

Town of Hatfield

Energy Use and Reduction Plan

I. PURPOSE AND ACKNOWLEDGEMENTS

The purpose of the Hatfield Energy Reduction Plan is to plan for the orderly funding and implementation of energy efficiency improvements to town and school buildings and vehicles, thereby saving energy and money and reducing carbon emissions by making use of criteria, funding, and other resources provided in the Massachusetts Green Communities Act of 2008.

Letter from municipal officials verifying adoption of the Energy Baseline and Energy Reduction Plan.

Please find attached Appendix A and B; letters from the Board of Selectmen and Hatfield School Committee verifying adoption of the Energy Reduction Plan.

List of contributors that participated in the baseline and reduction plan process.

The Hatfield Energy Committee wishes to acknowledge and thank the many people who assisted in the preparation of this plan with their support and thoughtful contributions:

- The energy baseline Inventory and many of the energy reduction proposals were prepared by Frank Moytka, former DPW Director and member of the Hatfield Energy Committee and Mr. David Mager. Mr. Mager has an extensive background as an alternative energy consultant and author of the book Street Smart Sustainability - The Entrepreneurs Guide To Profitably Greening Your Organizations DNA.
- The Board of Selectmen, the School Board, and the Planning Board have each met with the Energy Committee several times over the past year. The Town Hall Renovation Committee has included energy efficiency at every step of their planning.
- James Barry, the Western Coordinator for D.O.E.R.'s Green Communities Western Massachusetts Division for his boundless enthusiasm and encouragement.
- We are particularly grateful for the work done by the 1980's Energy Committee and town officials who began putting Hatfield on an energy efficient path in 1981 with the installation of a solar/thermal heating system at the junior and senior high school, Smith Academy. The plan presented here builds on forward-thinking actions of Hatfield citizens three decades ago.

- The committee also received valuable input from Mr. Edmund Jaworski, *Institutional Maintenance Supervisor* at the University of Massachusetts in Amherst.
- The members of the Hatfield Energy Committee are:

Frank Moytko
David Biddle
Mike Paszek
Peter Rakelbusch

Pennington Geis
Darryl Williams
Christopher Smith

II. Executive Summary

Town of Hatfield, a community of 3,345 people, 98 miles west of Boston, is an historic agricultural river town on the west bank of the Connecticut River. The first industries in town were a gristmill in 1661 and a sawmill in 1669, operated by the waterpower of the Mill River. As in colonial times, Hatfield remains “a prosperous town with a strong agricultural base”. In addition to farms, today’s industries include food distribution and alternative energy products. The town retains a long-standing pride in being practical, down-to-earth and frugal. We have cherished and protected the natural resources and beauty of our town since colonial days, and plan to continue. The goals and strategies in this plan grow out of those values.

Municipal Energy Uses

Hatfield used the DOER web-based energy information tool *Mass Energy Insight*, with Fiscal Year 2008 as the baseline year, it was determined that the total energy usage for the Town of Hatfield was approximately 11,228 Million British Thermal Units (MMBTU’s). See attached Spread Sheet Page 1.

The town of Hatfield is responsible for the energy cost of eleven municipal buildings larger than 2000 Sq-Ft., these include:

Smith Academy High School
Hatfield Elementary School
Hatfield Memorial Town Hall
Highway Garage/Shop
Water Filtration Facility
Hatfield Public Library

Wastewater Treatment Facility
School Street Fire Station
Ambulance Building
Former Center School
School Street Community Building

There are also five smaller buildings, three domestic water pumping facilities, nine wastewater pumping facilities and a transfer station.

In addition Hatfield has a fleet of thirty vehicles which includes school and COA vans, police cruisers, fire apparatus and vehicles, DPW trucks and pickups and a vehicle jointly used by various Town Departments.

The town has 244 street lights and no traffic signal lights.

