Including Non-Energy Benefits in Evaluating Massachusetts' EE Programs

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Caveat

This presentation does not reflect the views of the MA DPU or the MA DPU Commission.

Policy Context

- System benefits charge adopted in 1998
- Green Communities Act (2008)
  - Required electric and gas utilities to pursue all cost-effective energy efficiency
- Global Warming Solutions Act (2008)
  - Set legally binding GHG emissions reductions
- Court decision limiting Department's purview to "reasonably foreseeable" environmental compliance costs that are expected to appear on electric bills

MA EE Framework

- Electric and gas utilities serve as Program Administrators
- Integrated statewide 3-year electric and gas EE plans
  - Developed collaboratively with Department of Energy Resources and Energy Efficiency Advisory Council
- EM&V plans and studies developed in collaboration with EEAC

DPU Precedent

- TRC test used to evaluate program cost-effectiveness
- NEIs first included in EE cost-benefit analysis in 1999
  - Department rejected adder for NEIs
  - Required quantification of measure-specific NEIs where possible
- DPU EE guidelines explicitly include Non-electric benefits including:
  - Resource benefits (i.e. oil, wood, water savings)
  - Non-resource benefits (i.e.):
    - Customer O&M savings
    - Reduced environmental and safety costs
    - "All benefits for Low-Income Customers"
- Department directed PAs to improve and expand NEIs for 2013-2015 planning cycle in light of requirement to achieve all cost-effective EE

Current MA NEI Methods

- Residential and Low Income Programs
  - Primarily derived from 2011 study
  - Utility-perspective – Mostly from literature, with utility-specific inputs
  - Participant-perspective – Combination of methods including surveys, engineering estimates, and literature review
- C&I Programs
  - Primarily derived from 2012 study
  - Participant-perspective NEIs derived mostly from surveys

Example NEIs

Utility-Perspective OPIs	Value
Financial and accounting	
Arrearages	$2.61 per participant
Bad Debt Write-offs	$3.74 per participant
Customer Service	
Terminations and Reconnections	$0.43 per participant
Customer Calls and Collections	$0.58 per participant
Notices	$0.34 per participant
Safety-Related Emergency Calls	$8.43 per participant

Example NEIs Cont'd

Participant-Perspective OPIs	Value or Range of Values
Low-Income	
Economic Development	$0.04 per kWh saved
Equipment	
Lighting Quality and	$3.50 per LED or CFL fixture; $3.00 per LED or CFL bulb
Equipment Maintenance	$9.42 to $124 per participant depending on the customer sector, heating or cooling system, program
Window AC Replacement	$45 per measure
Comfort	
Thermal Comfort	$3.92 to $125 per participant depending on the customer sector, heating or cooling system, and program
Noise Reduction	$1.42 to $40 per participant depending on the customer sector, heating or cooling system, and program
Health & Safety	
Health Benefits	$0.13 to $19 per participant depending on the customer sector, heating or cooling system, and program
Improved Safety	$45.05 per measure
Property Value	
Home Durability	$1.54 to $149 per participant depending on the customer sector, heating or cooling system, and program
Property Value Increase	$62.65 to $1,998 per participant depending on the customer sector, heating or cooling system, and program

2013-2015 Electric EE Programs

Sector	Benefits ($)						B/C Ratio
	Capacity	Energy	DRIPE (Capacity & Energy)	Non-Elec. Resource	Non-Resource	Total Benefits	
Residential	$192,430,131	$646,075,755	$220,311,010	$617,481,550	$692,602,539	$2,148,589,974	3.40
Low-Income	$27,057,767	$85,556,683	$28,921,978	$122,542,611	$134,675,933	$369,832,994	2.16
Commercial & Industrial	$1,286,446,035	$3,833,004,370	$1,251,351,642	-$503,637,368	$491,456,041	$5,107,269,077	4.04
GRAND TOTAL	**$1,505,933,932**	**$4,564,636,807**	**$1,500,584,629**	**$236,386,793**	**$1,318,734,513**	**$7,625,692,046**	**3.69**

Key Regulatory Concerns

- Rigor and transparency of evaluation methods
- Use of conservative values
- Uncertainty related to interaction of multiple NEIs
- Potential double counting of benefits
- Consistent application of cost-benefit tests
- Allocation of NEIs to specific measures

Ongoing Work

- Proper evaluation of avoided greenhouse gas emissions (DPU 11-120)
- Additional studies increasing reliability of NEI values
- Recent study reduced some NEIs for heating and cooling equipment due to attribution of savings for early replacement and interaction among measures

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