DECEMBER 2010

MONSON GREEN COMMUNITIES ACTION PLAN DRAFT

Prepared for
Green Communities Program
Department of Energy Resources

Prepared by
Town of Monson and
Pioneer Valley Planning Commission

MONSON GREEN COMMUNITIES ACTION PLAN DRAFT REPORT

Massachusetts Department of Energy Resources
Green Community Program
Commonwealth of Massachusetts
100 Cambridge Street 10th Floor
Boston, MA. 02114

Town of Monson
Monson Town Hall
110 Main Road
Monson, MA 01057

Pioneer Valley Planning Commission
60 Congress Street
Springfield, MA. 01104

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ACTION PLAN SUMMARY

In order to qualify as a Green Community Monson must successfully complete all five criteria. The process for completing all tasks associated for each of the five criteria is outlined below in one table. A responsible party, or point person, is identified for each task, a review of the progress to date is noted, and a target accomplish date is posted. This product is designed to help facilitate and track progress.

	Monson Green Communities Action Plan Summary *How the Municipality will qualify for Massachusetts new "Green Communities designation" www.mass.gov/energy/greencommunities, thereby making the city eligible to apply for a portion of Green Communities funding available to make the municipality even "greener"* *Minimum award of $125,000.00* *Applications for Designation are due May ??th 2011.* *Applications for funding are due May ??th 2010* *Award announcements will be made summer and autumn of 2011*
Community Contacts	Gretchen Neggers: Town Administrator: townadmin@monson-ma.gov Marta Gilmore: Town Accountant: accountant@monson-ma.gov Harold Leaming: Building Commissioner: hleaming@monson-ma.gov Linda : Conservation Office John Morrell: Highway Department: Highway@monson-ma.gov Don Smith: School Department

CRITERIA	
1 - As-of-Right Siting	
Responsible Party	Gretchen Neggers
Accomplished to date	Complete. Town has as of right for solar.
Specific tasks to be completed to meet criteria	1. Letter from Legal Counsel affirming criteria is met See Criteria 1 Guidance See Sample letter from Legal Counsel
Date to be Completed	**February 17th, 2011**
2 - Expedited Permit Process	
Responsible Party	Gretchen Neggers with Ken Albano of Bacon and Wilson
Accomplished to date	Model letter from General Counsel stating conformity with Criteria #2 included in this plan
Specific tasks to be completed to meet criteria	Need to have rules and regulations in place governing permit issuance such that all local permitting decisions 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. 1. Secure letter from legal counsel. 2. Submit to DOER for review and approval. See Criteria 2 Guidance; Compliance Section See Sample letter from Legal Counsel
Date to be Completed	**February 17th, 2011**

3 - Baseline Energy Use	
Responsible Party	Martha Gilmore with Brian Markey
Accomplished to date	Town and PVPC consultant registered for MEI Years of data have been updated
Specific tasks to be completed to meet criteria	1. Verify information on M.E.I. is correct 2. Enter missing data into MEI. *(Need information on all electric, oil, natural gas, and gasoline accounts for all town buildings, facilities, vehicles on a monthly basis from base year until present)* 3. Using M.E.I. generate baseline energy report.
Date to be Completed	**February 17 for task 1,2, and 3**
20% Reduction Plan	
Responsible Party	Martha Gilmore with Brian Markey
Accomplished to date	Model 20% reduction plan included in this plan Public Utility audits complete. Audit results to be tuned in by February
Specific tasks to be completed to meet criteria	1. Locate all energy efficiency reports, upgrades, and audits. 2. Develop 20% reduction plan with additional actions as appropriate. 3. Adoption of 20% reduction Plan by Selectmen and school authority 4. Submit to DOER for review and approval. *See Guidance for Criteria 3* *See Model 20% Energy Reduction plan* *See Model Letter Certifying Adoption of 20% Reduction Plan*
Date to be Completed	**March 17 for task 1 and 2** **March 31 for task 3**

4 - FEV Purchasing Policy	**Needs action with Selectmen and School Authority**
Responsible Party	John Morrell
Accomplished to date	1. Model FEV policy included in this plan 2. Have copy of approved alternative compliance from New Salem
Specific tasks to be completed to meet criteria	1. Determine if any town vehicles are non exempt 2. Draft policy for review by Selectmen and School Authority 2a. either use New Salem model for alternative compliance or 3a or use draft policy from DOER 3. Create inventory of all town and school nonexempt vehicles 4. Present draft to Selectmen and school authority for review and comment. 5. Revise as needed. 6. Bring to Selectmen and school authority for formal adoption. 7. Submit to DOER for review and approval. *See List of FEV* *See Guidance Criteria 4* *See Model FEV Policy with Inventory, Purchasing Policy and Replacement Plan* *See Alternative Compliance from New Salem*
Date to be Completed	**Feb 17 for task 1,2 and 3** **March 17 for task 4** **May 1 for task 5 and 6**
5 - Stretch Code	
Responsible Party	Harold Leaming with Brian Markey
Accomplished to date	Have educational/outreach materials on stretch code included in this plan.
Specific tasks to be completed to meet criteria	1. Meet with Building Commissioner to affirm action plan 2. Prepare press releases for local media 3. Schedule informal public presentation(s) to answer local builders/property owners concerns (Dan Hellyer and Jim Barry) 4. Ongoing informal education/outreach to builders and other interested persons 5. Write Warrant for Town Meeting 6. Hold required public hearing 7. Favorable vote at Town Meeting *See Guidance Criteria Five* *See Model Warrant Article Language* *See model Bylaw Language* *See Stretch Code Overview* *See attachment: Stretch Code Educational Power Point*
Date to be Completed	**Feb 17 for task 1 and 2** **March 17 for task3,4,5** **April 14 for task 6** **May for task 7**

GREEN COMMUNITY CRITERIA

The Town of Monson must meet five criteria in order to be considered a Green Community by Massachusetts Department of Energy Resources as outlined in Massachusetts General Laws Chapter 25a Section 10.

