EXECUTIVE SUMMARY

The purpose of this annual report is to highlight the general results of DTE Energy’s (DTE) 2017 Energy Waste Reduction (EWR) program, communicate program changes, and provide policy overview and future guidance.
DTE Energy's EWR program was launched in June 2009 as a result of the Clean, Renewable and Efficient Energy Act, also known as Public Act 295 (PA 295), as amended by Public Act 342 of 2016 (PA 342). DTE continued to build on its momentum from the 2009 launch by enhancing the scope of existing programs and adding new program options to the portfolio. Since its inception in 2009, more than 2.9 million electric customers and 2.1 million gas customers have directly participated in DTE's energy efficiency programs.

Customers have upgraded equipment in their homes and their businesses, helping them to become more energy efficient, and they have been provided with education, tips, strategies and tools to help them save money on their energy bills. As a result, DTE has saved approximately 5,096 gigawatt hours (GWh) or 10.8 percent of planned retail sales for electric customers, and over 11,248 million cubic feet (MMcf) or about 6.6 percent of planned retail sales for gas customers since the program started. The savings achieved so far will continue for years into the future.

During 2017, DTE implemented its EWR program as outlined in the approved 2017 EWR plan. The Company utilizes implementation contractors and has built strong networks to deliver energy efficiency programs throughout the State of Michigan. The Company has continued to provide energy efficiency education and to raise awareness of EWR offerings by enhancing communications and messaging, while leveraging new trends in digital and social media communication channels. In 2017, while the Company continued to utilize targeted marketing to meet segment-specific needs for energy efficiency information, traditional mass media was also used, focused on non-energy benefits of energy efficiency improvements. The Pilot program process worked well in 2017, increasing the Company’s Pilot program productivity. The Company’s ability to run the programs effectively has continued to improve through further maturity of systems and back-office processes.

**Goals and Targets**

The main operational goal of the 2017 EWR program was to maintain the momentum that the program achieved since the launch in 2009 by continuing to grow customer acceptance and adoption of EWR measures. The 2017 goals were to:

1. Achieve legislated electric energy savings of 1 percent of 2016 planned retail sales or 485 gigawatt hours (GWh), and achieve legislated gas energy savings of 0.75 percent of 2016 planned retail sales or 1,305 million cubic feet (MMcf).

2. Ensure that EWR programs are cost effective. Cost Effectiveness Tests (CETs) are performed to ensure that the overall goal of reducing energy use in a cost-effective manner for the utility and its customers is being achieved. DTE uses the Utility System Resource Cost Test (USRCT) and the Total Resource Cost (TRC) test to measure the effectiveness of the various EWR programs. Specifically, the goal of the EWR portfolio (not including low-income) is to meet the minimum required USRCT score of 1.0. The low-income programs were excluded from the calculations because Section 71(4) (g) of PA 295, as amended, specifically excludes low-income in the requirement for cost-effectiveness.

**Spending and Savings**

Verified net energy savings are DTE’s reported savings after they have been adjusted, based on the results of a review by our independent evaluation contractor, Navigant Consulting Inc. (Navigant), and the application of Installation Rate Adjustment Factors (IRAF) and Net-to-Gross Ratios (NTGR). In 2017, DTE applied a 0.92 NTGR to most programs. The exceptions to this include applying an 0.82 NTGR to standard compact fluorescent lighting in upstream programs and applying a 1.0 NTGR to behavioral, low-income, pilots, education programs and Tier 1 Thermostats delivered by Commercial & Industrial programs, and Tier 2 and Tier 3 Thermostats delivered by Residential programs. Planned savings refer to DTE’s approved 2017 EWR Plan projected savings for 2017 as approved by the Michigan Public Service Commission (MPSC) on June 3, 2015, for DTE Gas in Case No. U-17763 and June 3, 2015, for DTE Electric in Case No. U-17762.
Spend, as used in this annual report, refers to the cash expenditures or commitments made by DTE in implementing the EWR program. Spend does not contemplate the eventual treatment of such costs as operations and maintenance or capitalization. The 2017 actual EWR program costs include: O&M expenses, pre-tax return on capitalized costs and return of capitalized costs (amortization), plus carrying charges on over/(under) recovered balances.

DTE has adopted verified net savings for reporting of energy savings in 2017, as agreed to in the EWR Collaborative. DTE’s EWR program resulted in total verified net electric savings of 762 GWh, or 1.57 percent of 2016 planned retail sales, as compared to the minimum legislative requirement of 762 GWh, or 1.57 percent of 2016 planned retail sales, as compared to the minimum legislative requirement of 1,305 MMcf.

In 2017, DTE Electric spent $93.2 million compared to the planned $93.2 million, whereas DTE Gas spent $25.5 million compared to the planned $25.5 million.

Chart 1 summarizes the overall EWR program 2017 spending and verified net savings for DTE Electric and DTE Gas.

Each EWR program has its own spending and verified net saving requirements. For DTE Electric, collectively, the Residential and Low-Income programs provided 375 GWh of verified net energy savings, and C&I programs; including self-direct, provided 342 GWh. DTE Electric achieved 45 GWh savings from the Education and Pilot programs. For DTE Gas, collectively, the residential and low-income programs provided 1,012 MMcf of verified net energy savings and C&I programs provided 612 MMcf. DTE Gas achieved 112 MMcf savings from the education and pilot programs.

Chart 2 displays program spending and verified net savings for the various EWR programs in 2017.

Long-term EWR Impacts

Even though Michigan’s EWR programs are only eight years old, they have matured quickly. Regulators and other participants are already looking beyond the first-year energy savings goals set out in PA 295 toward longer-term goals, such...
as overall lifecycle savings, both in dollars and energy.

The average life of measures being installed; and reduction in future peak. This section provides definitions and the 2017 EWR program results for a number of these measures of long-term interest.

**I. Lifecycle Dollar Savings:** This represents the dollar savings resulting from the current and future energy costs avoided as a result of an energy efficiency action over the effective life of that action. Lifecycle dollar savings may be presented for an individual measure, a collection of measures, a program or a portfolio of programs. As presented for DTE Energy’s programs, the lifecycle dollar savings are based on verified net savings, which have been adjusted for free-riders. Lifecycle dollar savings are presented as the present value of those savings. This is not net of the program expenses and includes line losses.

Table 1 displays that DTE’s 2017 EWR programs produced very significant dollar savings for its customers for future years.

<table>
<thead>
<tr>
<th>Program</th>
<th>DTE Electric Present Value</th>
<th>DTE Gas Present Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential and Small Business ENERGY STAR® Products</td>
<td>$181,263,584.74</td>
<td>$2,207,637.69</td>
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<tr>
<td>Residential Appliance Recycling</td>
<td>$16,998,674.42</td>
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<tr>
<td>Residential HVAC</td>
<td>$11,514,111.43</td>
<td>$14,078,886.33</td>
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<tr>
<td>Multifamily—Standard (MFR)</td>
<td>$2,509,216.98</td>
<td>$718,524.14</td>
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<td>Residential Audit &amp; Weatherization</td>
<td>$1,015,153.89</td>
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<td>Residential HEC</td>
<td>$9,842,593.63</td>
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<td>Residential Schools</td>
<td>$2,409,067.66</td>
<td>$1,753,095.45</td>
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<td>Residential Online Energy Audit (OEA/HES)</td>
<td>$2,887,441.55</td>
<td>$1,520,312.94</td>
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<td>Residential Behavior Programs (HER)</td>
<td>$7,654,630.99</td>
<td>$953,624.32</td>
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<td>Residential Emerging Programs (EP)</td>
<td>$1,678,274.22</td>
<td>$45,327.19</td>
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<td>Residential Subtotal</td>
<td>$237,772,749.51</td>
<td>$31,453,817.94</td>
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<tr>
<td>C&amp;I</td>
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<td></td>
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<tr>
<td>C&amp;I Prescriptive (CIP)</td>
<td>$131,045,180.30</td>
<td>$14,572,963.55</td>
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<td>C&amp;I Non-Prescriptive (C&amp;I Custom/RFP)</td>
<td>$113,209,654.10</td>
<td>$8,704,411.49</td>
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<td>C&amp;I Emerging (BEC/EPC/RCx)</td>
<td>$22,445,498.09</td>
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<td>C&amp;I ENERGY STAR Retail Lighting (ESL)</td>
<td>$13,335,723.21</td>
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<td>C&amp;I Multifamily Common Areas (MFC)</td>
<td>$2,024,399.67</td>
<td>$871,947.30</td>
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<td>C&amp;I Self-Direct</td>
<td>$474,122.13</td>
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<tr>
<td>C&amp;I Subtotal</td>
<td>$282,534,577.49</td>
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<td>Low-Income—All (includes EEAP, LI Multifamily, LI HEC, LI HER)</td>
<td>$15,274,032.49</td>
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<td>Pilot</td>
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<td>Education</td>
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<td>Portfolio</td>
<td>$578,881,961.01</td>
<td>$70,582,177.25</td>
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</table>

Table 1: Lifecycle Dollar Savings
II. Lifecycle Energy Savings: This represents the total cumulative program energy savings (MWh or MMcf) produced by the energy saving actions taken for all of the years in the particular actions’ effective lives. Again, as presented here, these represent net energy savings with free-riders removed.

Table 2 displays the long-term energy savings associated with the cost savings in Table 1.

III. Peak Demand Reduction (MW): One particular concern for electric EWR programs is to achieve significant peak demand reductions to minimize the need for future power plants. This represents the aggregate reduction in DTE Electric’s service area load at the time of the Michigan Zone of the Midwest Independent System Operator (MISO) market’s expected peak demand that is estimated to result from the measures installed and actions taken by customers participating in the EWR program (nominally, from 3 p.m. to 7 p.m. on a weekday in July).

Table 3 shows that the DTE Electric 2017 EWR programs achieved significant demand reductions, as well as energy savings. All values shown as measured at the customers’ meters. Line losses are not included.
IV. **Cost of Conserved Energy:** This expresses the measure, program, or portfolio costs in per-unit terms based on the total energy savings over the effective lifecycles of the specific measures or actions taken. In this calculation, the future years’ energy savings volumes are discounted by the appropriate discount rate to reflect time value of money. The starting point is, once again, net energy savings with free-riders removed.

Table 4 demonstrates how cost effective the 2017 EWR programs were in terms of the costs per unit of the energy savings achieved.

V. **Weighted Average Measure Life:** This represents the average life, in years, of all the various measures installed or actions taken in a program or the entire portfolio when each measure’s life is weighted by the energy savings it produces, relative to all the energy savings in the program or portfolio. Through 2017 more than 2.9 million electric customers and 2.1 million gas customers have directly participated in DTE’s energy efficiency programs and benefited from the savings provided.

Table 5 summarizes the average measure life for the various 2017 EWR programs at the individual program level and for the program as a whole.
Cost Effectiveness

Cost Effectiveness Tests (CETs) are performed to ensure that the overall goal of reducing energy usage in a cost-effective manner for the utility and its customers is being achieved. DTE uses the Utility System Resource Cost Test (USRCT) and the Total Resource Cost (TRC) test to measure the effectiveness of the EWR program. The DSMore cost analysis tool was used to calculate and report cost effectiveness for the 2017 programs using the USRCT. Additionally, a TRC test was calculated for the DTE EWR programs. The TRC test is defined as the total avoided costs divided by the sum of program costs plus the participants’ costs.

There are two major groups of inputs that are used in DSMore. These include the utility input assumptions and the program inputs.

Utility input assumptions contain information that is specific to the utility and include items such as load shape, the commodity and non-commodity cost of energy, customer energy rates, line losses, weather and discount rates. The utility input assumptions used in this reconciliation analysis are the same as those that were used in developing DTE Electric’s and DTE Gas’s approved 2017 EWR Plan.

Program inputs include: Measure level electric and gas energy savings, measure level coincident peak demand reductions, the number of measures that have been adopted by participants, incremental participant costs, customer incentive costs, program costs, performance incentive costs, education costs and pilot costs. As indicated above, the CETs were calculated at program levels and for groups of programs, including the low-income programs, ten residential program groups and six C&I program groups. The ten residential program groups include:

1) Appliance Recycling, 2) ENERGY STAR® products, 3) HVAC, 4) Multifamily, 5) Home Energy Consultation, 6) School program, 7) Online Energy Audit, 8) Behavior, 9) Audit and Weatherization, and 10) Emerging Measures and Approaches. The six C&I groups include: 1) Prescriptive, 2) Non-prescriptive, 3) Emerging Measures and Approaches, 4) ENERGY STAR® Retail Lighting, 5) Multifamily Common Areas, and 6) Self-Direct.

DTE’s Current EWR Plan resulted in meeting legislated energy savings minimums at a specific cost. As mentioned earlier, DTE Electric met its projected amended EWR Plan and exceeded the legislated energy savings minimums by 276 GWh or 57 percent (762 GWh versus the legislated minimum of 485 GWh) in response to achieving the performance objectives stated in the new legislation (PA 342). While DTE Gas overspent its proposed amended EWR Plan cost by $0.04 million, legislated energy savings minimums were exceeded by 430 MMcf or 33 percent (1,735 MMcf versus the legislated minimum of 1,305 MMcf) in response to achieving the performance objectives stated in the new legislation (PA 342). Even before performing any cost tests, these two facts in combination show that the program was very cost effective. Based on the analysis performed using DSMore, DTE’s EWR portfolio of programs passed the CETs. For DTE Electric, a USRCT score of 5.44 was achieved based on the 762 GWh verified net energy savings. For DTE Gas, a USRCT score of 2.49 was achieved based on the 1,735 MMcf verified net energy savings. In 2017, DTE Electric and DTE Gas collected $86.6 million and $18.7 million, respectively, in base EWR surcharge revenue. “Base” surcharge revenue reflects EWR actual revenue realized, excluding the revenue recovery for authorized performance incentives. Revenues identified in the chart at right are the actual amounts that were billed to DTE customers (excluding Performance Incentive) in 2017, through the EWR surcharges approved by MPSC. These surcharges appear as a line item on the customer’s monthly bill statement.

