

ENERGY WASTE REDUCTION

2018 ANNUAL REPORT

DTE

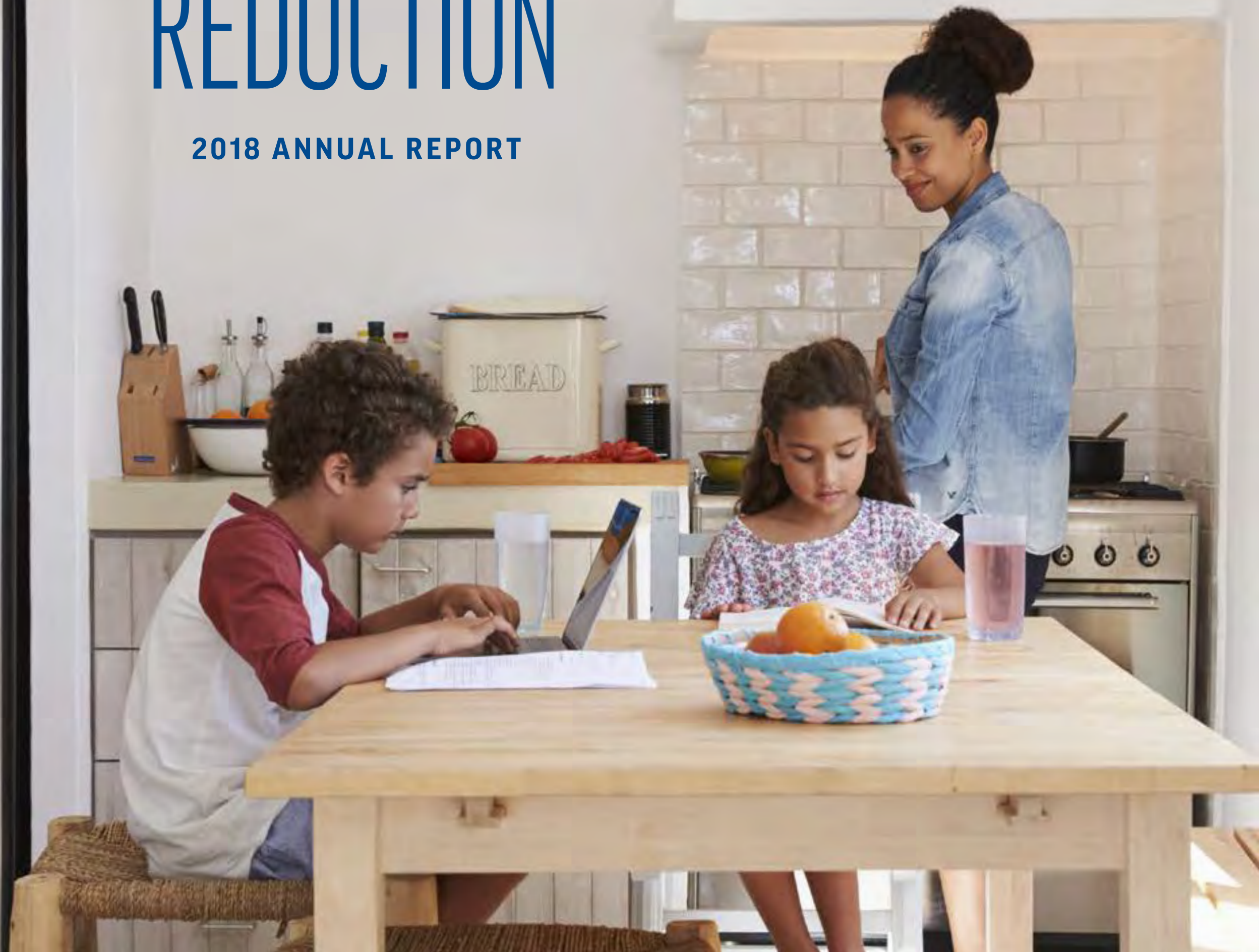


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Executive Summary

The purpose of this annual report is to highlight the general results of DTE's 2018 Energy Waste Reduction (EWR) program, communicate program changes, and provide policy overview.





DTE Energy's EWR program 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 3.8 million electric customers and 2.7 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 5096 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 2018, DTE implemented its EWR Program as outlined in the approved 2018 EWR plan. DTE utilizes implementation contractors and has built strong networks to deliver energy efficiency-programs throughout the State of Michigan. DTE has continued to provide energy-efficiency education and raise awareness of EWR offerings by enhancing communications and messaging while leveraging new trends in digital and social media communication channels. In 2018, while DTE continued to utilize targeted marketing to meet segment-specific needs for energy-efficiency information, traditional mass media was also used, with a focus on non-energy benefits of energy-efficiency improvements. The Pilot program process worked well in 2018, increasing DTE's Pilot program productivity. DTE'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 2018 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 2018 goals were to:

1. Achieve legislated electric energy-savings of 1 percent of 2017 planned retail sales or 471 gigawatt hours (GWh) and achieve legislated gas energy-savings of 0.75 percent of 2017 planned retail sales or 1,286 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 energy company 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 2018, DTE applied a 0.92 NTGR to most programs. DTE applied a NTGR of 1.00 for low-income, pilots, and education and a 0.90 for standard and reflector Light Emitting Diodes (LED) bulbs within the Residential ENERGY STAR® Products program, as approved by the Commission on April 12, 2018, for DTE's EWR Plan Case No. U-18262. A NTGR is not applied to: (1) Tier 1 Thermostats delivered by Commercial & Industrial programs; (2) Tier 2 and Tier 3 Thermostats delivered by Residential programs; (3) the Residential Home Energy Report program; (4) Smartphone Behavior Application program (DTE Insight); and (5) Real Time Data Add-on to Smartphone Behavior Application program, as savings represent verified net savings.

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.

DTE has adopted verified net savings for reporting of energy-savings in 2018 as agreed to in the EWR Collaborative. DTE's EWR program resulted in total verified net electric savings of 728 GWh, or 1.55 percent of 2017 planned retail sales, as compared to the minimum legislative requirement of 471 GWh. For DTE Gas, the total verified net gas energy-savings was 1,750 MMcf, or 1.02 percent of 2017 planned retail sales, as compared to the minimum legislative requirement of 1,286 MMcf.

In 2018, DTE Electric spent \$106.6 million compared to the planned \$105.2 million, whereas DTE Gas spent \$27.7 million compared to the planned \$26.4 million.

Chart 1 – 2018 EWR Program Spending and Verified Net Savings

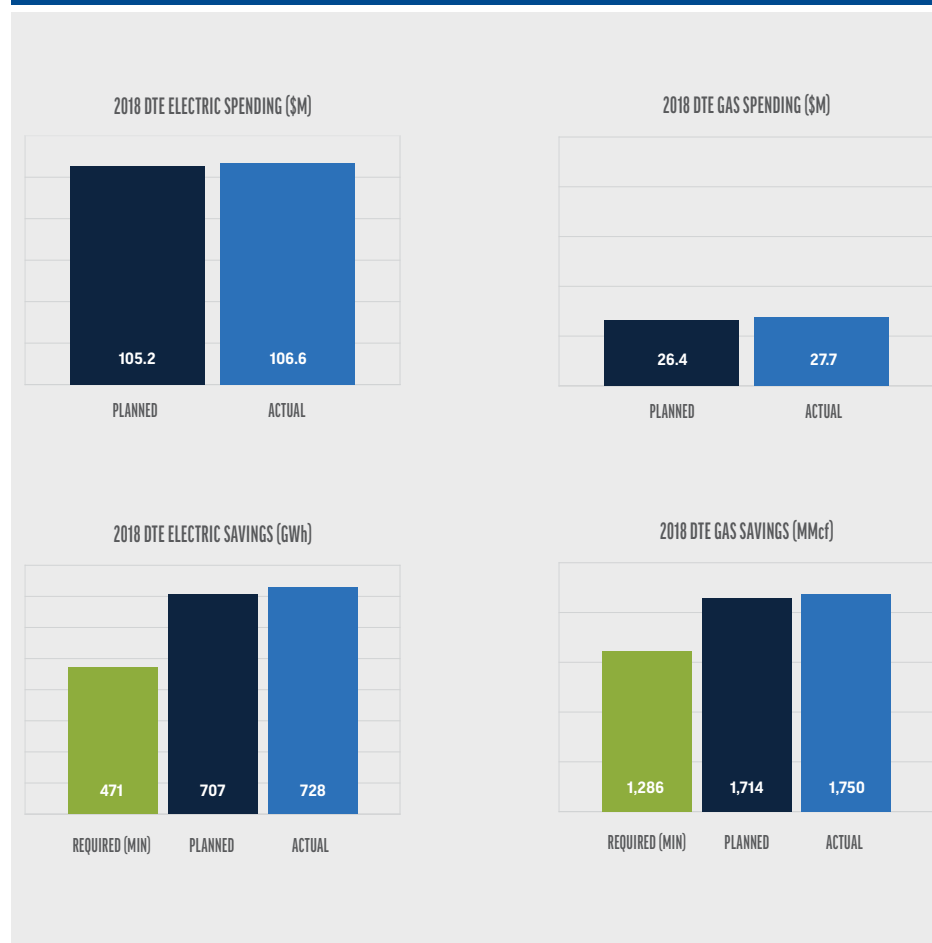


Chart 1 summarizes the overall EWR program 2018 spending and verified net savings for DTE Electric and DTE Gas.

Each EWR program has its own spending and verified net saving requirements. For DTE Electric, collectively, the Residential and Low-income programs provided 300 GWh of verified net energy-savings, and C&I programs, including self-direct, provided 371 GWh. DTE Electric achieved 57 GWh savings from the Education and Pilot programs. For DTE Gas, collectively, the Residential and Low-income programs provided 895 MMcf of verified net energy-savings and C&I programs provided 722 MMcf. DTE Gas achieved 132 MMcf savings from the education and pilot programs.

Chart 2 displays program spending and verified net savings for the various EWR programs in 2018.

Long-term EWR Impacts

Even though Michigan's EWR programs are only nine years old, they have matured quickly and regulators and other participants are 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 2018 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 a collection of measures, a program, or a portfolio of programs. As presented for DTE'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.

Chart 2 – 2018 EWR Spending and Verified Net Energy Savings by Program

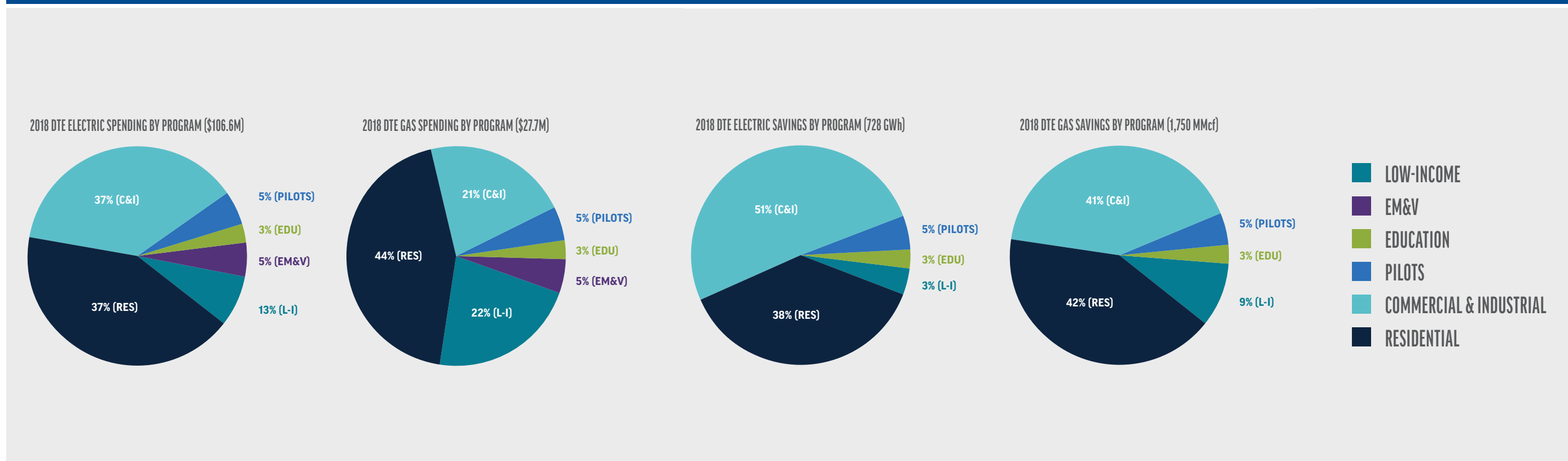


Table 1 displays that DTE’s 2018 EWR programs produced very significant dollar savings for its customers for future years.

