
SWEEP 8th Annual Southwest Regional Energy Efficiency Workshop
December 9, 2011
Presented by Allen Lee
Outline

• Introduction and background
• Status of codes and standards activities
• Policy issues
• Recommendations
INTRODUCTION AND BACKGROUND
Energy-Efficiency Codes & Standards (C&S)

• Terminology
  – Codes for buildings (usually)
  – Standards for equipment/appliances

• First C&S adopted in 1970s

• Linked to market transformation (MT) strategy of 1990s
  – MT seeks to change market so efficient products and services are norm and need no incentives
  – This is exactly what C&S do
Why the “Sudden” Interest in C&S?

• Recovery Act
  – All states committed to adopting latest codes for SEP funds
• CA PUC allowed California utilities to count 2006-08 energy savings
  – In other states, regulators and utilities are taking action
• Under Obama Administration, DOE is moving ahead on standards
Advantages/Drawbacks of C&S

- Codes (have potential to) affect entire market and minimize “lost opportunities”
  - Mandatory
  - Universal
- Scale effects decrease costs of energy efficiency
- Relative to DSM programs...
  - C&S programs are very cost effective to utilities
  - Ongoing incentives are not required
  - Effects are persistent
- Drawbacks
  - Require authority and enforcer
  - Raise the “baseline” for DSM programs
  - Savings trail C&S activities
C&S Offer Very Large Savings Opportunities

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<th>National Scenario*</th>
<th>Savings Equivalent in 500 MW Powerplants, 2010-20</th>
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*Source: Assessment of Electric Savings in the U.S. Achievable through New Appliance/Equipment Efficiency Standards and Building Efficiency Codes (2010-2020); Institute for Energy Efficiency, December 2009

California C&S Program net savings ~10-15% of DSM portfolio savings
What Can Utilities Do to Support Energy Codes?

- Development Process
  - Provide data and information
  - Fund participation
  - Monitor

- Adoption Process
  - Provide data and information
  - Participate in process

- Implementation Process: Enforcement & Compliance
  - Fund enforcement infrastructure
  - Research compliance/enforcement
  - Provide technical support/training

THE CADMUS GROUP, INC.
What Makes Utilities Special?

- Data—energy use, savings, costs
- Technically competent staff/contractors
- Staff/contractors experienced in advanced building techniques and systems
- Demonstrations and incentivized programs
- Added credibility—viewed as objective “third-parties”
- Multi-jurisdiction coverage and experience
- Overall impact is to provide balance in the codes and standards adoption process
Treatment of Utility Code Activities

- Equitable treatment needed for utility expenditures on code efforts
  - Cost recovery
  - Incentives
  - Lost revenue

- Evaluation of savings is more complex
  - What’s the baseline?
  - What’s the compliance rate?
  - How much savings can be attributed to utility actions?
STATUS OF CODES AND STANDARDS ACTIVITIES
California

- Utilities actively promote C&S
  - In 2010-12 program cycle, CPUC will allow utilities 100% credit for verified savings toward savings goal and earnings
- Thorough EM&V method has been developed and implemented
- Challenging evaluation issues remain
  - Treatment of compliance enhancement
  - Credit for stretch codes
  - Credit for federal standards
Massachusetts

- Building off California experience, but simpler/less rigorous
- Four focus areas
  - Performance improvement/compliance enhancement
  - Base code advocacy and support
  - Stretch code advocacy and support—approximately ½ population covered by stretch code
  - Appliance standards advocacy and support
- Process to credit C&S savings in development
  - Program administrators hired consulting firm to conduct research
  - Planning, EM&V, reporting challenges
  - Green Communities Act Apr 2012 may allow credit for PA efforts on stretch codes
Other Northeast States

- VT: Efficiency Vermont code support element
  - No savings are being attributed or claimed
- CT: DPUC ordered increased utility training on codes—considering attribution method
- NY: NYSERDA providing code compliance training/support
- NH: Utilities participate with state in code training
- ME: Going backwards—repealed code, making it optional for jurisdictions <4,000 people (65% of state population)
Arizona

