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Goals

Enhanced Energy Planning in Vermont is primarily guided by the Comprehensive Energy Plan and the Global Warming Solutions Act. Additional goals are supplied by the 25 X 25 Goal and Building Efficiency legislation. The ultimate goals of these regulations are to decrease fuel use and Greenhouse Gas emissions to a safe and affordable level. Figure 1 shows a summary of the specific statutory requirements this Enhanced Energy Plan must meet.

While these goals are defined in statute, Pittsford believes that meeting these goals does much more than complying with regulations. Pittsford has the opportunity to meet these goals in a manner that will benefit our community rather than simply being an additional burden. Achieving these goals will result in a healthier, more resilient community that is both more equitable and lowers the cost of living in the area.

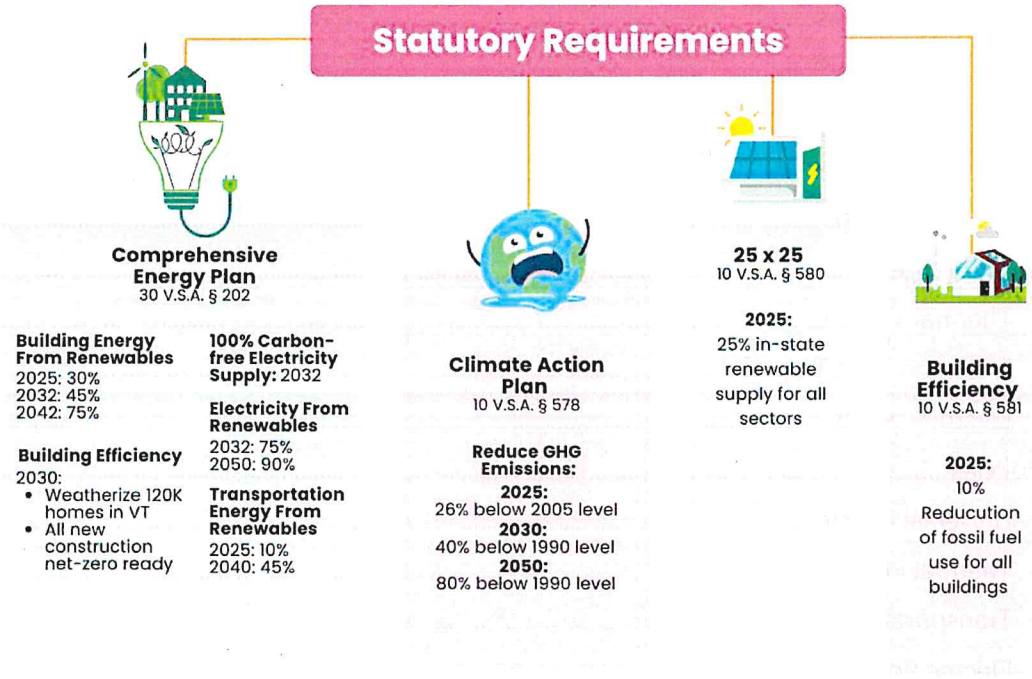


Figure 1

Introduction

The town of Pittsford has written this Enhanced Energy Plan to create a pathway for the town to encourage appropriate growth, save money, and improve the quality of life for residents. This plan is designed to keep us in compliance with the State energy statutes required by Act 174. Our plan is required to be updated every 8 years. With ever-changing

regulations and technologies, we will review our plan and progress at least every four years. A main focus of the State of Vermont, and of our Enhanced Energy Plan is to decrease total energy use and greenhouse gas (GHG) emissions.

As an early signer of the Declaration of Inclusion, Pittsford is committed to ensuring all residents receive fair and equal treatment. All residents should have access to reliable and affordable sources of energy; should be protected from the deleterious effects of energy production and distribution; and should share

Substantial Deference vs Due Consideration

Towns are required to have an Energy section of their town plan. Enhanced Energy Plans are not required but optional. Town Plans with an Energy section are given "due consideration" by the Public Utilities Commission when evaluating energy projects. Conversely, Enhanced Energy Plans are given greater legal weight to direct local energy development. Once certified, a town's Enhanced Energy Plan is given "substantial deference" in energy siting proceedings. Ultimately, Enhanced Energy Plans allow towns to meet their energy goals while maintaining town character .

In contrast, "due consideration" is given much less value. One key example is from a solar project that was approved though it was in conflict with the Rutland Town Plan. This decision was appealed to the Vermont Supreme Court. See the opinion of Justice Robinson below regarding the legal value of "due consideration".

Substantial deference

"substantial deference" means that a land conservation measure or specific policy shall be applied in accordance with its terms unless there is a clear and convincing demonstration that other factors affecting the general good of the State outweigh the application of the measure or policy.

30 V.S.A. § 248

Due consideration

"Although the statute calls for "due consideration," of municipal recommendations, it does not purport to describe what consideration is "due" or to identify whether the Board or the Court is the ultimate arbiter of the level of consideration due in a particular instance. Instead, its admonition that the Board must afford the Town's standards "due consideration" is reminiscent of the phrase, "with all due respect," which invariably precedes and qualifies a statement evincing little to no respect at all."

In re Petition of Rutland Renewable Energy, LLC for Certificate of Public Good Pursuant to 30 V.S.A. §248, et al., 2016 VT 50 (April 29, 2016)

equally in distribution of the benefits provided by town-supported generation and conservation projects. The town of Pittsford will work to identify the inequities and inequalities within our town energy planning. Please see our Universal Pathways section for our plan to address these issues.

Our town's residents were given the opportunity to provide input on this Enhanced Energy Plan. The town will further work to improve our future outreach efforts to identify whether certain Pittsford residents have been historically excluded from providing their information and feedback, which we consider essential. Through our communications and efforts to educate the public, such as at public community activities and events, we aim to increase engagement with all residents, businesses, and community partners.

We have been working to develop programs to provide more inclusive opportunities because participating in major infrastructure changes is not always an option for people with limited income. The town is planning to establish multiple EV charging stations within the village that are accessible to all residents. Information and materials about energy alternatives and new technologies are available on our Town website and social media pages, as well at the Maclure Library and Pittsford Village Farm.

The Town of Pittsford has begun a path towards a more inclusive and equitable energy system. Ultimately, all residents' needs must be incorporated into town planning.

Impacts of fuel use

Pittsford currently consumes approximately 878,403 Million Btus (MMBTU) of energy annually. This is the equivalent of using roughly 6,393,921 gallons of fuel oil or 43,920 cords of wood.

This amount of fuel use has significant impacts on regional equity, health, and resilience. The following sections will describe the specific impacts in each of these key areas.

Equity

We intimately rely on consuming energy to live our lives. Access to energy can determine one's ability to succeed and thrive. We need fuel to stay safe and warm, to get to work, and to provide basic sustenance. Without energy access people are limited in their ability to maintain a job, have a healthy home, and participate in enriching activities. Most people in Pittsford have direct access to energy in the forms of electricity, gasoline, wood, and heating fuel. However, affording these fuels is a substantial burden for many people. This is a concept called Energy Burden.

Energy Burden is the proportion of one's income spent on energy. The greater the percentage of income spent on energy the less income available for other spending. The average Energy Burden in Pittsford is 12.2%[1] (Figure 2). This means that on average people in Pittsford spend 12.2% of their income on energy.

