Creating A Cleaner Energy Future For the Commonwealth

DOER

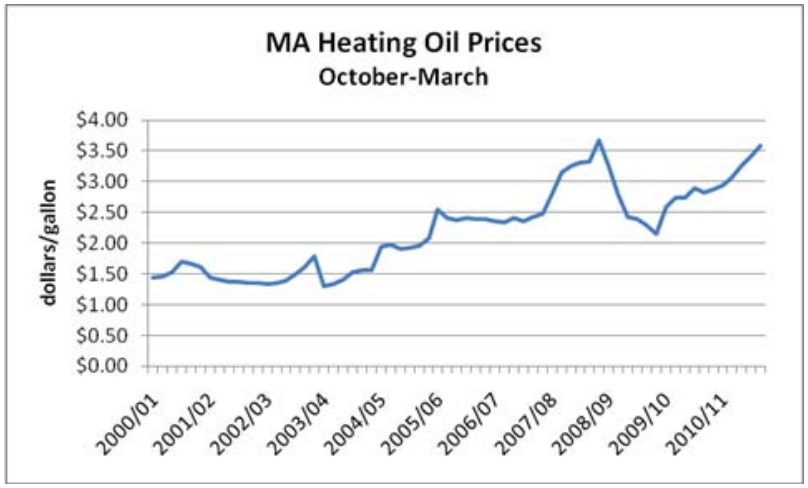
Massachusetts Department of Energy Resources

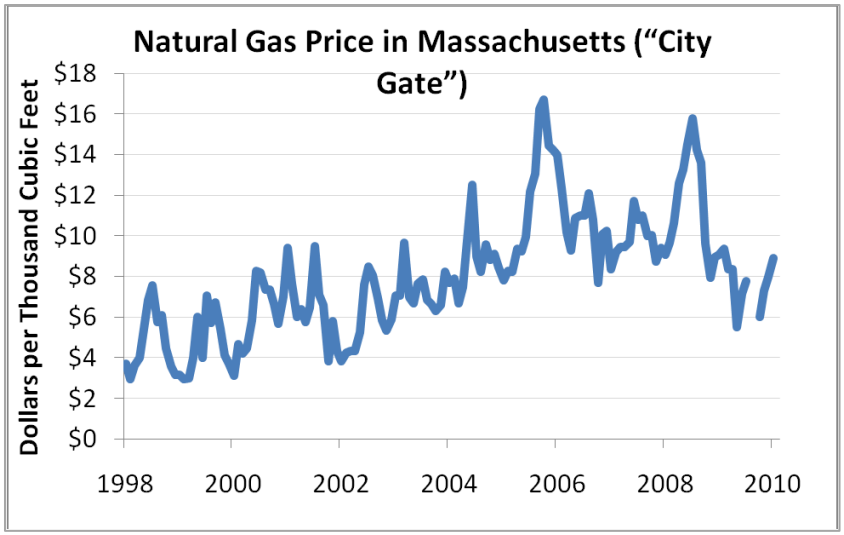
Less is More: SEE Action and the Power of Efficiency