Summary of Fiscal Year 2008 Municipal Energy Uses: TABLE 1

Buildings	Number
Oil Heat	3
Natural Gas Heat	6
Propane Heat	1
Biomass Heat	0
Waste Oil Heat	1
Electricity Use (not heat)	29
Vehicles	
Non-Exempt	16
Exempt	14
Street Lights	
Municipally Owned	0
Utility Owned	244
Traffic Lights	
Municipally Owned	0
Utility Owned	0

Summary of Energy Use Baseline and Plans for Reductions: TABLE 2

	MMBtu Used in Baseline Year – FY2008	% of Total MMBtu Baseline Energy Consumption	Projected Planned MMBtu Savings	Savings as % of Total MMBtu Baseline Energy Consumption
Buildings	8912.8	79.4%	2605	23%
Vehicles	1,981	17.6%	125	1%
Streetlights	334.2	3.0%	0	0%
Total	11,228	100%	2730	24%

Summary of Goals and Strategies to be used to Carry Out the Action Plan

As a step toward the town's goal to be designated a Massachusetts Green Community, The Hatfield Board of Selectmen and School Committee have adopted a clean vehicle policy that meets Green Community Act criteria #4. Town Meeting has approved a five-year plan to replace DPW vehicles. All non-exempt vehicles will meet the clean vehicle criteria.

A larger part of the strategy for meeting the GCA goal of reducing energy use by 20% in five years is to address the glaring inefficiencies in many of our buildings. After gathering and analyzing Hatfield's base energy use, and with help of a resident volunteer professional who conducts energy audits professionally, it became clear to all involved that implementing common-

sense energy-efficiency measures in our buildings would be the most cost-effective and rapid way to meet the Commonwealth's Green Communities goals. The opportunity to receive grant funding to implement these plans has been a powerful motivation, and actual receipt of funding is critical to the Town's ability to implement the action plan in a timely manner.

The Energy Committee, Board of Selectmen and School Committee have agreed to work together to implement the projects outlined Section V – Energy Use Reduction. Together, these projects are projected to achieve an estimated MMBtu savings of 24% by June 30, 2013. The fact that a number of these efforts pre-date the establishment of an Energy Plan is evidence of Hatfield's long-standing commitment to energy efficiency. We are working toward Green Community designation and funding because it is a tool to help accomplish real savings in dollars, fossil fuels, and carbon emissions.

Significant energy efficiency measures have been implemented in the past years that were the beginning of Hatfield's energy reduction and include:

- Energy audits and discussions with energy service companies were conducted resulting in an extensive lighting replacement project for our Junior/Senior High School known as Smith Academy to be completed in 2010.
- A Leak Detection and Repair program was substantially completed in 2009 and a Water Conservation Program will be completed this year. These programs will reduce the town's water usage resulting in less energy used to pump, treat, and distribute drinking water. It also means less wastewater pumped and treated at the Wastewater Facility.
- A water meter program was completed in 2006 requiring metering of all water users to reduce the amount of water usage overall as well as energy used to pump the water throughout the community.
- Hatfield began a Street Light Reduction Program in 2007. The town pays for and controls the number of streetlights owned by WMECo throughout the town. Hatfield looked to reduce the number of streetlights, monitoring use based on safety assessments and conservation. In addition the schools' (owned lights) have timed out parking lot lighting to reduce energy consumption.
- A pump motor drive upgrade to the Maple Street Sewer Pump Station which pumps 80%-90% of Hatfield's wastewater daily, reduced energy consumption by 45% at that facility after it was installed in 1998.
- Hatfield's first Energy Committee proposed and installed a Solar/Thermal supplement to the heating system at Smith Academy in 1981. The solar panels on the school roof collected heated water that was stored in an underground containment area and supplied to the building during the heating season. This system supplied 30% of the heat to the building.

The system was designed and engineered by Douglas Jones of Kollmorgan of Northampton, and the town was awarded a 100% grant for the cost of the project by the state. The system operated for fifteen years despite numerous problems with antiquated computer technology and drain-down panels that were prone to freezing and corrosion. In 1996 the local gas company approached the town to convert the school heating system at a very attractive price and in the process disconnected the Solar/Thermal system. Shortly thereafter the solar panels were removed when the roof was redone and the panels were scrapped. The under-ground storage remains intact and a recent air test has found that it is fully functional.

