

ENERGY

For the Town of Salisbury

Energy and its impact on communities in areas such as municipal expenditures, economic development, land use planning, and transportation is increasingly of interest to residents, local officials and business owners. Reliable, affordable sources of energy are critically important to our overall quality of life and the stability of the economy.

This Energy Chapter presents a framework that can be used to support Town efforts in the areas of energy use, efficiency and planning. The use of energy for electricity, heating, and transportation has direct links to land use, individual lifestyles, natural resource conservation, and environmental quality. The purpose of this Chapter is to provide some background on energy usage and issues and to identify potential strategies and tools for energy conservation, energy efficiency, and efficient development. After a brief introduction to the role of energy in planning, there is a summary of New Hampshire's energy profile and sources as well as a series of recommendations for achieving the overall vision of a resilient, efficient community through programs, operational practices, ordinances and regulations. There is also limited data on Salisbury's energy profile, municipal energy consumption and an overview of potential opportunities for usage and cost savings, energy efficiency improvements and renewable energy options.

Many municipalities in New Hampshire, including Salisbury, are looking at opportunities to reduce energy consumption, improve

energy efficiency, and investigate renewable energy sources by developing energy chapters in the master plan. New Hampshire **RSA 269:1(n)** was adopted in 2008, authorizing municipalities to incorporate an energy section into their master plan that "includes an analysis of energy and fuel resources, needs, scarcities, costs,

CHAPTER VISION

Salisbury is a community that supports and preserves its rural character while looking for opportunities to improve economic development, reduce municipal expenditures and promote efficient development that supports the concept of energy efficiency. The development of Salisbury's energy policies as they relate to energy generation, building standards, transportation and land use development patterns can have a direct impact on the community's vitality and long term sustainability.

and problems affecting the municipality and a statement of policy on the conservation of energy.”

THE ENERGY LANDSCAPE

Energy efficiency and renewable sources of energy continue to emerge as topics in discussions of energy usage and costs. Many view them as solutions to high energy costs and supply concerns as well as a response to environmental sustainability.

An important concept to remember is that New Hampshire is part of a region and really a world market when it comes to energy. Since 1997, ISO-NE (Independent System Operator of New England) has been managing the regional electricity demand and supply in New England; what we can do as a state and region is influence overall use and fuel choice.

Energy is a very broad topic and also has some specific terms that need to be understood, particularly in the area of renewable energy. Below is a list of definitions that clarify some of the terms used in this Chapter.

1. **Energy conservation** means reducing the overall use of energy, particularly wasted energy (such as installing programmable thermostats that turn on the heating or cooling only when a building is occupied).
2. **Energy efficiency** refers to the ability to produce the same output or benefit using less energy in the process (such as replacing an incandescent light bulb with a fluorescent one). Anywhere energy is used, there are opportunities to increase efficiency.
3. **Renewable energy** describes energy sources and systems that produce power from sources that are unlimited or can be

cyclically renewed, such as solar, wind, geothermal, or biomass. Non-renewable energy sources are those with a finite supply, such as oil, natural gas, or coal.

4. **Renewable Portfolio Standard (RPS)** was established in May 2007 as RSA 362-F and requires the state’s electricity providers -- with the exception of municipal utilities -- to acquire by 2025 renewable energy certificates (RECs) equivalent to 24.8% of retail electricity sold to end-use customers. The RPS includes four distinct standards for different types of energy resources; these are classified as Class I (largest class and includes new and existing renewable facilities), Class II (solar), Class III (existing biomass and landfill gas facilities) and Class IV (existing, small hydro with certain restrictions). See the Public Utilities Commission’s [website](#) for a detailed explanation of the classes. What an RPS does is establish a base level of demand but allows the market to determine which renewable energy resources will meet that demand. Initially proposed as a mechanism to support renewable energy development in competitively restructured electricity markets, the RPS model today is now seen to serve other functions such as encouraging fuel diversity and economic development.
5. **Renewable Energy Credits or Certificates (RECs)** – are sold separately from the underlying physical electricity and are tracked, traded and sold in the market. As renewable generators produce electricity, one REC is created for every 1 megawatt-hour (MWh) of electricity placed on the grid. RECs represent the “attributes” (environmental, social, and other non-power qualities of renewable electricity generation) of renewable electricity generation from the physical electricity produced, serving as “currency” for renewable energy

markets. Since RECs only represent the non-power attributes, they are not subject to delivery constraints.

