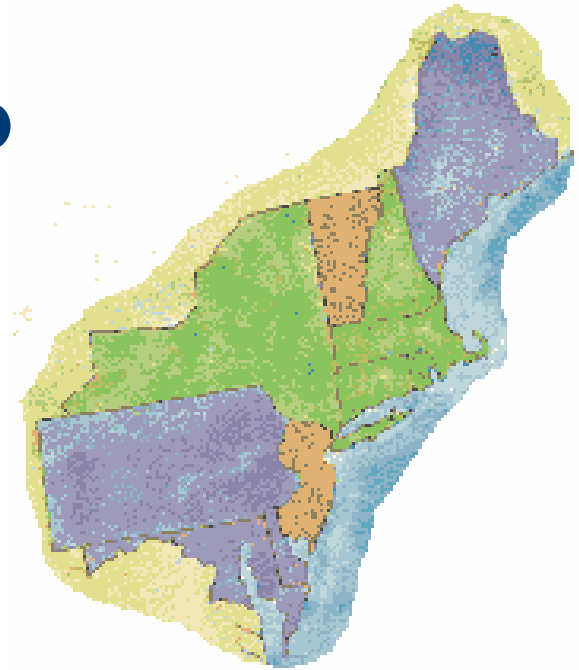


# A Comprehensive Public Policy Approach to Building Energy Codes

*Presentation to ACEEE Market  
Transformation Symposium*

*By: Jim O'Reilly, Public Policy Director  
Northeast Energy Efficiency Partnerships (NEEP)*

**March 31, 2009**



# Northeast Energy Efficiency Partnerships

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## *“Facilitating partnerships to advance energy efficiency”*

- Regional non-profit organization since 1996
- Serving New England, New York, Mid-Atlantic

### **NEEP Mission:**

Promote the efficient use of energy in homes, buildings and industry in the Northeast U.S. through regionally coordinated programs and policies to achieve:

- Cleaner environment
- Reliable + affordable energy

### **Primary Audiences Served:**

- State Policy Makers
- Efficiency Program Administrators

### **Approach:**

Strategic regional collaboration to overcome barriers to efficiency – public policies and efficiency programs.

# Building Sector Efficiency: A Top Priority Resource in Northeast States

- Long history of SBC energy efficiency programs
- Active utility sector involvement
- Major environmental commitments through RGGI, states
- Efficiency being valued as a capacity resource (ISO FCM)
- High energy costs
- Mandates to procure all cost-effective energy efficiency
- Evolution of programs toward whole building strategies
- Need to address all fuels / heavy dependence on heating oil
- Aged building stock
- Federal stimulus conditioning language

**= All add up to the need for a comprehensive set of policies to address building energy use**

# Model Progressive Building Energy Code Policy

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## Why the need?

- ✓ **Comprehensiveness**
  - Get to deeper energy, carbon emission savings
  - Continue on the path to Net Zero Energy Buildings
- ✓ **Timeliness**
  - Reduce work and time needed to write, review, approve new state building energy codes
- ✓ **Effectiveness**
  - Ensure high rate of compliance/enforcement
- ✓ **Connection**
  - Link building energy codes ("floor") to beyond code/stretch codes ("ceiling")
  - Both in policy and in program
- ✓ **Clarity**
  - Many different models/rating systems
  - Need to distinguish between code/rating system/guidance

# Model Progressive Building Energy Code Policy

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NEEP's *Model Progressive Building Energy Codes Policy* White Paper

Available for download at: [www.neep.org](http://www.neep.org)

Includes:

- Detailed explanations of each specific policy
- Suggested enabling statutory language
- Relations to other policies/programs
- References to industry and policy best practices
- State-level estimates of energy and carbon savings potential of progressively more stringent building energy codes