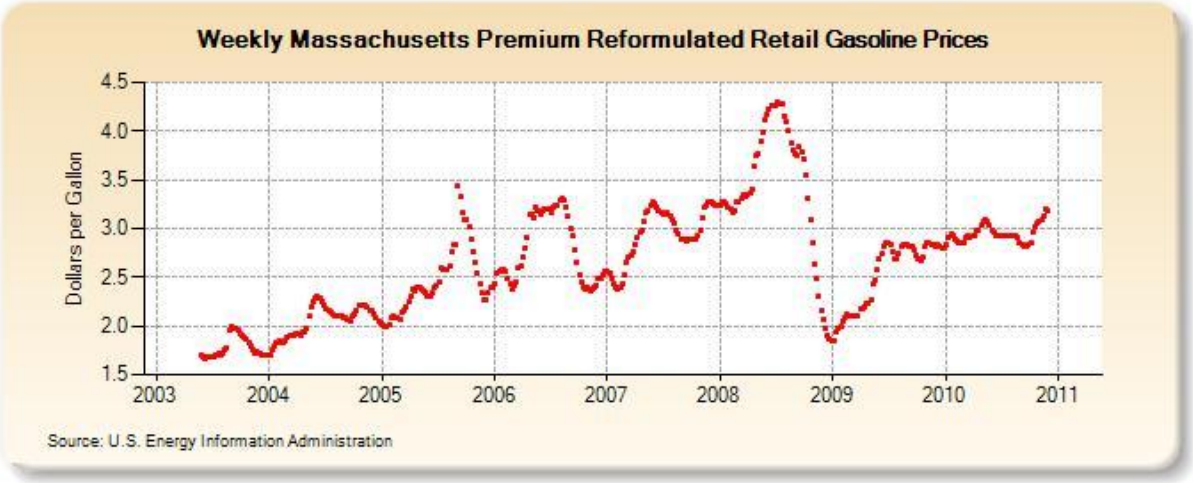
National Association of Regulatory Utility Commissioners
February 7, 2012

Commissioner Mark Sylvia

Energy Costs: Volatile and Unpredictable







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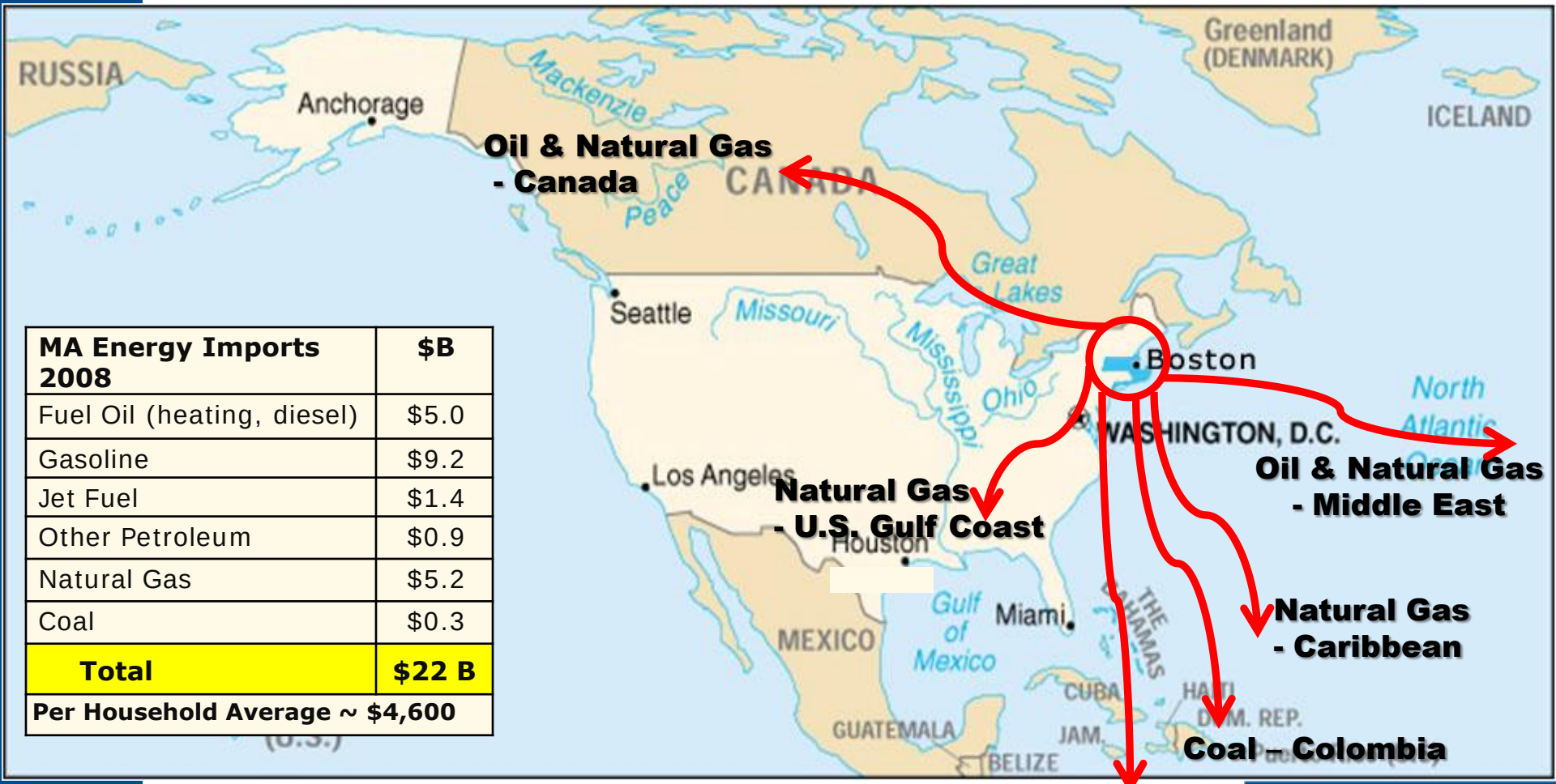
$18B Energy Dollars Flow Out of MA