1. AS-OF-RIGHT SITING

INFORMATION:

Provide for the as-of-right siting of renewable or alternative energy generating facilities, renewable or alternative energy research and development (R&D) facilities, or renewable or alternative energy manufacturing facilities in designated locations.

- "As-of-Right Siting" is defined as siting that provides for the allowed use of, and does not unreasonably regulate, or require a special permit.

- An applicant can meet this requirement by providing as-of-right siting for one of the three types of facilities described.

- If a community has as-of-right siting in place for R&D and/or manufacturing facilities in general, this can meet this requirement, but the community must demonstrate that the zoning by-law applies to renewable and alternative energy R&D or manufacturing.

- Communities can select the specific locations for the as-of-right siting, i.e. where these facilities are to be located, but these locations must be feasible and practical.

    - e.g: Locations for wind are required to have adequate wind resources (6m/s at 70 meters) and biomass CHP locations are required to have a sufficient thermal load

- If providing as-of-right siting for generation, the community must select technology that is practically available and provides a realistic opportunity for generation. It is expected that a community will appropriately utilize its available renewable resources, and this will be taken into consideration in the review of an application meeting this requirement. For example, it would be expected that a community with wind resources of 6m/s or above will provide as-of-right siting for wind generation.

- As-of-right zoning by-laws can apply appropriate standards that protect public health and safety and provide for non-discretionary site plan review. Reasonable environmental performance standards per the developed by-law may be incorporated into the Site Plan Review (SPR) process (e.g. height, setback, etc…), but cannot be so stringent as to make the use infeasible. The thrust of this aspect of the policy is that SPR be truly non-discretionary. In other words, if the standards and zoning requirements are met, the project can be built. This is distinct from the Special Permit (SP), in that the SP may be denied if the Planning Board or other permit granting authority is not satisfied with the project.

- An applicant can meet this requirement with as-of-right siting for renewable or alternative energy generation with ***one*** of the following project requirements:

    - On-shore Wind – a turbine of a minimum 600 kW in size or above
    - Off-shore Wind – a turbine of a minimum 2.5 MW or above
    - Solar Photovoltaic – a single ground-mounted system of a minimum of 250 kW or above
    - Biomass CHP - a minimum of 5MW in a stand-alone building
    - Ocean, wave or tidal – no minimum threshold

- If providing as-of-right siting for R&D or Manufacturing facilities 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: When grant awards are made to those communities who have qualified as a Green Community, special consideration will be given to those who have met the as-of-right siting requirement through renewable and alternative energy generation.

MODEL LETTER FROM TOWN COUNSEL:

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 Mr. Sylvia:

It is my opinion, as BLANK TOWN NAME City Solicitor, that BLANK TOWN NAME 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. BLANK TOWN NAME 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;
> (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:
BLANK TOWN NAME's BLANK TYPE OF ZONING DISTRICT allow by-right siting of research and development and manufacturing facilities that meet the definitions provided.

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 within one year.
Or
It is very clear in my opinion that nothing within the municipality's rules and regulations precludes issuance of a permitting decision within one year.
The language addressing approval procedures and associated timing from any applicable bylaws/ordinances or regulations are shown below:

Land Availability and Yield Calculations:
Finally, the attached map shows the location of our BLANK ZONING DISTRICT / MGL 43D ZONING DISTRICTS. These districts contain partially developed sites or are previous manufacturing sites that are ripe for redevelopment. Sites specified below indicates these locations with sites capable to contain 50,000 sf buildings

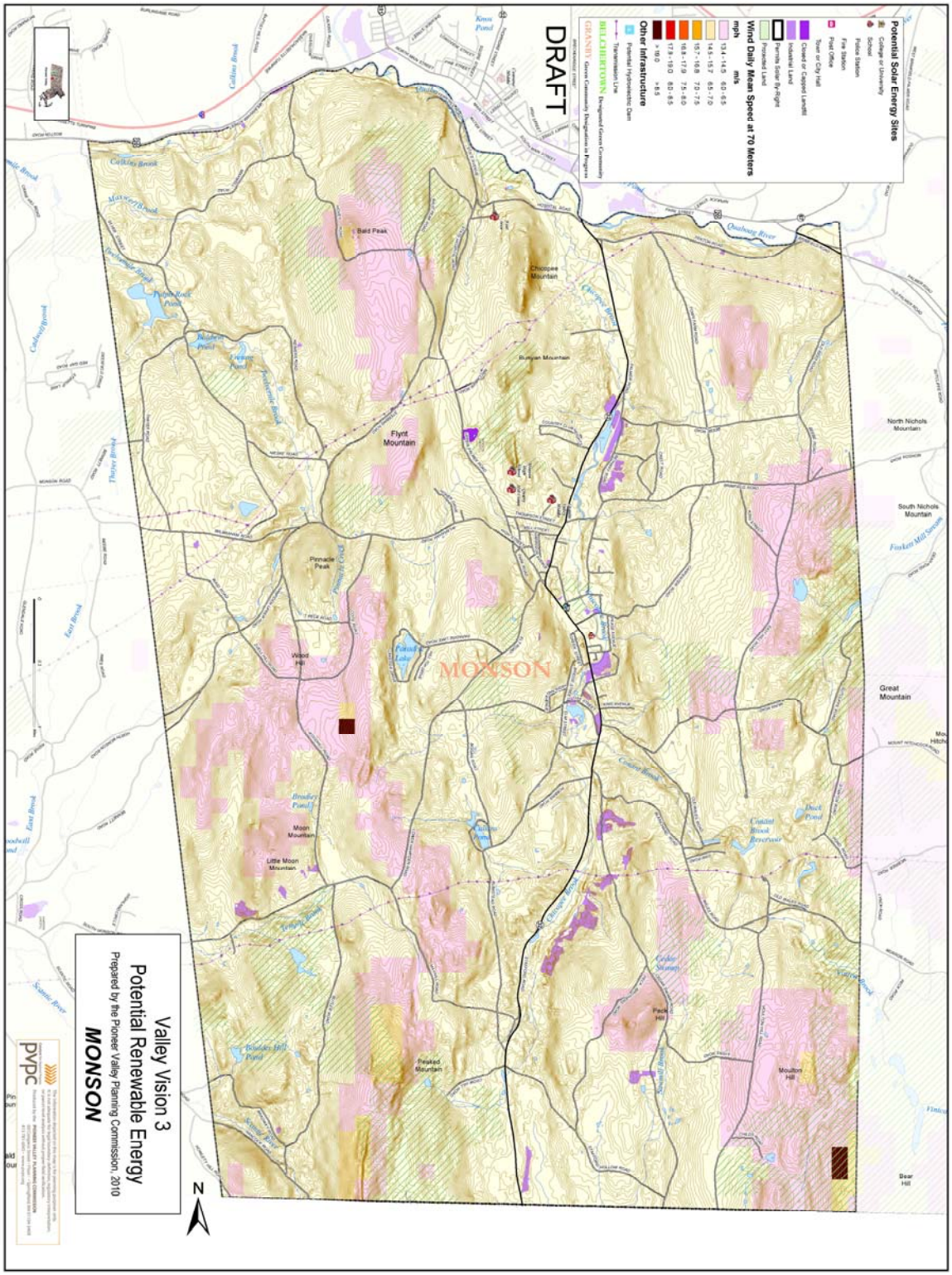
It is my opinion, as BLANK TOWN NAME Town Counsel / City Solicitor, that we comply with MGL Chapter 25A, § Section 10(C) condition 2 (Criteria 1) and condition 3 (Criteria 2).