During this time there were many engineers curious about this project, including engineers from China that visited the project. In 1986 a Master's Thesis written by John Krupczak, Jr. of the University of Massachusetts school of mechanical engineering, cited many of the virtues and faults of the system, and in summary stated that because it was ahead of its time, the automatic computer systems of the day and the heat exchanging capability of the period considerably limited the system's potential which he believed could actually provide 100% of the heating needs of the school, as he points out that the underground storage capacity was under utilized. We believe, given our current age of technology, a future priority as part of our town's reduction in energy use is to reactivate and modernize this solar/thermal system.

III. Energy Baseline Inventory

Inventory Tool Used: MassEnergyInsight

Baseline Year: Fiscal Year 2008

Municipal Energy Consumption for the Baseline Year: SEE SPREAD SHEET

PAGE 1 (ATTACHED) & **TABLE 3 BELOW**

	Electricity		Natural Gas		Fuel Oil		Propane		Total MMBtu
	KWh	MMBtu	Therms	MMBtu	Gallons	MMBtu	Gallons	MMBtu	
Schools	920700	3148	12721	1272.4					4420
Town Hall	79132	270	5725	572.5					843
Waste Water Plant	276288	944.9			4700	653			1598
Water Filtration	53657	183.5					3618	329	513
Other Buildings	289311	989.4	3209	320.9	2629	365			1675
TOTAL for BUILDINGS	1619088	5536		2166		1018		329	8913
Vehicles in Aggregate									1981
Street and Traffic Lights in Aggregate	97728	334.2							334
TOTAL ENERGY CONSUMPTION	1716816	5870	21655	2165.8	6329	1018	3618	329	11228

In fiscal year 2008 Hatfield consumed 1,716,816 kilowatt-hours of electricity, 21,655 therms of natural gas, 6,329 gallons of fuel oil, 3,618 gallons of propane, 8,419 gallons of gasoline and 6,744 gallons of heating oil. This translates to **11,228 MMBTU of energy** consumed by Hatfield during that time period.

Identify Areas of Least Efficiency/Greatest Waste

1. The **Waste Treatment Plant** is Hatfield's least energy efficient building, and is venting most of its heat out the door. It pumps hot water 24/7 back and forth between the buildings whether there is demand for heat or not.
2. Highlighting an unmistakable waste of energy, **Memorial Town Hall** uses nearly the same amount of natural gas for heating as the Elementary School does – yet it is more than *five times smaller*. The Town Hall is 7,964 square feet, while the Elementary School, is 44,764 square feet. The large numbers and the multitude and complexity of problems make it the most significant and difficult energy-wasting problem for the Town of Hatfield. No substantial improvements have been made to the building since it was completed in 1930, other than replacing the boiler about 15 years ago. Large areas of the building are no longer used frequently, but cannot be isolated from occupied areas, exacerbating the inefficiencies.
3. The **Water Filtration Plant** north wall abuts the south side of the tank that stores the town's raw water at 42°F in the winter, making it very difficult to heat the 2,500 sq.ft. facility.
4. The **Hatfield Library**, while small, has the third worst energy consumption per sq. ft. use of all town buildings.
5. **Smith Academy**, built in 1980, uses 24% of all energy used by the Town of Hatfield. Both the electric and heating/cooling systems need to be addressed for energy conservation.
6. Because the **Hatfield Elementary School**, commissioned in 2003, was built to reasonable standards of energy efficiency at the time, major savings here are not likely, but two items need attention: lights are left on in unoccupied rooms, and HVAC energy-saving controls need to be updated and maintained.

Areas That Can Be Most Easily Addressed, with estimated savings:

1. **Water Filtration Plant:** Install insulation all along the north wall. Savings of **263 MMBtu**
2. **Elementary School:** Repair or install new occupancy sensors on light switches to turn off lights in vacant rooms. Savings of **120 MMBtu**. Issue RFP and award contract for open-source software for HVAC

controls, training, and technical assistance. Savings of **292 MMBtu**.