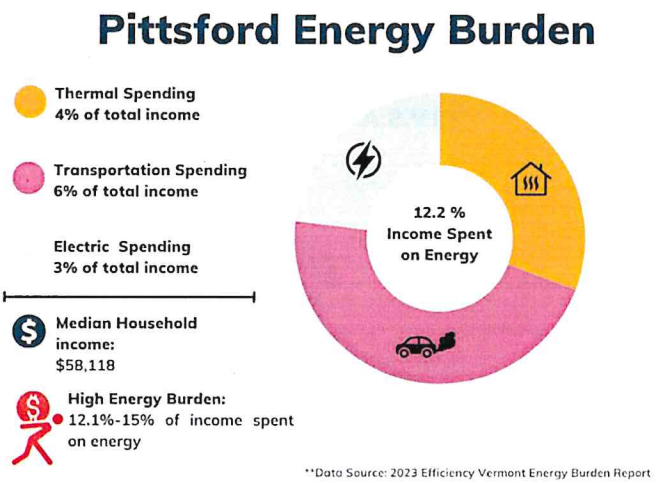


Figure 2

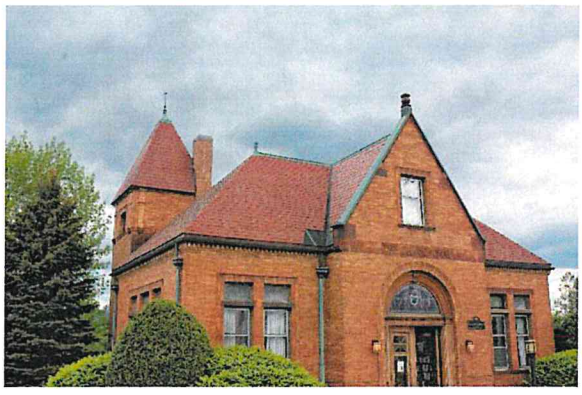
This is considered a High Energy Burden; the state average is 11%. Energy access winds up being a matter of equity; community members with a high Energy Burden do not have equal access to the opportunities of those with a low Energy Burden. We find it crucial to acknowledge that people with limited incomes are disproportionally burdened by energy prices. Of particular concern are community members that have higher energy burdens than the town average. This can result in financial crisis when energy prices spike. We worry that there are town residents that cannot meet all their basic needs and must choose between staying warm or eating well.

Pittsford acknowledges these types of inequities in our town and is crafting this plan with a focus on implementing more equitable practices. Within this Enhanced Energy Plan, we consider three types of equity: Distributional, Procedural, and Structural. We will first identify equity concerns related to this plan and in a latter section determine policies and actions to achieve more equitable outcomes.

Distributional Equity

When considering equity impacts one must consider how the costs and benefits of a system are distributed. This is Distributional Equity. Do the communities that are burdened with the costs receive a corresponding share of the benefits? Often this is not the case with energy systems.

A majority of the energy we use locally is tied to a globally interconnected network.



Petroleum products are sourced both within and outside of the United States. Electricity is generated and transmitted across both state and international borders. As such, there are many impacts to the origination location that are not experienced in Pittsford.

For example, we benefit from the use of electricity generated in Canada by Hydro Quebec. In fact, this is the largest single source of electricity (25.5%)[2] for Pittsford. This same source of electricity has a history of displacing First Nations communities to expand production. The people displaced through the construction of these hydroelectric dams were neither consulted nor compensated[3]. This is a prime example of the types of inequities that are both invisible and provide benefit to Pittsford without locally incurring the associated burdens. Decreasing our reliance on imported fuels can decrease our energy burden as well as limit the unseen impacts on other communities.

Procedural Equity

In addition to the distribution of costs and benefits, community members need fair access and representation in their systems of government and town planning. This is Procedural Equity. Historically, town planning has followed a prescribed process of public notice and comment period. While this is designed to engage the entire community, it often falls short. We have learned that this process results in excluding those with limited time and means, and those needing special considerations. Pittsford believes in the value of engaging in a broad outreach campaign to provide improved access to everyone in the town. Our goal is to "meet people where they are" rather than expecting them to come to us.

We will use a bottom-up approach of community engagement to provide community members with a voice, and agency, in planning the future for our town. We highly encourage all town planning to use a community driven approach.

Structural Equity

The savings brought through energy efficiency and renewable generation have historically favored more privileged people. This is an example of a Structural Equity deficiency; the system favoring privileged groups in society. From the ability to weatherize one's home to the adoption of solar panels and electric cars, energy efficiency and savings have been primarily available only to those with the means to afford these technologies. However, the energy system has been shifting to be more equitable by offering incentives that enable disadvantaged people to benefit from energy efficiency and renewable generation. This demonstrates a shift towards Structural Equity. Locally, there are several organizations that work to help less advantaged people access these energy activities. Two examples are Neighborworks of Western Vermont and BROC Community Action. Please review the policies and actions within this Enhanced Energy Plan to see how Pittsford is working to address Structural Equity.

Pittsford has created this plan with a focus on our full community. Increasing energy efficiency & conservation, and adoption of efficient technologies are ultimately pathways towards building equity in Pittsford.

Health

Burning fuels has significant negative health impacts. These include poor air quality, increased Greenhouse Gas (GHG) emissions, and death. The ultimate outcomes of the measures and targets outlined in this plan are increased health and safety for area residents.

Combustion of fossil fuels and biomass leads to increased levels of hazardous air pollution. Inside homes gas stoves can raise levels of pollutants and increase risks of childhood asthma[4]. Outside of homes, burning fuels results in increased air pollution as well. Burning wood produces GHG emission at levels much higher than burning natural gas (2.5 times higher) and coal (30 times higher)[5]. Children that regularly ride a diesel school bus have an increased risk of asthma and cancer[6]. Harvard University determined that burning fossil fuels results in 1 out of 5 deaths worldwide[7]. Approximately 4.4% of these deaths occurred in the United States[8], showing that area residents face this danger as well.

Fortunately, Pittsford has the opportunity to adopt policies and actions that help avoid these scenarios. For example, Pittsford has very good air quality. Limiting the amount of fuel burned in the area is the best way to maintain our air quality. The policies and actions of this plan are designed to maintain a healthy environment for all residents, visitors, and wildlife. Pittsford will accomplish this through the adoption of energy efficiency, energy conservations, and switching to non-combustion fuels.

Resilience

A resilient energy system provides increased safety, affordability, environmental protection, and equity. The primary approach for resilience in our town is to use as little fuel as possible while maintaining a high quality of life. This means providing the same, or increased, level of energy services with less energy wasted. For example, weatherization will increase energy

affordability and resilience without limiting safety and comfort.

Energy resilience is the ability to adapt to change, withstand disruption, and rapidly recover from disruption. One way to describe resilience is the ability of our town to weather power outages and spikes in fuel costs.

A resilient energy system will be composed of well-weatherized buildings, passive use of solar energy, heat recovery technology, and energy storage. Imagine the power going out during extreme weather events in a future Pittsford. Within this future resilient system our highly weatherized homes and businesses would provide a buffer against extreme temperatures. We would be able to transfer heat from the sun and ground to our buildings. Systems would be in place to store electricity and heat for use during power outages. During outages and peak energy costs, personal vehicles will be used to power homes, and school buses will power schools and emergency shelters. Additionally, storage and efficiency will allow people to purchase fuel at the times it is cheapest. Ultimately, resilience enables our town to be safe and secure during times of crisis, price spikes, and energy system malfunction.

With this focus on resilience, Pittsford will prioritize activities that conserve energy over those that require the addition of new energy demand. Please keep in mind that we view new energy demand from a whole system perspective. Some of the targets in this plan suggest fuel switching which will require increasing electrical use and increased electricity generation. However, these suggestions are only made when there is a net decrease in energy consumption.

With an eye towards this equitable, healthy, and resilient future this plan will now discuss the details of how to achieve this vision.

