	Granby Green Communities Action Plan Summary ***How Granby will qualify for Massachusetts "Green Communities designation" www.mass.gov/energy/greencommunities, thereby making the town eligible to apply for a portion of Green Communities funding available to make the municipality even "greener"*** *Applications for Green Communities **designation** are being accepted _____ and **must be in by** _____ to be eligible to apply for this years' funding.* *Applications for **funding** will be accepted **starting** _____ and **must be in by** _____.* ***Award announcements will be made on** _____*
Community Contacts	www.granbyma.org Lead: Chris Martin, Town Administrator, chrism@granbyma.org , 413/467-7177 Emre Evren, Chair-Planning Board c/o Cathy Leonard Town Administrator's Secretary, 467-7177 eevren@evrenglobal.com Don Demers, Inspector of Buildings and Zoning Enforcement Officer, dond@granbyma.org 467-7179

CRITERIA	To Do – Who, What/How, When
1 - As-of-Right Siting	The town proposes to pursue as of right siting for clean energy related research and development or manufacturing in the existing Industrial Zone.
Responsible Party	Emre Evren
Accomplished to date	Analysis of current zoning shows no R&D or manufacturing currently allowed by right in Granby's Industrial zone. Guidance to achieve criteria #1 available at: http://www.mass.gov/Eoeea/docs/doer/green_communities/grant_program/11-09_rd_renewables_guidance.pdf Sample letter from General Counsel stating conformity in Criteria # 1 chapter of this plan
Specific tasks to be completed to meet criteria	1. Affirm intent to meet criteria through zoning amendment to allow by right (with special permit if so desired) R&D and/or manufacturing in Granby's Industrial district. 2. Discuss with Planning Board and BOS 3. Plan and implement ongoing public education program to assure resident understanding and support for proposed change. 4. Schedule required public hearing on proposed zoning change 5. Place warrant article for proposed zoning change on Town Meeting schedule 6. Ongoing education and outreach as necessary prior to Town Meeting vote. 7. Vote at Town Meeting
Date to be Completed	**By Town Meeting vote, 5/9/11**

2 - Expedited Permit Process	
Responsible Party	Chris Martin with assistance from Emre Evren as needed
Accomplished to date	Sample letter from General Counsel in Criteria #2 chapter of this plan.
Specific tasks to be completed to meet criteria	To meet this criterion municipalities need to have rules and regulations in place governing permit issuance such that all local permitting decisions - formal determinations, orders of conditions, licenses, certificates, authorizations, registrations, plan approvals, or other approvals or determinations with respect to the use, development or redevelopment of land, buildings, or structures required by any issuing authority – applicable to the siting and construction of clean energy facilities within the relevant zoning district(s) can be issued within 1 year of submission of a completed application. In regard to documentation, municipalities will have already demonstrated that they have by-right zoning allowing clean energy facilities (criterion #1). Thus, communities need to show that other provisions of the zoning (e.g. site plan review), as well as other local regulations, allow permitting within one year. In order to document compliance with the Green Communities expedited permitting criterion (criterion #2) municipalities must provide DOER a letter from legal counsel affirming that nothing within the municipality's rules and regulations precludes issuance of a permitting decision within one year along with the language addressing approval procedures and associated timing from any applicable bylaws/ordinances or regulations. Secure letter from legal counsel. Submit to DOER for review and approval.
Date to be Completed	**3/1/11**

3 - Baseline Energy Use	
Responsible Party	Chris Martin
Accomplished to date	Working with Siemens to enter into a performance contract to reduce municipal energy use. In process of Preliminary Energy Audit (PEA).
Specific tasks to be completed to meet criteria	• Register for MEI training to secure account access. • Authorize PVPC to have access using authorization letter in Criteria #3 chapter of this plan. • Provide data to Siemens as requested and receive final PEA. • Using MEI generate baseline energy report.
Date to be Completed	**April 1, 2011**
20% Reduction Plan	

Responsible Party	Chris Martin
Accomplished to date	• Working with Siemens on PEA • Have 20% reduction plan template in Criteria #3 chapter of this plan.
Specific tasks to be completed to meet criteria	Proceed from PEA to Investment Grade Audit (IGA). Provide Siemens information necessary to complete IGA. Receive final IGA from Siemens. Develop into 20% reduction plan with additional actins as appropriate.
Date to be Completed	**May 9, 2011—or at a minimum 2 days before certification deadline.**

4 - FEV Purchasing Policy	**Needs action with BOS and School Committee**
Responsible Party	Chris Martin
Accomplished to date	Have draft policy included in Criteria #4 chapter of this plan, and also have copy of approved policy from Belchertown.
Specific tasks to be completed to meet criteria	• Use Belchertown template and draft policy to prepare a policy for review by BOS and School Committee • Present draft to BOS and School Committee for review and comment. • Revise as needed. • Bring to BOS and School committee for formal adoption. • Submit to DOER for approval.
Date to be Completed	
5 - Stretch Code	
Responsible Party	Don Demers, Inspector of Buildings with assistance from Planning Board and Town Administrator as necessary
Accomplished to date	Have educational/outreach materials on stretch code included in Criteria #5 chapter of this plan.
Specific tasks to be completed to meet criteria	• Meet with Building Commissioner to affirm action plan • Schedule informal public presentation(s) to answer local builders/property owners concerns • Ongoing informal education/outreach to builders and other interested persons • Hold required public hearing • Schedule vote at Town Meeting *See Attachment—Stretch Code FAQ and educational Power Point*
Date to be Completed	**May 9, 2011**

Updated 10-04-10

GREEN COMMUNITIES GRANT PROGRAM

Criteria 1
As-of-Right Siting via R&D /Manufacturing

DOER
Massachusetts Department of Energy Resources

Guidance - Complying with the Green Communities Act through the as-of-right siting of renewable or alternative energy research and development or manufacturing facilities

This Guidance was prepared by the Department of Energy Resources (DOER) to assist cities and towns in enacting zoning that satisfies a requirement of the Green Communities Program by facilitating development of renewable or alternative energy research and development facilities or renewable or alternative energy manufacturing facilities.

The Green Communities Act requires compliance with five criteria to qualify as a green community (*see Section 22 of the Green Communities Act, codified at M.G.L. ch. 25A § 10(c)*). This document assists communities in understanding and meeting the underlined alternatives for complying with criterion one (#1):

> *To qualify as a green community, a municipality or other local governmental body shall: . . . (2) provide for the as-of-right siting of renewable or alternative energy generating facilities, renewable or alternative energy research and development facilities, or renewable or alternative energy manufacturing facilities in designated locations . . .*

As stated, municipalities or local government bodies seeking to qualify as green communities may satisfy the as-of-right criterion one (#1) by providing for as-of-right siting of renewable or alternative energy research and development (R&D) facilities or as-of-right siting for renewable or alternative energy manufacturing facilities. This document provides communities with guidance on the standards against which their zoning will be evaluated, and how to document compliance with these standards.

It is important to recognize that municipalities may permit uses that satisfy criterion one (#1) under a variety of names and in a multitude of different types of districts. For example, industrial, light industrial, commercial, and mixed-use districts often allow R&D and manufacturing facilities. Key questions in regard to qualification as a green community are whether:

1. Development is permitted **as of right**;
2. Construction of a qualifying "renewable or alternative energy" R&D or manufacturing facility is **allowed** in the zoning district; AND
3. If additional development is **feasible** in the zoning district.

Question #1: Does the bylaw or ordinance permit development as-of-right?
First, to qualify as a green community under this provision, a bylaw/ordinance must permit a qualifying facility as-of-right. This type of zoning, otherwise commonly known as "by right," allows a landowner/developer to build the pertinent facility without the need for a special permit or any other type of discretionary permit. DOER will utilize the following definition when evaluating zoning for compliance:

> **As-of-Right Siting:** As-of-Right siting shall mean that development may proceed without the need for a special permit, variance, amendment, waiver, or other discretionary approval. As-of-right development

may be subject to non-discretionary site plan review to determine conformance with local zoning bylaws as well as state and federal law. As-of-right development projects that are consistent with zoning bylaws and with state and federal law cannot be prohibited.

Question #2: Does the bylaw or ordinance clearly allow the construction of facilities that will engage in "renewable or alternative energy" R&D or manufacturing?

To qualify a municipality's zoning must specify as an allowed use construction of one of the following facilities:

Research and Development Facilities are those used primarily for research, development and/or testing of innovative information, concepts, methods, processes, materials, or products. This can include the design, development, and testing of biological, chemical, electrical, magnetic, mechanical, and/or optical components in advance of product manufacturing. The accessory development, fabrication, and light manufacturing of prototypes, or specialized machinery and devices integral to research or testing may be associated with these uses.

Manufacturing Facilities are those used primarily for heavy or light industry or the manufacture or assembly of a product including processing, blending, fabrication, assembly, treatment and packaging

Additionally, in order to qualify, the as-of-right zoning for R&D or manufacturing must clearly allow renewable or alternative energy activities defined as follows:

Renewable Energy:

- Solar - photovoltaic (PV) and thermal
- Wind
- Biomass power conversion or thermal technologies, including R&D related to, or the manufacture of, wood pellets
- ultra low emissions high efficiency wood pellet boilers and furnaces
- Low Impact Hydro - electric and kinetic
- Ocean thermal, wave or tidal
- Geothermal
- Landfill Gas
- Fuels Cells that use Renewable Energy
- Advanced biofuels

Alternative Energy:

- Combined Heat and Power
- Electric and hydrogen powered vehicles and associated technologies including advanced batteries and recharging stations

Note: Municipalities seeking credit for zoning that authorizes R&D or manufacturing associated with other clean energy technologies or fuels should consult DOER.

Question #3: Does local zoning provide a realistic opportunity to locate renewable or alternative energy R&D or manufacturing facilities?

Finally, in order to satisfy criterion one (#1), an applicant must show one of the following:

1) that land is available for the construction of a facility or facilities of 50,000 square feet or larger in the aggregate; or
2) that there is enough available vacant space in existing buildings to provide for a facility or facilities of 50,000 square feet or larger in the aggregate, with a minimum of 5,000 square feet per unit; or
3) that a combination of available land for new construction and existing available vacant space in existing buildings can accommodate a facility or facilities of 50,000 square feet or larger in the aggregate.