3. **Waste Treatment Plant:** Redesign the heating system so that it does not pump hot water back and forth when there is no demand for heat. Include three air-to-air heat exchangers for those rooms where there is mandated 100% air exchange. Savings of **593 MMBtu**. Install mechanical windmill or in-pipe hydro-generator to directly power air compressors using existing two 150-psi storage tanks. Savings of **182 MMBtu**.
4. **Insulating quilts on the windows.** These could be installed in any municipal building. They could be automatically drawn and retracted with timed motorized mechanisms. In schools students could learn to roll them away in the morning and put them back in place at the end of the day. After hours and vacation period heating savings of 20% is not unreasonable = a minimum of **72 MMBTUs** in Smith Academy, **54 MMBTUs** in HES, and **200 MMBTUs** in Town Hall.

Efficiency Measures Occurring or Begun Before Green Communities Designation and Included in Energy Reduction Achievements

1. **Vehicles:** Hatfield May 2010 Town Meeting appropriated funds to purchase to single axle dump trucks, a one ton dump truck, one school van, and a one ton utility truck. These vehicles will replace older less fuel-efficient vehicles. The Water Department purchased a 2-wheel drive, light duty pick-up this year to perform some activities such as meter reading. Savings of **125 MMBtu**
2. **Smith Academy:** Energy audits and discussions with energy service companies led to an extensive lighting replacement project in 2009. Savings of **120 MMBtu**
3. **Water Department:** A leak detection and repair program was substantially completed in 2009 and a water conservation program will be completed in 2010. These programs reduce the town's water usage, resulting in less energy used to pump, treat, and distribute drinking water. It also means less electricity to pump and treat wastewater at the Wastewater Facility. Savings of **246 MMBtu**
4. **Street Lights:** Although the street lights are owned by the utility, WMECo, and are therefore not eligible to be included as part of the town's energy reduction results, it was the Town of Hatfield's decision to eliminate over half of them. In April 2008, there were 244 streetlights on the account. The following June, per request of town officials, WMECo disconnected from service over 150 lights and a few more followed during the summer. Charges for these lights were removed from the town's account and today there are 93 streetlights on the town account. Approximately 25 streetlights were reconnected and transferred to residential customer accounts (a practice WMECo no longer allows). Today there are only 118 streetlights. Savings of **216 MMBtu**

IV. Summary of Energy Audits

Through a WMECo audit program begun in 2008, the Hatfield School Committee was able to replace most of the outdated lighting in Smith Academy. Working with Johnson Structural Engineering the Town Hall Renovation Committee provided audits and planning for the Town Hall. A audit of all the town buildings was conducted by Frank Motyka, recently retired Director of the Hatfield DPW, and David Mager, a professional alternative and conservation energy consultant who has graciously donated his services. Other energy savings identified in this plan result from the first-hand knowledge and expertise of Town of Hatfield employees and residents.

V. Energy Use Reduction – Getting to 20% (2245 MMBtu or more)

Prioritized List of Strategies to Reduce Energy

Hatfield will seek grants and town meeting funding to develop RFPs for engineering and related studies to implement projects to reduce overall energy usage. Smaller Projects will be done through bidding.

Program Management Plan for Implementation, Monitoring and Oversight

The majority of Hatfield Municipal facilities will have, by the completion of the energy reduction plan, an energy management system (EMS). These individual energy management systems will be used to verify the projected savings of the individual energy conservation measures and effectively commission the installed energy efficient equipment. The Town of Hatfield will require a performance guarantee in the contracts with the approved vendors, with a 6 month and 12 month performance review with the vendor that implements the energy conservation measure.