6. **Alternative Compliance Payments (ACPs)** are made to the state by utilities for every megawatt hour of energy for if their renewable energy quotas are not met. These alternative compliance payments are essentially an assessed fee to those utilities and competitive electricity providers that have not complied with the RPS. If RECs are not available or prices exceed the alternative compliance price, the electrical supplier will often elect to pay the fee, i.e., the alternative compliance payment.

Typically, it makes sense to strive for energy conservation first as using less energy has minimal costs and is fairly straightforward to implement. Improving energy efficiency can also reduce energy use, although it does not always result in lower consumption (for instance, a person who buys a more fuel efficient car may drive the same number of miles, thereby saving energy and money or he or she may drive *more*, which costs the same but does not reduce the amount of fuel used). Finally, constructing renewable energy systems, particularly those where the energy is used on-site, is a valuable strategy for long term energy cost savings and reduction in pollutant emissions.

STATEWIDE ENERGY USE OVERVIEW

Some Quick Facts from U.S. Energy Information Administration, June 2016:

- New Hampshire was the ninth lowest per capita consumer of energy among the states in 2014.
- The Seabrook nuclear power reactor, the largest in New England, provided 47% of New Hampshire's 2015 net electricity generation.
- Nearly half of all New Hampshire households relied on fuel oil for heat in 2014.
- New Hampshire is third in the nation, after Maine and Vermont, in the proportion of its net electric generation that comes from biomass, mainly wood and wood by products.
- New Hampshire's Renewable Portfolio Standard requires 24.8% of electricity sold to come from renewable energy resources by 2025; 17% of New Hampshire's 2015 net electricity generation came from renewable energy.

Energy use in the Central NH Region parallels patterns throughout the state and the northeast. New Hampshire relies on a number of different types of energy supplies – each with its own unique costs. Some important facts to remember:

FACT: New Hampshire relies on external sources of energy for nearly 90% of its total energy consumption.

FACT: Population growth has slowed but is still increasing. Household changes are also leading to changes in how energy is used – computers, phones, TVs. Any gains in efficiency may be partially offset by the increasing electric demand associated with the number of devices and appliances per household.

FACT: Energy costs and supply are dynamic; costs are not fixed.

FACT: Demand patterns for energy may decrease, BUT expenditures can increase due to rising fuel prices.

FACT: Decisions concerning energy supply and usage directly impact individual energy bills and the overall economy.

SALISBURY ENERGY PROFILE

Many of the Central NH Region’s communities are served by a combination of different utility providers. Salisbury residents receive service from a combination of Unitil (455 customers), Eversource (124 customers), and NH Electric Cooperative (88 customers).

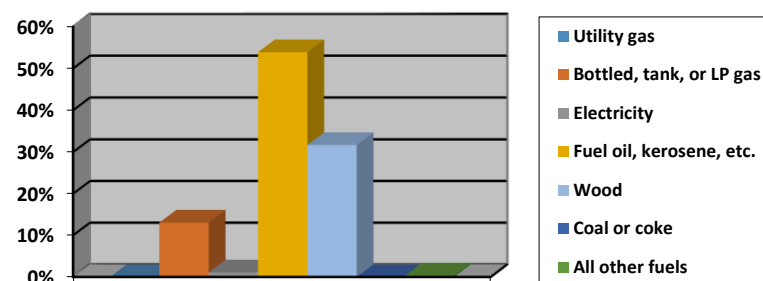
Data on Salisbury’s heating sources is provided in the following charts that show a typical Northeast profile of the reliance on oil heat but a surprisingly high percentage of wood.

Table 9.1: House Heating Fuel, Occupied Housing Units

HOUSE HEATING FUEL, Occupied Housing Units	
Utility gas	0%
Bottled, tank, or LP gas	13%
Electricity	1%
Fuel oil, kerosene, etc.	54%
Wood	31.7%
Coal or coke	0%
All other fuels	0.3%

Source: US Census Bureau, 2011-2015 American Community Survey

Figure 9.1: 2011 – 2015 House Heating Fuel, by Type in Salisbury



Source: US Census Bureau, 2011-2015 American Community Survey

SOURCES

In this section, there is discussion of the major supply sources such as gas, petroleum and coal. Smaller sources such as kerosene, propane are not covered. It should be noted that Eversource is currently in the process of selling its power plants in New Hampshire. It is expected that the sale of the power plants, including three fossil fuel plants and nine hydropower facilities, will take place by auction sometime in 2017/2018.