Zoning districts with previously developed but vacant or underutilized structures or sites are preferred over those that would site clean energy facilities on land that is currently wooded, actively farmed, or otherwise undeveloped. Basic yield calculations accounting for height, floor area ratio, setback, parking, and other limits on building size will suffice as documentation that of available land for new construction purposes. For available vacant space, the individual units must be identified with addresses and the associated square footage, a single unit must be at least 5,000 sq feet, and an explanation of how it was determined the space is currently vacant must be provided.

Documentation: How to demonstrate that the municipality's zoning qualifies

Applicants must provide a letter from municipal counsel certifying that the above questions can be answered in the affirmative. In terms of specific contents:

The letter must cite and summarize the pertinent section of the zoning ordinance/bylaw;

- Applicants must include copies of:
  - The applicable section of their zoning bylaw/ordinance,
  - Important zoning definitions,
  - The relevant section of the use table and any key that will help DOER interpret the use table,
  - Any related local regulations applicable to facilities sited under the bylaw/ordinance—such as site plan review regulations—so that DOER can confirm that the related local regulations are non-discretionary; AND
- Yield calculations must be either included in the text of the letter or attached.
- Any documentation supporting the existence of available vacant space must be in the text of the letter or attached.

Sample Letter:

The town's light industrial district, section 4.3 of the zoning bylaw, allows the by-right construction of manufacturing facilities that meet the definitions provided. The text of this section, relevant portions of the town's site plan review regulations, and the table of uses are attached. Manufacturing of renewable/alternative energy products is clearly allowed, and in fact such a facility was permitted in 2007 and built last year. ABC Industries assembles solar panels from components produced on-site and in other locations around the globe. Finally, the light industrial district covers an area of 250+ acres near a highway interchange. Over 50% of the land in this district is vacant and developable. The district has no stated FAR limit, the impervious surface limit is 70%, buildings can be of up to 3 stories and only one parking space is required per 1000 square feet. Thus, as indicated in the attached calculation, plenty of space exists for 50,000 square feet of floor area to be built.

Examples of Qualifying Activities: By applying for certification as a green community under the R&D and manufacturing provision of criterion one (#1) legal counsel and local officials are certifying that landowners in the appropriate district are able to construct, as of right, facilities that can be used for renewable and alternative energy related manufacturing or R&D activities such as:

- Solar panel production
- Research and development intended to enhance geothermal systems
- Manufacture of turbines – wind or hydro
- Research related to advanced battery systems
- Manufacture of fuel cells
- Research to improve the efficiency of or reduce pollution from biomass power facilities
- Assembly of wave energy generating systems
- Manufacture of wood pellets

TOWN OF GRANBY
GREEN COMMUNITIES CRITERIA #1
As-of-Right zoning proposal: Manufacturing and R&D for renewable energy

In order to comply with the Green Communities certification Criteria #1, towns must allow the by-right establishment of generation, manufacturing or research & development (R&D) facilities for renewable energy. As the Town of Granby has expressed a desire to facilitate the establishment of the latter two, included below are a series of options available based on an examination of the Town's bylaws:

Option 1: Allow all R&D by-right in Industrial zone
Amend town bylaws Sections 3.062 and 3.092

Section 3.062 currently establishes that the institutional use of facilities "[…] necessary in connection with scientific research, scientific development and related production" are allowed in Industrial Zones, but requires a Special Permit from the Zoning Board of Appeals with Site Plan Approval (SPA). While SPA is a regulation compliant with Criteria #1, the Special Permit provision denies by-right use of R&D activities. In order to meet the Green Communities criteria, **Table 1, "Schedule of Use Regulations" for Zoning District I, Section 3.062 would have to be classified as "SPA"**, indicating that necessary R&D accessory facilities are allowed by-right with Site Plan Approval.

Additionally, Section 3.092 currently requires a Special Permit from the Planning Board, along with an SPA for R&D laboratories in Industrial Zones. In order to meet the Green Communities criteria, **"Table 1: Schedule of Use Regulations" for Zoning District I, Section 3.092 would have to be classified as "SPA"**, indicating that R&D laboratories are allowed by-right with Site Plan Approval.

Option 2: Allow all Manufacturing by-right in Industrial zone
Amend town bylaws Sections 3.090

Section 3.090 currently establishes that "manufacturing, processing, fabrication, assembly and storage of materials, mechanical products or equipment" in Industrial Zones requires a Special Permit from the Planning Board, along with an SPA. In order to meet the Green Communities criteria, **Table 1, "Schedule of Use Regulations" for Zoning District I, Section 3.090 would have to be classified as "SPA"**, indicating that manufacturing is allowed by-right with Site Plan Approval.

Option 3: Allow by-right R&D specifically for renewable energy in Industrial zone

Amend town bylaws by adding new sections 3.063 and 3.095

Additional sections can be added to "Table 1: Schedule of Use Regulations" whereby only R&D facilities for renewable or alternative energy are permitted. This language can take share in two parts.

First, by adding Section 3.063: **"Accessory uses which are necessary in connection specifically with renewable or alternative energy scientific research, scientific development and related production". This Section should be classified "SPA" under Industrial Zone I** in order to allow by-right use with Sight Plan Approval.

Secondly, by adding Section 3.095: **"Research or Development Laboratory specifically for renewable or alternative energy". This Section should be classified "SPA" under Industrial Zone I** in order to allow by-right use with Sight Plan Approval.

Option 4: Allow by-right Manufacturing specifically for renewable energy in Industrial zone

Amend town bylaws by adding new Section 3.095

Manufacturing for renewable energy facilities can be allowed by adding an alternative to Section 3.095: **"Manufacturing, processing, fabrication, assembly and storage of materials, mechanical products or equipment specifically related to renewable or alternative energy". This Section should be classified "SPA" under Industrial Zone I** in order to allow by-right use with Sight Plan Approval.

Additionally for Options 3 & 4: Define "Renewable or Alternative Energy"

Amend Section 1.2 – "Definitions"

"**Renewable or Alternative Energy:** Sources of fuel, electricity or thermal energy that derive from natural sources or serve as an alternative to fossil sources of energy, such as: solar photovoltaic (PV) and solar thermal; Wind; Biomass power conversion or thermal technologies, including R&D related to, or the manufacture of, wood pellets, ultra low emissions high efficiency wood pellet boilers and furnaces; Low Impact Hydroelectric and Hydrokinetic; Ocean thermal, wave or tidal; Geothermal; Landfill Gas; Fuels Cells that use Renewable Energy; Advanced biofuels; Combined Heat and Power; and Electric and hydrogen powered vehicles and associated technologies including advanced batteries and recharging stations"

DEPARTMENT OF ENERGY RESOURCES

GREEN COMMUNITIES GRANT PROGRAM

GUIDANCE

Expedited Permitting

Criteria **2**

DOER Massachusetts Department of Energy Resources

EXPEDITED PERMITTING OPTIONS

INTRODUCTION

Criteria Two of the Green Communities Program states that communities need to adopt an ***expedited application and permitting process*** under which as-of-right energy facilities (criterion #1) may be sited within the municipality and which shall not exceed 1 year from the date of initial application to the date of final approval.

Such an expedited application and permitting process applies only to the proposed facilities which are subject to the as-of-right siting provisions, and documentation that all permits necessary to site proposed facilities can be issued within the 1 year deadline is required.

Note: Municipalities can also meet this requirement by applying the expedited permitting process of MGL Chapter 43D to the as-of-right zoning district(s), which has a one hundred and eighty day (180) deadline requirement.

COMPLIANCE

Standard One Year Process

To meet this criterion municipalities need to have rules and regulations in place governing permit issuance such that all local permitting decisions - formal determinations, orders of conditions, licenses, certificates, authorizations, registrations, plan approvals, or other approvals or determinations with respect to the use, development or redevelopment of land, buildings, or structures required by any issuing authority – applicable to the siting and construction of clean energy facilities within the relevant zoning district(s) can be issued within 1 year of submission of a completed application.

In regard to documentation, municipalities will have already demonstrated that they have by-right zoning allowing clean energy facilities (criterion #1). Thus, communities need to show that other provisions of the zoning (e.g. site plan review), as well as other local regulations, allow permitting within one year. In order to document compliance with the Green Communities expedited permitting criterion (criterion #2) municipalities must provide DOER a letter from legal counsel affirming that nothing within the

municipality's rules and regulations precludes issuance of a permitting decision within one year along with the language addressing approval procedures and associated timing from any applicable bylaws/ordinances or regulations.

Municipalities should also be aware that once designated a Green Community they will be required to report annually on their permitting of clean energy projects within as-of-right zoning districts. Communities not adhering to the 365 day permitting requirement will be at serious risk of losing their Green Community designation.

MGL c 43D Priority Development Sites

A municipality may also meet the Green Communities expedited permitting criterion by providing for as-of-right siting of renewable or alternative energy generation or manufacturing or research and development (R&D) facilities within a Priority Development site approved pursuant to Chapter 43D by the interagency Permitting Board. The municipality will be required to provide documentation that demonstrates that the designated as-of-right zoned area and the 43D Priority Development Site overlap. If meeting the criterion by allowing the by-right construction of either renewable or alternative energy (R&D) or manufacturing facilities, the municipality will be required to provide a letter from the municipality's legal counsel providing documentation that a Priority Development Site approved pursuant to Chapter 43D by the Interagency Permitting Board applies to enough land within the district zoned for the by-right siting of energy facilities to construct at least 50,000 square feet of (R&D) or manufacturing space in the aggregate. However, communities are encouraged to make the procedures expediting the permitting of renewable or alternative energy projects uniform throughout a zoning district in order to avoid confusion and facilitate siting and construction of renewable or alternative energy facilities.

Note: The materials developed to assist communities with issuance of permits within 180 days as required by Chapter 43D will also help communities looking to expedite permitting for the purpose of becoming a Green Community.

