Creating A Greener Energy Future For the Commonwealth

DOER
Massachusetts Department of Energy Resources

Commercial Buildings Asset Rating/Labeling White Paper

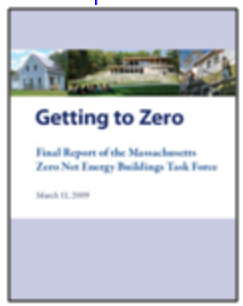
January 18, 2010

Agenda

- DOER Presentation – 30 Minutes
- Stakeholders Comments & Questions – 90 Minutes

Massachusetts Context

- Building energy consumption accounts for almost half of the state's GHG emissions
- Massachusetts Environmental Policy Act (MEPA) Greenhouse Gas Emissions Policy and Protocol 2008
- Green Communities Act 2008
- Clean Energy and Climate Plan for 2020
- Nation-leading three-year energy efficiency plans
- ZNEB Task Force Report
- NEEP/ Dunsky Building Rating Report
- ASHRAE Building EQ Pilot



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Building Labeling White Paper

- National Governors Association Policy Academy on State Building Efficiency Retrofit Programs – MA awarded technical assistance
- Massachusetts private-public team - monthly meetings
- Progress report submitted to NGA in the Summer of 2010
- White Paper published for public comment (until February 12th): "An MPG Rating for Commercial Buildings: Establishing a Building Energy Asset Labeling Program in Massachusetts"

Massachusetts Team

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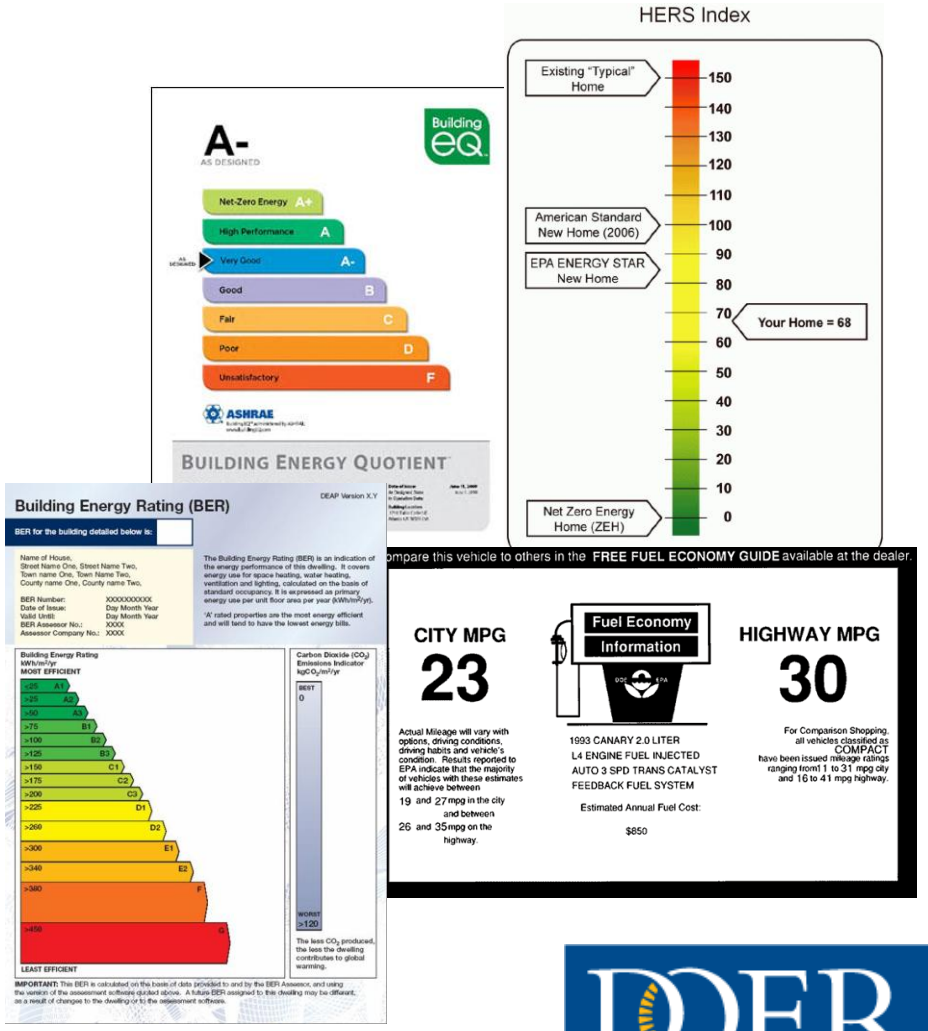
Moving Forward

