

# How Massachusetts Utilities Work Collaboratively To Screen Market Transformation Programs

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## Overview

- Massachusetts Regulatory Structure
- Background
- Description of the program screening model
- Where we were
- Where we are now
- Where we are headed
- Lessons learned

## Massachusetts Regulatory Framework

- DOER – authority to oversee and coordinate ratepayer-funded energy efficiency (EE) programs
- DTE – regulatory oversight on cost-effectiveness screening
- Non-Utility Parties – work collaboratively with utilities on EE budgets and plans, and sign onto filings with settlement agreement

## Massachusetts Utilities

- NSTAR Electric & Gas
- Massachusetts Electric Company (MECO)
- Western Massachusetts Electric Company (WMECO)
- Unitil/Fitchburg Gas & Electric

## Screening for Cost-effectiveness in Massachusetts

- DTE order 98-100
  - Released in 1999
  - Guidelines for MA utilities to follow
  - Total Resource Cost (TRC) test
  - For MT programs, differentiate between savings while program is active vs. savings after the program ends (“market effects”)

## Regulator Interest

- Improve screening of MT Programs
  - NSTAR Model
  - Market effects

## Background – “The Model”

- NSTAR worked with NUP consultants to build cost-effectiveness program screening tool
- Excel-based, 10mb, 50 worksheets
  - Used for all programs
- Data Intensive

## Input Data

- General data
- Measure cost and benefit data
- Measure penetration
- Utility cost data

## Output Data

### Benefit-Cost Ratio

$$\text{BCR} = \frac{\text{NPV } \Sigma \text{ Program Total Benefits}}{\text{NPV } \Sigma \text{ Program Total Costs}}$$

## Value

- Capability of modeling long-term market transformation programs
  - Used for retrofit programs
  - Used for MT programs
    - ENERGY STAR Lighting, Appliances, Homes
    - Motor-up and Cool Choice
- Post-Program “Market Effects”
  - Long-run penetration curves
  - Series of 4 curves

## Penetration Curves

- **Without program** – anyone that would have installed the measure in absence of utility incentive
- **With program** - “without program” plus “in program” plus spillover
- **In program** – anyone participating in the program, including free riders
- **Program effect** – “with program” minus “without program” OR “in program” less free riders plus spillover

## Massachusetts ENERGY STAR RAC Market Penetrations

Year:	2003	2004	2005	2006	2007	2008	...	2017
Eligible Measures	118,200	118,200	118,200	118,200	118,200	118,200		118,200
w/o Program Penetration	25.0%	28.0%	31.0%	34.0%	37.0%	40.0%		100.0%
w/Program Penetration	40.0%	45.0%	48.0%	50.0%	52.0%	54.0%		100.0%
In Program Penetration	15.0%	17.0%	17.0%	16.0%	15.0%	0.0%		0.0%
Program Effect (w/Program - w/o Program)	15.0%	17.0%	17.0%	16.0%	15.0%	14.0%		0.0%
# units in Program Effect	17,730	20,094	20,094	18,912	17,730	16,548		-

## Regional Screening

- Prompted by regulators
- State level analysis
  - Timeframe: 2000 through 2012
- Started with ENERGY STAR Lighting
- Used NSTAR model

## The Steps

- Collect information to identify differences
- Agree on common measure input assumptions
- Agree on baseline and current program scenario penetration assumptions
- Conduct BCR analysis and review
- Develop alternative scenarios
- Conduct BCR analysis and review
- Present results

## Regional Screening: Theory vs. Practice

- Screening MT programs collectively makes sense
  - In theory
  - In practice, however.....
    - Started with simplest program
    - Began work in Summer 2000
    - December 2001 filed with DTE

## Regional Analysis Benefits

- Benefits
  - Increased awareness of variability in individual utility assumptions
  - Errors in how some utilities were calculating measure savings identified
  - Alternative scenario analysis increased awareness of the sensitivity of long term program results to different market assumptions



## Regional Analysis Challenges

- Very labor intensive, time consuming process
- Takes a lone time to collect necessary data for all utilities
- Requires long discussions to reach agreement
- Each utilities has different filing dates
  - Some utilities need to submit new program plans which may include updated savings and market assumptions that are inconsistent with the original information used in state level analysis

## Where We Are Today

- 2003 Energy Efficiency Plans
- Staggered filing dates
- Consistent approach to screening MT programs
- Using standard model (MECO enhancements)
  - Reduces to 18 worksheets
  - Multiple program screening

## What Makes Sense to Standardize

- The Model
  - Less interrogatories
  - More consistent results (BCRs)
- The Approach
  - Include market effects, or not
- Selected input assumptions
  - Avoided costs
  - Results of joint studies (Torchiere)
  - Non-electric benefits
  - Penetration Curves – MPER (Market Progress and Evaluation Report)

## What Does Not Make Sense

- Like measures, not always the same savings
  - Refrigerators
- Production
  - Does everyone count a widget the same way
  - Data tracked may differ among utilities
- Selected input assumptions
  - Transmission & Distribution costs
  - Water & sewer costs

## Where Are We Headed

- More joint studies
  - Measure lives
  - Continued MPERs (C&I)
- Consistent Measurement across utilities
  - Starting in 2004

## Lessons Learned

- Great strides have been made
- What makes sense in theory does not always work in practice
- Standardize the assumptions that make sense to standardize
- Differences sometimes make sense
- Set up processes/working groups such as MPER group
- Confer behind the scenes

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## Questions & Comments