We spend $22B per year on energy; 80% leaves MA



MA Energy Imports 2008	$B
Fuel Oil (heating, diesel)	$5.0
Gasoline	$9.2
Jet Fuel	$1.4
Other Petroleum	$0.9
Natural Gas	$5.2
Coal	$0.3
Total	**$22 B**
Per Household Average ~ $4,600	

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Patrick/Murray Administration's Leadership Yields Groundbreaking Laws

- **Global Warming Solutions Act (GWSA)**

  Economy-wide greenhouse gas (GHG) emission reduction goals to achieve GHG reductions of 25% below statewide 1990 GHG emission levels by 2020, and reductions of 80% below 1990 GHG emission levels by 2050.

- **Green Communities Act (GCA)**

  Electric and natural gas resource needs shall first be met through all available, cost-effective energy efficiency and demand reduction resources.

Energy Efficiency: Our "First Fuel"

- Pursue all cost-effective energy efficiency

THREE-YEAR PLAN GOALS	2010	2011	2012	Total
Total Benefits (million $)	1,409	2,022	2,536	5,967
Annual Electric Savings (GWh)	625	907	1,104	2,636
Annual Gas Savings (million therms)	14	18	26	58
Annual GHG Reductions (metric tons)	376,000	538,000	677,000	1,591,000

- $2B investment to deliver $6B in energy benefits

- First year findings (2010)
  - Enough energy saved to power 85,000 households and heat 14,000 households annually.
  - Greenhouse gas emission reductions are equal to the annual output of over 74,000 cars