**Chart 3** at right displays the 2017 revenues collected. Most of the variance in **Chart 3** is due to changes in the weather forecast throughout the year.

**Chart 4** displays revenue collected for EWR programs in 2017 by customer type.

Surcharges

Initial surcharges were established, approved by the Commission, and billed starting in June 2009 and continued through the first five months in 2010. Upon approval of the Amended EWR Plan on June 3, 2010, revised surcharges were billed to DTE electric and gas customers beginning in June 2010. These surcharges continued to be billed in 2011. In addition, on February 8, 2011, the Commission authorized DTE to begin billing an incremental surcharge to recover the 2009 EWR Plan performance incentive that was approved by the Commission in the 2009 DTE Electric EWR Reconciliation. Beginning March 1, 2011, and ending on February 29, 2012, this surcharge was added to the base surcharge and billed to customers as one combined EWR surcharge. On November
10, 2011, the Commission authorized DTE Electric and Gas to include an incremental surcharge, beginning January 1, 2012 and ending on December 31, 2012, to recover the 2010 EWR Plan performance incentive as approved by the Commission in the 2010 DTE Electric and DTE Gas EWR Reconciliations. On November 6, 2014, the Commission authorized DTE Gas to include an incremental surcharge, beginning January 1, 2015, and ending on December 31, 2015, as approved by the Commission in the 2013 DTE Gas EWR Reconciliation. Also, on December 4, 2014, the Commission authorized DTE Electric to include an incremental surcharge for the period January 1, 2015, and ending December 31, 2015. The incremental electric surcharge with an effective period from January 1, 2016, through December 31, 2016, was approved by the Commission on October 27, 2015, in the 2014 Gas EWR Reconciliation filing. On November 22, 2016, the Commission authorized both DTE Electric and DTE Gas to include an incremental surcharge, beginning January 1, 2017, and ending on December 31, 2017, to recover the performance incentive as approved by the Commission in the 2015 DTE Electric and DTE Gas EWR Reconciliations.

Electric and Gas Surcharge

In 2017, EWR base electric and gas surcharges remained constant for residential, and commercial and industrial (C&I) customers when compared to the prior year with the implementation of the base rates approved by the Commission in case nos. U-17762 and U-17763, respectively.

Charts 5 and 6 outline the 2017 EWR base surcharges compared to the previous years. These charts exclude the performance incentive.

Program Participation

The number of customers participating in EWR programs has increased steadily each year since 2009, resulting in over 2.9 million electric and 2.1 million gas customers in Residential, and Commercial and Industrial programs. In 2017, over 798,343 electric and 484,520 gas customers participated in the EWR program.

Charts 7 & 8 summarize the number of customers participating in the EWR program by year.
LEGISLATIVE REQUIREMENTS

Michigan’s Energy Waste Reduction (EWR) standard, created under Public Act 295 of 2008 (PA 295 or the Act) as amended by PA 342 of 2016 (PA 342), requires all gas and electric utilities in the state to implement programs to reduce overall energy usage by specified targets, in order to reduce the future costs of gas and electric service to customers. This report complies with Section 97(1) of the Act; summaries of the report’s major findings are below. Key elements of this legislation include the following:
Energy Savings Targets
• Electric utilities were required to achieve 0.3 percent savings in 2009; 0.5 percent in 2010; 0.75 percent in 2011; and 1.0 percent in 2012 and each year thereafter until the end of 2021. Beyond 2021, the level of electric energy efficiency savings will be determined by the utility’s Integrated Resource Plan.
• Natural gas utilities must achieve 0.1 percent savings in 2009; 0.25 percent in 2010; 0.5 percent in 2011; and 0.75 percent in 2012 and each year thereafter.

Compliance
• Electric and Gas utility providers must offer a cost-effective EWR portfolio to customers, excluding low-income programs, per PA 342.
• Providers can operate their own EWR compliance programs or fund a state program.
• EWR plans must be filed, reviewed and approved or rejected by the MPSC.

Funding
• Providers must demonstrate the EWR programs, excluding offerings to low-income customers, meet the utility resource cost test and are reasonable and prudent.
• Funds received from a customer class — Residential, Commercial and Industrial (C&I) Secondary, and C&I Primary — must be spent on EWR programs that benefit that rate class. All classes will contribute toward Low-Income residential programs.

Utility (Performance) Incentives
• A financial incentive for utility providers can be earned for exceeding the EWR performance standards.
• PA 342 states that the earned performance incentive financial award be calculated as a function of the net present value of lifecycle cost reductions generated during the annual period and based on total program spending, tiered based on annual incremental savings.
• In 2017, consistent with the 2017 EWR Amended Plan, 18.5 percent of the provider’s actual EWR program expenditures was the lesser amount and was used as the basis for the incentive.

EWR Surcharges
The EWR programs are paid for by all customers via a surcharge placed on their electric and natural gas bills.
• The amount of the surcharge depends on the Rate Class — Residential, Commercial and Industrial (C&I) Secondary and C&I Primary. Residential customers pay a volumetric rate, so a customer’s individual surcharge depends on how much energy they use. For C&I electric customers, the total amount paid is also based on the number of meters, as they pay a monthly per-meter charge determined by their monthly consumption.
EXECUTIVE SUMMARY

LEGISLATIVE REQUIREMENTS

PROGRAM PORTFOLIO

PROGRAM ACHIEVEMENTS

FUTURE PLANS

CONCLUSION

DTE’s EWR programs are designed to help reduce customers’ energy use by increasing customer awareness and use of energy saving technologies, and providing products and services such as rebates, tips, tools, strategies and energy efficiency education to help customers make informed energy saving decisions.
Many of the programs in 2017 were continuations of programs launched in 2009, with a number of new programs subsequently implemented. DTE continually works to offer EWR programs that assure all customer segments are encouraged to participate. Programs are designed to capture both electric and natural gas savings. For those DTE customers with only electric or only natural gas service, efforts were made to coordinate and align with other utilities so that these customers could easily take advantage of energy efficiency program offerings across both fuel types.

**Program Offerings**

EWR programs include offerings available to residential customers, commercial and industrial customers, pilot programs, and general education and awareness programs. In addition, the Evaluation, Measurement & Verification (EM&V) function verifies net energy savings reported by the EWR programs. The programs are managed by DTE Energy program managers and operated by expert implementation contractors, primarily utilizing local labor and products.

Each program offers a combination of energy efficiency products, customer incentives or rebates, and education. Following is an overview of each program category:

- **Residential programs** offer homeowners products, services and rebates encompassing appliance recycling; lighting; heating, ventilation and air conditioning (HVAC); weatherization; home energy assessments; low-income; energy education; and behavioral programs.
- **Commercial and Industrial programs** offer businesses products; services; prescriptive rebates for specific equipment replacement such as lighting, boilers, pumps, compressors, etc.; custom programs providing rebates per kilowatt hour (kWh) of electricity savings or per thousand cubic feet (Mcf) of natural gas savings for a comprehensive system or industrial process improvement; and energy education and pilot programs.
- **Pilot programs** focus on new and emerging experimental programs to fit longer-term program portfolio needs, test the cost-effectiveness of emerging technologies, and assess customer adoption of new technologies and market acceptance of existing technologies using new approaches.

- **Education and Awareness programs** are designed to raise customer energy efficiency awareness in an effort to help save energy and to reduce energy costs. A secondary objective is to raise awareness of the DTE website and other social media, which provide channels for customers to engage in specific EWR programs offered.

- **EWR programs** require independent verification of the utilities’ claimed energy savings. This work is performed by an independent Evaluation, Measurement & Verification (EM&V) contractor and must be performed to industry standards and guidelines developed by the Evaluation Workgroup of the MPSC EWR Collaborative. Currently Navigant Consulting, Inc. fills this role for DTE.

Each year, new program options continue to be added to the EWR portfolio.

Refer to **Figure 1** at right for a list of programs offered in 2017.

The following pages include a summary of each EWR program providing a description, highlights, achievements, challenges, and overall program results from 2017.
The objective of the residential EWR programs is to increase customer awareness and demand for energy efficient products and services. In 2017, the residential EWR programs used various marketing tactics and community outreach events to promote and inform customers of program offerings. These marketing tactics included specific program information conveyed through DTE’s website, email, social media (Facebook and Twitter), direct mail, bill inserts, newsletters, radio and television ads, billboards, advertisements in local newspapers, in-store events and home shows. Furnace testing/ replacement program options were continued in the low-income space. Rebate amounts were adjusted to meet market demand and budget constraints. Details of each offering are provided later in this report. In 2017, DTE’s residential EWR programs performed well. In total, the residential EWR programs achieved 375 GWh of verified net electric savings, which is 147 percent of their plan, and 1,012 MMcf of verified net gas savings, which is 122 percent of their plan. In a recent internal benchmarking, DTE’s residential EWR programs were ranked in the EWR program in 2017.

**Charts 9 and 10** summarize the electric and gas spending, and verified net energy savings for all the 2017 EWR residential and low-income programs.

In 2017, over 613,000 electric customers and over 481,000 gas customers participated in the Residential EWR programs. **Chart 11** summarizes the number of customers participating in the EWR program in 2017.
APPLIANCE RECYCLING PROGRAM (DTE ELECTRIC ONLY)

Program Description
The objective of the Appliance Recycling program is to produce cost-effective, long-term annual energy savings by promoting the early retirement and recycling of operable, inefficient appliances from DTE Electric households in an environmentally safe manner. The program removes older, inefficient working refrigerators and freezers from the electric grid and recycles 95 percent of the appliance. Customers can also recycle a dehumidifier and/or room air conditioner when having a refrigerator and/or freezer picked up. At the same time, DTE educates its customers on the additional energy cost incurred by operating a second, inefficient appliance.

Highlights
- Customers received a $50 rebate for a refrigerator, $50 for a freezer, $20 for a dehumidifier, and $20 for a room air conditioner.

Challenges
- Due to the saturation of the program, there are increasing difficulties in finding customers who have an inefficient or second refrigerator and convincing them to recycle the appliance.
- Collaborating with new retailers who pick up refrigerators and freezers while delivering new appliances has been a challenge.

Accomplishments
- The amount of time from the appliance pickup to the time the customer’s rebate check is mailed was nine days, which is 50 percent below the target of 18 days.
- In July 2017, DTE began issuing the customer’s rebate check at the time of the appliance pickup.

Collaboration Efforts
- DTE collaborated with ABC Warehouse and Sears to pick up old refrigerators and freezers when delivering new ones.
- ABC Warehouse and Sears increased their share of pickups to 3 percent of the total units in 2017, compared to 2.9 percent of total units in 2016.

Lessons Learned
- In 2017, friends or family members became the number one way customers heard about the Appliance Recycling program, with 43 percent of customers identifying friends or family members as how they found out about the program. Online came in second, with 28 percent, and TV advertising came in third, with 12 percent.

• Overall customer satisfaction increased to 96 percent in 2017, as compared to 95 percent in 2016.

• 67 percent of customers scheduled their appliance pickup via phone, which is a decrease of 15 percent from the previous year. Online scheduling increased to 30 percent from 16 percent in 2016. The remaining 3 percent scheduled an appliance recycling pickup through a retailer while purchasing their new refrigerator or freezer.

• A high waitlist count at the end of year led to increased schedule time and lower customer satisfaction.
Spend and Verified Net Savings Results

- DTE Electric spent $5.9 million on the Appliance Recycling program in 2017. This amount was $0.5 million more than the plan.
- DTE Electric saved 26.8 GWh of verified net energy savings. This was 5.3 GWh less than the plan.
- This program is offered to residential electric customers and not to gas customers, so there is no gas savings or spend.

Chart 12 summarizes the 2017 DTE Electric spend and verified net savings results for the program.

Program Participation

Customer participation in the program has been slowly declining since 2014, but remains to be a prominent residential program offering.

Chart 13 summarizes the number of customers who have participated in the program since 2009.

Program Outlook

- Spending and savings from the program are anticipated to continue to slowly decline for 2018. As the program grows more mature and the proportion of customers who have already participated increases, it will be harder to achieve the goal because there are fewer inefficient and secondary appliances on the grid.
- The program’s marketing mix in 2018 will continue with a combination of social media and television advertisement. The new-look website will update with the new commercial. Cross promotional material from other EWR residential programs will also continue as a marketing strategy for this program.
ENERGY STAR® LIGHTING AND APPLIANCES PROGRAM (DTE ELECTRIC AND DTE GAS)

Program Description
The objective of the residential ENERGY STAR® Products program is to increase the awareness and sales of high efficiency ENERGY STAR® products among residential customers. The program was designed to spur customer interest by providing educational information and incentives to customers who purchase qualified ENERGY STAR® equipment. The primary means used to accomplish this objective were in-store site visits, point-of-purchase material and promotional events that were held throughout the year.

The program helps customers reduce the cost of being energy efficient by providing rebates and/or discounts on ENERGY STAR® certified products.

The program also provides upstream discounted light emitting diode (LED) light bulbs at over 400 retailer outlets. Midstream incentives on certified consumer electronics are provided for televisions, personal computers and monitors. Downstream rebates on certified appliances, such as clothes washers, room air-conditioners and dehumidifiers. Wi-Fi enabled and smart thermostats rebates are also provided.

Highlights
- DTE Electric offered $25 rebates for ENERGY STAR® qualified clothes washers, dehumidifiers and room air-conditioners. Wi-Fi-enabled and smart thermostats had rebates ranging from $75-$100. In-store mark-down discounts for LED bulbs were between $0.5-$6 per bulb. Midstream consumer electronics incentives ranged from $5 to $25 per item.
- DTE Gas offered $25 rebates for ENERGY STAR® qualified clothes washers and rebates ranging from $75-$100 for Wi-Fi-enabled and smart thermostats.
- These rebates were available to customers by mail, online retail or online application.
- The appliance downstream program provided rebates for over 20,000 electric and over 8,400 gas appliances.
- The Consumers Electronics program midstream program provided incentives on over 46,700 electronics.

