

2009 New Hampshire Pollution Prevention Internship Program

Town of Plainfield New Hampshire Report

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Project Title: EPA ENERGY STAR Community Energy Challenge (CEC) in Plainfield NH

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Accessing your Portfolio Manager account:

- Go to the EPA's Energy Star website www.energystar.gov
- Click on the looking for Portfolio Manager icon on the bottom right side of the web page.
- Type in username and password to access your account.
Portfolio Manager username Login: xxxxxx
Password: xxxxx
All Data were entered in my Portfolio Manager account
I have verified that all buildings are completely shared with your account.
The names of all your facilities start with Plainfield

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1. Background

Recently Plainfield's energy committee has expressed interest in Benchmarking the town municipal buildings and possibly entering the EPA's Community Energy Challenge (CEC) Program. The Community Energy Challenge is an opportunity for municipalities across New England to identify simple and cost-effective measures that increase energy efficiency and renewable energy use while reducing air pollution and saving money.

2. Objective/Intern Role

This summer I worked with the town as a UNH P2 intern working on the EPA Community Energy Challenge (CEC). My role was to help the town achieve the objective of benchmarking a number of the town buildings. By benchmarking buildings the town can track energy performance over time so a baseline measurement can be established and the energy savings can begin. From this benchmark the town can measure improvements, and see if adjustments to the building are changing energy usage.

3. Buildings Benchmarked

Five of Plainfield's town buildings were benchmarked. In total 52,232 square feet of town owned property was benchmarked. The buildings benchmarked for the town include: The Meriden Town Hall, Plainfield Elementary School, Meriden Public Library, Plainfield Town Library, and the Plainfield Highway Dept Garage.

4. Benchmarking Process

Each building is entered into EPA ENERGY STAR's Portfolio Manager and has received either an ENERGY STAR Rating or Energy Use Intensity (EUI) rating. The first step in the benchmarking process was to gather at least twelve months of utility data for each of the buildings. Space type data is also needed for each building. Space type data includes:

zip code, the year the building was built, square footage, number of personal computers, number of regular occupants, operating hours, and percent of the building heated/ cooled. Some buildings like schools require more data like number of students, if there are on-site cooking facilities, and if the building is mechanically ventilated. Data obtained are summarized in the following Table:

Building Benchmarked	Address	Sq-Ft	Zip Code	Empl/bldg	PC's	Op hours/ week	Yr Built
Meriden Town Hall	110 Main Street	2,800	3370	3	4	46	1940
Plainfield Elementary	92 Bonner Rd Meriden	35,800	3370	N/A	85	N/A	1972
Meriden Library	22 Bean Rd Meriden	2,432	3370	2	3	21	1965
Plainfield Library	1088 Rte 12 A Plainfield	6,200	3370	2	3	23	1960
Plainfield Highway Garage	351 Stage Rd Plainfield	5,000	3781	7	1	45	1982

5. Benchmarking Results and Expected Savings

The first building benchmarked was the Meriden Town Hall. The building received energy use intensity (EUI) of 72.0 kBtu/sq.ft-yr. In terms of energy use intensity you want the lowest usage per square foot. Being below the average would be ideal, like in a game of golf. Therefore, this building is doing well compared to the national average of 182kBtu/sq.ft-yr. When the 10% reduction is reached there will be a financial savings of \$297 a year!

The Plainfield Elementary School received an energy intensity of 87.4 kBtu/ Sq. Ft/yr. The national average for similar buildings is 127 kBtu/ Sqft/yr. This puts the complex at better than the national average for its energy consumption. A 10% reduction can save the facility \$6153 a year and is Plainfields biggest municipal consumer of energy.

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-yr. This building performs very well and the energy consumption is very low. A 10% reduction will be equal to \$294 a year.

Plainfield's Highway Department Garage earned an EUI of 79 kBtu/gal-day compared to the national library average of 150. A 10% reduction will mean a savings of \$679 a year. These types of buildings typically do not use much energy per square foot because they usually have a large unheated/cooled warehouse square footage but only a small heated/cooled office.

Plainfield Energy Usage Summary

Buildings	Area	Rating*	Baseline Energy Use	Target Energy Use (10% cut)	Savings (after 10% cut)	Current EUI
Units	sq. ft	n/a	kBtu/yr	kBtu/yr	USD \$	kBtu/sq.ft-yr.
Meriden Town Hall	2,800	n/a	101,298	91,168	297	72
Plainfield Elementary	35,800	82	1,768,219	1,591,397	6,153	87
Meriden Library	2,432	n/a	163,576	147,219	294	87
Plainfield Library	6,200	n/a	288,828	259,945	743	77
Highway Department Blnd	5,000	n/a	250,214	225,192	679	79

6. Total Energy and Environmental Benefits

In total for the town a 10% reduction will mean a savings of 75,331 KWh per year and a financial savings of \$8,166 a year! The environmental benefits to this savings are the town will save 54.1 Metric Tons of CO2 from being emitted. This is equal to the annual green house gas emissions from 10 passenger vehicles = CO2 emissions from 6,141 gallons of gasoline = CO2 emissions from 126 barrels of oil. As we have seen the rising cost of electricity we understand what this savings means to both the environment and our finances.

7. Suggestions to Achieve 10% Energy Use Reduction

The first step to meet this 10% reduction might be to talk to the town utility company because they have incentives and other programs to help their customers reduce energy consumption and reduce peak load. Other measures to think about are starting with No-

cost/ Low –Cost ways to increase energy efficiency. There are many resources available on the energystar.gov site including the Best Practices Checklist which starts at operating and maintenance, occupants' behaviors, lighting and moves up to controls and equipment. There is also a Building Manual that is a great reference for improving energy performance.

8. Acknowledgement

Working with the town of Plainfield has been a pleasure. I am confident that conscious energy saving practice will be continually employed to both save money, and protect the environment. Aside from the town energy committee I would like to thank Allen Fergesson, and Nancy Mogielnicki for helping me with data compilation and with answering any of my questions.

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