Current Conditions

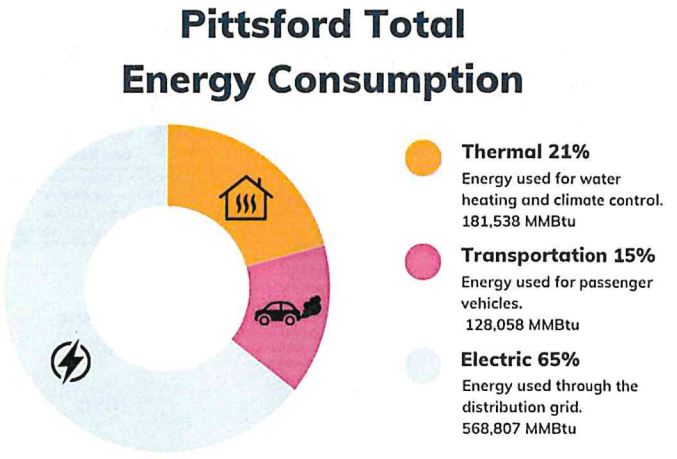
Universal Analysis

The people of Pittsford currently use approximately 878,403 Million Btus (MMBtu) of energy to power their homes, businesses, and vehicles. This creates significant GHG emissions. Total energy usage can be divided into three primary categories: Thermal, Transportation, and Electric. Figure 3 (above) shows the composition of current energy consumption for each sector within the town. One can see that the greatest amount of energy is consumed by the Electric Sector. The second largest use is for the Thermal Sector followed closely by the Transportation sector.

Below is an in-depth look at energy use in each sector; Thermal, Transportation, and Electric. This analysis will provide a baseline for understanding the strengths, assets, and challenges of the current town energy system.

Thermal Analysis

Thermal energy represents the second largest use of energy in Pittsford. The community consumes approximately 181,538



Calculated by Rutland Regional Planning Commission using the Public Service Department's Municipal Consumption Template

Figure 3

MMBtus of energy for water heating and heating & cooling homes and businesses. There are approximately 1474 homes[9] using energy in Pittsford and approximately 98 businesses. The dominant fuel used for home heating is #2 fuel oil (65%)[10]. In comparison, electricity currently accounts for only 5% of home heating. As one will see in the Thermal Targets section, heating with fuel oil is much less efficient and more expensive than other technologies. It will be key to reduce thermal inefficiencies to decrease town energy demand.

Transportation Analysis

In conjunction with transforming our Thermal Sector it is crucial to address the Transportation Sector because it uses nearly as much energy. Pittsford uses approximately 128,058 MMBtus of energy for powering vehicles. On average Vermonters drive roughly 11,000 miles per year using primarily gasoline for fuel. Currently there are about 2,295 gas powered cars and 36 electric vehicles (EV) in Pittsford.

Gas powered cars and trucks make up 98.5% of area vehicles but account for 99.6% of energy usage. Comparatively, EVs make up 1.5% of regional vehicles while only consuming 0.4% of transportation energy. One can see that gas cars consume fuel at a much higher rate than EVs. This begins to paint a picture of the inefficiencies in our transportation system. The Transportation Targets section will describe the positive impacts of modernizing our transportation system.

Electric Analysis

Consuming 568,807 MMBtus, the Electric Sector currently represents the largest portion of energy use in Pittsford. The majority of this electricity comes from hydroelectric dams in Canada. Approximately 6% of electricity is used by residential customers and 94% by businesses. Area homes tend to use about 7,551 KWh per year which costs people about $1425 per year.

Within our town there are currently 5.7 MW of installed renewable generation. This is approximately 4% of total electric consumption. The town has already met the goal of 100% carbon-free electricity and is well on its way to meeting the goals for renewable electric power supply. Green Mountain Power (GMP), our sole electric utility, provides 100% carbon-free power. Consequently, Pittsford is able to meet all electric demand without carbon emissions. This is a significant achievement, and our town will see additional benefits by increasing the amount of electricity we use while decreasing the use of other fuels. The Future Targets section describes Pittsford's targets for increasing electric use and local energy production.

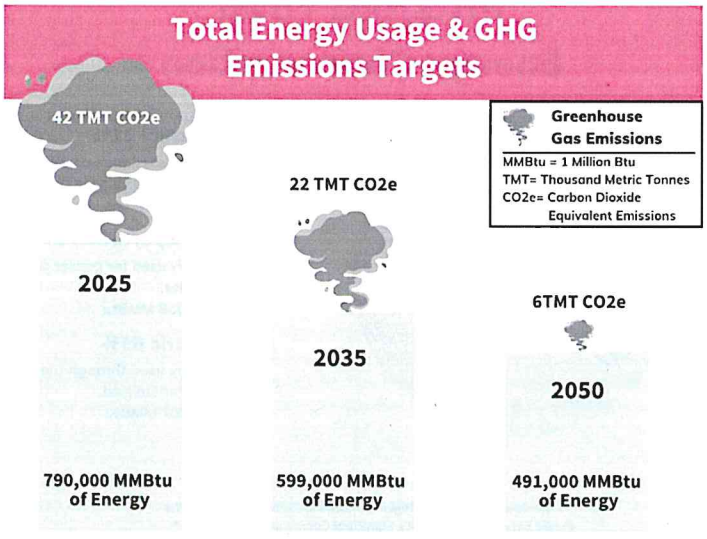


Figure 4

Future Targets

To build an equitable, healthy, and resilient energy system Pittsford created energy targets to meet by 2050. Rutland Regional Planning Commission (RRPC) established targets for reducing total energy consumption and GHG emissions in the Rutland Region using data provided by the Public Service Department. Figure 4 describes Pittsford's portion of these broad

energy targets and shows the GHG emission reduction impacts. For perspective, our long-term goal is to decrease total energy consumption roughly 44% from current usage.

This lowered consumption can decrease energy burdens, improve quality of life, and increase opportunities for our disadvantaged community members. Decreasing total energy use will also improve air quality resulting in lowered health risks and improved safety. Lastly, our town will be more resilient by reducing our reliance on fuels. The next sections outline future targets within each of the three energy sectorts.

Thermal Targets

It is crucial that we significantly lower the amount of energy used to heat & cool our homes and businesses. Conserving energy is typically the most cost-effective strategy to do so, resulting in decreased pollution and increased financial savings. This plan will therefore prioritize weatherization and adopting higher efficiency appliances. We aim to use less energy to perform the same level of heating and cooling. We must therefore increase the insulative capacity of our existing building stock to decrease our reliance on all fuels. Figure 5 shows the number of residential units that must be weatherized to meet thermal energy targets.

In concert with weatherization, we will conserve energy through adoption of high efficiency appliances. We can dramatically decrease energy use through the high efficiency of heat pumps, thermal energy networks, and solar hot water collectors.

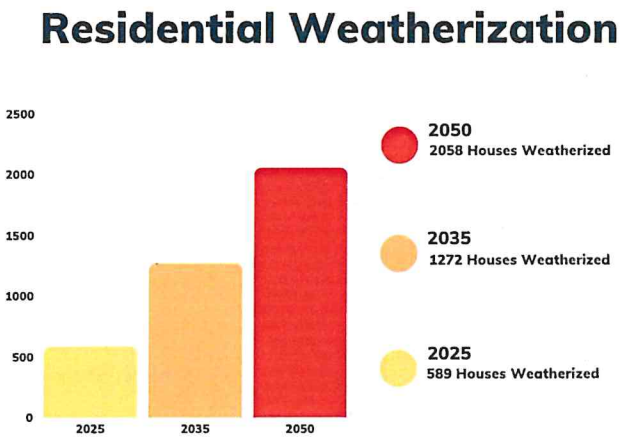


Figure 5

Heat pumps are basically heat transfer devices which move heat either in or out of an area. They can include air, ground, and water/wastewater sources for heat transfer. Heat pumps can both heat and cool spaces, and heat pump water heaters can heat water. Heat pumps provide between 3-5 units of heating for every unit of energy they consume. In comparison, Energy Star rated high efficiency oil boilers provide 0.87 units of heating for every unit they consume. Simply switching appliances can dramatically decrease energy consumption due to this extremely high operational efficiency.

Thermal Energy Networks (TENs) are highly efficient heating and cooling systems that interconnect heat pumps to multiple buildings. TENs are typically organized around a ground source heat pump but can include a combination of heat pumps, heat recovery, and heat generation. They are composed of a network of water pipes connecting multiple buildings which share heating and cooling needs. TENs can be as small as two connected buildings to as large as an entire district (see Figure 6).