43D Website:
http://www.mass.gov/?pageID=ehedsubtopic&L=4&L0=Home&L1=Start%2c+Grow+%26+Relocate+Your+Business&L2=Licensing+%26+Permitting&L3=Chapter+43D+Expedited+Permitting&sid=Ehed

FOR MORE INFORMATION

Website:
www.mass.gov/energy/greencommunities

Town of Granby Official Letterhead

BLANK DATE

Meg Lusardi, Acting Director
Green Communities Division
Department of Energy Resources
100 Cambridge Street, Suite 1020
Boston, MA 02114

RE: MGL C. 25A, Section 10(C), Conditions 2 and 3

Dear Ms. Lusardi:

It is my opinion, as Granby's Legal Counsel, that Granby complies with MGL Chapter 25A, § 10(C) condition 2 and 3, (Criteria 2 and 3) in accordance with DOER guidance on complying with the Green Communities Act. Granby does:

> (2) provide for the as-of-right siting of renewable or alternative energy generating facilities, renewable or alternative energy research and development facilities, or renewable or alternative energy manufacturing facilities in designated locations; and
> (3) adopt an expedited application and permitting process under which these energy facilities may be sited within the municipality and which shall not exceed 1 year from the date of initial application to the date of final approval;

Condition 2, (Criteria 1) as-of-right siting of renewable or alternative energy research and development:
Granby's Industrial Zoning District allows by-right siting of research and development and manufacturing facilities that meet the definition provided under bylaws sections: **INSERT SECTIONS HERE.**

Condition 3, (Criteria 2) permitting process for these energy facilities may not exceed 1 year:
The zoning is very specific that these research and development and manufacturing facilities must be permitted with Site Plan Approval, which under section 6.34 of Granby's bylaws, "Procedures for Site Plan Review", must be completed well before 365 days from the day the application has been fulfilled:

1. **The Planning Board shall refer copies of the application within 15 days to the Conservation Commission, Board of Health and Building Inspector, who shall review the application and submit their recommendations and comments to the Planning Board. Failure of Boards to make recommendations within 35 days of the referral of the application shall be deemed to be lack of opposition.**

2. **The Planning Board shall hold a public hearing within sixty-five (65) days of the receipt of an application and after due consideration of the recommendations of the Board shall take final action within 90 days from the time of hearing.**

3. **The period of review for a special permit requiring site plan approval shall be the same as any other special permit and shall conform to the requirements of Chapter 40A, Section 9, "Special Permits". Specifically, a joint public hearing to address the Special Permit application and Site Plan Approval application shall be**

held within sixty-five (65) days of the filing of a special permit application with the Planning Board or Board of Appeals. The Planning Board shall then have 90 days following the public hearing in which to act.

Land Availability and Yield Calculations:
Finally, the attached map shows the location of our Industrial Zoning District. This district contains **INDICATE TOTAL LAND AVAILABILITY FOR MANUFACTURING / R&D.**

It is my opinion, as Granby Town Counsel, that we comply with MGL Chapter 25A, § Section 10(C) condition 2 (Criteria 1) and condition 3 (Criteria 2).

Please feel free to contact me or Town Administrator Chris Martin if you need any further clarification.

Regards,

Signature
Counsel
Town of Granby


OFFICIAL ZONING MAP
RS
RM
MD
HD
GB
GB-2
FS
GRANBY

GREEN COMMUNITIES GRANT PROGRAM

Energy Use Baseline

Criteria 3

DOER Massachusetts Department of Energy Resources

Energy Reduction Plan (ERP) Guidance and Outline

INTRODUCTION

Criterion Three for Green Communities Designation requires that a municipality (including both the general government and school district):

(1) **Establish an energy use baseline.** This inventory must include all divisions and departments including: all municipal buildings, school buildings, municipal and school vehicles, street and traffic lighting, drinking water and wastewater treatment plants, pumping stations and open spaces owned by the municipality.

- Divisions and departments operating as Enterprise Funds under MGL Chapter 44, Section 53F ½ where such services are provided by a third party contractor or where the sole operating and budget authority resides with a board or commission) may be excluded from the Energy Reduction Plan. However, these operations are encouraged to become a part of and to adopt the Energy Reduction Plan. The exclusion does not apply to any other existing or future division or department operating as an Enterprise Fund for which the City has direct authority over its operation.

- If a municipality pays the energy bills for an asset that it does not own, it may elect to include that asset in its baseline if it would like to claim credit for any energy reductions for that asset. For example, towns frequently pay the energy bills for streetlights owned by their utility or for buildings owned by a historical society.

- The energy use baseline inventory should be provided on an MMBtu (Million British Thermal Units) basis. There are a number of acceptable tools for performing the inventory including:
    a. DOER's MassEnergyInsight (MEI) (www.massenergyinsight.net)
    b. Energy Star Portfolio Manager
    b. ICLEI software
    d. Other tools proposed by the municipality and deemed acceptable by DOER

- The baseline year should consist of the most recent year of complete data. For applications in the spring of 2011, this should be Fiscal Year 2010 (or Calendar Year 2010). However, to allow communities to take credit for energy efficiency measures completed in recent years, a municipality may provide a baseline that goes back as far as FY 2009 (or CY 2008), and provide a reduction plan that begins in FY 2010 (or CY 2009). Already completed measures should be documented as described in Section III F.

- For applications consisting of more than one municipality, each municipality must complete the inventory. However, the comprehensive program to reduce the baseline by 20% can be applied across all communities.

(2) **Put in place a comprehensive program designed to reduce this baseline by 20% within the 5 year period following the Baseline Year.** For example, applicants using a Calendar Year 2009 baseline must reduce their total energy use by 20% by the end of 2014. The 20% reduction is applied to the aggregate energy use (in MMBtus) in the baseline energy use inventory.

a. **Create an Energy Reduction Plan (ERP) to document both the baseline energy consumption and the comprehensive program to reduce total energy use by 20%.** An ERP is a document that requires thoughtful planning and participation by all municipal departments, including schools. It can be expected that this entire process will require a minimum of three months. A team of individuals and a designated lead responsible for conducting the baseline inventory and developing the ERP should be identified. The process will involve collecting data using one of the tools identified above, analyzing the data to understand where reductions can be achieved, setting goals and developing strategies based on data collection and analysis, and finally developing and writing the ERP.

   A well prepared ERP will provide a realistic path for implementation. The benefits of ERP implementation include long-term savings in annual energy costs and reductions in a municipality's greenhouse gas emissions. It also presents an opportunity to perpetuate these benefits if a portion of the cost savings is re-invested in further energy efficiency. Finally, the ERP is an opportunity to engage the community in municipal energy reduction, both in its design and implementation and in publicizing its successes.

b. **Report annually on the ERP.** If at the end of 5 years a municipality has not reduced its energy consumption by 20%, it will be asked to provide justification for not fulfilling its ERP. If a municipality can demonstrate that it has done everything reasonably achievable to obtain the reductions, then no further action will be required. If the municipality does not effectively demonstrate why it has not reduced its consumption by 20%, then the municipality is at risk of losing its Green Community designation. A municipality will not lose its previously-awarded grant funding as a result of not meeting its 20% energy reduction goal.

INSTRUCTIONS FOR CREATING AN ENERGY REDUCTION PLAN

A comprehensive ERP consists of a number of key components which enables a municipality to establish energy reduction goals and develop a structure to meet those goals over a specific period of time. The outline below presents the format for the ERP and addresses its key components. *The information contained in the outline below is the minimum information that a municipality is expected to provide in its ERP.* Please use the sample tables provided, but note that it is important to also provide a brief supporting narrative.

ENERGY REDUCTION ACTION PLAN OUTLINE

I. PURPOSE AND ACKNOWLEDGEMENTS

A. Letters from Both General Government and School District Verifying Adoption of the ERP

- **General Government** – The general government must provide a letter from the Chief Executive Officer of the city or town stating that it has adopted the Energy Reduction Plan. The Chief Executive Officer is defined as the manager in any city having a manager and in any town having a city form of government, the Mayor in any other city, and the Board of Selectmen in any other town unless some other officer or body is designated to perform the functions of a Chief Executive Officer under the provisions of a local charter or laws having the force of a charter.

- **Public School Districts** - For a municipality to meet this requirement, its public school district must be included in the municipality's baseline. Furthermore, the public school district must provide a letter from the Superintendent for the Schools stating that is has adopted the Energy Reduction Plan.

- **Regional School Districts** – Regional School Districts are not required to be part of a municipality's Green Communities designation application. However, for regional school districts that wish to be part of a municipality's Green Communities designation (with approval by the municipality), the regional school district must establish an energy use baseline and assign the appropriate percentage of that baseline to the municipality (based on the funding assessment percentage that municipality contributes annually to the regional school district). The regional school district must also adopt the Energy Reduction Plan.

B. List of Contributors that Participated in the Baseline and ERP Process

II. EXECUTIVE SUMMARY

A. *Narrative Summary of the Town* - including population

B. *Summary of Municipal Energy Uses* - use instructions below to create Table 1 (sample below)

1. *Total Number of Municipal Buildings* - including schools, and broken down by type of heating fuel (e.g. oil, propane, natural gas, etc.). For Regional School Districts wishing to be included in the municipality's Green Communities designation, please list the number of their buildings (by fuel type) and vehicles (by exempt category) as separate lines and list "RSD" in the ownership column.
2. *Total Number of Vehicles* - including schools, and broken down by number of exempt and non-exempt vehicles as defined by Green Communities Criteria 4.
3. *Total Number of Street Lights and Traffic Lights* – please list the number of street and traffic lighting are owned by the municipality or by the utility in separate rows with a note in the ownership column. If owned by the utility, then these will not be included in the baseline and Energy Reduction Plan.

Water and Sewer – note the number of drinking and wastewater treatment plants and pumping stations owned by the municipality.

Table 1: Summary of Municipal Energy Users

	Number	Ownership
Buildings		
Oil Heat	5	Muni
Oil Heat	3	RSD
Natural Gas Heat	0	
Propane Heat	4	
Biomass Heat	0	
Other Heat Type	0	
Vehicles		
Non-Exempt	25	Muni
Exempt	20	Muni
Exempt	5	RSD
Street Lights	200	Utility
Traffic Lights	2	Muni
Water and Sewer		
Drinking Water Treatment Plant	1	
Wastewater Treatment Plant	0	(regional)
Pumping Stations	10	

C. ***Summary of Energy Use Baseline and Plans for Reductions*** – use sample Table 2 provided below

Table 2: Summary of Municipal Energy Use Baseline

	MMBtu Used in Baseline Year	% of Total MMBtu Baseline Energy Consumption	Projected Planned MMBtu Savings	Savings as % of Total MMBtu Baseline Energy Consumption
Buildings				
Vehicles				
Streetlights				
Water/Sewer/Pumping				
Open Space				
Total		**100%**		**20%**

[1] A municipality can choose to attribute open space energy use to the other categories if desired. If open space is used as a category, please be sure to list exactly what is included as a footnote and that it matches Table 3.

