AGENDA

1. Objectives
2. PSD Impact Recommendations
3. Short-Run, Actionable Recommendations
4. Key Long-Run Recommendations
**Research Objectives**

Primary: Develop improved impact parameters for retail non-lighting programs.
Secondary: Recommend improvements to program design and implementation.

**ESRPP Evaluation Outcomes:**
- Update measure-specific PSD impact parameters and approach (here)
- Establish evidence for savings claims (here)
- Update gross savings metrics (later)
- Estimate program-attributed sales (later)

**E-Commerce Evaluation Outcomes:**
- Update measure-specific PSD impact parameters (here)
- Outline program best practices (here)

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**PSD IMPACT RECOMMENDATIONS**
PSD RECOMMENDATIONS - IMPACT PARAMETERS

Overall PSD Recommendations

- All measures should document the following, directly in the PSD
  - Equipment type (i.e. upright or chest freezer, front or top load washer, etc.)
  - Equation(s) used to calculate savings
  - Key assumptions such as operating hours or number of cycles per year
  - Baseline equipment or energy usage
  - Efficient equipment or energy usage

- Rationale
  - The PSD lacks documentation needed for comparison to other states deemed savings

Overall PSD Recommendations

- Adopt consistent and clear calculation approach across measure types
  Example: \[ \Delta \text{kWh} = \text{kWh}_{\text{Base}} - \text{kWh}_{\text{EE}} \]

- Adopt the same framework for calculations across the measure types
  - The online interactive ENERGY STAR calculators
  - Or a consistent workbook methodology

- Consider adopting a calculated deemed approach
  - Much of the work to do this has already been done, currently in the supporting workbooks
**Engineering Review Methodology**

### Savings Methodology

<table>
<thead>
<tr>
<th></th>
<th>CT</th>
<th>MA</th>
<th>RI</th>
<th>VT</th>
<th>NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deemed UES</td>
<td>Deemed UES with supporting documentation</td>
<td>Deemed UES with supporting documentation</td>
<td>Deemed UES with supporting documentation</td>
<td>Calculated Deemed</td>
<td></td>
</tr>
</tbody>
</table>

- **Deemed UES only**: States where only a savings value was included.
- **Deemed UES with supporting documentation**: States where a savings value as well as the equations and assumptions used to calculate the deemed value were documented.
- **Calculated Deemed**: States where a savings value was not included. Instead, a deemed equation was provided, and baseline and efficient equipment usage is input into the deemed equation to determine the savings value.

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**ESRPP Recommendations - Impact Parameters**

### Measure Specific Recommendations

- Update values based on the more recent sources in the VT TRM.

<table>
<thead>
<tr>
<th>Product</th>
<th>Rec CT Value</th>
<th>Existing CT Value</th>
<th>Reason for Rec</th>
<th>Source for Rec Values</th>
<th>MA(^1)</th>
<th>RI(^1)</th>
<th>VT(^2)</th>
<th>NY(^3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothes dryer - gas</td>
<td>36 kWh</td>
<td>93 kWh</td>
<td>Input sources old (2013,2015)</td>
<td>VT TRM(^1), 2015</td>
<td>N/A</td>
<td>N/A</td>
<td>36 kWh</td>
<td>18.4 kWh</td>
</tr>
<tr>
<td>Clothes dryer - electric</td>
<td>194 kWh</td>
<td>93 kWh</td>
<td>Input sources old (2013,2015)</td>
<td>VT TRM(^1), 2015</td>
<td>160 kWh</td>
<td>160 kWh</td>
<td>194 kWh</td>
<td>N/A</td>
</tr>
<tr>
<td>Room AC</td>
<td>10.7 kWh</td>
<td>77.5 kWh</td>
<td>Input sources old (2002,2008) and calculator no longer available</td>
<td>VT TRM, 2015</td>
<td>36 kWh</td>
<td>N/A</td>
<td>10.7 kWh</td>
<td>N/A</td>
</tr>
</tbody>
</table>

\(^{1}\)The research team has no reason to believe that a clothes dryer would operate differently in VT than in CT.

\(^{2}\)MA, RI and VT use a deemed UES approach with supporting documentation.

\(^{3}\)NY uses a calculated deemed approach.
Measure Specific Recommendations

- Split freezers into upright and chest categories as savings values are significantly different.