The water moving through the waterpipes transfers heat into or out of the networked buildings. Within buildings heat pump technologies use this circulating water to heat or cool the building. TENs are highly efficient because they move energy where it is needed rather than wasting it.

TENs can utilizing a variety of established technologies, including insulated tanks and other media, for storing heat or cold over short and long durations. This ability to adaptively move heat both in time and space allows for an extremely stable system. Unlike most renewable electricity generation, TENs have a constant and reliable output that operates night and day 365 days of the year.

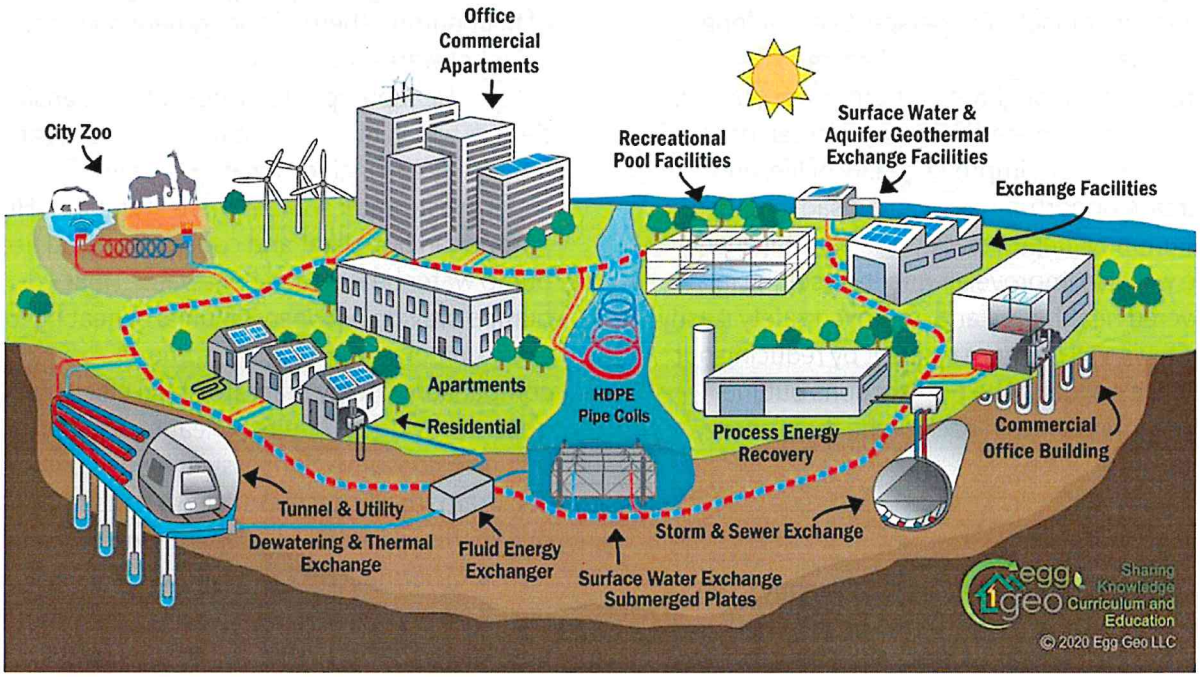


Figure 6

Solar hot water collectors look like solar photovoltaic panels but circulate water through them to capture heat from the sun. According to the U.S. Dept of Energy, "Solar Hot Water can serve up to 80% of hot water needs—with no fuel cost or pollution and with minimal operation and maintenance (O&M) expense."[11] Solar hot water systems certified through the Energy Star program, and appropriate for our area, have a Solar Uniform Energy Factor (SUEF) ranging from 3.3 – 5.8. This means that for every unit of energy used the solar hot water system provides 3.3- 5.8 units of water heating. For comparison, Energy Star certified Heat Pump Water Heater have a Uniform Energy Factor ranging from 2.5 – 4.1. In other words, Solar Hot Water can be roughly 140% more efficient than Heat Pump Water Heaters.

One can see that heat pumps, TENs, and solar hot water technologies produce significantly more heating and cooling energy than the electricity they consume. It is our strong belief that these technologies are key to achieving our energy goals most affordably.

Figure 7 shows cumulative heat pump installation targets between now and 2050.

While we have so far outlined how to address the existing housing stock it is of utmost importance to consider new construction. Adopting State building standards for energy efficient buildings is necessary to develop Pittsford in a resilient manner that lowers energy demand.

An outcome of increased weatherization, alternative appliances, and building standards, will be a robust fuel switching program. As the town uses less energy

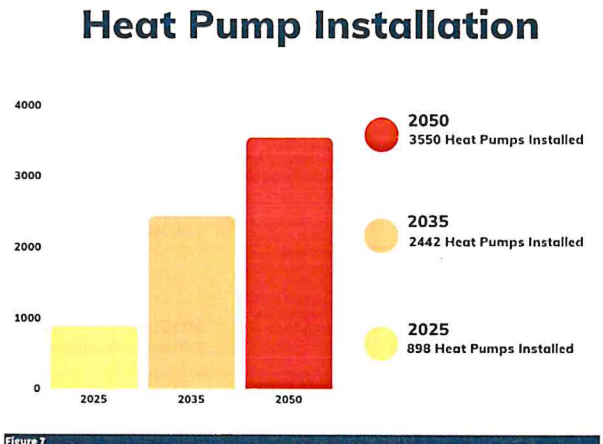


Figure 7

and converts appliances to electricity there will be significantly lowered reliance on fossil fuels. Figure 8 outlines our goals for decreasing fossil fuel usage while increasing use of low emission fuels for thermal needs.

The impacts of increased reliance on electricity to meet our total energy demand must be considered. The economic impacts of changing technologies are shown in Figure 9. This graphic displays the cost of operating various technologies based on historical energy prices calculated by appliance efficiency. It is worth noting that electric prices are very stable over time. In comparison, fuel oil prices are volatile with significant peaks and valleys. In addition to lowered operational costs of electric technologies, people can more easily budget for stable prices. Electric utilities are regulated monopolies, meaning that they are the only provider of energy services in their territory, but the prices they can charge are approved by the Public Utility Commission. This results in yearly price evaluations which means electric prices typically change once per year. This system avoids the spikes in prices that plague fuel oil. From an equity perspective, our most disadvantaged community members avoid the disastrous impacts of running out of fuel when prices are highest. Unfortunately, this typically happens at times of greatest need, like the middle of heating season or extreme cold weather events. Adopting these technologies will significantly reduce operating costs and improve safety & access for the vulnerable in our region.

Increased reliance on electricity will have positive impacts on our emissions reduction goals. As previously mentioned, GMP is the sole electric utility in Pittsford. The electric supply from GMP is 100% carbon-free and they are on target to achieve 100% renewable power supply by 2030. Additionally, Green Mountain Power launched their 2030 Zero Outage Initiative in 2023. This initiative is designed to increase resilience of the electrical distribution system by burying lines, storm hardening