DTE 2018 EWR Programs – Lifecycle Dollar Savings (All Values in Dollars)

Program	DTE Electric Present Value	DTE Gas Present Value
Residential		
Residential and Small Business ENERGY STAR® Products	\$163,136,813.45	\$1,718,889.88
Residential Appliance Recycling	\$16,077,175.16	-
Residential HVAC	\$9,633,262.50	\$11,821,198.24
Multifamily–Standard (MFR)	\$995,303.23	\$283,206.73
Residential Audit & Weatherization	\$959,208.17	\$1,364,256.48
Residential HEC	\$8,634,885.14	\$4,205,688.77
Residential Schools	\$2,688,997.00	\$1,934,790.40
Residential Online Energy Audit (OEA/HES)	\$2,696,793.46	\$989,057.75
Residential Behavior Programs (HER/INS)	\$6,007,226.33	\$860,933.52
Residential Emerging Programs (EP)	-	-
Residential Subtotal	\$210,829,664.44	\$23,178,021.76
C&I		
C&I Prescriptive (CIP)	\$145,054,210.56	\$29,751,848.15
C&I Non-Prescriptive (C&I Custom/RFP)	\$101,668,283.98	\$1,846,517.90
Business Energy Consultation (BEC)	\$3,862,599.52	\$927,598.70
Midstream Commercial Lighting (MSL)	\$29,888,779.80	-
C&I Retro-Commissioning (RCx)	\$217,308.14	\$3,043.79
C&I Emerging (MSFS)	\$662,527.86	\$171,348.71
C&I ENERGY STAR Retail Lighting (ESL)	\$6,575,484.65	-
C&I Multifamily Common Areas (MFC)	\$1,012,790.29	\$437,481.89
C&I Self-Direct	\$313,558.86	-
C&I Subtotal	\$289,255,543.66	\$33,137,839.15
Pilot	\$28,200,960.46	\$3,956,353.86
Low-Income–All (includes EEAP, LI Multifamily, LI HEC, LI HER)	\$13,528,714.58	\$4,309,140.30
Education	\$17,319,799.70	\$2,343,139.01
Portfolio	\$559,134,682.83	\$66,924,494.09

Table 1- Lifecycle Dollar Savings

II. Lifecycle Energy-Savings: This represents the total cumulative program energy-savings (GWh 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 (KW): One particular concern for electric EWR programs is to deliver 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.

Table 3 shows that the DTE Electric 2018 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.

DTE 2018 EWR Programs – Lifecycle Energy Savings

Program	DTE Electric MWh <i>Impact and Savings Cumulative (Losses Included)</i>	DTE Gas Mcf <i>Impact and Savings Cumulative (Losses Included)</i>
Residential		
Residential and Small Business ENERGY STAR® Products	2,407,510,643.26	5,017,456.34
Residential Appliance Recycling	257,194,765.76	-
Residential HVAC	151,526,278.74	39,133,332.08
Multifamily–Standard (MFR)	14,814,795.27	831,413.81
Residential Audit & Weatherization	16,681,169.71	5,436,485.72
Residential HEC	129,303,360.28	12,638,175.04
Residential Schools	45,595,684.48	5,879,802.75
Residential On-Line Energy Audit (DEA/HES)	44,894,602.65	3,079,384.28
Residential Behavior Programs (HER/INS)	66,984,301.01	1,928,376.20
Residential Emerging Programs (EP)	-	-
Residential Subtotal	3,134,505,601.17	73,944,426.22
C&I		
C&I Prescriptive (CIP)	2,724,874,452.49	107,204,522.07
C&I Non-Prescriptive (C&I Custom/RFP)	2,040,160,285.12	7,424,707.79
Business Energy Consultation (BEC)	59,534,571.65	2,803,108.19
Midstream Commercial Lighting (MSL)	559,630,495.84	-
C&I Retro-Commissioning (RCx)	3,917,372.08	7,452.03
C&I Emerging (BEC/EPC/RCx)	11,583,112.84	551,300.49
C&I ENERGY STAR Retail Lighting (ESL)	96,852,277.80	-
C&I Multifamily Common Areas (MFC)	22,791,880.54	1,540,079.66
Self-Direct	5,407,206.48	-
C&I Subtotal	5,524,751,654.84	119,531,170.24
Pilot	568,459,442.17	13,509,286.69
Education	342,487,829.11	7,976,204.71
Low-Income–All (includes EEAP, LI Multifamily, LI HEC, LI HER)	205,997,874.11	13,327,087.90
Portfolio	9,776,202,401.40	228,288,175.75

Table 2 – Lifecycle Energy Savings

DTE 2018 EWR Programs – DTE Electric Peak Demand Savings

	Residential	2018 Verified Net Peak Demand Savings MW
Residential ENERGY STAR Products		16.76
Residential Appliance Recycling Program		3.61
Residential HVAC Program		2.39
Multifamily–Standard (MFR)		0.10
Residential HEC Program		0.84
Residential Audit and Weatherization Program		0.32
Residential School Program		0.29
Residential Online Energy Audit (OEA)		0.26
Residential Behavior Programs (HER/INS)		23.61
Residential Emerging Programs (EP)		0.00
Residential Subtotal		48.19
C&I		
C&I Prescriptive		25.26
C&I Non-Prescriptive (C&I Custom/NC/RFP)		13.05
Retro-Commissioning		0.00
Business Energy Consultation		1.26
Midstream Lighting		8.02
ENERGY STAR Retail Lighting		2.78
Multifamily Common Areas		0.08
C&I Emerging (MSFS)		0.17
Self-Direct		0.69
C&I Subtotal		51.31
Low-Income–All (includes EEAP, LI Multifamily, LI HEC, LI HER)		6.68
Pilot		5.58
Education		3.38
Total EWR Portfolio		115.14

Table 3 – DTE Electric Peak Demand Savings

IV. Cost of Conserved Energy: The Cost of Conserved Energy 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 2018 EWR programs were in terms of the costs per unit of the energy-savings achieved.

V. Weighted Average Measure Life: 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.

Table 5 summarizes the average measure life for the various 2018 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 costs in a cost-effective manner for the energy company 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 2018 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 participant's costs.

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

Energy company input assumptions contain information that is specific to the energy company and include items such as load shape, the commodity and non-commodity cost of energy,

*DTE 2018 EWR Programs
DTE Cost of Conserved Energy (CCE)*

Program	DTE Electric	DTE Gas
Residential	\$/Lifetime Savings kWh	\$/Savings CCF
Residential and Small Business ENERGY STAR® Products	\$0.01	\$0.11
Residential Appliance Recycling	\$0.03	\$0.00
Residential HVAC	\$0.03	\$0.13
Multifamily–Standard (MFR)	\$0.02	\$0.48
Residential Audit & Weatherization	\$0.05	\$0.22
Residential HEC	\$0.04	\$0.23
Residential Schools	\$0.02	\$0.09
Residential Online Energy Audit (OEA/HES)	\$0.03	\$0.23
Residential Behavior Programs (HER)	\$0.08	\$0.46
Residential Emerging Programs (EP)	\$0.00	\$0.00
Residential ALL	\$0.02	\$0.21
C&I		
C&I Prescriptive	\$0.01	\$0.03
C&I Non-Prescriptive (C&I Custom/RFP)	\$0.01	\$0.21
Business Energy Consultation (BEC)	\$0.03	\$0.30
Midstream Commercial Lighting (MSL)	\$0.01	\$0.00
C&I Retro-Commissioning (RCx)	\$0.00	\$0.10
C&I Emerging (MSFS)	\$0.03	\$0.73
C&I ENERGY STAR Retail Lighting (ESL)	\$0.00	\$0.00
C&I Multifamily Common Areas (MFC)	\$0.01	\$0.17
Self-Direct	\$0.02	\$0.00
C&I ALL	\$0.01	\$0.07
Pilot	\$0.01	\$0.10
Education	\$0.01	\$0.10
Low-Income–All <i>(includes EEAP, LI Multifamily, LI HEC, LI HER)</i>	\$0.07	\$0.46
Portfolio (No LI Include Incentive)	\$0.01	\$0.13

Table 4 – DTE Cost of Conserved Energy

*DTE 2018 EWR Programs
DTE Weighted Average Measure Life*

Program	DTE Electric kWh	DTE Gas CCF
Residential	Program Weighted Life	Program Weighted Life
Residential and Small Business ENERGY STAR Products	14.90	9.86
Residential Appliance Recycling	8.00	-
Residential HVAC	11.13	15.36
Multifamily–Standard (MFR)	14.73	9.98
Residential Audit & Weatherization	24.39	23.89
Residential HEC	14.71	11.00
Residential Schools	13.10	11.23
Residential Online Energy Audit (OEA/HES)	14.02	12.29
Residential Behavior Programs (HER/INS)	1.00	1.00
Residential Emerging Programs (EP)	-	-
Residential Subtotal	13.86	13.98
C&I		
C&I Prescriptive	15.15	18.30
C&I Non-Prescriptive (C&I Custom/RFP)	18.20	22.95
Business Energy Consultation (BEC)	7.94	10.58
Midstream Commercial Lighting (MSL)	12.76	-
C&I Retro-Commissioning (RCx)	3.00	3.00
C&I Emerging (MSFS)	12.87	13.15
C&I ENERGY STAR Retail Lighting (ESL)	6.00	0.00
C&I Multifamily Common Areas (MFC)	14.18	17.84
Self-Direct	1.00	-
C&I Subtotal	15.78	18.38
Pilot	15.00	16.00
Education	15.00	16.00
Low-Income–All <i>(includes EEAP, LI Multifamily, LI HEC, LI HER)</i>	14.02	12.67
Portfolio	15.05	16.44

Table 5 – Weighted Average Measure Life

customer energy rates, line losses, weather, and discount rates. The energy company 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 2018 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 EWR Plan spend and exceeded the legislated energy-savings minimums by 257 GWh or 55 percent (728 GWh versus the legislated minimum of 471 GWh) in response to achieving the performance objectives stated in the legislation (PA 342). While DTE Gas overspent its EWR Plan spend by \$1.3 million, legislated energy-savings minimums were exceeded by 464 MMcf or 36 percent (1,750 MMcf versus the legislated minimum of 1,286 MMcf) in response to achieving the performance objectives stated in the legislation (PA 342). Even before performing any cost tests, these two facts in combination show that the program was 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 4.78 was achieved based on the 728 GWh verified net energy-savings. For DTE Gas, a USRCT score

of 2.30 was achieved based on the 1,750 MMcf verified net energy-savings. In 2018, DTE Electric and DTE Gas collected \$102.1 million and \$23.9 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 below are the actual amounts that were billed to DTE customers (excluding Performance Incentive) in 2018 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 2018 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 2018 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,

Chart 3 – 2018 EWR Programs Revenues (Surcharges)

