Non-Wire Alternatives – Pilot Overview
DTE Non-Wire Alternatives Pilot

Overview:

<table>
<thead>
<tr>
<th>Slide #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Pilot Objectives and Overview</td>
</tr>
<tr>
<td>7</td>
<td>High-Level Timeline</td>
</tr>
<tr>
<td>10</td>
<td>Navigant – Economic Framework</td>
</tr>
<tr>
<td>13</td>
<td>ICF – Phase I – Residential Implementation Overview</td>
</tr>
<tr>
<td>16</td>
<td>Energy Sciences – Phase I – C&amp;I Implementation Overview</td>
</tr>
<tr>
<td>21</td>
<td>DTE NWA – DR Programs Overview</td>
</tr>
<tr>
<td>23</td>
<td>DTE NWA – Pilot Next Steps</td>
</tr>
</tbody>
</table>
DTE Non-Wire Alternatives – Pilot Objectives and Overview
Pilot Objectives

1. Analyze the amount, duration, and timing of the energy savings and peak load targets. Determine the mix of customers in the targeted areas, and assess the potential for achieving targeted savings.

2. Develop an economic framework and analytical methodology.

3. Develop a plan for exceeding the deferral target while still being cost effective.

4. Seek to exceed the target by increasing customer participation.

5. Review an evaluation plan to assess effectiveness and identify lessons learned.

6. Launch/Deploy pilot field testing.

7. Develop a final report after the pilot.
Pilot Overview

DTE is utilizing geographically targeted energy efficiency and demand response measures to field test load relief as non-wire alternatives. We are using a two-phased approach.

**Phase I – Hancock Substation:**

- Spring 2018 thru Summer 2019
- Focused on Hancock Substation
- Develop economic frameworks, analytical methodologies and field test deployment of select measures and program ideas
- Goal is to develop “learnings” from a real-world “laboratory” to apply to a Phase II. Initiative not intended to necessarily achieve cost-effective deferral of substation investment, or to attempt to test maximum deployment of NWA options
Pilot Overview

**Phase II – Substation TBD:**

- Beginning early 2019, timeline to be determined
- Select second substation, scale development of NWA strategies, leverage Phase I lessons
- Goal to assess ability to cost-effectively defer substation upgrades
Pilot Timeline

MANAGE
- Pilot Management & Stakeholder Engagement

IDENTIFY
- Substation 2 Selection Criteria
- Select Substation 2

PLAN
- Research Substation 1 Customer Potential
- Research Substation 2 Customer Potential

DESIGN
- Design Substation 1 Field Marketing
- Design Substation 2 Field Marketing

IMPLEMENT
- Substation 1 Field Testing
- Substation 2 Field Testing

EVALUATE
- Develop Economic Framework and Cost Benefit Model
- Complete Economic Framework
- Evaluate Substation 1
- Report Results Substation 1

DTE

Phase I – Hancock Substation
Phase II – TBD Substation 2

2020 Q3-Q4 TBD
Phase I: Hancock Substation Region

Customer Premises
- 1,161 Commercial
- 7,589 Residential

<table>
<thead>
<tr>
<th>City</th>
<th>Premises</th>
<th>Total Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Bloomfield</td>
<td>4,358</td>
<td>65,771</td>
</tr>
<tr>
<td>Commerce Township</td>
<td>2,778</td>
<td>42,529</td>
</tr>
<tr>
<td>Walled Lake</td>
<td>1,063</td>
<td>7,089</td>
</tr>
<tr>
<td>Novi</td>
<td>467</td>
<td>59,715</td>
</tr>
<tr>
<td>Wolverine Lake</td>
<td>84</td>
<td>4,312</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8,750</strong></td>
<td><strong>179,416</strong></td>
</tr>
</tbody>
</table>
Phase I: Hancock Substation Peak Load

Hancock Substation
  o Commerce Township, MI

0.5 MVA (450 kW) over designed capacity, historically

Due to strong load growth, projected to be 10 MVA+ over its designed rating in the next 3-5 years
  o 2pm-5pm Peak Window (2017)
  o **Initial EWR Target: 0.1 MVA** of Load Relief (90kW)
  o **Initial DR Target: 0.4 MVA** of Load Relief, Interruptible A/C Switches (IAC) (360kW)
Economic Framework - Implementation Overview
Economic Framework Plan