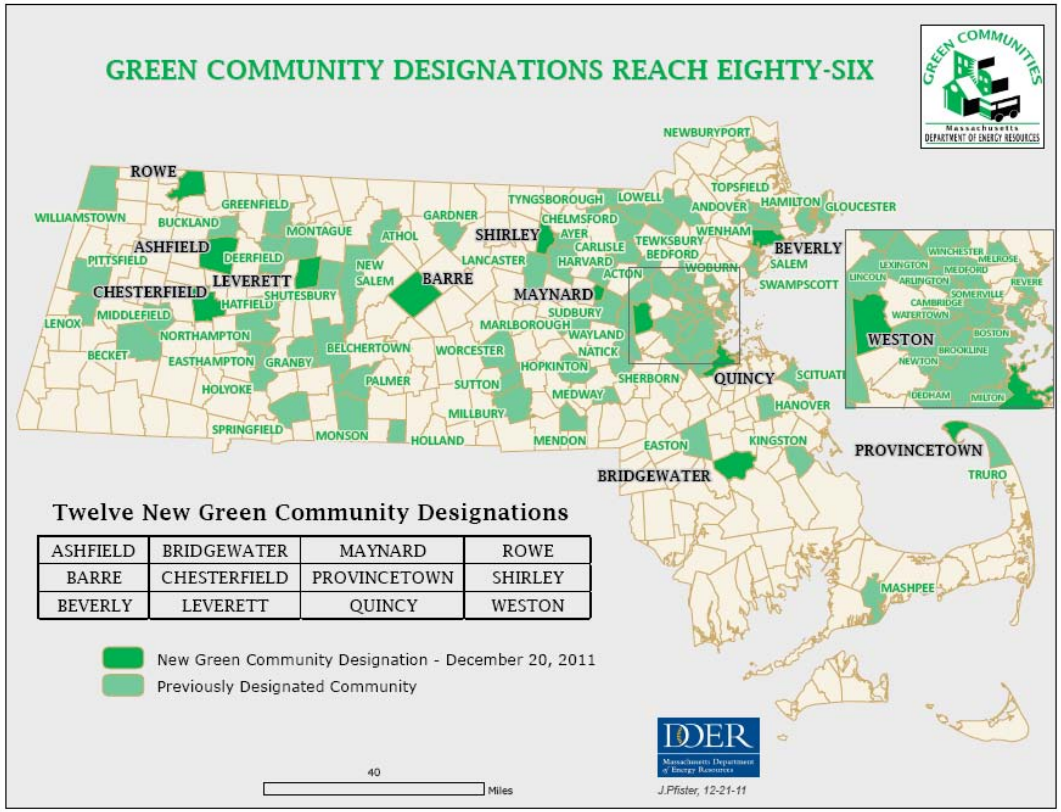
New Approaches

- Statewide programs
  - Integrated gas & electric programs
  - 8 unique Program Administrators collaborating
  - Streamlining, reducing costs
  - Single efficiency brand and marketing
- Overseen by Energy Efficiency Advisory Council
  - 11 voting members, includes AG, DEP, DOER as Chair
  - Stakeholders: contractors, unions, environmental groups, consumer advocates
  - Council consultants provide 3rd party expertise and review
- Evaluation, Measurement & Verification - statewide process
- Financing Tools for residential and commercial
- Pilots: better/faster tests
  - Behavior (residential/commercial)
  - Deep Energy Retrofit
  - Community Mobilization

Green Communities Division

Created by Statute

- 86 cities and towns designated Green Communities
- Nearly $18 million invested to implement energy efficiency and renewable technologies
- Total energy reductions over five years equal to the annual energy consumption of more than 13,000 Massachusetts households (1,678,093 MMBTUs)