D. ***Summary of Goals and Strategies to be Used in Carrying Out the Action Plan*** - include goals regarding any special school accreditations, Energy Star® ratings, becoming a Green Community, EPA Community Energy Challenge, ICLEI community, etc

III. ENERGY USE BASELINE INVENTORY

A. *Identification of the Inventory Tool Used (preferably MassEnergyInsight)*
B. *Identification of the Baseline Year*
C. *Municipal Energy Consumption for the Baseline Year* - Use sample Table 3 below. Provide an overall breakdown per building, vehicles in the aggregate, and street and traffic lights in the aggregate. Water and sewer treatment plants should be listed independently and pumping in the aggregate. Open space, if used, can be listed in the aggregate with a footnote of what is included. Please insert additional columns for other fuels, such as gasoline and diesel, if needed.

Table 3: Municipal Energy Use Baseline

	Electricity		Natural Gas		#2 Distillate Fuel Oil		Propane		Total MMBtu
	KWh	MMBtu	Therms	MMBtu	Gallons	MMBtu	Gallons	MMBtu	
School									
Town Hall									
Police Station									
TOTAL for BUILDINGS									
Drinking/Wastewater Treatment Plant									
Pumping in Aggregate									
Open Space									
Vehicles in Aggregate									
Street and Traffic Lights in Aggregate									
TOTAL ENERGY CONSUMPTION									

D. *Identify Areas of Least Efficiency/Greatest Waste* – MassEnergyInsight's "Buildings to Target" view is helpful in identifying these areas
E. *Identify Areas That Can Be Most Easily Addressed*
F. *For Towns Taking Credit for Efficiency Measures Occurring Before Green Communities Designation Application* - (i.e. for towns with a baseline prior to FY2010 or CY2010). Please list efficiency measures implemented during the period following the baseline year with estimated energy savings from each measure, using Table 4 as an example. Also provide energy reductions for each building annually since the baseline year using Table 3 as a sample.

IV. SUMMARY OF ENERGY AUDIT(S)

Although an energy audit is not a requirement for an ERP, an audit can provide a better understanding of existing conditions and can identify opportunities for energy reduction. If creating an ERP without an audit, municipalities can analyze the energy baseline data for the buildings which are least efficient to identify appropriate Energy

Conservation Measures based upon knowledge of the building and its equipment. Projected energy savings may be obtained by obtaining information from equipment manufacturers as well as from the knowledge and expertise of energy professionals that are members of the community. For example, if a building has an older boiler with an efficiency factor of 50%, energy savings from the boiler can be estimated at 44% if replaced with a new boiler with an efficiency factor of 90%. Please cite all sources used to project energy savings.

If any energy audits were completed, including an Investment Grade Audit conducted as part of an energy savings performance contract, please provide a summary of the audit(s) and either provide as an attachment or cite as a resource.

V. ENERGY USE REDUCTION

A. ***Narrative Summary - Overview of Short- and Long-Term Goals***

B. ***Getting to a 20% Energy Use Reduction Within the 5 Year Period Following the Baseline Year*** - NOTE: At a minimum, a municipality must be able to identify specific measures with projected reductions to obtain a 15% reduction and then a general strategy for identifying and obtaining the remaining 5%. This section should include energy reductions anticipated from all divisions and departments including: all municipal buildings, school buildings (excluding Regional School Districts), municipal and school vehicles, street and traffic lighting, drinking water and wastewater treatment plants, pumping stations and open spaces owned by the municipality.

1. *List of Strategies to Reduce Energy Usage* – Include tools, resources and financial incentives.
2. *Program Management Plan for Implementation, Monitoring and Oversight* – Identify the personnel responsible both for oversight of the Energy Reduction Plan implementation and for implementation of energy conservation measures in specific departments or buildings, if applicable.
3. *Energy Conservation Measures* - Prioritized list of specific projects with projected energy savings. Please include any planned renovations with projected energy savings and note the source of the projected savings, e.g. audit, manufacturer data. List the energy conservation measures and for each measure, provide the total projected savings for each in native units (kWh, gallons, therms, etc.) and in MMBtus (refer to MMBtu Conversion Chart below for conversion factors). Please subtotal projected annual MMBtu savings for each category: buildings, vehicles, street and traffic lights, water and sewer, and open space, as well as a municipal total. Refer to the sample table below.

Table 4: Energy Conservation Measures

Building	Energy Conversation Measure	Projected Annual Savings (kWh)	Projected Annual Savings (gallons oil)	Projected Annual Savings (MMBtus)	Source for Projected Savings
Education Elementary School	Lighting Retrofit	95,252		325	http://www.energystar.gov/ia/business/downloads/BP_Checklist.pdf
Town Hall	Air Sealing		230	32	A-Z Energy Audit, 2008
Town Hall	New Boiler		17,122	2,380	Boilers-to-Go Quote, 2009
BUILDINGS	SUBTOTAL			2,761	
	TOTAL Projected Savings			2,761	

For Vehicular Energy Conservation (including schools), include a table laying out a replacement plan for each non-exempt vehicle with a vehicle that meets the fuel-efficient policy; any planned reductions in miles traveled; any planned replacement of heavy-duty exempt vehicles with hybrid exempt vehicles; any down-sizing of vehicles with more appropriately sized vehicles; any adoption of anti-idling technologies. The vehicle replacement plan must also be included in Criterion 4: Fuel-Efficient Vehicles.

4. *Estimated Capital and Operating Costs* - The sample table below is one way to present this information. Include a discussion of the projected financial savings from reduced energy costs and the municipality's plans for the money saved. Programming the financial savings into more energy efficiency investment is encouraged.

Table 5: Estimated Costs of ECMs

Building	Projected Total Cost of all ECMs	Potential Utility Incentives ($)	Net Cost	Annual $$ Saved	Years to Payback
School					
Town Hall					
Police Station					
TOTAL					

5. *Schedule for Implementation* - Provide a timeline for implementation of ECMs. Refer to the sample table below.

Table 6: Schedule for Implementation

	Q1 CY 2011	Q2 CY 2011	Q3 CY 2011	Q4 CY 2011	Q1 CY 2012	Q2 CY 2012	Q3 CY 2012	Q4 CY 2012	Q1 CY 2013	Q2 CY 2013	Q3 CY 2013	Q4 CY 2013
School	x		x									
Town Hall		x	x									
Police Station				x	x							

6. *Additions and New Construction* - Please identify any building additions or new construction planned for completion during the 5-year ERP period. Please see Building Stock Changes Guidance in Appendix A.

C. ***Measurement and Verification Plan for Projected Reductions – Annual Reporting***

1. *Common Technology Features as Applicable,* - e.g. submetering, smart metering, energy management systems, MassEnergyInsight
2. *Personnel Responsible for Measurement and Verification and Annual Reporting to Green Communities Division*

D. ***Summary of Long-Term Energy Reduction Goals – Beyond 5 years***

1. *Municipal Buildings (including schools)*
2. *Vehicles (including schools)*
3. *Street and Traffic Lighting*

4. *Perpetuating Energy Efficiency* – Has the town considered an energy conservation savings reinvestment plan (in which some of the energy savings are reinvested into a fund to finance future energy efficiency or renewable efficiency measures)? Or has it identified a mechanism for directing some of the energy cost savings from an annual operating budget to reinvesting in further energy efficiency?

VI. ONSITE RENEWABLE ENERGY PROJECTS & RENEWABLE ENERGY

Please note any plans for onsite municipal renewable energy projects during the 5-year period. These projects should not be included towards 20% reduction; at the end of 5 years, if 20% reduction goals have not been obtained, then the addition of onsite renewable energy generation will be considered by DOER. The purchase of Renewable Energy Certificates cannot be used towards the 20% reduction in any instance.

VII. LIST OF RESOURCES

Identify resources that the municipality used to create its ERP (websites, documents, tools). Please include contact information (websites, names and emails, etc.).

MMBtu Conversion Chart

Fuel Energy Content of Common Fossil Fuels per DOE/EIA

BTU Content of Common Energy Units – (1 million Btu equals 1 MMBtu)

- 1 barrel(42 gallons) of crude oil = 5.8 MMBtu
- 1 gallon of gasoline = 0.124 MMBtu (based on U.S. consumption, 2007)
- 1 gallon of diesel fuel = 0.139 MMBtu
- 1 gallon of heating oil = 0.139 MMBtu
- 1 barrel of residual fuel oil = 6.287 MMBtu
- 1 ccf (100 cubic foot) of natural gas = 0.1028 MMBtu (based on U.S. consumption, 2007)
- 1 gallon of propane = 0.091 MMBtu
- 1 short ton of coal = 20.169 MMBtu (based on U.S. consumption, 2007)
- 1 kilowatt hour of electricity = 0.003412 MMBtu
- 1 therm = 0.1 MMBtu

FOR MORE INFORMATION

Website:

www.mass.gov/energy/greencommunities

APPENDIX A - Guidance for Building Stock Changes

For changes in building stock (including renovations, additions, new construction, demolition, replacement or acquisition) that occur after the baseline year AND after submission of this ERP (i.e. municipalities using FY2010 or CY2010 as their baseline year), see the table below to determine whether a building will be included in the baseline at the time of evaluation. The table also indicates how to report changes in building stock that impact your ERP. For the most part, changes simply need to be included in your annual report.

Table: Building Stock Changes Summary Guidance

	Building Energy Use Included in Energy Consumption?	How to Report?
Retrofit/Renovation	Yes	Annual report
Addition	Yes, pro-rated by square footage	Annual report
New Construction	No	Separate monitoring
Removal/Demolition	No, subtract from baseline	Annual report
Replacement of an Existing Building	Yes	Annual report
Acquisition of an Existing Building	Only if desired	Separate monitoring or add to baseline in annual report

- **Retrofit/Renovations:** Retrofits and Renovations will be factored into the 20% reduction and do not alter the energy use baseline. This is not additional space and renovations should be done such that the space becomes more efficient.