Building Energy Conservation Measures and General goals and prioritized list of specific projects

Rank	Hatfield Facility	Savings Type	Savings MMBTUs
1	Water Filtration Insulation	Heating	263
2	Wastewater Plant Air to Air Sys.	Heating	593
3	Smith Academy Solar/Thermal	Heating	363
4	Window Quilts in both schools	HVAC	126
5	Motion sensors in schools	HVAC, Electric	120
6	HVAC Control Upgrade HES	HVAC	292
7	Wastewater Plant Wind or Water Turbine Compressor	Electrical	182
8	Town Hall Renovations	HVAC, Electric	300
9	Sewer/Water Leak Correction	Electric	246
10	Smith Academy Light Replacement	Electrical	120
11	Replacement Town Vehicles	Diesel/Gas	125
TOTALS		Savings MMBTU	2,730
		Town Total MMBTU	11,228
	TARGET FY 2013	20% SAVINGS	2,245

Below are table breakouts for each project:

Water Filtration Plant

Energy Conservation Measure	Projected Annual Savings (MMBtus)	Source for Projected Savings
Insulate north wall of the water purification plant is on the south side of the tank which stores the town's raw water at 36°F. Because the heat is drawn into the water it is very difficult to heat the 2,500 sq ft facility as a result	263	Audit conducted by Consultant David Mager And former DPW Director Frank Moytko
TOTAL Projected Savings	263	

Waste Water Treatment Plant

Energy Conservation Measure	Projected Annual Savings (MMBtus)	Source for Projected Savings
Heating System Upgrade Air Heat Exchange	593	Audit conducted by Consultant David Mager And former DPW Director Frank Moytko
Mechanical wind or water turbine (connected to outflow of treated water with flow rate of 120,000 gallons per day) turbine to directly power air compressors	182	Audit conducted by Consultant David Mager And former DPW Director Frank Moytko
TOTAL Projected Savings	775	

Smith Academy

Energy Conservation Measure	Projected Annual Savings (MMBtus)	Source for Projected Savings
Restore the solar/thermal system by installing 100 solar glycol/water panels to work with the existing underground thermal storage facility to store heat in the winter.	363	<ul style="list-style-type: none"> • Tim Bowles original system installer. • Consultant David Mager <ul style="list-style-type: none"> • Thesis Study by John Krupczak, Jr.
Replace all lighting fixtures including the Gym	120	Electric Utility Audit and Grant
Manual or motorized (on timer) Insulated Quilts	72	Audit conducted by Consultant David Mager
Motion Sensors when rooms are vacant will control both lighting & HVAC	70	Audit conducted by Consultant David Mager
TOTAL Projected Savings	625	

Elementary School

Energy Conservation Measure	Projected Annual Savings (MMBtus)	Source for Projected Savings
Window Quilts Manual or motorized (on timer)	54	Audit conducted by Consultant David Mager
HVAC Controls - Replace current outdated malfunctioning system	292	Audit conducted by Consultant David Mager
TOTAL Projected Savings	346	

Town Hall Renovations

Energy Conservation Measure	Projected Annual Savings (MMBtus)	Source for Projected Savings
Window Quilts Manual or motorized (on timer)	90	Audit conducted by Consultant David Mager
Replace Windows - More than 2/3 of windows are older single pane	50	Renovation plans by Johnson Engineering
Both Walls and Ceilings need extensive insulation. Stage area acts like a chimney, sucking heat out of the building	100	Renovation plans by Johnson Engineering
Replace outdated fixtures	20	Renovation plans by Johnson Engineering
Replace 60 year old system with high efficient gas	40	Renovation plans by Johnson Engineering
TOTAL Projected Savings	300	

Sewer / Water Leak Correction

Energy Conservation Measure	Projected Annual Savings (MMBtus)	Source for Projected Savings
Separation of street drainage into the sewer system was substantially completed in 2009 and a Water Conservation Program will be completed in 2010	246	I&I Engineering Study conducted for DPW And former DPW Director Frank Moytka
TOTAL Projected Savings	246	

Replace Town Vehicles

Energy Conservation Measure	Projected Annual Savings (MMBtus)	Source for Projected Savings
Replace Older Vehicles - replace older, less fuel-efficient vehicles	125	Town Meeting and Fuel Efficient Vehicle Policy
TOTAL Projected Savings	125	

