# CT R1973 RETAIL NON-LIGHTING EVALUATION

Findings and Recommendations

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## AGENDA

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

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## RESEARCH OBJECTIVES AND OUTCOMES

### 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

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PSD RECOMMENDATIONS - IMPACT PARAMETERS

## Overall PSD Recommendations

**Adopt consistent and clear calculation approach across measure types**

Example: $\Delta kWh = kWh_{Base} - kWh_{EE}$

**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

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## ENGINEERING REVIEW METHODOLOGY

| Savings Methodology | | | | |
|---|---|---|---|---|
| **CT** | **MA** | **RI** | **VT** | **NY** |
| Deemed UES | Deemed UES with supporting documentation | Deemed UES with supporting documentation | Deemed UES with supporting documentation | Calculated Deemed |

- **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 calculated 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.



## ESRPP RECOMMENDATIONS - IMPACT PARAMETERS

### Measure Specific Recommendations

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

| Product | Rec CT Value | Existing CT Value | Reason for Rec | Source for Rec Values | MA[2] | RI[2] | VT[2] | NY[3] |
|---|---|---|---|---|---|---|---|---|
| Clothes dryer – gas | 36 kWh | 93 kWh | Input sources old (2013,2015) | VT TRM[1], 2015 | N/A | N/A | **36 kWh** | 18.4 kWh |
| Clothes dryer – electric | 194 kWh | 93 kWh | Input sources old (2013,2015) | VT TRM[1], 2015 | 160 kWh | 160 kWh | **194 kWh** | N/A |
| Room AC | 10.7 kWh | 77.5 kWh | Input sources old (2002,2008) and calculator no longer available | VT TRM, 2015 | 36 kWh | N/A | **10.7 kWh** | N/A |

[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.

ESRPP RECOMMENDATIONS - IMPACT PARAMETERS

## Measure Specific Recommendations

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

| Product | Rec CT Value | Existing CT Value | Reason for Rec | Source for Rec Values | MA | RI | VT[1] | NY[2] |
|---|---|---|---|---|---|---|---|---|
| Upright Freezer | 50 kWh | 45 kWh | Split upright and chest to more accurately represent savings | Supplemental PSD documentation, 2017 | N/A | N/A | 43.8 kWh | 27.4 kWh (unknown type) |
| Chest Freezer | 32 kWh | 45 kWh | Split upright and chest to more accurately represent savings | Supplemental PSD documentation, 2017 | N/A | N/A | 24 kWh | N/A |

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

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ESRPP RECOMMENDATIONS - IMPACT PARAMETERS

| Product | Rec CT Value | Existing CT Value | Reason for Rec | Source for Rec Values | MA[2] | RI[2] | VT[2] | NY[3] |
|---|---|---|---|---|---|---|---|---|
| Clothes Washer Tier I | 88.1 kWh | 66 kWh | PSD documentation was insufficient to support current value | VT TRM, 2018 | N/A | N/A | **88.1 kWh** | 109.9 kWh |
| Clothes Washer Tier II | 120.3 kWh | 117 kWh | PSD documentation was insufficient to support current value | VT TRM, 2018 | N/A | N/A | **120.3 kWh** | 116.4 kwh |
| Air Cleaner | 213.9 kWh | 227 kWh | PSD documentation was insufficient to support current value | VT TRM, 2004 | 391 kWh | N/A | **213.9 kWh** | 214 kWh |
| Sound Bars[3] | 24 kWh | 45 kWh | PSD documentation was insufficient to support current value | VT TRM, 2018 | N/A | N/A | **24 kWh** | N/A |

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

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ENGINEERING REVIEW FINDINGS

## Findings: Wi-Fi Thermostats Compared

- The Connecticut approach is different from most other TRMs.

| Savings Type | CT[1] | MA[1] | RI[2] | NY[2] |
|---|---|---|---|---|
| Controlling cooling only savings (kWh) | 25 kWh | 46 kWh | N/A | N/A |
| Controlling heating and cooling savings (kWh) | N/A | 104 kWh[3] | 104 kWh | 104 kWh |

[1]CT and MA a deemed UES approach.
[2]RI and NY all use a deemed UES approach with supporting equations and assumptions.
[3]Navigant Consulting (2018). Home Energy Services Impact Evaluation. Savings based on a literature review of over a dozen thermostat studies.

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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)**

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E-COMMERCE RECOMMENDATIONS – IMPACT PARAMETERS

## Advanced Power Strip Recommendations

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

| Product | Rec CT Value | Existing CT Value | Reason for Rec | Source for Rec Values | MA[1] | RI[1] | NY[1] |
|---|---|---|---|---|---|---|---|
| Advanced Power Strips, Tier I | 48 kWh | 48 kWh | Values reasonable, update sources and references | PSD, 2016 | 117 kWh | 21.6 kWh | 57.5 kWh |
| Advanced Power Strips, Tier II | 179 kWh | 48 kWh | Insufficient documentation in PSD to support current value | MA TRM, 2018 | 179 kWh | N/A | 158.9 kWh |

[1]MA, RI and NY all use a deemed UES approach with supporting equations and assumptions.

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SHORT-RUN, ACTIONABLE RECOMMENDATIONS

## SHORT RUN, ACTIONABLE RECOMMENDATIONS

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

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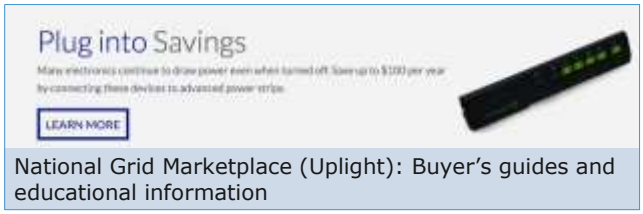
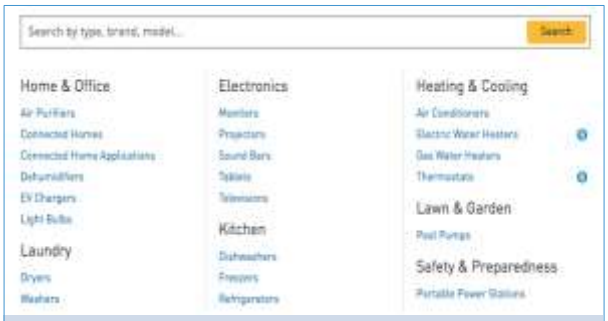
## E-COMMERCE PLATFORM SITE FEATURES



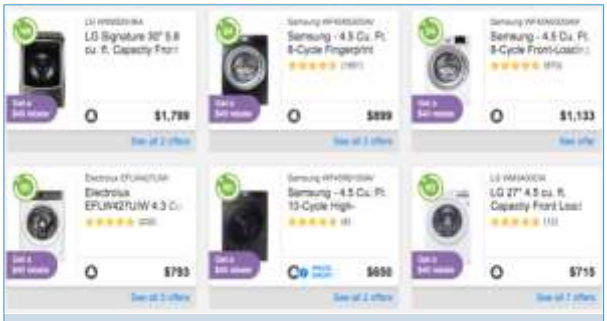

National Grid Marketplace (Uplight): Buyer's guides and educational information




## 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

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## KEY LONG-RUN RECOMMENDATIONS

LONG-TERM ESRPP RECOMMENDATIONS – MT FRAMEWORK

## 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.

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LONG-TERM ESRPP RECOMMENDATIONS – MT FRAMEWORK

## Some Examples of MT Frameworks

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

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# THANK YOU

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