

# **EEAC EM&V Briefing**

March 8<sup>th</sup>, 2011



# Introduction

- A snapshot of current EM&V activities
- Background
  - What is EM&V and how is it used?
  - Brief history of EM&V in Massachusetts
- Status Report
- Some selected early results
  - Residential
  - Cross-Cutting
  - Non-Residential
- Overall assessment of EM&V framework and progress

# A Snapshot of Current EM&V Activities

- Some 45 EM&V studies are currently under way, most scheduled to be completed between now and July.
- Wide range of studies
- Results will be used to determine savings, improve program design and delivery, and inform policymaking
- EEAC consultants are involved in all studies, and based on a 2009 EEAC resolution, share decision-making responsibility with PAs

# Background: What is EM&V (Evaluation, Measurement and Verification)

- Impact Evaluation, yes
  - Measurement of Gross Savings
    - Methods: End-use metering, billing analysis, site visits, engineering re-analysis
  - Measurement of Net Savings or Net-to-Gross Ratio (NTGR)
    - Methods: Survey research, sales data analysis, quasi-experimental design, econometric analysis
- But also...
  - Process Evaluation (studying how a program has been implemented and operated)
  - Market Assessment (trying to understand the markets being targeted)
  - Other: measure cost studies, baseline research, analysis of non-energy benefits, analysis of environmental benefits, etc.

# Background: How EM&V is Used in Massachusetts

- Impact evaluation:
  - Refine planning assumptions prospectively, via TRM
  - True-up savings retrospectively, via annual reports
  - Inform program screening and cost-benefit analysis
- Process evaluations
  - Improve program design and delivery
- Market assessment
  - Support program planning and implementation
  - Inform policymaking



## Background: Ancient History

- PAs have long been responsible for administering EM&V studies, generally using consultants.
- In Collaborative period, NUPs advisors provided input to studies, but had no decision-making authority.
- EEAC resolution of 2009 inserted Council and its consultants in a decision-making role.

## Background: Council 2009 EM&V Resolution, Policy Provisions

- EEAC to assume oversight role over EM&V activities by PAs
- EEAC consultants to work with PAs to reach consensus on evaluation issues, but if consensus cannot be reached, authority for decision-making to reside with EEAC or its designee.
- Ensure independence and objectivity of EM&V activities, as well as consistency, timeliness, and credibility of results
- Subject to system of appeals
- EM&V Resolution approved by DPU on January 28, 2010 in its Orders on the PAs' three-year plan filings

## Background: 2009 EM&V Resolution, Administrative Provisions

- Most EM&V studies to be performed at a statewide level
- Evaluation activities to be divided into 5 to 7 semi-permanent statewide research areas, each with:
  - A long-term research area manager (RAM) from the PAs
  - An independent evaluation contractor working under a long-term contract
  - An assigned EEAC EM&V consultant
- Electric and gas evaluation efforts should be fully integrated to the maximum extent possible

## Status Report: Summary of Statewide Research Areas and Assignments

<b>Research Area</b>	<b>PA</b>	<b>RAM</b>	<b>EEAC Consultant</b>
Residential Retrofit and Low-Income	NSTAR	Lisa Shea / Gail Azulay	Bob Wirtshafter
Residential Retail Products	NSTAR	Lisa Shea / Birud Jhaveri	Ralph Prah
Residential New Construction	NGRID	Bill Blake	Bob Wirtshafter
Non-Residential Large Retrofit and New Construction	NGRID	David Jacobson / Andrew Wood	Ralph Prah
Non-Residential Small Retrofit	NSTAR	Lisa Shea / Dave Weber	Ralph Prah
Special and Cross-Sector Studies	WMECO	Gene Fry	Ralph Prah

## Status Report: Summary of Studies in Progress

- Some 45 statewide EM&V studies underway as first round; second round to begin around July, 2011.
- Wide range of studies:
  - Gross savings Impact evaluations
  - Net savings impact evaluations
  - Process evaluations
  - Market assessments
  - Baseline research
- Most first-round studies scheduled to be completed between March and June 2011.
- Majority of studies more or less on schedule
- High-level plan in place for second round, and in some research areas more detailed planning has also been done
- PAs and EEAC consultants also participating in (and will be applying) a number of regional studies being done by Northeast EM&V Forum

## Status Report: Comparing MA to Other States for Context

- This is a large, complex EM&V program – 2<sup>nd</sup> or 3<sup>rd</sup> largest in the U.S.
- Structure of MA EM&V framework is unique
  - Some states have PAs administer PA-level studies, then PUC reviews
  - Some states have PUC administer state-level studies
  - Only MA has PAs administer state-level studies, with responsibility systematically divided by research area, and decisions made collaboratively with EEAC and its agents