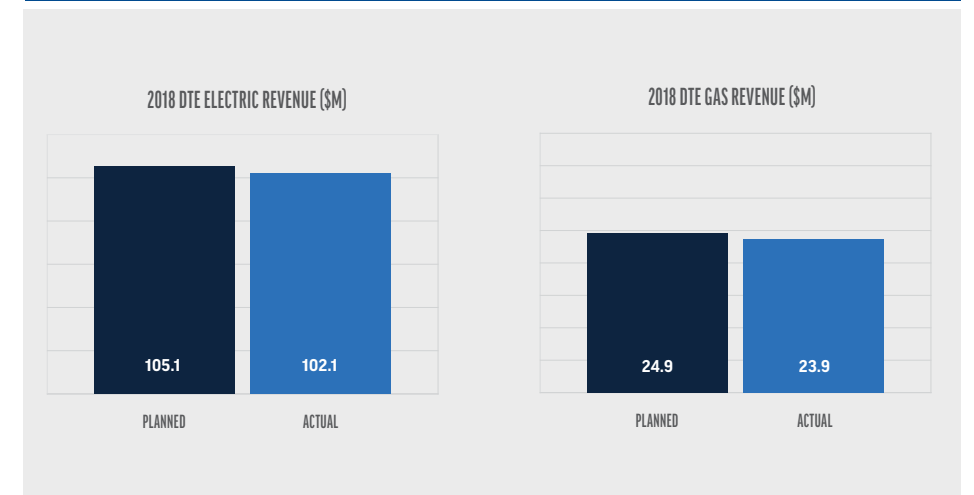
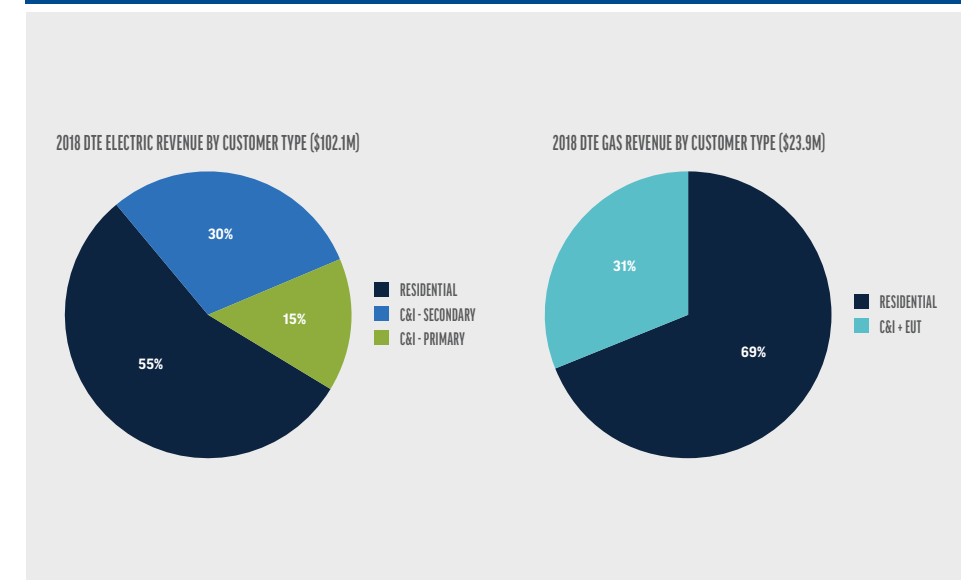


Chart 4 – Revenue Collected for EWR Programs in 2018



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 November 5, 2015. The incremental gas 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. On September 15, 2017, the Commission issued an Order in DTE's Amended EWR

Plans approving the continuation of the 2017 surcharges until revised surcharges were approved in the Company's 2018-2019 DTE Electric and DTE Gas Plans. The DTE Electric and DTE Gas base rates subsequently approved on April 12, 2018, were implemented for billing from May 1, 2018, through December 31, 2018. In addition, the Commission's December 20, 2017, Order authorized both DTE Electric and DTE Gas to include incremental surcharges, beginning January 1, 2018, and ending on December 31, 2018, to recover the performance incentive as approved by the Commission in the 2016 DTE Electric and DTE Gas EWR Reconciliations.

Electric and Gas Surcharge

As discussed above, the EWR base electric and gas surcharges approved in Case No. U-18262 and U-18268, respectively, were implemented for billing from May 1, 2018, through December 31, 2018. During the preceding months of January through April 2018, the rates from the prior EWR plan remained constant for Residential, and Commercial and Industrial (C&I) customers, as approved by the Commission in DTE's Amended EWR Plan. Charts 5 and 6 outline the 2018 EWR base surcharges compared to the previous years. These charts exclude the performance incentive.

Charts 5 and 6 outline the 2018 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 2018, 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.

Chart 5 - DTE Electric Surcharges

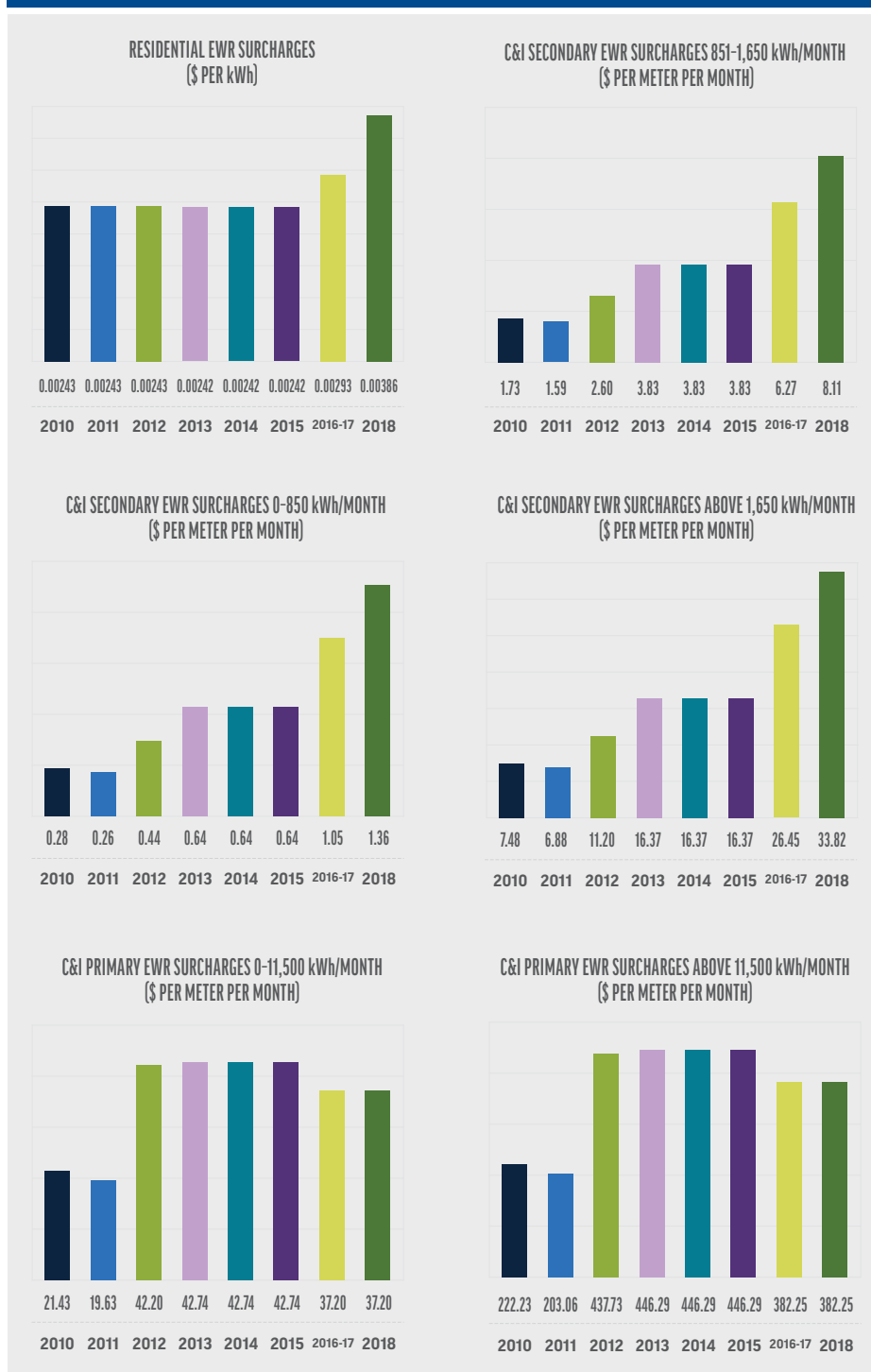


Chart 6 - DTE Gas Surcharges



Chart 7 - EWR Program Electric Participation

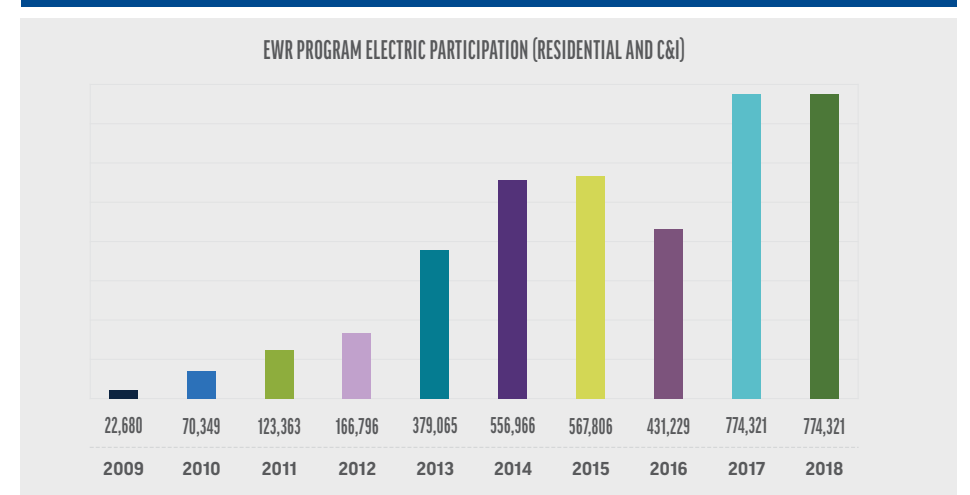
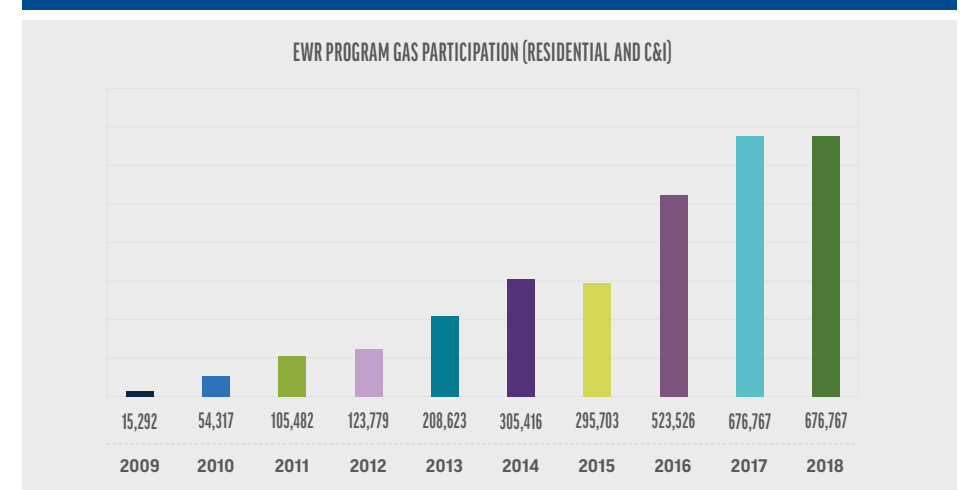
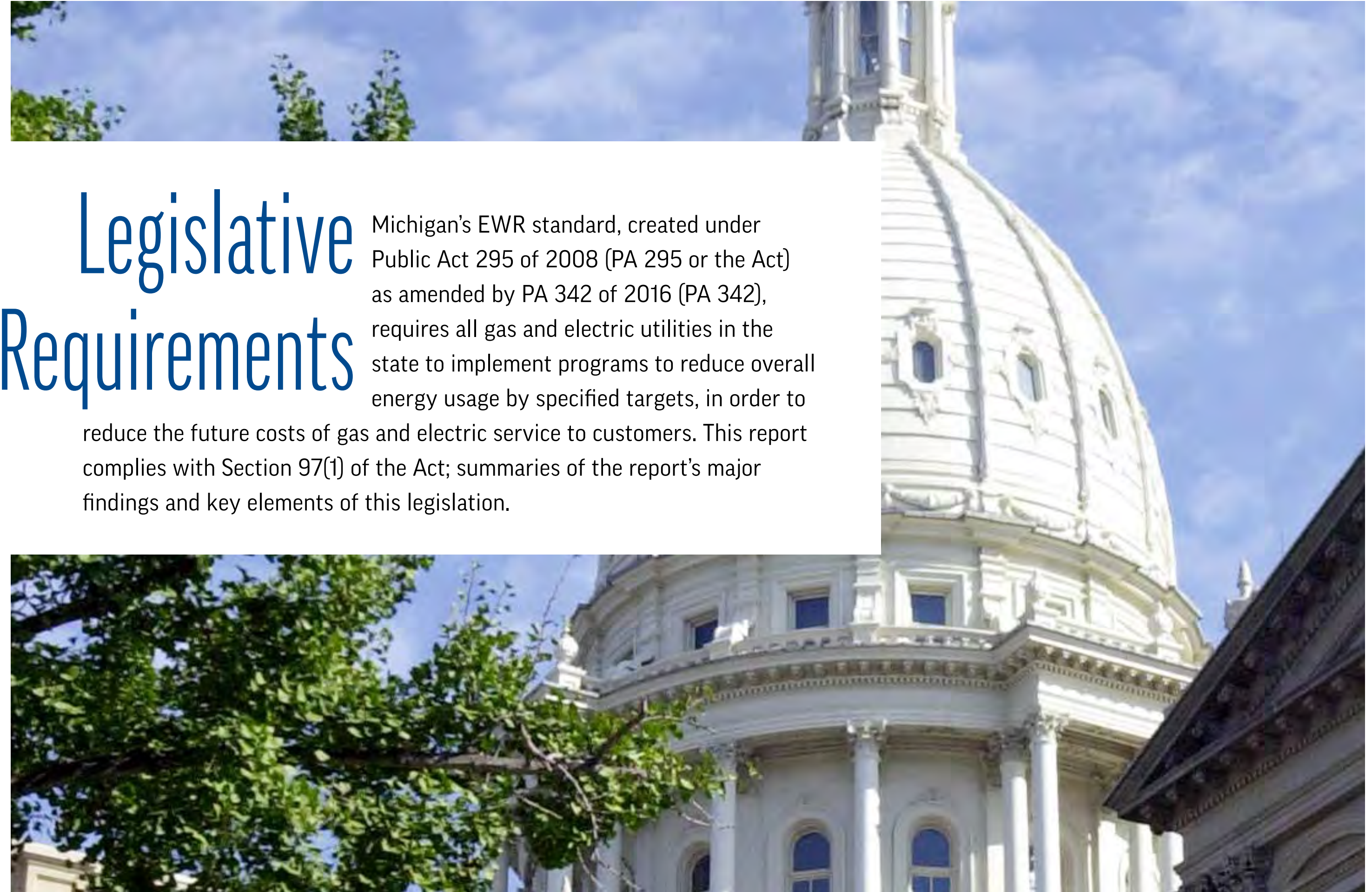


Chart 8 - EWR Program Gas Participation



Legislative Requirements

Michigan's 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 and key elements of this legislation.



