Energy Chapter

INTRODUCTION

2010 marks the introduction of the first Energy Chapter into the Town of Plainfield Master Plan. This chapter is part of Plainfield's effort to honor the resolution passed at the 2007 Town Meeting which stated that "The town of Plainfield encourages NH citizens to work for emission reductions within their communities and asks our Selectmen to appoint a voluntary energy committee to recommend local steps to save energy and reduce emissions."

The need for an energy chapter is prompted by a convergence of factors, including the fluctuating but generally rising cost of energy, dependence on imported oil and gas in a setting of global political instability, environmental concerns regarding fossil fuel pollution and mining, vulnerability of our centralized energy systems, and the relationship of our energy use to climate change.

At the same time, opportunities for positive action are increasing. These include the enthusiasm of our townspeople for conservation and efficiency, the increasing development and decreasing costs of alternative, renewable energy systems, and "stimulus fund" grant money and utility rebates available to offset the cost of energy projects.

Successful energy use strategies will decrease our overall energy use through conservation and efficiency and the development of renewable forms of energy. The benefits of successful strategies include:

- decreasing costs to taxpayers, individual households and businesses
- increasing comfort in a northern climate
- decreasing pollution
- diversifying and distributing our energy systems to increase energy security
- decreasing carbon and other emissions which lead to global climate change

Energy use is a topic that is integrated with many other chapters of this Master Plan, including Natural Resources, Housing, Community Facilities, Services and Utilities, Transportation and Land Use. It affects, and is affected by, most aspects of community life.

CATEGORIES OF ENERGY USE

There are three categories of energy use in Plainfield that may be addressed. For each, there are improvements which can be adopted or promoted by the town.

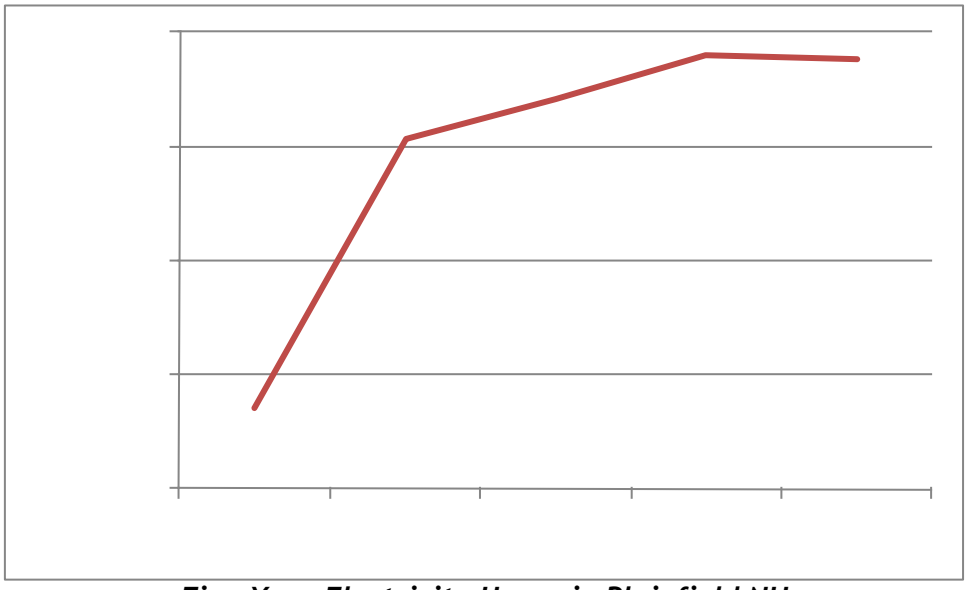
Electricity

The need for electricity is ubiquitous – in homes, municipal buildings and streetlights, education, business and agriculture. Uses include lighting, appliances, commercial and agricultural equipment and heating. All electric use is measured in kilowatt hours (kWh) or thousands of watts per hour and thus is easily quantified so that conservation progress can be tracked. Plainfield is served by three electric utilities – National Grid, Public Service of New Hampshire and NH Electric Coop- that have agreed to provide data on electricity consumption on a regular basis.

