Chapter XX—Lyme's Energy Transition

Introduction

Located in a rural part of a state with high heating demand, no domestic fossil fuel resources to speak of, among the highest electricity prices in the nation, and an economy susceptible to climate change, Lyme must be increasingly cognizant of issues surrounding energy consumption. The only energy resources native to Lyme or to New Hampshire (or even to New England) more broadly are renewable resources such as solar, wind, biomass, and hydropower. Conveniently, the intertwined imperatives of averting the worst effects of climate change and strengthening local resilience require that these same native renewable energy resources are the very resources to which Lyme should be transitioning. Fortunately, steep and ongoing cost declines in the technologies that convert these renewable resources to usable forms of energy increasingly enable a transition to these clean, renewable, and local resources to result in energy bill savings—providing yet another strong inducement for adoption.

Lyme's energy consumption can be broken down into three broad end-use categories: electricity, transportation, and heating. Electricity already powers much of our daily lives, and our consumption of it will most likely grow as our economy becomes increasingly digital in nature (i.e., conducted on computers) and as electrified transportation and heating options become more available and mainstream. Beneficial electrification replaces direct fossil fuel use (e.g., propane, heating oil, gasoline) with electricity in a way that reduces overall emissions and energy costs. There are many opportunities across the residential and commercial sectors. This can include switching to electric vehicles or electric heating systems – as long as the end-user and the environment both benefit.[i] Transportation is also critically important to Lyme, given its rural geography and its distance from major employers, hospitals, and other services. New Hampshire's small population is concentrated in the southeastern part of the state. However, the state's natural beauty and proximity to other northeastern population centers draws many visitors and part-time residents whose travel and second homes add to the state's energy use. The residential sector leads state energy consumption even though about 1 in 10 New Hampshire homes are only seasonally occupied. The transportation sector's energy use follows the residential sector's closely, and each of those sectors consume nearly one-third of the energy used in the state [EIA July 16,2020].[ii]

In short, all three of these end uses of energy—electricity, transportation, and heating—are important, and deserve thoughtful consideration within Town planning and zoning forums (including this Master Plan), in order to minimize the cost of meeting Lyme's energy needs, safeguard against unpredictable energy price shocks, support Lyme's economy (e.g., skiing and the local restaurants and inns that benefit from it), protect Lyme's natural environment, and generally improve the quality of life in Lyme. To this end, at its 2020 Town Meeting, the Town voted overwhelmingly to collectively pursue the goal of achieving 100% reliance on clean, renewable sources of electricity by 2030 and clean, renewable sources for all other energy needs, including for transportation and heating, by 2050. Lyme's volunteer Energy Committee has begun working to implement these goals—details on which are provided later in this

chapter—but achieving them will ultimately require widespread and concerted action on the part of all Town employees, elected officials, volunteer committees, and citizens. As such, these goals, and the topic of energy more broadly, deserve prominent visibility within Lyme's Master Plan (and not just within this dedicated chapter—this topic should permeate all sections of the Master Plan).

This chapter begins by stepping through each of the three end uses of energy noted above—electricity, transportation, and heating—to provide the current lay of the land, and to document recent progress on the path to a more-sustainable energy future, in Lyme. Next, we provide more details surrounding the ambitious but achievable energy transition goals adopted at Town Meeting 2020, along with their broader implications for the Town. Finally, the chapter culminates in a series of recommendations to guide the Town as it embarks upon and progresses towards this important energy transition.

Electricity

Lyme is served by two electric utilities. The New Hampshire Electric Cooperative (NHEC) serves the central part of the state, including eastern and northern portions of Lyme. Eversource, an investor-owned utility with a service territory that covers much of New England, serves the western part of Lyme.

Both utilities are subject to New Hampshire's *Renewable Portfolio Standard* (RPS), a policy that requires load-serving entities to include a minimum share (that gradually increases over time) of renewable resources within their power mix. In 2021, New Hampshire's RPS required a minimum share of 21.6% renewables; that floor will increase by 0.9 percentage points per year until reaching 25.2% in 2025 (and thereafter). The 21.6% requirement for 2021 is broken down into a handful of sub-categories, including 9.6% "new renewable energy" (which includes new wind, solar, ocean, hydropower, biomass, and methane energy), 1.8% thermal renewable energy (discussed in a later section on heating), 8% existing biomass and methane, 1.5% existing small hydroelectric, and 0.7% new solar. In other words, less than half of the state's 2021 RPS requirement of 21.6% supports "new" forms of renewable generation like wind and solar; moreover, at the time of writing, the RPS targets do not continue to increase past 2025, stopping at just one quarter of the total power mix in that year. As such, state policy leaves plenty of headroom for utilities and consumers to go further in terms of both the quantity and quality of renewable resources serving their needs.

