Transforming the Market with Building Codes and Standards

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Overview

1. Role of Utilities in State codes & standards (C&S)
2. Designing programs around C&S in Massachusetts
3. Reach “Stretch” codes and utility programs
4. Where do we go from here? — getting to 50%?
Utility Involvement with Building Codes & Appliance Standards (C&S)

- States can use utility assistance in implementation of current and future Codes
  - Close contact with bldg industry through incentive programs
  - In-house technical expertise
  - MA State needs to meet its own targets (GCA/ARRA, etc)
- Utilities need innovative ideas to meet energy goals
- Proven through CA and other research (IMT etc):
  - Significant energy savings
  - Programs cost effective
Challenges for Utilities

C&S programs:

- Displace existing incentive program savings
- Do not easily fit into existing program structure
- Initial investment in creation of C&S program
- Evaluations of energy savings is complex
- Getting regulators approval
Utility Programs Around Codes: Massachusetts Model

- **Statewide Effort**: unity among Program Administrators

- **Business Plan**: Opportunity for large-scale impacts, Initial development investment, etc

- **Research**: new study areas, establish baselines, stakeholders etc

- **Program Initiatives**: prioritize based on market needs, energy savings, integration w current programs etc

- **Energy Savings Quantification**: tracking mechanism, attribution, etc
Building Codes/Standards Program

Big Picture Business Plan
- % investment in development
- Years of commitment
- When can energy savings be claimed

Research
- Identify compliance issues
- Establish baselines
- Regulatory system study etc.

Program Activities
- Enforcement/Compliance
- Enhancement: Future code
- Advocacy

Energy Savings Quantification
- Activities: Tracking mechanism
- Establish baseline definitions
- Code impacts: Attribution
- Assigning to right bucket

X% of utilities portfolio will be spent on codes efforts and that is estimated to be X% of energy savings from overall portfolio.
Utility Programs Around Codes: Massachusetts Model

- Step 1: Tackle current code compliance first: create strategies to address code compliance support to the State

“Sorry, but you're in violation of building codes. You can only use lo-cal hi-fiber wood here.”
Utility Programs Around Codes: Massachusetts

- Next Step: Development, adoption, implementation of upcoming code
- Long-term planning: Enhancement of future cycles of code or creation of a whole new code:
  - MA based stretch code
  - Outcome based code
  - Green construction code
  - More??
Design of Program Around “Reach (Stretch) Codes”

- Involvement in development of stretch codes

- Once stretch code established, utility support:
  - Incentives to projects for meeting reach codes till they become the baseline code
    - Reward early adopters who set higher standards
    - Helps through transitional stages of a higher performance codes
    - Good market transformation strategy
    - Regulators approval
Utility Support to Implement Reach (Stretch) Codes

- Technical assistance, participate in energy committees
- Trainings, education (sharing resources with state)
- 3rd party inspections support for compliance (HERS for resi and develop new ‘reach code inspectors’ for commercial)
- Involvement in development of next round of reach codes
Where are we with next round of Stretch code?

- First address implementation issues with current stretch code
- Forward Stretch Code—what does it look like? Cost effectiveness test?
- Areas of development:
  - LED
  - Daylighting
  - Controls
  - HVAC
  - Renewables
  - Commissioning
  - M&V
  - Integration with:
    - Building modeling
    - LEED, other programs

TECHNOLOGY

OPERATIONS

DESIGN

PROCESS

SMART GRID
Utility Role in the Codes Pyramid

- **Base Code: Building a platform**
  - Development & benefit/cost studies
  - Reward early adopters and move market
  - Implementation assistance

- **Reach (“Stretch”) Codes**
  - Training/Education
  - Compliance assistance
  - Next round base code development

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The image shows a pyramid diagram illustrating the utility role in codes pyramid with various levels and associated roles and responsibilities.
Utility Role in Getting to 50% Energy Savings

- Utilities can play active role in moving market to 50%
- Enhance what we currently do? What do we do different?
- Fund studies to develop Reach codes Gen 2: enhanced features to core performance
- Validate technical feasibility of enhanced measures
- Reserve ‘development’ money for new technology
- Refine our incentives structure
  - Create reasonable bandwidth for cost?
  - Increase payback periods (lets say from 2 yrs to 5 yrs)?
  - multitiered tiered incentives: for early adopters, for business as usual?
Utility Role in the Codes Pyramid

- **Base Code: Building a platform**
  - Implementation assistance
  - Technical studies
  - Redefine incentive structure
  - Reserve development money
  - Training/Education
  - Compliance assistance
  - Next round base code development

- **Reach Codes**
  - Development & B/C studies
  - Reward early adopters and move market
  - Implementation assistance
  - Technical studies
  - Redefine incentive structure
  - Reserve development money
  - Training/Education
  - Compliance assistance
  - Next round base code development

- **Getting to 50%**
  - Development & B/C studies
  - Reward early adopters and move market
  - Implementation assistance
  - Technical studies
  - Redefine incentive structure
  - Reserve development money
  - Training/Education
  - Compliance assistance
  - Next round base code development

- **Net Zero Bldg: End Goal**
  - Utilities to help move market to this point!
  - Development & B/C studies
  - Reward early adopters and move market
  - Implementation assistance
  - Technical studies
  - Redefine incentive structure
  - Reserve development money
  - Training/Education
  - Compliance assistance
  - Next round base code development

- **Advisory**
  - Technical studies
  - Redefine incentive structure
  - Reserve development money
  - Training/Education
  - Compliance assistance
  - Next round base code development
End Goal: Net Zero Buildings

QUESTIONS?

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Massachusetts Stretch Code

- Origination: Realization that utility programs had proven that market is ripe for higher standards, base code not catching up with technology

- Core Performance package:
  - Different from prescriptive or performance paths of compliance
  - Set of measures through whole building simulation & analysis that can be ‘replicable’ to similar buildings, warrants cost effectiveness and guarantees 20-30% more energy savings than base code
  - Formation of Mass. Stretch Code, currently administered by Dept. of Energy Resources