Electricity is generated from several sources, including coal, incineration, biomass, solar photovoltaic (pv) and thermal systems, wind, and hydropower. See the section on Renewable Energy for a detailed discussion of electric generation by renewable sources.

New Hampshire is among the many states which mandate that utilities offer "net metering" to their customers. This allows residential, industrial or commercial customers who produce energy by renewable systems (for example photovoltaic panels on a house roof) to feed excess energy to the grid and receive credit from the utility company for that energy.

The graph below shows the history of electricity usage in Plainfield for the past five years. We show a steady increase in spite of the slowdown in construction and the significant reduction in usage by the Elementary School.



Five Year Electricity Usage in Plainfield NH

Thermal Energy or Heat

Heat is an important component of energy use in winter for residences, businesses and agriculture, educational and municipal buildings. Sources include the fossil fuels heating oil, propane and natural gas, heat from electric systems, and the renewable energy from biomass (wood and wood pellets), geothermal and solar thermal systems. Conservation efforts are more difficult to track on a town wide basis given the multiplicity of fuels and fuel companies used in Plainfield.

The use of fossil fuels is especially problematic and controversial because of dependence on foreign oil with fluctuating prices and related geopolitical issues as well as concerns about the effect of related carbon emissions on climate change. The New Hampshire Office of Energy and Planning estimates that, on average, at least 85% of our heating energy in New Hampshire comes from imported sources. Residences may offer one of the best opportunities to increase the use of renewable and local energy sources. These renewable energy options could also be implemented for larger uses and structures over time.

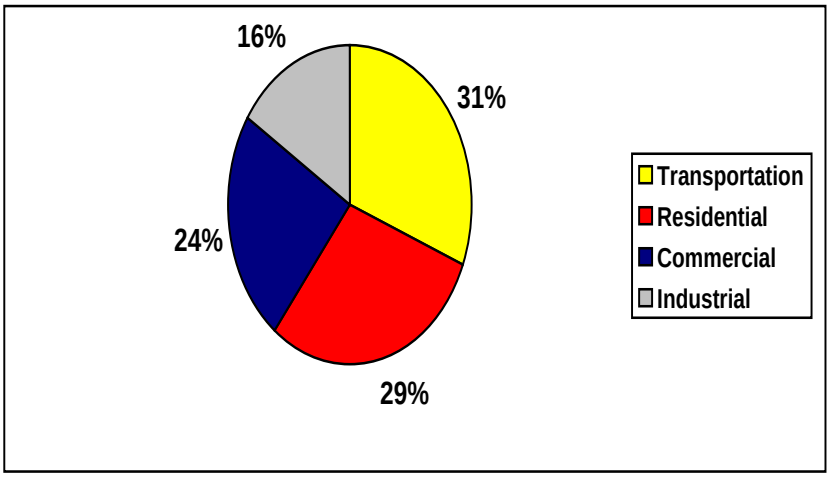
Transportation

Plainfield is a car dependent community for work, shopping and social interaction. In addition to private automobiles and trucks, there is a municipal vehicle fleet that includes town trucks

and police vehicles, there are school buses run by a transportation company, and there is some commercial trucking. The energy costs of many of these are difficult to quantify. They are affected, however, by individual choice, town policy and regional planning.

See the section on Renewable Energy for information about transportation and alternative fuel sources.

Distribution of Energy Use in New Hampshire 2005



As shown in the chart above, transportation consumes the most energy and produces the most CO_2 in the state of New Hampshire. Residential uses are the second largest consumer of energy and producer of CO_2 followed by the commercial and industrial sectors. Waste accounts for a nominal amount of the energy consumption and CO_2 emissions and is not included in this energy chart. Note that if you combine residential, commercial and industrial sectors together, the buildings sector constitutes 69% of energy usage and CO_2 emissions. The state inventory indicates that oil and electricity are the main sources of energy in the residential and commercial sectors. In the industrial sector, the highest energy usage is electricity.