This table shows the composition of NHEC's and Eversource's power mix in 2019. While renewable resources made up almost half of NHEC's power mix (much of it coming from hydropower), they accounted for just 18% of Eversource's portfolio (much of it coming from biomass). Wind and solar contributed just 7.1% of NHEC's mix and only 1.6% of Eversource's. With Eversource barely complying with New Hampshire's modest RPS requirement, and with that requirement currently scheduled to sunset at just 25.2% in 2025, it is likely that Lyme will

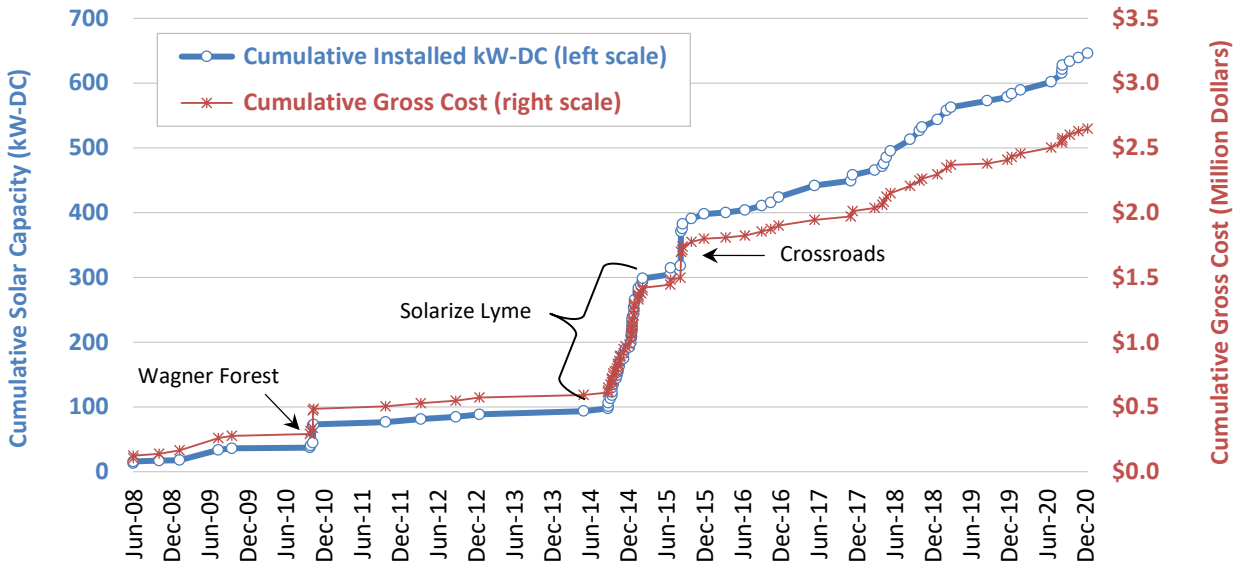
	2019 Power Mix	
	NHEC	Eversource
Biomass/Wood	0.9%	12.5%
Liquid Biofuels	0.0%	0.3%
Landfill Gas	4.7%	0.7%
Municipal Solid Waste	0.2%	0.3%
Hydroelectric	34.2%	2.6%
Solar Photovoltaic	1.6%	0.5%
Wind	5.5%	1.1%
Total Renewable	**47.0%**	**18.1%**
Coal	1.4%	2.2%
Diesel	0.0%	0.5%
Natural Gas	23.0%	35.4%
Nuclear	12.7%	19.6%
Oil	3.3%	4.6%
Imports	12.6%	19.6%
Total Non-Renewable	**53.0%**	**81.9%**
Total	**100.0%**	**100.0%**

need to go above and beyond what the local utilities are delivering in order to achieve its goal of 100% renewable electricity by 2030.