Guided by advisory group of building energy stakeholders

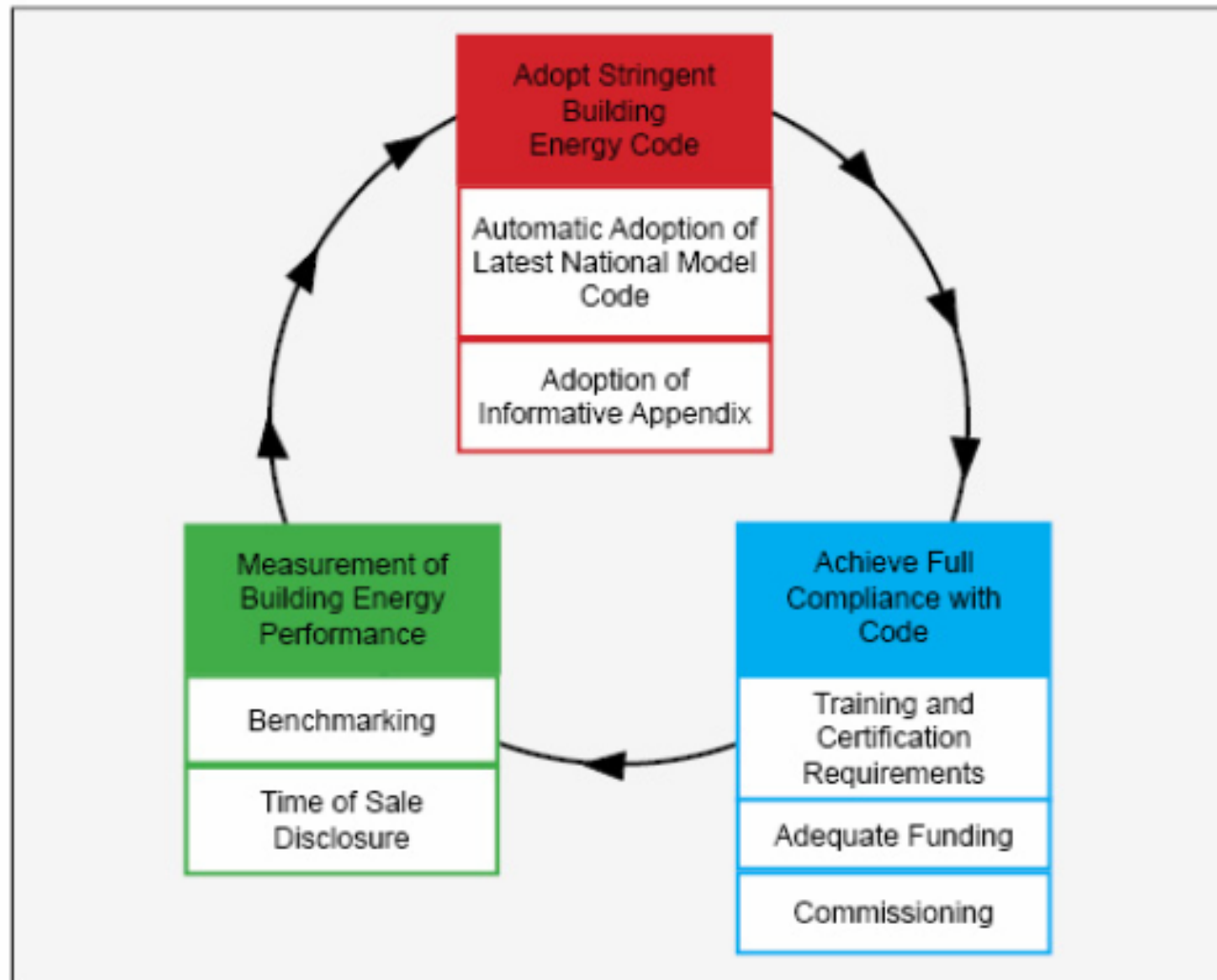
# Model Progressive Building Energy Code Policy

Three areas of concentration:

- ✓ Code adoption
  - Regular updates to most recent model code
  - “Informative appendix” to set stretch code
- ✓ Code compliance
  - Training and certification of code officials
  - 3<sup>rd</sup> party, specialized inspector option
  - Funding code agencies for training, technical support
  - Tracking/reporting compliance
- ✓ Measuring/reporting building energy performance
  - Time of sale energy rating and disclosure
  - Building benchmarking

# Model Progressive Building Energy Code Policy

## Maximizing Building Energy Performance Through Codes



# Code Adoption – Regular Updates

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- ✓ Automatically update to latest national model building energy code
  - E.g., IECC 2009 (residential)
  - E.g., ASHRAE 90.1 2007 (commercial)
  - Mandated legislatively in Maine, Vermont, Massachusetts and Pennsylvania
- ✓ Include “backsliding” language, i.e., no adoption to increase building energy use
  - Particularly important where codes have diverged, i.e. IECC and IRC
- ✓ Recommend maintaining a technical committee