In Plainfield, commercial square footage is relatively small compared to residential square footage and industry is absent. Therefore, the two primary sectors of concern for the Plainfield community are transportation and residential buildings. Within these, heating oil, propane, electricity and vehicle fuels are the dominant forms of energy for the Upper Valley region.

EFFICIENCY AND CONSERVATION

Energy conservation is the wise use or management of energy and the avoidance of waste. Energy efficiency refers to achieving the same desired goal, such as powering a building, while reducing the energy inputs or “doing more with less.” Energy savings are often achieved by substituting technologically more advanced equipment to produce the same level of end-use services.

Conservation can be achieved on several levels, from walking or biking instead of using a car, to adding more insulation to a building to avoidance of idling when driving. Efficiency examples include using high efficiency Energy Star appliances and systems, substituting compact florescent (CFL) or light emitting diode (LED) light bulbs for less efficient incandescent lighting

Energy conservation is the first priority in achieving energy efficiency in existing buildings. A stepwise approach using energy assessment, audit and weatherization is recommended. An assessment of the energy intensity or general energy use of a building can be done using arithmetic or online calculators such as those available at SERG Energy Assessmemet (Http://www.serg-info.org/energy-assessment) and EPA Home Energy Yardstick (http://www.energystar.gov/indexaction?fuseaction) An audit is usually performed by a building science professional and may employ technology such as infrared cameras and pressurizing equipment. Weatherization or an energy retrofit is based on the results of the assessment and audit. Significant decreases in electric and thermal energy needs can be achieved by this approach and the cost of the work is offset by the energy cost savings and possible rebates from state or federal sources

Using efficient building methods and efficient systems for new construction will reduce energy use and operating costs over time. Creating local requirements that exceed the State Energy Code is one approach worth considering in Plainfield

See the section on Energy and Planning for further discussion.

RENEWABLE ENERGY

General Characteristics

The U.S. Department of Energy defines renewable energy as "energy which comes from sources whose supplies are regenerative or virtually inexhaustible." Proponents recommend expansion of these sources to meet future energy demands, diversify energy sources and minimize environmental impacts. While there are a host of benefits to renewable energy projects including reduced emissions and decreased transmission losses in a decentralized energy grid, there are negative impacts. These include environmental impacts to wildlife habitat, visual changes to the landscape and economic constraints. Renewable energy sources are inexhaustible, although sometimes limited in the amount of energy available per unit of time. A stream may generate lots of energy in the spring, but less in the July or August. Both the positive and negative impacts need to be weighed against each other so an informed and educated decision can be made about their expanded role in New Hampshire.

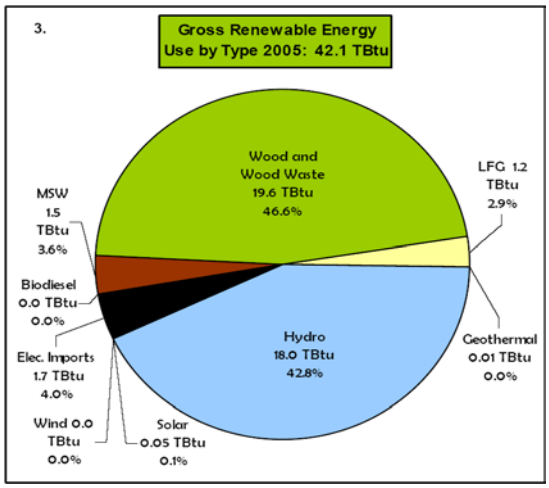
Renewable energy contributes to energy assurance, by adding diversity and additional energy resources to meet the community's needs. It also provides energy security, by using indigenous energy sources, which are less subject to geopolitical influences. These sources provide environmental protection by reducing pollution and other negative impacts on air, water, and land while meeting energy demand in ways that can be maintained indefinitely. There are also opportunities to create economic stability and growth by using renewable energy technology to retain dollars in-state, create new jobs, and stimulate the local and regional economies.