Not only is the electricity delivered over the grid by Lyme's utilities predominantly non-renewable (especially in the case of Eversource), it is also relatively expensive. In 2020, New Hampshire ranked 9th out of 50 on a list of states with the highest residential electricity prices. Although this is one "top ten" list that most states would presumably prefer to avoid, there is a silver lining: the high cost of electricity in New Hampshire—~18 cents/kWh for residential customers—provides a strong economic inducement for consumers to look for ways to avoid that high cost.

In recent years, the Town and its citizens have pursued electricity bill savings primarily by reducing consumption through energy efficiency measures and/or by installing solar photovoltaic (PV) systems. On the efficiency front, Lyme's Energy Committee spearheaded an LED lighting upgrade at the Town's highway garage and Town Office buildings in 2017—an investment with a simple payback of just a few years. And, in 2018, Lyme participated in the "Weatherize Upper Valley" campaign led by Vital Communities, which resulted in more than 100 home energy audits and nearly 30 weatherization contracts (though this campaign was targeted more at heating than electricity).

Lyme has also aggressively pursued solar photovoltaics (PV), at one point holding the distinction of having the highest amount of PV capacity installed per capita of any town in New Hampshire. Even though New Hampshire's solar resource is rather limited and not as strong as in other states (e.g., Arizona), the high cost of electricity in New Hampshire makes even a sub-optimal solar resource economically viable. The figure below depicts historical PV deployment in Lyme through the end of 2020: 89 residential and 4 non-residential (Wagner Forest Management, Lyme School, Crossroads Academy, and Lyme Town Office) systems totaling 645 kW_{DC} of capacity and more than $2.6 million in gross investment.



In 2014, Lyme's Energy Committee joined forces with Vital Communities on a "Solarize Lyme" campaign, which resulted in 40 residential PV installations within a very compressed period. Notably, the pace of PV adoption since Solarize Lyme has been roughly three times as fast as it was prior to Solarize Lyme, suggesting that the experience of seeing so many neighbors living successfully with PV has bred familiarity with the technology, encouraging other residents to adopt as well. With roughly 840 total housing units in Lyme (~730 of which are occupied full time), roughly 11% of Lyme homes had installed PV through the end of 2020. This ~11% penetration rate is an order of magnitude higher than the national average of roughly 1%.

In 2017, Lyme's Energy Committee worked with the Town to install an 18 kW_{DC} PV system on the roof of the Town Office building—without needing to raise any money from taxpayers. The post-rebate cost of the system was financed entirely by a $5,000 grant from the Lyme Foundation and a 10-year, 2% interest loan for the balance. The system has now been operating reliably for 4 years, and even though this PV system was unable to benefit from the solar 30% Federal investment tax credit (due to the Town's tax-exempt status), the system has nevertheless been slightly cash flow positive since day one—despite having to service the loan. Once the 10-year loan has been fully repaid, this system should generate several thousand dollars per year in electricity bill savings, for many years to come.

Looking ahead, solar is likely to continue to play a significant role in progressing towards Lyme's 2030 goal of 100% renewable electricity. In addition to ongoing residential adoption and several larger systems on Town buildings (the library and the new fire station are currently the most-promising candidates), group net-metered solar projects, to which residents can subscribe, might be another way to reach residents who do not own their own home or have a suitable site for solar. These projects are defined as net-metered renewable energy facilities, known as *hosts*, that share the proceeds from surplus electricity generation with other electric utility account holders, known as *group* members. Group members do not have net-metered

renewable energy facilities and do not have to make any changes to their existing electric service.

The shift in control of Congress in 2021 has many expecting that tax credits for solar (and other clean energy technologies) will be extended (that said, the Town Office PV system demonstrates that it is possible for PV to pencil out in Lyme even without the benefit of the Federal tax credit). Moreover, the cost of PV technology is widely expected to continue to decline—which has many excited about the possibility of carbon-free transportation (via electric vehicles, covered in the next section) and possibly even carbon-free heating (via electric heat pumps, covered in a later section).

Another potential strategy that Lyme could employ to both save money and ensure that its electricity is coming from clean renewable sources is by pursuing New Hampshire's Community Power program – either as its own entity or as a partner in an existing community power program. Community Power, authorized under NH RSA 53-E, democratizes energy governance by empowering towns, cities and counties to choose where their electricity comes from on behalf of their residents and businesses, work with utilities on local energy infrastructure upgrades, and provide electricity supply rates and services to all customers participating in the program.

