

## CHAPTER 11 – ENERGY EFFICIENCY AND CONSERVATION

The availability and cost of energy, especially electricity, is an important element in maintaining the health and vigor of the town’s local economy. High energy costs can restrict business activity and development. Energy imported into the region from distant places depletes the local and state economies of capital that would otherwise remain in circulation within the local economy. Energy costs also affect the ongoing, operating expenses of housing for Williston residents.

While the cost of electricity and petroleum are limiting factors to Williston’s operations, these costs can be mitigated by conserving and optimizing existing energy resources, and by harvesting energy from local renewable sources. This may increase the pressure to increase electric rates. In light of the global crisis of climate change, new sources of power will be needed that do not increase the carbon footprint of Vermont. Renewable energy and energy efficiency will be critical elements of the new power mix. Williston will need to adapt its energy use and renewable energy utilization to minimize these impacts.

The State of Vermont recently completed a Comprehensive Energy Plan in 2016 for the state. This plan established goals of reducing total energy consumption by 15% by 2025, and by more than one third by 2050. The plan also established goals of the state obtaining 25% of its energy needs from renewable energy sources by 2025, 40% by 2035, and 90% by 2050. Taken together, the goals of the state’s energy plan will require concerted and sustained efforts by the town, its residents and businesses in order to help reach or exceed these goals.

Information on energy consumption and costs in Vermont can be found in the plans and reports prepared by the Vermont Department of Public Service. These documents are available on-line at <http://publicservice.vermont.gov/pub/pub.html>.

[https://outside.vermont.gov/sov/webservices/Shared%20Documents/2016CEP\\_Final.pdf](https://outside.vermont.gov/sov/webservices/Shared%20Documents/2016CEP_Final.pdf)

The Town of Williston will take a leadership role in promoting energy efficiency and conservation by implementing the objectives adopted here.

**11.1 – Renewable Energy** - The local development and use of renewable energy resources will support state-level efforts for electric energy resource diversification. This objective encourages the development and use of these resources.

**11.2 – Future Utility Siting** - Williston anticipates the siting of more utility lines and associated facilities. This objective provides a basis for the town’s response to the siting of these facilities, which is generally regulated by the State. This objective also addresses the siting of telecommunications facilities.

**11.3 – Municipal Energy Efficiency and Conservation** - Williston will work to implement energy efficiency and conservation measures in existing and new municipal buildings, the purchasing of new and replacement vehicles, and in day-to-day operations of the town.

**11.4 – Energy Conservation and Efficiency Through Land Use** - Incorporating energy efficiency and conservation measures into new development will reduce energy consumption, decrease greenhouse gas emissions, and yield financial savings. This objective provides a policy basis for incentives and regulations that promote energy efficiency and conservation in new and existing residences and businesses, decreasing the number of motor vehicle miles traveled, and increasing the use of more active transportation modes such as walking and biking, and the use of transit services.

**11.5 - Municipal Energy Plan** – This objective calls for the development of a municipal energy plan.

**11.6 - Sustainable Foods Systems** - The development of local and sustainable food systems and support for the distribution of local products within the town will reduce energy expenditures while supporting the local economy and working landscape.

**11.7 - Waste Reduction, Recycling, and Composting** - Careful management of organic and non-organic resources reduces energy requirements for extraction, manufacturing, packaging, and transportation of goods. Diverting organic substances out of the waste stream reduces greenhouse gasses emitted by landfills.

**Energy Definitions** - Energy Conservation means using less energy. A simple example is turning off the lights in a room that is not being used, or turning down the thermostat when you leave home for work. Energy Efficiency involves reducing the amount of energy used for a given service or activity while producing the same end-use service or activity. Improvements in energy efficiency are most often achieved by adopting a more efficient technology or production process. An example would be installing a fuel-efficient furnace to provide the same amount of heat with less fuel. Efficiency and conservation can both result in savings to consumers. They can also reduce the demand for energy and the environmental impacts that accompany its production and distribution.

**11.1 – Renewable Energy Resources - The Town of Williston will encourage the development of renewable energy resources to support the diversification of Vermont’s electric resources portfolio, as well as local and regional energy stability and independence.**

According to the Vermont Department of Public Service, almost 40% of Vermont’s electric power is supplied by renewable resources, including hydroelectric plants, the Searsburg wind facility, Hydro Québec, and the wood-fired McNeil Station, as of 2010. Additionally, there are a number of independent power producers supplying renewable energy from small hydroelectric plants, biomass generating plants, landfill gas recovery, and methane conversion from farm waste. Renewable energy resources provide insurance against fuel and electricity price shocks as well as the closing of outdated generation sources (i.e. Vermont Yankee). They can also reduce air emissions, greenhouse gas emissions, and other impacts of energy generation and distribution.