Challenges
There were challenges in launching the DTE Marketplace, the new online e-commerce energy efficiency products site. The challenges centered mainly around entering a new delivery channel and delivering it with the highest level of quality and user experience.

At the end of the year, a portion of the program that involves television incentives and savings are temporarily on hold until ENERGY STAR® testing guidelines are approved.

Accomplishments
- DTE sold over 5 million LED bulbs through manufacturer buy-downs at the retailer level.
- DTE Energy Marketplace, the new online e-commerce site, was launched to provide residential customers with energy and cost savings opportunities. The Marketplace immediately incentivizes energy efficient products, streamlining the rebate process.
- The program participated in over 400 in-store and community events to interact and educate customers.
- Customers are very positive about the program, as evidenced by a 96 percent satisfaction rating in 2017.
Collaboration Efforts
The program continues to collaborate with local and national retailers, such as Costco, The Home Depot, Meijer, Family Dollar, Lowe’s, ACE Hardware, Dollar Tree, Sam’s Club, ACO Hardware, Wal-Mart, Best Buy, ABC Warehouse, Menards and Sears to help our customers become more efficient.

Lessons Learned
- LEDs continue to flourish with discounted pricing and consumers are embracing Wi-Fi-enabled and smart thermostats at a precipitous pace.
- As consumers become more educated and increase ENERGY STAR® products, the labeling seems to continue to have greater influence and create awareness.

Spend and Verified Net Savings Results
- DTE Electric spent $12.6 million on the ENERGY STAR® program. This amount was $1.8 million less than the plan.
- DTE Electric saved 197 GWh of verified net energy savings. This was 54 GWh less than the plan.
- DTE Gas spent $300,000 on the ENERGY STAR® program. This amount was about $24,000 over the plan.
- DTE Gas saved 51.5 MMcf of verified net energy savings. This was 26.6 MMcf higher than the plan.

Chart 14 summarizes spend and verified net savings results.
Program Participation

- Customer participation in the ENERGY STAR® Appliance program has increased by over 3,000 from 2016 to 2017.

**Chart 15** summarizes the number of customers who have participated in the ENERGY STAR® Appliance program.

**Chart 16** summarizes the number of ENERGY STAR® Lighting products that have been purchased. Participation in ENERGY STAR® lighting has varied year to year as a result of changes in product mix.

Program Outlook

- DTE will continue to add products to the Marketplace and enhance the website to improve user experience and customer satisfaction.
- As compared to the 2017 actuals, spending and savings are expected to increase slightly in 2018.
- Adding clothes dryers to the appliance rebate list for 2018.
HEATING, VENTILATION, AND AIR CONDITIONING (HVAC)
(DTE ELECTRIC AND DTE GAS)

Program Description
The objective of the HVAC program is to increase the demand for energy efficient heating and cooling equipment and high-efficiency water heating equipment. The electric measures offered in the Residential HVAC program include high-efficiency central A/C units. Wi-fi-enabled thermostats and electronically commutated motors (ECM). Gas measures include high-efficiency natural gas heating equipment, Wi-fi-enabled thermostats and water heaters. DTE has developed and utilizes a network of well-informed and educated HVAC industry professionals who understand the benefits of, and how to sell, energy efficient products.

The program serves residential customers in single and multifamily dwellings of less than three units who purchase new high-efficiency central air conditioning units, high-efficiency natural gas furnaces or boilers and/or water heating equipment.

Highlights
• In 2017, the DTE HVAC measure offering was well received by both the homeowner and the participating contractors. Electric measures included SEER 14 and above central air conditioners, ECM, and Wi-fi-enabled thermostats.
• The incentive amounts were $100 per thermostat unit, $50 per ECM, $150-400 for SEER 14+ central A/C units, $75 on air conditioning tune-ups, $200-$300 for high-efficiency furnaces and $1,000 for boilers, up to $75-$100 on water heaters and a $50 rebate on high-efficiency furnaces, and boiler diagnostic test and tune ups with combustion analysis.

Challenges
• The program found challenges in engaging participants to participate in the high-efficiency tank and instant water heating equipment.
• The program found challenges in getting the adoption of comprehensive air conditioning tune-ups.
• The seasonal nature of the HVAC industry highlights the need to increase frequency and advance notice to contractor network six to eight weeks in advance when planning changes to rebated equipment and/or rebated levels.

Accomplishments
• DTE continued to leverage its very active trade ally network to maintain the momentum as the program transitioned into 2017.
• Over 30,000 HVAC customer applications were processed.
• The electric measures continue to be a very positive factor for the program.
• A new alternative to in-home field verifications was introduced — e-verifications — with participation rates close to 70 percent.
• The time from application to the time the customer’s rebate check is mailed was 20 days, which is 16 percent below the target of 25 days, and represents a three day reduction in cycle time over 2016.

Collaboration Efforts
• Meetings were held throughout the state to inform and train the trade ally network. These included rollout training, combustion analysis furnace tune-up training, new contractor training and one-on-one site training with trade allies.
• Table 6 provides a summary of the collaboration efforts.

Lessons Learned
• Providing an “apply now” and “reserve now” option on online application increased customer satisfaction.
• Customers and contractors respond well to “whole system” bonuses geared toward incentivizing a bundle of home upgrades.

Spend and Verified Net Savings Results
• DTE Electric spent $4.7 million on the HVAC program. This amount was $1.8 million more than the $2.9 million plan.
• DTE Electric saved 13.2 GWh of verified net energy savings. This was 10.3 GWh more than the 2.9 GWh plan.
• DTE Gas spent $3.6 million on the HVAC program. This amount was $1.4 million less than the $5.0 million plan.
• DTE Gas saved 244.4 MMcf of verified net energy savings. This was 6.3 MMcf more than the 238.1 MMcf plan.

Chart 17 summarizes the spending and verified net savings results.
**Program Participation**

- Customer participation in the program has increased steadily since 2009.  

**Chart 18** summarizes the number of customers who have participated in the program.

**Program Outlook**

- Because the cost per MMcf saved is higher than other gas energy efficiency programs, DTE is looking at different models that provide other value propositions, besides incentives to the customer, to encourage participation in the HVAC program.  

- A/C measures of 15 SEER or higher and ECMs will continue to be offered, with new measures also being considered in the electric service territories of DTE Energy. The electric portion of the HVAC program has been a popular addition and will continue to promote customer satisfaction in the field. The program will continue to provide rebates for high-efficiency furnaces, boilers and water heaters. This will give DTE Gas customers the opportunity to improve the energy efficiency of their homes by installing high-efficiency gas equipment.
AUDIT & WEATHERIZATION PROGRAM (DTE ELECTRIC AND DTE GAS)

Program Description
The objective of the residential Audit & Weatherization (A&W) program is to motivate customers by offering rebates for the installation of qualified weatherization measures in their homes. The A&W program was expanded to offer many diverse products and services to DTE customers. Following is a summary of the program offerings:

- Home Performance (HP): offers customers a higher-tier rebate to perform multiple insulation, window and HVAC improvements by rewarding them with bonus incentives for completing three or more measures.
- HP customers are required to have a comprehensive energy assessment (CEA) performed by a participating contractor listed on DTE’s website.
- Insulation and Windows (INWIN) allows customers who do not wish to perform a CEA to still receive rebates for improvements, but at lower rebate amounts than HP participants.

Challenges
- Providing various rebate levels for the same measure introduces unnecessary confusion to participation path for rebates.
- Many customers are not searching for Home Performance directly, but searching for the specific improvements they think are needed.

Highlights
- DTE simplified the rebate process for the customer, aligning rebate levels for measures offered in both INWIN and HP programs.
- The time from application to the time the customer’s rebate check is mailed was 22.61 days, which is 9.5 percent below the target of 25 days.

Accomplishments
- DTE simplified the rebate process for the customer, aligning rebate levels for measures offered in both INWIN and HP programs.
- DTE introduced a web-based learning center designed to offer participating contractors a variety of program-specific training and marketing guides, as well as continuing education eligible (CEU) courses. The new DTE Learning Center gives participants, free of charge, the opportunity to take advantage of all the training resources for anyone in the company, at any time, without the need for travel. In-person tune-up trainings, for example, were recorded and uploaded to the DTE Learning Center.

Collaboration Efforts
- Customer outreach was performed through attending events with organizations, such as Michigan Saves.
- The online application tool utilized by participating contractors is shared with Consumers Energy, ensuring consistency for contractors.

Lessons Learned
- Demand for standalone insulation and windows rebates (without CEA required) continue to outpace those of whole-home upgrades. Alignment on rebate levels and an increase in INWIN-focused customer marketing led to an increase in the number of participants.

Spend and Verified Net Savings Results
- DTE Electric spent $0.48 million on the Audit & Weatherization program. This amount was about $0.02 million over plan.
- DTE Electric saved 0.5 GWh of verified net energy savings. This amount was 0.4 GWh higher than the 0.1 GWh plan.
- DTE Gas spent $1.32 million on the Audit & Weatherization program. This amount was $0.04 million more than $1.28 plan.
- DTE Gas saved 23.7 MMcf of verified net energy savings. This was 0.1 MMcf more than the 23.6 MMcf plan.

Chart 19 summarizes the spending and verified net savings results.

Program Participation
Chart 20 summarizes the number of customers who have participated in the A&W program.
Program Outlook

• The Audit and Weatherization program will continue to explore opportunities to expand the program and test new approaches to meet customer demand.

• DTE Electric and DTE Gas spending and savings are expected to stay flat beyond 2017.
SCHOOL PROGRAM  
(DTE ELECTRIC AND DTE GAS)

Program Description  
The School program’s objective is to develop a powerful culture of energy efficiency with elementary school students, teachers, schools and families throughout the DTE Energy service territory, in both public and private sectors, to deliver real, measurable energy savings.

The School program provides non-traditional opportunities to raise awareness and the adoption of energy efficiency measures and behaviors, and to help the environment. Each participating teacher and student received a kit filled with energy efficient technologies and a guide with information on energy resources and energy saving tips. Students are instructed to install all products with adult supervision in their residence. Instructional materials have been designed to correlate with the State of Michigan math and science curriculum for 4th- through 6th-grade students.

Challenges  
• Finding ways to increase installation of water devices, particularly with homes that have non-standard or new fixtures that cannot accommodate the standard aerators.
• Continued challenges to gather complete and accurate contact information for evaluation purposes.

Highlights  
• In 2017, 353 schools, 23,581 electric students, 23,635 gas students, and 1,127 teachers participated.
• This program is in high demand and all school visits are reserved well in advance. This translates into highly accurate forecasts of spend and savings.

Accomplishments  
• The School program continues to enjoy a high level of word-of-mouth promotion that generates a waiting list of schools registering for the program each semester.
• The inclusion of two reservation schools in the Upper Peninsula.
• Increased installation rates on all devices included in the kits.

Collaboration Efforts  
• By 2017, the School program had four established collaborations with Consumers, SEMCO, Michigan Electric Cooperation Association (MECA), and Efficiency UNITED, resulting in less disruption to students and teachers, increased market exposure for all utilities, and making the program more attractive to participants.
Collaboration with Detroit Green Living Science to deliver the School program special events.

Partnered with Alliance for Deaf Services (ADS) to reach deaf and hard of hearing students in our community.

Lessons Learned

- Bilingual installation instruction inserts for kits are standard in all 2017 kits.
- Serving bilingual, deaf, and hard of hearing students is part of the program to better serve our community.
- Adding new videos to classroom energy efficiency presentation to keep students engaged and attentive during the presentation.
- New updated program website with easier navigation to registration, installation videos and enhanced graphics.
- The streamlining of the evaluation process with links in scheduling emails made completing it by teachers faster and easier.

Spend and Verified Net Savings Results

- DTE Electric spent $0.85 million on the School program. This amount was $0.13 million less than the $0.98 million plan.
- DTE Electric saved 2.6 GWh of verified net energy savings. This was 0.7 GWh less than the 3.3 GWh plan.
- DTE Gas spent $0.4 million on the School program. This amount was $0.3 million less than the $0.7 million plan.
- DTE Gas saved 40.7 MMcf of verified net energy savings. This was 19.3 MMcf more than the 21.4 MMcf plan.

Chart 21 summarizes the spending and verified net savings results.

Program Participation

Chart 22 summarizes the number of customers who have participated in the School program.

Program Outlook

- DTE Electric and DTE Gas savings are expected to grow and spending expected to stay flat beyond 2017.
ONLINE ENERGY AUDIT PROGRAM
(DTE ELECTRIC AND DTE GAS)

Program Description
The objective of the Online Energy Audit program is to provide a no-cost energy program that is available to all residential customers, while producing electric and gas energy savings through a kit containing easy-to-install energy saving measures mailed to the home. Energy efficiency information and recommendations are also delivered with the kit, as well as being available online. The measures mailed in the kit include LEDs, LED nightlights, energy efficient showerheads, energy efficient kitchen and bath aerators, and pipe wrap insulation.

Challenges
• Motivating customers to install all of the provided measures remains a challenge. This causes a low IRAF, which reduces the amount of energy that can be claimed for this program.

Highlights
• In 2017, the program remained available to customers through November.
• The program continued experimenting with marketing campaigns to improve open rates and participation rates.

Accomplishments
• The Online Energy Audit program continues to provide an easy way for customers to get started with their energy efficiency journey.
• In 2017, over 18,000 kits were mailed to DTE Energy customers.

Collaboration Efforts
• There are currently no utility collaboration efforts with this program.

Lessons Learned
• Understanding the length and complexity of the online survey helps to explain survey completion rates.
• The market is very responsive to marketing efforts, resulting in good control and capability to either leverage or stall elements to help with portfolio savings objectives.
• Doing Online Energy Audit program cross promotion on the webpages of other programs shows to be a good lead-generation tool.