# Code Adoption – Informative Appendix

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- ✓ Appended to the code, model 'stretch code' at least 20-30 percent better energy performance
- ✓ Allows municipalities to go beyond state code
- ✓ Provides clarity and consistency
  - Written, administered, enforceable as code
  - Not a building rating system, i.e. LEED
  - Ideally linked to SBC new construction programs
  - Examples: NBI Core Performance Guide (commercial) and ENERGY STAR Homes with thermal bypass checklist and minimum HERS rating (residential)
- ✓ Can also guide other policies, i.e., state leading by example; tax incentives
- ✓ Guides future code changes
- ✓ Currently under consideration in MA

# Code Compliance – Training/Certification

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- ✓ Adequate, stable funding of code agencies
  - Fee-for-service (plan check reviews, inspections) as part of building permit fee
  - Ex.: Conn. surcharge \$0.16 per \$1,000 value of permit work raises + \$1M/year for code education
  - Similar concept proposed as part of N.Y. EERS
- ✓ Require AHJ to provide code training
  - Establish code training committee to develop, review curriculum, establish schedules
  - Integrate with SBC programs
  - Establish baseline
- ✓ Adopt commissioning as part of code
  - Include all commercial building systems above minimum size (HVAC, lighting)
  - California, Mass., Washington require

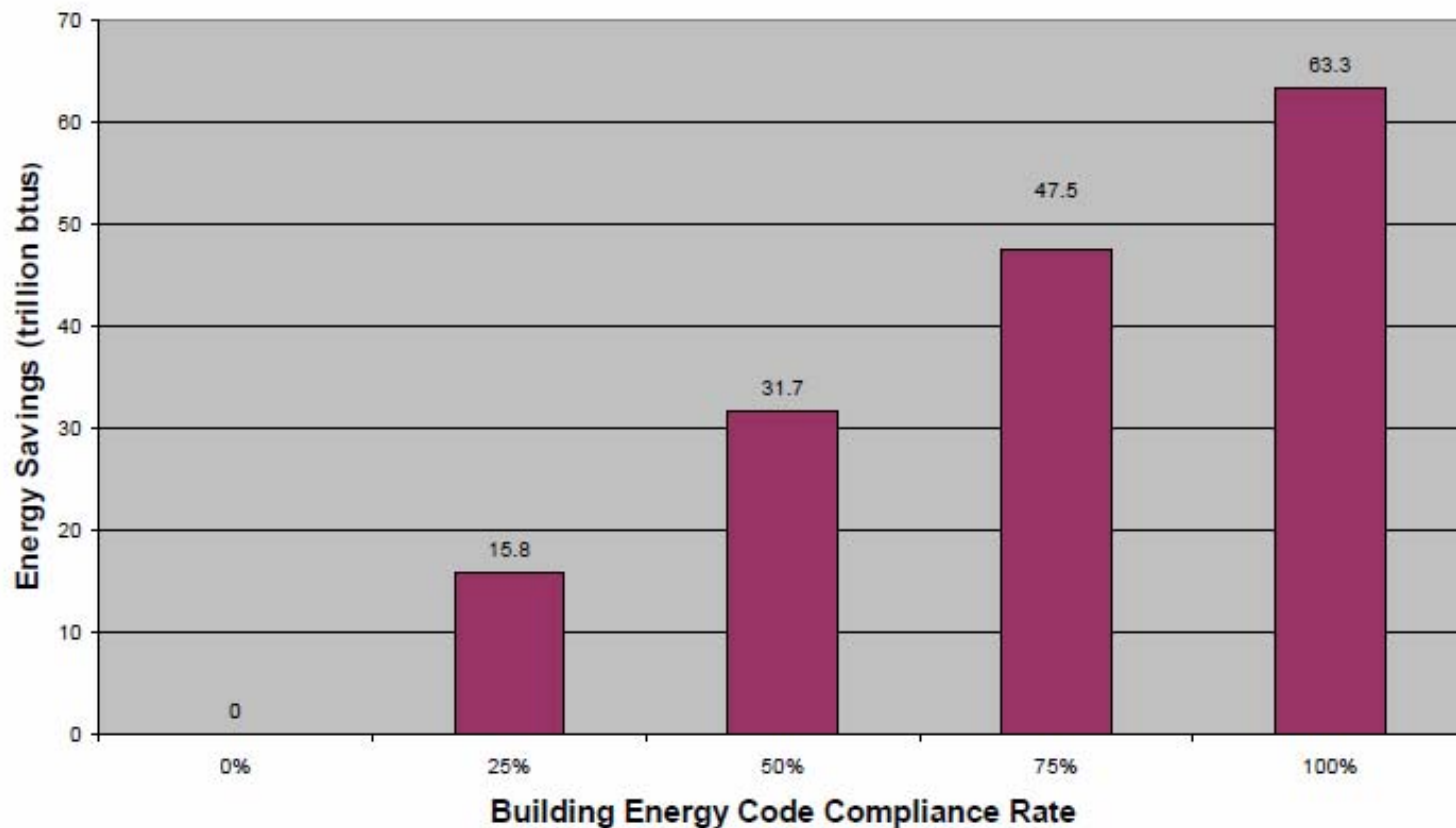
# Code Compliance – Training/Certification