Estimated Capital and Operating Costs

Building	Projected Total Cost of all ECMs	Potential Utility Incentives (\$)	Net Cost	Annual \$\$ Saved	Years to Payback
Water Filtration Insulation	\$9,000	None	\$9,000	\$4046	2.22
Wastewater Plant Air to Air Sys.	\$39,000	Unknown	\$39,000*	\$10,615	3.67
Smith Academy Solar/Thermal	\$325,000	Unknown	\$325,000*	\$20,000	16.25
Window Quilts in both schools	\$42,000	Unknown	\$42,000*	\$12,257	3.47
Motion sensors in schools	\$26,400	Unknown	\$26,400*	\$9,240	2.86
HVAC Control Upgrade HES	\$36,000	Unknown	\$36,000*	\$12,106	2.97
Wastewater Plant Wind or water Turbine Compressor	\$55,000	Unknown	\$55,000*	\$5334	10.3
Town Hall Renovations	\$700,000	Unknown	\$700,000*	\$18,250	38.36
Sewer/Water Leak Correction	\$42,000	None	\$42,000	\$12,978	3.24
Smith Academy Light Replacement	\$12,000	\$12,000	\$0	\$6331	0
Replacement Town Vehicles	\$440,000	None	\$440,000	\$2689	164

*Hatfield will be seeking funding from grants, such as GCA, CTC, Utility programs/grants and other Energy and/or municipal sources for these projects.

Schedule for Implementation - Provide a timeline for implementation of ECMs

	Q1 2011	Q2 2011	Q3 2011	Q4 2011	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013
Water Filtration Insulation		x								
Wastewater Plant Air to Air Sys.			x							
Smith Academy Solar/Thermal							x			
Window Quilts in both schools				x						
Motion sensors in schools			x							
HVAC Control Upgrade HES			x							
Wastewater Plant Wind or water Turbine Compressor								x		
Town Hall Renovations										x
Sewer/Water Leak Correction	x									
Smith Academy Light Replacement	x									
Replacement Town Vehicles	x									

Vehicular Energy Conservation

Hatfield May 2010 Town Meeting voted to appropriate funds to purchase two single axle dump trucks, a one ton dump truck, one school van, and a one ton utility truck. These vehicles will replace older, less fuel-efficient vehicles, which are currently part of the town fleet. The Water Dept. purchased a 2-wheel drive, light duty pick-up this year to replace a 4-wheel drive truck to perform some activities such as meter reading. Savings of a minimum of **125 MMBTUs**

Measurement and Verification for Projected Reductions

Hatfield will track building energy consumption by using *MassEnergyInsight*, an excellent on-line software program provided free through the state Green Communities Division. Further training is needed by Hatfield Staff and Energy Committee Members to allow implementation of this tracking and monitoring method. New systems planned at both schools, Town Hall, and the Water Department facilities will include tracking and reporting components.

The Superintendent of Schools, or designee will be responsible for tracking the energy use at the schools and reporting to the Director of the Department

of Public Works. The DPW Director will be responsible for tracking all other energy data, for entering all data into the *MassEnergyInsight* software, and reporting quarterly to the Board of Selectmen and the Energy Committee, and annually to the Green Communities Division.

Summary of Long-Term Energy Reduction Goals – Beyond Five Years

The Energy Committee did not include in this current version of the reduction plan the more controversial proposals such as wood and corn heating, or eliminating two school bus trips each morning and afternoon. The combined total savings for these projects would have been **over 930 MMBTUs**. Below is a list of projects/issues to consider:

- 1) Hatfield has a list of trees needing to be cut down each year. In addition on Town owned land there many acres of timber that can be sustainable harvested, notably in the reservoir and adjacent parcels. 50 trees, slated for removal which the town owns, will produce a minimum of 84 cords (potentially much more) with a heating value of 2,000 MMBTU. Installing an automated stoking wood fired boiler as the primary to the existing heating plant at Town Hall will save 80% of the fossil fuel energy used for heating = **458 MMBTU/year**. The Hatfield Elementary School could be retrofitted in a similar manner for a similar savings of about **436 MMBTU/year**. Smaller buildings could be converted to use automated wood chip boilers, which would be the byproduct of the timber harvesting.