Spend and Verified Net Savings Results
• DTE Electric spent $0.7 million on the Online Energy Audit program. This amount was $0.4 million higher than plan of $0.3 million.
• DTE Electric saved 2.8 GWh of verified net energy savings. This was 2.9 GWh less than the 5.7 GWh plan.
• DTE Gas spent $0.4 million on the Online Energy Audit program. This amount was $0.4 million less than plan of $0.8 million.
• DTE Gas saved 30.9 MMcf of verified net energy savings. This was 20 MMcf less than the 52.9 MMcf plan.

Chart 23 summarizes the spending and verified net savings.

Program Participation
Chart 24 summarizes the number of customers who have participated in the Online Energy Audit program.

Program Outlook
• DTE Electric and DTE Gas spending and savings are expected to continue at a lower rate beyond 2017.
BEHAVIOR PROGRAM
(DTE ELECTRIC AND DTE GAS)

Program Description
The objective of the Behavior program is to encourage select customers to be more energy efficient by means of social competition and social norming. Encouragement is provided by way of printed Home Energy Reports that display the customer’s energy usage in comparison with average energy usage of approximately 100 nearby similar homes and a second comparison with the customer’s most efficient nearby similar homes (the top 20 percent). The Home Energy Report also contains the customer’s individual ranking within the group of 100 homes, energy saving tips and promotions for other energy efficiency programs. The customer is sent a Home Energy Report via the USPS, and an abbreviated email version of the Home Energy Report is sent to customers with an available email address.

Challenges
• Comparisons shown on the letters have not always been well received by customers. The opt-out process is tightly managed to prevent customer dissatisfaction.

Highlights
• In 2017 the program had over 580,000 participants.

Accomplishments
• The Behavior program introduced is a very cost-effective plan to generate energy savings, while expanding the reach of our portfolio of energy efficiency programs.
• In 2017, customer satisfaction improved from 76 to 77 percent.

Collaboration Efforts
• There are currently no collaboration efforts with this program.

Lessons Learned
• After experiencing a couple of years of customer satisfaction between 69-70 percent, DTE continues to leverage strategies to sustain satisfaction.
Spend and Verified Net Savings Results
- DTE Electric spent $2.8 million on the Behavior program. This amount was $1 million less than the $3.8 million plan.
- DTE Electric saved 70.7 GWh of verified net energy savings. This was 37.7 GWh more than the 33 GWh plan.
- DTE Gas spent $0.31 million on the Behavior program. This amount was $0.01 million more than the $0.3 million plan.
- DTE Gas saved 198 MMcf of verified net energy savings. This was 64.7 MMcf more than the 133.3 MMcf plan.

Chart 25 summarizes the spending and verified net savings results.

Program Participation
Chart 26 summarizes the number of customers who have participated in the Behavior program, excluding low-income behavior participants. Low-income segment customers are counted in the 2017 numbers on Chart 31.

Program Outlook
- DTE Electric and DTE Gas spending and savings are expected continue in 2018 for the Behavior program with expected declines in 2019 and beyond. There is an expectation to incorporate other behavioral treatments, such as the mobile application, thus changing the variety of offerings in this program.
HOME ENERGY CONSULTATION PROGRAM (HEC) (DTE ELECTRIC AND DTE GAS)

Program Description
The objective of the HEC program is to provide a no-cost energy education program that is available to all residential customers with a single-family home, while producing immediate energy savings through the direct installation of energy saving measures in the home.

Energy efficiency education is delivered at all phases of the home visit to the homeowners or tenants, while the direct installation is occurring. Typical in-unit measures include LEDs, LED nightlights, energy efficient shower heads, energy efficient kitchen and bath aerators, smart and programmable thermostats and pipe wrap insulation.

Challenges
• HECs have been offered in the EWR program portfolio since 2010. The opportunities to perform HECs have diminished as the program has matured.

Highlights
• In 2017, there were nearly 38,000 HECs completed throughout the DTE service territory.
• The HEC program continues to have high customer satisfaction scores, often exceeding the customers’ expectations of the program.

Accomplishments
• In collaboration with the Alliance for Deaf Services (ADS), DTE Energy was able to provide the HEC program to 375 customers who are deaf or hard of hearing.
• The HEC program hosted two neighborhood-focused days of energy efficiency, called Neighborhood Energy Efficiency Day (NEED). This was partnered with the Low-Income program, along with The Heat and Warmth fund (THAW), neighborhood revitalization efforts and other low-income programs offered by DTE. The events were held in one neighborhood in Detroit and one in Grand Rapids.
• The HEC program continues to collect information helpful in conducting targeted marketing so that customers can continue their energy efficiency journey.
• The HEC options’ outreach efforts also supported all the DTE Customer Assistance Days, faith-based initiatives, and many resource fairs, as well as partnerships with multitudes of other community groups and religious organizations.
Collaboration Efforts
• The HEC program collaborates with the Alliance for Deaf Services (ADS) to provide the program to customers who are deaf or hard of hearing.
• Through an HEC program collaboration with the American Red Cross, the HEC program was able to install smoke alarms.

Lessons Learned
• The HEC program was able to use existing marketing and outreach levers, which were effective in spurring or slowing the market as needed. These included targeted mailings and emails, outbound calls and social media.

Spend and Verified Net Savings Results
• DTE Electric spent $5.4 million on the HEC program. This amount was $2 million more than the $3.4 million planned.
• DTE Electric saved 8.1 GWh of verified net energy savings. This was 1 GWh less than the 9.1 GWh planned.
• DTE Gas spent $3.8 million on the HEC program. This amount was $1.6 million more than the $2.2 million planned.
• DTE Gas saved 182.3 MMcf of verified net energy savings. This was 58.3 MMcf more than the 124 MMcf planned.

Chart 27 summarizes the spending and verified net savings results. (Does not include low-income homes.)

Program Participation
Chart 28 summarizes the number of customers who have participated in the HEC program, excluding low-income HEC participants. Low-income segment customers are counted in the 2017 numbers on Chart 31.

Program Outlook
• The HEC program is looking to leverage its high-quality customer touch to create continuing customer engagement in 2018.
• The Alliance for Deaf Services outreach has been extended through 2019.
MULTIFAMILY PROGRAM
(DTE ELECTRIC AND DTE GAS)

Program Description
The objective of the Multifamily program is to produce energy savings in multifamily buildings with three or more units under one contiguous roof through the direct installation of energy saving measures. Typical in-unit measures include LEDs, LED nightlights, energy efficient showerheads, energy efficient kitchen and bath aerators, programmable thermostats and pipe wrap insulation where the units have electric water heating. There is no cost for the in-unit installations. Energy efficiency education is also delivered at all phases of the project to property owners, managers and to individual tenants. Since the Multifamily program is a direct-install program, tenants do not receive incentive payments.

The Multifamily program has common-area rebates, as well as direct installations. Typically, building owners receive rebates and are responsible for paying a portion of the cost of the installed common area measures. Energy savings and costs for measures installed in the common areas are included in the C&I prescriptive program for reporting purposes. Direct install measures include LEDs, incandescent exit sign bulb replacements, faucet aerators, and pipe wrap for qualified properties at no cost to customers.

Highlights
- 14,654 units were outfitted with energy efficient measures.
- 70 electric “common area” jobs were completed.
- 102 gas “common area” jobs were completed.
Challenges
- The Multifamily program faces diminishing direct install opportunities as the program matures. Finding new properties willing to participate that have previously not participated is getting difficult.
- Untouched properties are smaller in size.
- Revisiting properties we have already completed direct install and installing new measures has lower opportunity for savings than properties that have never participated in the program before.

Accomplishments
- The collaborative direct install program between DTE Energy and Consumers Energy accounted for 45 percent of units completed, up from 14 percent in 2016.

Collaboration Efforts
- The Multifamily program collaborates with Consumers Energy to perform direct install measures. Working together to jointly serve utility customers maximizes customer participation and satisfaction as follows:
  - There are fewer visits and less disruption to owners and tenants.
  - It helps make both programs more attractive to potential customers.
  - It increases market reach for both teams.
- During 2017, over 6,600 collaborative units were completed.

Lessons Learned
- As the program matures, measure-opportunities decrease as do the remaining untouched property sizes, making it more difficult to meet energy saving goals.

Spend and Verified Net Savings Results
- DTE Electric spent $0.7 million on the Multifamily program. This was $1 million less than the planned 1.7 million.
- DTE Electric saved 2 GWh of verified net energy savings with the Multifamily program. This was 2.2 GWh less than planned 2.2 GWh.
- DTE Gas spent $0.3 million on the Multifamily program. This amount was $0.1 million less than the planned $0.4 million.
- DTE Gas saved 15.6 MMcf of verified net energy savings. This was 9.3 MMcf less than the planned 24.9 MMcf.

Chart 29 summarizes the 2017 DTE Electric and DTE Gas spend and verified net savings results for the program (does not include low-income multifamily units).

Program Participation
- Chart 30 summarizes the number of customers who have participated in the Multifamily program, excluding low-income multifamily units. Low-income segment customers are counted in the 2017 numbers on Chart 31.

Program Outlook
- DTE Electric and DTE Gas spending and savings are expected to stay flat beyond 2017.
Program Description
The objective of the Low-Income program is to provide recommendations, financial assistance and education to income-qualified DTE customers and assist them in reducing their energy use and managing their utility costs. The program leverages the services provided by member agencies of the Michigan Community Action Agency Association (MCAAA), municipalities, counties, public housing commissions, faith-based institutions, community development corporations and nonprofit organizations with existing housing and energy programs. It also works with a select number of independent contractors when needed. This vast network of participating organizations not only offers comprehensive assistance, but also assists DTE in identifying low-income qualified customers. The residential Low-Income program also was designed to include customers residing in designated low-income multifamily units.

DTE does not pay incentives directly to its income-qualified customers. The Low-Income program delivers “incentive” funding to these customers through a variety of in-kind services. The services include weatherization plus the replacement of inefficient refrigerators with ENERGY STAR® model refrigerators in single-family homes and low-income multifamily dwellings, and in-home consultation and installation of energy efficient measures through the Home Energy Consultation (HEC) program for income-qualified customers. Low-cost measures such as LEDs, pipe wrap, energy efficient showerheads and faucet aerators are installed at no cost to low-income multifamily tenants. In addition to the installation of the low-cost measures, some customers that are identified as low-income have been selected to receive the Home Energy Report behavioral treatment.

Highlights
- The program offers a wide range of whole home, home performance oriented energy efficient measures to low-income households.
- The energy efficiency improvements made to homes with support from this program included installation of ENERGY STAR® certified LED lightbulbs and refrigerators, hot water pipe wrap insulation, energy efficient showerheads and kitchen and bathroom faucet aerators, insulation (of attic, wall, band joist and mobile home belly among other areas), and programmable thermostats; improvements made also included sealing cracks to reduce air leakage, and heating system tune-ups or replacements (where health and safety issues were present).
- In 2017, the program continued to expand its network of community action agencies, nonprofit organizations, and local units of government to increase program participation across the state.
- There were over 55,000 participants to receive the Home Energy Report behavioral treatment.
- The program provided LEDs to the food bank distribution program.

Challenges
- Food pantries and local community organizations needed an easier way to request energy efficient lighting packages so that packages go to where they are most needed.
- A large number of LED bulb and hot water saving kits were distributed very rapidly.

Accomplishments
- Distributed over 160,000 LED bulbs to approximately 10,000 low-income customers in partnership with local food banks.
- Worked with a network of community action agencies, nonprofit organizations and local government agencies to fulfill nearly 2,450 requests for funding of home weatherization and furnace tune-ups or replacements.
- Provided over 3,000 customers with new ENERGY STAR® certified refrigerators to replace their old, inefficient refrigerators.

Collaboration Efforts
- The program continued to work with DTE’s Low-Income Self Sufficiency Plan to provide utility bill assistance program customers with whole home energy upgrades; this effort is continuing to help low-income families lower their bills and move toward self-sufficiency.
Lessons Learned

• Quality assurance and control processes and customer follow up help ensure the best energy efficiency installations and service for DTE’s low-income customers.

• The program is enhanced when landlords contribute toward heating and cooling system upgrades (among others) that improve their property, reduce maintenance costs, and lower bills for their low-income tenants.

• With commitment, preparation and training for participating organizations, the program is able to evolve and provide a higher level of customer service and energy savings, and support better program planning.

• New lead generation methods and innovative service delivery channels can help serve more low-income people with energy saving opportunities.

• Participating organizations can learn from each other about creative ways to link and combine various funding mechanisms to serve more limited-income customers.

Spend and Verified Net Savings Results

• DTE Electric spent $6.8 million on the Low-Income program. This amount was $3.1 million lower than the $9.9 million planned.

• DTE Electric saved 29.1 GWh of verified net energy savings. This was 9.6 GWh more than the 19.5 GWh planned.

• DTE Gas spent $4.9 million on the Low-Income program. This amount was $0.6 million lower than the $5.5 million plan.

• DTE Gas saved 215.2 MMcf of verified net savings. This was 30.3 MMcf more than the 184.9 MMcf plan.

Chart 31 summarizes the spend and verified net savings results, which include the low-income portion of the Behavior, Multifamily and Home Energy Consultation options.

Program Participation

• Customer participation in the program continued to increase significantly in 2017 due to the continuation of Behavior as a Low-Income program offering.

Chart 32 summarizes the number of customers who participated in the program each year. The numbers include the low-income portion of the Behavior, Multifamily, Non-profit, and Home-Energy Consultation programs.

Program Outlook

• DTE Electric and DTE Gas spending and savings are expected to stay flat beyond 2017.
RESIDENTIAL EMERGING MEASURES & APPROACHES

Program Description
The Residential Emerging Measures and Approaches (EM&A) promotes the installation of energy efficient technologies that have recently been commercialized in DTE's residential program offerings. The EM&A program technology in 2017 include the DTE Insight App electric and gas behavior treatment measures and the real-time enhanced electric treatment, that DTE Insight Energy Bridge enables.

The DTE Insight mobile app was made commercially available to customers to encourage them to better understand their usage patterns and take action to reduce their consumption. The app contains project ideas, tips, a power scan tool and encourages customers to stay engaged with their energy usage to identify behavioral opportunities to become more energy efficient.

