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Building Decarbonization Workshop
Supply Chain Strategies: SB 1477

Howard C. Merson
Supply Chain Specialist
VEIC Energy Services

April 8, 2019

Manufacturers
- Promote new & existing products
- Increase market share
- Midstream ally

Manufacturers’ reps

Distributors
- Sales / marketing support
- Elevate inventories
- Product / program training
- Lines of credit / financing terms
- Midstream ally

Contractors
- Trusted advisor
- Licenses, insurance & training
- Trade ally

End users
- Indoor comfort
- Improvements in health & safety
- Lifetime benefits & tangible savings
- Customer information; future opportunities

When manufacturer has no sales force, rep is more cost effective
- Promote new & existing products
- Increase market share
- Midstream ally
VEIC’s Approach to the Supply Chain

1. Project planning
2. Establish value proposition
3. Map supply chain
4. Eligibility & performance request
5. Data collection
6. VEIC SMIT RFI / planning sessions
7. Establish incentive levels
8. Administration / management fees
9. Execute SMIT plans
10. Supply chain Account Manager
11. MOU / PDA
## Distributor Value Proposition: HPWHs

### Strategic Partnerships

<table>
<thead>
<tr>
<th>Factor</th>
<th>Electric resistance heater</th>
<th>HPWH</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resale from distributor to customer</td>
<td>$458</td>
<td>$1,054</td>
<td>$596</td>
</tr>
<tr>
<td>Distributor cost (estimate)</td>
<td>$376</td>
<td>$850</td>
<td>$474</td>
</tr>
<tr>
<td>Gross profit per water heater</td>
<td></td>
<td>$82</td>
<td>$204</td>
</tr>
<tr>
<td>Gross margin % per water heater</td>
<td>18%</td>
<td>19%</td>
<td>150%</td>
</tr>
<tr>
<td>Gross profit generated from 50,000 units / year</td>
<td>$4,100,000</td>
<td>$10,200,000</td>
<td>$6,100,000</td>
</tr>
</tbody>
</table>
### Map Supply Chain

#### Manufacturers / manufacturer reps

#### Distributors

#### Installers

<table>
<thead>
<tr>
<th>Tier</th>
<th>Percent of companies</th>
<th>Percent of total branch locations</th>
<th>Branches</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 4</td>
<td>7%</td>
<td>55%</td>
<td>148</td>
<td>148 (55%)</td>
</tr>
<tr>
<td>Next 5 (9)</td>
<td>9% (16%)</td>
<td>19%</td>
<td>50</td>
<td>198 (74%)</td>
</tr>
<tr>
<td>Next 9 (18)</td>
<td>16% (32%)</td>
<td>11%</td>
<td>30</td>
<td>228 (85%)</td>
</tr>
<tr>
<td>Next 37 (55)</td>
<td>68% (100%)</td>
<td>15%</td>
<td>42</td>
<td>270 (100%)</td>
</tr>
</tbody>
</table>
SMIT: Sales, Marketing, Inventory, & Training

1. Internal / external stakeholder planning meetings
2. RFI to suppliers
3. Suppliers: Develop, present, collaborate on, and execute SMIT plan
Midstream vs. Downstream
Heat Pump Water Heaters in Vermont

Cumulative units sold

Downstream


VEIC
Midstream vs. Downstream
Heat Pump Water Heaters – Execution of SMIT Plans

Cumulative units sold

Midstream Downstream

Midstream

Cumulative units sold

May 2014
Apr 2015
Jul 2015
Oct 2015
Apr 2016
Jul 2016
Oct 2016
Apr 2017
Jul 2017
Oct 2017
Apr 2018
Jul 2018
Oct 2018
Apr 2019