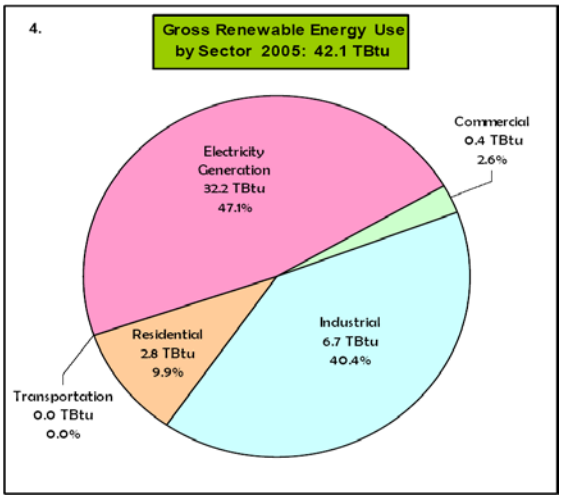
Renewable Energy in New Hampshire

In New Hampshire there are abundant renewable energy possibilities, especially wood, geothermal, wind, solar, hydroelectric and landfill gas. Currently, some of these renewable energy resources (especially wind, solar and geothermal) are greatly underutilized. In New Hampshire, only 9.3% of the gross energy use is from renewable sources.

The largest renewable sources in New Hampshire currently are wood and hydro as the following graphs illustrate. In 2007 and 2008 several renewable energy incentives became available from the state and from some utilities. These programs are anticipated to be expanded over time, and could greatly reduce the upfront cost for small scale installations.

Renewable Energy Use by Type and Sector in New Hampshire





The two largest sectors using renewable energy in New Hampshire are Electricity Generation (47%) and Industry (40%).

Electricity Generation from Renewable Sources

When people discuss renewable energy, they are often referring to renewable sources used to generate electricity. These renewable energy sources are defined below:

Biomass- Wood pellets are burned to heat water and produce steam which is then used to turn a turbine to produce electricity.

Geothermal- Heat that is stored below the earth's surface is used to heat a liquid (typically water) to produce steam which is then used to turn a turbine to produce electricity.

Hydro- Flow of water used to turn turbine to produce electricity.

Ocean energy- Electric production from mechanical systems which extract energy from tidal, current or wave energy.

Methane Gas – this may be produced from landfill

Solar (photovoltaic) - Electricity is produced by the sun shining on panels made of interconnected silicon "cells" where excited electrons are collected and transmitted for use.

Solar (thermal) - Reflective mirrors are used to concentrate the heat from the sun onto a central focal point affixed atop a tower. The concentrated light from the sun heats up water running through the tower and produces steam which is then used to turn a turbine to produce electricity.

Wind- As wind blows through turbine blades affixed to a tower, the blades turn a central shaft which is attached to a generator to produce electricity.

Out of these renewable energy sources, the most wide spread use and advancement in the industry are in biomass, geothermal, solar (photovoltaic), solar (thermal) and wind..

The greatest progress in renewable energy technology has occurred within the wind industry. In the early years of wind technology, electricity production cost was around 30 cents/kWh. By 2002, cost of electricity production from wind resources dropped dramatically to 3-5 cents/kWh. Geothermal technologies traditionally have not had such a dramatic advancement; however they are among the cheapest renewable energy sources to produce electricity at 2-4 cents/kWh. Biomass is of particular importance to New Hampshire, with its large stands of renewable forests. It is estimated that electricity produced from biomass sources costs 6-8 cents/kWh. The highest price for electricity from a renewable energy source is from photovoltaic panels which average between 22-26 cents/kWh. For comparison, electricity produced from traditional fuel sources cost approximately 3-5 cents/kWh for coal, 10-12 cents/kWh for oil, 6-8 cents/kWh natural gas, and 10-14 cents/kWh for nuclear. Therefore, it can be said that properly sited renewable energy projects are price competitive with traditional fuel sources.