Highlights
- Leverages the AMI infrastructure.
- When combined with the Energy Bridge, customers can see real-time electric usage.
- First-of-its-kind app provided by a utility to help educate customers on their energy usage and drive behavior change.
- Customers can see how much energy they have used each day, week, and month, track usage trends and view progress.
- Features helpful ideas and challenges to inspire energy use reduction and savings.
- Offers the PowerScan feature (for iPhone users only), a convenient way to measure the energy consumption of devices by scanning the power cord.
Challenges
• Keeping the app fresh and easy to use by adding new customer-driven features and examples of how people are using the app to get benefit out of it.

Accomplishments
• From January to December 31, approximately 41,000 unique customers downloaded the app.

Collaboration Efforts
• No collaborations were in place in 2017.

Lessons Learned
• On average, households are downloading the app at a rate of two per household.
• Customers that have more than five uses of the DTE Insight app annually have, on average, higher energy savings.

Spend and Verified Net Savings Results
• DTE Electric spent $1.6 million on the residential emerging measures and approaches program. This amount was $1 million higher than the $0.6 million planned.
• DTE Electric saved 21.4 GWh of verified net energy savings. This was 20.4 GWh more than the 1.0 GWh planned.
• DTE Gas spent $0.4 million on the residential emerging measures and approaches program. This amount was $0.4 million higher than the $0 spend planned.
• DTE Gas saved 9.4 MMcf of verified net energy savings. There was no set verified net energy savings planned.

Chart 33 summarizes the spend and verified net savings results.

Program Participation
• Customer participation in 2017 includes both Gas and Electric customers, while 2016 was Electric only. Customer participation in the program in 2016 only includes the second half of the year after the program was commercialized.

Chart 34 summarizes the number of customers who participated in the program each year.

Program Outlook
• DTE Electric and DTE Gas spending and savings for the Emerging Measures program are dependent on the pilots that are found to be ready for commercialization.
The goal of C&I programs is to provide incentives to encourage customers to install more energy efficient equipment to reduce their overall energy consumption and save on their energy bills. DTE customers can take advantage of incentives for energy efficient upgrades tailored to reduce energy use in their business, improving their bottom line. The C&I EWR programs offer customers incentives to replace existing equipment and fixtures with new energy efficient equipment and incentives for designing and building new and/or remodeling projects that are energy efficient.

There are two main C&I incentive programs: C&I Prescriptive and C&I Non-Prescriptive. Both aim to influence customers to purchase and install equipment of higher efficiency than they would likely do otherwise. DTE commercial and industrial customers can apply for energy efficiency incentives under these programs. As part of DTE C&I Emerging Measures and Approaches, DTE commercialized a Midstream Lighting program and continued to offer Retro Commissioning (RCx) and Business Energy Consultation (BEC) to our small-to-medium business customers.

Key C&I marketing channels included DTE account managers who are responsible for assigned C&I business customer relationships, Energy Partnership & Services’ energy managers, Product Knowledge workshops, DTE Energy’s annual energy efficiency conference, and trade allies who market energy efficiency technology directly to customers. Other materials and mechanisms used to educate and drive awareness were the DTE Energy website, training seminars, technical support, press and periodicals. Throughout the year program presentations were made to customers; associations/organizations; city, state and federal government agencies; and vendors, contractors, engineering and architecture firms.

For the Prescriptive and Non-Prescriptive programs, DTE used the same implementation contractor (IC) in 2017 that was used to implement the C&I EWR programs in 2009 – 2016, DNV-GL. As the C&I IC, DNV-GL currently provides operational support including application review and processing, rebate fulfillment, call center operations and tracking of results, and customer satisfaction surveys for the program.

To encourage an equitable distribution of funds among as many DTE customers as possible, incentives are subject to annual limits and caps. Customers could receive payments up to the cap, but not more than $1,000,000 per customer for electric customers and $300,000 for natural gas customers within a single program year. To further ensure incentive funds are used by many customers, special offers that are established will also have funding participation limits and a time duration.

Table 7 displays the program year incentive limits. Actual payments per customer’s facility determine incentive limits regardless of whether the incentive is paid directly to the customer or to an intermediate party, such as the contractor performing the service for the customer.

The Prescriptive program application outlines incentive payments for applicable measures. Prescriptive incentives can include both the cost of the measure and labor required to install the measure. For custom projects, project incentives cannot exceed 50 percent of the total custom project cost to purchase and/or install the eligible energy efficiency measure(s). Several proactive specials were launched in 2017 to create broader customer participation. These included the promotion of Gas Express program, boiler tune-ups and steam traps, a LED Streetlight program; and DLC LED Lighting Special.

In 2017, EWR C&I programs performed well. In total, the EWR C&I programs achieved 341.7 GWh of verified net electric savings, which was approximately 27 percent above the 2017 plan of 267.7 GWh, and 611.5 MMcf of verified net gas savings, which is 38 percent more than the 442.0 MMcf plan.
Chart 35 is a summary of the spending and verified net energy savings achieved by each EWR C&I program in 2017, with the following assumptions:

- DTE Electric includes spend and verified savings for the C&I Prescriptive, Multifamily Commercial, ENERGY STAR®, C&I Non-prescriptive; Emerging Measures & Approaches (includes Midstream Lighting, RCx and Business Energy Consultation), along with planned savings and spend for the Self-Direct program.
- DTE Gas includes spend and verified savings for C&I Non-prescriptive, Prescriptive, Multifamily, and Emerging Measures & Approaches (includes RCx and Business Energy Consultation). No customers participated in the gas Self-Direct option.

Chart 36 summarizes the electric and gas spending and verified net energy savings for the entire 2017 EWR C&I program.

The C&I programs received high customer satisfaction scores in 2017 as 93 percent of customers responded with “satisfied” or “extremely satisfied” ratings. In 2017, 187,961 customer applications were part of the C&I Electric and Gas programs.

Chart 37 summarizes the number of customers participating in each of the C&I program categories.
PROGRESSIVE PORTFOLIO

COMMERCIAL & INDUSTRIAL (C&I) 
PRESCRIPTIVE PROGRAM 
(DTE ELECTRIC AND DTE GAS)

Program Description
The objective of the C&I Prescriptive program is to provide predetermined measures and incentives to C&I customers for the installation of energy efficient equipment. These incentives were designed to encourage commercial and industrial business customers to install energy efficient measures in existing facilities in an effort to reduce overall energy consumption and save money on their energy bills.

C&I Prescriptive categories of energy efficient equipment for numerous applications, include but are not limited to: LED lighting and fixtures, control systems, HVAC, refrigeration and food service equipment. Incentives apply to qualified equipment commonly installed in a retrofit or equipment-replacement project and are paid based on the quantity, size and efficiency of the technology installed. Prescriptive incentives take the form of cash rebates paid after the installation of eligible measures.

The C&I electric and gas Prescriptive programs include more than 400 prescriptive measures. The primary measures implemented include lighting fixtures, lamps, LED lighting systems and controls; motors and variable-speed drives, food service and refrigeration equipment, air conditioning and ventilation equipment, boiler tune-ups, and other common energy efficient equipment. Additionally, the savings and spend for commercial common areas of the Multifamily program and the ENERGY STAR® retail lighting program are included as C&I Prescriptive components. Property owners are encouraged and provided with incentives to install energy efficient equipment in the common areas (e.g., hallways, stairwells and parking lots) of their building(s). Examples of common area measures implemented during 2017 include interior lighting replacement, parking lot lighting, LED exit signs and controls.

Highlights

DTE Electric

- Prescriptive program offers more than 400 electric prescriptive measures in addition to its custom measures.
- Prescriptive measures generated 46 percent of electric savings in 2017.
- As a measure category, lighting continues to be a leading prescriptive measure.
- Michigan Saves financing option was used on over 200 projects.
- An Agricultural program offering is available to serve the agricultural industry.
- The greatest electric savings (nearly 60 percent) came from the following vertical markets: Industry, Small Retail and Large Office.

DTE Gas

- Prescriptive program offers more than 50 gas prescriptive measures in addition to its custom measures.
- HVAC system measures, such as controls, energy management systems, boiler/furnace tune-ups and steam traps accounted for the largest percent of gas savings.
- The greatest prescriptive savings came from HVAC controls, control systems and thermostats.
- Boiler/Furnace tune-ups and steam trap replacement continue to contribute significantly to savings.
- The Agricultural program offering continues to target the agricultural industry.
- The greatest gas savings (nearly 60 percent) came from the following vertical markets: light industry, heavy industry, colleges/universities, K-12 schools and small retail.

Challenges

- Penetrating the multifamily market with EWR programs has been challenging.
• Decision-makers for these properties are often hesitant to invest in energy efficiency measures when the benefits are shared among the tenants and property owners, but the investment is wholly borne by the owner.
• Installing energy efficient measures as an investment helps multifamily property owners and managers enhance the value and marketability of their properties while reducing their energy-related operating expenses.
• Smaller business customers require different strategies and tactics than larger Commercial & Industrial customers.
• Creating awareness and assisting the agricultural industry regarding the Agricultural program offering.

Accomplishments
• Continued the electric and gas Agricultural program offering for the agricultural industry.
• Provided customers with an energy assessment to give them a solid foundation to begin their energy efficiency journey.
• Municipalities and Michigan Department of Transportation (MDOT) continued their street lighting replacement momentum with more efficient, longer life LED lamps.
• Created and completed 11 Strategic Energy Plans in 8 different vertical markets.

Collaboration Efforts
• Worked to promote energy efficiency with Michigan Saves and Property Assessed Clean Energy (PACE) by co-presenting at events and sharing materials with customers.
• Collaborated with Michigan Saves to offer low-cost financing to Michigan customers.
• Conducted three Product Knowledge workshops that targeted specific technologies in which DTE Energy designated trade allies were the main presenters.
• Sponsored and participated in the Michigan C&I Energy Conference with Efficiency UNITED.

Lessons Learned
• Small business customers are receptive to learning about the benefits of EWR measures.
• Direct Install programs can be effective in increasing participation with small business customers but they cost more.
• Providing small-to-medium business customers with an energy assessment provides them a prioritized foundation to begin their energy efficiency journey.
• Touching the largest number of small businesses will require multiple marketing strategies and potentially, additional resources.

Spend and Verified Net Savings Results
DTE Electric Prescriptive Program
• DTE Electric spent $13.0 million on the C&I Prescriptive program. This amount was $0.5 million less than the approved 2017 EWR plan. The Prescriptive program underspend was allocated to the Emerging Measures and Approaches.
• DTE Electric Prescriptive saved 156.4 GWh of verified net energy savings. This was 39.6 GWh more than the approved 2017 plan.
• $1.1 million was spent on the C&I component of Multifamily program for common area measures; $0.3 million was spent on C&I component of the ENERGY STAR® Retail Lighting program.
• Energy saved was approximately 3.1 GWh for the Multifamily program and 19.1 GWh for the Retail Lighting program.

DTE Gas Prescriptive Program
• DTE Gas spent approximately $2.3 million on the C&I Prescriptive program, which was $0.3 million more than the approved 2017 plan.
• DTE Gas saved 406.2 MMcf of verified net energy savings. This was 250.1 MMcf more than the approved plan of 156.1 MMcf.
• $0.4 million was spent on the C&I component of the Multifamily program for common area measures.
• Energy saved was approximately 22 MMcf for the Multifamily program.
Chart 38 summarizes the spending and verified net savings results for the DTE Energy C&I Prescriptive program and includes the C&I portion of the Multifamily and ENERGY STAR® Retail Lighting programs.

Program Participation
- There were 2,316 customer applications in 2017 for the Electric C&I Prescriptive program and an additional 70 multifamily applications.
- The gas C&I Prescriptive program had 887 customer applications and an additional 103 multifamily applications.

Chart 39 summarizes C&I Prescriptive program participation.

Program Outlook
- Electric C&I Prescriptive program will continue to be driven by lighting system measures.
- Gas Prescriptive program will continue to be driven by HVAC system measures.
- Continue launching campaigns with specific measures to targeted vertical markets.
- Increase small-to-medium sized business customer energy assessments to provide them a prioritized energy efficiency foundation.
Program Description
The C&I Non-Prescriptive program promotes the installation of energy efficient technologies among DTE’s commercial and industrial customers. The program’s components include custom measures and request for proposal (RFP). The program provides incentives to customers for measures installed in qualified projects that are less common or more complex than the Prescriptive measures. As with Prescriptive incentives, custom incentive payment occurs after the equipment is installed and operational at the customer’s location.

The objective of the C&I Non-Prescriptive program is to provide customized incentives to C&I customers for the installation of innovative and unique energy efficiency equipment and controls that decrease the consumption of electricity or gas. Examples of C&I Non-Prescriptive program measures implemented during 2017 include energy management system controls on condenser and chilled water pumps, cooling tower replacement with energy efficient motors and variable frequency drives, demand control ventilation (DCV) mechanical systems and custom lighting projects with extended hours of use. Measures that were not eligible for an incentive include fuel switching (i.e., electric to gas or gas to electric), changes in operational and/or maintenance practices or simple control modifications not involving capital costs, on-site electricity generation, projects that involve peak-shifting and not kWh savings, projects involving renewable energy and projects in which the payback did not meet the C&I Non-Prescriptive requirements.

Measure incentives were based on the first 12-month estimated energy savings. The electric Non-Prescriptive program incentive was $0.07 per kWh. The gas Non-Prescriptive program incentive was $4.00 per Mcf. To qualify for the incentive, projects required a one-year to eight-year simple payback for electric and minimum of one-year simple payback for both gas and electric projects, while a maximum of eight-year payback for electric projects only. Additionally, incentives are capped at 50 percent of the total project cost.
**Highlights**

**DTE Electric**
- The C&I Non-Prescriptive program is comprised of two components: Custom and RFP.
- Non-Prescriptive measures generated 37 percent of electric savings in 2017.
- About 29 percent of the Non-prescriptive savings were attributable to non-traditional LED lighting system installations.
- Lighting systems continue to be the largest non-prescriptive measure installed.
- The greatest electric savings (nearly 60 percent) came from the following vertical markets: Industry, Small Retail and Large Office.