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- ✓ Incorporate independent, third-party inspections system
  - Model Washington state Specialized Plan Examiner/Inspector System or a HERS-based system
  - Similar being instituted in Maine
  - Can allow local building officials to 'opt in' with appropriate certification
  - Allow smaller communities to 'pool' for one energy code inspector
  - Addresses resource constraints among local building officials

# Code Compliance – Training/Certification

Gain in Annual Energy Savings in the Northeast by 2020 Due to Increasing Compliance with Residential Building Energy Codes



*Typically, energy codes compliance rates range from 40 to 60 percent, though compliance rates have gone as low as 16 percent in some jurisdictions<sup>20</sup>.*

# Measuring/Reporting Energy Performance

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- ✓ Require disclosure of building energy use at time-of-sale
  - Addresses existing building stock that codes can't get to
  - *Minimally*, require disclosure of energy bills
  - Potentially also require disclosure of efficiency/conservation measures, i.e., insulation, window u-factor, HVAC efficiency, etc.
  - But *ideally*, mandate building rating and labeling
  - Versions currently required in Berkeley, Calif., Nevada and Montgomery County, Md., among others
  - Could potentially include mandates for energy efficiency improvements at time of sale
  - Learn from EU's "Building Energy Rating" system, requiring an "energy performance certificate"

# Measuring/Reporting Energy Performance

## Building Energy Rating (BER)

DEAP Version X.Y

BER for the building detailed below is:

Name of House,  
Street Name One, Street Name Two,  
Town name One, Town Name Two,  
County name One, County name Two,

BER Number: XXXXXXXXXX  
Date of Issue: Day Month Year  
Valid Until: Day Month Year  
BER Assessor No.: XXXX  
Assessor Company No.: XXXX

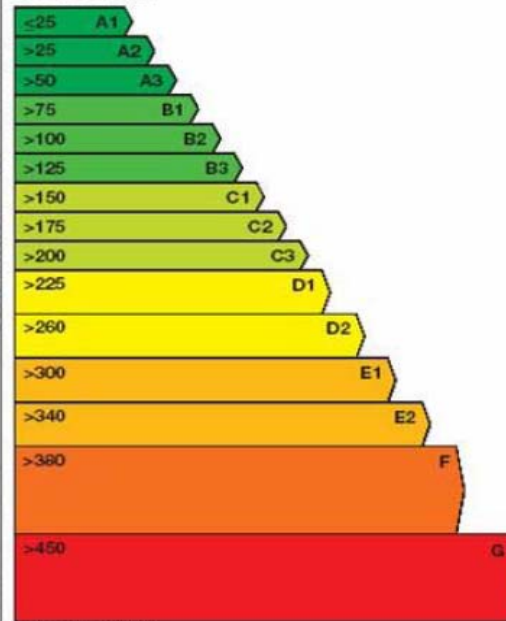
The Building Energy Rating (BER) is an indication of the energy performance of this dwelling. It covers energy use for space heating, water heating, ventilation and lighting, calculated on the basis of standard occupancy. It is expressed as primary energy use per unit floor area per year (kWh/m<sup>2</sup>/yr).

'A' rated properties are the most energy efficient and will tend to have the lowest energy bills.

