



Green Communities Technical Assistance: Rockland, MA

Green Communities Act – ch. 169 of 2008

- **Advances Energy Efficiency**
 - Increases spending for Energy Efficiency, creates Energy Efficiency Council
- **Promotes Renewable Energy**
 - Revises Renewable Portfolio Standard (RPS), MTC funds more technologies, utilities can own solar, new net metering rules
- **Environmental Performance**
 - Final approval of Regional Greenhouse Gas Initiative, Improves State Energy Building Code, Greens-up state operations, creates the **Green Communities Program**

Becoming a Green Community – Why?

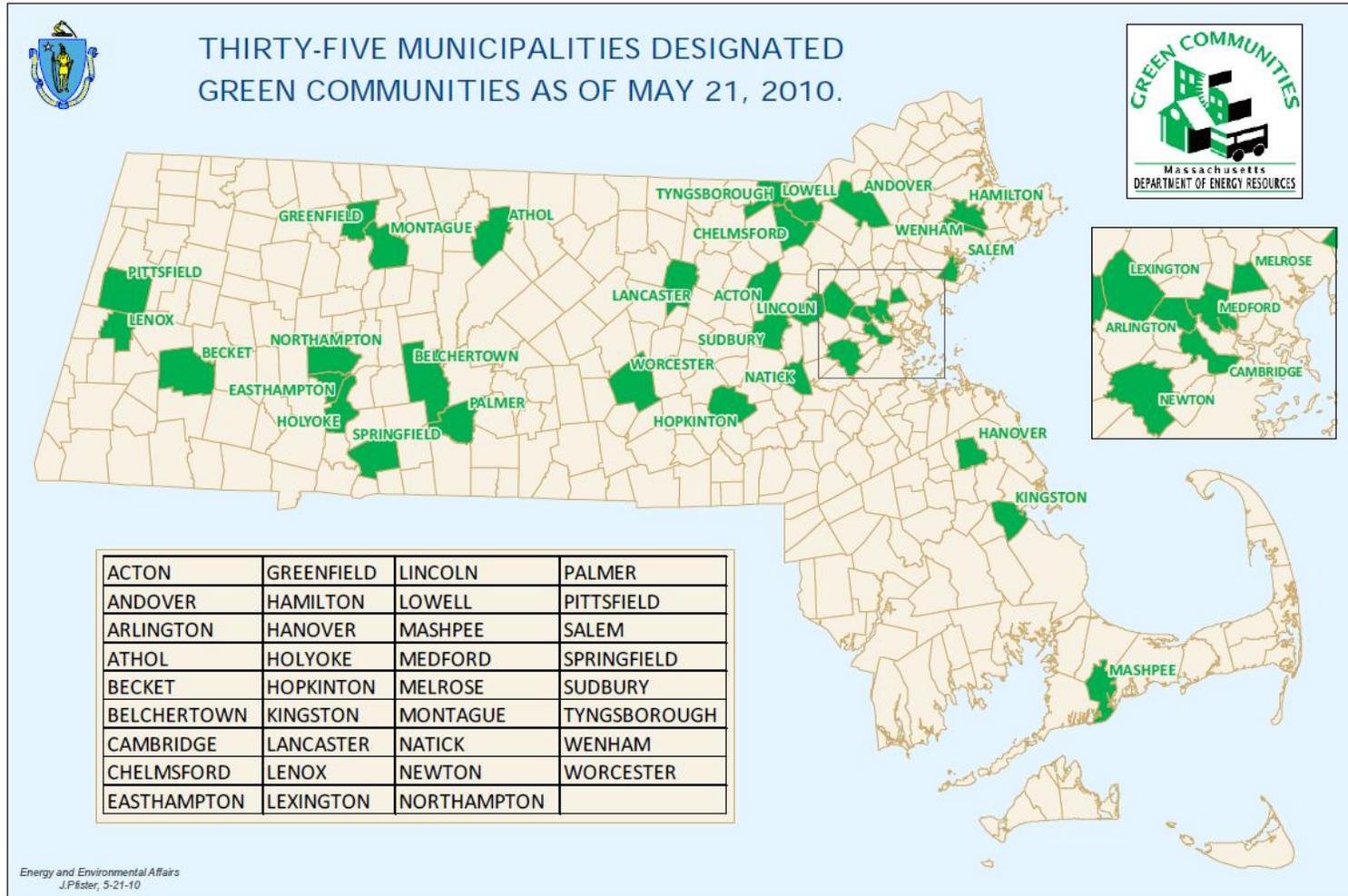
- **Grants** – funding to make even more improvements – up to \$10 million per year, \$8.1 million in 2010.
- **Economic Benefits** – saving energy = saving money
- **Environmental Benefits** – reduce pollution and greenhouse gas emissions
- **Recognition** – Sustainability Leader in the Commonwealth