NATURAL GAS

In New Hampshire, there are four natural gas pipelines. The significant line for state residents is the Tennessee Gas Pipeline (TGP) which is owned by Kinder Morgan and brings gas from Texas, Louisiana, and the Gulf of Mexico into New England. This pipeline crosses New York and Massachusetts and distributes gas across a large section of Massachusetts. There are several tributaries off of the main line, one of which branches off near Lowell and heads north through the communities along the Merrimack River and into the Lakes Region. Natural gas is not currently available in Salisbury.

According to the EIA, “about one in five New Hampshire households uses natural gas for primary home heating. Because of recent differences between natural gas and home heating oil prices, there has been an increase in the number of homeowners who have been switching to natural gas in New Hampshire and throughout New England. However, New Hampshire is still among the lowest states in per capita natural gas consumption, in part because large areas of the state do not have the natural gas distribution infrastructure.”

Electricity generation from natural gas has increased markedly since 2003 with the commissioning of two large generating stations. As increasing amounts of natural gas are used for electricity, in New Hampshire and in New England as a whole, assurance of natural gas supply is becoming a critical strategic energy issue for the region.

PETROLEUM

Nearly half of all New Hampshire households rely on petroleum as their primary heating fuel, making the state and the overall region particularly vulnerable to fuel oil shortages and price spikes during the winter months.

The transportation sector consumes more petroleum products than any other sector. State law requires the use of a biodiesel blend in state vehicles unless the blend costs more than all-petroleum fuel. The state also requires reformulated motor gasoline blended with ethanol in the populated areas of southeastern New Hampshire to limit ozone formation.

COAL (EIA Data)

New Hampshire has two coal-fired generating stations, Schiller at Portsmouth and one in the Central NH Region, Merrimack Station at Bow. Both are owned and operated by Eversource and the Merrimack Station is the utility’s largest plant and generates approximately 439 megawatts (MW), enough to roughly supply

190,000 households. One unit of the plant was built in 1960; the other in 1968. In response to a 2006 state law (RSA 125-O), Eversource installed a scrubber system by 2011 that is targeted to capture 80% of the mercury from the coal and reduce sulfur dioxide emissions by roughly the same percentage. The cost of the scrubber system increased from an estimate cost of \$250 million in 2006 to \$422 million. As mentioned previously, this Eversource facility and all of its power plants are currently going through the process of being sold. The Schiller station can burn either coal or oil, and one unit was converted in 2006 to burn woody biomass. Although coal’s share of New Hampshire electricity generation has declined in the face of cheaper natural gas, it still typically provides around 5% of net electricity generation.

RENEWABLE ENERGY

SOLAR

According to the U.S. Department of Energy, demand for solar is at an all-time high; the amount of solar power installed in the US has increased more than 23 times over the past eight years, from 1.2 GW in 2008 to an estimated 27.4 GW at the end of 2015. Once thought of as not practical in northern climates, solar energy has much potential for providing clean, reliable and safe energy. Solar technologies have proven to be successful in New Hampshire and continue to be a viable option both commercially and residentially. As technologies continue to improve and costs lower, solar thermal collectors and photovoltaics are becoming more competitive in the marketplace.

THE COST OF SOLAR ENERGY

The challenges for solar installation include the installation costs and some of the “soft” costs such as permitting and interconnecting the system to the power grid. However, the cost of solar panels or

solar modules has been falling significantly. According to the Department of Energy, since the beginning of 2010, the average cost of solar PV panels has dropped more than 60%, and the cost of a solar electric system has dropped more than 70%. Grid-tie (connected to your electrical utility company's power "grid") has not only become more mainstream but the decreasing price is attributed to many factors, including technology improvements such as the mini inverter. Each panel in an array has its own on-board inverter which eases the effects of partial shading on the panels.

The NH Office of Energy and Planning (OEP) recently completed a project through the New England Solar Cost Reduction Partnership (NESCRP) from the US Department of Energy's Rooftop Solar Challenge II Program. The intent of this grant was to increase implementation of solar photovoltaic (PV) by driving down its associated costs. Under this grant, NH focused on the "soft costs" associated with residential permitting, zoning and interconnection. Statewide model permitting and zoning, a guide to the utility interconnection process, and additional educational resources, including training, were developed for use by municipalities and are available through [OEP's website](#).