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 DTE'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 energy company 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 Systems Resource Cost Test (USRCT) and are reasonable and prudent.
- Funds received from a customer class—Residential, 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.

Energy Company (Performance) Incentives

- A financial incentive for energy company 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 or based on total program spending, tiered based on annual incremental savings.
- The basis for the performance incentive was 20 percent of the provider's actual EWR program expenditures.

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, 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.

EWR Program Portfolio

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 2018 were continuations of programs launched in prior years, 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, C&I 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 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, ventilating and air conditioning (HVAC); weatherization; home energy assessments; low-income programs; energy education; and behavioral programs.
- C&I 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.

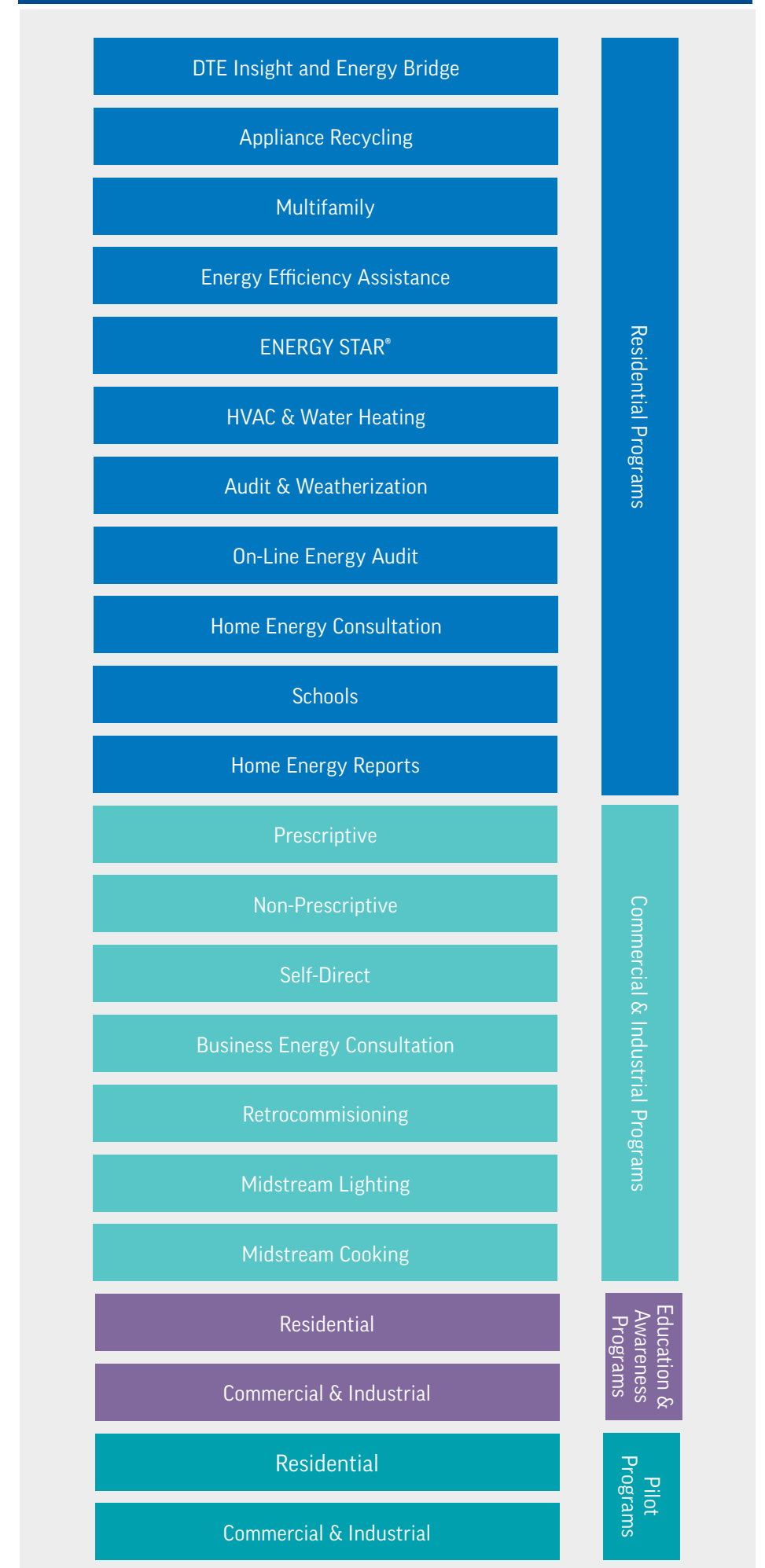
- Pilot programs focus on new and emerging experimental programs to fit longer-term program portfolio needs, test the cost-effectiveness of emerging technologies, and assess customer adoption of new technologies, and market acceptance of existing technologies using new approaches.
- Education and Awareness 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 2018.

The following pages include a summary of each EWR program providing a description, highlights, achievements, challenges, and overall program results from 2018.

Figure 1 Represents Programs the EWR Program Portfolio Offered in 2018



Residential Programs

The objective of the Residential EWR programs is to increase customer awareness and demand for energy-efficient products and services. In 2018, 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 2018, DTE's Residential EWR programs performed well. In total, the Residential EWR programs achieved 301 GWh of verified net electric savings, which is 103 percent of plan, and 895 MMcf of verified net gas savings, which is 97 percent of plan. In a recent internal benchmarking, DTE's Residential EWR programs were ranked well with respect to cost-effectiveness and savings compared to other energy companies. Overall customer satisfaction was at 94 percent or higher for almost all programs in 2018.

Charts 9 and 10 summarize the electric and gas spending, and verified net energy-savings for all the 2018 EWR residential and low-income programs. In addition, **Chart 10** is a summary of the spending and verified net energy-savings achieved by each Residential and Low-Income EWR program in 2018.

In 2018, over 573,000 electric customers and over 674,000 gas customers participated in the Residential EWR programs. Chart 11 summarizes the number of customers participating in the EWR program in 2018.

Chart 11 summarizes the number of customers participating in the EWR program in 2018.

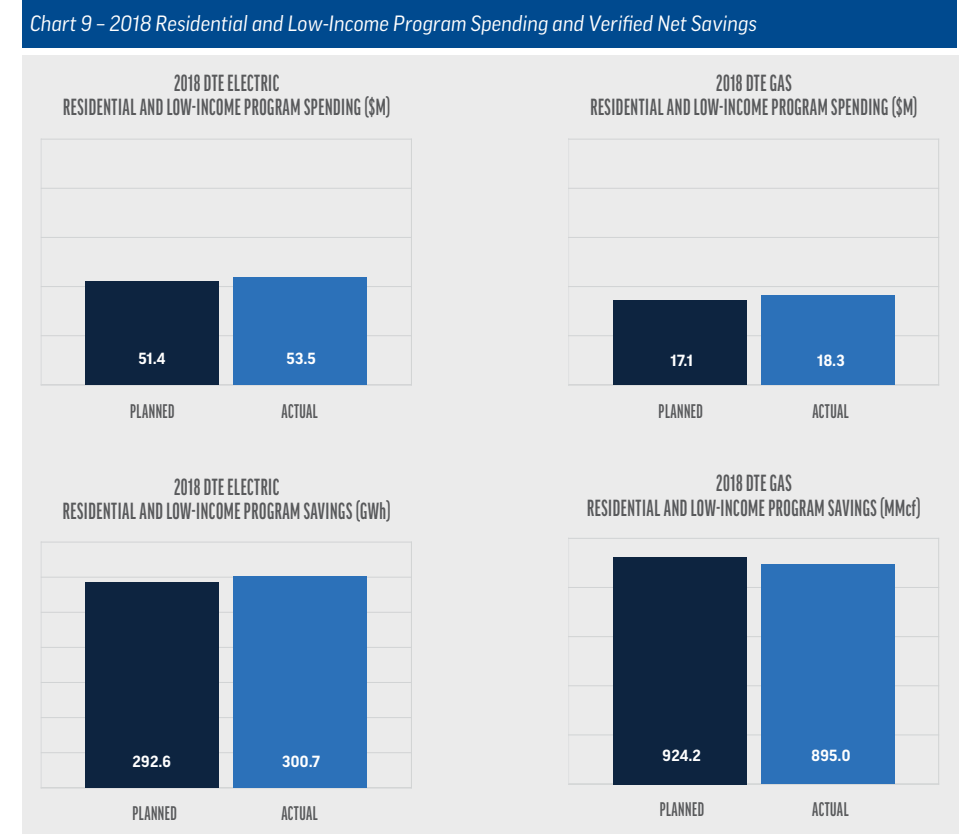


Chart 10 - 2018 Spending and Verified Net Savings by Residential and Low-Income Programs