Please feel free to contact me or BLANK NAME OF PERSON leading the Green Communities Project for TOWN/CITY if you need any further clarification.

Regards,

BLANK NAME OF CITY SOLICTOR/TOWN COUNSEL

ENERGY RESOURCE MAP OF MONSON:



MONSON'S ADOPTED SOLAR BYLAW:

LARGE-SCALE GROUND-MOUNTED PHOTOVOLTAIC INSTALLATIONS BYLAW
TOWN OF MONSON
Prepared by the Pioneer Valley Planning Commission
September 14th, 2010

Amend Monson Bylaws Section 1.7 to include the following Sections

1.7 DEFINITIONS

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 in designated locations. As-of-right development shall be subject to Site Plan Approval by Monson Planning Board acting as the Site Plan Review Authority (SPRA) to determine conformance with local zoning ordinances or bylaws.

Building Permit: A construction permit issued by an authorized building inspector; the building permit evidences that the project is consistent with the state and federal building codes as well as local zoning bylaws, including those governing ground- mounted large-scale solar photovoltaic installations.

Large-Scale Ground-Mounted Solar Photovoltaic Installation: A solar photovoltaic system that is structurally mounted on the ground and is not roof-mounted, and has a minimum nameplate capacity of 250 kW DC.

On-Site Solar Photovoltaic Installation: A solar photovoltaic installation that is constructed at a location where other uses of the underlying property occur.

Rated Nameplate Capacity: The maximum rated output of electric power production of the Photovoltaic system in Direct Current (DC).

Site Plan Review: review by the Site Plan Review Authority to determine conformance with local zoning ordinances or bylaws.

Site Plan Review Authority: For purposes of this bylaw, Site Plan Review Authority is the Monson Planning Board.

Solar Photovoltaic Array: an arrangement of solar photovoltaic panels.

Transmission Lines: Those conductors and their necessary supporting or containing structures which are located entirely outside of buildings and are used for transmitting electric energy which is not connected to individual users/property owners.

Zoning Enforcement Authority: The person or board charged with enforcing the zoning ordinances or bylaws.

Amend Monson Bylaws to add the following section

6.23 LARGE-SCALE GROUND-MOUNTED PHOTOVOLTAIC INSTALLATIONS

6.23.1 Purpose

The purpose of this subsection of the Zoning Bylaw is to establish appropriate criteria and standards for the placement, design, construction, operation, monitoring, modification and removal of new large-scale ground-mounted solar photovoltaic installations that address public safety, minimize impacts on scenic, natural and historic resources and to provide adequate financial assurance for the eventual decommissioning of such installations.

The provisions set forth in this section shall apply to the construction, operation, and/or repair of large-scale ground-mounted solar photovoltaic installations.

6.23.2 Applicability

This section applies to large-scale ground-mounted solar photovoltaic installations proposed to be constructed after the effective date of this section. This section also pertains to physical modifications that materially alter the type, configuration, or size of existing installations or related equipment.

6.23.3 Location

Large-Scale Ground Mounted Photovoltaic Installations shall be allowed by right with site plan review on all parcels of land under single ownership that total 50 contiguous acres or more and have transmission lines on or adjacent to the property.

6.23.4 General Requirements for all Large-Scale Ground-Mounted Photovoltaic Installations

The following requirements are common to all solar photovoltaic installations to be sited in designated locations:

6.23.4.1 Compliance with Laws, Ordinances and Regulations

The construction and operation of all large scale solar photovoltaic installations shall be consistent with all applicable local, state and federal requirements, including but not limited to all applicable safety, construction, electrical, and communications requirements. All buildings and fixtures forming part of a solar photovoltaic installation shall be constructed in accordance with the State Building Code.

6.23.4.2 Building Permit and Building Inspection

No large scale solar photovoltaic installation shall be constructed, installed or modified as provided in this section without first obtaining a building permit.