Transportation and Renewable Energy

The transportation industry is working to develop renewable energy solutions, but its advancement is controversial. The two fuel sources that some are considering renewable include ethanol and biodiesel, otherwise known as biofuels. Biofuels are produced by cultivation of agricultural crops, which are then processed into a useable fuel that can be combusted. The benefits of these fuel sources are the absorption of carbon dioxide, a harmful greenhouse gas, as the plant grows and the ability to cultivate the fuel source. The other side of the debate contends that the amount of fossil fuel needed to grow and process the crops and transport the fuel to the consumer exceeds the amount of fuel that can actually be produced by the crops. Therefore there is a net gain in atmospheric carbon dioxide.

There is also a concern over the price for fuel crops versus food crops. Farmers are paid more for fuel crops, resulting in more farmers growing fuel crops. This increase in fuel crops has caused a reduction in supply for food crops, which has in turn increased the price of the commodity.

There is still merit to this early technology in renewable biofuels. Work at the University of New Hampshire, among others, is looking into growing crops which can produce a higher quantity of biofuel per acre farmed. These crops include strains of sunflowers and switch grasses. Additionally, the cultivation of prolific algae, using exhaust from power plants and industrial uses, is being explored as a biofuel. Waste oil is also cleaned and converted to biodiesel to create another alternative fuel source.

Increased use of electric vehicles and hybrid technology is also an increasingly important both for single occupant vehicles and for public transportation. Since transportation constitutes such a large portion of energy use and costs for Plainfield residents, public transportation would be an effective option for the town to explore. Plainfield residents travel to surrounding municipalities in the region for work and shopping purposes. Regional rural public transportation options should be explored in coordination with surrounding towns.

ENERGY AND PLANNING

Key planning and development principles can help Plainfield become a community that is less dependent on fossil fuels and create community resiliency to fluctuating fuel costs. Mixed use development consists of a village center, the construction of energy efficient buildings, the use of alternative transportation, and sound regulations and incentives for renewable energy. This type of development should be encouraged in Plainfield to help reduce energy use and environmental impacts associated with fossil fuels.

State statutes outline the purpose of planning and land use regulations. Pertinent sections which relate to environment and energy include the following sections:

> *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, zoning ordinances should not unreasonably limit installation of solar, wind, or other renewable energy systems or the building of structures that facilitate the collection of renewable energy, except where necessary to protect the public health, safety, and welfare."

An energy focused land use audit would overlap with the goals for smart growth and other natural resource oriented efforts. The intent is to find ways to foster development patterns that use land in Plainfield efficiently, while protecting both local and global natural resources, and which reduce residents' reliance on energy from fossil fuels. Although this form of energy has been cheap and plentiful in the past, it is now clear that the costs will be higher and the supplies much more sporadic in the future, that the emissions associated with their use contribute to climate change, and that the lifestyle of sprawl is fragile and may become unsustainable because of its reliance on goods and materials from far away. Energy and climate change issues must now be considered as factors limiting development, in a manner similar to natural resource constraints. The Community should be taking this long range view as it engages in its planning efforts.

Energy and climate change issues must now be considered as factors limiting development, in a manner similar to other natural resource constraints. An audit process will identify the inconsistencies, from an energy perspective, between the Master Plan and the Zoning Ordinance, and the Site Plan and Subdivision Regulations.

Energy and climate change issues must now be considered as factors limiting development, in a manner similar to other natural resource constraints. An audit process will identify inconsistencies, from an energy perspective, between the Master Plan and the Zoning Ordinance, Site Plan Regulations, and Subdivision Regulations. The purpose of conducting an audit of a community's planning documents and land use regulations is to ensure that the Future Land Use Plan and associated recommendations in the Master Plan can actually be implemented under the existing regulations. If there are inconsistencies in these relationships, it is important to address them before it is too late and the community is no longer able to achieve its stated vision.

If the regulations do not assist with the implementation of the Vision in the Master Plan, that Vision is not likely to be achieved. There may be policy elements of the Master Plan that actively promote energy consumptive patterns of development, and must be addressed if Plainfield, as a community, is intent on conserving energy and reducing greenhouse gas emissions.

