission reductions in the RGGI region by 2030 include converting one-third of gasoline-powered light-duty vehicles to electric vehicles . . .").

³⁶ See National Research Council, "Overcoming Barriers to Deployment of Plug-In Electric Vehicles" (2015), available at <http://www.nap.edu/catalog/21725/overcoming-barriers-to-deployment-of-plug-in-electric-vehicles>.

state should establish programs to incentivize the purchase of vehicles and charging infrastructure. The New Hampshire Public Utilities Commission should also initiate a proceeding to explore the role of the state's electric distribution companies in preparing for and promoting vehicle electrification.³⁷

The \$30,914,841.09 available to the State of New Hampshire through the Volkswagen Settlement offers a significant opportunity to jump-start New Hampshire's transition to a clean, electrified transportation future. New Hampshire should invest the maximum funds allowable (15%, or approximately \$4.6 million) in electric vehicle charging infrastructure.³⁸ The remainder of the funds should be invested in new electric transit vehicles, such as electric buses, and/or repowering old transit vehicles to run on electricity. This investment will reap long-term benefits. Electric buses cost less over their lifetime than conventional bus technologies once fuel and maintenance costs are factored in. Electric buses also offer significant public health, environmental, and climate benefits. These savings are passed on to taxpayers, who reinvest in their local economy.³⁹ For more details on CLF's recommendations regarding the use of the Volkswagen Settlement funds, please see comments filed by CLF with the Department of Environmental services on February 10, 2017, enclosed herewith.

B. Heat Pump Technologies

In order to lower costs for New Hampshire consumers and improve public health and safety, New Hampshire's electrification strategy should not stop at electric vehicles. It should also include market transformation for thermal and water heating purposes. According to the EIA, nearly half of all New Hampshire households relied on fuel oil for heat in 2015, and another 14% depended on propane.⁴⁰ As every Granite Stater with a tank in their basement or yard knows, these are very expensive fuels that sap our economy and contribute to poor health outcomes. Energy efficient heat pump technologies can provide an economic and safe substitute for these costly fuels. And again, with stable long-term pricing for clean energy supplies, price impacts associated with fuel volatility can be reduced and even eliminated, particularly as the cost of energy storage drops.

³⁷ See generally Citizens Utility Board, "The ABCs of EVs: A Guide for Policy Makers and Consumer Advocates" (2017), available at https://citizensutilityboard.org/wp-content/uploads/2017/04/2017_The-ABCs-of-EVs-Report.pdf.

³⁸ See Partial Consent Decree, *In re Volkswagen "Clean Diesel" Marketing, Sales Practices, and Products Liability Litigation*, MDL No. 2672 CRB (JSC) (N.D. Cal. Sept. 30, 2016) (Dkt. No. 1973-1), <https://tinyurl.com/y7scscpf>, App. D-2, ¶ 9.

³⁹ See Lauren Aragon & Matthew Casale, "U.S. PIRG Ed. Fund, From Deceit to Transformation: How States Can Leverage Volkswagen Settlement Funds to Accelerate Progress to a Clean Transportation System" 27 (2017), <https://tinyurl.com/ybacws2w>.

⁴⁰ <https://www.eia.gov/state/?sid=NH>

PRIORITIZE ACTION ON CLIMATE CHANGE, INCLUDING SETTING FIRM GREENHOUSE GAS REDUCTION GOALS

In order to keep our families healthy and safe, our businesses thriving, and our state proud and beautiful, addressing climate change with speed and efficiency needs to be a common objective.

The New Hampshire Climate Action Plan, which was developed with significant stakeholder input, establishes a goal of reducing greenhouse gas emissions by 80% below 1990 levels by 2050. As the plan makes clear, this goal is based on the reductions that climate scientists believe to be necessary to stabilize greenhouse gases in the atmosphere at or below 450 parts per million CO₂.⁴¹ It is projected that stabilizing concentrations of greenhouse gases at this level will avoid the most severe and catastrophic potential impacts of climate change.⁴² We must uphold the emissions reduction goals of the Climate Action Plan.

There is no doubt that climate change is affecting the United States and affecting New Hampshire. New Hampshire has a diverse economy but one of its greatest assets is its outdoor resources including its winter snow. The latest evidence shows that the length of the average winter in the United States has shortened by one month compared to 100 years ago.⁴³ The first freeze has typically gotten later in New Hampshire, and winters are on average both shorter and milder than in the past. Since 1970, average annual temperatures in New Hampshire have risen 2.6 degrees Fahrenheit, with average winter temperatures rising 4.5 degrees.⁴⁴ Droughts and extreme weather events have also gotten more common.⁴⁵ Climatic shifts such as these not only affect tourism and the ski industry in New Hampshire, they affect everything from corn farming to tree farming to maple syrup production.⁴⁶

⁴¹ New Hampshire Climate Action Plan, Executive Summary at 1, available at

https://www.des.nh.gov/organization/divisions/air/tsb/tps/climate/action_plan/documents/nhcap_xsum.pdf.

⁴² Id. (citing IPCC (2007). Summary for Policymakers. In: Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Pachauri, R.K and Reisinger, A. (eds.)] IPCC, Geneva, Switzerland, 1-22. http://www.ipcc.ch/pdf/assessmentreport/ar4/syr/ar4_syr_spm.pdf).