### Building Energy Rating

kWh/m<sup>2</sup>/yr

MOST EFFICIENT



LEAST EFFICIENT

Carbon Dioxide (CO<sub>2</sub>)  
Emissions Indicator  
kgCO<sub>2</sub>/m<sup>2</sup>/yr

BEST

0

WORST

>120

The less CO<sub>2</sub> produced, the less the dwelling contributes to global warming.

**IMPORTANT:** This BER is calculated on the basis of data provided to and by the BER Assessor, and using the version of the assessment software quoted above. A future BER assigned to this dwelling may be different, as a result of changes to the dwelling or to the assessment software.

# Measuring/Reporting Energy Performance

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- ✓ Require the energy performance benchmarking of all commercial buildings
  - Develop comparative database
  - Evaluate compliance with or efficacy of codes and other policies
  - Use ENERGY STAR Portfolio Manager or equivalent
    - Used by California and D.C. to meet benchmarking requirements
    - Massachusetts employs voluntary database system to aid cities and towns in measuring municipal building energy use
  - Should integrate with SBC benchmarking programs

# Important to note...

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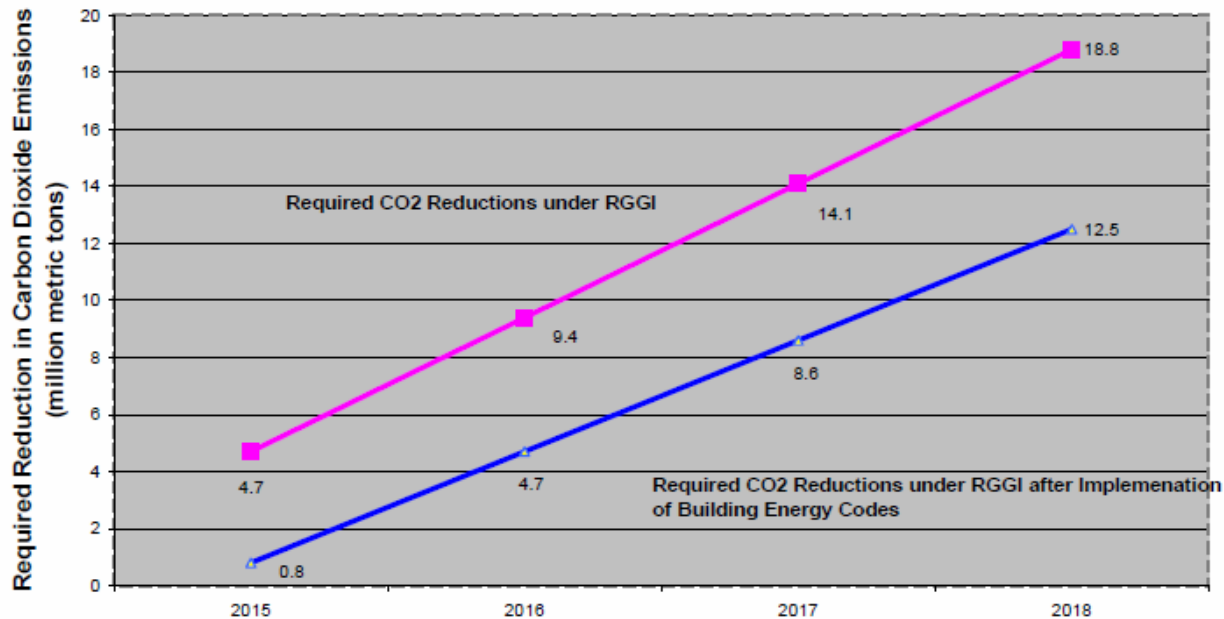
- ✓ Important to work with existing building efficiency efforts
  - Raise the “floor” and the “ceiling”
  - Proper regulatory attention to shifting baselines
  - Flexibility in designing code elements of SBC programs to adjust cost-effectiveness screening
  - “Beyond code” new construction training can integrate with “to code” training
- ✓ Need to coordinate with other policies
  - Appliance efficiency standards: need to loosen federal regulations to push for better codes

# The results...

## If Northeast states...

- ✓ Adopt building energy codes 30 percent above current model code by 2011 and achieve full compliance...
- ❖ Energy savings of **167 trillion BTUs/year**
- ❖ Carbon savings of **8 million metric tons/year** by 2019

How Improving Building Energy Codes by 30% affect Northeast Carbon Dioxide Reduction Goals



# Thank You

## Northeast Energy Efficiency Partnerships, Inc.



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