**11.1.1 Explore Green-Pricing Programs.** The town should explore the use of renewable energy resources by participating in green-pricing programs, such as Green Mountain Power’s “Choose 2B Green” program, which supports various renewable energy sources with the premium paid by consumers. Conceptually, the consumer pays a premium to demonstrate support for renewables. Other utilities serving Williston, such as the Vermont Electric Co-op, are considering similar programs.

**11.1.2. Encourage Renewable Energy Generation.** Williston’s *Unified Development Bylaw* will be reviewed and revised, as necessary, to encourage the use of solar, wind, biomass, and hydropower while carefully weighing the benefits of such installations against their impacts on water, wildlife, scenic, forest, and historic resources. The town shall develop criteria for identifying preferred locations for large scale renewable energy generating projects, as well as those areas to be avoided by industrial scale energy generating developments. Support for installations of renewable energy technologies at the neighborhood scale (solar access, shading, height restrictions, etc.) plus larger scale renewable energy projects such as ‘solar farms’, community-scale wind turbines, and district heating biomass plants should be taken into account when considering bylaw revisions. Large scale solar facilities and wind turbines should not be located in primary viewshed areas identified in Map 20 Visual Assessment and

discussed in section 13.2.2 of this plan. This task will be part of the municipal energy planning effort called for in section 11.5. Also, the use of renewables will be added, in combination with energy conservation, to the incentives offered in the town's residential growth management system. Bylaw revisions shall include revised standards for energy efficiency and renewable energy generation.

**11.1.3 Demonstrate Renewable Energy Projects.** The town can take the lead and install renewable energy systems to town buildings and operations. Examples might include a biomass fueled district heating system for the village offices and school, methane recovery from the sewage treatment plant operated in Essex Junction, and photovoltaic panels for the school or town offices. When price of natural gas exceeds \$2/ccf (hundred cubic feet) then the town should initiate planning for long-term improvement measures including major building renovations, solar installations, shared pellet boiler, etc. When the price of natural gas exceeds \$3/ccf then the town should consider those measures because at that point the cost to make those large scale improvements will be comparable to the cost of natural gas based on a cost benefit analysis.

**11.1.4 Prohibit Residential Property Assessment Increases for Renewable Energy Equipment.** Under Vermont law, a town can vote to exclude certain renewable energy systems from local property tax. This means that renewable energy improvements to the home will not increase the property assessment. By applying this policy, the Town of Williston will both promote and enable the use of renewable energy.

**11.1.5 Provide Electric Vehicle (E.V.) Charging Stations.** The town shall develop standards for allowing and encouraging E.V. charging stations is both newly proposed and existing development. E.V. charging stations should be incorporated into the town's parking standards, and E.V. charging stations should be added to existing development whenever feasible.

**11.1.6 Update Energy Efficiency Incentives in the town's Residential Growth Management System.** The town's residential growth management allocation system has incentives for developments incorporating energy efficiency design. The current incentives are outdated and need to be updated. The town should consider adopting the "stretch codes" developed by Efficiency Vermont in order to reward those developments providing the highest level of energy efficiency.

**11.2 – Future Utilities Siting - The Town of Williston will continue to require that utility lines serving new developments be underground, will continue to regulate the siting of telecommunication facilities, and will urge the Vermont Public Service Board to ensure that new regional transmission lines, substations, and similar support facilities are located within existing utility corridors, minimizing impacts to natural, scenic, and historic resources.**

The Vermont Public Service Board has jurisdiction over the permitting of major utility installations. Towns may regulate telecommunications facilities, but local control is limited by federal law. Renewable energy projects that are tied to the electric grid will be regulated under the net metering provisions of the Vermont Public Service Board.

**11.2.1 Place Local Utilities Underground.** Utilities serving new developments, including natural gas, power, telephone, and cable television lines, etc. must ordinarily be placed underground. Installation above ground will be considered only where the presence of bedrock or other environmental constraints makes underground installation prohibitively expensive. Careful siting and screening will be required for above ground utility lines.