Midstream

Downstream

VEIC
## Vermont: HPWH Metrics
### Midstream / SMIT Impact

<table>
<thead>
<tr>
<th></th>
<th>US</th>
<th>VT</th>
<th>VT %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>324,227,000</td>
<td>626,562</td>
<td>*0.2% of US population</td>
</tr>
<tr>
<td>Annual number of HPWH units</td>
<td>60,000</td>
<td>~2,150</td>
<td>*VT: 3.6% of US total HPWHs</td>
</tr>
<tr>
<td>VT = 1,700% contribution of annual uptake vs. % of US population</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPWH penetration %</td>
<td>~1.25%</td>
<td>~60% (electric to electric)</td>
<td>+4,700%</td>
</tr>
<tr>
<td>Before SMIT</td>
<td>7%</td>
<td>60%</td>
<td>V%</td>
</tr>
<tr>
<td>VT HPWH penetration %</td>
<td></td>
<td></td>
<td>+750%</td>
</tr>
</tbody>
</table>
## ASHP Penetration in the Northeast

### Execution of SMIT Plans in Vermont

<table>
<thead>
<tr>
<th>State</th>
<th>Program / utility</th>
<th>Incentive approach</th>
<th>Est. annual installations</th>
<th>Housing units in state</th>
<th>Annual installation rate (% of homes)</th>
<th>Efficiency Vermont annual installation rate (V%) (over other NE Utilities)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT</td>
<td>Efficiency Vermont</td>
<td>Midstream</td>
<td>4,141</td>
<td>329,525</td>
<td>1.26%</td>
<td>-</td>
</tr>
<tr>
<td>CT</td>
<td>Energize CT (Eversource &amp; United Illuminating)</td>
<td>Downstream; ‘12-’15; now upstream</td>
<td>1,475</td>
<td>1.5M</td>
<td>0.10%</td>
<td>1,160%</td>
</tr>
<tr>
<td>MA</td>
<td>Mass Save</td>
<td>Downstream</td>
<td>7,484</td>
<td>2.85M</td>
<td>0.26%</td>
<td>385%</td>
</tr>
<tr>
<td>MA</td>
<td>Mass Clean Energy Center</td>
<td>Downstream</td>
<td>4,050</td>
<td>2.85M</td>
<td>0.14%</td>
<td>800%</td>
</tr>
<tr>
<td>ME</td>
<td>Efficiency Maine</td>
<td>Downstream</td>
<td>6,000</td>
<td>730K</td>
<td>0.82%</td>
<td>54%</td>
</tr>
<tr>
<td>NH</td>
<td>NH Saves</td>
<td>Downstream</td>
<td>1,230</td>
<td>730K</td>
<td>0.16%</td>
<td>688%</td>
</tr>
<tr>
<td>NY</td>
<td>NYSERDA</td>
<td>Midstream to contractor</td>
<td>5,280</td>
<td>8.2M</td>
<td>0.06%</td>
<td>2,000%</td>
</tr>
<tr>
<td>RI</td>
<td>National Grid</td>
<td>Downstream</td>
<td>1,000</td>
<td>462K</td>
<td>0.22%</td>
<td>473%</td>
</tr>
</tbody>
</table>

Note: Annual installation rates are based on reported or projected program measures and total housing units by state. Estimated program installation rates are based on program participation data from 2017 for Connecticut, Maine, NYSERDA and Vermont; 2016 for Mass Save; June 2016 to May 2017 for MassCEC; 2015 for Connecticut; and 2018 planning estimates for National Grid RI and NH Saves.
Zero Energy Modular
Decarbonization Strategy for Affordable Housing

**Modular Factory**
- Transform construction industry
- Decarbonization at scale
- Jobs + economic development

**Zero Energy Home**
- All-electric + solar PV
- Reduced energy burden
- Affordable + healthful

![Modular Factory Image]

![Zero Energy Home Image]
Leveraging Existing Relationships
Electrical / Lighting Supply Chain (E) + HVACR / Plumbing (P)

• Strategic Electrification
  • Electric vehicles (E)
  • Ductless mini-splits (E, HVACR)
  • VRF / VRV (E, HVACR)
  • Heat pump water heaters (E, HVACR, P)
  • + Connected devices (E, HVACR, P)

200-amp load center upgrades
Thank you!

Questions?

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