- **Additions:** The energy load for that building and its addition will be counted towards the 20% reduction target but will be pro-rated based on the building square footage. For example, if a 1000 sq foot building added 300 sq feet (an additional 30%), then 70% of the energy bills for the building would be accounted for in monitoring the community's progress towards meeting its 20% energy reduction target.

- **New Construction:** The additional energy load from these buildings will NOT be added into the energy use baseline and therefore the additional load will NOT be factored into the 20% reduction target. However, a municipality will be expected to monitor the performance of this building, using MassEnergyInsight or another tool, under its annual Green Communities reporting to verify that it is performing as designed and modeled. If it is not, a corrective action plan must be developed and implemented to correct the building's performance.

- **Removal/Demolition:** For buildings that are removed from the building stock, the energy use baseline will be adjusted to subtract that building and the 20% reduction target will be revised accordingly. This will occur if they are not replaced by a new building (see below).

- **Replacement of an Existing Building:** For buildings originally included in the baseline that go offline and are replaced by a new building, the energy use baseline will not change and the new building will be included in the 20% reduction target.

- **Acquisition of an Existing Building:** For buildings that are acquired after the baseline year, that are old buildings and not new construction, and that are not replacing a building already included in the baseline, the additional load from these buildings will not be required to be included in the consumption profile and therefore the additional load will not be factored into the 20% reduction target. HOWEVER, one of the following two should occur:

- At a minimum, as part of the Green Communities application Energy Reduction Plan (ERP), the municipality should address these buildings separately, noting what their baseline energy use was when they were acquired and what measures are planned for their improved energy performance.

- As an alternative, if a municipality so chooses, they can add the load from these buildings into the energy use baseline when they were acquired and include them in the 20% reduction target. (A municipality may choose to do this because it may provide a better opportunity for them to achieve the 20% reduction target). If a municipality should choose to do this, they need to explain this in their ERP.

- **Petition to Modify Energy Use Baseline:** At any time, a municipality can petition DOER to consider modification of its baseline. For example, a municipality may replace an existing smaller school with a new school that is significantly larger, with a pool added, etc, and they may wish to adjust its baseline to take this added square footage and energy use data into consideration. DOER reserves the right to approve or deny any such petition.

- **For a municipality using FY2009, CY2008 or CY2009 as your baseline:** if building additions or acquisitions occurred after the baseline year BUT prior to submitting its application for Green Communities Designation, a separate monitoring plan must be included in the ERP to address their energy efficiency. These buildings will NOT be added into the consumption profile and therefore the additional load will not be factored into the 20% reduction target. HOWEVER, the municipality should note in the ERP how these buildings were constructed or retrofit to be as energy efficient as possible and the intended energy performance as designed. The ERP must include a separate monitoring program for these buildings to ensure that they are performing as designed and modeled and, if not, must include a plan for corrective actions.

APPENDIX B – Guidance for Inclusion of Regional School Districts in Energy Reduction Plan

- For a regional school districts (RSD) to be included as part of a municipality's Green Communities designation, the RSD must be included in the energy use baseline for the municipality and must adopt the energy reduction plan. For the RSD to be included in the municipality's energy use baseline, it must determine its individual energy use baseline and assign the appropriate percentage of that baseline to the municipality. The appropriate percentage is the funding assessment percentage that municipality contributes annually to the RSD.

- The energy use data for the RSD should be apportioned and included in the Town's Energy Reduction Plan as described below. Upon request, both the Town and the RSD should be able to provide the RSD's data prior to apportionment (i.e. the RSD's total energy use).

Instructions to include RSD Energy Data in a Town's Energy Reduction Plan

- Include a paragraph in **IIA *Narrative Summary of the Town*** including a description of the RSD and the portion of its funding (as a percentage) that the municipality contributes.

- Add a column to **Table 1** to indicate the TOTAL number of buildings, vehicles, streetlights, and traffic lights owned by the RSD, with appropriate subcategories. These numbers should NOT be apportioned to the Town based upon the funding assessment percentage. See sample below:

Table 1: Summary of Municipal and RSD Energy Users

	Municipal Number	Ownership
Buildings		
Oil Heat	5	Muni
Oil Heat	3	RSD
Propane Heat	4	Muni
Vehicles		
Non-Exempt	25	Muni
Exempt	20	Muni
Exempt	5	RSD
Street Lights	200	Utility
Traffic Lights	2	Muni

- Include the RSD in the energy usage and projected reduction totals in **Table 2 *Summary of Energy Use Baseline and Plants for Reductions***. To calculate the appropriate amount to be included in the usage, multiply the total annual energy use of the RSD by the percentage of funding that the municipality contributes.

  Example: Town Y's total annual energy use is 320,000. Town Y contributes 25% of the annual RSD funding. Its RSD's total annual energy use is 80,000 MMBtu. The portion of the RSD's energy use attributable to Town Y is 80,000 x 0.25 = 20,000 MMBtu. So Town Y's Total Energy Use, including its RSD portion, is 320,000 + 20,000 = 340,000 MMBtus.

- For IIIC ***Municipal Energy Consumption for the Baseline Year***, Table 3, please list the RSD as separate building(s) in their own rows and only include the portion attributable to the Town based upon their funding assessment percentage. For vehicles and street and traffic lights, include as separate rows. For the energy consumption of the RSD's buildings vehicles and lighting, only include the portion attributable to the Town based upon their funding assessment percentage.

Instructions to use MassEnergyInsight for energy use data

- Both the Town and the RSD must have authorized users, their accounts signed to specific buildings, and be actively entering oil, propane, and third-party purchased energy data.
- Calculations to assign energy use to the Town from the RSD cannot be performed in MassEnergyInsight, the data must be exported and independently manipulated. However, as described above, these are simple multiplication and addition functions that can easily be done using a calculator or Excel.
- This data can be found in MassEnergyInsight's ERP Guidance Tables 3A (Native Units) and 3B (MMBtu).
- The RSD should provide their energy use data from MEI to the Town for inclusion in the Green Communities Energy Reduction Plan.
- The Town should include the RSD data in Tables 1, 2, and 3 as described above.

GREEN COMMUNITIES CRITERIA #4
FUEL EFFICIENT VEHICLES

BACKGROUND INFORMATION

To meet this criterion, municipalities need to adopt a policy (by local official or body with authority to enact policies) that requires their departments and divisions to purchase only fuel efficient vehicles whenever such vehicles are commercially available and practical. It is important to note that both general government and school districts are required to enact a fuel efficient vehicle policy for a municipality to meet this requirement. Purchase only fuel-efficient vehicles for municipal use whenever such vehicles are commercially available and practicable.

- Heavy-duty vehicles such as fire-trucks, ambulances, and public works trucks are exempt from this criterion.

- Police cruisers are exempt from this criterion. However, municipalities must commit to purchasing fuel efficient cruisers when they become commercially available. Police department administrative vehicles must meet fuel efficient requirements.

- If an applicant does not have a vehicle fleet other than heavy-duty vehicles and/or police cruisers, it must propose alternative means for meeting this requirement, eg. having in place policies and procedures that promote reduced fuel usage for the municipality. For example, carpooling incentives for municipal employees, preferred parking for employees with hybrid vehicles, bike racks at municipal buildings and incentives for employees to bike to work.

- An applicant must provide a vehicle inventory for non-exempt vehicles and a plan for replacing these vehicles with vehicles that meet the fuel efficiency ratings below. These fuel efficiency ratings are set to ensure that at least 5 or more automatic transmission models of mass production are available for sale in Massachusetts (all from affordable brands; no luxury brands). Based on 2009 and 2008 EPA data, vehicles are to have a combined city and highway MPG no less than the following:

    - 2 wheel drive car: 29 MPG
    - 4 wheel drive car: 24 MPG
    - 2 wheel drive small pick-up truck: 20 MPG
    - 4 wheel drive small pick-up truck: 18 MPG
    - 2 wheel drive standard pick-up truck: 17 MPG
    - 4 wheel drive standard pick-up truck: 16 MPG

TOWN OF GRANBY
FUEL EFFICIENT VEHICLE POLICY
Option 1: If the Town of Granby owns non-exempt vehicles

DEFINITIONS

Combined city and highway MPG (EPA Combined fuel economy):
WHEREAS Combined Fuel Economy means the fuel economy from driving a combination of 43% city and 57% highway miles and is calculated as follows: 1/((0.43/City MPG)+(0.57/Highway MPG))

Drive System:
WHEREAS The manner in which mechanical power is directly transmitted from the drive shaft to the wheels. The following codes are used in the drive field:

- AWD = All Wheel Drive: four-wheel drive automatically controlled by the vehicle powertrain system
- 4WD = 4-Wheel Drive: driver selectable four-wheel drive with 2-wheel drive option
- 2WD = 2-Wheel Drive

Heavy-duty truck:
WHEREAS A vehicle with a manufacturer's gross vehicle weight rating (GVWR) of more than 8,500 pounds.

POLICY STATEMENT
NOW THEREFORE BE IT ORDERED THAT In an effort to reduce the Town of Granby's fuel consumption and energy costs over the next 5 years, the Granby Board of Selectmen hereby adopts a policy to purchase only fuel efficient vehicles to meet this goal.

PURPOSE
To establish a requirement that the Town of Granby purchase only fuel efficient vehicles for municipal and school use whenever such vehicles are commercially available and practicable.

APPLICABILITY
This policy applies to all divisions and departments of the Town of Granby

GUIDELINES
All departments shall purchase only fuel-efficient vehicles for municipal use whenever such vehicles are commercially available and practicable.

The Town of Granby will maintain an annual vehicle inventory for non-exempt vehicles and a plan for replacing these vehicles with vehicles that meet the fuel efficiency ratings below. Based on the most recently published US Environmental Protection Agency data on fuel efficient vehicles, vehicles are to have a combined city and highway MPG no less than the following:

- 2 wheel drive car: 29 MPG
- 4 wheel drive car: 24 MPG
- 2 wheel drive small pick-up truck: 20 MPG
- 4 wheel drive small pick-up truck: 18 MPG
- 2 wheel drive standard pick-up truck: 17 MPG
- 4 wheel drive standard pick-up truck: 16 MPG

***INFORMATIONAL NOTE (to be removed on final draft):** The EPA maintains a database on vehicle fuel efficiency that is updated occasionally throughout the year, as new models are released. As increasing numbers of fuel efficient vehicle models are released ,the minimum combined MPG requirements of the Green Communities Program may be revised. This policy may be updated from time to time to reflect any changes to*

the MPG requirements. The latest fuel efficiency MPG ratings are available through Massachusetts Department of Energy Resources Green Communities Program.