**11.2.2 Place Regional Transmission Lines in Existing Corridors.** The Public Service Board should confine new transmission lines and associated facilities to existing utility corridors, and require that they

be placed underground where feasible. Utility line and pole placements, and substation siting or expansion should minimize disturbance to wetlands, streams, wildlife habitat, the viewshed, and other natural and historic resources.

**11.2.3 Limit the Impact of Telecommunication Installations.** The town will continue to regulate telecommunication facilities, including cell, radio, and microwave towers, as provided by the current town bylaws. Such installations should be co-located or creatively hidden in existing structures where possible. Abandoned facilities must be removed immediately.

**11.2.4 Encourage Utility Scale Cogeneration Projects.** The town should seek opportunities to facilitate the use of cogeneration projects to better utilize the heat and electrical energy generation from fuels. Cogeneration projects capture waste energy and convert this energy into clean power and processed heat. For example, an on-site combined heat and power (CHP) plant provides electricity and heat to industrial facilities and other large institutions. These plants typically run on natural gas, biomass, or other fuels. As they produce electricity, the plants recycle excess heat emitted in the process, generating power twice as efficiently as large, centralized plants. Institutions that use CHP generally pay substantially less for energy.

**11.2.5 Encourage Utility-Scale Renewable Energy Projects.** Farm methane plants, solar orchards, and ridgeline wind farms are examples of large-scale renewable energy projects that will likely have a significant impact on regional energy production in the years to come. The Town of Williston should support these utility-scale technologies as clean energy sources continue to develop. Permitting these projects should consider the renewable energy benefits along with environmental and aesthetic impacts.

### **11.3 – Municipal Energy Efficiency - Town government and local schools will lead by example, incorporating cost-effective energy efficiency and conservation measures into existing facilities and operations, as well as into plans for new buildings, additions, and renovations.**

At the 2003 town meeting, Williston voters agreed to join the 10% Challenge, an effort to reduce emissions of greenhouse gases. The following policies are derived from this support.

**11.3.1 Review and Improve the Energy Performance of Existing Buildings and other Town Operations.** The town completed energy audits on its existing municipal buildings in 2010 and 2011. As a result of these audits, a number of energy efficiency upgrades were undertaken at the Town Hall, the Town Hall Annex, and the Dorothy Alling Library. The town should continue to monitor energy usage in all town facilities and utilize additional energy conservation strategies whenever feasible

**11.3.2 Use “Green Building” Technology, as Feasible.** The town and schools should consider “green building” technology for new buildings, additions, and renovations. town and school administrations should work with architects, engineers, and contractors to document the long-term savings gained by adhering to “green building” standards like those established by Leadership on Energy and Environmental Design (LEED).

**11.3.3 Consider Energy Consumption When Purchasing.** Energy efficiency and conservation should be considered in decisions to purchase everything from traffic signals (which should continue to have energy-efficient LED indicators) to copiers (which should have a double-sided printing feature). The town and schools should buy Energy Star rated appliances, heating equipment, and office equipment. The purchase of recycled paper materials and environmentally-friendly office products should be considered.

**11.3.4 Use Fuel-Efficient Low or Zero -Emission Vehicles.** The town and schools should work to improve the fuel efficiency of their vehicles. Minimum fuel efficiency standards should be established for new vehicles, including police cars, light trucks, and buses (fire engines and heavy machinery would be excluded). A program for the early retirement of the least efficient vehicles should be implemented. The feasibility of using alternative vehicles and fuels, including hybrids, should also be explored. Regular maintenance will promote fuel economy and reduce emissions. When evaluating for new purchases, the town should consider vehicles with zero or low emissions (electric, hybrid, etc.), and should evaluate the vehicle's energy efficiency against other possible alternatives by consulting informational resources such as [www.fuelefficiency.gov](http://www.fuelefficiency.gov).

**11.3.5 Encourage Walking, Cycling, Ride-Sharing and the Use of Public Transportation.** The town encourages people to walk, cycle, or rides the bus. See Element 6 - Transportation of this plan for more information on Williston's efforts to provide the infrastructure needed to support pedestrians, cyclists, and public transportation. Planning objectives should support grid streets and pedestrian friendly developments. The permitting and construction of a 'Park and Ride' lot in Williston should continue to be a priority.