SOLAR ENERGY USE

In 2015, solar installations in the U.S. accounted for 29.4% of new electricity generation installed. According to the Solar Energy Industries Association, residential solar benefitted from a fourth consecutive year of greater than 50% annual growth with installations reaching 2,099 MW. Growth in this industry is driven by many factors and certainly varies by sector and state. The federal tax credit is still available, installed costs continue to decline and state and utility rebates all are contributing to the solar market growth. The federal Investment Tax Credit was extended through

2021 in December and a "commence construction rule" was added, effectively providing the market with policy visibility through 2023. By many standards, this is still an industry that is in its relative infancy when you consider that in 1985, annual solar installation was 21 MW.

In NH, the rebate programs for residential solar water heating is continuing with over 485 rebates and 284 commercial and industrial rebates issued through June, 2016.

The residential market for residential electrical renewable energy (PV and Wind) continues to grow as well with small units being installed in domestic homes to supply a proportion of the household electricity needs. More than 2,700 statewide systems have been installed since the PUC established the rebate program in 2009. A good source of information on solar energy for residential homes can be found in the publication: [A Homebuilder's Guide to Going Solar](#).

As solar systems become more mainstream, there is developing interest in looking at the role of zoning and land use regulations to ensure that solar renewable energy projects are compatible with existing land use regulations. Looking at ways to support renewable energy projects that are not overly restrictive or contradictory to the installation of the systems within the framework of "sound" community development is important. Some potential considerations by communities include whether the systems are considered an accessory use or a conditional use in certain areas, height and setback limitations, scale, and aesthetics (i.e. glare).

BIOMASS

According to the U.S. Energy Information Administration, nearly 1 in 12 homes in New Hampshire depend on wood products as a primary heat source. New Hampshire is still 84% percent forested and

roughly 81% is considered viable timberland. Biomass products such as wood pellets and chips, logwood and briquettes, are an important part of the state's economy and can keep fuel dollars in the local economy.

Since biomass is part of the renewable energy market, there is the opportunity to sell the renewable energy attributes or RECS. As mentioned earlier in this Chapter, these renewable energy attributes or RECs are traded separately from the underlying electricity. New Hampshire was the first state in the nation to create RPS incentive provisions for thermal renewable systems that are equivalent in value to those for renewable electric technologies.

Electricity in New Hampshire is also generated from the combustion of wood by seven major power plants in New Hampshire. In the Central NH Region, Wheelabrator Concord Company operates a waste-to-energy plant that includes two furnace/boiler systems that processes up to 500 tons of solid waste per day. The plant produces high pressure steam capable of producing around 14 megawatts of electricity annually, close to supplying the electricity for 17,000 homes.

Interest in biomass as a source of heating has also been increasing for residential, commercial, and municipal uses, thanks in part to rebate programs and other sources of funding the last few years. New Hampshire's commercial and industrial rebate program for wood pellet boilers has issued 43 rebates and the residential wood pellet/furnace program has issued 300 as of June, 2016. The residential wood pellet program is also active and links to the application is available through the [Public Utilities Commission](#)

WIND POWER

While New Hampshire may not have the wind power capacity or potential of other states, there have been four major wind projects

approved by the state's Site Evaluation Committee (SEC) and others are in the queue. SEC functions as the state's permitting authority for the review, approval, monitoring and enforcement of compliance in the planning siting, construction and operation of energy facilities. See SEC's [website](#) for more information on the Committee.

Most of the US wind power capacity is from Texas up to North Dakota and the west coast. While the "wind farm" development is an intensive undertaking, there have been advances in community scale wind turbine technology and the interest continues, albeit on a limited scale when compared to other renewables such as solar and biomass. It should be noted that Salisbury currently does not have a wind ordinance.

HYDROPOWER

Hydropower, or hydroelectric power, is considered to be the most common and least expensive source of renewable electricity in the United States today. According to the U.S. Energy Information Administration, historically, all renewable electricity generated in the United States came from hydropower resources. In NH, close to 30% of renewable electricity is provided by hydropower.

Hydropower technologies use flowing water to create energy that can be captured and turned into electricity. There is a long history of hydro not only in the state but in the Central NH Region.

Below is a list of the current facilities operating in the Central NH Region.