The overall **conversion to clean renewable wood heating** would by itself yield a minimum **20% fossil fuel energy reduction** with the goal of reducing fossil fuel energy use.

Wood fuel is 100% carbon neutral renewable energy. While using it to produce electricity wastes about 75% of the energy content as heat (and, as such, has a 25% energy efficiency), using wood to produce heat enjoys efficiencies of about 80-85%. New technology allows for clean burning such that places like Cooley Dickenson Hospital which have wings of patients with respiratory challenges, uses wood heat. In this agriculture community where many residents already use wood to heat their homes, none of the issues, which came up in the recent Greenfield debate on a wood-fired power plant, are mirrored in these proposed plans.

- 2) Another method of reducing fossil fuel use is **heating with shell corn**. This is more common in central and western states where there are very large corn crops grown, many of these have been genetically modified to harvest specifically for direct heating use. Hatfield farmers are growing corn for this purpose now because they can get twice the money than animal feed rate, and it is less expensive than wood pellet fuel with a comparable BTU value. The pluses are corn burns cleaner than wood and the ash is considered to be good fertilizer. Another plus is heating with corn is about 50% the cost of natural gas, and about 60% of oil (100 gallons of oil is equal to about 2000 lbs. of corn at 7 cents per pound).

And another plus is that it supports our farmers and the +3600 acres of tillable farmland. Automated corn heating systems that include silo storage are readily available at reasonable costs and can replace current heating systems, or easily hybrid with oil/gas systems. Such a system could be located at Town Hall, any school, or water/waste water plant.

The overall **conversion to clean renewable corn heating** would by itself yield a minimum **20% fossil fuel energy reduction** with the goal of reducing fossil fuel energy use.

- 3) The two Hatfield schools (the smallest system in the state) open and close thirty minutes apart in the morning and afternoon. This is to allow the **buses to make separate trips for younger and older children**. While this is a valid concern, the use of bus monitors (such as Eagle Scouts or Smith Community Service Students) would reduce the trips to once in the morning and once in the afternoon – a **50% energy reduction**. As it is these buses are running about half empty. This would not only help our environment with the reduction of carbon, it would save a minimum of **36 MMBTUs** of energy.

VI. Onsite Renewable Energy Projects & Rethinking Energy Use

In addition to those project ideas listed above, the Energy Committee has discussed looking at our elementary school roof for future solar PV as it is facing south and has extensive unencumbered sun exposure.

Incandescent Light Bulb Trade-In Project. This proposal involves both municipal and townspeople users, and would be coordinated with the help of local scouting groups. On the town side scouts would research each town owned building to inventory where out-dated lighting exists, and submit the list to the Energy Committee (EC). For the public portion the goal would be to offer all 1100 households up to five 13 watt CFL bulbs, equal to 60 watts, for each incandescent bulb that is traded in. The EC would seek volunteer Scout assistance for trade-in weekends to be held at the town's transfer station.

What makes this project unique is not only that the town gets more households using CFL bulbs, *but that we also remove high energy wasting incandescent bulbs from the grid*. Not to mention CFL bulbs last eight times longer, further reducing landfill demand. For the public sector that translates to a 77% reduction in lighting energy, that is a **estimated savings of 1608 MMBTU/year** based on 5 hour use per bulb per day.

Additional Energy Planning:

Shift some **Wastewater Treatment Operations to non-peak hours**. (Does not save energy – just money and demand)

VII. Conclusion

Over the past several years The Town of Hatfield has invested significant time and resources understanding how we use energy and identifying ways to

reduce our energy use. These efforts have put us in a good position to apply for Massachusetts Green Community status in October 2010. In particular, the detailed energy audits of our facilities provided us with a strong base for our energy reduction plan. The town of Hatfield was a leader in innovation in the 1980's significantly reducing our carbon fuel use. We will apply that same pioneering effort towards our achieving Green Community goals.