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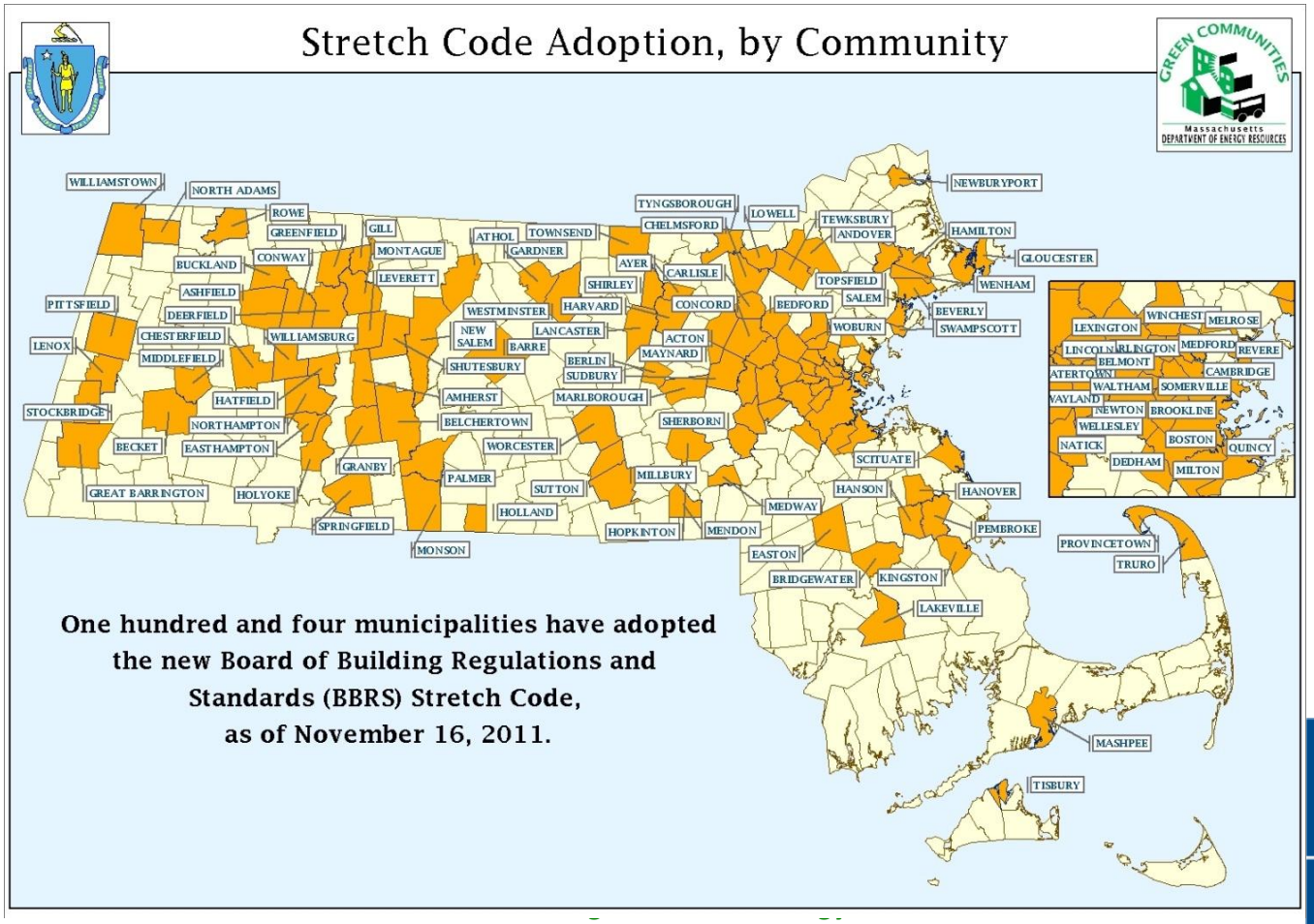
Building Energy Codes

- Intrinsic market driver for energy efficiency
- Allows best practices to update – saving ratepayers
- Energy code (IECC and Stretch) updated every 3 years
- 104 Stretch Code Communities



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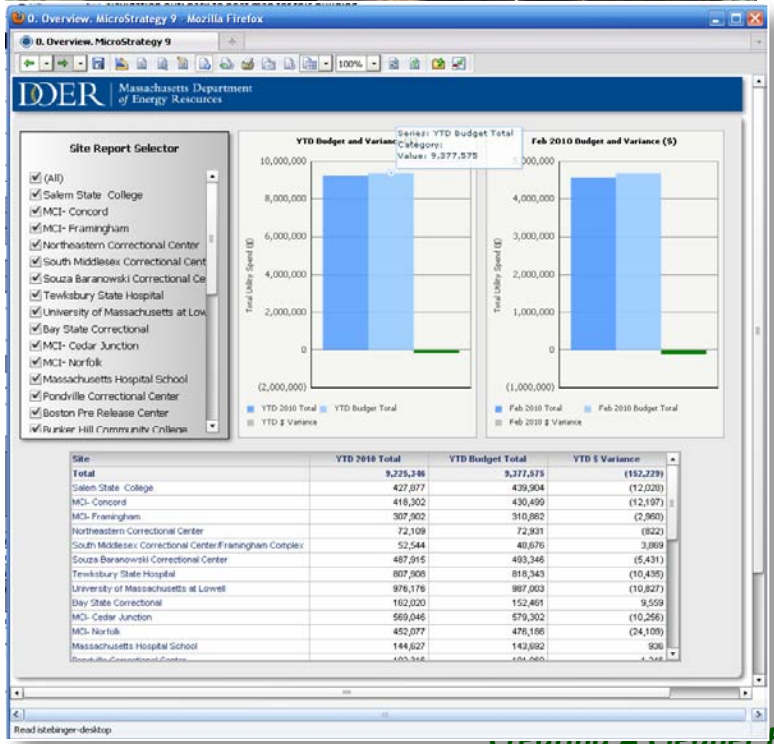
Funding Sources for Energy Efficiency