Plainfield is an idyllic rural community in west central New Hampshire. This landscape of natural resources, including farm and forest lands, is critical to the community's long term stainability.

Although the rate of growth in Plainfield is fairly low, the community is currently promoting a pattern of low density residential sprawl that is very auto-dependent, and which relies largely on the surrounding communities for services.

Many of these resources ensure clean drinking water, a sustainable fuel source, and are supportive of its locally produced food. Although the rate of growth in Plainfield is fairly low, the community is currently promoting a pattern of low density residential sprawl that is very auto-dependent, and which relies largely on the surrounding communities for services. This suburban pattern of development could change Plainfield in significant (and costly) ways over time, and eliminate many of the natural resources residents treasure now and will need in the future.

If Plainfield decides to pursue a more energy efficient and sustainable land use pattern, a clear vision of that must be articulated in the Master Plan and implemented by the appropriate land use regulations. This is not to say that the community has not taken some steps in the right direction already.

Some of the major items that appear to need attention in the near future are:

-***Land Use Patterns*** – Nodes of mixed use development (residential, commercial, and civic uses) surrounded by lower density clusters of residential development and natural resources would allow for reduced travel requirements.

-***Mix of Uses*** – A greater mix of uses at key locations (like the Villages) would allow for a reduction in vehicles trips, and would encourage walking and biking. It would also create a greater density of activity that might warrant a transit stop (or a simple park and ride) in the future.

-***Diversity of Residential Units*** – If a more diverse range of unit types were promoted in the community, there would be an opportunity to use developed parcels more efficiently, and provide housing options for a wider range of residents.

-***Transportation Infrastructure*** – There is a need to consider the direct relationship between the land use pattern in Plainfield, and the travel and transportation needs of the community. Nodes of greater density (think village crossroads) would provide for some transportation alternatives.

TOWN RESOURCES

Much has been accomplished in Plainfield over the last two years and the town is poised to become increasingly energy efficient. Interest among residents is high, energy committees and facilities committees are active at the Plainfield Elementary School (PES), at Kimball Union Academy (KUA), and at area churches and businesses and Plainfield has an active energy committee which was established by a vote of the town.

Energy Committee
Local energy committees in New Hampshire and Vermont help coordinate and focus actions that can and should be taken at the local level to reduce energy consumption. The Plainfield committee began work in March, 2009, and to date has focused on two major projects - evaluating the energy use of municipal buildings (see Plainfield Municipal Energy Use for details) and producing an energy expo.

Plainfield Elementary School Facilities Committee
This volunteer group of energy and construction experts has worked with National Grid and the school administration, students, faculty and staff since 2005 to retrofit a prototype classroom as a demonstration of achievable energy savings. The results are remarkable in the increase in the classroom comfort level as well as the cost savings that are achieved by energy efficiency. PES has reduced energy usage by 7,000 gallons of fuel oil /year and 39,000 kWh per year of electricity. The facilities committee is working to obtain grant funding as well as utility company rebates to expand their efficiency program to other classrooms.

Kimball Union Academy Energy Task Force
This committee, also in conjunction with National Grid, students, faculty, administration and staff, reduced KUA's energy consumption over six months by 14,000 gallons of oil, 183,000 kWh of electricity and 2,883 gallons of propane.

The combined savings of these two schools results in a reduction of 405 tons of CO_2 being generated. Alternatively it results in a reduction of 2,205 trees being required to offset what they had been producing.

PLAINFIELD MUNICIPAL ENERGY USE

In order to understand where municipal energy is being used, as well as its costs and associated emissions, an energy and greenhouse gas inventory was conducted for Plainfield in the spring of 2009. The inventory data was collected by the Plainfield Energy Committee, and later analyzed by the EPA-UNH Team with the support of the Plainfield Energy Committee, using EPA Portfolio Manager.

