

CHAPTER 7: ENERGY & CLIMATE PROTECTION

OVERVIEW

One of the biggest expenditures in a Town budget is energy use – for heat and electricity for municipal buildings, as well as the cost to power municipal vehicles, such as snow plows and school buses. This is especially true for communities in Massachusetts, as the Commonwealth has some of the highest energy prices in the United States.

The production of electricity and the burning of fossil fuels produce CO₂ and other greenhouse gases that have been linked to global climate change. In addition, research around the world suggests that the extraction of oil has peaked, meaning the world's population has used up more than 50% of the available oil and related fuel sources, such as natural gas. Reducing greenhouse gas (GHG) emissions and fossil fuel dependency is vital to a more sustainable community.

Due to the increasing costs of fossil fuel-based energy and its link to greenhouse gas emissions, the Town of Granby is committed to reducing municipal energy use and facilitating a transition from fossil fuel-based energy to clean, safe, sustainable, renewable energy sources. While the municipality's focus is on municipal energy use, the Town is committed to educating and encouraging residents and commercial/industrial property owners to use less energy and to transition to clean, safe, sustainable energy sources.

As Granby looks for ways to save money and reduce risk by using less energy and transitioning to a clean, safe, sustainable energy future, residents throughout the master planning process voiced support of the town adopting policies that reduce GHG emissions through energy conservation and decreased car use. In the community survey, 76 percent of survey respondents support town investment in wind energy, 81 percent support investment in solar energy, and 62 percent support hydropower. There was even higher support for private investment in clean energy generation: 83 percent for wind, 86 percent for solar, and 72 percent for hydropower.

The community has already taken the first step by endorsing the Pioneer Valley Clean Energy Plan Memorandum of Agreement in 2008. By signing this agreement, the town has indicated its willingness to consider acting on the recommendations of the plan, such as:

- conducting energy audits on municipal buildings—and implementing recommended actions to reduce energy use;
- considering hosting a clean energy generating facility—such as a wind turbine or large solar photovoltaic installation;
- entering into a performance contract with an energy service company (ESCO) to implement energy and cost-saving measures in all municipal buildings and paying for the measures over time;
- adopting bylaws or ordinances to give incentives to encourage green buildings, energy efficiency, renewable energy production; and
- establishing an energy committee.

As noted above, Granby engaged Siemens, an energy services company, to conduct a preliminary energy audit to determine if the Town has opportunities to make energy improvements in existing municipal buildings. Results of the preliminary energy audit demonstrated that sufficient savings could not be realized and, therefore, an Investment Grade Audit (IGA), which would have been the second phase of the process, has been put on hold.

EXISTING CONDITIONS

Paying for energy is a significant expense for the town. Table 1 shows the cost of electricity to the community between May 2007 and May 2008. Not only does energy cost a lot, but the price varies dramatically, thereby exposing the town to risk. It is hard to budget for this service if the community does not know how much energy will cost in the future. In addition to cost and risk, the production of energy from fossil fuels produces greenhouse gas emissions, which have been linked to global climate change.

Climate change is causing an increase in severe weather events, which in Granby translates to risk of flooding and snow emergencies. These natural events can cause damage to the town's infrastructure and can threaten individual safety as well as causing property damage. In the long-term, climate change will affect New England's economic stability—it is already threatening major regional businesses such as skiing and maple sugaring.