- Regulators will allow utilities to count up to 1/3 of C&S savings toward Energy Efficiency Standards goals
  - Measured through EM&V
- Decided to take different path than California
  - Greater certainty of credit
  - Goals explicit, but flexible to implement
- Attribution based on documenting program and efforts
  - Must demonstrate “skin in the game”
- Potential credit for both C&S adoption and implementation/compliance enhancement
Arizona—Salt River Project

- As public utility, not covered by regulations
  - SRP commits to similar effort
  - Seeks up to 50% credit
- Working with local jurisdictions to adopt new codes
  - “Home rule” precludes mandatory state code
  - Providing training, technical and policy assistance
  - Point system to assess program attribution
- Cadmus developing code baseline and initial deemed savings
- SRP will investigate standards also
Northwest Snapshot

- Regional body—Northwest Power & Conservation Council—develops Power Plan that includes expected, cost-effective C&S in load forecast
- NW Energy Efficiency Alliance conducts regional/national activities to promote C&S
  - Selects C&S targets
  - Focuses efforts strategically
- Utilities in WA looking at how to get credit toward requirements of I-937
  - Seattle City Light has been proactive
Midwest Activities

• Little progress to date
  – No states have mechanisms to allow utilities to claim C&S savings
• Minnesota looking at code compliance and ways to allow utilities savings credit
  – Xcel energy has been a big proponent
• Ohio and Iowa have had VERY preliminary discussions about this
  – One OH utility submitted rough C&S plan
Other Activities

• Shaheen-Portman 2011 S1000
  – Provides for national model codes and funding restrictions if states do not advance codes

• New Buildings Institute’s Core Performance Program
  – High performance building path that does not require modeling
  – Basis for MA stretch codes
POLICY ISSUES FOR UTILITIES AND REGULATORS
C&S Treatment in Efficiency Portfolio

- Are C&S savings included in potential studies?
- How are C&S savings treated in program goals?
- How are financial reward mechanisms applied?
Primary C&S Challenge for DSM Program Savings

- C&S make it harder for DSM programs to achieve savings
- C&S may require DSM programs to ratchet up
Measurement and Attribution of C&S Savings

• How should savings be measured?
  – Modeling/engineering analysis, billing data, site measurements
  – Compliance
  – Natural market trends
  – What about compliance enhancement?

• How much credit should utility program receive?
  – Objective measurement
  – Clear, defensible protocol
C&S Cost Effectiveness

• From utility perspective, C&S program is very cost effective
  – For CA: ~5% of DSM cost/kWh saved

• From total resource cost perspective?
  – C&S usually adopted where consumer benefits slightly exceed costs
  – How should net-to-gross be applied?
  – If code is new baseline, should there be no incremental cost?
Unique C&S Program Challenges

• C&S programs are not like other DSM programs
  – Other program managers don’t understand
  – Impacts occur years later

• Utilities don’t control C&S adoption or enforcement

• Unlike DSM programs, C&S programs don’t “touch” customers
  – Can customer satisfaction benefit?
RECOMMENDATIONS
Planning

- Treat C&S savings consistently in forecasts and plans
- Include C&S support in DSM/EE planning
  - Explicitly include links between C&S and DSM
  - Leverage experience of others
- Adapt EM&V methods to quantify C&S program savings
  - Establish clear impact measurement methods
  - Develop objective attribution quantification methods
Policies

• Establish regulatory structure to encourage DSM/EE C&S efforts
  – Clearly define how C&S fit in savings targets
  – Treat equitably with conventional programs

• Clarify treatment of attribution
  – Balance rigor and effort
  – Define the pie and how it will be divided

• Enable/promote stretch codes
Implementation

• Enhance compliance activities and measurement
  – Support code enforcement
  – Measure and track compliance

• Target efforts
  – Identify standards opportunities not pre-empted

• Enhance collaboration among utilities, advocates, agencies
Questions?

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C&S Savings Can Be Very Large—California

- 60% of Total
- ~19% of Residential and Commercial Electricity Use in California in 2006

Program, Price, and Market Effects (Includes Utility Efficiency Programs)

Title 20 Appliance Standards

Title 24 Building Standards

Borrowed from Art Rosenfeld
One hundred and four municipalities have adopted the new Board of Building Regulations and Standards (BBRS) Stretch Code, as of November 16, 2011.