6.23.4.3 Fees

The application for a building permit for a large scale solar photovoltaic installation must be accompanied by the fee required for a building permit.

6.23.5 Site Plan Review

Ground-mounted large scale solar photovoltaic installations with 250 kW or larger of rated nameplate capacity shall undergo site plan review by the Monson Planning Board acting as the Site Plan Review

Authority (SPRA) prior to construction, installation or modification as provided in this section. The construction and operation of all large scale solar photovoltaic installations shall be consistent with all applicable local, state and federal requirements, including but not limited to all applicable safety, construction, electrical, and communications requirements. No large scale solar photovoltaic installation shall be constructed, installed or modified as provided in this section without first obtaining a building permit.

6.23.6 Application Requirements

All plans and maps shall be prepared, stamped and signed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts.

Pursuant to the site plan review process, the project proponent shall provide the following documents:

1. A site plan showing:

    (a) Property lines and physical features, including roads and buildings, for the project site.

    (b) Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, screening vegetation or structures, and a landscape plan in plan view identifying plant material to be used to screen all appurtenant structures (per 6.23.7.5) and identifying plant material or fencing to be used to satisfy the requirement for a buffer between installation and property edge as (per section 6.23.8.3).

    (c) Blueprints of the solar photovoltaic installation signed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts showing the proposed layout of the system and any potential shading from nearby structures.

    (d) One or three line electrical diagram detailing the solar photovoltaic installation, associated components, and electrical interconnection methods, with all National Electrical Code compliant disconnects and overcurrent devices.

    (e) Documentation of the major system components to be used, including the PV panels, mounting system, and inverter.

    (f) Name, address, and contact information for proposed system installer.

    (g) Name, address, phone number and signature of the project proponent, as well as all co-proponents or property owners, if any.

    (h) Name, contact information and signature of any agents representing the project proponent, if any.

2. Documentation of actual or prospective access and control of the project site sufficient to allow for construction and operation of the proposed solar photovoltaic installation.

3. An operation and maintenance plan which shall include measures for maintaining safe access to the installation, storm water controls, and general procedures for operational maintenance of the installation.

4. Proof of liability insurance.

5. Description of financial surety that satisfies Section 6.23.11.3.

6. Utility Notification

No large-scale ground-mounted solar photovoltaic installation shall be constructed until evidence has been given to the SPRA that the utility company that operates the electrical grid where the installation is to be located has been informed of the solar photovoltaic installation owner or operator's intent to install an interconnected customer-owned generator. Off grid systems shall be exempt from this requirement.

6.23.7 Design Standards

6.23.7.1 Dimensional and Density Requirements

All construction shall comply with the yard, space, and height requirements of the zoning district(s) in which the installation is located or 75 feet set back from front, side and rear yard; whichever is greater.

6.23.7.2 Lighting

Lighting of solar photovoltaic installations shall be consistent with local, state and federal law. Lighting of other parts of the installation, such as appurtenant structures, shall be limited to that required for safety and operational purposes, and shall be reasonably shielded from abutting properties. Lighting of the solar photovoltaic installation shall be directed downward and inward and shall incorporate full cut off fixtures to reduce light pollution.

6.23.7.3 Signage

Signs shall comply with Section 5.3 of the Monson Zoning Bylaws. A sign consistent with Section 5.3 of the Monson Zoning Bylaw shall be required to identify the owner and provide a 24-hour emergency contact phone number shall be made visible from a right of way where the property has frontage. Solar photovoltaic installations shall not be used for displaying any advertising except for reasonable identification of the manufacturer or operator of the solar photovoltaic installation.

6.23.7.4 Utility Connections

Reasonable efforts, as determined by the SPRA, shall be made to place all utility connections from the solar photovoltaic installation underground, depending on appropriate soil conditions, shape, and topography of the site and any requirements of the utility provider. Electrical transformers for utility interconnections may be above ground if required by the utility provider.

6.23.7.5 Appurtenant Structures

All appurtenant structures to large-scale ground-mounted solar photovoltaic installations shall conform to the setback requirements of the zoning district in which the installation is located or 75 feet setback from front, side and rear yard; whichever is greater. All such appurtenant structures, including but not limited to, equipment shelters, storage facilities, transformers, and substations, shall be architecturally compatible with each other. Whenever reasonable, structures should be shaded from view by vegetation and/or joined or clustered to avoid adverse visual impacts. All appurtenant structures shall have a Landscape Plan.

6.23.8 Safety and Environmental Standards

6.23.8.1 Emergency Services

The large scale solar photovoltaic installation owner or operator shall provide a copy of the project summary, electrical schematic, and site plan to the local Fire Chief. Upon request the

owner or operator shall cooperate with local emergency services in developing an emergency response plan. All means of shutting down the solar photovoltaic installation shall be clearly marked. The owner or operator shall provide the name, phone number, and email of the person responsible for public inquiries throughout the life of the installation.

6.23.8.2 Land Clearing, Soil Erosion and Habitat Impacts
Clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of the large scale ground-mounted solar photovoltaic installation or otherwise prescribed by applicable laws, regulations, and bylaws.

6.23.8.3 Landscaped Buffer Strip
A landscaped buffer strip is intended to provide in a reasonable time a visual barrier between the Large-scale ground-mounted solar photovoltaic installation and neighboring properties. Except for vehicular and pedestrian passways, the areas shall be used only for an interplanting of deciduous and evergreen trees and shrubs, with lawn or other suitable and appropriate ground cover.