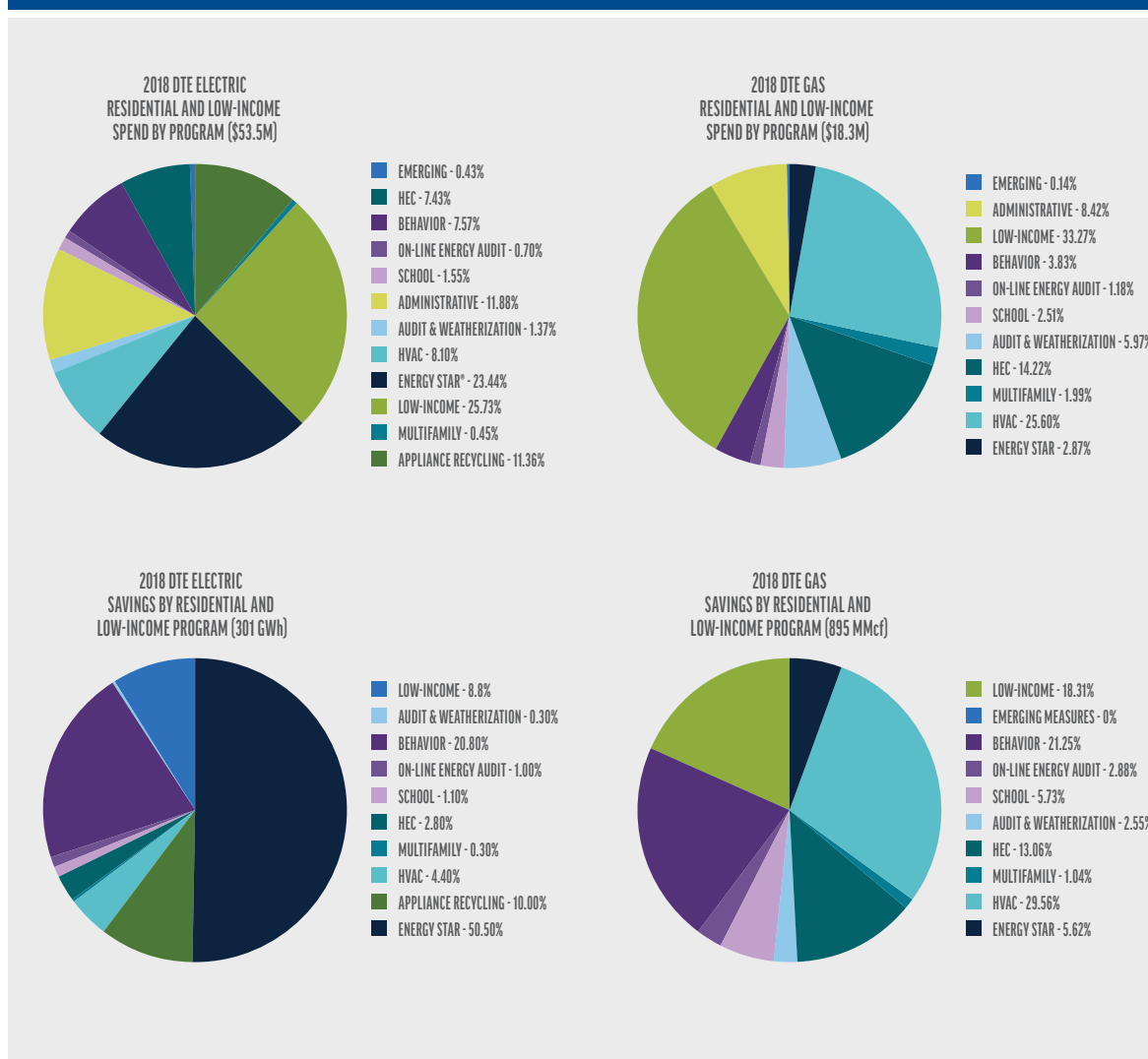
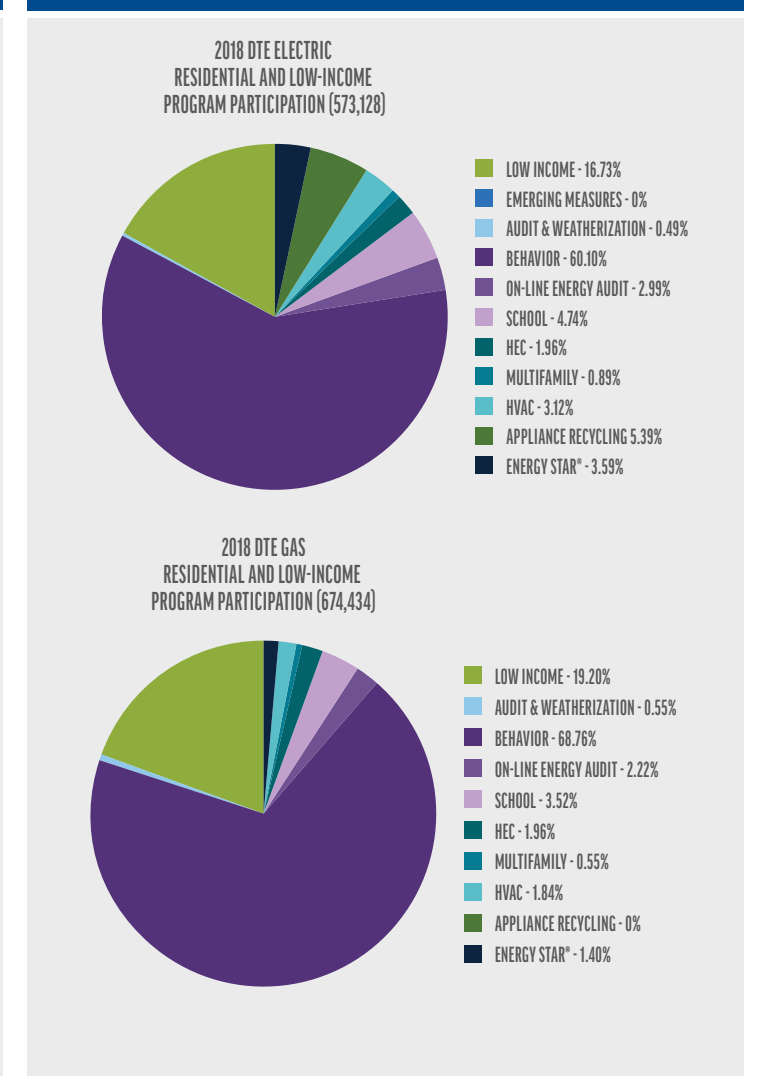


Chart 11 - 2018 EWR Residential and Low-Income Customer Participation by Program



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.
- Customers receive their rebates at the time of pickup.

Challenges

- The popularity of the program extended the pipeline of appointments from 2 to 3 weeks to 4 to 5 weeks. Consequently, the most common complaint from customers was the wait time between scheduling the appointment and the actual pickup.
- Replacing Sears with a new retailer who sells and delivers new refrigerators and freezers while picking up the old units has been a challenge. Many of the national retailers prefer a nationwide recycling program instead of a local recycling program.

Accomplishments

- The amount of time from the appliance pickup to the time the customers' rebate check is mailed was 1.72 days. This includes both customer and retail pickups.
- Overall customer satisfaction remained at 96% despite the wait time complaints.

Collaboration Efforts

- DTE collaborated with ABC Warehouse and Sears to pick up old refrigerators and freezers when delivering new ones.
- Retail pickups increased from 4% of the total units in 2018, compared to 3% of total units in 2017.
- As Sears pickups declined, ABC Warehouse increased their retail share of pickups to 87% of the total retail units in 2018.

Lessons Learned

- In 2018, 42% of customers identified Friends/Family as the number one mode of how they heard about the Appliance Recycling program. Television advertisement came in second with 23%, and Online came in third with 13%.
- 57% of customers scheduled their appliance pickup via phone, which is a decrease of 15% from the previous year. Online scheduling increased to 39%, up 23% from 2017. The remaining 4% scheduled an appliance recycling pickup through a retailer while purchasing their new refrigerator or freezer.
- Extending the program through late December decreased the waitlist for the following year, thus increasing customer satisfaction.



Spend and Verified Net Savings Results

- DTE Electric spent \$6.1 million on the Appliance Recycling program in 2018. This amount was \$0.1 million over the planned amount.
- DTE Electric saved 30.1 GWh of verified net energy-savings. This was .6 GWh over 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 2018 DTE Electric spend and verified net savings results for the program.

Program Participation

- Customer participation in the program increased 10% from 2017 and remains a well-known residential program offering.

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

Program Outlook

- As the proportion of customers who have already participated increases, it will be harder to achieve the goal because of saturation. The program will need additional marketing efforts to achieve targets.
- The program’s marketing mix in 2019 will continue with a combination of television advertisement and increased social media presence. The new online scheduler, new-look website and updated commercial will help encourage customers to participate. Cross promotional material from other EWR residential programs will also continue as a marketing strategy for this program.

Chart 12 – 2018 Appliance Recycling Program Spending and Verified Net Savings

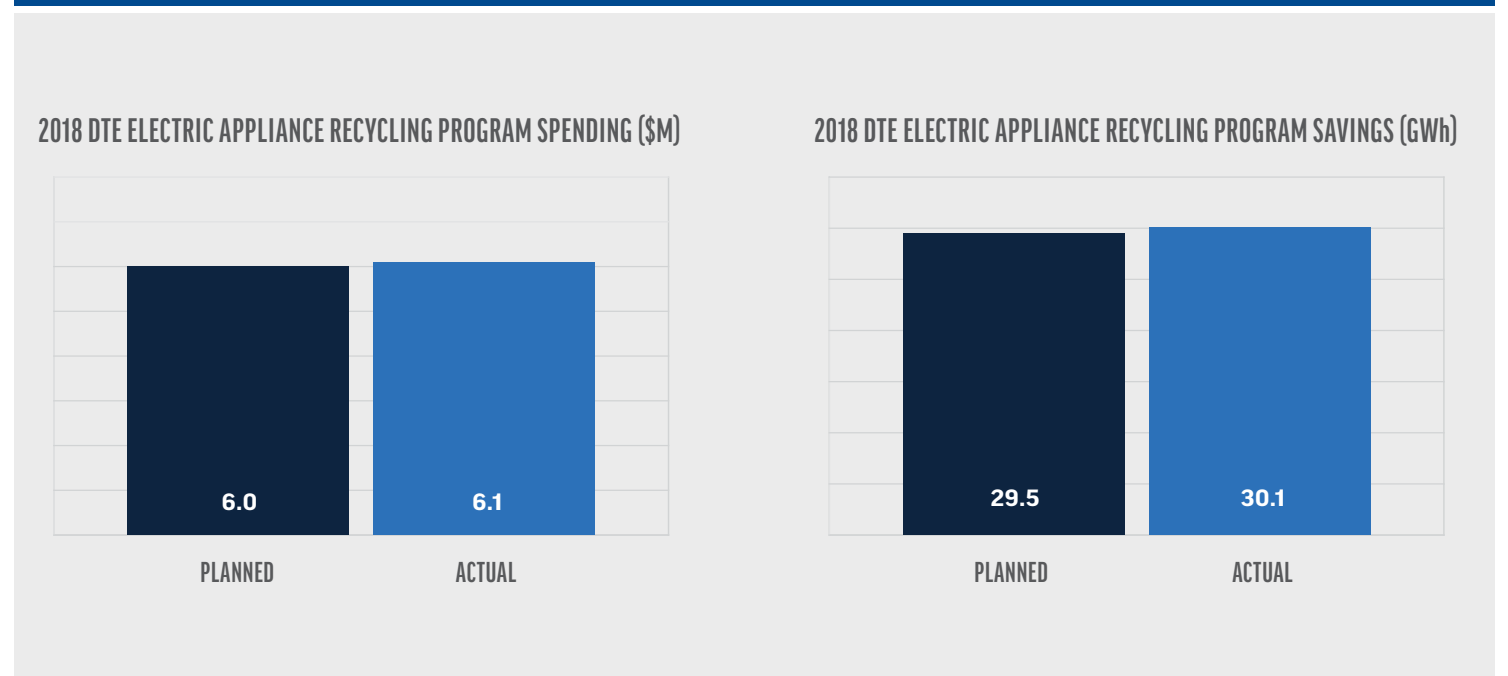
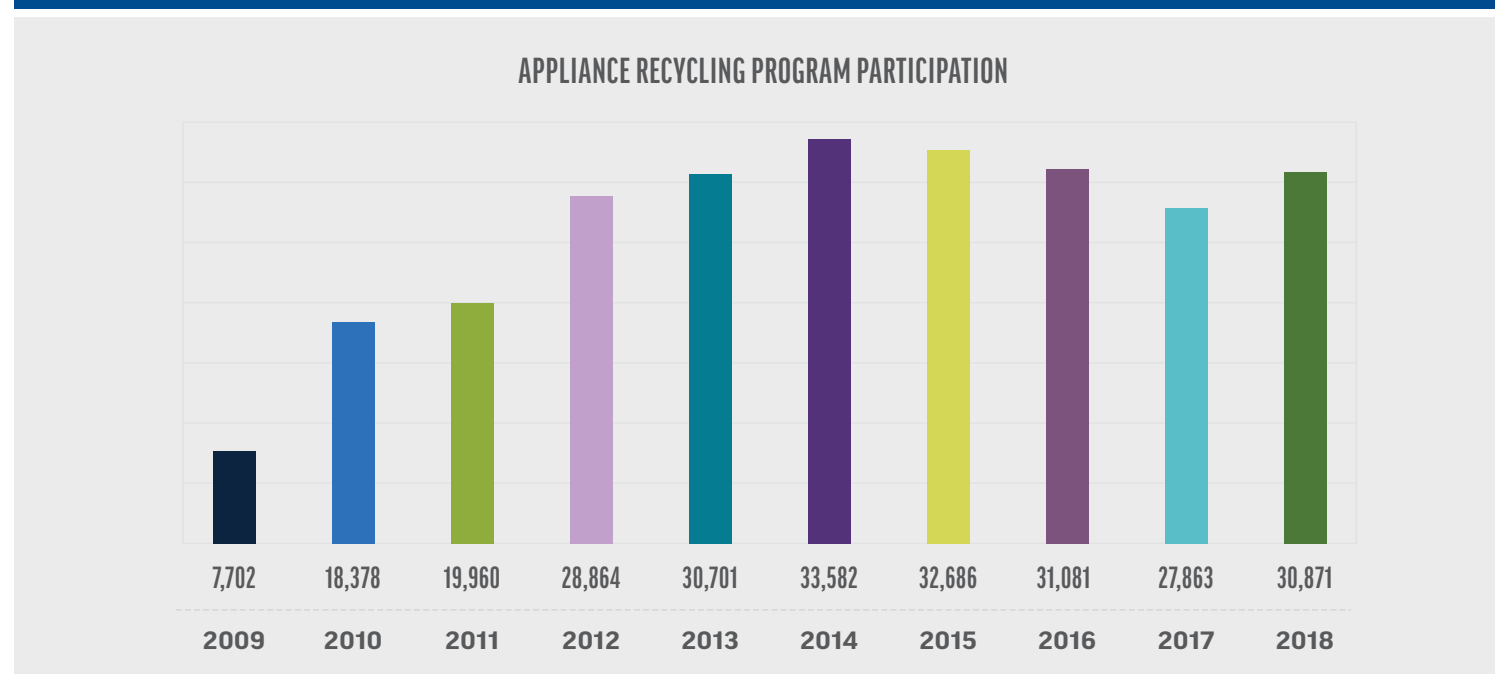


Chart 13 – Appliance Recycling Program Participation



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, digital and email campaigns, 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 personal computers and monitors. Downstream rebates on certified appliances, such as, clothes washers, clothes dryers, room air conditioners, dehumidifiers, and pool pumps. Wi-Fi enabled and smart thermostats rebates were also provided.