RESIDENTIAL THERMAL FUEL SWITCHING TARGETS

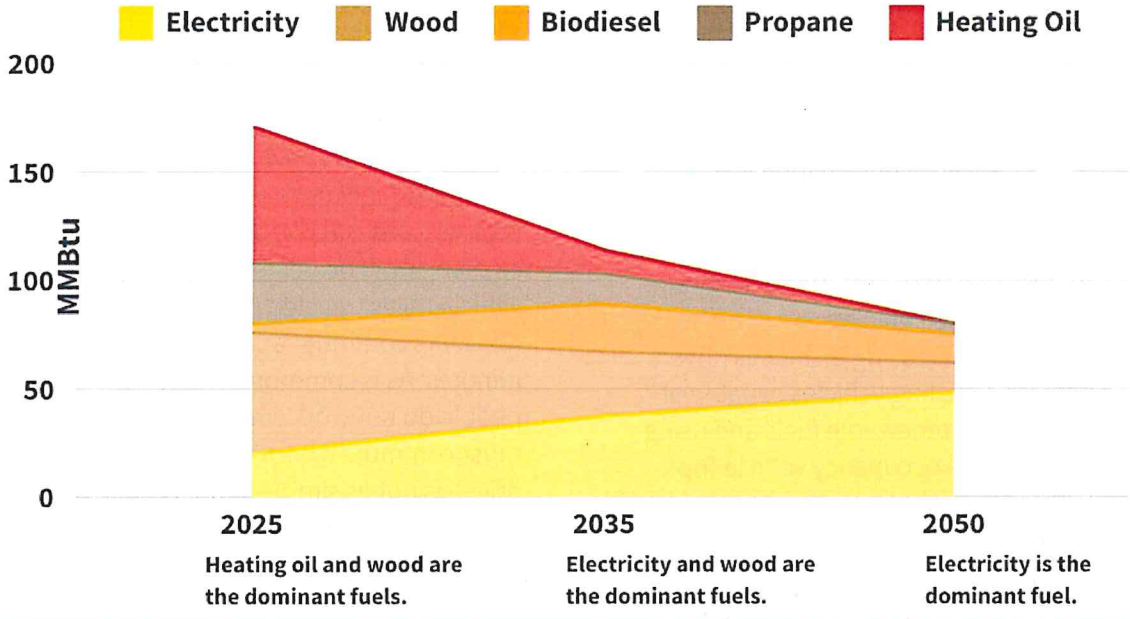


Figure 8

Historical Price Index Electric vs Heating Oil

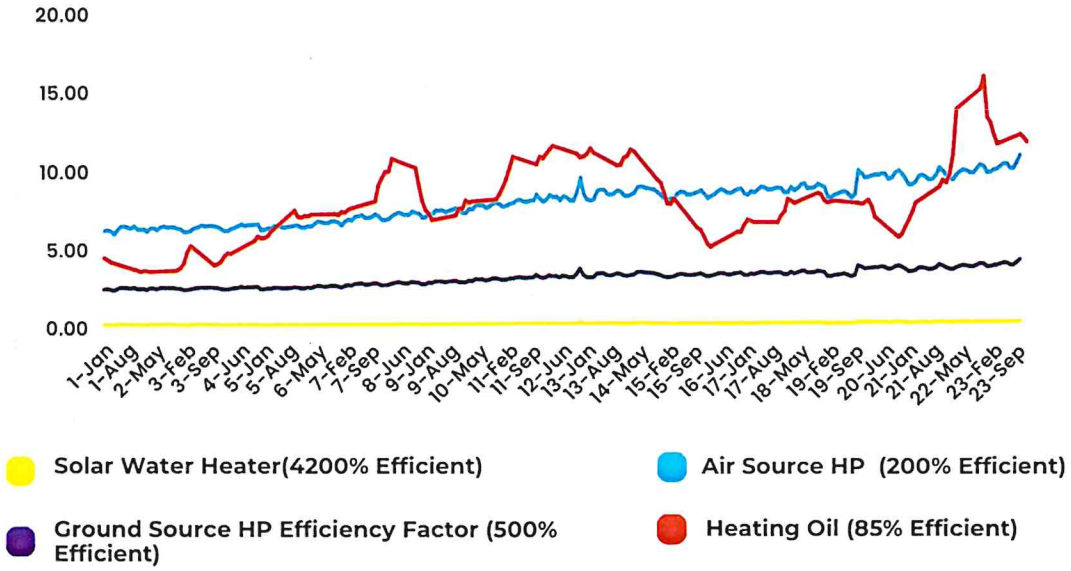


Figure 9

equipment, and adding battery storage[12]. Pittsford is consequently confident that this increased reliance on electricity will significantly lower our GHG emissions while maintain needed service.

Transportation Targets

Energy conservation is the key approach to decreasing negative impacts from fuel use. The most readily available conservation options to decrease transportation energy and pollution are increased efficiency, fuel switching to electricity, and decreasing distances driven. This will require adopting vehicles capable of being powered with renewable fuels and using alternatives to single occupancy vehicle trips.

Pittsford has a robust village center that enables people to meet many of their basic needs without long drives. Residents can access groceries, work, and recreation opportunities locally. Our community is suited for residents to use walking, biking, and public transit as primary modes of transportation. Pittsford will use a combination of high efficiency vehicles, fuel switching, walking, biking, and public transportation to decrease fuel usage and vehicle miles traveled (VMT).

While we have a robust village center, it is extremely difficult to change development patterns and cultural behaviors. The greatest challenge will be decreasing the number of vehicle miles traveled (VMT) by residents. Town residents commute an average of roughly 21.8 minutes. As is common in many rural areas, people do not work where they live. Residents must commute to work. Decreasing the amount driven is not as simple as suggesting people work closer to home. However, residents can use carpooling and public transportation to help meet energy goals when commuting.

While carpooling and public transportation can assist with getting to and from work, it is currently unfeasible to rely on these methods for all of one's needs in our region. People must have access to services, groceries, and recreational activities. There is also the need to operate vehicles that have no alternative to increased efficiency. Emergency service vehicles, garbage trucks, and wheeled loaders are a few examples of this category. Currently the most realistic option to substantially decrease energy use and air pollution is to adopt highly efficient vehicles. This is especially true in rural towns where alternative modes of transportation are not practical.

Cars and trucks are becoming increasingly more efficient, and electric vehicles (EV) are the most efficient. According to the US Dept. of Energy, EVs convert about 77% of energy consumed into power to move a vehicle[13]. Comparatively, standard gasoline engines only convert 12%-30% of the fuel consumed into power for motion. EV efficiencies directly translate to operational cost saving. Figure 10 shows how far the different types of vehicles can drive for the same cost.

Electric prices are stable, whereas gasoline and diesel prices can be quite volatile. EVs lower the maintenance costs of car ownership. There is very little maintenance with an EV; they have no engine to maintain (EVs have electric motors). This translates into direct savings and fewer costs outside of the purchase price. Ultimately, current incentives for EVs provide all residents with access to more affordable and reliable transportation. Pittsford will need to adopt the following number of EVs and/or PEHVs (plug-in electric hybrid vehicles), as shown in Figure 11, to achieve our efficiency and fuel reduction targets.

In order to adopt EVs there will need to be the necessary charging infrastructure in place. Access to car chargers (EVSE) is of critical importance both to enable this transition and to do so equitably. Many homeowners will be able to install chargers right in their homes. However, people that have limited income and renters may have difficulty accessing chargers. In addition, as more EVs are used in the region there will be a need to charge when electricity is most readily available. This is typically on days when solar panels are producing energy; often a time many people are away from home at work. This plan advocates for the development of public EVSE to address these issues.

Through the use of electric vehicles, shared transportation, walking, and biking Pittsford will transition away from reliance on fossil fuels (see Figure 12.) Please review the Transportation Policies section of this plan for actionable steps to achieve these targets.