The buffer must provide coverage of three feet in height from the proposed grade to the top of the majority of the planting material at time of installation. Reasonable leeway may be provided by the SPRA to allow for expected growth of the buffer strip over time. The buffer strip shall occupy at least 20% of the depth between the property line and the mandated setback of the zoning district where the installation is located. Where considered appropriate in the judgment of the site plan review authority, walls and fences may be used in addition to or in lieu of plantings. A planting plan showing the types, sizes and locations of material to be used shall be subject to the approval of the SPRA.

The SPRA may waive the requirements of the visual barrier where it deems it advisable, for example, where a street is the dividing line between different land uses.

6.23.9 Monitoring and Maintenance

6.23.9.1 Installation Conditions
The large scale ground-mounted solar photovoltaic installation owner or operator shall maintain the facility in good conditions. Maintenance shall include, but not be limited to, painting, structural repairs, and integrity of security measures. Site access shall be maintained to a level acceptable to the local Fire Chief and Emergency Medical Services. The owner or operator shall be responsible for the cost of maintaining the solar photovoltaic installation and any access road(s) unless accepted as a public way.

6.23.9.2 Modification Conditions
Any material modifications to a solar photovoltaic installation made after issuance of the required building permit shall require approval by the SPRA.

6.23.10 Waivers

1. The SPRA may waive strict compliance with any requirement of the Design Standards, Safety and Environmental Standards section of this bylaw, or the rules and regulations promulgated hereunder, where:
   (a) Such action is allowed by federal, state and local statues and/or regulations;
   (b) Is in the public interest:
   (c) Is not inconsistent with the purpose and intent of this by-law.

2. Any applicant may submit a written request to be granted such a waiver. Such a request shall be accompanied by an explanation or documentation supporting the waiver request and demonstrating that strict application of the by-laws does not further the purposes or objectives of this by-law.

3. All waiver requests shall be discussed and voted on at the public hearing for the project.

4. If in the SPRA opinion, additional time or information is required for review of a waiver request, the Board may continue the hearing to a date certain announced at the meeting. In the event the applicant objects to a continuance, or fails to provide requested information, the waiver request shall be denied.

6.23.11 Abandonment or Decommissioning

6.23.11.1 Removal Requirements

Any large scale ground mounted solar photovoltaic installation which has reached the end of its useful life or has been abandoned consistent with Section 6.28.2 of this bylaw shall be removed. The owner or operator shall physically remove the installation no more than one hundred and fifty (150) days after the date of discontinued operations. The owner or operator shall notify the SPRA by certified mail of the proposed date of discontinued operations and plans for removal. Decommissioning shall consist of:

(a) Physical removal of all large scale ground solar photovoltaic installations, structures, equipment, security barriers and transmission lines from the site.

(b) Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.

(c) Stabilization or re-vegetation of the site as necessary to minimize erosion. The SPRA may allow the owner or operator to leave landscaping or designated below grade foundations in order to minimize erosion and disruption to vegetation.

6.23.11.2 Abandonment

Absent notice of a proposed date of decommissioning or written notice of extenuating circumstances, the solar photovoltaic installation shall be considered abandoned when it fails to operate for more than one year without the written consent of the SPRA. If the owner or operator of the large scale ground mounted solar photovoltaic installation fails to remove the installation in accordance with the requirements of this section within one hundred and fifty (150) days of abandonment or the proposed date of decommissioning, the Town may enter the property and physically remove the installation.

6.23.11.3 Financial Surety

Proponents of large scale ground mounted solar photovoltaic projects shall provide a form of surety through escrow account to cover the cost of removal in the event the Town must remove the installation and remediate the landscape, in an amount determined to be reasonable by the SPRA, but in no event to exceed more than one hundred and twenty five (125%) percent of the cost of removal and compliance with the additional requirements set forth herein, as determined by the project proponent. The project proponent shall submit a fully inclusive estimate of the

costs associated with removal, prepared by a qualified engineer. The amount shall include a mechanism for calculating increased removal costs due to inflation.

2. EXPEDITED PERMITING

INFORMATION:

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.

MODEL LETTER FROM LEGAL COUNSEL:
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 Mr. Sylvia:

It is my opinion, as BLANK TOWN NAME City Solicitor, that BLANK TOWN NAME 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. BLANK TOWN NAME 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;
> (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:
BLANK TOWN NAME's BLANK TYPE OF ZONING DISTRICT allow by-right siting of research and development and manufacturing facilities that meet the definitions provided.

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 within one year.
Or
It is very clear in my opinion that nothing within the municipality's rules and regulations precludes issuance of a permitting decision within one year.
The language addressing approval procedures and associated timing from any applicable bylaws/ordinances or regulations are shown below:

Land Availability and Yield Calculations:
Finally, the attached map shows the location of our BLANK ZONING DISTRICT / MGL 43D ZONING DISTRICTS. These districts contain partially developed sites or are previous manufacturing sites that are ripe for redevelopment. Sites specified below indicates these locations with sites capable to contain 50,000 sf buildings

It is my opinion, as BLANK TOWN NAME Town Counsel / City Solicitor, 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 BLANK NAME OF PERSON leading the Green Communities Project for TOWN/CITY if you need any further clarification.

Regards,

BLANK NAME OF CITY SOLICTOR/TOWN COUNSEL.

3. 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 districts):

(1) Establish an energy use baseline inventory for municipal buildings, vehicles, street and traffic lighting.

All energy use baseline consumption should be provided on a 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. EnergyStar Portfolio Manager
c. ICLEI software
d. Other tools proposed by the community and deemed acceptable by DOER

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

For applications consisting of more than one community, each community 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) across all buildings, vehicles and street and traffic lighting contained in the baseline 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. 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 community'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 Energy Reduction Plan.** 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 community 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 community 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 Verifying Adoption of the ERP

Public School Districts - For a municipality to meet this requirement, its public school district (not including regional school districts) must be included in the municipality's baseline. Furthermore, the public school district must adopt the energy reduction plan.

Regional School Districts - 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.)