**Table 1: Town of Granby, Energy Used in Municipal Buildings
May 2007-May 2008**

Main supplier is National Grid

** notes those facilities that use the Hampshire COG as the supplier*

Facility	Energy (kWh)	Demand (KW)	Delivery Charge	Supplier Charge	Total
West Street School Building	158,480	639.2	\$7,304.47	\$1,214.48	\$8,518.95
West Street -- Lights 1	271	0.0	\$123.97	\$0.00	\$123.97
West Street -- Lights 2*	46	0.0	\$116.72	\$5.01	\$121.73
East Meadow Middle School	149,920	704.0	\$7,559.04	\$0.00	\$7,559.04
Junior-Senior High School	461,520	1928.4	\$21,347.02	\$0.00	\$21,347.02
Junior-Senior High School -- Lights 1*	129	0.0	\$121.51	\$13.70	\$135.21
Junior Senior High School -- Lights 2*	77	0.0	\$118.55	\$8.19	\$126.74
Town Hall	19,275	0.0	\$1,226.92	\$2,166.36	\$3,393.28
Aldrich Hall *	13,493	0.0	\$893.73	\$1,502.53	\$2,396.26
Police Station *	65,761	0.0	\$3,922.12	\$7,521.61	\$11,443.73
Fire Department *	55,727	211.0	\$2,613.50	\$6,382.35	\$8,995.85
Highway Building	37,041	0.0	\$2,258.93	\$3,915.94	\$6,174.87
Library Building*	10,534	0.0	\$717.13	\$1,220.58	\$1,937.71
Library -- Street Lights	1,275	0.0	\$87.69	\$144.94	\$232.63
TOTAL	973,549	3482.6	\$48,411.30	\$24,095.69	\$72,506.99

Clean, safe, sustainable renewable energy, such as solar photovoltaics, solar hot water and wind energy have known investment costs. Once the facilities are constructed, the energy is free, except for the ongoing maintenance costs for the equipment and staff. At this time, Granby buys all of its energy needs through National Grid and Hampshire Council of Governments. All the town's energy comes from the burning of fossil fuels. The town is currently considering a comprehensive program to reduce energy use in all municipal buildings while at the same time investigating opportunities for renewable energy installations in town.

In late 2010, Granby began looking into the possibility of becoming a green community through a program that was promoted by the Massachusetts Department of Energy Resources. A Green Community designation requires a town to meet five specific clean energy requirements which, in turn, help to gradually reduce the municipal and residential carbon footprint in that town. Utilizing funds raised through auctions for carbon emissions permits under the regional greenhouse gas initiative, the MA Department of Energy Resources provides financial rewards to green communities for renewable energy-specific projects. Granby Town Meeting in May 2011 adopted the proposed Zoning Bylaw changes to reflect the five green community requirements. In July, Granby

has been designated as a Green Community by the Commonwealth of Massachusetts. For its first green community grant, Granby received over \$144,000 to fund a solar hot water system for the police and fire complex; a roof mounted 10 kW solar PV system for the new library; consulting services for assessment of energy audits; and funds toward implementation of energy conservation measures for the junior and senior high school and elementary school identified by audits.

In July 2011, the Granby Selectboard created an Energy Committee and tasked them with bringing forth recommendations to help promote sustainable energy resources and reduce our carbon footprint. Such recommendations are expected reduce energy waste and lead to cost savings.

In May 2012, the Town Meeting approved another Zoning Bylaw change proposed by the Planning Board to include a section that permits and regulates Large-Scale Ground Mounted Solar Photovoltaic Installations in the town of Granby. These installations could help bring down energy costs for the town, government and residents alike, as well as being a source of business revenues sought out by the town.

Federal Programs

In 2008 Congress created the federal Energy Efficiency and Conservation Block Grant (EECBG) program. Modeled after the very successful and well-accepted Community Development Block Grant (CDBG) program, the program is designed to assist municipalities to reduce energy use and enhance energy efficiency in municipal enterprises. While the program was created by Congress in 2008, it was not funded until 2009 with the change in Presidential administrations. In 2009, the Massachusetts Department of Energy Resources, DOER, administered the program on behalf of Massachusetts municipalities with populations under 35,000. Granby did not apply for any funds, but if there are future rounds of funding, the town might want to consider applying. In addition to the EECBG program, there are numerous federal programs and incentives that are constantly changing and expanding. For most recent information, please go to the Massachusetts page of the data base for state incentives and renewable energy: <http://www.dsireusa.org/incentives/>