- **Penacook:** upper and lower falls located on the Contoocook River, operated by Briar Hydro Associates.
- **Rolfe Canal:** operated by Briar Hydro Associates.

- **Jackman Hydro:** operated by Eversource, the facility is located in Hillsborough on the north branch of Contoocook River. (3.6MW)
- **Garvin Falls:** operated by Eversource, the parent company of the facility, is located on the Merrimack River. (12.4MW)

GEOTHERMAL

The common type of geothermal energy uses the more readily accessible soils where the temperature of the ground is 50 to 55°F at 4 or more feet below the surface (below the frostline). This utilization of energy in the ground is more correctly termed geothermal heat pump system, ground source heating or "geoexchange." There are two main components, the heat pump and the circulation system that is drawing the heat from the ground. These systems are becoming more popular but they do have some limitations that can restrict their use. The units can be very expensive with upfront costs in the range of \$20,000-\$35,000 or more. The differences between a closed loop and open loop system for well systems tend to be specific to the site in question and requires careful study of the site characteristics.

There are other hybrid type systems that use several different geothermal resources that won't be discussed here but can be found at the Department of Energy's [website](#):

In New Hampshire, geothermal systems are regulated by the Department of Environmental Services (DES). The Environmental Protection Agency (EPA) requires states to inventory several classes of injection wells. Open loop wells are considered Class V injection wells which needs to be registered with DES. Closed loop systems also are required to register with DES. For more information, see the [fact sheet](#) prepared by DES.

An example of a large and successful geoexchange project in the Central NH Region is the Merrimack County Nursing Home (MCNH) in Boscaawen, NH. This is a nursing facility that, on average, has about 290 residents and a staff of 425, and is roughly 235,000 square feet.

ENERGY AND PLANNING

The first step for a community that is interested in reducing municipal energy use is to establish a baseline for comparison. Benchmarking energy use by completing an inventory of lighting, electrical, and heating fuel usage for several key municipal facilities is very important. With these data as a starting point, Salisbury could then measure the effectiveness of future energy reduction efforts. These data should be collected over a twelve-month period that would show annual municipal energy demand and the cost for energy expended by the Town for these facilities. The buildings used in the analysis could be selected by the Town due to their level of use and availability of data. A complete energy inventory of all facilities, including any vacant buildings would be helpful for future benchmarking. Municipal vehicle fuel usage (DPW trucks, police cruisers, fire vehicles, etc.) could also be monitored and analyzed as part of the Town's total energy inventory.

PLANNING AND ENERGY POLICY

Energy planning continues to receive increasing attention at the policy level due to long term energy costs and the relationship between energy use, economic activity, and environmental impacts. The principles of "sustainability" support energy conservation and efficiency through thoughtful community design. Compact development patterns, open space preservation, and multi-modal transportation options are core elements which contribute to energy-conscious development while preserving traditional rural

character. NH's communities are all experiencing the demographic trends of an aging population and being able to age in place is of great interest to residents. Energy conservation has the added benefit of supporting many of the accessibility needs of an aging population.

When communities are designed so that residential areas are convenient to businesses, services, and amenities, residents are able to complete daily tasks in fewer trips and use less fuel. Compact development is one technique that allows for greater density while reducing the miles of roadway, water and sewer lines, and other infrastructure needed to serve homes and businesses. Providing pedestrian, bicycle, and ride sharing facilities means that people have less energy-intensive options for getting around town. For rural communities, the use of compact design is often a challenge given the land use patterns that have developed over time.

Efficient building construction can significantly reduce energy use and operating costs for the life of the building. Finally, local renewable energy production allows property owners to have control of their electricity, heating, and hot water generation without consuming additional non-renewable fuels. Local regulations can support and influence these elements as a way to encourage a more energy-conscious community.

While many energy issues are outside of local, regional and state jurisdiction, there are several key areas where there are opportunities to impact policy and weigh in on those policies that have a direct connection to municipal affairs. Awareness of state policies and how they can influence local energy planning and available program/project development is important as communities strive to achieve more energy efficiency.

STATE ENERGY STRATEGY (SB191)

In 2013, an Advisory Council was tasked with developing a revised 10-year statewide energy strategy, the aim of which is to provide forward-looking guidance on electric, gas, and thermal energy strategies and optimize the ready availability of energy supply, energy affordability, the state retention of energy expenditures, jobs, and the use of renewable energy sources and energy efficiency policies, including demand-side policies. Completed in 2014, there are four main categories that frame the energy strategy are:

1. Advance electric grid modernization;
2. Increase investments in cost effective energy efficiency;
3. Diversify fuel choice; and
4. Increase transportation options.

