Overview of Delaware Cost-Effectiveness Practice

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Challenge: Many Players, Minimal Guidance, No Mandates

- Existing and new entities, public and private
- Mandate for C/E programs…
  - “each affected energy provider shall implement [programs] that are cost-effective, reliable, and feasible as determined through regulations…”
- …but limited guidance on C/E itself
  - “if it finds them to be cost-effective through a net-cost-benefit analysis that quantifies expected cost savings when considered in their entirety” & “reduce overall utility bills”
Solution: Collaboration and Conservatism

- EEAC is the primary venue
  - Guiding principles of collaboration and consensus
  - Limited resources
  - DNREC responsible for EM&V regulations, including C/E

- Regulations promulgated via public process

**Objective:** Quickly develop defensible, conservative assumptions
Analytical Needs

- Net-to-Gross Ratios
- TRC Guidelines and Assumptions
- Non-Energy Impacts
- Avoided Costs
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Not central to C/E, but removed one area of uncertainty for the regulated utilities
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- Promulgated by DNREC via public process
- “Net-cost-benefit analysis that quantifies expected cost savings when considered in their entirety”
- 4% real discount rate
Analytical Needs

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- Borrowed from MD, MA, & DE IRP
- Focus on benefits to participants (except air emissions)
- No value for carbon
## Accepted Non-Energy Impacts

<table>
<thead>
<tr>
<th>Category or type of NEI</th>
<th>Value (2016$)</th>
<th>Source</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weatherization</strong></td>
<td></td>
<td></td>
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<tr>
<td>LI Weatherization</td>
<td>$182 per home (annual)</td>
<td>Three(^3) (2016)</td>
<td>Participant health and safety benefits, no avoided death value; ultimately based on national WAP evaluation.</td>
</tr>
<tr>
<td>LI Weatherization reduced arrearages</td>
<td>2% of participant bill savings</td>
<td>Itron (2014); MD PSC (2015)</td>
<td>Published estimates for relevant programs</td>
</tr>
<tr>
<td>Non-LI HPwES/shell measures/etc</td>
<td>$35.35 per home (annual)</td>
<td>Itron (2014); MD PSC (2015)</td>
<td>Low case, derived from data in 2011 Massachusetts study; included in MD PSC order</td>
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<tr>
<td><strong>Air emissions</strong></td>
<td></td>
<td></td>
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<tr>
<td>Air emissions externalities</td>
<td>$0.0090 per kWh (annual)</td>
<td>PJM (2015); DPL IRP (2014)</td>
<td>Based on low end of avoided costs for NO(_x) and SO(_2) from DPL IRPs (2012 and 2014) and reported PJM emissions rates for 2014/5, emissions de-rated by 75%, and inflated to 2016$. Does not include compliance costs for NO(_x)/SO(_2)</td>
</tr>
<tr>
<td><strong>Other Benefits</strong></td>
<td></td>
<td></td>
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<tr>
<td>Water savings</td>
<td>$5 per 1,000 gallons</td>
<td>Conservative value based on AWWA (2016) and U of Delaware (2014)</td>
<td>Water savings indicated in the TRM should be valued at this rate; water savings can also be estimated using using IPMVP Method C and valued at this rate.</td>
</tr>
<tr>
<td>O&amp;M savings</td>
<td>Specified in TRM</td>
<td>Delaware TRM</td>
<td></td>
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</tbody>
</table>
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- Electric: adopted DPL Zone from MD; add DE-specific REC value
- Gas: developed from utility GSR; large locational difference
Summary and Take-aways

- Understand
  - Resource limitations and uncertainty
  - Values being borrowed

- Act
  - Move forward with acceptable research-based C/E inputs

- Plan
  - Improve accuracy through DE-specific evaluations and experience
Summary and Take-aways

- **Understand**
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- **Relationship to NSPM**
  - Policy alignment
  - Transparency
  - Symmetrical
Thank you

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