- Public feedback on White Paper (Until February 12, 2011)
- DOER to Review comments and amend the strategy as appropriate
- Collaborate with a number of stakeholders to design a commercial building labeling pilot program
- Implement label pilot in Boston, Cambridge and Merrimack Valley

Labeling Program Goals

- Establish a commercial building energy rating systems that measures the energy performance of building assets to:
  - Directly **compare energy use** between buildings irrespective of tenant operations;
  - Enable **market valuation** of energy performance in buildings, and;
  - **Combined with operational data**, provide comprehensive building energy performance information and motivate **efficiency investments.**



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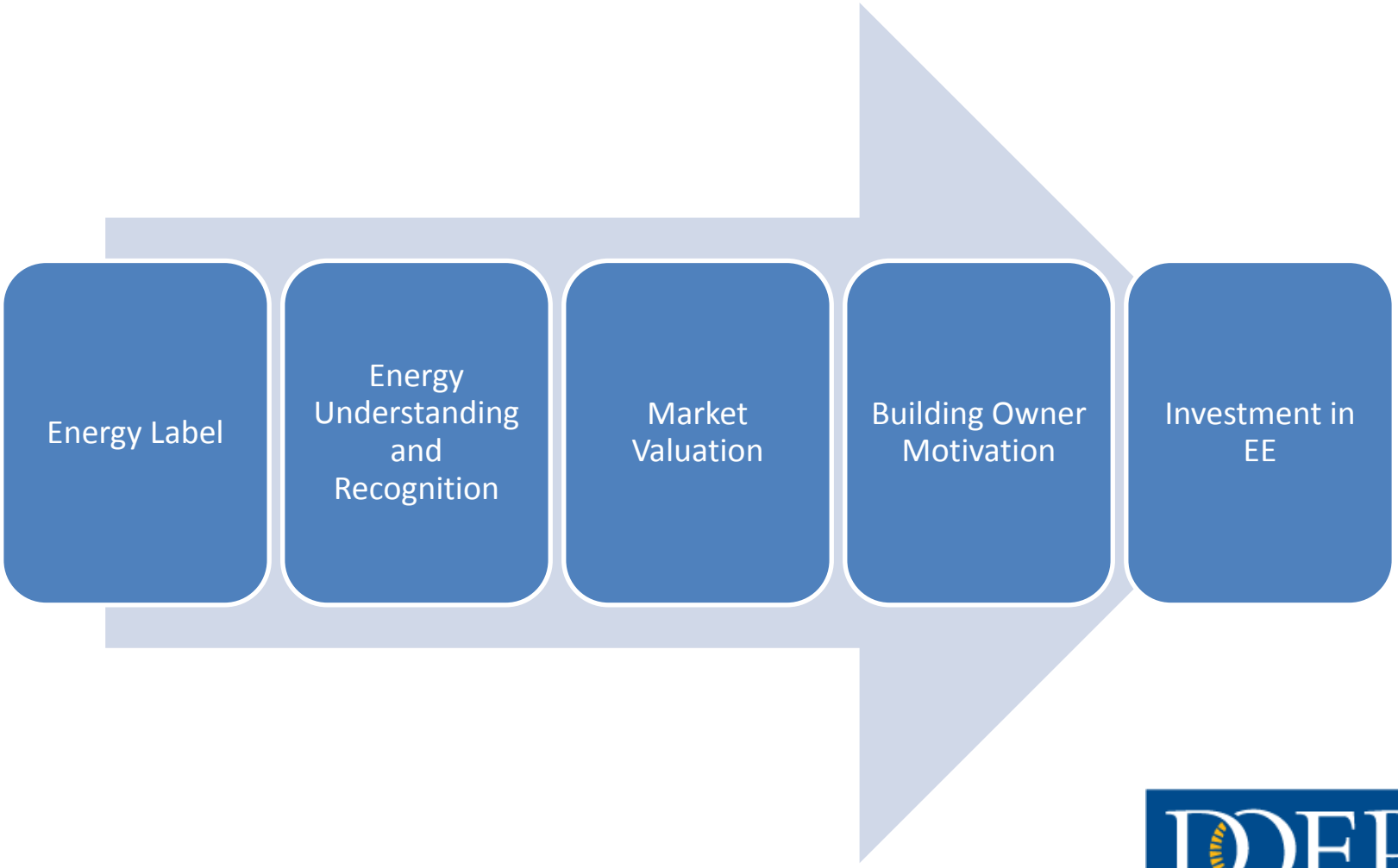
Existing Building Rating Systems