Community Power programs serve as the default electricity supplier within the municipality and are self-funded through the revenues received from participating customers.

Local electric distribution utilities continue to own and operate the "poles and wires", and deliver electricity to all customers in the municipality.

Community Power programs may also offer innovative services and rates for customers on an "opt-in" or "opt-up" basis, such as 100% renewable premium products, time-varying rates and Net Energy Metering generation credits for customers with solar photovoltaics.

Prior to launch of a Community Power program, all eligible customers are mailed notifications and provided the opportunity to opt-out or opt-in to the program, depending on whether they currently take service from a Competitive Electric Power Supplier or are on default service provided by local electric distribution utilities:

Customers currently on utility-provided default service will be notified, provided the opportunity to decline participation, and transferred to the Community Power if they do not "opt-out". These customer notifications will include the initial fixed rate for the program's default service compared with the utility default service rate, be mailed to customers at least 30 days in advance of program launch, and provide instructions for customers to decline participation (for example, by return postcard, calling a phone number or using a web portal).

Customers who previously chose to take service from a Competitive Electric Power Supplier will be notified and may request to "opt-in" to the program.

Any new customers that move into the municipality in future will be automatically eligible to receive default service from the Community Power program and will be sent a notification in the mail.

All customers supplied electricity from Community Power programs are free to switch back to the utility-provided default service, or to take service from a Competitive Electric Power Supplier, by opting-out of the program and switching suppliers in advance of their next billing cycle.

The first step is for the Lyme Select Board to establish a Lyme Electric Aggregation Committee (LEAC) to explore ways to take advantage of NH's Community Power Law by either joining a regional Community Power Program or developing its own. This committee would do the necessary research and then determine whether it would be advantageous for Lyme to pursue this. Before Lyme can implement or join a community power program, the voters would need to pass a specific proposal.

Transportation

Many Lyme residents commute to towns just to the south of Lyme—Hanover, Lebanon, White River Junction—where there are a number of large employers (a college, several hospitals, manufacturers, etc.) as well as one of several high schools that Lyme students can attend. Most transportation to/from Lyme is by single-family cars/trucks, because, other than daily school buses, there are currently no public transit options linking Lyme to the Advance Transit (AT) networks to the south. Recent conversations with AT (November 2020) reveal that there are no plans for an AT route to Lyme in the near future (a rough estimated cost of such a route is about $300,000/year). An existing option is Stagecoach Transportation's "River Route," which stops at the newly-renovated Thetford Park-and-Ride and goes to Hanover, but is inconvenient in several ways: one still must get to the Park-and-Ride, and there is only one bus a day in each direction.

Fortunately, advances in technology mean that electric vehicles (EVs) are now viable options for our region. A number of factors have improved considerably:

- Range. Now there are multiple EVs with ranges of more than 250 miles to a charge, made by Tesla, Nissan, Chevrolet, Mitsubishi and others.
- Winter hardiness. These same makes listed above are owned by a number of people in Lyme and the Upper Valley in general, and have been found to be at least as reliable (if not more so) than comparable gas-powered cars in the winter in terms of handling. While EV range decreases in winter, owners have not found this a problem (about a 25% decrease).

- User base. As mentioned above, there is a growing user base and network of EV owners from whom to get information.

A second option is a plug-in hybrid (PIH) vehicle, which uses an electric motor exclusively for a certain range (generally up to 50 miles or less) and then shifts to a gas engine. For local trips, the gas engine might not be used at all, and owners have gone for weeks or months without having to fill the tank.

At the time of writing, there are at least 13 EVs and 13 PIHs owned by Lyme residents; encouragingly, 12 of these 19 vehicles were purchased in the past year. A survey of Lyme EV/PIH owners found near-universal satisfaction. Reasons for purchasing an EV include:

- Performance: EVs out-perform most gas-powered automobiles, particularly in terms of acceleration (e.g., instant torque)
- Low maintenance: EVs require no oil or fluid changes, so that bi-yearly trip to the service center is eliminated.
- Reduced cost over time: While the purchase price of an EV is still higher than for a comparable gas-powered car, the reduced maintenance costs over time and the fact that the electricity cost per mile is generally cheaper than gasoline or diesel costs mean that the total owner cost over time is less.
- Lower greenhouse gas (GHG) emissions: The amount of actual GHG reduction depends on how the vehicle is charged (see below) but, given the energy mix used by the electricity providers for Lyme (see previous section), EVs are always better on this front than gas-powered cars.
- Less noise and fumes, so we can better enjoy the Upper Valley.