Exemptions

- Heavy-duty vehicles such as fire-trucks, ambulances, and public works trucks are exempt from this criterion

- Police cruisers are exempt from this criterion. However, municipalities must commit to purchasing fuel efficient cruisers when they become commercially available. Police department administrative vehicles must meet fuel efficient requirements

Inventory

The following information shall be included in a vehicle inventory list and said list shall be updated on an annual basis:

Model	Make	Model Year	Year Purchased	Drive System	Weight Class	MPG	Annual Miles Driven	Total Fuel Consumption	Vehicle Function

INFORMATIONAL NOTE (to be removed on final draft):: Departments may use EPA combined MPG estimates or actual combined MPG.

FUEL EFFICIENT VEHICLE REPLACEMENT PLAN

The Town of Granby shall develop a plan to replace all non-exempt vehicles with fuel efficient vehicles as defined above. Said plan shall outline the process by which the Town of Granby will replace vehicles, set goals for when the existing fleet will be replaced and review said plan on an annual basis.

QUESTIONS / ENFORCEMENT

All other inquiries should be directed to the department responsible for fleet management and/or fleet procurement. This policy is enforced by the Town of Granby Board of Selectmen and their designee(s).

RELATED INFORMATION:

United States Environmental Protection Agency, Green Vehicle Guide

- http://tiny.cc/greenEPA

Massachusetts Department of Energy Resources, Green Communities Program

- Green Communities Criteria: http://tiny.cc/criteria
- List of Fuel Efficient Vehicles: http://tiny.cc/vehicles

INFORMATIONAL NOTE (to be removed on final draft):: The EPA changed their calculation of MPG in 2007 to better reflect actual driving conditions, this included a shift to more highway and less city driving.

Signature
Chairman, Board of Selectmen

Date
Date

TOWN OF GRANBY
FUEL EFFICIENT VEHICLE POLICY
Option 2: If the Town of Granby only owns exempt vehicles

If a municipality does not have a vehicle fleet other than heavy-duty vehicles and/or police cruisers, it must propose alternative means for meeting this requirement, e.g. having in place policies and procedures that promote reduced fuel usage for the municipality. For example, carpooling incentives for municipal employees, preferred parking for employees with hybrid vehicles, bike racks at municipal buildings, anti-idling policies, use public transportation when required to travel on the municipality's behalf and incentives for employees to bike to work.

INTRODUCTION

Criteria Four of the Green Communities Program states that Granby must purchase fuel efficient vehicles for municipal use whenever such vehicles are commercially available and practicable. Granby currently owns ____ vehicles for municipal use. All town owned vehicles fall into exempt vehicle status according to the Green Community's regulations. The Town of Granby has adopted a policy to purchase the most fuel efficient police cruisers, fire trucks, and highway trucks whenever they become commercially available. This policy is established to reduce the consumption of fossil fuels, which in turn will have a positive impact on the environment and save tax dollars. In addition the Town of Granby herby establishes a *monitoring* system to help facilitate the municipality's reduction in vehicle consumption. The Granby Energy Committee will establish and oversee the monitoring system in conjunction with town officials and staff. Finally, the Town of Granby has adopted an anti-idling policy for all town owned vehicles pursuant to Mass General Law, Chapter 90, Section 16A.

ALTERNATIVE COMPLIANCE

Granby has developed an inventory of all registered vehicles for each department. The annual miles driven (or hours used) and total fuel consumption will be determined starting in the municipal fiscal year of 2011 beginning on July 30th, 2011. Granby is also adopting a policy, applicable to all employees, including members of the volunteer fire department for no idling of town vehicles. The community is sparsely populated and spread over a large area. Public transportation is largely unavailable and carpooling unnecessary as our municipal employee base is either close enough to walk to town buildings or are not on similar routes to work. Bicycle racks already exist in front of several municipal buildings.

POLICY STATEMENT

In an effort to reduce Granby's fuel consumption and energy costs over the next 5 years, the Granby Select Board hereby adopts this policy to purchase the most fuel efficient vehicles to meet this goal as well as a no idling policy for all town vehicles.

APPLICABILITY

This policy applies to all departments of the Town of Granby, including the Granby Public School District.

GUIDELINES

All departments will purchase the most fuel efficient vehicles for municipal use (including police, fire, highway and schools) whenever such vehicles are commercially available and practicable.

Granby will maintain an annual vehicle inventory for exempt vehicles and a plan for replacing these vehicles with vehicles of greater efficiency.

The following information shall be included in a vehicle inventory list and shall be updated on an annual basis: model, make, model year, year purchased, drive system, weight class, miles per gallon (MPG), annual miles driven, total fuel consumption, and vehicle function. This information will also be analyzed and used to develop strategies and a plan for reducing miles traveled thereby reducing fuel consumption.

All departments which use a town vehicle will be notified about the no idling town vehicles policy effective immediately.

FUEL EFFICIENT VEHICLE REPLACEMENT PLAN

Whenever a Granby vehicle is being replaced, the Granby Energy Committee (GEC) will be given the records of vehicle use which includes the miles per gallon or hours per gallon for the vehicle and the expected miles per gallon or hours per gallon that is derived from the replacement vehicles specifications. The GEC would expect to see the specifications of several different manufactures.

ANTI-IDLING POLICY

Granby hereby adopts the provisions of Massachusetts General Law Chapter 90, Section 16A and has instructed all employees of this policy.

NON-EXEMPT VEHICLES

In the event that at any time Granby acquires non-exempt vehicles as part of its fleet, the community will adopt the Green Communities fuel efficient vehicle policy.

QUESTIONS/ENFORCEMENT

All other inquires will be directed to the departments responsible for fleet use, maintenance, and recommended purchases. This policy is enforced by the Town of Granby Select Board.

Signature
Chairman, Board of Selectmen

Date
Date

EXAMPLES OF COMERCIALLY AVAILABLE FEV
http://www.mass.gov/Eoeea/docs/doer/gca/gc-2009-epa-fe-guide.xls

Fuel Efficient Vehicles for Green Communities—
Derived from www.fueleconomy.gov

CLASS	MFR	CAR LINE	COMB MPG (GUIDE)
2-Wheel Drive Cars			
COMPACT CARS	HONDA	CIVIC HYBRID	42
COMPACT CARS	VOLKSWAGEN	JETTA	34
COMPACT CARS	VOLKSWAGEN	JETTA	33
COMPACT CARS	TOYOTA	COROLLA	30
COMPACT CARS	TOYOTA	COROLLA	30
COMPACT CARS	PONTIAC	G3/WAVE	30
COMPACT CARS	KIA	RIO	30
COMPACT CARS	KIA	RIO	30
COMPACT CARS	CHEVROLET	AVEO	30
COMPACT CARS	HYUNDAI	ACCENT	29
COMPACT CARS	HYUNDAI	ACCENT	29
MIDSIZE CARS	TOYOTA	PRIUS	46
MIDSIZE CARS	TOYOTA	CAMRY HYBRID	34
MIDSIZE CARS	NISSAN	ALTIMA HYBRID	34
MIDSIZE CARS	SATURN	AURA HYBRID	29
MIDSIZE CARS	NISSAN	VERSA	29
MIDSIZE CARS	CHEVROLET	MALIBU HYBRID	29
MINICOMPACT CARS	MINI	MINI COOPER	32
MINICOMPACT CARS	MINI	MINI COOPER	29
MINICOMPACT CARS	MINI	MINI COOPER S	29
MINICOMPACT CARS	MINI	MINI JOHN COOPER WORKS	29
MINICOMPACT CARS	MINI	MINI JOHN COOPER WORKS CONV	29
S.U.V. - 2WD	MERCURY	MARINER HYBRID FWD	32
S.U.V. - 2WD	MAZDA	TRIBUTE HYBRID 2WD	32
S.U.V. - 2WD	FORD	ESCAPE HYBRID FWD	32
SMALL STATION WAGONS	VOLKSWAGEN	JETTA SPORTWAGEN	34
SMALL STATION WAGONS	VOLKSWAGEN	JETTA SPORTWAGEN	33
SMALL STATION WAGONS	HONDA	FIT	31
SMALL STATION WAGONS	HONDA	FIT	30
SMALL STATION WAGONS	HONDA	FIT	29
SUBCOMPACT CARS	TOYOTA	YARIS	32
SUBCOMPACT CARS	MINI	MINI CLUBMAN	32
SUBCOMPACT CARS	PONTIAC	G3/WAVE 5	30
SUBCOMPACT CARS	PONTIAC	G5 XFE	30
SUBCOMPACT CARS	CHEVROLET	AVEO 5	30
SUBCOMPACT CARS	CHEVROLET	COBALT XFE	30
SUBCOMPACT CARS	TOYOTA	SCION XD	29

SUBCOMPACT CARS	PONTIAC	G5	29
SUBCOMPACT CARS	PONTIAC	G5 GT	29
SUBCOMPACT CARS	MINI	MINI CLUBMAN	29
SUBCOMPACT CARS	MINI	MINI CLUBMAN S	29
SUBCOMPACT CARS	MINI	MINI JOHN COOPER WORKS CLUBM	29
SUBCOMPACT CARS	HONDA	CIVIC	29
SUBCOMPACT CARS	HONDA	CIVIC	29

4-Wheel Drive Cars

COMPACT CARS	AUDI	A4 QUATTRO	25
S.U.V. - 4WD	MERCURY	MARINER HYBRID 4WD	28
S.U.V. - 4WD	MAZDA	TRIBUTE HYBRID 4WD	28
S.U.V. - 4WD	FORD	ESCAPE HYBRID 4WD	28
S.U.V. - 4WD	TOYOTA	HIGHLANDER HYBRID 4WD	26
S.U.V. - 4WD	JEEP	COMPASS 4WD	25
S.U.V. - 4WD	JEEP	PATRIOT 4WD	25
S.U.V. - 4WD	TOYOTA	RAV4 4WD	24
SMALL STATION WAGONS	SUZUKI	SX4 AWD	24
SMALL STATION WAGONS	AUDI	A3 QUATTRO	24
SUBCOMPACT CARS	AUDI	TT COUPE QUATTRO	24
TWO SEATERS	AUDI	TT ROADSTER QUATTRO	24