- Establish Economic Framework
- Quantify Cost & Benefit Streams
- Identify Incremental Costs and Benefits
- Determine Cost Effectiveness
Economic Framework Plan

Building consensus on benefit and cost streams for cost effectiveness analysis

<table>
<thead>
<tr>
<th>Benefit / Cost Streams</th>
<th>Utility Cost Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoided Generation Capacity Costs</td>
<td>Benefit</td>
</tr>
<tr>
<td>Avoided Energy</td>
<td>Benefit</td>
</tr>
<tr>
<td>Avoided Transmission Capacity Infrastructure</td>
<td>Benefit</td>
</tr>
<tr>
<td>Avoided T&amp;D Losses</td>
<td>Benefit</td>
</tr>
<tr>
<td>Avoided Distribution Infrastructure</td>
<td>Benefit</td>
</tr>
<tr>
<td>Avoided O&amp;M</td>
<td>Benefit</td>
</tr>
<tr>
<td>Avoided Ancillary Service Costs</td>
<td>Benefit</td>
</tr>
<tr>
<td>Utility Incentives</td>
<td>Cost</td>
</tr>
<tr>
<td>Program Administration Costs</td>
<td>Cost</td>
</tr>
<tr>
<td>Incremental T&amp;D Costs</td>
<td>Cost</td>
</tr>
</tbody>
</table>
Phase I – Residential Implementation Overview
ICF – Phase I – Residential Marketing Channels

ICF Energy Ambassadors
- Liaison between program participants and implementation teams
- Provides Customer Service, QA and IT support

Door Hangers
- Direct Mail marketing collateral that will feature a participation Promo Code
- Delivers promotion direct to customers addresses and supports messaging to customers who have received it electronically

Promotional Emails
- Cost-effective awareness. Features program info, how to enroll and Promo Code
- Email provides tracking of message success

Engaged Trade Ally Network
- Offers education, promotion and TRUST for customers
- Contractors notified of promotion to better support customers in that area
ICF – Phase I – Res. Door Hanger

Three ways to save.

<table>
<thead>
<tr>
<th>Energy Efficiency Program</th>
<th>Standard Rebate</th>
<th>Your Rebate</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTE Energy Air Conditioner Diagnostic Tune-Up</td>
<td>$50</td>
<td>$100</td>
</tr>
<tr>
<td>Central Air Conditioner Replacement*</td>
<td>$150-$400</td>
<td>$300-$800</td>
</tr>
<tr>
<td>ECM Blower Motor Furnace Replacement**</td>
<td>$50</td>
<td>$100</td>
</tr>
</tbody>
</table>

*Minimum 15 SEER required
**Factory installed in new gas furnaces only

You must be a DTE Energy residential electric customer to participate. Offer applies only to customers who have received this promotion directly from DTE.
Phase I – C&I Implementation Overview
C&I Measures - Phase I (Hancock)

Quick Launch:

- **Lighting Measures**
  - Doubled Standard Rebates
- **HVAC and Custom Measures**
  - $500/Peak kW

**C&I Target: 20 Primary Customers**

- Analyzing Customers Past Participation in EE To Gauge Potential
- Secondary Customers - Campaign to come
Energy Sciences - C&I Quick Launch Incentives

EXCLUSIVE BONUS INCENTIVE OFFER

<table>
<thead>
<tr>
<th>MEASURE NO.</th>
<th>APPLICATION PAGE NO.</th>
<th>MEASURE</th>
<th>STANDARD INCENTIVE</th>
<th>YOUR INCENTIVE + SPECIAL BONUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-1D</td>
<td>8</td>
<td>DLC listed interior low bay LED</td>
<td>$45 per KW reduced</td>
<td>$290 per KW reduced</td>
</tr>
<tr>
<td>L-17D</td>
<td>9</td>
<td>DLC listed interior high bay LED</td>
<td>$225 per KW reduced</td>
<td>$450 per KW reduced</td>
</tr>
<tr>
<td>L-78D</td>
<td>9</td>
<td>DLC listed interior high bay LED for 24/7 operation</td>
<td>$400 per KW reduced</td>
<td>$800 per KW reduced</td>
</tr>
<tr>
<td>LO-1</td>
<td>11</td>
<td>Occupancy sensor for connected load greater than 500 W</td>
<td>$40 per sensor</td>
<td>$80 per sensor</td>
</tr>
<tr>
<td>LO-2</td>
<td>11</td>
<td>Occupancy sensor for connected load up to 500 W</td>
<td>$15 per sensor</td>
<td>$30 per sensor</td>
</tr>
</tbody>
</table>