**DTE Gas**
- The C&I Non-Prescriptive program is comprised of two components: Custom and RFP.
- Approximately 26 percent of the DTE Gas program savings were attributable to the Non-Prescriptive program.
- HVAC gas measures remain an integral part of the total Non-Prescriptive program.
- The greatest gas savings (nearly 75 percent) came from the following vertical markets: Industry, K-12 schools and Hospitals.
Challenges
- Large gas customer projects require larger incentive amounts to achieve a reasonable rate of return before the customer will even consider making the improvements.
- Larger gas projects require longer lead times.
- Effectively increasing small business participation.
- Small business customers require different strategies and tactics than larger commercial & industrial customers.
- Creating awareness and assisting the agricultural industry regarding the Agricultural program offering.

Accomplishments
- Municipalities’ street lighting conversions to LED remained strong.
- Michigan’s favorable economic climate continued, therefore customers continued to take advantage of the Energy Efficiency program.
- Provided small business customers with an energy assessment to assist them in building a solid prioritized energy efficiency foundation.
- Continued to maintain a relevant Trade Ally Directory.

Collaboration Efforts
- Collaborated with Efficiency UNITED and participated in the Michigan Commercial and Industrial Energy Conference. Two sessions were held: one in Harris, MI and the other in Battle Creek, MI.
- Worked to promote energy efficiency with Michigan Saves and PACE by co-presenting at events and sharing materials with customers.
- Collaborated with Michigan Saves to offer low-cost financing to Michigan customers.
- Conducted three Product Knowledge workshops that targeted specific technologies in which DTE Energy designated trade allies were the main presenters.
- Sponsor and participate in advancing Michigan’s lighting control efforts through Lighting Technology Energy Solutions (LiTES) with a funding grant from the Department of Energy and being implemented by DTE Energy, Next Energy and Consumers Energy.

Lessons Learned
- Customers will always be looking for “a deal”; therefore, special programs and limited-time offers will continue to generate interest and participation.
- Small business customers are receptive to learning about the benefits of EWR measures.
- Direct install programs are not necessarily a cost-effective measure for small business customers.
- Providing small business customers with an energy assessment provides them a prioritized foundation to begin their energy efficiency journey.
- Touching the largest number of small businesses will require multiple marketing strategies and, potentially, additional resources.
**Spend and Verified Net Savings Results**

**DTE Electric**
- DTE Electric spent $14.4 million on the C&I Non-Prescriptive program. This amount was $2.5 million less than the $16.9 million in the approved plan.
- The non-prescriptive program underspend was used to fund the Emerging Measures & Approaches programs. DTE Electric saved 126.8 GWh of verified net energy savings. This was 22.9 GWh more than the planned 103.9 GWh.

**DTE Gas**
- DTE Gas spent $1.6 million on the C&I Non-Prescriptive program. This amount was approximately $0.4 million less than the approved plan of $2.0 million.
- The non-prescriptive underspend was used to fund the Emerging Measures & Approaches program and the prescriptive program.
- DTE Gas saved 156.5 MMcf of verified net energy, which was 84.8 MMcf less than planned.

**Chart 40** summarizes the spending and verified net savings results.

**Non-Prescriptive Program Participation in 2017**
- DTE Electric processed 3,456 customer applications.
- DTE Gas had 942 customer applications.

**Chart 41** summarizes the C&I Non-Prescriptive program participation.

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**Program Outlook**
- Efficiency programs for business customers will keep pace with forecast budgets for energy savings.
- Strong, and now long-standing, relationships with the contractor and business community at a variety of levels will keep the program going with continued interest, deeper savings and behavioral transformation.
- Electric Non-Prescriptive program will continue to be driven by lighting system measures.
- Gas Non-Prescriptive program will continue to be driven by HVAC system measures.
- Continue launching campaigns with specific measures to targeted vertical markets.
- Increase small business customer energy assessments to provide them a prioritized energy efficiency foundation.
COMMERCIAL & INDUSTRIAL (C&I) EMERGING MEASURES & APPROACHES PROGRAM (DTE ELECTRIC & DTE GAS)

Program Description
The C&I Emerging Measures & Approaches (EM&A) promotes the installation of energy efficient technologies or delivery channel strategies that have recently been commercialized in DTE’s C&I program offerings. The EM&A programs include: Retro Commissioning (RCx), Midstream Lighting and Business Energy Consultation (BEC).

The Business Energy Consultation (BEC) program targets small business customers by providing a walk-through energy assessment evaluation, three to six prescriptive direct install measures such as LEDS, Exit Sign LED Replacement Kits, faust aerators, pipe wrap, programmable thermostat and a report outlining the findings of the walk-through evaluation and other DTE EWR programs.

The Retro Commissioning (RCx) offer targets commercial buildings by providing a detailed energy assessment and evaluation that identifies low cost/no cost operational recommendations. The recommendations are then provided to the property managers and building owners to implement. Upon implementation, the commercial building will achieve operational energy reductions. Customers are expected to have a building management system, to provide a nominal commitment and to implement recommendations that have an 18-month simple payback or less. The Midstream Lighting program is a simplified marketing approach that targets lighting distributors that provide a point of purchase incentive to the customer for purchasing and installing energy efficient LED products.

Highlights
DTE Electric & DTE Gas
- Both Retro Commissioning and Business Energy Consultation were well received by customers and service providers.
- The greatest vertical market RCx opportunities are: large & small offices, K-12 schools, Colleges/Universities, and Hospitals.
- The greatest vertical market BEC opportunities are for all small business, especially small retail, restaurants, small grocery and houses of worship.
- Midstream Lighting was well received by C&I customers, distributors and trade allies.
- Midstream Lighting exceeded savings expectations and distributor participation.

Challenges
- Forecasting RCx spend and savings during a given program year, as the projects generally span 10-15 months.
- Creating awareness for new product offering.
- Training service providers and commercial customers on Retro Commissioning.
- Effectively increasing small business participation.
- Small business customers require different strategies and tactics than larger commercial & industrial customers.
- Identifying and on-boarding new distributors for Midstream Lighting to continue program growth.

Accomplishments
- Strong participation and interest in all three Emerging Measures & Approaches programs should carry over into future years.
- Michigan’s favorable economic climate continued, therefore commercial building owners and property managers could have a positive Return on Investment (ROI) by implementing RCx.
- Commercializing the Midstream Lighting program allowed the C&I portfolio to meet its increased EWR goals that were implemented while not negatively impacting the Prescriptive and Non-Prescriptive programs.
- Provided small business customers with an energy assessment to assist them in building a solid prioritized energy efficiency foundation.
- Proved that the midstream model was successful in the DTE Energy Service Territory.

Collaboration Efforts
- Collaborated with Efficiency UNITED and participated in the Michigan Commercial and Industrial Energy Conference.
- Worked to promote energy efficiency with Michigan Saves and PACE by co-presenting at events and sharing materials with customers.
- Collaborated with Michigan Saves to offer low cost financing to Michigan customers.
- Conducted three Product Knowledge workshops that targeted specific technologies in which DTE Energy designated trade allies were the main presenters.
- Sponsor and participate in advancing Michigan’s lighting control efforts through Lighting Technology Energy Solutions (LiTES) with a funding grant from the Department of Energy and being implemented by DTE Energy, Next Energy and Consumers Energy.
Lessons Learned

- Small business customers are receptive to learning about the benefits of EWR measures.
- Providing small business customers with an energy assessment provides them a prioritized foundation to begin their energy efficiency journey.
- Touching the largest number of small businesses will require multiple marketing strategies and additional resources will likely be needed.
- Commercial building owners and property managers require a positive ROI before they will implement energy efficient measures.
- Retro Commissioning projects will likely span program years; therefore, savings may be less than planned but could have higher implementation costs.

Spend and Verified Net Savings Results

**DTE Electric**

- DTE Electric spent $3.9 million on the Emerging Measures & Approaches programs. This amount was $2.9 million higher than the $1.0 million in the current plan. This overspend was funded through the C&I Prescriptive and Non-Prescriptive program portfolio.
- DTE Electric saved 30.6 GWh of verified net energy savings. This was 21.6 GWh more than the 2017 EWR plan.

**DTE Gas**

- DTE Gas spent $0.7 million on the C&I Emerging Measures & Approaches programs which was $0.3 million more than planned.
- DTE Gas saved 26.9 MMcf of verified net energy, which was 18.3 MMcf more than plan. The establishment of a BEC office in greater Grand Rapids area focused on small business customers directly attributed to over achieving savings objectives.

**Chart 42** summarizes the Emerging Measure & Approach program spend and savings.

Program Participation

**Chart 43** summarizes the DTE Electric Emerging Measures & Approaches program participation.

Program Outlook

- The Business Energy Consultation program will continue to provide energy assessments for small businesses to assist them in establishing an energy efficiency foundation.
- The Retro Commissioning offering will continue to target large-to-medium commercial businesses to provide them operational savings options.
- Spending and savings achieved for Emerging Measures & Approaches will continue to grow with additional midstream program strategies and operational saving opportunities.
COMMERCIAL & INDUSTRIAL (C&I)
SELF-DIRECT PROGRAM
(DTE ELECTRIC & DTE GAS)

Program Description
DTE Electric C&I customers are able to choose to self-direct and implement their own EWR plan. In 2017, six customers applied to the Self-Direct program. The main features of either Self-Direct program are similar. Customers who choose to self-direct are exempt from the mandatory EWR electric surcharge(s), with the exception of a portion of the surcharge that funds the Low-Income program, as well as the associated cost to administer the program.

For the 2017 DTE Electric Self-Direct program, DTE Electric placed a bill message on all commercial customer bills notifying them about the program and how to subscribe to the program. All existing self-directed customers were sent personalized letters to inform them it was time to re-apply. Account managers followed up with a phone call after the letters were mailed to address customer questions. The program information was also placed on the DTE website along with the required energy plan templates for customers to apply to the program.

DTE Gas established a Self-Direct program for C&I End Use Transportation (EUT) customers in 2013. A bill message was placed on all EUT customer bills notifying them about the program and how to subscribe to the program. Account managers followed up with a phone call after the letters were sent out to address customer questions. The program information was also placed on the DTE website along with the required energy plan templates for customers to apply to the program. Zero EUT customers have participated in this offering.

Highlights
- Six electric customers participated in the 2017 Electric Self-Direct program.
- No gas EUT customers participated in the 2017 Gas Self-Direct offering.
- Annual peak demand of 1 megawatt (MW) or greater per single site or annual peak demand of 5 MW or greater per aggregated sites of customers.
- Cannot include sites or accounts in a Self-Direct plan that have received an EWR rebate or incentive from an electric provider and are within the calculated waiting period.
- The waiting period in months is equal to the total rebate amount divided by the current month’s EWR surcharge.
- If the waiting period will lapse after the Self-Direct plan-filing deadline, but before the Self-Direct plan year begins on January 1, a customer may include those sites or accounts during the upcoming plan period.
- Self-Direct customers determine their energy reductions by multiplying their annual consumption by the percentage factor specified in PA 295. The designated energy savings factor for 2017 was 1.0 percent.

Lessons Learned
- Customers adhere to the program requirements, submitting plans and annual reports.
- Account managers assist in communication to those customers.
Spend and Verified Net Savings Results

**DTE Electric**
- DTE Electric spent $0.1 million on the C&I Self-Direct program.
- DTE Electric saved 5.6 GWh of energy savings as submitted in the Self-Direct plans.

**Chart 44** summarizes the C&I Self-Direct Spend and Verified Net Savings results.

**DTE Gas**
- DTE Gas spending and savings are not applicable because no EUT customers choose to participate in gas Self-Direct offering.

**Challenges**
- Communicating the program requirements to the applicable customers.
- Obtaining the customer’s annual reports.

**Accomplishments**
- All six customers’ reports were received on time.
- Five out of six customers reported meeting or exceeding their energy saving goal.

**Collaboration Efforts**
- Collaboratively worked with Consumers Energy on the reporting requirements to ensure program consistency.

**Program Participation**

**Chart 45** summarizes the DTE Electric C&I Self-Direct program participation.

**Program Outlook**
- Based on current participation, it is anticipated that the electric program will continue to have approximately six customers participate.
- DTE Gas Self-Direct program did not have any customers apply in 2017, so the projected spend and savings are zero.
Program Description
The objective of the EWR Education program was to provide DTE Electric residential and business customers with information and resources to help them learn how to utilize energy more efficiently and to better manage their energy costs. The DTE Energy website, mass media, social media and outreach campaigns, such as outbound mail, digital communications, community events and sponsorships are key channels to engage customers with energy efficiency information. In 2017, the Company continued to rely on our website, mass media and outreach campaigns targeting specific customer segments in an effort to increase their awareness of energy efficiency.

Highlights
In 2017, a 12-month mass media campaign and several direct outreach campaigns were implemented to continue to raise DTE customer awareness of energy efficiency and opportunities to participate in the EWR programs. Key campaigns conducted in 2017 are as follows:

- Residential campaigns including radio, television, print, direct mail and digital advertising focused on low-cost or no-cost tips. In addition, we introduced a new message theme related to making energy efficiency improvements to improve comfort.
- Small business campaigns including radio, television, print, direct mail and digital advertising focused on low-cost or no-cost tips, and featured case studies to illustrate how to achieve energy efficiency improvements.
- Messaging highlighted the added benefits of energy efficiency improvements to increase comfort, productivity, and enhance safety to improve the satisfaction of both the businesses customers and their employees.
- Contests and promotions through grocery stores and online quizzes.
- Events for residential and business customers such as the DTE Energy and ESD Energy Efficiency Conference, trade associations events, community festivals and Earth Day events.
- Sports sponsorships partnering with the Detroit Red Wings, Detroit Lions, Detroit Tigers, The Whitecaps and Griffins where direct activation opportunities were executed.

For the fourth year in a row, DTE sponsorships included the USGBC's Michigan Battle of the Buildings Competition to reach businesses.