More information on Lyme EV owners (including contact info) can be found at the website listed at the end of this section.[iii]

To address the GHG emissions issue in greater detail, the extent to which an EV impacts GHG emissions depends on the charging method. Most EV owners charge from home. A number of EV owners in Lyme have solar panels, which means that their GHG emissions are essentially zero for the % of electricity they derive from those panels. If the electricity is coming from NHEC or Eversource, their non-GHG sources amount to about 59% and 25%, respectively (these numbers include both nuclear and landfill gas, and exclude biomass—see the 2019 Power Mix table earlier in this chapter). It would be most beneficial to encourage adoption of both EVs and solar systems, to have the highest impact on GHG emissions.

Finally, biking is a viable (if vigorous) option in Lyme, in view of the wide and well-paved shoulder on Route 10 between Lyme and Hanover in both directions. A number of Lyme residents commute to Hanover by bike when weather permits. While this may not be an option for many commuters, E-bikes are becoming widely adopted in the Upper Valley.

Heating and Cooling

Due to Lyme's northerly climate, energy consumption for heating is significant. As of 2017, there were 528,700 occupied housing units in New Hampshire, and housing data includes the type of heating fuel for those occupied housing units. Unlike many other regions of the country, access to utility natural gas in New Hampshire is relatively new and mostly restricted to the southern portion of the state. That, in part, may explain why the largest portion of homes, over 40 percent, used fuel oil or kerosene as the primary heating fuel. Utility gas was the primary heating fuel for another 20 percent of homes, followed closely by 17 percent of homes using bottled, tank, or LP gas as the primary heating fuel. Electricity was the type of heating fuel for nine percent of occupied homes, and wood provided heat for another seven percent. Less than three percent of occupied homes used some other type of heating fuel, and less than one percent did not use heating fuel.[iv]

Switching homes off fossil fuels to other sources, particularly electricity, is often seen as an important step in reducing greenhouse gas emissions because the electric grid can be cleaned up in ways that fossil fuels cannot.

Because there are no natural gas pipelines in Lyme, fossil fuel heating options are limited primarily to fuel oil and propane. Wood is in widespread use, both in traditional (e.g., wood stove) and modern (e.g., pellet boilers) forms, and there is a significant local wood pellet industry in Lyme and surrounding towns. Residential adoption of wood pellet boilers reached 25 households in 2020.

In addition, the Town of Lyme has been a pioneer in terms of using wood pellet boilers for municipal heating. In 2002, the Town installed two wood pellet boilers, one of the first installations of bulk fed pellet boilers in the area, at the Town Highway Garage. In 2014, the Lyme School heating system was upgraded from fuel oil to two pellet boilers as primary heat with a propane backup. The system became one of the first systems in the state to qualify for and to sell thermal RECs (renewable energy certificates). Thermal RECs are currently worth about $22.00 per Megawatt hour. Sales of thermal renewable energy credits earn the school approximately $6,500 per year on the basis of the consumption of 90 tons of wood pellets. The Lyme Fire Station, constructed in 2020-21, is also heated with a wood pellet boiler.

The replacement of the wood pellet boilers at the Town Highway Garage in 2021 with a propane boiler (rather than a new pellet boiler) illustrates the challenges facing Lyme in meeting its goal of relying on clean renewable energy sources. Uncertainty regarding the state rebate for new pellet boilers, higher costs of equipment and installation, difficulties in accurately forecasting long-term cost savings between propane and wood pellets, and perceived differences in ease of operation all contributed to the decision to install a propane boiler.

The evolving science of climate change suggests that our energy future should be based on technologies that enable the reduction of atmospheric carbon. Lyme residents should

therefore be encouraged to use wood energy as efficiently as possible. Forests play an important part in Lyme's energy mix, while also helping to reduce atmospheric carbon. Lyme lies in the center of one of the most dense forest carbon areas in the Northeast. However, the Northeast, according to the Yale School of Forestry Wildlands and Woodlands report, is losing 65 acres of forest per day due to conversion to development and agriculture. Planning in Lyme should continue to encourage intact forests, which are sustainably harvested with regard to ecology, carbon, and local economic health, including utilization of low-grade cull wood for fuel. Utilizing culled wood from harvests for higher grade forest products offsets fossil fuel and provides Lyme forest owners with more income per tree, which helps ensure forests remain undeveloped. Looking ahead, heat pumps – both air-source and ground-source – are expected to make inroads. Air-sourced heat pumps supplied with renewable power can result in relatively carbon-free heating.