## Status Report: Some Sample Studies

- Process, market and impact evaluation of Appliance Turn-In Program
- Process evaluations of MassSAVE and Low-Income
- Residential New Construction Baseline Study
- Process and impact evaluations of behavioral programs
- Logger study of small C&I lighting control measures
- Non-Residential New Construction market characterization study
- CHP market potential study and impact evaluation
- Custom and prescriptive gas impact evaluations
- Complete list available on request

## Some Selected Early Results

### Provisos:

- Too many results to be comprehensive here; the following is therefore a very selective and impressionistic sampling
- As of early March, most available results are still in draft and/or partial form and thus subject to change
- Results discussed here that are not yet final are framed qualitatively and provisionally (e.g., “may point toward...”)
- Far more final results available over next several months

## Selected Early Results: Residential

- Residential Upstream Lighting:
  - Research efforts focus on extent to which program is still moving the market, and the resulting net-to-gross ratio
  - Results thus far suggest that program may still be having an effect, but tend to bear out assumptions for relatively low net-to-gross ratios
  - Focus on HTR and specialty bulbs may be enhancing the NTGR to some extent, but perhaps not dramatically
- Appliance Turn-In Program:
  - Per-unit net savings may be substantially lower than forecast, due to a combination of factors

## Selected Early Results: Residential, Continued

- GasNetworks:
  - Impact evaluation found larger than anticipated free ridership levels for gas furnaces and boilers.
- MassSAVE:
  - Process evaluation finds movement to standardization across individual PA efforts, but program delivery and data collection issues still exist.
- Low-Income
  - Process evaluation finds that tracking data is currently inconsistent and likely to limit ability to perform a Statewide impact evaluation. Working group is starting to address this issue.
- New Construction
  - Baseline study of code compliance with DOER cooperation underway. Baseline for SF to be conducted in 2011.

## Selected Early Results: Cross-Cutting

- Behavioral Programs
  - Impact evaluation of one key behavioral program suggests thus far that:
    - Net savings may be moderately lower than forecast
    - This could be self-correcting to some degree, as PAs have been improving their behavioral savings forecasting as they go along
    - Bulk of savings could be due to adoption of physical measures rather than behavioral changes
    - Next step: assess extent to which physical measures adopted in conjunction with other programs, requiring adjustment for double-counting
- Incentive level study
  - Study compared MA's incentive levels with those of peer states (10 leading, experienced states)
  - Study found that, overall, MA is more or less in the middle of the pack, neither consistently high nor consistently low

## Selected Early Results: Cross-Cutting, Continued

- Umbrella Marketing Evaluation
  - Awareness of MassSAVE™ brand among residential population is fairly high, and might have increased between April and December 2010
  - However, awareness does not necessarily imply real familiarity or understanding
    - April:
      - 36% of residential customers had some familiarity with MassSAVE™
      - Only 18% considered themselves very familiar
    - December:
      - 49% had seen or heard the term MassSAVE™
      - Only 30% knew that it relates to saving energy
  - Improvements in lead tracking may be needed in order to determine umbrella marketing effectiveness
    - For example, track call center and PA web-site activity

# Selected Early Results: Non-Residential

- Eight impact evaluations in progress, but no results to report yet (consistent with planned schedule – due dates shown below)
  1. Large C&I prescriptive gas (June)
  2. Large C&I custom HVAC electric (June)
  3. Large C&I Comprehensive Design Approach (June)
  4. Large C&I custom gas (July)
  5. Large C&I CHP, first round (October)
  6. Large C&I prescriptive VSD (December)
  7. Small C&I lighting operating hours study (May)
  8. Small C&I lighting controls (June)
- Overall Large C&I process evaluation finds that:
  - PA staff generally express satisfaction with communication, coordination, working relationships and progress towards integration
  - However, many recommend increased staffing and customer incentive levels to facilitate goal attainment
- Market assessment studies of key target markets (e.g., NRNC, CHP, Chains/Franchises) are providing insights to aid in program design

## Overall Assessment of EM&V framework and Progress: Strengths

- Thus far, we believe the new framework has generally worked as planned.
  - Transparency and objectivity of EM&V efforts in MA have been enhanced
  - Sheer number and magnitude of studies have sharply increased
  - Technical resources are being used more comprehensively and efficiently
  - Gas and Low-Income programs, which had previously received little EM&V attention, are now being evaluated
  - Few disagreements between PAs and EEAC consultants that could not be resolved informally

## Overall Assessment of EM&V Framework and Progress: Potential Issues

- Total amount of resources dedicated to public oversight of EM&V remains quite low compared to peer states of CA and NY
- We are behind where we should be with NTGR studies – although we are hopeful that the omnibus MTM agreement will help address this.
- Differences in perspective have been common, and require time and effort to resolve – but this was anticipated when the framework was developed.

# Closing Slide

Ralph Prahl  
EEAC Consultant Team Lead for EM&V

***MA EEAC Consultant Team***