The following is a summarization of the energy usage, cost and emissions associated with Plainfield's various municipal sectors, buildings and operations.

Municipal Overview

Town Population:	**2,444 *2008, US Census Estimate**
Area of Municipality:	**53 Sq Miles**
Upper Valley Lake Sunapee Region Population:	**87,337**
Municipal Population as a % of UVLSRP:	**2.80%**
Number of Municipal Buildings:	**6**
Total Area of Municipal Buildings:	**56,482**
Average Energy Intensity:	**67.59 KBTU/SqFt**
Number of Street Lights:	**62**
Number of Vehicles in Fleet:	**16**
Total Cost of Municipal Energy in 2008:	**$196,668**
Total Municipal Energy Use in 2008:	**6,316.50 MMBTUs**
Total Municipal CO_2 emissions in 2008	**574 tons**

Table 1. Energy use, equivalent carbon emissions[a], and costs, by municipal sector

Municipal Secto	Energy Use (MMBtu) [1]	Energy Use (%)	Equivalent CO_2 (tons)	Equivalent CO_2 (%)	Energy Cost (US$)	Energy Cost %
Municipal Bui	863	13.68	82.69	14.42	25,561	13.00%
Vehicle Fleet	2,813	44.54	255.43	44.53	85,463	43.46%
School	2,507	39.67	221.7	38.65	77,255	39.28%
Street Lights	152	2.41	13.81	2.41	8,389	4.27%
Water & Sewa	-	-	-	-	0	0
Waste	-	-	-		0	
Total	**6,317**	**100**	**574**	**100**	**196,668**	**100%**

Source: EPA Portfolio Manager

[a] According to the Clean Air and Climate Protection software, "Equivalent CO_2 (eCO_2) is a common unit that allows emissions of greenhouse gases of different strengths to be added together. For carbon dioxide itself, emissions in tons of CO_2 and tons of eCO_2 are the same thing, whereas for nitrous oxide, an example of a stronger greenhouse gas, one ton of emissions is equal to 310 tons eCO_2."

Table 2. Carbon emissions, energy use, and costs, by municipal building

Name of Building	Energy Use (MMBtu)	Energy %	CO2 emissions (tons)[2]	CO2 %	Energy Cost (US$)	Energy Cost %
Meriden TH	198.19	5.92%	198.19	7.15%	4,721	4.59%
Plainfeld TH	73.94	2.21%	7.52	0.27%	3,153	3.07%
School	2,505	74.77%	2,505	90.42%	77,255	75.14%
Meriden Library	109.61	3.27%	12.4	0.45%	2,868	2.79%
PLFD Library	259.4	7.74%	26.74	0.97%	7,889	7.67%
Town garage	204.08	6.09%	20.41	0.74%	6,930	6.74%
Total	**3350**	**100%**	**2770.26**	**100**	**102,816**	**100%**

Source: EPA/UNH inventory, 2009
Carbon data generated by EPA Portfolio Manager Program.

The information above indicates that the vehicle segment is the most significant sector in Plainfield in terms of energy use and energy cost, and especially carbon equivalent emissions. The vehicle segment comprised 44.54% of energy use and 43.46% of energy costs, and 44.53% of emissions. The school is the next most significant energy consumer of Plainfield's municipal users, using 39.67% of the energy and comprising 39.28% of the energy costs, as well as contributing a similar amount 38.65% of the carbon equivalent emissions. In Plainfield, the town's school building and 18-vehicle fleet offer the greatest opportunities for energy savings.

In terms of buildings, the Plainfield Library and the Highway Department garage were the next largest users of energy at 4.11% and 3.23% respectively. The Meriden town hall used less energy at 3.14%. However, the town garage appears to have had very low carbon emissions relative to the amount of energy used, as it only accounts for 0.74% of carbon emissions (and 6.74% of the energy costs).

UNH/EPA assisted in benchmarking Plainfield's buildings. The first building benchmarked was the Meriden Town Hall. The building received energy use intensity (EUI) score of 72.0 kBtu/sq.ft-year. In terms of energy use intensity you want the lowest usage per square foot. Therefore, this building is doing well compared to the national average of 182kBtu/sq.ft-year for similar buildings.