Green Communities Grant Program

- Provides up to \$10M annually in grants and loans only available to *Green Communities*
- Qualification Criteria
 - Adopt as-of-right siting,
 - Adopt expedited (12 month) permitting
 - Establish an energy use baseline inventory with a program to reduce baseline by 20% in 5 years
 - Purchase fuel-efficient vehicles
 - Adopt the Stretch Code

35 Green Communities thus far



1. Adopt As-of-Right Siting

- Renewable Energy or Alternative Energy (RE/AE) Generation
- RE/AE Research & Development
- RE/AE Manufacturing
- Generation Requirements:
 - On-shore Wind: 600 kW in size or above
 - Off-shore Wind: 2.5 MW or above
 - Solar PV: ground-mounted system 250 kW or above
 - Biomass CHP: 5MW in a stand-alone building
 - Ocean, wave or tidal – no minimum threshold

2. Adopt an Expedited Application and Permitting Process

- Allows siting decision of proposed facilities within one year of application
- Applies only to those facilities subject to the As-of-Right Siting provision

3. Establish an Energy Use Baseline Inventory

- **Must include all municipal:**
 - Buildings
 - Vehicles
 - Street and Traffic Lights
- **Must include a 20% reduction goal**
- **Applicable Tools include:**
 - EnergyStar Portfolio Manager
 - ICLEI software
 - DOER's Energy Information Reporting System

4. Purchase Only Fuel-Efficient Vehicles

- As practical and commercially available
- Provide Vehicle Inventory and Plan for Replacing non-exempt vehicles
- Public Safety Vehicles are Exempt as well as vehicles over 8,500 lbs.
- No Municipal Vehicles? Alternative Programs Include:
 - Carpooling incentives
 - Bike to work programs
 - Hybrid Vehicle Incentives