**11.3.6. Prepare Annual Energy Reports.** The town should publish a summary of energy used by town and school buildings and vehicles in their respective annual reports, as well as the estimated or calculated impact of efficiency measures already taken. The report should describe the progress the town is making towards the goals of the state's Comprehensive Energy Plan of 2016. The energy consumed (gallons of oil, kilowatt hours of electricity used, etc.) can be easily summarized along with costs. Taxpayers should be informed of possible energy savings to enable them to support measures to reduce energy consumption and see progress in energy savings.

**11.3.7 Designate a Town Energy Coordinator.** The State legislature has enabled Vermont towns to appoint someone to monitor energy use and help coordinate long range planning that saves the town energy and money. The Town of Williston should designate an Energy Coordinator to monitor energy use and coordinate long range planning that helps the town conserve energy and saves money, and helps the town implement the goals of the state's Comprehensive Energy Plan meeting 90% of its energy needs from renewable sources. This individual should possess the expertise necessary to assist department heads in managing their energy use and should prepare a plan to achieve that goal for the town's government, businesses, and residents

#### **11.4 – Energy Conservation and Efficiency through Land Use - The Town of Williston will continue to pursue a land use and transportation strategy centered on mixed-use, compact development in the town's Growth Center.**

The town's land use policies and development regulations provide a powerful mechanism for promoting the development and use of land in ways to ensure that energy resources are used wisely and efficiently. To this end, the town will continue to support the development of high-intensity land uses within the town's designated Growth Center to result in a compact development pattern that supports and encourages driving fewer miles, the use of transit, ride-sharing walking, more active modes of transportation, and other non-motorized modes of transportation. The town can also encourage energy conservation and efficiency through development regulations. Williston recently revised its subdivision regulations to make 5-Star or LEED certification a factor in the competitive evaluation of residential subdivisions. The town also encourages and requires, in some instances, the clustering of homes. Developments in the Agriculture/Rural Zoning District must leave 75% of the parcel in open space and the evaluation criteria for residential subdivisions provide an incentive for clustering in the Residential and Village zoning districts. This high-density development pattern should help reduce energy consumption by reducing the energy cost of building roads and utility lines. The need for automobile travel may also be diminished.

**State Energy Codes** - The *Vermont Residential Building Energy Standard* was upgraded by the Vermont Energy Act of 2009 and passed by the State legislature in May 2010. The new code adopts the International Energy Conservation Code of 2009 as the State code effective January 2011. The State does not have a commercial building energy code, but has published the *2001 Vermont Guidelines for Energy Efficient Commercial Construction*. These guidelines are based on the *2000 International Energy Conservation Code*, with amendments to suit Vermont’s climate. The Vermont Department of Public Service also reviews and comments on energy efficiency in proposed developments that are subject to Act 250.

Williston does not currently enforce a building code that sets standards for energy efficiency and conservation in new construction projects. The State of Vermont does have an updated energy code for residential buildings, and is developing one for commercial buildings.

**11.4.1 Include Energy Efficiency and Conservation in Development Review Criteria.** Beyond the existing measures described above, the town will explore additional incentives for “green building” and performance standards that would encourage site planning for energy conservation. Such standards might include maximizing southern glazing, protecting solar access to south facing walls and roofs, and providing windbreaks.

**11.4.2 Direct Residents to Energy Efficiency and Conservation Programs.** Williston will expand the information about energy use that is available on its website. New links will direct residents and businesses to programs that offer professional advice, tax and financial incentives for energy efficiency and conservation, including Efficiency Vermont, the Vermont Gas Energy Extenders Program, the Vermont Energy Investment Corporation, and the Champlain Valley Weatherization Service.

**11.4.3 Pursue a Property Assessed Clean Energy (PACE) Financing Program.** The State legislature passed a law allowing Vermont towns to create PACE programs. PACE enables local governments to finance renewable energy and energy efficiency projects on private property, including residential, commercial, and industrial properties through the issuance of bonds. The bonds give homeowners the opportunity to obtain low interest loans to purchase renewable energy and energy efficient technologies, such as solar panels and high efficiency furnaces. The homeowner pays back the loan through property tax bills over 15 to 20 years. The model eliminates the chief barrier to clean energy installations: the large upfront cost. When the mechanics of these programs are worked out and a working system is available for study, Williston should consider its adoption.

**11.4.4 Require Electric Vehicle (E.V.) Charging Facilities in New Developments.** The town should update its development regulations to require E.V. charging stations in new developments, such as shopping centers, mixed use developments, and higher density multi-family residential developments. E.V. charging stations should also be allowed within existing developments and projects as part of the required vehicle parking for the development.