- Energy Efficiency Reconciliation Factor (EERF)
  - rate payer funds in proportion to the costs of programs directed at their sector (46%)
- Systems Benefit Charge (SBC)
  - 2.5 mills (0.25 cents) per kilowatt hour for all electric consumers, except those served by a municipal lighting plant (27% of funding)
- Regional Greenhouse Gas Initiative (RGGI) (11%)
- Forward Capacity Market (FCM) from ISO-NE (3%)
- Alternative funding sources through PAs
- Customer investments

Energy Management Approaches in State Facilities



1. Installation of over 110 near real-time (5 minute) building-level meters for electricity, natural gas, oil, steam, condensate, propane, hot and chilled water

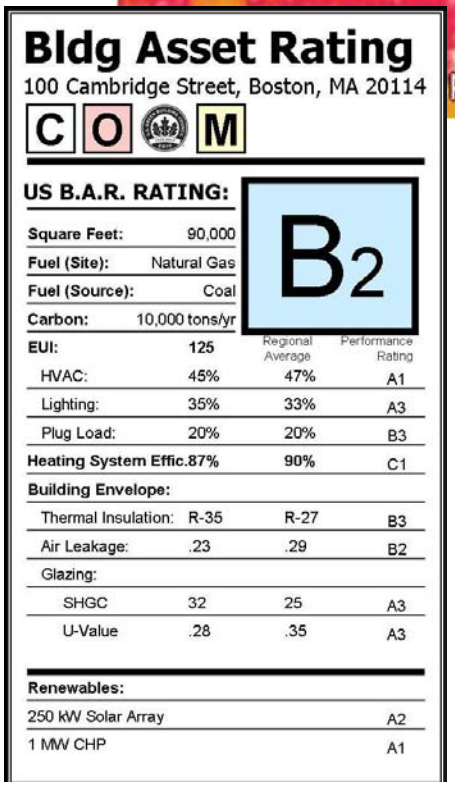
2. Access to web-enabled software application that tracks, trends, benchmarks, and reports on energy consumption data to drive energy efficiency

Policy: Building Labeling

A catalyst for energy retrofits

1. **Residential Pilot in Greater Springfield**
   - Miles Per Gallon for your home
   - Every Audit gets a rating
   - Customized website per home
   - Financing package as part of scope of work

2. **Commercial Building Labeling Pilot**
   - DOE grant
   - Barr Foundation Grant
   - Boston, Cambridge, Merrimack Valley
   - Focus on the building, not the operations



Bldg Asset Rating

100 Cambridge Street, Boston, MA 20114

C O M

US B.A.R. RATING: B2

Square Feet:	90,000		
Fuel (Site):	Natural Gas		
Fuel (Source):	Coal		
Carbon:	10,000 tons/yr		
EUI:	125	Regional Average	Performance Rating
HVAC:	45%	47%	A1
Lighting:	35%	33%	A3
Plug Load:	20%	20%	B3
Heating System Effic.	87%	90%	C1
Building Envelope:			
Thermal Insulation:	R-35	R-27	B3
Air Leakage:	.23	.29	B2
Glazing:			
SHGC	32	25	A3
U-Value	.28	.35	A3
Renewables:			
250 kW Solar Array			A2
1 MW CHP			A1

Labeling process must create a path for better energy efficiency

Collaborative Efforts

- Regional Greenhouse Gas Initiative (RGGI)
- National Association of Statewide Energy Officials
- ISO-New England
- Northeast Energy Efficiency Partnerships