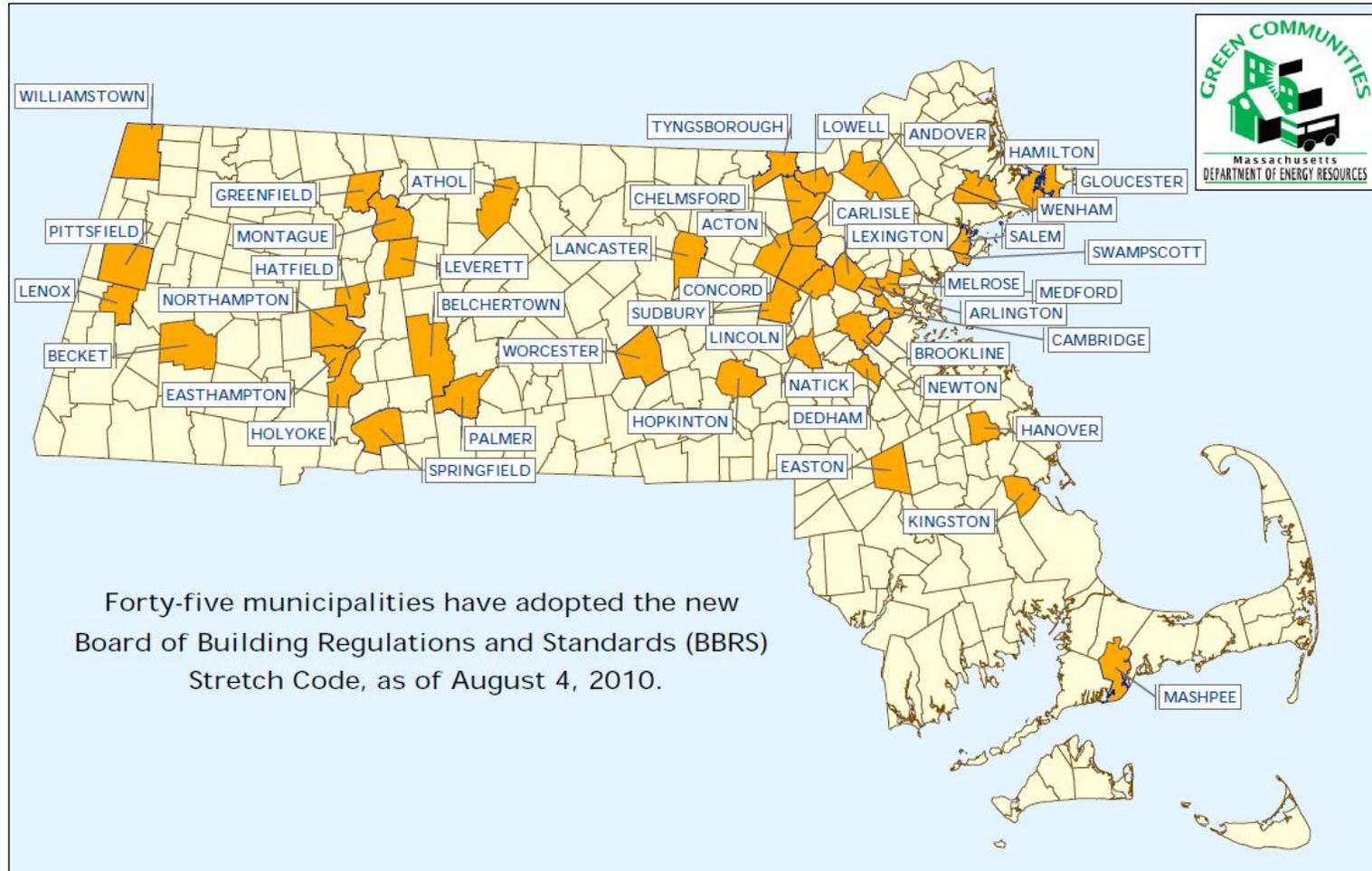
5. Advanced Building Code (Stretch Code)

- Adopt the BBRs Stretch Code
- MA has already Adopted IECC 2009
- The Stretch Code is an Appendix to the MA State Building Code (IECC 2009)
 - Home Energy Raters (HERS) inspection of the building's energy performance

Stretch Code Cont...

- A HERS rating is like a Miles-per-Gallon rating for your home. You don't buy a car without knowing the MPG, so why buy a house without knowing how it performs with regard to energy?
- For units equal to or greater than 3,000 sq ft a HERS rating of 65 or less is required (35% more energy efficient than standard building).
- For units less than 3,000 sq ft, a HERS rating of 70 or less is required (30% more energy efficient).
- In addition, all new construction shall demonstrate compliance with the Energy Star Qualified Homes Thermal Bypass Inspection Checklist—HERS rating.

45 Stretch-Code Communities



HERS Rating Process

- Consists of an energy model and in-process inspections
 - First inspection
 - Thermal Bypass Checklist (TBC)
 - Duct tightness test (if applicable)
 - Second Inspection (sometimes combined with 1st)
 - Insulation
 - Final Inspection
 - Blower door test

What about additions?