**11.5 – Municipal Energy Plan - The Town of Williston will appoint a task force to prepare a municipal energy plan as a supplement to this comprehensive plan.**

The Williston Planning Commission will convene an *ad hoc* task force that includes interested citizens of Williston and representatives of local energy providers to develop a town energy plan. This effort will provide more information about energy resources and consumption, assess progress toward implementation of the objectives and policies adopted in this plan, and update these objectives and policies for the 2016 comprehensive plan. The town Energy Coordinator, as described in 11.3.7, should oversee this effort.

## **11.6 - Sustainable Foods Systems – The Town of Williston will support the production and sales of locally-produced foods and value-added products.**

The current US food system requires intense energy inputs in the forms of fuel (on-farm), fertilizer, pesticide and herbicide application, transportation, and storage. Organic and local production and preservation of food reduces energy requirements at all levels.

**11.6.1 Home Gardens, Small Animal Husbandry, and Home Food Preservation.** Home production and preservation of food reduces many of the energy inputs required for food production, transportation and storage. Gardening and small animal husbandry, specifically chickens and bees, is on the rise among non-farming homesteads due to increased desire for self-sufficiency and concerns about the economy, nutrition and food safety. The town’s regulations currently allow livestock on parcels greater than one acre in all zoning districts. The town should consider revising this regulation to allow for greater flexibility in the keeping of livestock, such as keeping small flocks of chickens and bees, in the Residential, Village, and Mixed-Use zoning districts.

**11.6.2 Support Farmers’ Markets, Local Farms, and CSAs.** Direct sales from local farms to consumers through farmers markets, farm stands, and community supported agriculture (CSA) greatly reduces the miles that food must travel from farm to plate, thus lowering the energy required for transportation. Direct farm sales support local farms and keeps food dollars in our community. The town should investigate options for a municipally-supported “Current Use” program for small acreage in high active production and promote local products through mapping of farm stands, CSAs, and farmers markets on the town website. The town should also foster partnerships and opportunities for local gardeners and farms to provide food to Williston schools.

**11.6.3 Support Community Gardens.** Many Williston residents do not have space to garden unless community gardens are provided. Installation of garden plots in developments and on municipal land provides residents with the opportunity to garden while conserving energy and increasing food security. The town should require the inclusion of community gardens into development proposals, provide incentives for community gardens in the town’s growth management system, make town land available for community gardens that support both perennial (e.g., asparagus) and annual (e.g. tomato) food producing plants, and encourage and support gardens within the school system.

## **11.7 - Waste Reduction, Recycling, and Composting. Waste Reduction and recycling reduce the energy requirement needed for materials extraction, manufacturing of goods and packaging, and transportation. Diverting organics from landfill to composting reduces greenhouse gasses, typically reduces transportation distances, and results in a useful and valuable product, which can be used to support plant growth and reduce synthetic fertilizer requirements.**

**11.7.1 Manage Our Resources to Reduce the Amount of Waste Generated by the Williston Community.** The extraction, transportation, and manufacturing of new raw materials is an energy-intensive process. Energy savings can be made when communities reduce their use of materials, reuse existing materials, and recycle unwanted materials. The town should explore development of a recycling ordinance to promote recycling by business operators. The town will continue to implement recycling, composting, and solid waste reduction strategies, including the recycling requirements proposed for study in Policy 8.7.3. The town will also continue to pursue environmentally-friendly purchasing policies and adopt environmentally-friendly purchasing guidelines that encourage the use of products such as paper containing post-consumer recycled content.

**11.7.2 Maximize the Recovery of Recyclable Materials.** Valuable resources, including food scraps, aluminum cans, and paper products, are discarded into the trash and sent to the landfill every day.

Diverting resources that can be recycled or composted reduces energy inputs needed for transportation of these materials to the landfill. Organic materials produce less greenhouse gasses when composted than when placed in a landfill. Compost can be used as an energy source in growing food and can replace energy-intensive synthetic fertilizers. To maximize the recovery of recyclable materials the town will; 1) develop a mechanism to ensure that demolition, construction, or renovation projects adhere to a waste management plan that addresses recyclables; 2) require special event applicants to include a waste management and recycling plan prior to permit approval; 3) require that all municipal parks and public spaces have recycling bins next to waste receptacles; and 4) support a commercial scale composting facility in the community.