Massachusetts Green Communities Act

In 2008, the Massachusetts Legislature created the Green Communities Act. The Act has many provisions, most of which pertain to utilities, but it also created the

Green Communities program for municipalities. The Massachusetts DOER has interpreted the legislation and created a Green Communities certification program. Massachusetts municipalities which receive the Green Communities designation will be eligible to apply for a portion of the estimated \$10 million dollars annually set aside for municipal projects to enhance energy efficiency and generate clean energy. To be certified as a Green Community a municipality must meet all 5 Green Communities criteria:

- 1) Adopt by right approval of proposed developments for clean energy generation, clean energy manufacturing OR clean energy research and development;
- 2) Assure expedited permitting (defined as no more than 365 days) of the by right use defined in criteria #1;
- 3) Inventory all municipal energy use in buildings, street lights and vehicles, and implement a plan to reduce that use by 20% over 5 years;
- 4) Adopt a municipal policy to purchase only fuel efficient vehicles (police vehicles and certain DPW vehicles are exempt);
- 5) Adopt a regulatory code that considers the life cycle costs of all residential construction over 3000 square feet. The MA DOER has interpreted this to mean that all municipalities striving for Green Communities certification should adopt the Stretch Code, an optional amendment to the Massachusetts Building code that if adopted would make all construction approximately 30% more energy efficient than building to the base code.

Stretch Code

The stretch code is an amendment to Massachusetts building code being adopted by individual municipalities across the Commonwealth. To date the cities of Cambridge and Newton have adopted the stretch code. The stretch code will likely become a mandatory element of Massachusetts building code in the future. If a town or city adopts the stretch code now, as well as meeting the other four criteria of the Massachusetts Green Communities designation, the municipality becomes eligible to apply for a portion of \$10 million annually set aside for grants to municipalities to implement energy efficiencies and to advance clean energy projects. Details on the stretch code are available at www.mass.gov/energy/greencommunities.

Governor's programs and investment

Governor Deval Patrick has elevated the status of energy efficiency and clean energy generation by creating the Department of Energy Resources and re-naming the Executive Office of Environmental Affairs as the Executive Office of Energy and Environmental Affairs. The Governor and the Massachusetts

Legislature also created the Clean Energy Center as the Commonwealth's new home for state clean energy and energy efficiency programs. New programs are announced regularly via the Center's website. Details are available at www.masscec.com

International Council for Local Environmental Initiatives (ICLEI)

The International Council for Local Environmental Initiatives or ICLEI - Local Governments for Sustainability is an international association of local governments as well as national and regional local government organizations that have made a commitment to sustainable development. ICLEI provides technical consulting, training, and information services to build capacity, share knowledge, and support local government in the implementation of sustainable development at the local level.

At this time, Granby is not a member of ICLEI. By joining ICLEI, at an annual cost of \$600, Granby could take advantage of ICLEI's many resources to undertake their five-step process to reduce greenhouse gas emissions. The five step process includes: 1) the commitment to act, 2) a comprehensive inventory of greenhouse gas emissions, 3) development of a plan to reduce emissions, 4) implementation of the plan, and 5) monitoring and revising the plan over time.

Transportation

In the United States, transportation accounts for approximately 30 percent of greenhouse gas emissions (GHG). Granby residents are willing to use alternative forms of transportation, such as mass transit, biking and walking, to reduce their personal GHG emissions. Community survey results showed that 6 percent of respondents currently use the PVRTA bus system, but 22 percent said they would be likely to use public transportation if routes were expanded. In addition, the survey results showed that there was support for expanded sidewalk system and established bicycle lanes. If Granby does join ICLEI-Local Governments for Sustainability – and undertake their 5-step process to reduce greenhouse gas emissions, then the community's support for alternative modes of transportation bodes well for Granby's ability to reduce their GHG emissions over time. Reducing green house gas emissions and reducing fossil fuel dependency is vital to a more sustainable town.