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 - note whether or not street and traffic lighting are owned by the municipality or by the utility. If owned by the utility, then these will not be included in the baseline and energy reduction plan.

Table 1

Type	**Number of each**
Buildings	
Oil Heat	
Natural Gas Heat	
Propane Heat	
Biomass Heat	
Other Heat Type	
Vehicles	
Non-Exempt	
Exempt	
Street Lights	
Municipally-Owned	
Utility-Owned	
Traffic Lights	
Municipally-Owned	
Utility-Owned	

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

MMBtu Used in Baseline Yr	**% of Total MMBtu Baseline Energy Consumption**	**Projected Planned MMBtu Savings**	**Savings as % of Total MMBtu Baseline Energy Consumption**
Buildings			
Vehicles			
Streetlights			
Total	**100%**		**20%**

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

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 -*** Provide an overall breakdown per building, vehicles in the aggregate, and street and traffic lights in the aggregate. Use sample Table 3 below. If the municipality has a large number of buildings, then include a shortened table here with the total consumption for all buildings and provide a detailed table with each building as an Appendix.

Table 3

	Electricity		**Natural Gas**		**Fuel Oil**	**Propane**		**Gasoline**		**Total MMBtu**
	KWh	**MMBtu**	**Therms**	**MMBtu**	**Gallons**	**MMBtu**	**Gallons**	**MMBtu**	Gallons	**MMBTu**
School										
Town Hall										
Police Station										
TOTAL BUILDINGS										
Total Vehicles										
Street and Traffic Lights total										
TOTAL ENERGY USE										

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 CY2009) list efficiency measures implemented during this period and provide energy reductions achieved

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 40% if replaced with a new boiler with an efficiency factor of 90%.

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 in 5 years, and then a general strategy for identifying and obtaining the remaining *5%.*

1. Municipal Buildings (including schools)

a. *Prioritized List of Strategies to Reduce Energy Usage* – Include tools, resources and financial incentives

b. *Program Management Plan for Implementation, Monitoring and Oversight* – Identify the personnel responsible.

c. *Building Energy Conservation Measures* - General goals and prioritized list of specific projects. Please include any planned renovations with projected energy savings and note the source of the projected savings, e.g. audit, manufacturer data. (Please provide a table for each building with planned retrofits. List the energy conservation measures and for each measure, provide the total projected savings for each in MMBtus. Refer to the sample table below. If the municipality has a large number of buildings, then these tables can be provided in an Appendix)

Table 4. Building – Elementary School

Energy Conversation Measure	**Projected Annual Savings (MMBtus)**	**Source for Projected Savings**
Lighting Retrofit		
Air Sealing		
New Boiler		
TOTAL Projected Savings		

d. *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 below.

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, see Table 5 below to determine whether a building will be included in the baseline at the time of evaluation. Table 5 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. Detailed guidance can be found at the end of this guidance as Appendix A.

For a community using FY2008, 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 community should note in the ERP how these buildings were built or retrofit to be as energy efficient as possible and what the energy performance of the building was designed to meet. 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.

Table 5

	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

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

Table 6

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

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

Table 7

	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	

2. Vehicular Energy Conservation (including schools)
a. *Goals and Specific Strategies* – Note how these were identified. 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.
b. *Projected Annual Energy Savings*
c. *Timeframe for Implementation*
3. Street and Traffic Lighting Energy Conservation (if owned by municipality)
a. *General Goals and Specific Projects* – Note how these were identified
b. *Projected Annual Energy Savings*
c. *Timeframe for Implementation*

C. *Measurement and Verification Plan for Projected Reductions – Annual Reporting*
1. Provide Common Technology Features as Applicable, - e.g. submetering, smart metering, energy management systems, MassEnergyInsight
2. Note 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)?

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. CONCLUSION
A. *List of Resources* – Identify resources that are available (websites, documents, tools)
B. *Contacts* – Provide contact information for local, state, federal non-profit entities that support energy reduction planning

BTU 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 = 5,800,000 Btu

1 gallon of gasoline = 124,000 Btu (based on U.S. consumption, 2007)

1 gallon of diesel fuel = 139,000 Btu

1 gallon of heating oil = 139,000 Btu

1 barrel of residual fuel oil = 6,287,000 Btu

1 cubic foot of natural gas = 1,028 Btu (based on U.S. consumption, 2007)

1 gallon of propane = 91,000 Btu

1 short ton of coal = 20,169,000 Btu (based on U.S. consumption, 2007)

1 kilowatt hour of electricity = 3,412 Btu

1 therm = 100,000 Btu

FOR MORE INFORMATION

Website:

www.mass.gov/energy/greencommunities Updated 8/24/10 9

APPENDIX A. - Guidance for Building Stock Changes

For building stock added after the baseline was completed but during the 5 year 20% reduction period following the baseline year, the additional energy load from 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, MEI will be able to monitor the performance of these buildings, which will be built to the Stretch Code, and if a community is designated, it will be expected to monitor the performance of this building under its 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.

Renovations that occur after completion of the baseline but during the 5 year 20% reduction period will be factored into the 20% reduction. This is not additional space and should be done such that the space will be more efficient than it was before the renovation.

For additions that occur after completion of the baseline but during the 5 year 20% reduction period, after the addition comes on line, the energy load for that building counted towards the 20% reduction target will be pro-rated based on the building square footage. For example, if an addition provides an additional 30% square footage for the building, then 70% of the energy bills will be accounted for in monitoring the community's progress towards meeting the 20% reduction target.

For buildings that are removed from the building stock after the baseline was completed but during the 5 year 20% reduction period and are not replaced by a new building, once these buildings are removed, the baseline will be readjusted to subtract that building and the 20% reduction target will be revised accordingly.

For buildings originally included in the baseline that go offline and are replaced by a new building, the baseline will not change, and the new building will be included in the 20% reduction target.