NOTE: A special BONUS incentive may also be available for your custom energy efficiency projects and air conditioning upgrades. Contact us for details.

A LIMITED-TIME OFFER AT YOUR ADDRESS

Our special BONUS incentive is available for projects initiated between Nov 1, 2018 and Feb. 28, 2019.

How It Works
1. Download an application from dteenergy.com/savemoney to reserve funds for an eligible energy efficiency project.
2. Include the special promo code DTEBONUSREBATE on page 7 of the application.
3. Submit your completed application to savemoney@dteenergy.com by February 28, 2019.

PROMO CODE
Be sure to include the special promo code DTEBONUSREBATE on your application to receive extra incentives.

NEED A CONTRACTOR?
Contact us today for a list of approved service providers who can transform your project ideas into reality.
C&I Primary Sites Characterization: By Facility Type

20 Total Primary Sites on Hancock Substation
C&I Marketing Channels

- **DTE Account Managers**
  - Facilitate introductions between customers and the implementation team

- **ES Energy Envoys**
  - Provide detailed participation info and ensure technical info is understood
  - Conduct free opportunity assessments

- **FREE Opportunity Assessments**
  - Identify latent opportunities at the primary sites
  - Assessment reports include opportunities, an estimated incentive, and trade allies information

- **Promotional Emails, Fliers & Mailers**
  - Program information, how to participate, and a special NWA Promo Code
  - Emails also provide a means of tracking effectiveness

- **Historical & Geo-Targeted Trade Allies**
  - Education and opportunity promotion
  - Trust and familiarity
Non-Wire Alternatives – DR Programs Overview
# Demand Response (DR) Programs Overview

<table>
<thead>
<tr>
<th>DR Program</th>
<th>Current Estimated Peak Reduction</th>
<th>Typical Annual Events</th>
<th>Program Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>CoolCurrents (IAC Switches)</td>
<td>0.45 MVA</td>
<td>6</td>
<td>Ongoing</td>
</tr>
<tr>
<td>DTE Smart Savers (BYOD T-Stats)</td>
<td>.004 MVA</td>
<td>5</td>
<td>In development. Planned marketing campaigns for 2019</td>
</tr>
<tr>
<td>SmartCurrents (Ecobee T-Stat with DPP Rate)</td>
<td>.023 MVA</td>
<td>3 to 6</td>
<td>In development. Planned marketing campaigns for 2019</td>
</tr>
</tbody>
</table>
NWA Pilot – 2019 Next Steps

**Phase I (Hancock Substation)**
- Continue C&I Outreach and Additional Res. Field Testing (Feb – Mar 2019)
- Baseline Energy Analysis – Assessment of EE to Meet Load Relief Need (Mar 2019)
- Optimized Measure Portfolio (April 2019)
- Cost Benefit Model (April 2019)
- Expand Marketing Plan and Field Testing for Res. and C&I (May – August 2019)

**Phase II (Substation 2 TBD)**
- Selection of a Phase II substation (Jan – Jun 2019)
DTE is actively pursuing NWA pilots to remove technology barriers and understand their cost effectiveness and technical performance.

### NWA Screening Process

- **Project Type**
- **Load Relief Required**
- **Equipment and Reliability Conditions**
- **Cost and Timeline Suitability**
- **Technology Specific Considerations**

### Key Considerations

- Ability to enroll full capacity needed with “firm” commitment from EWR and DR programs
- Construction and operation experience with Energy Storage
- Lead time for NWA implementation
- Constantly evolving system conditions
- Cost effectiveness of NWA compared to traditional investments
Questions?

Contact: Kevin Stewart, kevin.stewart@dteenergy.com