Electric Targets

The Thermal and Transportation targets rely heavily on the beneficial electrification of these sectors. As such, efficiency and conservation strategies are listed in their respective sectors and not in this section. It is worth noting that these efficiency and

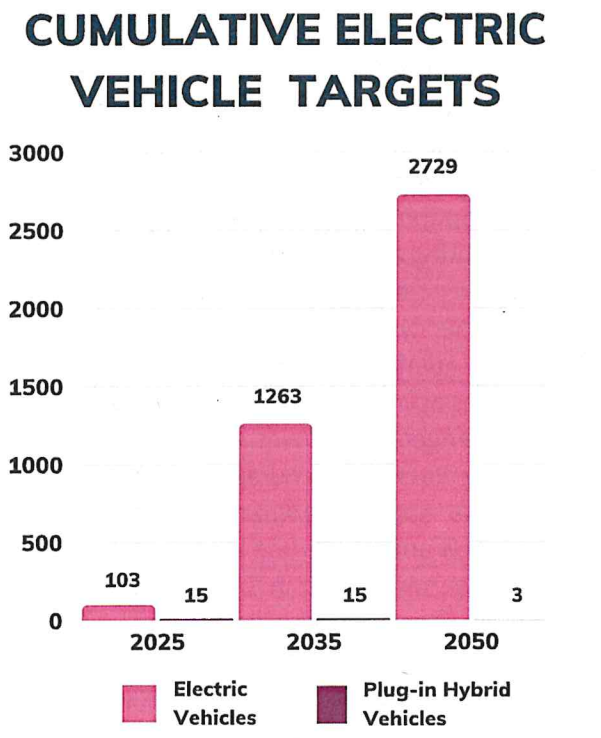


Figure 11

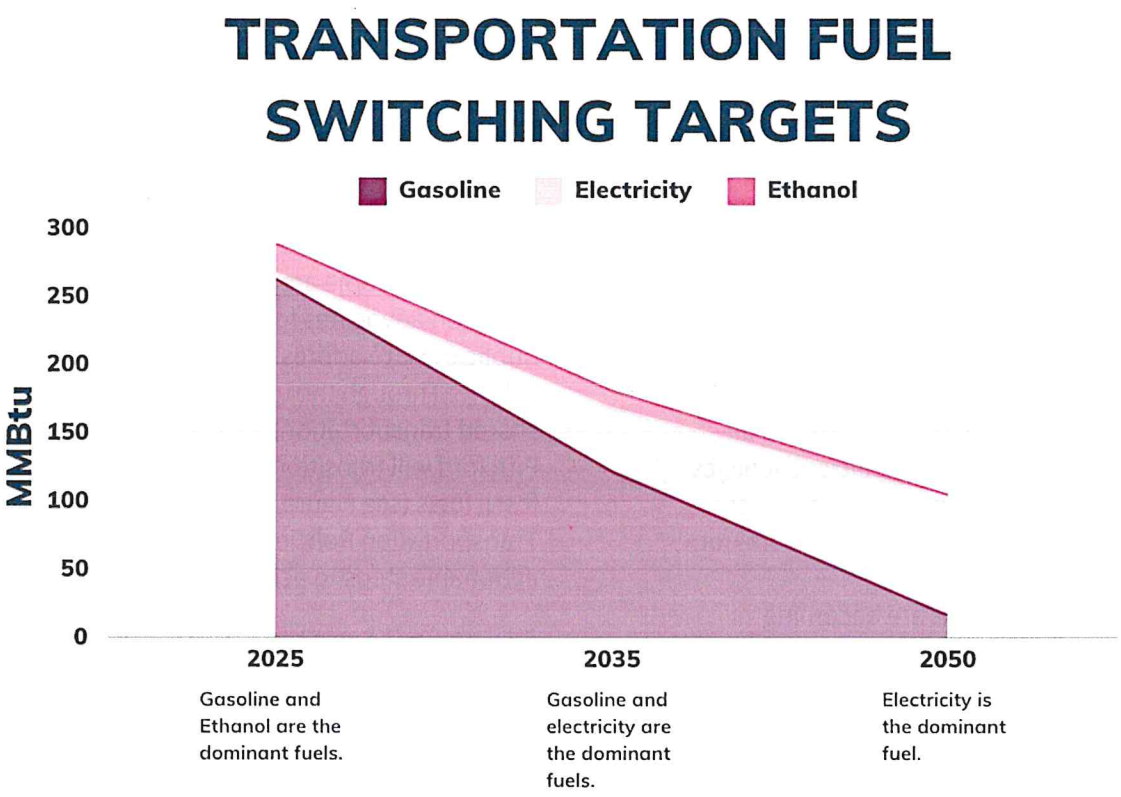


Figure 12

conservation methods decrease total energy use as we electrify the Thermal and Transportation sectors. Therefore, the primary efficiency and conservation techniques for electricity are related to lighting and appliance efficiency.

Adoption of highly efficient appliances and LED lighting are the primary actionable methods for increasing electric efficiency. The highest efficiency appliances are certified through the Energy Star Program. Energy Star certifications apply to many electric appliances including refrigerators, stoves, air conditioners, and lighting. Pittsford encourages the adoption of Energy Star appliances when residents purchase new appliances and lighting.

As we switch fuels in the thermal and transportation sectors, we will consume significantly more electricity. Total electrical energy consumption by 2050 will increase approximately 2.8 times above the current amount. This will require substantially more renewable electric supply. Figure 13 (below) shows the increase in projected total electricity consumption and the amount of renewable energy Pittsford will need.

GMP is working towards 100% renewable electric power supply by 2030. It is important to recognize that this renewable electricity generation will require a partnership between Pittsford and GMP. The town will meet renewable energy goals while encouraging appropriate siting of renewable power sources in the area.

Pittsford believes that limiting preferred site status is an inequitable practice which creates structural inequities by allowing a select few to benefit from energy development. Pittsford will therefore consider preferred site status for all energy projects that are located outside of known constrained areas (as mapped in the appendices). Developers and individuals

can apply to the Selectboard for a preferred site letter in all non-constrained areas.

Rutland Regional Planning Commission conducted a broad outreach program to gather opinions from as many people in the region as possible. The results of this outreach show that local residents have top priorities and preferred technologies for achieving energy and GHG reductions. Survey results show that people are most interested in personally adopting weatherization and heat pumps followed closely by adopting solar technology. When asked about large-scale energy projects in the region solar was most desired. Hydroelectric and geothermal were closely tied for the next greatest level of support.

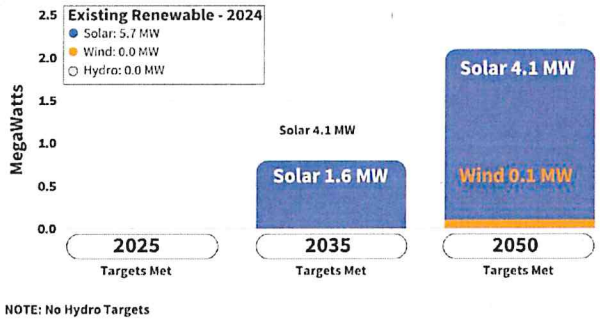
Pittsford has chosen to adopt these results as being representative of our town. As such, we have crafted this plan to prioritize energy efficiency and conservation over new electricity generation. Additionally, to protect area residents from increased health risks and air pollution this plan does not support biomass energy for either heat or electric generation. Where increased renewable generation is appropriate, Figure 14 shows the totals and types of energy generators desired in Pittsford[14]. These figures were calculated using data provided from the Public Service Department based on statewide LEAP modeling and accounting for regional preferences.

One can see that Pittsford has exceeded its 2050 target for renewable generation by 1.5 MW. The target is 4.2 MW of renewable generation and there are currently 5.7 MW in town.

There will be dramatic increase in electricity consumed and major conservation and efficiency improvements made in the thermal, transportation, and electric sectors. This increase in total electrical usage will be offset by efficiency and conservation measures. Ultimately, this will result in a significant decrease in total energy consumption and GHG emissions. In the next section of this plan, we have outlined actionable steps to meet all electric sector goals listed.

The next page provides a summary of the key aspects of this plan for our town. Following this summary one can find the Policies and Actions we will follow to achieve our energy targets.