<table>
<thead>
<tr>
<th>Product</th>
<th>Rec CT Value</th>
<th>Existing CT Value</th>
<th>Reason for Rec</th>
<th>Source for Rec Values</th>
<th>MA</th>
<th>RI</th>
<th>VT</th>
<th>NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upright Freezer</td>
<td>50 kWh</td>
<td>45 kWh</td>
<td>Split upright and chest to more accurately represent savings</td>
<td>Supplemental PSD documentation, 2017</td>
<td>N/A</td>
<td>N/A</td>
<td>43.8 kWh</td>
<td>27.4 kWh (unknown type)</td>
</tr>
<tr>
<td>Chest Freezer</td>
<td>32 kWh</td>
<td>45 kWh</td>
<td>Split upright and chest to more accurately represent savings</td>
<td>Supplemental PSD documentation, 2017</td>
<td>N/A</td>
<td>N/A</td>
<td>24 kWh</td>
<td>N/A</td>
</tr>
</tbody>
</table>

1MA, RI and VT use a deemed UES approach with supporting documentation.
2NY uses a calculated deemed approach.

<table>
<thead>
<tr>
<th>Product</th>
<th>Rec CT Value</th>
<th>Existing CT Value</th>
<th>Reason for Rec</th>
<th>Source for Rec Values</th>
<th>MA</th>
<th>RI</th>
<th>VT</th>
<th>NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothes Washer Tier I</td>
<td>88.1 kWh</td>
<td>66 kWh</td>
<td>PSD documentation was insufficient to support current value</td>
<td>VT TRM, 2018</td>
<td>N/A</td>
<td>N/A</td>
<td>88.1 kWh</td>
<td>109.9 kWh</td>
</tr>
<tr>
<td>Clothes Washer Tier II</td>
<td>120.3 kWh</td>
<td>117 kWh</td>
<td>PSD documentation was insufficient to support current value</td>
<td>VT TRM, 2018</td>
<td>N/A</td>
<td>N/A</td>
<td>120.3 kWh</td>
<td>116.4 kWh</td>
</tr>
<tr>
<td>Air Cleaner</td>
<td>213.9 kWh</td>
<td>227 kWh</td>
<td>PSD documentation was insufficient to support current value</td>
<td>VT TRM, 2004</td>
<td>391 kWh</td>
<td>N/A</td>
<td>213.9 kWh</td>
<td>214 kWh</td>
</tr>
<tr>
<td>Sound Bars</td>
<td>24 kWh</td>
<td>45 kWh</td>
<td>PSD documentation was insufficient to support current value</td>
<td>VT TRM, 2018</td>
<td>N/A</td>
<td>N/A</td>
<td>24 kWh</td>
<td>N/A</td>
</tr>
</tbody>
</table>

1MA, RI and VT use a deemed UES approach with supporting documentation.
2NY uses a calculated deemed approach.
3Follow-up email was sent on 6/25/20 to confirm there was no additional documentation for sound bars.
Findings: Wi-Fi Thermostats Compared

- The Connecticut approach is different from most other TRMs.

<table>
<thead>
<tr>
<th>Savings Type</th>
<th>CT¹</th>
<th>MA¹</th>
<th>RI²</th>
<th>NY²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controlling cooling only savings (kWh)</td>
<td>25 kWh</td>
<td>46 kWh</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Controlling heating and cooling savings (kWh)</td>
<td>N/A</td>
<td>104 kWh³</td>
<td>104 kWh</td>
<td>104 kWh</td>
</tr>
</tbody>
</table>

¹CT and MA a deemed UES approach.
²RI and NY all use a deemed UES approach with supporting equations and assumptions.

E-COMMERCE RECOMMENDATIONS – IMPACT PARAMETERS

Thermostat Recommendations

- **Consider separate measure categories for Wi-Fi and Smart Thermostats**
  - Smart Thermostat have a higher incremental cost and achieve higher savings
  - Program will need to differentiate marketing between the two
  - Program will need to collect model information for both measures during purchase.