⁴³ https://www.theguardian.com/us-news/2017/oct/28/us-winter-has-shrunk-by-more-than-one-month-in-100-years?CMP=share_btn_tw

⁴⁴ See video by the NH Department of Environmental Services on climate impacts in New Hampshire (Apr. 5, 2016), available here: <https://www.youtube.com/watch?v=ktcVNILclIQ>

⁴⁵ Id.

⁴⁶ See, e.g., <http://nhpr.org/post/how-could-climate-change-affect-new-hampshires-maple-syrup-industry#stream/0>; <http://nhpr.org/post/nh-ski-industry-must-cope-warmer-seasons-and-midwinter-thaw#stream/0>; <http://nhpr.org/post/nh-house-passes-2-million-funding-dairy-farmer-drought-relief#stream/0>. Certain potential impacts of climate change on New Hampshire are outlined by the U.S. EPA at the following link: <https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-nh.pdf/>

According to the end-of-year 2016 Commissioner's Column in the newsletter of the NH Department of Environmental Services:⁴⁷

Climate change is real, serious and primarily caused by human actions. This fact is supported by the overwhelming majority – 99.9% – of the world's climate scientists, based on a review of over 24,000 peer-reviewed articles on global warming. New Hampshire residents are already experiencing its effects as our environment changes: more intense rainstorms that wash out roads and culverts, and damage homes, businesses and wastewater and drinking water facilities; and gradual warming that supports larger tick populations that infect people and wildlife with disease, and that negatively affects our cold weather industries, such as skiing, snowmobiling, logging and maple-syrup production.

And according to New Hampshire's scientists, our iconic loon and moose have begun to suffer serious impacts as a result of climatic shifts.⁴⁸ Like the Old Man of the Mountain, New Hampshire's loon, moose, maple syrup, and snowy mountains define us. As each erodes and disappears, so does our way of life and economy.

To address the threat of climate change, the state must establish firm and mandatory emissions reductions goals in line with the Climate Action Plan. Without transparent, mandatory emissions reductions goals, the state's efforts on climate change will be ad hoc and thus relatively inefficient. In comparison, under a mandatory scheme New Hampshire could holistically review its climate strategies to more effectively identify efficient, rapid, and cost-effective means to transition to clean energy resources and diminish climate-warming emissions while strengthening the state's economy and supporting good, stable job opportunities.

In addition to setting firm emissions reductions goals in line with the Climate Action Plan, New Hampshire should join the U.S. Climate Alliance. The U.S. Climate Alliance is a group of states that have committed to achieving emissions reductions goals in line with the Paris Climate Accord. New Hampshire and Maine are the only New England states that have not yet joined the U.S. Climate Alliance. Joining the Alliance can help leverage the investments and wherewithal of New Hampshire and other Alliance members. New Hampshire need not work alone – smart, coordinated state action can ensure that we effectively address the human, economic, and environmental threats posed by climate change.

The potential leverage and impact of this coalition of states is significant. U.S. Climate Alliance members represent more than 36% of the population of the United States, and at least \$7 trillion in GDP.⁴⁹ Collectively, Alliance members are home to approximately 1.3 million

⁴⁷ Commissioner's Column, Newsletter of the NH Department of Environmental Services at 1-2 (Nov.-Dec. 2016), available at <https://www.des.nh.gov/organization/commissioner/pip/newsletters/en/documents/2016-nov-dec.pdf>

⁴⁸ <http://nhpr.org/post/climate-change-leading-cause-moose-and-loon-population-decline-new-hampshire#stream/0>

⁴⁹ <https://www.usclimatealliance.org/>

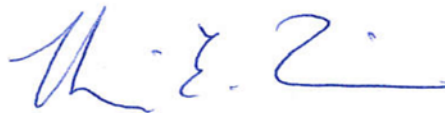
clean energy jobs.⁵⁰ Together, we can more effectively continue the effort to create a high-tech, clean energy economy that demonstrates international leadership.

In addition to setting mandatory emissions goals and allying with other states to more effectively transform the energy economy, New Hampshire should strengthen the Renewable Portfolio Standard. We should also continue to strengthen RGGI while utilizing the state's RGGI funds for strategic energy efficiency and clean energy investments that will lower customer bills while supporting the local clean energy economy. Both the RPS and RGGI are key, readily available tools to further the clean energy economy.

Finally, the state should support, recognize, and leverage efforts by New Hampshire cities, towns, and other localities to transition to a clean energy economy and reduce harmful emissions. In particular, the state should support cities and towns calling for research into offshore wind, as well as those that are committing to the Paris Accord emissions reductions goals, or to a long-term transition to 100% clean energy. The cities of Concord, Nashua, Portsmouth, Keene, and Lebanon have all committed to achieving the Paris Accord goals.⁵¹ These cities should be recognized as climate investment leaders, and partners for the state, as we seek to avert the worst impacts of climate change in New Hampshire.

Thank you for the opportunity to submit comments. Should your office decide to move forward with revisions to the energy strategy, we urge the adoption of a transparent and inclusive process that incorporates advance input from a diverse and strategic range of stakeholders, as well as the solicitation of public comments on any draft revisions. We look forward to a continued dialogue on the state's energy future.

Respectfully submitted,



Melissa E. Birchard

⁵⁰ <https://www.usclimatealliance.org/>

⁵¹ <http://nhpr.org/post/concord-fifth-nh-city-commit-paris-climate-goals#stream/0>