Highlights

- DTE Electric offered \$25 rebates for ENERGY STAR qualified clothes washers and dryers, dehumidifiers and room air conditioners. Wi-Fi enabled and smart thermostats had rebates ranging from \$75 - \$100. Pool pumps were added to the product mix and offered a \$350 rebate. 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 dryers. Wi-Fi enabled and smart thermostats had rebates ranging from \$75–\$100. These rebates were available to customers by mail, online retail, or online application.
- The appliance downstream program provided rebates for over 15,500 electric and 5,400 gas appliances.
- The Consumers Electronics program midstream program provided incentives on over 5,700 electronics.

Challenges

- There were challenges in improving the DTE Marketplace website to reach a growing segment and deliver a customer focused experience.
- Awaiting for the Department of Energy (DOE) to rule on the Energy Independence and Security Act (EISA) backstop for lighting.
- Due to ENERGY STAR testing guidelines, there were no television incentives or savings in 2018.

Accomplishments

- DTE sold over 5 million LED bulbs through manufacturer buy-downs at the retailer level.
- DTE 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% satisfaction rating in 2018.



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 rapid pace.
- As consumers become more educated and increase purchases of ENERGY STAR products, the labeling seems to continue to have greater influence and create awareness.

Spend and Verified Net Savings Results

- DTE Electric spent \$12.5 million on the ENERGY STAR® program. This amount was \$2.6 million less than the plan.
- DTE Electric saved 152 GWh of verified net energy-savings. This was 5 GWh more than the plan.
- DTE Gas spent \$525,000 on the ENERGY STAR program. This amount was about \$80,000 over the plan.
- DTE Gas saved 50.2 MMcf of verified net energy-savings. This was 13.8MMcf higher than the plan.

Chart 14 summarizes spend and verified net savings results.

Chart 14 – 2018 ENERGY STAR Spending and Verified Net Savings



Program Participation

- Customer participation in the ENERGY STAR® Appliance program had an increase from 2017 to 2018.

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

- Marketplace will continue to add new products while continuing to improve the customer journey and increase customer satisfaction.
- As compared to the 2018 actuals, spending and savings are expected to decrease slightly in 2019.
- Adding air purifiers to the appliance rebate list in 2019.
- Partnering with manufacturers to have special product promotions in stores.

Chart 15 – ENERGY STAR Appliance Recycling Program Participation

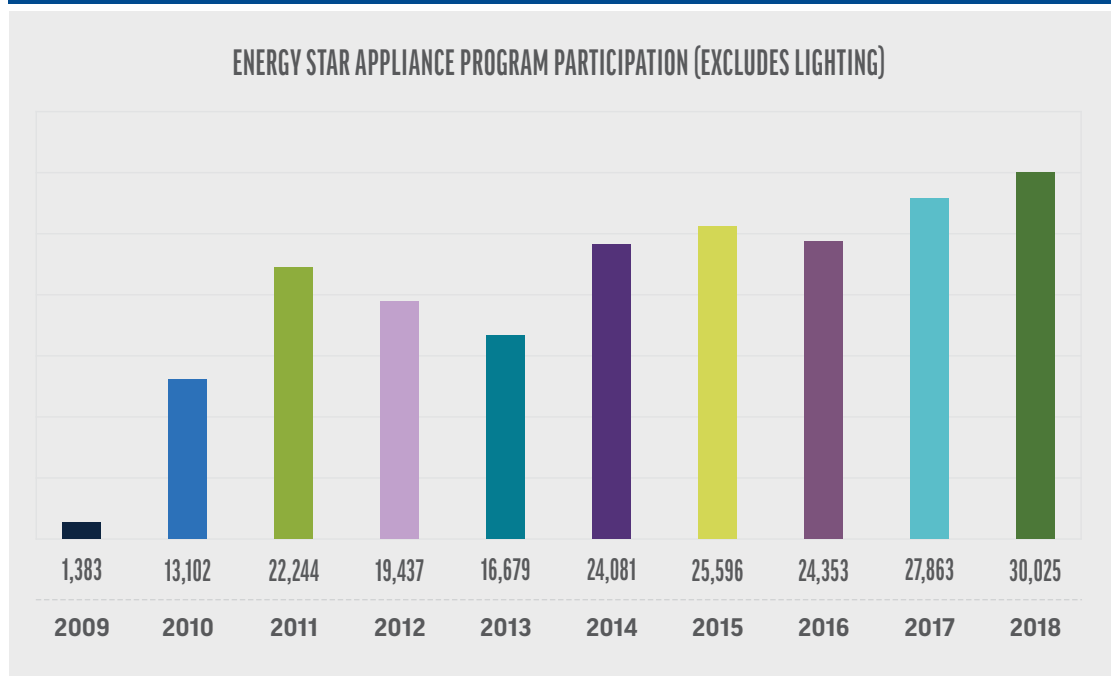
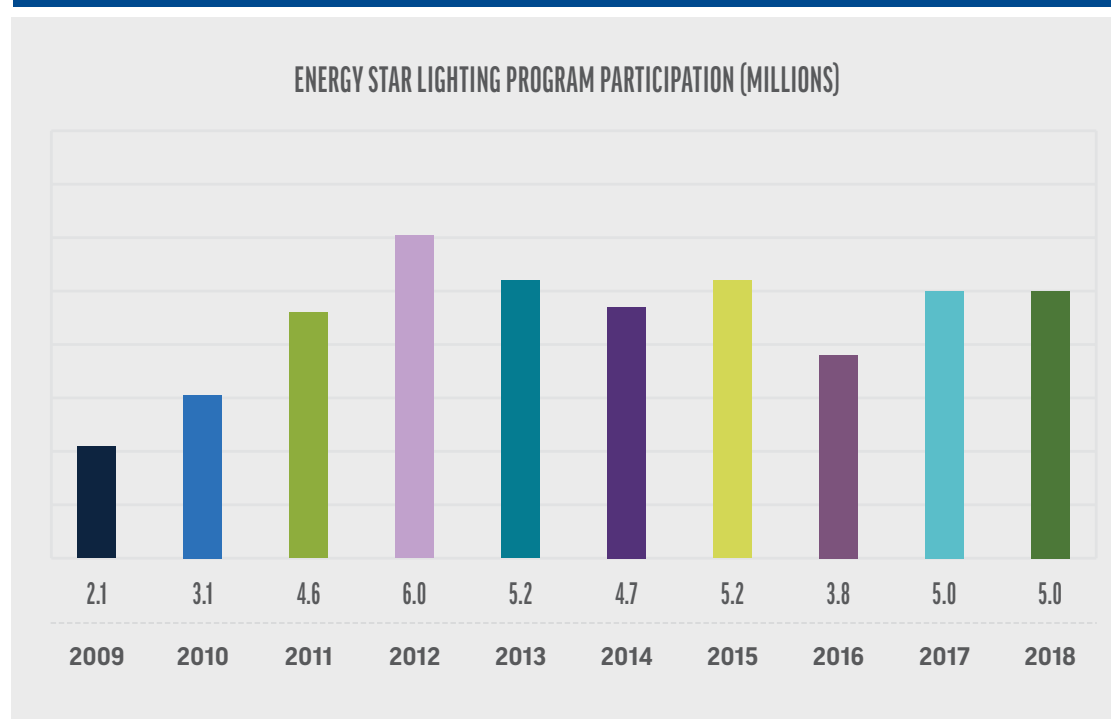


Chart 16 – ENERGY STAR Lighting Program Participation



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 2018, the DTE HVAC measure offering was received well by both the homeowner and the participating contractors. Electric measures included SEER 15 and above central air conditioners, Electronically Commutated Motors (ECM), Wi-Fi enabled thermostats, heat pumps, and central air conditioning diagnostic test and tune ups.
- The incentive amounts were \$100 per thermostat unit, \$50 per ECM, \$150-400 for SEER 15+ central A/C units, \$50 on Air Conditioning tune-ups, \$200-\$400 for high-efficiency furnaces and up to \$1,000 for boilers, \$75-\$100 on water heaters and a \$50 rebate on high efficiency furnaces and boiler diagnostic test and tune ups with combustion analysis.

- Launched web-based training platform solution for trade allies. This solution complements the existing suite of in-person (individual and group setting) and webinar-based offerings made available to trade allies. Trainings range from program specific, marketing and social media to technical and CEU eligible courses. All courses and trainings are offered free of charge to the trade ally network.

Challenges

- The program found challenges in engaging participants to participate in the high efficiency tank and instant water heating equipment.
- The program found challenges with heat pump participation in that savings capture requirements per the MEMD don't align with full market application for this specific measure. The program underwent an extensive process of re-enrolling participating contractors with updated participation agreements, trainings, and updated listing on the energy-efficiency directory.

Accomplishments

- DTE continued to leverage its very active trade ally network to maintain the momentum as the program transitioned into 2018.
- Over 30,000 HVAC customer applications were processed.
- The electric measures continue to be a very positive factor for the program.
- Increase of high efficiency—19 SEER and higher—air conditioning units by over 25% from 2017.
- Introduction of an application-based solution for creating and submitting rebate applications resulted in an increase of participation by 12% for furnace tune-ups.
- The program introduced a reporting mechanism for contractors to have greater visibility into their participation in the programs.

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.

Event	No. of Events	Attendance
Outreach and Conferences	146	3,013
Tune-Up Training	6	38
Online Intake Tool Training	11	40
On-Site Training	14	80
Webinar Training	4	18

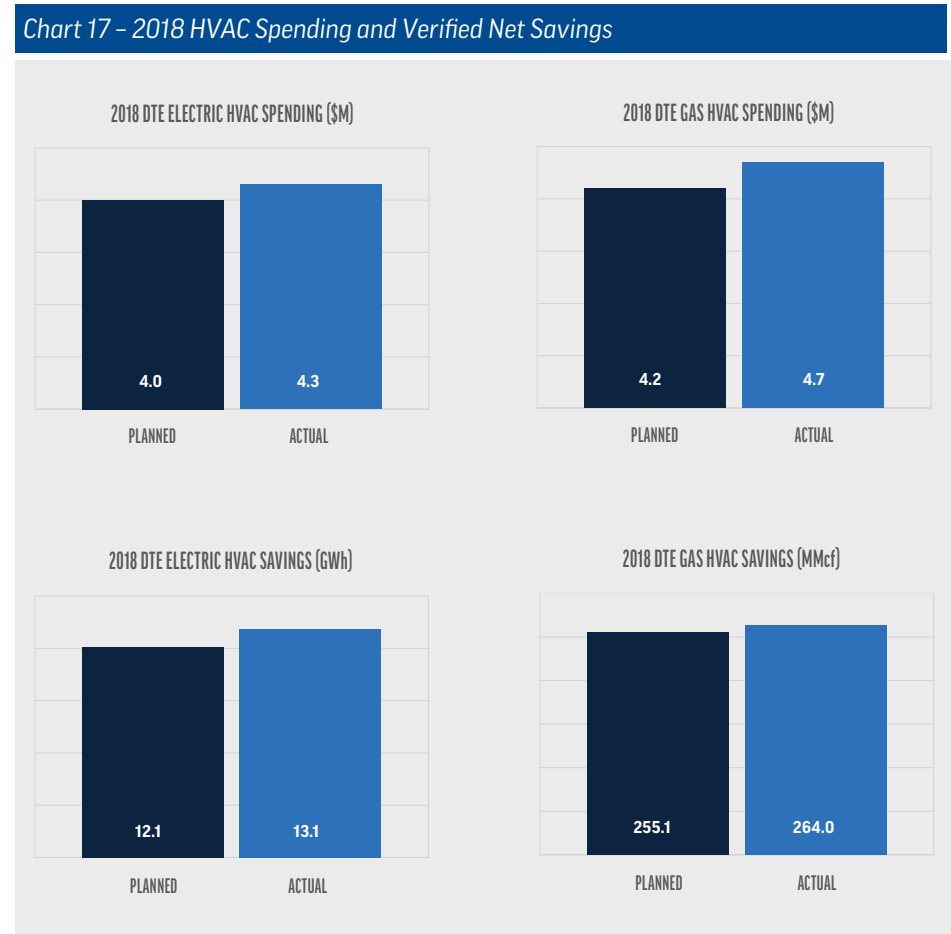
Lessons Learned

- Earlier communication and alignment with contractor plans on service based offerings, namely tune-ups, yields greater participation and decreases market confusion.
- Contractors and customers continue to respond well to “whole system” incentives.