More detail on the recommendations is available in the [final report](#) prepared by OEP.

ENERGY EFFICIENCY RESOURCE STANDARDS (EERS)

An EERS establishes specific targets for energy savings that utilities or non-utilities must meet through customer energy efficiency programs. Currently, New Hampshire is the only state in the northeast with no EERS or its equivalent. Nationwide, twenty-six states have an EERS with the strongest requirements in Massachusetts, Rhode Island and Vermont, which all require close to 2.5% savings annually. A long standing recommendation of earlier studies in New Hampshire, there is currently a proposal before the PUC to adopt an EERS.

CLIMATE CHANGE ACTION PLAN

A Climate Change Policy Task Force was convened in 2008 and

developed a statewide Climate Action Plan in 2009.¹ According to the New Hampshire Climate Action Plan, the most significant reductions in both emissions and costs will come from substantially increasing energy efficiency in all sectors of our economy, continuing to increase sources of renewable energy, and designing our communities to reduce our reliance on automobiles for transportation. As stated in the Plan, a response to climate change and our economic future is inextricably tied to how we produce our energy and how much energy we use.²

The Plan calls for long-term reductions in greenhouse gas emissions of 80% below 1990 levels by 2050, with an interim goal to reduce emissions by 20 % below 1990 levels by 2025. A total of 67 specific recommendations are made to achieve that goal. They include: direct energy savings in buildings, transportation, and electricity generation; natural resource protection; supporting regional initiatives; public education and workforce training; and adaptation to existing and potential climate impacts.

NET METERING

The Public Utilities Commission allows net metering which permits homeowners to receive credit for on-site electricity generation such as from a solar photovoltaic (PV) or wind turbine installation when the generation exceeds household or business consumption. This is accomplished by use of an electric meter that can run both forward and backward so that the host is billed only for the net reading on the meter. The 2012 data shows that over 1,000 installations have taken place through the four utilities, with the most by Eversource.

¹ *The New Hampshire Climate Action Plan: A Plan for New Hampshire's Energy, Environmental and Economic Development Future*, March 2009, available at

Legislation recently passed to increase the state's net metering cap from 50MW to 100MW.

BUILDING ENERGY CODE

The New Hampshire State Building Code for residential and commercial buildings is now the 2009 International Energy Conservation Code (IECC). A part of the overall building code, the energy code establishes minimum requirements for energy efficient design and construction for both new and renovated buildings. By establishing the minimum requirements, the codes set the baseline for energy efficiency in new construction and major renovations to which further design upgrades and strategies may be compared. A structure built to the 2009 energy code requirements will be 14% more energy efficient than one built to the 2006 code. Likewise, the 2012 code represents a 30% improvement in energy performance over the 2006 code. These represent incremental steps toward the goal of net zero buildings by 2030. Only Durham has adopted the stricter 2012 code in New Hampshire.

Reducing energy usage in New Hampshire buildings is the main goal behind the NH Building Code Collaborative. The goal of the Collaborative is to achieve 90% building code compliance by 2017. It is estimated that New Hampshire is now at <50% compliance. There are online resources available through the NH Energy Code Challenge [website](#) as well as publicized training events statewide.

In New Hampshire, residential and commercial buildings represent 50% of the state's total energy consumption. New Hampshire buildings use more energy and emit more carbon dioxide than either the industrial or transportation sectors. ([Source: New](#)

http://des.nh.gov/organization/divisions/air/tsb/tps/climate/action_plan/nh_climate_action_plan.htm.

² *Ibid.*, p. 1.

[Hampshire Baseline Residential and Commercial Construction Activity and Associated Market Actors Characterization prepared by GDS Associates, March 2011.](#)

STATE LEGISLATION

In New Hampshire, municipalities possess legal powers as enabled by state legislation. A number of state statutes authorize municipalities to take action on energy matters:

- **RSA 672:1, III:** “Proper regulations enhance the public health, safety and general welfare and encourage the appropriate and wise use of land.”
- **RSA 672:1, III-a:** “Proper regulations encourage energy efficient patterns of development, the use of solar energy, including adequate access to direct sunlight for solar energy uses, and the use of other renewable forms of energy, and energy conservation. Therefore, the installation of solar, wind, or other renewable energy systems or the building of structures that facilitate the collection of renewable energy shall not be unreasonably limited by use of municipal zoning powers or by the unreasonable interpretation of such powers except where necessary to protect the public health, safety, and welfare.”
- **RSA 674:17, I(j)** states that one of the primary purposes of zoning ordinances adopted by municipalities is “To encourage the installation and use of solar, wind, or other renewable energy systems and to protect access to energy sources.”
- **RSA 155-A:2, VI** permits communities to adopt stricter measures than the New Hampshire State Building Code, such as requiring new buildings to use highly efficient insulation or to take advantage of passive solar energy.