- Operational rating, which uses energy data to provide an energy performance rating, allows comparison of actual building energy use, which can be affected significantly by tenancy
  - EPA Energy Star Portfolio Manager (EPSM)
  - LEED EB rating
- An Asset rating uses energy modeling to predict the energy use of a building. LEED NC is an asset rating, which rates a building's energy performance against itself and does not allow for comparisons of energy performance across commercial buildings
- ASHRAE bEQ (Pilot phase of operational rating and asset rating)
- Residential Sector ahead of the Commercial Sector with well developed Asset rating programs (e.g. HERS)

Why an MPG for buildings?

- An operational rating with an asset rating together can provide a comprehensive view of a building's energy performance and help identify EE priorities.
- Building Energy **Comparative Asset Rating**
  - Facilitate direct comparisons of the potential energy performance between similar buildings
  - Evaluate the energy performance of a building's "assets," such as the thermal envelope (e.g. insulation, windows) and mechanical and electrical systems
  - Independent of tenant behavior

Pathway to EE investments



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Design Elements

Three Key Design Elements:

1. The **process** by which the data is collected and used (i.e. information/data gathering, modeling, etc.);
2. The **nature of the rating scale** (i.e., placing a building's energy performance on a continuum); and
3. The means by which a rating is communicated (i.e., the **label**).

Source: http://greenbookenergyratings.ie/assets/images/services01.jpg

Main Recommendations

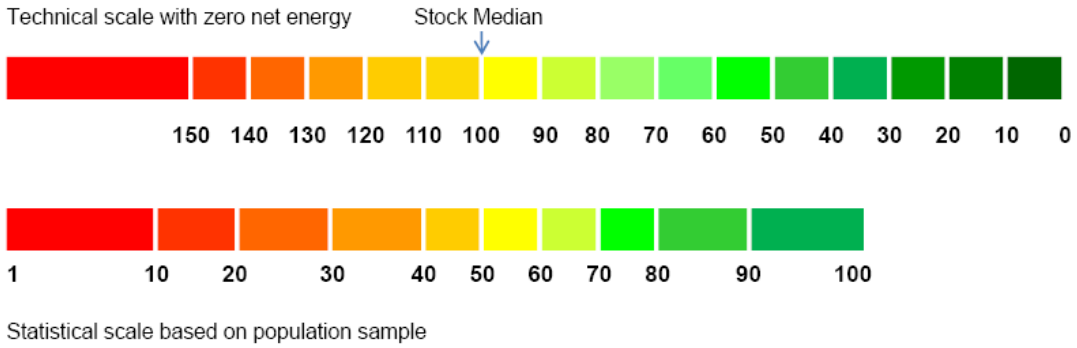
Assessment Process

- On-site assessment, provide recommendations
- Integrate recommendations with utility incentives and other financing opportunities
- Retrofit, and then post-retrofit rating for final label and utility incentives
- Data Collection and Modeling Guidelines for consistency and reliability
- Quality assurance
- Energy rating standard

Main Recommendations

Rating Scale

- Use of a technical rating scale
- Use of two metrics: Site EUI and GHG Emissions Metric
- Adjusting the asset rating scale to different building categories
- Use standardized guidelines for inputs



Comparison of Technical and Statistical Scales,
Source: "ASHRAE Building Energy Labeling Program: Implementation Report (FINAL DRAFT)"

Main Recommendations

Label Information

- There are several ways to present the information: letter grade, number, symbol, etc.
  - Possible adoption of a letter grading system based on modeled EUI that makes building to building comparisons easy to understand for the intended audience
- Effective Communication (clear message)
- BTUs, GHGs, $

Discussion