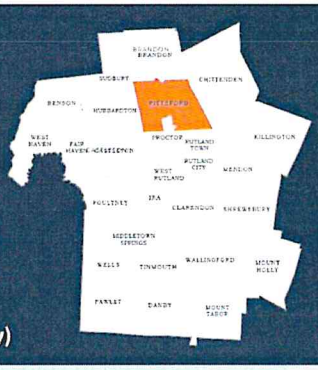
LOCAL RENEWABLE GENERATION TARGETS



NOTE: No Hydro Targets

Figure 14

Pittsford



12.2%

High Energy Burden

(% of income spent on energy)

2025 Energy Target Progress

All Sectors 51%

Electric Sector 100%

Total Current Energy Use:
568,807 MMBtu

Dominant Fuel:
Hydroelectricity

Met 2050 Targets

Thermal Sector 22%

Total Current Energy Use
181,538 MMBtu

Residences: 1,474

Businesses: 98

Dominant Fuel:
Heating Oil

Transportation 31%

Total Current Energy Use
128,058 MMBtu

Total Vehicles:
2,331

Dominant Fuel:
Gasoline

Renewable Generation Targets (MW)

	Current	2025	2035	2050
Solar	5.7	0	1.6	4.1
Wind	0	0	0	0.1

Thermal Targets

	Current	2025	2035	2050
Weatherized Buildings	19	589	1272	2058
Cold Climate Heat Pumps	407	898	2442	3550
Heat Pump Water Heaters	97	535	1781	2443

Transportation Targets

	Current	2025	2035	2050
EV & PHEV	36	103	1263	2729

Commuting Patterns

11,029 Average Yearly Vehicle Miles

- 22 Minute Avg. Commute
- 86% Commute Alone
- 6% Work at Home
- 8% Carpool
- 0% Public Transit
- 0% Walk

Policies

Universal Policies

1. Demonstrate Municipal leadership by adopting all efficiency and fuel switching actions in this plan for municipally owned infrastructure.
2. Prioritize development in compact mixed-use centers to reduce sprawl.
3. Distribute the benefits of this plan equitably.

Thermal Policies

1. Help residents reduce energy consumption.
2. Decrease use of Fossil Fuels for Heating and Cooling.
3. Increase building efficiency, climate resilience, and safety.
4. Provide outreach & education about energy conservation.

Transportation Policies

1. Decrease Single Occupancy Vehicle trips through Public Transportation, walking, and biking.
2. Develop public transportation and shared transportation networks.
3. Maintain existing and develop new walking and biking infrastructure.
4. Provide opportunities to fuel switching from fossil fuels to sustainable alternatives.

Electric Policies

1. Maximize the potential for renewable generation on preferred locations.
2. New Energy Siting Policy:
    A. Renewable Energy Certificates associated with proposed generation must count towards meeting Vermont's Renewable Energy Standard to be in conformance with this Enhanced Energy Plan.
    B. Allow preferred site status for projects in all non-constrained resource areas.
    C. Biomass
        a. Commercial and Utility scale biomass facilities are considered not in conformance with this Enhanced Energy Plan due to significant air quality issues.
        b. Residential biomass facilities that meet state and federal regulations will be considered in conformance with this Enhanced Energy Plan.
    D. Geothermal

a. All geothermal development that meets state and federal regulations will be considered in conformance with this Enhanced Energy Plan.

E. Hydro
   a. All Facilities certified through the Low Impact Hydro Institute will be considered in conformance with this Enhanced Energy Plan.

F. Natural Gas
   a. Natural Gas service connections are considered not in conformance with this Enhanced Energy Plan.
   b. All Natural Gas and BioGas infrastructure must be located no less than 1000 feet from residences, businesses, and human occupied locations.

G. Solar
   a. Use Pittsford Solar Checklist to review proposed solar projects.
   b. Forest fragmentation and wildlife passage criteria do not apply to development on roof tops, parking lots, gravel pits, quarries, Superfund sites, and brownfields.
   c. Utility Scale (>20 acres or 5MW)
      i. RECs must count towards meeting VT RES.
      ii. Developers must hold community outreach meetings to investigate and propose solutions to reasonable community concerns.
      iii. Must not cause forest fragmentation and habitat loss.
      iv. Must allow for wildlife passage through development.
   d. Commercial Scale (≥ 5 acres or 0.5MW & ≤20 acres or 5MW)
      i. RECs must count towards meeting VT RES.
      ii. Developers must hold community outreach meetings to investigate and propose solutions to reasonable community concerns.
      iii. Must not cause forest fragmentation and habitat loss.
      iv. Must allow for wildlife passage through development.
   e. Residential Scale (<5 acres or 0.5MW)
      i. All residential scale energy development that meets state and federal regulations will be considered in conformance with this Enhanced Energy Plan.

H. Wind
      i. Utility Scale > 150kW
         1. Not in conformance with this Enhanced Energy Plan due to the significant negative impact on orderly development and deviation from the existing town character.
      ii. Commercial Scale > 50kw and ≤150 kw
         1. Not in conformance with this Enhanced Energy Plan due to the significant negative impact on orderly development and deviation from the existing town character.
      iii. Residential Scale ≤ 50kW
         1. All residential scale energy development that meets state and federal regulations will be considered in conformance with this Enhanced Energy Plan.

Actions

Universal Actions

1. Determine inclusive outreach methods.
2. Use a variety of outreach methods to seek public input on the plan.
3. Provide resources and suggestions through the town newsletter and website to help residents implement this plan.

Thermal Actions

1. Implement weatherization activities at the town police station, town hall, fire/water district and the wastewater treatment plant.
2. Apply for grants to provide incentives for residents to weatherize, adopt renewables and install heat pumps.
3. Encourage advanced woodburning devices like woodstoves and pellet stoves.
4. Engage BROC and Efficiency Vermont to facilitate public education and outreach.
5. Survey residents and businesses to determine the number and type of HVAC systems

Transportation Actions

1. Install public EVSE near underserved community members.
2. Investigate the purchase of EVs for Municipal and Police Departments.
3. Convert town lawncare equipment to battery-operated as soon as feasible.
4. Provide public outreach and education on Public Transportation through the Middlebury Connector, walking, and biking.
5. Provide information about public transportation and ridesharing at Pittsford Days, Town Office, and MacClure Library.
6. Prepare a long-term plan to enhance walkability to the downtown center with a focus on safe walking and biking paths to schools, by 2026.
7. Support the School for a replacement of Drivers Ed car with an all-electric model.

Electric Actions

1. Develop screening bylaws or ordinance for renewable development.
2. Utilize Town's Letter of Support Checklist to provide preferred status to solar projects.