Waste

In Granby, the Town does not manage its own landfill, but rather contracts with Waste Management. During the master plan Charrette, staff from Waste Management indicated their support for increased recycling in the community

along with their interest in siting solar photovoltaics on the landfill once it is capped. This plan recommends the town appoint an energy committee that could work with Waste Management to document the recycling rate in town as part of an inventory of greenhouse gas emissions (GHG) generated from processing waste and also research the feasibility of solar PV on the landfill.

During the facilitated conversation on the landfill with DEP representative Dan Hall, participants raised the goal of zero waste. This is a visionary goal some communities (*Los Angeles, CA, Boulder, CO*) are starting to adopt. Future Granby Solid Waste Landfill contract negotiation process could provide possible sustainable business development opportunities, such as zero waste, for the community.

Granby Recycling Committee

The Granby Recycling committee is committed to doing all it can to increase residents' recycling behaviors. Funding for such efforts may be available from the Massachusetts Department of Environmental Protection—details available at <http://www.mass.gov/dep/recycle/>.

Potential for Local Renewable Energy Generation

As one of the recommendations of the PVPC Clean Energy Plan, the town should consider locations and feasibility of local clean energy generation that can be used locally. There are several locations that have been identified by Master Plan Committee members as possible locations for clean energy generation that should be further investigated by the town. One proposal is establishing small-scale hydropower at Aldrich Lake and Forge Pond. The town has opportunities for solar farms at various locations in town, such as the landfill. The town also has the possibility of installing solar panels at any school building that will be refurbished or built in the next ten years.

Green Building

In the Granby Community Survey, 91 percent of respondents support the requirement of LEED (Leadership in Energy and Environmental Design) standards for new development. LEED is a green building rating system developed by the U.S. Green Building Council that provides standards for environmentally sustainable construction. The advantage of building to LEED standard is a more efficient use of resources, healthier work and living environments, and reduced environmental impacts. These standards can be applied to both new buildings, and renovated buildings. Many communities across the country are adopting green building codes that require LEED or other

green building standards for both new buildings and for existing buildings undergoing major renovations (*e.g., Albuquerque, NM*). If the proposed new school building project is approved, this will provide a great opportunity for Granby to reuse existing structures in creative and innovative ways. Granby is using LEED standards for municipal buildings.

Because Massachusetts has taken the lead in green building by creating the stretch code, as an optional amendment to state building code, Granby could achieve significant advances in green building through the stretch code.

OPPORTUNITIES AND CHALLENGES

Energy conservation and production of clean, renewable technologies is a priority for the current federal and state governments, and as a result has prompted a wealth of state funding and programs to promote clean energy. As stated throughout the master planning process, Granby is committed to promoting energy efficiency and renewable technologies to become a more sustainable community. Now is the time for Granby to move forward on this agenda, and take advantage of the federal and state funding programs and incentives while they are available.

GOALS AND STRATEGIES

Goal 1: Implement municipal actions as listed in the PVPC Clean Energy Plan, and endorsed by the Town of Granby.

Strategy 1: Establish an Energy Committee

An Energy Committee would be responsible for conducting a GHG inventory, and implementing local actions to reduce emission levels.

Action Steps

Responsible Party: Select Board, Town Administrator

Resources Needed: Volunteers

Target Date for Completion: December 2010 [Completed]

Strategy 2: Become a member of ICLEI – Local Governments for Sustainability.

The town of Granby could join ICLEI at an annual cost of \$600. Membership in this organization would provide the town with access to tools and software to help the community reduce its GHG emissions and become a more sustainable community.

Action Steps

Responsible Party: Select Board, Town Administrator, Energy Committee (when formed)

Resources Needed: \$600 annually

Target Date for Completion: December 2015

Strategy 3: Conduct a comprehensive energy audit of all municipal buildings and systematically implement the recommendations of the audit as time and funding permit.