Spend and Verified Net Savings Results

- DTE Electric spent \$4.3 million on the HVAC program. This amount was \$0.3 million more than the \$4 million plan.
- DTE Electric saved 13.1 GWh of verified net energy-savings. This was 1.1 GWh more than the 12.1 GWh plan.
- DTE Gas spent \$4.7 million on the HVAC program. This amount was \$0.5 million more than the \$4.2 million plan.
- DTE Gas saved 264 MMcf of verified net energy-savings. This was 9 MMcf more than the 255 MMcf plan.

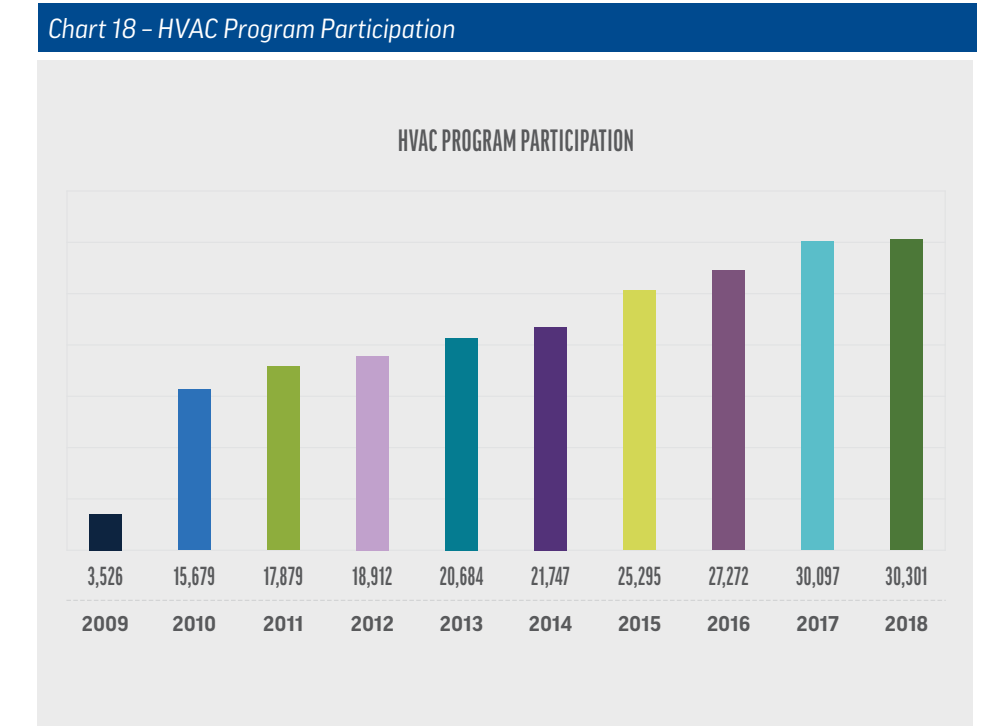
Chart 17 summarizes the spending and verified net savings results.



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, ECM motors and heat pumps will continue to be offered, with new measures also being considered in the electric service territories of DTE.
- The gas portion of the HVAC program will continue to provide rebates for high-efficiency furnaces, boilers, water heaters, and Wi-Fi enabled thermostats in addition to on-going promotion of heating equipment tune-up.

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 incentives for insulation, windows and HVAC and air sealing 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) offers customers who do not wish to perform a CEA to still receive rebates for insulation and window improvements.

Challenges

- Many customers are not searching for Home Performance directly but searching for the specific improvements they think are needed.
- The comprehensive energy assessment (CEA) is a complex offering and the improvements suggested often require significant financial investment.
- Customers are more likely to invest on projects that have a visible impact. Conversely, customers are less likely to invest in measures such as insulation and air sealing when faced with the option of where to invest in the home.

Highlights

- DTE simplified the rebate process for the customer aligning rebate levels for measures offered in both INWIN and HP programs.
- DTE launched social media contractor toolkit with two very successful campaigns aimed at promoting insulation and windows improvements.

Accomplishments

- DTE continued to improve the rebate process by simplifying and clarifying participation requirements. These improvements resulted in a 17% decrease in flawed applications (applications received that are incomplete or do not meet all the necessary requirements to fulfil the rebate), as compared to 2017.
- The program increased marketing with a focus on retail presence, resulting in an increase of 15% in insulation measures and 8% in window measures, as compared to 2017.

Collaboration Efforts

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

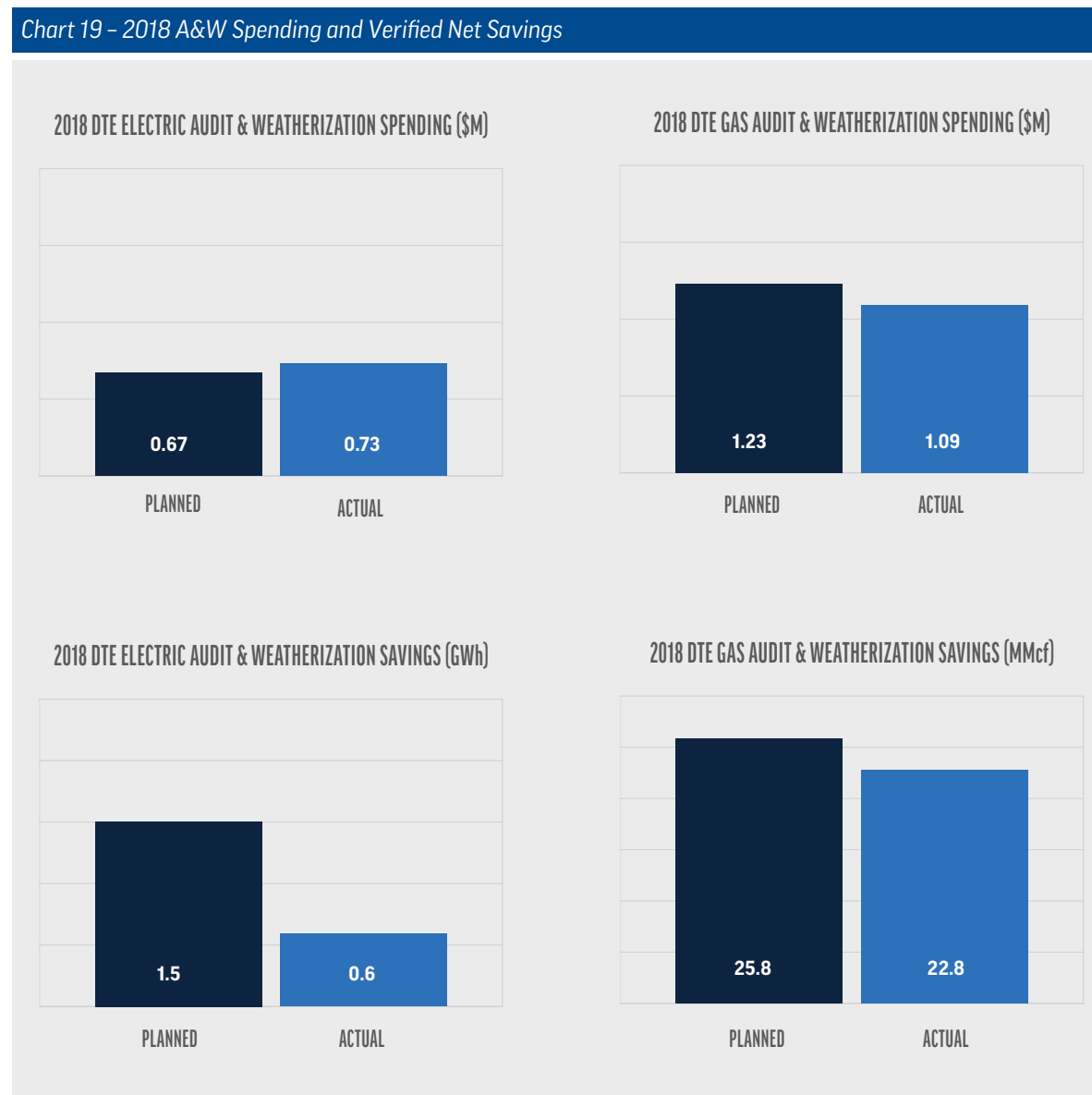
Lessons Learned

- Increasing retail presence for the INWIN program was a successful step and one to continue expanding as the demand for stand-alone insulation and windows rebates (without CEA required) continues to outpace those of whole-home upgrades.

Spend and Verified Net Savings Results

- DTE Electric spent \$0.73 million on the Audit & Weatherization program. This amount was about \$.06 million over plan.
- DTE Electric saved 0.6 GWh of verified net energy-savings. This amount was 0.9 GWh lower than the 1.5 GWh plan.
- DTE Gas spent \$1.09 million on the Audit & Weatherization program. This amount was \$0.14 million less than \$1.23 plan.
- DTE Gas saved 22.8 MMcf of verified net energy-savings. This was 3.0 MMcf less than the 25.8 MMcf plan.

Chart 19 summarizes the spending and verified net savings results.

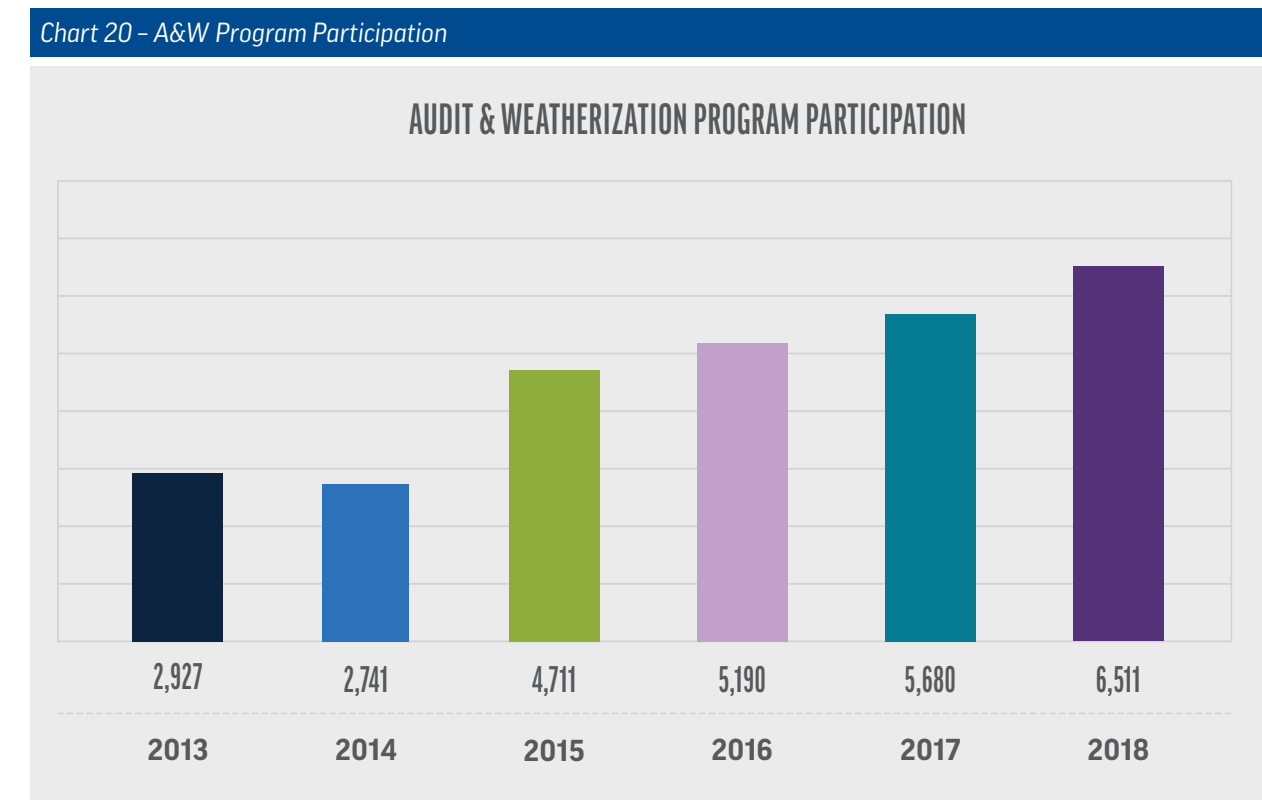


Program Participation

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.
- As compared to 2018, the program is expected to see a slight increase in DTE Electric and DTE Gas savings.