2 Wheel Drive Small Trucks

SMALL PICKUP TRUCKS 2WD	MAZDA	B2300 2WD	23
SMALL PICKUP TRUCKS 2WD	FORD	RANGER 2WD	23
SMALL PICKUP TRUCKS 2WD	TOYOTA	TOYOTA TACOMA 2WD	22
SMALL PICKUP TRUCKS 2WD	TOYOTA	TOYOTA TACOMA 2WD	21
SMALL PICKUP TRUCKS 2WD	SUZUKI	EQUATOR 2WD	21
SMALL PICKUP TRUCKS 2WD	NISSAN	FRONTIER 2WD	21
SMALL PICKUP TRUCKS 2WD	MAZDA	B2300 2WD	21
SMALL PICKUP TRUCKS 2WD	FORD	RANGER 2WD	21
SMALL PICKUP TRUCKS 2WD	GMC	CANYON 2WD	20
SMALL PICKUP TRUCKS 2WD	GMC	CANYON 2WD	20
SMALL PICKUP TRUCKS 2WD	GMC	CANYON CREW CAB 2WD	20
SMALL PICKUP TRUCKS 2WD	GMC	CANYON CREW CAB 2WD	20
SMALL PICKUP TRUCKS 2WD	CHEVROLET	COLORADO 2WD	20
SMALL PICKUP TRUCKS 2WD	CHEVROLET	COLORADO 2WD	20
SMALL PICKUP TRUCKS 2WD	CHEVROLET	COLORADO CREW CAB 2WD	20
SMALL PICKUP TRUCKS 2WD	CHEVROLET	COLORADO CREW CAB 2WD	20

4 Wheel Drive Small Trucks

SMALL PICKUP TRUCKS 4WD	GMC	CANYON 4WD	**20**
SMALL PICKUP TRUCKS 4WD	GMC	CANYON 4WD	**20**
SMALL PICKUP TRUCKS 4WD	CHEVROLET	COLORADO 4WD	**20**
SMALL PICKUP TRUCKS 4WD	CHEVROLET	COLORADO 4WD	**20**
SMALL PICKUP TRUCKS 4WD	TOYOTA	TOYOTA TACOMA 4WD	**19**
SMALL PICKUP TRUCKS 4WD	CHEVROLET	COLORADO 4WD	**19**
SMALL PICKUP TRUCKS 4WD	TOYOTA	TOYOTA TACOMA 4WD	**18**
SMALL PICKUP TRUCKS 4WD	GMC	CANYON 4WD	**18**
SMALL PICKUP TRUCKS 4WD	GMC	CANYON CAB CHASSIS INC 4WD	**18**
SMALL PICKUP TRUCKS 4WD	GMC	CANYON CREW CAB 4WD	**18**
SMALL PICKUP TRUCKS 4WD	CHEVROLET	COLORADO CAB CHASSIS INC 4WD	**18**
SMALL PICKUP TRUCKS 4WD	CHEVROLET	COLORADO CREW CAB 4WD	**18**

2 Wheel Drive Large Trucks

STANDARD PICKUP TRUCKS 2WD	GMC	C15 SIERRA 2WD HYBRID	**21**
STANDARD PICKUP TRUCKS 2WD	CHEVROLET	C15 SILVERADO 2WD HYBRID	**21**
STANDARD PICKUP TRUCKS 2WD	MITSUBISHI	RAIDER PICKUP 2WD	**18**
STANDARD PICKUP TRUCKS 2WD	DODGE	DAKOTA PICKUP 2WD	**18**
STANDARD PICKUP TRUCKS 2WD	MITSUBISHI	RAIDER PICKUP 2WD	**17**
STANDARD PICKUP TRUCKS 2WD	GMC	C15 SIERRA 2WD	**17**
STANDARD PICKUP TRUCKS 2WD	GMC	C15 SIERRA XFE 2WD	**17**
STANDARD PICKUP TRUCKS 2WD	FORD	EXPLORER SPORT TRAC 2WD	**17**
STANDARD PICKUP TRUCKS 2WD	FORD	F150 PICKUP 2WD	**17**
STANDARD PICKUP TRUCKS 2WD	DODGE	DAKOTA PICKUP 2WD	**17**
STANDARD PICKUP TRUCKS 2WD	CHEVROLET	C15 SILVERADO 2WD	**17**
STANDARD PICKUP TRUCKS 2WD	CHEVROLET	C15 SILVERADO XFE 2WD	**17**
VANS, CARGO TYPE	GMC	G1500 SAVANA 2WD CARGO	**17**
VANS, CARGO TYPE	CHEVROLET	G1500 VAN 2WD CARGO	**17**

4 Wheel Drive Large Trucks

STANDARD PICKUP TRUCKS 4WD	GMC	K15 SIERRA 4WD HYBRID	**20**
STANDARD PICKUP TRUCKS 4WD	CHEVROLET	K15 SILVERADO 4WD HYBRID	**20**
STANDARD PICKUP TRUCKS 4WD	HONDA	RIDGELINE 4WD	**17**
STANDARD PICKUP TRUCKS 4WD	MITSUBISHI	RAIDER PICKUP 4WD	**16**
STANDARD PICKUP TRUCKS 4WD	HUMMER	H3T 4WD	**16**
STANDARD PICKUP TRUCKS 4WD	HUMMER	H3T 4WD	**16**
STANDARD PICKUP TRUCKS 4WD	GMC	K15 SIERRA 4WD	**16**
STANDARD PICKUP TRUCKS 4WD	GMC	K15 SIERRA 4WD	**16**
STANDARD PICKUP TRUCKS 4WD	FORD	EXPLORER SPORT TRAC 4WD	**16**
STANDARD PICKUP TRUCKS 4WD	FORD	F150 PICKUP 4WD	**16**
STANDARD PICKUP TRUCKS 4WD	DODGE	DAKOTA PICKUP 4WD	**16**
STANDARD PICKUP TRUCKS 4WD	CHEVROLET	K15 SILVERADO 4WD	**16**
STANDARD PICKUP TRUCKS 4WD	CHEVROLET	K15 SILVERADO 4WD	**16**
MINIVAN - 4WD	TOYOTA	SIENNA 4WD	**18**

GREEN COMMUNITIES CRITERIA #5

ADOPTION OF ENERGY STRETCH CODE BY GRANBY

Towns are advised to seek adoption of the Stretch Code as a general bylaw through a vote of Town Meeting. **There can be no amendments to the bylaw language in order for the bylaw / Stretch Code to be in effect.**

1. DRAFT WARRANT ARTICLE:

To see if the Town will vote to enact Chapter ___ of the Town of Granby General Bylaws, entitled "Stretch Energy Code" for the purpose of regulating the design and construction of buildings for the effective use of energy, pursuant to Appendix 120 AA of the Massachusetts Building Code, 780 CMR, the "Stretch Energy Code", including amendments or modifications thereto, a copy of which is on file with the Town Clerk, or take any other action relative thereto.

2. DRAFT ENERGY STRETCH CODE FOR GRANBY: Language to be introduced in the Town's building code

Chapter ____
STRETCH ENERGY CODE
[Adopted 0-0-2010 ATM / STM by Art.]

§ ____-1 Definitions
§ ____-2 Purpose
§ ____-3 Applicability
§ ____-4 Authority
§ ____-5 Stretch Code

§ ____-1 Definitions

International Energy Conservation Code (IECC) 2009 - The International Energy Conservation Code (IECC) is a building code created by the International Code Council. It is a model code adopted by many state and municipal governments in the United States for the establishment of minimum design and construction requirements for energy efficiency. Commencing July 1, 2010, the baseline energy conservation requirements of the MA State Building Code will default to IECC 2009 and MA amendments.

Stretch Energy Code - Codified by the Board of Building Regulations and Standards as 780 CMR Appendix 120 AA, the Stretch Energy Code is the International Energy Conservation Code (IECC) 2009 with amendments contained herein.

§ ____-2 Purpose
The purpose of 780 CMR 120.AA is to provide a more energy efficient alternative to the base energy code applicable to the relevant sections of the building code for both new construction and existing buildings.

§ ____-3 Applicability
This code applies to residential and commercial buildings. Buildings not included in this scope shall comply with 780 CMR 13, 34, 61, or 93, as applicable.

§ ____-4 Authority

A municipality seeking to ensure that construction within its boundaries is designed and built above the energy efficiency requirements of 780 CMR may mandate adherence to this appendix.

780 CMR 120 AA may be adopted or rescinded by any municipality in the commonwealth in the manner prescribed by law.

§ ____-5 Stretch Code

The Stretch Code, as codified by the Board of Building Regulations and Standards as 780 CMR Appendix 120 AA, including any amendments or modifications, is herein incorporated by reference into the Town of Granby General Bylaws, Chapter ____ .

The Stretch Code is enforceable by the inspector of buildings or building commissioner.

Stretch Appendix to the Energy Code in Massachusetts: Question and Answer (Q&A):

Residential Questions

1. How do I meet the residential stretch code for new homes?
For new residential homes including multi-family homes of 3 stories or less, builders essentially follow the Energy Star for Homes program requirement in Massachusetts, and are required to show that each unit meets or is below a maximum HERS index score. For new homes greater than 3,000 square feet in size the maximum HERS score is 65 (Energy Star tier 2), for smaller homes less than 3,000 square feet in size the maximum HERS score is 70. In addition to the HERS score the homes must be inspected using the Energy Star 'thermal bypass checklist' and similar to the new base code may require duct testing. These inspections ensure that the home is well air sealed, while the HERS rating ensures that the home is designed to be well insulated with efficient heating and cooling and lighting – all measures that save energy and reduce utility bills.

