

Marshfield Energy and Climate Change Committee Formation



1. Genesis was the adoption of a resolution at town meeting asking the Selectboard to appoint an energy committee.
2. Considerable discussion of climate change and how the town could address it preceded the resolution adoption, a considerable benefit.
3. Other energy groups are Ad Hoc, nonprofits or hybrid forms. We have a very progressive Select Board which supports energy efforts so being a town committee works well. We have a town budget.
4. We started with five members. We now have eight
5. We started with mission statements and planning, but quickly moved to projects
6. We have met jointly with the Plainfield Energy Team since 2009 sharing ideas and projects

Project List

1. Compact Fluorescent Challenge
2. Resident Energy Survey
3. Energy Fair (200 people)
4. Solar Water Heating Seminar
5. Homeowner Show and Tell
6. Commuter Bus Promotion (Collaboration with East Montpelier and Plainfield)
7. Twinfield School Energy Upgrade Assistance
8. Twinfield School Energy Education Assistance
9. Community Building Energy Upgrades and Solar Power (Marshfield and Plainfield)
10. LED Streetlight Conversion (Marshfield and Plainfield Villages)
11. Home Energy Visits (Marshfield 92, Plainfield 76)
12. Information and Promotion re: Conservation and Alternative Energy
13. Energy Section of Town Plan

**Marshfield Energy and Climate Change Committee (ECCC)
Survey of Residents
October 2007**

Please try to assemble information to answer the questions before the on-site visit. Estimate if necessary

Name (Optional): _____ # in Household _____

Street Address: _____

Do you feel you understand the significance of global warming? _____ Yes _____ No

Among the problems facing Vermont and the world today, how important is global warming?
_____ Very Important _____ Important _____ Not Important _____

How significant is the financial impact of rising energy prices on your budget?
_____ Very Significant _____ Significant _____ Not Significant

Energy Use

Electrical: _____ kWhrs/year (kilowatt-hours per year)

Heating: _____ cords wood/year _____ gallons oil/year
_____ gallons propane/year

Transportation: _____ miles/day work commute for family
_____ miles/year total for family
_____ gallons gasoline/year total for family

In an effort to promote further ride-sharing and to review the potential of public transportation, the ECCC would like the following information:

Town of Employment: Worker #1 _____

Worker #2: _____

Would you share a ride to work? Worker #1: _____ Do Now _____

Worker #2: _____ Do Now _____

Would you use public transportation Worker #1: _____

if available and reasonably convenient Worker #2: _____

What would make it easier for you to drive less and still accomplish your goals?

Resident Energy Survey

Purpose:

- Gather fuel and electric use information,
- Get feedback on priorities
- Seek volunteers

Process

- Planned door to door survey of 600 units by about 10 volunteers.
- 88 surveys completed through visitation and mail.

Some Stats:

- Annual average home electrical use: 6,326 kWhr/yr 73 to 16,000
- Average miles driven per family 21,096 miles/yr 250 to 55,000
- Average oil use per home (oil only fuel used) 937 gals/yr 550 to 1,700
- Nearly 100% of the responses rated climate changes as important or very important
- More than 95% rated Municipal Facilities, Transportation and Information for Residents as important or very important projects to pursue.
- 28 people agreed to volunteer. Two did

Schoolhouse Common Energy Retrofit



Schoolhouse Common Energy Retrofit

- Project a high priority because improvements and savings will affect all residents and will serve to promote conservation and alternative energy across the town.
- Projects
 - ❑ Air sealing, additional attic insulation and concrete foundation insulation. The result was 80% reduction of air loss and reduction of oil use from 4,300 gallons to 2,500 gallons.
 - ❑ With the heating load reduced, the town funded a new pellet boiler, further saving fuel dollars, while going off fossil fuel.
 - ❑ The plumbing modifications for the boiler identified a rather large circulatory pump running 24/7 which was replaced.
 - ❑ Lighting was converted to Super T8s.
 - ❑ Solar was installed to cover $\frac{2}{3}$ of the power use. Due to the lighting upgrade, the pump replacement and some change of use in the building, the solar system is now producing all the power needed.
 - ❑ The result of all this is at least an \$11,000/year savings, with a payback of less than 10 years.

Plainfield Town Hall Energy Retrofit



Plainfield Town Hall Energy Retrofit

- Added foam insulation to the crawl space and lower walls and about 5 inches in attic
- Added cellulose insulation in 9 inch wall cavity and over the foam in the attic (total R 60)
- Replaced hall forced air heat (1980s furnace) with two Buderus gas boilers (staged)
- Installed Indirect water heater replacing electric
- Installed efficient baseboards and panel heater radiators
- Closed all old air vents and other penetrations
- Completed many other structural, health, safety and functional improvements
- Thermal efficiency improvements reduced propane use approximately 41% (\$1,700/year)
- All the work allowed the building to again be used without restriction (was closed)
- The building has returned to its traditional role as a very well-used community asset

Home Energy Visits



Twinfield School Energy Efforts



Twinfield School Energy Efforts

Approach

- Offered assistance to School Board
- Became part of Facilities Committee
- Continuously provided assistance for 5 years, building credibility

Projects

- Great timing for roof replacement project
 - ✓ Existing unsealed attic with great ventilation of attic
 - ✓ Planned to proceed without correcting
 - ✓ Pushed for and achieved sealed attic and insulated roof (no more icicles)
- Converted all lighting to Super T8s (estimated 17% power savings)
- Helped evaluate and promoted correction of electric baseload issue (45 kW at 1:00 AM)
- Supported energy education efforts of HS Science Teacher
- Promoted and assisted the administration's evaluation of solar electric (many spreadsheets)
- Currently evaluating heating system for excess use of oil and domestic water heating issues
- Developed an energy-related capital improvement budget

Route 2 Commuter Bus

Background

- Transportation was one of our primary goals
- A subcommittee was reviewing alternatives and contacted VTrans
- VTrans and GMTA were considering some funding to implement a Montpelier to St Jay route
- The Energy Committees in East Montpelier, Marshfield and Plainfield collaborated to promote the route with the towns, VTrans and GMTA



Process

- The Energy Committees called a joint meeting of VTrans, GMTA, RCT (St Jay) and the Select Boards of all three towns to discuss implementation of the service
- The Committees and GMTA promoted the project with the town's residents and supported the local appropriation (\$8,500/town) at town meeting
- Marshfield and Plainfield now have bus shelters
- The bus now provides about 10,000 rides per year and a noontime run has been added.
- GMTA says it is one of the most successful routes and local support helped increase the priority of implementation