- 2009 IECC insulation levels (already called for in the MA code);
- Thermal Bypass Checklist; and
- Energy Star labeled windows

Basically the only difference is the requirement to inspect air sealing and put in energy star labeled windows.

Case 1: Example of Benefit-Cost Modeling: 2,527 square foot, 3 bedroom home

Baseline – HERS 87

- 85 AFUE boiler
- Electric DHW 40 Gal .91 EF
- Envelope 7 ACH50
- Duct Leakage 8%
- Insulation Grade 3
- Windows .35/.35
- Attic R 38

Upgrade to Stretch – HERS 70

- 86 AFUE boiler
- DHW Integrated off boiler
- Envelope 5 ACH50
- Duct Leakage 6%
- Insulation Grade 2
- Windows .30/.30
- Attic R49

Cost - \$3,700 Annual Cash Flow Gain - \$568

Case 2: Example of Benefit-Cost Modeling: 2,527 square foot, 3 bedroom home

Baseline: HERS 90

- 90/80 AFUE Furnace
- Conventional DHW 40 Gal
- Envelope 7 ACH50
- Duct Leakage 8%
- Insulation Grade 3

Upgrade to Stretch HERS 70

- 96/96 AFUE Furnace
- On Demand DHW
- Envelope 5 ACH50
- Duct Leakage 6%
- Insulation Grade 2

Cost - \$2,500 Annual Cash Flow Gain - \$337

Costs

- Cost effective and already proven in the voluntary market
- ENERGY STAR 2008
 - ~ 9,600 Permits Pulled
 - 15% of all MA new residential in 2008
- ENERGY STAR 2009
 - ~ 6,600 Permits Pulled
 - 31% of all MA new residential in 2009
- Homes show clear \$\$ savings

Costs

- **None of the above Examples include Rebates and tax incentives:**
- **The Mass Save website** at www.masssave.com provides information on financial incentives, services, and trainings that promote energy efficiency in homes and businesses throughout the Commonwealth.
- **The Massachusetts New Homes with ENERGY STAR® Program** –Incentives for energy-efficient new construction range from \$225 - \$8,000 per unit. Builders and HERS Raters generally coordinate to apply for incentives. For details, visit www.energystarhomes.com/homebuilders/value.htm Call (800)-628-8413 or email massenergystarhomes@icfi.com for additional information.
- **Residential High-Efficiency Heating Equipment Rebate Program** – Rebates of up to \$1,750 are available for heating and water heating equipment that meets or exceeds certain efficiency ratings. For questions about eligible equipment, contact your professional heating contractor or call the GasNetworks Rebate Administrator at (800)-232-0672.
- **Major Renovations Program** – This program provides homeowners who are renovating, remodeling or making other home improvements (including those required under the stretch code) the opportunity to increase the energy performance of the home and receive financial incentives of over \$2,000. For details, visit www.energystarhomes.com/homebuyers/programs.htm or call (800)-628-8413.
- **Residential** - Tax credits of up to \$1,500 are available for improvements to a home's envelope, as well as the installation of energy efficient heating and cooling equipment. For details, visit http://energytaxincentives.org/uploaded_files/residentialflyer.pdf

Code Compliance and Inspection

- Essentially the same as base code
- Code Officials have the same authority
 - Same building inspections
 - Approves building documents,
 - Energy Star and HERS rating or ASHRAE modeling as documentation of energy
- Final HERS Rating is required for Certificate of Occupancy

Training

- Available for both the IECC 2009 & Stretch code
- Provided free to all Code Officials
 - Includes IECC code book and Stretch appendix
- Provided at cost to building professionals
- Register online: www.cetonline.org/Events/events.php
 - Separate Commercial and Residential sessions
- Energy star homes training available for free:
www.energystarhomes.com/
- Utilities offer commercial 'Core Performance' energy training

Thank you

Contact Information

Chad Laurent
Meister Consultants Group
98 N. Washington St.
Boston, MA 02114
chad.laurent@mc-group.com

