2019 Fall Roundtables

RESIDENTIAL SECTOR LANDSCAPE

Jess Kincaid, Residential Sector Lead
We are committed to a viable residential sector and we have a plan.
INTRO

01 Residential Landscape

02 Near-term Strategy

03 Long-term Strategy

04 What Else?
01

The Residential Landscape
FY 2019 Residential Energy Savings to Date
FY 2022
Residential
Projected
Energy Savings
Cost-Effectiveness Primer: Why we have a mountain to climb

- Increased Baseline: 0 kWh
- Savings: 200 kWh
- Savings: 300 kWh
- Savings: 500 kWh

Efficiency Programs Help the Market Become More Efficient
Cost-Effectiveness Primer: Why we have a mountain to climb

<table>
<thead>
<tr>
<th>Standard Product</th>
<th>Efficient Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>$100</td>
</tr>
<tr>
<td>Annual kWh</td>
<td>1,000</td>
</tr>
</tbody>
</table>

Benefit-to-Cost Ratio 1.66
# Cost-Effectiveness Primer: Why we have a mountain to climb

<table>
<thead>
<tr>
<th></th>
<th>Standard Product</th>
<th>Efficient Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>$100</td>
<td>$115</td>
</tr>
<tr>
<td>Annual kWh</td>
<td>800</td>
<td>500</td>
</tr>
</tbody>
</table>

**Benefit-to-Cost Ratio 1.00**

![Cost Balance Diagram]
## Cost-Effectiveness Primer: Why we have a mountain to climb

<table>
<thead>
<tr>
<th>Standard Product</th>
<th>Efficient Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>$100</td>
</tr>
<tr>
<td>Cost</td>
<td></td>
</tr>
<tr>
<td>Annual kWh</td>
<td>800</td>
</tr>
<tr>
<td>Annual kWh</td>
<td></td>
</tr>
</tbody>
</table>

**Benefit-to-Cost Ratio 0.66**
How this impacts residential measures:

1. Program successes are causing higher measure baselines.
2. Evaluated energy savings are often lower than expected.
3. Installed measure costs are increasing.
4. Updated codes and standards result in the loss of some measures.
Keep all the measures we can by keeping them cost effective.

Make measures easier to implement once we know we can keep them.

Create new measures to fill the gap.

What we are trying to do
The Future

• Programs are easier to implement.
• Residential and commercial offerings have more synergy.
• Contractor workforce is well trained and eager to participate.
• You have more opportunities to help your customers feel comfortable in their homes, while reducing their energy costs.
Near-term strategy and how to get involved
Thank you for your help!

The Residential programs team

Amy Burke
Maitri Dirmeyer
Claire Gleason
Paul Hawkins
Jess Kincaid
Dave Murphy
Gary Smith
Primary strategies:

- Determine the future of retail.
- Increase use of PTCS.
- Ensure DHP cost effectiveness.
- Increase use of weatherization.
The Retail Challenge:


Annual Energy Savings from Simple Steps (aMw)

Current contract ends
Retail Future

An offering that:

• Is easy to implement.
• Attributes funding to utilities.
• Works for more expensive measures such as water heaters and thermostats.
The PTCS Challenge:

- Decision in early 2020.

PTCS annual savings are declining
PTCS Future

Double measure utilization by:

Simplifying program requirements:
• Streamline specification.
• Reduce paperwork.

Increasing in-field support for contractors.

Reducing contractor call backs for failure.

PTCS: Participate in webinars and help us choose between implementation options.
### The DHP Challenge:

**Can we keep them cost effective?**

**Target completion Dec. 2020.**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Average TRC</th>
<th>Sunset Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ductless Heat Pump for Forced Air Furnace SF and MH</td>
<td>1.175</td>
<td>Sep. 2021</td>
</tr>
<tr>
<td>Ductless Heat Pumps for Zonal Heat SF</td>
<td>1.069</td>
<td>Nov. 2019</td>
</tr>
<tr>
<td>Ductless Heat Pumps for Zonal Heat MH</td>
<td>1.069</td>
<td>Nov. 2019</td>
</tr>
<tr>
<td>Ductless Heat Pumps for Multifamily</td>
<td>0.43</td>
<td>Sep. 2021</td>
</tr>
</tbody>
</table>
DHP Future

Compile research, evaluation, and program strategies to make measure cost effective.

Research energy savings and cost impact of:
  • Cold climate
  • Higher heating and cooling efficiency
  • System configuration

Evaluate savings by home and heating type.

Reduce installation cost.

Improve installation practices.

DHPs: Participate in webinar and help us with cost reduction ideas and data collection.
The Weatherization Challenge:

Begin implementation summer 2020. Field services and program support begin winter 2020/2021.

- **Insulation**: 6,000-14,000
- **Windows**: 5,000-12,000
  - Insulation: 1,400
  - Windows: 1,200
Weatherization Future

- Ensure there are enough contractors to achieve targets.
- Provide utility implementation support.
- Provide contractor support to ensure reliable energy savings.
- Provide marketing support to find remaining customers and encourage energy-efficient upgrades.
03

Long-term Strategy: Key Research Projects
Key Research Projects

Heat Pump Water Heaters:
Develop technologies for multifamily homes and manufactured homes.

Packaged Terminal Heat Pumps:
Determine whether they are a cost effective approach for multifamily.

Smart Line Voltage Thermostats:
Determine if new technologies are cost effective.

HVAC Research Roadmap:
Develop a strategy to respond more quickly to potential new measures and savings challenges.

Questions: Robert Weber, Residential Tech Lead – RMWeber@BPA.gov
What other new (electric) energy-efficiency measures are you interested in?

We are looking at:
• Residential behavioral
• Level 2 EV chargers
• Central air conditioning
• Commissioning existing ASHPs
• Duct insulation and repair
• Cellular shades
• VRV ADHP/ DHP
• Multifamily water heating
• CO2 Combined space and water heating
• MH ASHP retrofit
• New lighting technologies
What Else?
How can we help you be successful?
What are your biggest residential implementation challenges?
Are there areas where you would like residential training support?
What would you like us to know about your residential programs?