- **RSA 72:61-72** allows municipalities to offer property tax exemptions on solar, wind, and wood heating energy systems, including solar hot water, solar photovoltaic, wind turbine, or central wood heating systems (not individual woodstoves). Over 100 municipalities in NH have exemptions with over 50% (12) of the Central NH Region’s communities allowing renewable energy exemptions:
- **RSA 674:62-66** gives authority to municipalities to regulate the construction of small wind energy systems up to 100 MW and prevents municipalities from enforcing unreasonable limitations on their construction and operation.

Table 9.2: Renewable Energy Exemptions

Municipality	Solar	Wind	Wood
Boscawen	√	√	√
Bow	√		√
Bradford	√	√	
Canterbury	√		
Chichester	√		√
Deering	√		
Henniker	√	√	√
Hillsborough	√	√	√
Hopkinton	√		
Henniker	√	√	√
Warner	√	√	
Webster	√		

Source: NH Office of Energy and Planning, 2016

- **RSA 53F** - In 2010, House Bill 1554 was signed into law and allowed municipalities to establish energy efficiency and clean energy districts. Once a district is adopted by a municipality, an innovative financing tool called Property Assessed Clean Energy (PACE) comes into play. PACE enables municipalities to set up programs to fund energy improvements in commercial buildings and allows repayment of the investments through property “tax” assessments. It is important to note that the financing is tied to the property, not the building owner(s) and paying for investment through property taxes can allow for more affordable and longer term paybacks.

Since its adoption in 2010, concerns were raised by federal housing authorities regarding lien positions on residential mortgages. The 2014 amendments to this original legislation addressed many of these concerns. The program is administered by the Jordan Institute; for more information, see the Jordan Institute’s website: www.jordaninstitute.org.

LOCAL ENERGY PLANNING

The Innovative Land Use Planning Techniques Handbook, available on the NH Department of Environmental Services website, contains model ordinance and regulatory language for municipalities to implement a variety of measures addressing sprawl, environmental, and energy concerns. In addition, many communities have formed local energy committees (LECs) to advise municipal officials and educate the public about energy issues. Through the statewide Energy Technical Assistance and Planning (ETAP) program, administered by the NH Office of Energy and Planning (OEP) in 2010-2011, and other funding sources, many communities have undertaken municipal building energy assessments, master plan

LOCAL ENERGY COMMITTEES

According to the NH Local Energy Workgroup, there are 61 Local Energy Committees statewide; seven are located in the Central NH region - Henniker, Hopkinton, Dunbarton, Concord, Pembroke, Warner and Webster. Some Committees are working on energy chapters in master plans, inventories or audits of municipal buildings and/or moving forward with special projects such as wood pellets for public facilities. Two communities moved forward with this earlier work and adopted energy chapters – Concord, Boscawen and Warner.

energy chapters, energy capital improvement planning, and other actions to achieve energy savings.

RECENT MUNICIPAL ENERGY ACTIONS

At the local policy level, the Town of Salisbury has an Open Space Development provision that is also part of the Town’s Zoning Ordinance. This allows new subdivisions to be designed so that homes are built closer together and blocks of open space are preserved. With smaller lot sizes and a more compact design, cluster developments can save energy on construction, infrastructure, and service provision. They also result, ideally, in a network of permanently conserved open space that is protected from future development and provides natural ecosystem services necessary for stormwater recharge, floodplain storage, wildlife habitat, and the like.

In 2011, the Office of Energy and Planning contracted with a consulting firm to complete an audit of Salisbury's municipal facilities. The purpose of the study was to identify cost effective energy efficiency and renewable energy investments that Salisbury could consider as part of a long range energy management plan. The consultant identify several cost saving opportunities as a result of the study, ranging from specific improvements on lighting and insulation in Academy Hall and the Town Hall to conducting assessments on buildings and equipment for future energy efficient upgrades.

