



*Integrated Energy Resources*

# 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*



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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

Category or type of NEI	Value (2016\$)	Source	Notes
<b>Weatherization</b>			
LI Weatherization	\$182 per home (annual)	Three <sup>3</sup> (2016)	Participant health and safety benefits, no avoided death value; ultimately based on national WAP evaluation.
LI Weatherization reduced arrearages	2% of participant bill savings	Itron (2014); MD PSC (2015)	Published estimates for relevant programs
Non-LI HPwES/shell measures/etc	\$35.35 per home (annual)	Itron (2014); MD PSC (2015)	Low case, derived from data in 2011 Massachusetts study; included in MD PSC order
<b>Air emissions</b>			
Air emissions externalities	\$0.0090 per kWh (annual)	PJM (2015); DPL IRP (2014)	Based on low end of avoided costs for NO <sub>x</sub> and SO <sub>2</sub> 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 <sub>x</sub> /SO <sub>2</sub>
<b>Other Benefits</b>			
Water savings	\$5 per 1,000 gallons	Conservative value based on AWWA (2016) and U of Delaware (2014)	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.
O&M savings	Specified in TRM	Delaware TRM	





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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



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- ▶ Plan
  - Improve accuracy through DE-specific evaluations and experience
  
- ▶ Relationship to NSPM
  - Policy alignment
  - Transparency
  - Symmetrical





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Thank you

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