2. What is a HERS rating?
HERS stands for 'Home Energy Rating System,' and is a national standard that uses information on the design of the energy systems in a home to calculate, via computer modeling, the average energy needs of that home and give it a rating score. The HERS Index was developed by the non-profit Residential Energy Services Network (RESNET) for the mortgage industry, and is utilized by the Federal Internal Revenue Service (IRS) and the LEED for Homes program. On the HERS 2006 index scale smaller numbers are better, with 0 representing a net zero energy home, and 100 represents a home built according to meet the national model energy code in 2006 (the IECC 2004 with 2005 amendments) . A HERS rating of 65 means that the home uses about 35% less energy than the same size home built to the 2004/2005 IECC code requirements. The Residential Stretch code is based on the nationally successful 'Energy Star for Homes' program requirements, which utilize HERS ratings.

3. Do I have to get a HERS rating?
New homes built under the stretch code will have to get a HERS rating. Renovations and additions to homes have the option of the HERS rating or a 'prescriptive' approach, whereby specific efficiency measures are required, but no computer modeling is done. The HERS performance-based approach provides a very good way to ensure that homes are not only well designed but also well built. As part of the HERS rating the home will be tested for air leakage, and under both the base and the stretch code homes with heating and cooling ducts may also have those tested for leakage. Combined with the thermal bypass checklist the HERS rater, builder and building inspector can have confidence that the completed homes really are energy efficient.

4. How do I meet the residential stretch code when making renovations to existing homes?
Existing homes being renovated or expanded have two choices when it comes to stretch code compliance. The performance option is to use a HERS rating, and the prescriptive option is to use the Energy Star Builders Option Package and the base IECC 2009 code where it is more stringent (for example in wall insulation). If the prescriptive option is chosen, then you only need to meet code for the systems that are being replaced. This means that adding a new efficient boiler does not require changing the windows, and adding wall and attic insulation does not require modifying the basement – although it may often make sense to combine measures where that is cost-effective.

However, choosing to follow the HERS rating approach used by new construction often makes sense when doing a whole house renovation. While using the same HERS approach as new homes, existing homes have an easier standard to meet. For home renovations greater than 2,000 square feet the maximum HERS score is 80 and for renovated homes less than 2,000 square feet the maximum HERS score is 85. 85 is also the maximum score allowed to meet the Energy Star Homes program baseline.

5. If I'm doing a small remodeling project, like a kitchen or a bathroom renovation, will I have to meet the stretch energy code? If a small renovation involved replacing a couple of windows and opening part of a wall cavity, then those new windows and wall cavity would have to be brought up to the stretch energy code, just as the plumbing in the kitchen or bathroom being remodeled would have to comply with the plumbing code. However, improving a kitchen or bathroom would not trigger required changes to the rest of the home such as attic insulation or a new heating system. Only the systems being modified have to be brought up to code. Despite not being required, your contractor, utility company and code official may help advise on cost effective changes – often with tax and rebate incentives to reduce your energy bills that you may want to consider doing at the same time.

6. How do I find a HERS rater?
HERS raters work with the residential builder/developer/design team, and should be included in the team from the outset. The easiest way to find and choose a HERS rater is to register for the free Energy Star for Homes program and work with the program staff to contact a HERS rater in your region.

7. What testing equipment is required to meet the residential stretch code?
HERS ratings require testing of the air leakage rate of residential units. In addition, for homes that have forced air heating and central air conditioning systems that have ductwork running outside of the heated portion of a house, a duct leakage test is needed. These tests help calculate how much energy is needed to heat and cool a home, and help builders to identify possible problems before a

9. What financial savings/rebates are there from building to the stretch code?
The stretch code is designed to allow builders to get the maximum benefits of the existing Energy Star Homes program with its full range of training, support and financial incentives. A new home with a HERS rating of 65 or less currently qualifies for $1,250 from the Energy Star utility sponsors, and additional rebates are available for installing high efficiency heating and cooling equipment, appliances and lighting. The utility companies also partially cover the cost of hiring a HERS rater to work with the builder. In addition to these Massachusetts-based incentives there is a federal $2,000 tax credit available for homes built with less than half of the heating and cooling load of a 2004 code home. The HERS rater and software can tell you whether a new home qualifies for this and the HERS report provides the core documentation needed.

For existing home renovations there are tax credits for the homeowner as well as the same utility incentives on efficient equipment, appliances, and windows. There are also major incentives available to add insulation to existing homes, through the MassSave program sponsored by the gas and electric utility companies.

10. How is the MA stretch code different from the existing Energy Star for Homes program?
The Energy Star for Homes program is a voluntary program for home builders. In Massachusetts this program is currently administered by ICF International on behalf of the major energy utilities in the state, and has several hundred builders enrolled. This program accounted for 15% of all new homes in Massachusetts in 2008. There are 2 or 3 tiers to the Energy Star program. The stretch code essentially makes the current Energy Star program requirements mandatory in any adopting municipality, and sets a specific minimum HERS index rating of 65 or 70 based on size for new homes, and less strict requirements for renovations. This standard for new construction is more stringent that the base Energy Star for Homes requirement currently set at 85, but for large homes it is the same as the current Energy Star tier 2 set at a HERS index score of 65.

11. Do I have to use the Energy Star program?
Residential builders in stretch code communities will be required to get a HERS rating for new homes. In the case of renovation or additions to existing buildings builders may instead meet the requirements of the Energy Star Builders Option package. In both cases builders must also complete the Energy Star thermal bypass checklist. In order to do this and also to simplify qualification for all the rebates and training and technical assistance that is offered we strongly recommend that builders participate in the Energy Star for Homes program. However, it is not mandatory, and in the future when the Energy Star Homes program or the stretch code is revised and updated they may take different approaches.

12. How does the building official in my town/city check whether I met the stretch energy code?
Currently, under the 7 edition base energy code in Massachusetts it is already possible to meet the code requirements by achieving a HERS rating and/or Energy Star homes certification, and submitting a copy of the HERS report and Energy Star paperwork to the local building code official to demonstrate this. The stretch code expands the use of this existing code compliance option to all residential construction. Building officials will be receiving free training on the new base energy code and the stretch code. This training is scheduled to begin before the end of the year to ensure that they are fully aware of this option and the requirements. The same training is also available to interested building professionals for a small fee to cover costs.

13. How does the stretch code work with LEED for Homes?
LEED for Homes is a voluntary residential green building program that encompasses a significant energy efficiency component. The mandatory energy and atmosphere requirements of the LEED for homes program are that a home at least meets the minimum Energy Star Home requirements of a HERS rating of 85 and a completed thermal bypass checklist. Homes can then gain additional points for achieving a lower HERS score. Because LEED for Homes and the stretch code share the same HERS and Energy Star underpinnings they are completely compatible.

Stretch Appendix to the Energy Code in Massachusetts: Question and Answer (Q&A):

Commercial Questions

1. What building types are covered by the commercial stretch code?
New buildings, and new additions to existing buildings that are greater than 5,000 square feet in size are covered by the stretch code. New commercial buildings smaller than 5,000 square feet, as well as all existing commercial buildings and renovation to existing commercial buildings are exempt from the stretch code.

2. What is required for large new commercial buildings above 100,000 square feet?
The designed energy use in large commercial buildings is required to be at least 20% below the use expected based on the building code energy modeling standards contained in ASHRAE 90.1 2007, which is the latest version of the national model code for commercial buildings. This would be determined by computer modeling of the building, taking into account factors such as air sealing, insulation, and efficiency of the cooling and heating systems, ventilation, and lighting design. Builders have the flexibility to choose the set of energy efficiency features they prefer, as long as modeling shows that overall they yield the 20% reduction relative to the base ASHRAE 90.1-2007 requirements for the same building.

3. What is required for new commercial buildings between 5,000 and 100,000 square feet?
Builders of such buildings have two choices. First, they can use the same modeling as for buildings above 100,000 square feet, and meet the same standard of 20% below ASHRAE 90.1 2007. Alternatively, they can choose a set of "prescriptive" requirements for particular efficiency measures, based on the new base energy code for commercial buildings (International Energy Conservation Code 2009), supplemented by cost-effective energy saving enhancements taken from the Core Performance program developed by the New Buildings Institute. The Core Performance program and the newly updated Core Energy Code are nationally-recognized standards already in use by Massachusetts gas and electric utility companies as the basis for providing financial incentives to commercial building developers.

4. What would be required of small new commercial buildings, below 5,000 square feet?
Such buildings would be exempt from the Stretch Code requirements.

5. How are commercial renovations handled by the stretch code?
Commercial renovations are exempt from the Stretch Code requirements.

6. How are new commercial buildings with special energy needs handled? Supermarkets, laboratories, and warehouses **above 40,000** square feet in size must meet the performance modeling requirements of the stretch code that apply to regular commercial buildings greater than 100,000 square feet. Because these buildings often have large and unusual energy loads they are likely to be energy modeled, so meeting the standard of 20% below ASHRAE 90.1-2007 via energy modeling should be a straightforward compliance approach. Supermarkets, laboratories, and warehouses **below 40,000** square feet are exempt from the stretch code requirements, but must still meet the base energy code. Other specialty buildings could apply for waivers based on evidence that they have unusual energy loads, and that they are not typically built using energy modeling.

7. How do the benefits and costs from the commercial Stretch Code standards compare to the baseline code?
Case studies of specific buildings by Massachusetts utility companies National Grid and NSTAR show that the savings in reduced energy costs far exceed the greater initial construction costs. If the costs are included in a mortgage, then owners would see immediate cash-flow savings. Moreover, the utilities offer generous incentives that make the efficiency improvements even more profitable. For example, on one mid-sized office building in Warwick, Rhode Island, the additional cost was $91,000, while the annual energy savings were $29,500, for a three year payback. But NGRID provided a rebate of $63,100, reducing the initial cost to $28,000, which is covered by the first year's energy savings. More generally, we anticipate that any additional upfront costs incurred in construction should be recovered from energy savings with a payback after rebates of less than three years.

8. How does the stretch code work with LEED buildings?
The commercial stretch code has two code compliance pathways. Both of these qualify for LEED new construction points, and require no additional work because of the stretch code. If pursuing the performance approach, then achieving the stretch code standard of 20% below ASHRAE 90.1-2007 uses the same baseline and modeling as the 2009 LEED program and qualifies for 5 out of 19 LEED energy and atmosphere points. Many LEED buildings will go significantly beyond these energy efficiency requirements, in order to obtain additional LEED points. Similarly meeting the stretch code through the Core Performance-based prescriptive approach qualifies for LEED points.