The Town of Hatfield understands how it uses energy and has completed a thorough baseline study of its energy use. In addition, the Town of Hatfield has developed a comprehensive and detailed plan to reduce its energy use by over 24% over the timeline of this Energy Plan. Ninety-five percent of the overall savings will be achieved by implementing energy savings measures at the 11 municipal facilities (including schools).

Hatfield intends in the near future to better track building energy consumption by using the DOER on-line software program. Further training would be needed by Energy Committee Members and Hatfield staff to allow implementation of this tracking method. Tracking energy consumption will allow Hatfield to target buildings and operations where energy use can be reduced.

Hatfield will continually develop strategies to reduce consumption, incorporate renewable energy sources, and secure grants to fund these endeavors.

Also we see several ideas our town could consider adopting that are working successfully in other communities, such as:

- Hiring of a Town Engineer/facilities coordinator (staff or outside vendor). This position will continue the work already started and manage the implementation and monitoring of the energy reduction plan. Additionally, the facilities coordinator will continue to develop the Capital Asset Management Plan (CAMP) and work towards gaining Energy Star and LEED certification for municipal buildings.
- The town has adopted the stretch energy code, and the town is committed to life cycle cost analysis for the purchase of new equipment and renovation/new building projects. We expect that that this will continue to limit energy-use growth beyond five years.
- The town is investigating the implementation of a "Renewable Energy Revolving Fund and Betterment Program". This would allow the town to offer loan programs to property owners for renewable energy improvements, and provide a legal mechanism to set up a revolving fund for this purpose.
- As the town realizes savings from the current energy savings measures outlined in this document, it is expected that we will be able to set aside some portion of these savings to fund future energy conservation measures, making energy savings "self-funding" and self-perpetuating.

List of Resources

<http://www.massenergyinsight.net/>

www.townofhatfield.org

Contacts

Jeff Ritter, Town Administrator
Townadministrator@townofhatfield.org

Christopher Smith, Chair
Hatfield Energy Committee
cvegs@comcast.net

Dedication

*The Energy Committee wishes to dedicate this
Energy Plan for Hatfield to
Terry Blunt.*

*Although he was known nationally for his work as a
Environmentalism and Conservationist, he was
committed to the work of our committee.
Terry for his part left this world
a better place.*

[illegible]



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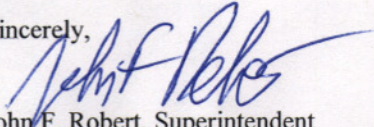
October 14, 2010

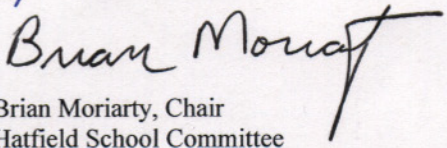
Christopher Smith, Chair
Hatfield Energy Committee

Dear Mr. Smith:

I am pleased to inform you that on October 13, 2010, The Hatfield School Committee voted unanimously to adopt both the Fuel Efficient Vehicles Policy and the Energy Use and Reduction Plan for the Town of Hatfield. On behalf of the School Committee, I want to thank the Energy Committee members for all the hard work they have put into the plan and I wish the Committee luck as it moves forward with the process.

Sincerely,


John F. Robert, Superintendent
Hatfield Public Schools


Brian Moriarty, Chair
Hatfield School Committee

CC: Marcus Boyle, Chair
Hatfield Board of Selectmen



(413) 247-9200
(413) 247-9211

TOWN OF HATFIELD MASSACHUSETTS

MEMORIAL TOWN HALL
59 Main Street
Hatfield, MA 01038

BOARD OF SELECTMEN

Christopher Smith, Chair
Hatfield Energy Committee

October 14, 2010

Dear Christopher:

The Board of Selectmen, in public session yesterday morning, voted to adopt the Energy Use and Reduction Plan for the Town of Hatfield, and also certified the previous adoption of the Fuel Efficient Vehicles Policy. Minutes of the meeting are on file with the secretary. If I can be of further assistance, please do not hesitate to ask.

For the Board of Selectmen
Sincerely Yours,

Jeffrey Ritter
Town Administrator