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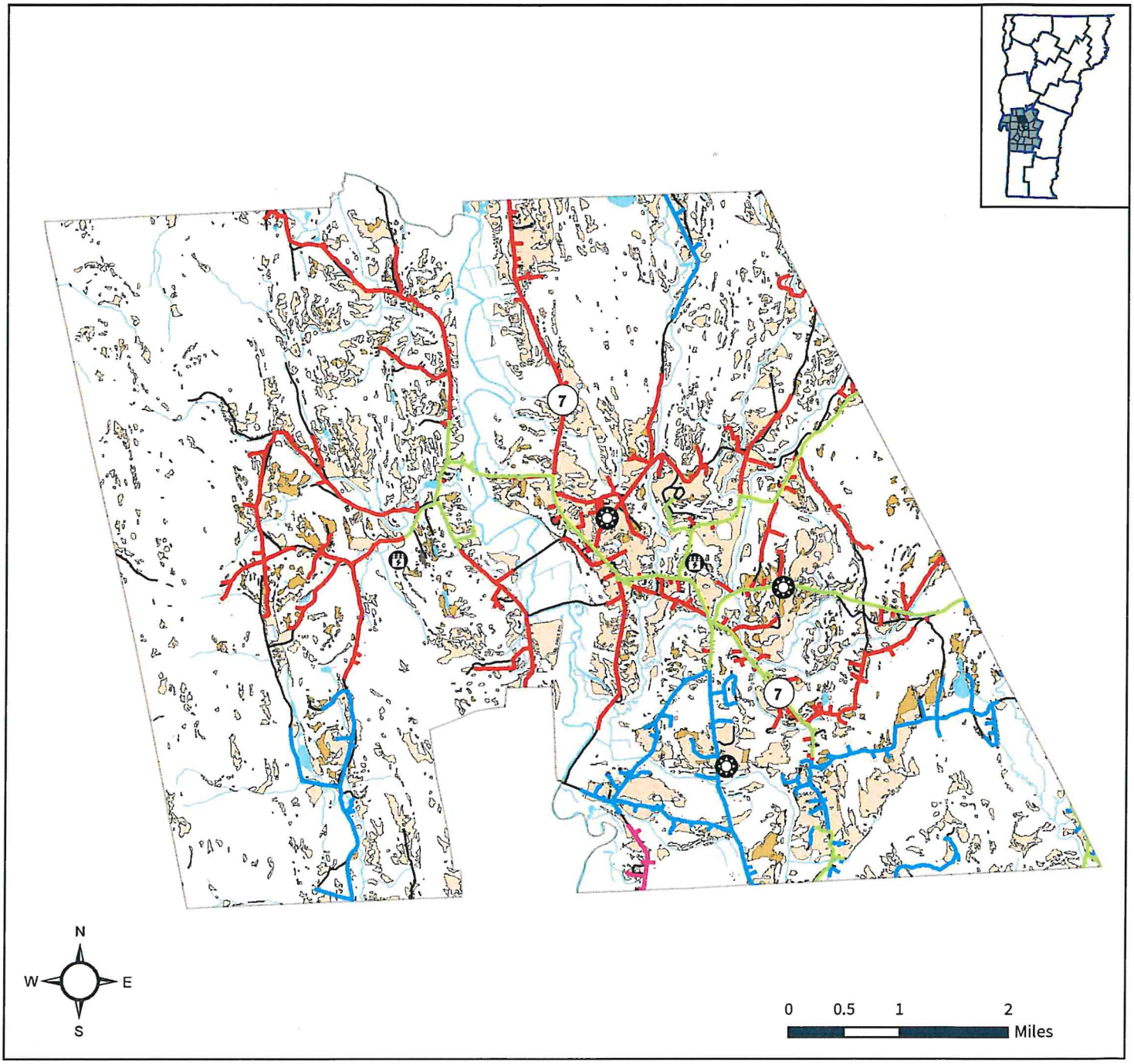
[14] These figures were calculated using data provided from the Public Service Department based on statewide LEAP modeling and accounting for regional preferences.

GROUND MOUNT SOLAR ENERGY POTENTIAL

Pittsford, Vermont



- 3-Phase Power with at least 20% capacity remaining
- Electric Substations

Circuit Capacity Per Substation

- Unrated
- At least 20% capacity remaining
- Less than 20% capacity remaining
- Less than 10% capacity remaining
- High Cost Interconnection
- Roads
- Roads
- Buildings

Ground Mount Solar Potential

Solar Potential

- Secondary Location
- Prime Location
- Lakes & Rivers
- Streams
- Existing Solar Generation Sites (As of 2020)

Shields

Description: Based on Public Service Department Requirements

Produced by: Nic Stark for the Rutland Regional Planning Commission

Date: 3/20/2025 17:15

Spatial Reference: NAD 1983 StatePlane Vermont FIPS 4400

Scale: 1:80,000

Data Sources: VCGI

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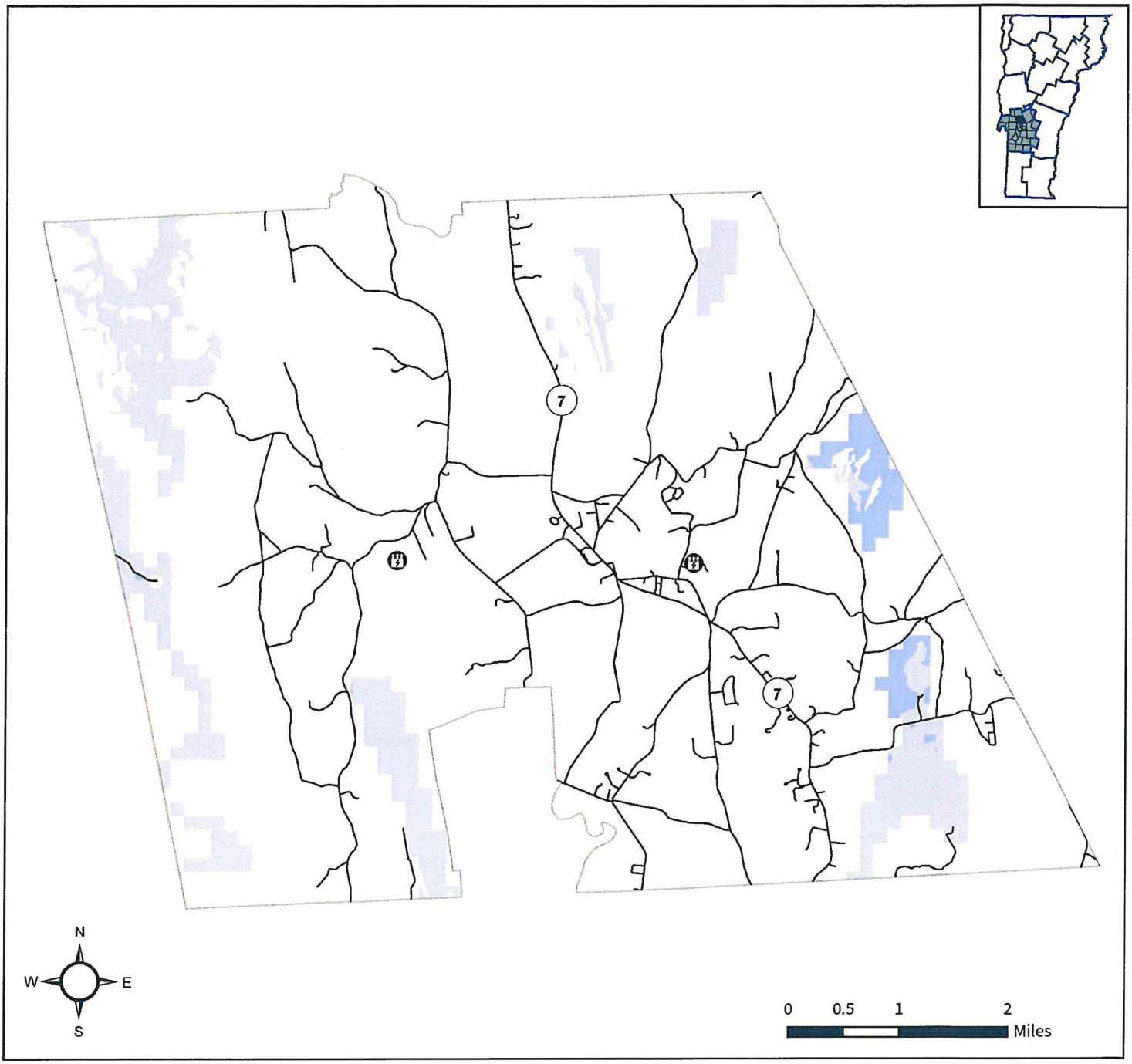
RUTLAND REGIONAL PLANNING COMMISSION

WIND ENERGY POTENTIAL

Pittsford, Vermont



- Electric Substations
- 3-Phase Power with at least 20% capacity remaining

Grid Capacity

- Unrated
- At least 20% capacity remaining
- Less than 20% capacity remaining
- Less than 10% capacity remaining
- High Cost Interconnection

- Roads
- Lakes & Rivers
- Streams
- No Existing Wind Energy Sites

Shields

- Prime Location
- Secondary Location

Description: Based on Public Service Department Requirements

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Date: 3/18/2025 16:23

Spatial Reference: NAD 1983 StatePlane Vermont FIPS 4400

Scale: 1:80,000

Data Sources: VCGI

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RUTLAND REGIONAL PLANNING COMMISSION