Weatherization and passive solar design will also help to reduce heating loads, and these actions may be more financially available to more residents.

Space cooling and humidity reduction is becoming increasingly important in Lyme as temperatures rise. It is expected that energy loads for cooling will increase even as cooling technology becomes more efficient. It is not uncommon for new construction to include a built-in means for space cooling. Lyme residents benefitting from heat pumps for heating may tend to use their heat pumps for cooling as well, since they will potentially have a cooling source that didn't exist in their homes prior to adding heat pumps. Because heat pumps are quieter and more convenient than portable window units, it is expected that as heat pumps replace portable air conditioning for cooling, longer operating hours may offset efficiency gains.

Smart Growth

It is perhaps instructive to mention how specific energy issues fit into a comprehensive land use planning vision. In general, “smart growth” principles are understood to take the following into consideration when designing land use policies:

1. Mix land uses
2. Take advantage of compact design
3. Create a range of housing opportunities and choices
4. Create walkable neighborhoods
5. Foster distinctive, attractive communities with a strong sense of place
6. Preserve open space, farmland, natural beauty, and critical environmental areas
7. Direct development towards existing communities
8. Provide a variety of transportation choices
9. Make development decisions predictable, equitable, and cost effective
10. Encourage community and stakeholder collaboration in development decisions

The statute in NH that speaks to “smart growth” is RSA 9-B, and it is defined as “the control of haphazard and unplanned development and the use of land which results over time, in the inflation of the amount of land used per unit of human development, and of the degree of dispersal between such land areas.”

"Smart growth" also means the development and use of land in such a manner that its physical, visual, or audible consequences are appropriate to the traditional and historic New Hampshire landscape.

Smart growth may include denser development of existing communities, encouragement of mixed uses in such communities, the protection of villages, and planning so as to create ease of movement within and among communities.

Smart growth preserves the integrity of open space in agricultural, forested, and undeveloped areas. The results of smart growth may include, but shall not be limited to:

- Vibrant commercial activity within cities and towns.
- Strong sense of community identity.
- Adherence to traditional settlement patterns when siting municipal and public buildings and services.
- Ample alternate transportation modes.
- Uncongested roads.
- Decreased water and air pollution.
- Clean aquifer recharge areas.

- Viable wildlife habitat.
- Attractive views of the landscape.
- Preservation of historic village centers.

Our Energy Future

As noted throughout this chapter, Lyme has made significant progress transitioning to clean, local, renewable energy in recent years, but much more can—and must—be done in order to avoid the worst projected impacts of climate change. Fortunately, implementing such measures often saves money in the long run, making it a win-win for the Town and its residents.

To that end, in 2020 the Town of Lyme voted to pursue a goal of 100% reliance on clean, renewable sources of electricity by 2030 and clean, renewable sources for all other energy needs, including for heating and transportation, by 2050. Lyme's affirmative vote is part of a growing movement across the nation. As of December, 2020, more than 170 cities, ten counties, and eight states across the U.S. have goals to power their communities with 100% clean, renewable energy. In total, more than 100 million people now live in a community with an official 100% renewable electricity target. Lyme joins other NH towns—Hanover, Plainfield, Cornish, Concord and Keene—that have also adopted these goals.

The need to move in this direction is urgent. Between 1990 and 2013, global CO2 emissions rose by 60%[v]; in 1988, fossil fuels provided 79% of world's energy, now, despite advances in solar and wind, that percentage has risen to 81%. Every decade since the 1960s has been clearly warmer than the one that preceded it, and 2015-2019 was the warmest 5-year period in recorded history.