- Employee outreach through the Company intranet, employee events, and monthly and weekly electronic newsletters.

As in previous years, new collateral with a fresh message was created in an effort to educate customers on energy efficiency. This included brochures, case studies, trinkets, ambassador cards, and energy saving-tips handouts. In addition, a print and digital magazine with in-depth information on how energy efficiency can be applied in businesses was developed in four editions. We also continued to utilize bill inserts, direct mail, email newsletters and digital tools and communications (online calculators, targeted and bilingual videos, social media posts, and website information) to engage customers in learning.

Challenges
In 2017, overall customer satisfaction with DTE Energy among residential and business customers remained a top priority. To help maintain and improve customer satisfaction, it is key to increase awareness of DTE’s energy efficiency information and tools to help customers achieve higher value from the energy they consume. As energy efficiency communications continue with our audience, we are always striving to find new ways to engage and break through the awareness barriers. Introducing the new messaging related to improving comfort and other non-energy benefits, such as safety, environment and productivity was one way we overcame this challenge in 2017. This was accomplished by keeping a steady state of outreach communications, and utilizing best practices in messaging and offerings that engaged our customers on energy efficiency education. In addition, ways to increase our reach with this information through the customer’s preferred communication channel were identified.
Accomplishments

• In 2017 DTE Energy was #1 in ranking compared to Midwest Utility companies peers for Familiarity with Energy Efficiency programs among electric and gas residential customers.
• In 2017, DTE Energy ranked #1 compared to Midwest Utility company peers among electric business customers and #2 among gas business customers for Familiarity with Energy Efficiency programs.

Key residential and business campaigns included the following:

**Residential**
- Detroit Lions sponsorship and contest—engaged fans through social media posts, web stories, email communications and on-site LED messaging. Garnered more than 51,000 entries.
- Detroit Red Wings sponsorship and contest—Engaged fans through email communications, website features and on-site scoreboard messaging. More than 60,000 entries were received.
- Participation in more than 51 community events.
- Executed 162 direct-outreach campaigns through direct mail, energy efficiency articles in our e-newsletter and DTE Energy blog, and bill inserts.
- Posted energy efficiency tips and promoted contests in social media among Twitter and Facebook.

**Business**
- Executed a new Business Pride contest among customers allowing them to tell their story of energy efficiency improvements and why they’re proud of their business. We then selected winners and provided them an energy efficiency makeover and developed their stories into media and communications to educate other business customers about energy efficiency.
- Executed 53 direct-outreach campaigns through direct mail, energy efficiency articles in our e-newsletter and DTE Energy blog, our Energy Smarts magazine, and bill inserts.
- Posted energy efficiency tips and promoted contests through social media using LinkedIn, Twitter and Facebook.

Collaboration Efforts

• Co-sponsored the Michigan Battle of the Buildings competition for the third year offered by the US Green Buildings Council. The competition is an awards and recognition program for energy use reduction that is open to all Michigan area commercial & industrial buildings. The program is a way to encourage energy efficient practices in buildings across the state and to instill a spirit of friendly competition among the area’s building owners and operators.

Lessons Learned

• Partnering with business organizations, such as chambers of commerce and associations, creates advocates for the programs and information.
• Mass media, such as TV and radio, are key to raising overall awareness of the program.
• Proactive communications are desired by our customers to help them manage their energy consumption.
• Personalized or tailored messages and offerings are meaningful to customers and have a higher positive impact on customer awareness and satisfaction.

Spend and Verified Net Savings Results

Chart 46 summarizes the spend and associated verified net savings results for E&A.

Program Outlook

As the E&A team continues to seek new and innovative approaches to educate customers and employees about energy efficiency, the focus will remain on the following key areas:

• Communicating the value of energy efficiency.
• Developing engaging messaging and content that are applicable for the residential and business audiences.
• Providing real-life examples that support the learnings and opportunities for other similar customers.
• Leveraging existing digital technologies like mobile applications and mobile-friendly web platforms.
• Providing educational tips and information that resonates with the target audience.

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**Chart 46 - 2017 E&A Spending and Verified Net Savings**

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PILOT PROGRAMS
(DTE ELECTRIC AND DTE GAS)

Program Description
Pilot programs are designed to explore electric and gas technologies and approaches not included in the foundational programs described in the approved 2017 EWR Plan. The pilot program enabled the Company to measure energy savings and test the cost effectiveness of emerging technologies. This program also tested customer adoption of new technologies and market adoption of existing technologies using new approaches. As designed, this program supported residential and C&I electric and gas programs.

Highlights
• The Pilot team targeted a variety of projects across the portfolio for the year of 2017.

Following are examples of Residential and C&I pilot projects implemented:

Residential Focus
HVAC Tune-Up pilot continues, developed as a joint effort between DTE and SEMCO ENERGY Gas Company to test the impact of energy efficiency-specific technologies and procedures on heating and cooling tune-up services. The Pilot leverages proprietary applications and tune-up procedures, testing this approach in a predominate heating climate. The Pilot aims to serve customers, train contractors, enhance system efficiency and cost-effectively increase associated deemed energy savings. DTE provided pilot funding for electric energy savings. The Pilot is expected to conclude in 2018.

The Heat Pump Dryers pilot is a marketing approach with the objective of driving market transformation by educating and incentivizing customers to achieve additional electric savings through the purchase of new Heat Pump Clothes Dryer technologies. The pilot incentivizes and promotes a variety of ENERGY STAR® Electric Heat Pump Dryer models to DTE electric customers through an assortment of marketing channels and supplements DTE's ENERGY STAR® program. This pilot is ongoing.

ENERGY STAR® Retail Product Platform (ESRPP) is a National scale, midstream initiative of energy efficiency program sponsors, retailers, program partners and stakeholders, facilitated by the U.S. Environmental Protection Agency. ESRPP enables DTE to engage national retailers to increase the demand for and supply of the most energy efficient residential plug-load devices and appliances on the market, driving the adoption of selected ENERGY STAR® certified products to reduce customers’ energy use. Through a combination of incentives and engagement, ESRPP influences retailers to stock and promote more energy efficient models than they would have, absent the program. The shift in efficient product availability seeks to accelerate energy savings as utility customers purchase and install more efficient models in their homes. In 2017, incentivized products included clothes dryers, freezers, room air cleaners, room air conditioners, sound bars, clothes washers and refrigerators. This pilot is ongoing.

Marketplace Enhancements piloted improvements to DTE's online store selling energy efficiency products and solutions. The work included planning and implementing site enhancements to improve DTE Marketplace's marketing and technical capabilities. The enhancements were designed to increase customer support, customer satisfaction and participation with the DTE Marketplace program offerings. This pilot is complete.

Manufactured Homes pilot objective is to develop a cost-effective solution to achieve energy savings for residential customers who live in manufactured homes. The pilot field-tested the installation of duct sealing in manufactured homes to achieve additional energy savings through infiltration reduction. The initial phase is completed. A second phase will be planned and implemented in 2018.

Power Together Ann Arbor pilot was a contest aimed at gaining greater energy efficiency awareness by partnering with the City of Ann Arbor. The contest encouraged customers to vote on a public project of their choice, with the winning project receiving $15,000 from DTE Energy. Upon registration and public project voting, residents were encouraged to participate in a Home Energy Consultation, On-Line Energy Audit, or to download the DTE Insight application and become eligible for a grand prize drawing. The contest looked to drive overall participation and awareness in energy efficiency programs, as well as to build constructive relationships with cities in the Company's service territory. The pilot contest was developed in 2016, executed in 2017, and is currently awaiting evaluation results.

DTE Insight AMR Gas is a research project to understand the viability of extending the DTE Insight app to approximately 500,000 residential customers in the DTE gas-only territory with an Automatic Meter Reader (AMR) meter. The pilot was offered to Wyandotte residents who would receive a monetary incentive and a technology kit (Energy Bridge, thermostat & smart plugs) from DTE for their participation. The pilot was deployed to customers in November of 2017. This Pilot is in progress.

Non-Wire Alternatives Analysis is to explore the potential for geographically targeted energy efficiency measures that
cost-effectively defer a distribution system upgrade. The focus included both Residential and C&I customer segments. The initial pilot analysis concluded in 2017 and a new study and field test are planned for 2018.

**Lighting Futures** study was implemented to determine future opportunities for both Residential and C&I customers to save energy, recognizing the successful market transformation to LED lighting. The pilot is in progress.

**Behavior Modification Report with Peak Demand Reduction** is a program implemented in the 2017 cooling season in conjunction with the existing Home Energy Report program to determine if peak-day notifications lead to greater energy savings. Five peak-day events were called in 2017 where customers were contacted and asked to reduce peak-hour consumption. Customers were contacted the day before the event, provided no-cost and low-cost tips on how to reduce usage and asked to make behavior changes to avoid using energy. Post-event emails provided their peak-period energy use along with their neighbors for comparison, as well as personalized recommendations for reducing energy use. This program is complete.

**Home Energy Management** (HEM) with DTE Insight is a pilot designed to understand customers’ willingness to pay for smart home products and smart home functionalities that save energy. This is an effort to determine the focus of customers’ desires when purchasing these products, and to quantify the operational costs of implementation for a variety of program approaches that support the smart home. Potential program approaches could include, but are not limited to, smart product bundles, an online marketplace with both à la carte item selections and basic to more complex kits of smart products. In 2017, these scenarios were explored through market research, benchmarking, competitive analysis, and various pricing scenarios. Additionally, DTE employees rigorously tested software and hardware in their homes. This included a new application and energy bridge platform, voice integration via Amazon Alexa, smart lightbulbs and smart thermostats.

**DTE Insight** is an application that complements HEM for mobile devices and gives customers with Automated Metering Infrastructure (AMI) meters a detailed real-time view of their daily, weekly, and monthly energy usage. This application includes a budget function, energy tips and projects, weekly energy saving challenges, and a virtual reward system for completing these challenges. The Company assesses customers’ changes in behavior and reduced energy consumption as a direct result of being influenced by the DTE Insight application. The pilot is ongoing.

**Commercial and Industrial Focus**

**Midstream Food Service Pilot** is an emerging approach using a simplified marketing strategy targeting food service equipment distributors. The goal is to change the distributor channel product stocking habits to include a higher proportion of ENERGY STAR® rated energy efficient food service products. Partnering with the food service distribution channels allows for flexibility and greater market insight. Customers and trade allies go to their food service distributor to better understand the various technical applications of food service equipment. By targeting the food service distributor channel, one can focus on fewer players that can impact many more downstream customers. The pilot is complete.


**Strategic Energy Management** offers technical support and financial incentives for customers interested in moving beyond project-by-project energy saving to managing energy
continuously in a holistic approach through Strategic Energy Management (SEM). This program offers up to 18 months of technical support, plus unique incentives. The incentives are paid on verified operational changes primarily involving HVAC systems that result in energy use reductions. The objective is to advance energy management capabilities and establish a continuous energy management process for enrolled customers. The pilot is currently targeting hospitals and is ongoing.

**E-Challenge Phase 3** is a pilot where DTE partnered with the Engineering Society of Detroit (ESD) to develop a collegiate challenge to test and validate new measures and approaches for C&I customers. The pilot produced three finalists. The results are expected in 2018.

**Business Energy Consultation Digital (Phase 2)** pilot’s intent was to introduce a digital engagement tool to enhance participation of small to medium sized business customers. The tool helped customers to fully understand the benefits of retrofitting energy efficient equipment and to guide them through the implementation process, including aiding in the selection of implementers utilizing online tools and custom software. By increasing customer engagement and participation with implementers, the expectation for the small business community was deeper energy savings through the retrofitting of energy efficient technologies. Additionally, the program offered the option for the customer to communicate via push notifications and online chat rooms. This tool can also be used for monitoring trade ally performance, and for quantifying customer’s willingness to engage in C&I prescriptive programs. The pilot is complete.

**Remote Energy Assessment Pilot (First Advisor)** pilot is testing a variety of outreach methods for business customers to receive remote energy assessments. The objective of this pilot is to determine how to improve both delivery and customer satisfaction for the small business segment. The pilot is on-going.

**Education Tools & Marketing Strategies** study was designed to investigate educational tools and marketing approaches to improve customer energy efficiency participation for C&I customers. The initiative captured feedback from text analysis of verbatim responses from customers, trade allies, direct customer interviews and focus groups for the development of educational tools and marketing strategies. The pilot is complete.

**Rooftop Unit Market Assessment** was performed to support a future midstream HVAC pilot. The assessment characterized the roof-top units (RTU) market in the DTE Energy service territory, and will define potential pilot energy efficiency program approaches that can help transform those RTU customers to higher efficiency levels. The pilot is on-going.

**New Commercial Energy Codes** supports the development of the training material for building code officials, builders, designers, contractors, architects, engineers, state code agencies and commercial trade allies. This activity is ongoing.

**Customer Participation and Program Sustainability** is a project designed to analyze and understand how to effectively increase program participation with all C&I customers. This evaluation identified customer and contractor participation, saturation levels, incentives, measure(s) and savings at the customer segment and site level. The pilot is complete.

**Trade Ally Expansion/Gas Multi-Measure Bundle** pilot assessed opportunities to increase gas multi-measure projects and achieve associated energy savings in targeted segments. When an application is received, the customer will be contacted directly and advised that they are a candidate for a bonus opportunity. This rapid experiment will serve as the implementation plan for those recommendations to test the market and verify the results of the study. The pilot is complete.

**Strategic C&I Research Project** was designed to better understand how to effectively increase program participation with all C&I customers throughout our service territory (SE Michigan and Greater Michigan). Through this evaluation, the Company identified customer and contractor participation by incentives, measure(s) and savings from the segment level down to the customer-site level. DTE Gas also incorporated contractors’ and ‘Trade Allies’ participation at the customer incentive, savings and measure levels. This data will be used to develop marketing strategies and campaigns that will increase participation among underserved customer segments. This pilot is complete.
Accomplishments

- Explored multiple midstream and upstream program designs including the Food Services pilot and the ENERGY STAR® Retail Product Platform.
- Engaged the Ann Arbor community with the Power Together pilot, stimulating greater participation in energy efficiency in partnership with the Ann Arbor Green Fair.
- Partnered with colleges to test and validate potential new measures through E-Challenge (Phase 3) competition.
- Served the small-to-medium business community by investigating customer engagement with the Business Energy Consultation (Phase 2) Pilot and Remote Energy Assessment (First Advisor).
- Launched the C&I Strategic Energy Management pilot initiative, exploring aggregate energy efficiency opportunities to build and maintain operational improvements.