This could be accomplished through a performance contract with an Energy Service Company (ESCO) at no upfront cost to Granby funded via savings accrued by implementing energy efficiency measures

Action Steps

Responsible Party: Town Administrator, Select Board, Energy Committee

Resources Needed: Town funds for the IGA, if and when that level of audit is needed. Following the IGA, if the town decides to contract with Siemens for the proposed energy efficiency and possible clean energy projects then financing needs to be secured to pay for the improvements. (The improvements will actually be paid for out of the energy savings accrued via the improvements—so there is no up front cost to the town.)

Target Date for Completion: December 2010 to proceed with Siemens. The improvements complete by the end of 2011, and the financing period estimated to be 10-15 years depending on the scope of the projects.

Goal 2: Market, publicize and increase Granby recycling and reuse programs working toward a “zero waste” goal.

Strategy 1: Support and market the programs and policies of the already established Granby Recycling Committee.

Action Steps

Responsible Party: Granby Recycling Committee

Resources Needed: Secure funds from the DEP to supplement town funds, volunteer time [\$10,000 start-up grant received]

Target Date for Completion: 2011 [completed]

Strategy 2: Conduct a public information and education campaign in collaboration with DEP, to encourage residents to eliminate use of one-time bottles and bags.

Action Steps

Responsible Party: Waste Management, Recycling Committee, Energy Committee, Town Administrator, Select Board

Resources Needed: Financing through DEP grant

Target Date for Completion: 2014

Strategy 3: Encourage residential composting through public education and user friendly town compost facility.

In FY10, the town is committed to participating in a regional project to develop a business plan for a regional organics facility funded by Massachusetts District Local Technical Assistance funds and staffed by the PVPC.

Action Steps

Responsible Party: Town Administrator, Select Board,
Agricultural Commission

Resources Needed: Volunteers

Target Date for Completion: 2013

Goal 3: Purchase or determine a location for the generation of clean energy.

Strategy 1: Develop a marketing campaign for Granby designed to retain and attract clean energy businesses.

Action Steps

Responsible Party: Energy Committee (once formed), Town Administrator, Select Board

Resources Needed: Green Communities grant (if the town achieved Green Communities designation)

Target Date for Completion: 2011

Strategy 2: Work with Waste Management to assure post closure of the landfill can generate clean renewable energy, such as solar panels and expansion of the methane gas to energy.

Strive to share profits of sale of clean energy between Waste Management and the Town.

Action Steps

Responsible Party: Town Administrator, Select Board

Resources Needed: Staff, volunteer time

Target Date for Completion: 2012

Strategy 3: Work to meet the Green Communities Designation which requires the town to identify by right locations for either clean energy generation or clean energy manufacturing or research and development.

Action Steps

Responsible Party: Town Administrator, Select Board, Building Inspector, Planning Board

Resources Needed: Staff and volunteer time

Target Date for Completion: 2011 [completed]

Goal 4: Adopt bylaws or policies to encourage green buildings, energy efficiency, and renewable energy production;

Strategy 1: Adopt the stretch code or consider other local green building regulations, such as Leadership in Energy and Environmental Design (LEED) certification, for all new municipal construction and significant renovations. [Stretch code adopted and the town looking for LEED certification on new municipal building]

Action Steps

Responsible Party: Town Administrator, Building Inspector, Planning Board

Resources Needed: Staff and volunteer time

Target Date for Completion: 2011 [completed]

Strategy 2: Assure training for Building Inspector, Planning Board, and Board of Health on the Stretch Code.

This training is being offered free of charge to all municipal building inspectors—see www.cetonline.org for a schedule of training opportunities, other town committee and board members can register for a nominal fee.

Action Steps

Responsible Party: Building Inspector, Planning Board, Board of Health

Resources Needed: Staff and volunteer time

Target Date for Completion: 2010

Strategy 3: Encourage the reuse and rehabilitation of existing town buildings, wherever possible.

Action Steps

Responsible Party: Planning Board

Resources Needed: Volunteer time

Target Date for Completion: Ongoing