All of the actions taken to date by the Town demonstrate Salisbury's interest in reducing energy use and costs. It is clear that effective facility management and the responsible use of public funds are a priority for municipal managers. With energy data benchmarking and continual monitoring, the results of such efforts could be measurable.

ADDITIONAL ENERGY OPPORTUNITIES

There are a number of additional actions that Salisbury can take to implement some of the recommendations identified above. A comprehensive strategy could include municipal policy and operational changes, land use regulation revisions, and targeted outreach efforts. If the Town wishes to consider certain revisions or additions to existing ordinances and regulations, the following could be pursued:

- Consider adopting RSA 72:61-72 to offer tax exemptions for renewable energy installations.
- Include energy improvements for municipal buildings and vehicle fleets in long-range capital improvements planning discussions, and prioritize such improvements during the annual budgeting process

This is not intended to be an exhaustive list. No single strategy or action will lead to Salisbury achieving more energy efficiency. The pursuit of both small and large changes will be necessary to reach the desired level of efficiency. It is also important to note that policy shifts, planning considerations, and behavioral changes are just as important as making system or equipment improvements.

SUMMARY

The overall intent of this Chapter is to provide a general analysis of energy use and to identify strategies for the Town to pursue in the areas of energy conservation, efficiency, clean energy options, and energy-conscious development. The Town is being proactive by preparing this Energy Chapter. Additional opportunities exist for the Town to continue its efforts, including changes to land use policies, municipal operations, and public outreach. By implementing such changes, Salisbury can save energy and taxpayer dollars, reduce pollutant emissions, and create a community with a strong quality of life. A community that supports energy efficiency efforts also supports sustaining settlement patterns that reduce transportation infrastructure, conserve natural resources and promote open space protection.

As stated earlier in this Chapter, transportation is the leading source of energy use in the state. While it is possible to accomplish both compact design and maintaining rural character, there can be challenges that arise and need to be addressed.

There is also the increasing concern for the aging population at both the local, regional and state levels and its impacts on our abilities to reach destinations - for recreation, health care and social services. This has a direct correlation to the land use patterns and infrastructure of our communities and how we need to get from

point A to point B. The link between energy efficiency and transportation is a strong one.

As tax credits, rebates and other incentives continue to evolve and hopefully stabilize with a consistent funding stream, it is expected that renewable energy installations will become more prevalent. While there are certainly challenges that still need to be addressed, there are also opportunities to improve on the status quo. A wide range of financial and informational resources exist to help municipalities, business owners, and residents make positive changes in their energy consumption. Taken together, these actions will contribute to statewide energy reduction goals and increased energy independence, while creating economic and environmental benefits.

CHAPTER RECOMMENDATIONS & OBJECTIVES

OBJECTIVE 1

To reduce municipal energy usage and costs and improve energy efficiency in municipal operations.

- Pursue active monitoring of municipal energy usage and costs to track progress resulting from any energy saving initiatives.
- Look for opportunities to implement building energy improvement plans to increase the efficiency of municipal buildings, and incorporate planned improvements into the municipal budgeting process.
- Investigate options for renewable energy at municipal buildings.
- Use the 2011 “Preliminary Assessment on Energy Efficient Opportunities for Town Facilities” to develop priorities for energy improvements to municipal buildings.

OBJECTIVE 2

To encourage and support energy-conscious development throughout Salisbury.

- Evaluate existing land use regulations periodically to ensure energy efficient development is addressed.
- Evaluate adequacy of existing regulations for renewable energy installations such as solar arrays.
- Continue to keep apprised of revisions to the Energy Building Code and opportunities for education and training offered for code enforcement officials.

OBJECTIVE 3

To inform Salisbury residents and business owners on energy conservation, efficiency, and renewable energy measures and where to find additional information and funding.

- Encourage placing information and links on the Town of Salisbury’s website and at the library for residents and business owners on home energy saving strategies, renewable energy system installation, business energy programs, available financing, tax credits, green building design, etc.
- Look for opportunities to sponsor and/or partner with others on workshops or events on energy conservation, efficiency, and renewable energy, and/or notify residents of regional events.
- Evaluate the feasibility of establishing an Energy Committee to advise the Town on energy matters and provide resources to residents and business owners relating to energy improvements.