The 4th National Climate Assessment Report, completed in 2018 and peer reviewed, with 11,000 scientists endorsing its conclusion, states that we are facing a *climate emergency* – one that has arrived quicker, is accelerating faster, and with more severe consequences than had been predicted – including severe storms, wildfires, rising sea levels, disappearance of coral reefs, changing weather patterns, and more ticks in Lyme NH. Scientists are now predicting that unless we make major reductions in the amount of greenhouse gasses emitted, primarily CO2 (carbon dioxide) and CH4 (methane), we will pass the point of being able to minimize the effects on the environment from climate change. The goal, scientists state, must be to cut carbon emissions in half by 2030 and then to achieve NET ZERO global CO2 emissions by 2050. Their conclusion – "future risks from climate change depend primarily on decisions made today."

In addition to the critical need to minimize the most severe effects of climate change, shifting away from reliance on fossil fuels makes economic sense. Fossil fuels are finite in supply,

domestic crude oil production peaked in 2007, and even as advances in technology make it possible to extract the remaining supplies (think fracking), the cost of that extraction, both economically and environmentally, will continue to increase. Renewable energy sources have the potential for increasing the resilience of Lyme's energy infrastructure, saving dollars spent on energy, and keeping those dollars supporting our local economy.

There is much work to be done by all parties in Lyme – e.g., Town officials and staff, volunteer committees, and residents – to progress towards this ambitious goal. The Planning Board supports these recommendations offered by The Energy Committee.

Recommendations

1. The Town should lead by example through its commitment to sustainability and energy-savings in the operation of its public buildings, exterior lighting and vehicle fleet management. When town buildings undergo significant renovations, efforts should be made to complete those renovations with energy-conserving products and techniques, including the installation or use of renewable energy sources. Renewable energies should be the default, not the alternative, even while seeking competitive bids from carbon sources. A leadership role at the town level can encourage further adoption among the public.

2. The Planning Board should take this chapter as a mandate to make zoning recommendations that are more permissive for the use of renewable energy sources.

3. The Select Board, in consultation with the Energy Committee should monitor the long-term Town Capital Improvement Plan to identify upcoming projects, e.g. vehicle replacement/addition, building renovations and EV charging stations, that lend themselves to clean renewables and to ensure that the decision-making process, as well as any needed outside funding, is in place to favor renewable energies.

4. The Town should encourage EV adoption, purchasing EVs when replacing the town fleet, applying for state funds to purchase an EV school bus and explore the possibility of using that same electric bus to create a local commuter route down Rte. 10 to Hanover and Lebanon, installing local charging stations, etc. The Town should support public transit to reinstate regular and convenient bus service to Lyme, if economically feasible.

5. The Town should facilitate the siting of "group net metered" solar projects, where a larger, often ground-mounted, solar array benefits various residents who either co-own it or subscribe to its output through New Hampshire's group net metering program.

6. The Town should retain the solar property tax exemption.

7. The Town should establish, with Select Board approval, a Lyme Electric Aggregation Committee (LEAC) to explore ways to take advantage of NH's Community Power Law by either joining a regional Community Power Program or developing its own.

8. The Town should add PV arrays to the new fire house and the library, both of which have newly installed south-facing roofs, and should look for creative ways to finance PV on other Town-owned buildings or on Town-owned land.

9. The Town should consider elimination of all street lights that are not essential to safety.

10. The Town's land use planning should promote energy efficiency, long-term sustainability, environmental impact, and the use of "smart growth" principles, e.g. the energy-saving possibilities of cluster housing, walkable neighborhoods, best practices of forest management, preservation of wildlife corridors, etc.

11. Forests should remain intact as much as possible. Forests reduce the need for energy hungry cooling while reducing atmospheric carbon, and while providing an energy source that Lyme residents rely upon. The Mountain and Forest District should continue to require a minimum lot size of 50 acres to encourage timberland investment and economies of scale for timber harvest.

12. Opportunities to safely connect key parts of town using bike paths or trails should be encouraged.

13. The Lyme Energy Committee and Select Board should stay abreast of local and federal opportunities to promote renewable energy.

14. This Energy Chapter of the Master Plan should be updated every 3-5 years.

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[i] https://www.eesi.org/electrification/be

[ii] https://www.eia.gov/state/analysis.php?sid=NH

[iii] https://www.lymenh.gov/energy-committee. Go to the "Electric vehicle resource guide" in the green sidebar on the left.

[iv] https://www.nhes.nh.gov/elmi/products/documents/ec-0519.pdf

[v] https://blogs.worldbank.org/opendata/chart-global-co2-emissions-rose-60-between-1990-and-2013