- **For Wi-Fi thermostats**
  - Consider adopting the savings approach utilized in other TRMs with a deemed savings value of 104 kWh for heating and cooling applications

- **For Smart thermostats**
  - Adopt the calculated deemed methodology in the VT TRM (2018)
Advanced Power Strip Recommendations

- Break into Tier I and Tier II savings to align with other TRMs

<table>
<thead>
<tr>
<th>Product</th>
<th>Rec CT Value</th>
<th>Existing CT Value</th>
<th>Reason for Rec</th>
<th>Source for Rec Values</th>
<th>MA</th>
<th>RI</th>
<th>NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Power Strips, Tier I</td>
<td>48 kWh</td>
<td>48 kWh</td>
<td>Values reasonable, update sources and references</td>
<td>PSD, 2016</td>
<td>117 kWh</td>
<td>21.6 kWh</td>
<td>57.5 kWh</td>
</tr>
<tr>
<td>Advanced Power Strips, Tier II</td>
<td>179 kWh</td>
<td>48 kWh</td>
<td>Insufficient documentation in PSD to support current value</td>
<td>MA TRM, 2018</td>
<td>179 kWh</td>
<td>N/A</td>
<td>158.9 kWh</td>
</tr>
</tbody>
</table>

1MA, RI and NY all use a deemed UES approach with supporting equations and assumptions.
# Short Run, Actionable Recommendations

<table>
<thead>
<tr>
<th>Program</th>
<th>Specific Recommendation</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESRPP – Incentives</td>
<td>Consider <strong>2-year incentive levels</strong> and budgets</td>
<td>National retailer decision cycle; retailers decide 1 year in advance</td>
</tr>
<tr>
<td>E-Commerce – Online Retailer Design</td>
<td>Design and promote platform <strong>similar to on-line retailer</strong> (Amazon) with rebate info, energy score info, special promotions</td>
<td>Seamless customer experience; Platforms appeal more with multiple products</td>
</tr>
<tr>
<td>E-Commerce – Online Retailer Design</td>
<td>Include <strong>info on measures</strong> incentivized through other channels (ESRPP, midstream)</td>
<td></td>
</tr>
<tr>
<td>E-Commerce – Product Selection</td>
<td>Consider <strong>adding product categories</strong>, rebated or non-rebated (e.g. air cleaners / purifiers, dehumidifiers, VS pool pumps)</td>
<td>CT product variety limited compared to other states</td>
</tr>
</tbody>
</table>

## E-Commerce Platform Site Features

- **Plug into Savings**
  - Many electronic devices draw power even when turned off. Save up to $300 per year by connecting these devices to an advanced power strip.
  - Learn More

- National Grid Marketplace (Uplight): Buyer’s guides and educational information

- **Defend Your Devices**
  - Learn More

- **Savings Tier**
  - Learn More

- **Level of Surge Protection**
  - Learn More

**Which Model is Right for You?**

- **Number and Type of Outlets**
  - Learn More
E-COMMERCE PLATFORM SITE FEATURES

PG&E Marketplace (Enervee): Extensive product categories, clearly labeled incentive categories

AEP Ohio Marketplace (Enervee): Products sorted and scored by energy efficiency

KEY LONG-RUN RECOMMENDATIONS
CT Market Transformation Framework

Connecticut should consider developing a market transformation framework

- A framework should be developed as a collaboration between DEEP, the utilities, and stakeholders.

Establish ESRPP key performance indicators

- Track short-term program impacts and long-term market transformation progress.
- Specific KPIs are outlined in following slides.

Some Examples of MT Frameworks

<table>
<thead>
<tr>
<th>State</th>
<th>Context</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorado</td>
<td>Regulators require Xcel Energy to include MT programs in its DSM to overcome barriers through coordinating tactics</td>
<td>Utility must propose methodology to claim MT savings, otherwise programs are treated with 1.0 cost effectiveness to remain neutral</td>
</tr>
<tr>
<td>California</td>
<td>Regulators recently approved a MT framework to equitably drive incremental EE and GHG savings</td>
<td>Single statewide administrator overseeing stage-gated initiatives No defined cost effectiveness until further implementation occurs (5+ years)</td>
</tr>
<tr>
<td>Northwest (NEEA)</td>
<td>NEEA formed by regional utilities and stakeholders to collectively address challenges to energy efficiency</td>
<td>Pooling of resources and risk across multiple utilities allows NEEA to take longer-term views and actions.</td>
</tr>
</tbody>
</table>
THANK YOU