At any time, a community can petition DOER to consider modification of its baseline. For example, a community 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 buildings that are acquired after the baseline year, that are old buildings and not new construction, and 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 community should address these buildings separately, noting what their baseline energy use was when they were acquired and measures that 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 consumption profile when they were acquired and include them in the 20% reduction target. (A community 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.

MODEL LETTER CERTIFYING ADOPTION OF 20% PLAN

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

RE: TOWN Adopts Energy Reduction Plan.

Dear Mr. Sylvia:

Please find TOWNS 20% Energy Reduction Plan attached. TOWN is committed to adopting the measures outlined in this plan and foresees a 20% reduction of municipal energy use from fiscal year 20?? until fiscal year 20??. We are proud to set this goal for our TOWN as part of the larger Green Communities initiative.

Thank you for your time and please contact us with any questions.

Sincerely,

??-Mayor/ Town Manager/

??- Members of Select Board

??- Members of School Board

4. FUEL EFFICIENT VEHICLES

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

MODEL FUEL EFFICIENT VEHICLE POLICY
www.mass.gov/energy/greencommunities

This sample policy was prepared to assist cities and towns in developing a fuel efficient vehicle policy. This model policy is intended for illustration purposes only, though communities are free to utilize the format provided.

BLANK Municipality / School District **MODEL FUEL EFFICIENT VEHICLE POLICY**	
Effective Date	
Revisions	
Approval Date	
Effective Date	

FUEL EFFICIENT VEHICLE POLICY

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)) note 1.

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 (city/town/school district/other local entity)'s fuel consumption and energy costs over the next _____ years the (policy making body) hereby adopts a policy to purchase only fuel efficient vehicles to meet this goal.

PURPOSE

To establish a requirement that the (city/town/school district/other local entity) purchase only fuel efficient vehicles for municipal/school use whenever such vehicles are commercially available and practicable.

APPLICABILITY

This policy applies to all divisions and departments of the (city/town/school district/other local entity)

GUIDELINES

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

The (city/town/school district/other local entity) 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

***NOTE:** 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

NOTE: Departments/Divisions may use EPA combined MPG estimates or actual combined MPG.

FUEL EFFICIENT VEHICLE REPLACEMENT PLAN

The (city/town/school district/other local entity) 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 (city/town/school district/other local entity) 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/division responsible for fleet management and/or fleet procurement. This policy is enforced by the Chief Administrative Officer and/or 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

Note 1: 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.

ALTERNATIVE COMPLIANCE:

Some municipalities' vehicle fleet is made up of entirely exempt vehicles. In order to satisfy criteria four an Alternative Compliance plan must be developed. The town of New Salem successfully developed and submitted the following alternative compliance. The plan focused on reducing green house gas emissions from travel and reducing number of vehicle trips per employee.

NEW SALEM ENERGY COMMITTEE
Fuel Efficient Vehicles
Criteria 4

INTRODUCTION

Criteria Four of the Green Communities Program states that New Salem must purchase fuel efficient vehicles for municipal use whenever such vehicles are commercially available and practicable. New Salem currently owns 24 vehicles for municipal use. All town owned vehicles fall into exempt vehicle status according to the Green Community's regulations. The Town of New Salem has adopted a policy to purchase the most fuel efficient police cruisers, fire trucks, and highway trucks whenever they become commercially available. New Salem schools are excluded from this policy due to the fact that the schools are regional. 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 New Salem hereby establishes a monitoring system to help facilitate the municipality's reduction in vehicle consumption. The New Salem Energy Committee will establish and oversee the monitoring system in conjunction with town officials and staff. Finally, the Town of New Salem has adopted an anti-idling policy for all town owned vehicles pursuant to Mass General Law , Chapter 90, Section 16A.

ALTERNATIVE COMPLIANCE

New Salem 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. New Salem 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 New Salem's fuel consumption and energy costs over the next 5 years the New Salem 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 New Salem with the exception of the regional schools.

GUIDELINES

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

New Salem will maintain an annual vehicle inventory for exempt vehicles and a plan for replacing these vehicles with vehicles of greater fuel 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/MPG/annual miles driven/total fuel consumption/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 no idling town vehicles policy effective immediately.

FUEL EFFICIENT VEHICLE REPLACEMENT PLAN

Whenever a New Salem vehicle is being replaced, the New Salem Energy Committee (NSEC) 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 NSEC would expect to see the specifications of several different manufactures.

ANTI-IDLING POLICY

New Salem 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 New Salem 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 New Salem Select Board.

Chairman, Board of Selectman

11/8/2010

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**

5. STRETCH CODE
Adoption Process for a Town

INFORMATION:

Require all new residential construction over 3,000 square feet and all new commercial and industrial real estate construction to minimize, to the extent feasible, the life-cycle cost of the facility by utilizing energy efficiency, water conservation and other renewable or alternative energy technologies.

Cities and towns can meet this requirement by adopting the new BBRS Stretch Code, the new appendix to the MA State Building Code. Should a community chose to not adopt the stretch code and choose to use another standard, the community must provide evidence that this alternative standard minimizes the life cycle energy costs for all new construction and is enforceable by the community.

INTRODUCTION

Towns interested in adopting 780 CMR 120.AA, the "Stretch Code" are directed to do so in the manner prescribed by law – see 101.3 Purpose and Intent section of the Stretch Code:

> ***101.3 Purpose and Intent.*** *The purpose of 780 CMR 120.AA is to provide a more energy efficient alternative to the base energy code for new and existing buildings. 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.*
>
> *If adopted by a municipality this appendix, rather than 780 CMR 13, 34, 61, or 93, as applicable, shall govern.*
>
> *This appendix shall regulate the design and construction of buildings to provide flexibility, and, permit the use of innovative approaches and techniques to achieve effective energy use.*

ADOPTION BY A TOWN

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.** The following sample article and sample bylaw are provided as examples:

Model Warrant Article:

ARTICLE: To see if the Town will vote to enact Chapter ___ of the Town of _____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.