Spend and Verified Net Savings Results

Chart 47 summarizes the spend and associated verified net savings results.

**DTE Electric**

- Consistent with the 2017 planned spend, DTE Energy spent $4.7 million on the Electric EWR pilot program.
- Energy savings were determined to be 28.6 GWh in electric savings, 0.2 GWh over the planned 28.4 GWh.

**DTE Gas**

- DTE spent $1.3 million on the gas EWR pilot program. Pilot program funds were primarily spent on contracted services and incentives for the projects outlined above, as well as on the cost of internal administration to manage the portfolio of projects.
- The pilot program had 70.7 MMcf in gas savings, which was 1.5 MMcf over the planned 69.2 MMcf.

Program Outlook

- C&I focus on evolving new midstream marketing approaches.
- Residential focus on new marketing approaches and methods.
- Low-income initiatives to retrofit existing manufactured housing stock for improved efficiencies and comprehensive retrofits for multifamily housing.
- Geographically targeting energy efficiency initiatives to evaluate the potential to cost-effectively defer, reduce need for, or narrow scope of distribution system capital investments.
- Testing and studying new ideas to fill future portfolio gap related to residential lighting.

![Chart 47 - 2017 Pilot Program Spending and Verified Net Savings](image-url)
ENERGY WASTE REDUCTION PROGRAM ACHIEVEMENTS
Energy Savings

- Since its inception in 2009, more than 2.9 million electric customers and 2.1 million gas customers have directly participated in DTE’s energy efficiency programs.
- As a result, DTE customers have saved approximately 5,096 gigawatt hours (GWh) and over 11,248 million cubic feet (MMcf) since the program started. The savings achieved so far will continue for years into the future.
- The electric savings are equivalent to the energy required to power all the homes in cities similar in size to Lansing or Ann Arbor, Michigan, for over thirteen years.
- The gas savings are equivalent to the energy required to heat the same number of homes in cities similar in size to Lansing or Ann Arbor, Michigan, for almost two years.
- The electric savings resulted in DTE Energy not building half of a new coal-fired power plant.
- DTE Energy’s EWR program has been ranked highly with respect to cost effectiveness and savings compared with other utility companies, in a recent internal benchmarking study.

Monetary Savings

- Our customers have benefited as a result of our energy efficiency offerings. Residential customers pay an average of $36 annually or less than 2 percent of their total bill for combined energy efficiency gas and electric surcharges (Electric customers pay on average $23 and gas customers pay on average $13).
- For every $1 spent on energy efficiency programs, DTE Energy customers will save more than $4.81 in avoided energy costs.
- DTE Energy’s investment in energy efficiency programs in 2017 will top $118.7 million. Customers participating in EWR programs in 2017 will save $649 million on their energy bills in present value energy over the lifetime of the measures implemented. This comprises savings of $578 million on electric bills and $70 million on natural gas bills.

Economic Development Benefits

- DTE’s EWR program resulted in implementation contractors (ICs) establishing local offices (in Detroit, Livonia, Lansing and Grand Rapids) and the hiring of local talent to operate and manage their respective programs.
- Through 2017, 258 Michigan-based jobs have been created by the ICs under contract and with DTE Energy as summarized in Table 8. These jobs include field operations staff, appliance pick-up drivers, call center representatives and program managers.
- Throughout the state of Michigan, over 2,400 small- and medium-sized contractors have actively participated with utilities in various EWR programs.
- Customers and communities benefit from the new jobs and investment in the community.

Table 8 - Implementation of Contractor Jobs

<table>
<thead>
<tr>
<th>IC Name</th>
<th>Michigan-Based Jobs</th>
</tr>
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<tbody>
<tr>
<td>DTE Energy</td>
<td>35</td>
</tr>
<tr>
<td>ICF International</td>
<td>37</td>
</tr>
<tr>
<td>Solutions for Energy Efficient Logistics (SEEL)</td>
<td>67</td>
</tr>
<tr>
<td>DNV-GL</td>
<td>52</td>
</tr>
<tr>
<td>Navigant Consulting</td>
<td>5</td>
</tr>
<tr>
<td>Walker Miller Energy Solutions</td>
<td>70</td>
</tr>
<tr>
<td>Ignite</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>270</td>
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Program Participation

Since its inception in 2009, more than 2.9 million electric customers and 2.1 million gas customers have directly participated in DTE’s energy efficiency programs. Customers have upgraded equipment, enabling them to be more energy efficient year after year. They have also been educated on simple actions they can take to save on their energy use on a continuing basis.

- In 2017 alone, more than 550,000 DTE Electric customers and 470,000 DTE Gas customers took control of their energy use through the EWR program and saved millions of dollars as a result.

- Based on survey results, over 95 percent of participating customers were satisfied with the EWR program.

To give some perspective on the magnitude of this effort, here are some of DTE Energy’s 2017 accomplishments:

- Over 580,000 residential customers received Home Energy Reports and over 29,000 Home Energy Consultations were performed at customers’ homes, helping them save energy.
- Similarly, over 1,900 small-to-medium sized business customers received Business Energy Consultations at their places of business.
- DTE distributed over 160,000 LED bulbs to approximately 10,000 low-income customers in partnership with local food banks.
- DTE incentivized approximately 25,000 CFL and almost 5 million LED light bulb sales through manufacturer buy-downs at retailers, and via in-store coupons at small independent hardware stores.
- Over 26,000 appliances were recycled.
- Over 24,000 customers benefited from HVAC upgrades.
- DTE customers received 21,000 energy saving kits in their homes.
- Over 7,000 of DTE Energy’s low-income customers have received home weatherization, furnace tune-up or replacement funding.
- 126,000 low-income customers received almost 188,000 ENERGY STAR® certified light bulbs. These included more than 166,000 LED light bulbs.
- 353 schools, 23,581 electric students, 23,635 gas students, and 1,127 teachers participated in the Residential School program.
- Business customers received the benefits from participation in more than 150,000 incentives, including more than 147,000 electric-related recipients and over 3,000 gas-related recipients.
- Most C&I markets were served including light and heavy industry, retail, grocery, hospital, hotel and educational institutions.
Environmental Benefits
Since 2009, the following environmental benefits achieved from the electric and gas savings are equivalent to:

- Greenhouse gas emissions avoided by recycling more than 1,536,000 tons of waste instead of sending it to the landfill, equivalent to 219,000 garbage trucks.
- The annual carbon emissions reduction from almost 476,000 homes’ energy use for one year.
- A reduction in the greenhouse gas emissions equivalent to more than 944,000 cars driven in one year.
- The carbon removed by 5.1 million acres of forest in one year.
- The carbon emissions from over 660,000 homes for a year.

Source: EPA Equivalency Calculator

Program Administration
Evaluation, Measurement and Verification (EM&V)
Michigan’s EWR construct requires independent verification of the utilities’ claimed energy savings. This work is performed by an independent Evaluation, Measurement and Verification (EM&V) contractor and must be performed to industry standards and guidelines developed by the Evaluation Workgroup of the MPSC Energy Optimization Collaborative. Currently, Navigant Consulting fulfills this role for DTE Energy. DTE Energy and its evaluation contractor are active participants in the Evaluation Workgroup, along with Consumers Energy and cooperative and municipal utilities, with their respective evaluation contractors and the MPSC staff. In addition to developing guidelines for evaluation, members of the Collaborative established a statewide resource for technical energy savings values for thousands of energy efficient measures, known as the Michigan Energy Measures Database (MEMD). MEMD enables fast and efficient entry, tracking and evaluation for the vast majority of measures installed in Michigan EWR programs, regardless of program provider. The MEMD is managed by Morgan Marketing Partners under contract to the MPSC. The Evaluation Workgroup oversees the management and updating of MEMD. Updating measure values to reflect changes in standards, incorporate newer studies, etc., and make them more representative of Michigan follows a well-defined process involving all stakeholders. DTE Energy and Consumers Energy work together with their evaluation contractors to conduct foundational research on important measures to develop up-to-date Michigan-based values. Since 2009, numerous additions and “calibrations” have been made to MEMD to make the values more encompassing, accurate and Michigan-specific.

Implementation Contractors
Table 9 is a summary of the ICs assigned to the various EWR programs.

<table>
<thead>
<tr>
<th>EWR Program</th>
<th>IC Name</th>
<th>Corporation Location</th>
<th>Local Office</th>
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<tbody>
<tr>
<td>ENERGY STAR® Products, HVAC, Audit &amp; Weatherization</td>
<td>ICF International/Ignite</td>
<td>Fairfax, VA</td>
<td>Detroit, MI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Birmingham, MI</td>
<td>Birmingham, MI</td>
</tr>
<tr>
<td>Online Energy Audits, Energy Efficiency Assistance, Home Energy Consultations, Multifamily, Schools</td>
<td>Walker-Miller Energy Services</td>
<td>Detroit, MI</td>
<td>Detroit, MI</td>
</tr>
<tr>
<td>Business Energy Consultations, Appliance Recycling, Behavior</td>
<td>Solutions for Energy Efficient Logistics (SEEL)</td>
<td>Detroit, MI</td>
<td>Detroit, MI</td>
</tr>
<tr>
<td>C&amp;I Programs</td>
<td>OPower</td>
<td>Arlington, VA</td>
<td>N/A</td>
</tr>
<tr>
<td>EM&amp;V</td>
<td>Navigiant Consulting</td>
<td>Chicago, IL</td>
<td>Ann Arbor, MI</td>
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FUTURE PLANS

Our goal is to promote long-term energy policy that achieves affordability and reliability for our customers and is adaptable to the changing energy landscape. As a force for growth in Michigan, we believe it is our responsibility to support constructive, balanced policies that benefit the state’s families and businesses.
Michigan, and the entire United States, has entered a period of the most profound transformation of the power generation sector since World War II. Many factors will affect Michigan’s energy portfolio moving forward, such as:

- The aging of our coal fleet.
- The emergence of cost-competitive energy generation.
- State and federal clean energy policies.

This transformation is under way; retirement of older and less efficient coal plants has already begun. Determining the type of new generation that will replace that coal-fired capacity must take many factors into account, including the projected costs of different technologies and fuel sources, their operating characteristics and their environmental impact. As we weigh the effects of plant retirements on Michigan’s energy future, energy efficiency can be a low-cost resource for addressing future supply needs as part of a diverse, cleaner portfolio and will play an important part of our generation portfolio going forward. DTE Energy envisions a cleaner, more diverse energy portfolio for Michigan. Our focus is on managing the replacement of retired generating facilities in a way that does not compromise affordability and reliability for our customers.

In December 2016, the Michigan Legislature and Governor Rick Snyder enacted a comprehensive new energy policy, which became effective April 20, 2017. Among its provisions, the law promotes a clean energy goal that includes energy efficiency, includes a three-tiered shared incentive mechanism and introduces the requirements for Integrated Resource Planning (IRP). To comply with the requirements of the new energy legislation, DTE Energy filed an amended EWR Plan covering the 2017 program year on May 10, 2017. The Company also filed an EWR Plan covering years 2018 through 2019, which was approved on April 12, 2018. Additionally, the company filed an Integrated Resource plan on July 31st, 2017, which provided a long-term outlook for DTE Energy’s energy efficiency program.

**Challenges**

Opportunities and challenges lie ahead, and the Company is well-positioned to continue to provide value to its customers and other stakeholders through a robust and well-run energy efficiency program. Beyond 2017, achieving current savings levels will continue to become more challenging as codes and standards continue to change and technology evolves. DTE will need to reach more customer markets and segments to increase participation. In addition, the Company may face other challenges such as:

- Depletion of low-cost, high-potential programs.
- Diminishing lighting potential as a result of the Energy Independence and Security Act (EISA).
- Customer baseline installed efficiency keeps rising as energy efficiency programs and other factors make customers more energy conscious.
- Marketing costs increase when attempting to capture hard-to-reach segments.
- Uncertainty around new technologies that have not yet developed.

Outcomes of energy policy discussions at State and Federal levels may also impact EWR program savings targets. There is currently a heavy emphasis on expanding the role of energy efficiency in Michigan’s future energy portfolio by pursuing energy efficiency programs as part of the Integrated Resource Planning (IRP) process, which could impact energy efficiency savings levels.
CONCLUSION

2017 was another successful year for DTE Energy’s EWR program. The year was successful in all key areas: Energy savings, spending and participation. Customers were made aware of energy efficiency benefits and the programs offered by DTE Energy via innovative approaches and targeted marketing campaigns.
Customer experience was enhanced by improving the content of the website, creating new educational tools and resources, and expanding social media and contests. Programs were upgraded and delivered with high quality, meeting the ever-rising level of customer expectations. Promising pilot programs were transitioned to full program offerings, and additional pilots were undertaken to stay ahead of the technology curve and to test innovative market approaches. Continuous Improvement activity rose again in 2017 as several efforts were undertaken to eliminate defects and improve efficiency in our processes. Collaboration with other utilities, and the energy efficiency community at large provided additional benefit to DTE Energy’s customers.

DTE Energy is well-positioned to meet the challenges and take advantages of the opportunities that lie ahead, and we will continue to provide value to our customers and other stakeholders through a robust and well-run energy efficiency program. Our strategic efforts have resulted in increased awareness, improved experiences and higher satisfaction among our customers.

2018 will be another pivotal year for DTE Energy’s EWR program, as the Company is focused on continuing to work with key stakeholders on securing Michigan’s energy future in light of unprecedented industry and energy policy changes. As our EWR program continues to mature, we will continue our journey to become the best-operated energy efficiency program in North America.