The Plainfield Elementary School received an energy intensity of 87.4 kBtu/sq ft-year. The national average for similar buildings is 127 kBtu/sq ft-year. The Meriden Public Library received an energy use intensity of 87 kBtu/sq.ft.-yr which can be compared to the national average for similar buildings which is 246 kBtu/sq.ft-year and the Plainfield Library received a 77 kBtu/sq ft-year.

Plainfield's Highway Department Garage earned an EUI of 79 kBtu/sq ft-year compared to the national town garage average of 150.

RECOMMENDATIONS

There are no simple solutions to the problems associated with energy use and its environmental impacts. The answer for Plainfield is to implement a combination of available strategies.

On a municipal level, Plainfield's energy committees can continue to improve the energy efficiency of its school, other municipal buildings, town fleet and streetlight system. The Planning Board can promote patterns of land use and development that affect building and transportation efficiency. And individual citizens can take action on many levels – by auditing and weatherizing their homes, reducing use of electricity through attention to personal habits and use of energy-efficient appliances and lighting, reduction of unnecessary car use and idling, and by patronizing local business and agriculture. And the town can encourage different scales of renewable energy generation.

On the next page are the critical items related to energy in Plainfield, and an array of possible actions the town may want to consider pursuing. This section will be used to identify the specific actions for Plainfield to take upon completion of the master plan.

Goals	Recommendations
Improve Municipal Systems Plainfield must lead by example to show residents and businesses how they can conserve energy, reduce their impact on climate change, and reduce their dependence on fossil fuel energy. It is also important for Plainfield to ensure that municipal projects reflect the life cycle costs of the building, and not just the initial capital costs of construction.	• Assess and benchmark energy intensity of municipal buildings - **complete.** • Audit and retrofit municipal buildings - **in process.** • Evaluate vehicle fleet for potential energy savings. Analyze routes, usage and promote decreased idling. • Implement a buying strategy of Energy Star equipment and products and environmentally sensitive office products, and implement awareness campaigns to encourage "thoughtful" consumption of equipment and products. • Analyze streetlight use and implement efficiency measures. • **Adopt ordinances that improve energy efficient private developmen**t including green building design, small wind energy systems • Create an Energy Savings Trust Fund to be used in the future for energy saving initiatives within a 5 year payback. Submit this Fund for majority vote at 2010 Town Meeting. Work with CA-CP to create this fund • Encourage recycling and composting in order to decrease the amount of municipal solid waste going to landfill • Showcase municipal actions to educate public on successes of energy reduction measures. A kiosk and educational material can be developed at the library and through internet media. • Open Loomis Road to shorten trips through town
Promote Conservation and Efficiency Efforts must be made to promote efficiency and conservation as priorities over the creation of new fuel sources. These measures are more economical, and will ensure that future fuel sources will go further to heat and power the town.	• Residents, businesses and the town should **adopt aggressive energy conservation and efficiency measures**. This could include creating local energy requirements that exceed the State Energy Code. • **Promote voluntary efforts** to insulate units and reduce the demand for heat and electricity. Provide information about energy assessment, home audits and weatherization.
Encourage Renewable and Local Energy Sources Many opportunities exist in Plainfield to create distributed forms of renewable energy, and to create jobs locally as this is accomplished. This will take cooperation from all sectors, but will lead to a more sustainable situation for the future. *Participate in Regional Efforts* Plainfield does not need to tackle all of this alone. As a community in a very rural region it is important that the town find ways to	• **Reduce barriers to, and promote the development of, appropriate thermal and electric renewable energy sources**. • **Explore the possibility of aggregating municipalities in the area together into a single green purchasing contract** to provide some economy of scale for all involved in terms of green products. • Participate in the regional planning of transportation

encourage the surrounding communities to be engaged.

systems with the goal of providing public transportation options to its citizens.