MODEL BYLAW LANGUAGE:

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 _____ General Bylaws, Chapter ____ .

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

FOR MORE INFORMATION

Contact your Regional Coordinator at:

http://www.mass.gov/Eoeea/docs/doer/green_communities/pubs_reports/regional_coordinators.pdf

Or

Check out the Green Communities Grant Program Toolkit on our website at:

http://www.mass.gov/?pageID=eoeeaterminal&L=3&L0=Home&L1=Energy%2c+Utilities+%26+Clean+Technologies&L2=Green+Communities&sid=Eoeea&b=terminalcontent&f=doer_green_communities_gc-grant-program&csid=Eoeea

STRETCH CODE OVERVIEW:

Appendix 120.AA known as the „Stretch code‟, was adopted by the Massachusetts Board of Building Regulations and Standards in May 2009, as an optional appendix to the Massachusetts Building Code 780 CMR.

This optional „stretch code‟ was developed in response to the call for improved building energy efficiency in Massachusetts. Towns and cities in the Commonwealth may adopt Appendix 120.AA in place of the energy efficiency requirements of the „base‟ building code. In addition, the „base‟ building energy code in Massachusetts will be updated in 2010 to the recently published IECC (International Energy Conservation Code) 2009 energy code[1]. The „stretch code‟ is similarly based on the IECC 2009 energy code, but with approximately 20% greater building efficiency requirements, and a move towards 3rd party testing and rating of building energy performance.

The stretch code may be adopted by any town or city in the commonwealth, by decision of its governing body following a public hearing. In a city the governing body is the city manager and the city council, or the mayor and city council[2]. In towns the governing body is the board of selectmen. In order to be adopted, the appendix must be first considered at an appropriate municipal public hearing, subject to the municipality‟s existing public notice provisions.

Stretch code provisions

Residential - New Construction

New residential buildings 3 stories or less will be required to meet an energy performance standard using the Home Energy Rating System[3] (HERS). The HERS index scores a home on a scale where 0 is a zero-net-energy home, and 100 is a code compliant new home (currently based on the IECC 2006 code). The HERS index has been in use for many years by beyond code programs such as Energy Star Homes, and LEED for Homes, and by the Federal IRS for tax credits and energy efficient mortgages. HERS ratings are performed by an independent HERS rater, working with the home builder, and then submitted to the local building code official.

The MA stretch code requires a HERS index of 65 or less for new homes of 3,000 square feet or above, and 70 or less for new homes below 3,000 square feet (this includes multi-family units in buildings of 3 stories or less). A HERS index of 65 means that the home is estimated to use 65% as much energy as the same home built to the 2006 energy code, or a 35% annual energy savings.

Residential – Home renovations

Home additions and renovations have two options to meet the stretch code

i) The same “performance” approach as new construction but requiring a HERS index of 80 or less for significant changes to homes over 2,000 square feet, or 85 or less for homes below 2,000 square feet.

ii) A “prescriptive” approach, where specific efficiency measures are required rather than a HERS index number. This utilizes the Energy Star for Homes program prescriptive requirements, and insulation at least equal to IECC 2009.

Commercial –New Construction

The stretch code also applies a performance-based code to commercial buildings, with the option of a prescriptive code for small and medium-sized commercial buildings. Buildings smaller than 5,000 square feet are exempt, as are building renovations, and “specialty” buildings – supermarkets, laboratories, and warehouses – below 40,000 square feet in size, due to their widely differing energy needs. These exempt buildings remain subject to the „base‟ Massachusetts energy code (IECC 2009 and ASHRAE 90.1-2007).

Large buildings of any type over 100,000 square feet, and „specialty‟ buildings over 40,000 square feet are required to meet a performance standard set at 20% below the energy usage of the commonly used ASHRAE 90.1-2007 code[4], demonstrated through modeling by methods and software approved by the BBRS.

Medium-sized commercial buildings, which include residential buildings of 4 stories or more, but that are less than 100,000 square feet, have the option of meeting the same 20% better than ASHRAE 90.1-2007 performance standard, or using a simplified, prescriptive energy code.

The prescriptive code is based on Chapter 5 of the IECC 2009 energy code, and adds incremental efficiency improvements primarily through:

a. Building envelope elements (walls, roofs, windows, insulation, etc.)

b. Commissioning requirements to ensure that buildings‟ energy systems operate as designed.

c. More efficient lighting power densities and improved lighting controls.

d. A choice of one of three compliance paths: high efficiency HVAC equipment, further lighting energy reductions, or on-site renewable energy.

This prescriptive option for commercial buildings between 5,000 and 100,000 sq. ft. was developed from the Core Performance program of the New Buildings Institute. This program has been developed and used for utility incentive programs in Massachusetts for the past couple of years. The Core Performance program used over 30,000 energy modeling runs to evaluate and rank the most cost effective modifications to the ASHRAE 90.1 code, and has been run specifically with Boston climate data to represent Massachusetts. Certain areas of this prescriptive option were also updated to reflect recent energy code development for future iterations of ASHRAE and IECC codes and refined for specific application in Massachusetts where they are cost-effective.

1 The Green Communities Act of 2008 requires that Massachusetts adopt each new IECC within one year of its release, the IECC is updated on a 3 year cycle so the next version will be IECC 2012.

2 Cities having a Plan D or Plan E charter have the City manager and city council as the governing body, other cities have a Mayor and city council.

3 For a summary of the HERS index see: http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_HERS

4 Energy modeling must show a 20% improvement relative to ASHRAE 90.1-2007 Appendix G.