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 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

- Balancing the needs of the program with the unique needs of teachers and students in extremely low-performing schools. The program serves fourth-grade students, but often the students in the combination territory are performing far below grade level, and so the program must be very closely tied to the curriculum for fourth grade, but also reinforce standards in reading and math at lower grades to maintain participation in struggling schools.
- Balancing the needs of collaborative partners to ensure that the program materials are acceptable to all and that each partner meets their savings goals.

Highlights

- In 2018, the program was able to serve 17,007 households in the combination service territory, plus an additional 10,137 electric only households and 6,705 gas only households through collaborations with Consumers Energy, SEMCO ENERGY Gas Company, and Efficiency United. Fall kits debuted a new kit poster game to increase student interest and interaction with the program website.
- Introduced pipe insulation, which tested as a viable kit measure.
- Teacher workshops were added to the program for the first time in 2018, serving 26 teachers in the combination territory and eight in collaboration with Consumers Energy in Grand Rapids.

Accomplishments

- Savings goals were met for both electric and gas savings, as well as additional savings to the portfolio.
- Messaging on energy-efficiency was delivered to over 37,200 students across the state.



Collaboration Efforts

- The School program maintained or extended all its pre-existing collaborations in 2018. The collaboration with Efficiency United allowed DTE to increase its visibility in the Upper Peninsula, while the collaboration with Consumers Energy put the DTE brand in front of over 6,000 households on the west side of the state, where DTE provides natural gas service.

Lessons Learned

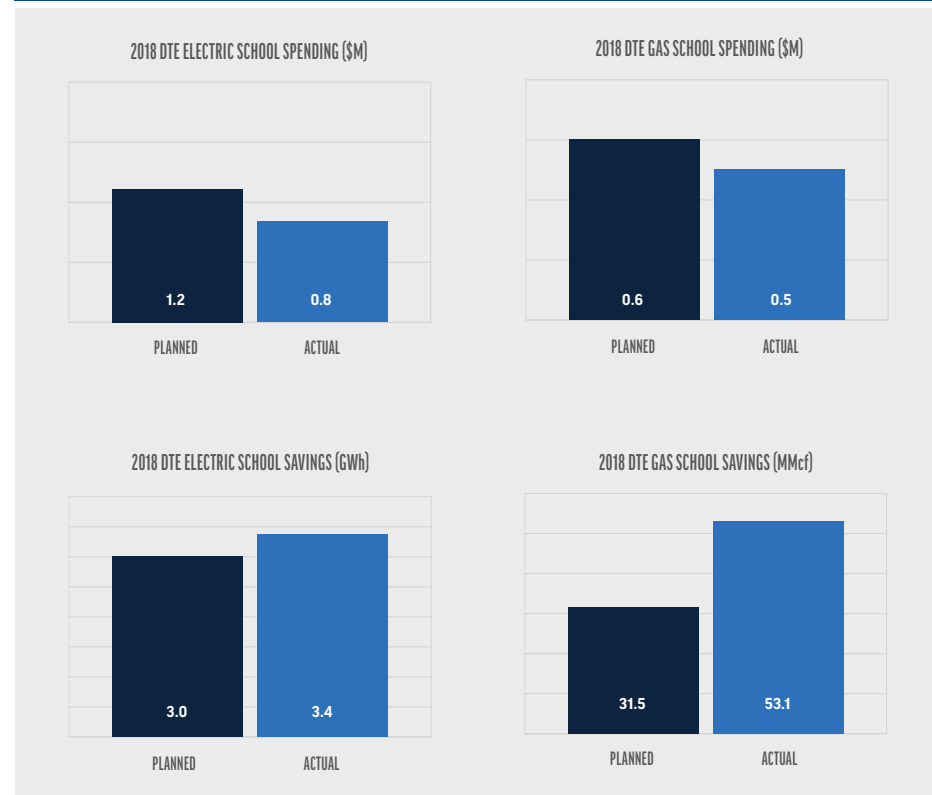
- Families enjoyed the new kit poster game; it is being expanded to all programs for 2019.
- The teacher workshops were very well received; they will also be continued for 2019.

Spend and Verified Net Savings Results

- DTE Electric spent \$0.83 million on the School program. This amount was \$0.33 million less than the \$1.16 million plan.
- DTE Electric saved 3.37 GWh of verified net energy-savings. This was 0.42 GWh more than the 2.95 GWh plan.
- DTE Gas spent \$0.46 million on the School program. This amount was \$0.12 million less than the \$0.58 million plan.
- DTE Gas saved 53.11 MMcf of verified net energy-savings. This was 21.65 MMcf more than the 31.46 MMcf plan.

Chart 21 summarizes the spending and verified net savings results.

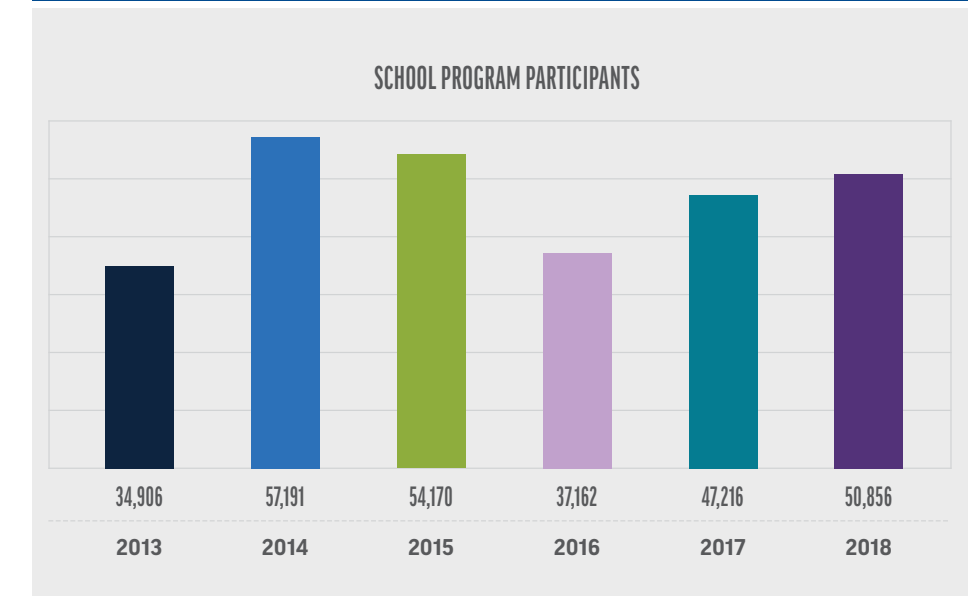
Chart 21 – 2018 School Program Spending and Verified Net Savings



Program Participation

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

Chart 22 – School Program Participation



Program Outlook

- DTE Electric and DTE Gas savings are expected to grow and spending expected to stay flat beyond 2018.

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 to help residential customers to save money 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 night lights, 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 2018, the program remained available to customers through November.
- The program continued to explore various marketing channels to improve 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 2018, over 23,000 kits were mailed to DTE customers.

Collaboration Efforts

- There are currently no energy company collaboration efforts with this program.



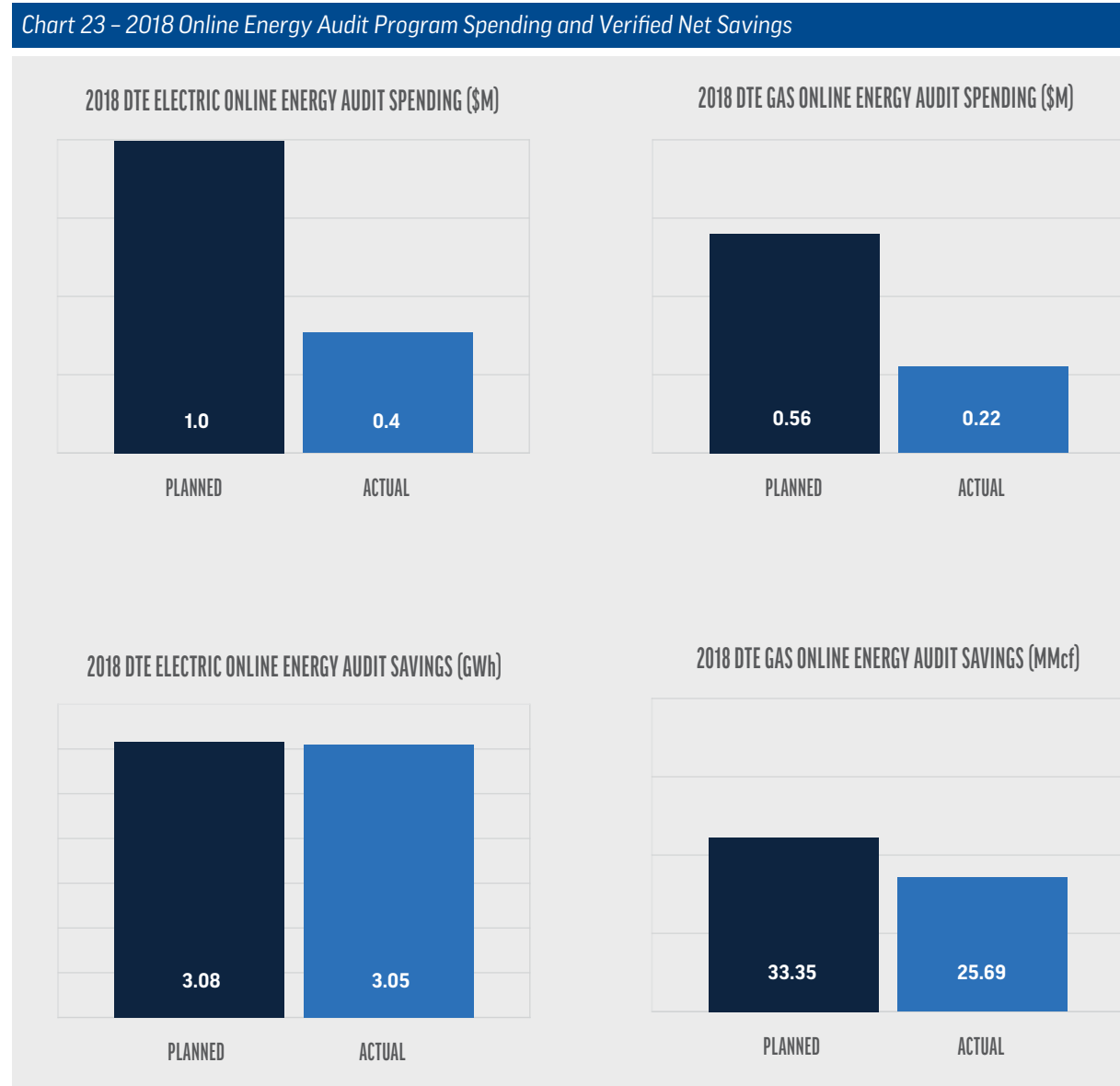
Lessons Learned

- Understanding the length and complexity of the on-line survey helps to understand survey completion rates.
- The market is very responsive to marketing efforts, resulting in good control and capability to either leverage or stalled to help with portfolio savings objectives.
- Doing Online Energy Audit program cross promotion via other programs' collateral and webpages show to be a good lead generation tool.

Spend and Verified Net Savings Results

- DTE Electric spent \$0.4 million on the Online Energy Audit program. This amount was \$0.6 million lower than plan of \$1 million.
- DTE Electric saved 3.05 GWh of verified net energy-savings. This was 0.03 GWh below the 3.08 GWh plan.
- DTE Gas spent \$0.2 million on the Online Energy Audit program. This amount was \$0.4 million less than the plan of \$0.6 million.
- DTE Gas saved 25.7 MMcf of verified net energy-savings. This was 7.7 MMcf less than the 33.4 MMcf plan.

Chart 23 summarizes the spending and verified net savings.

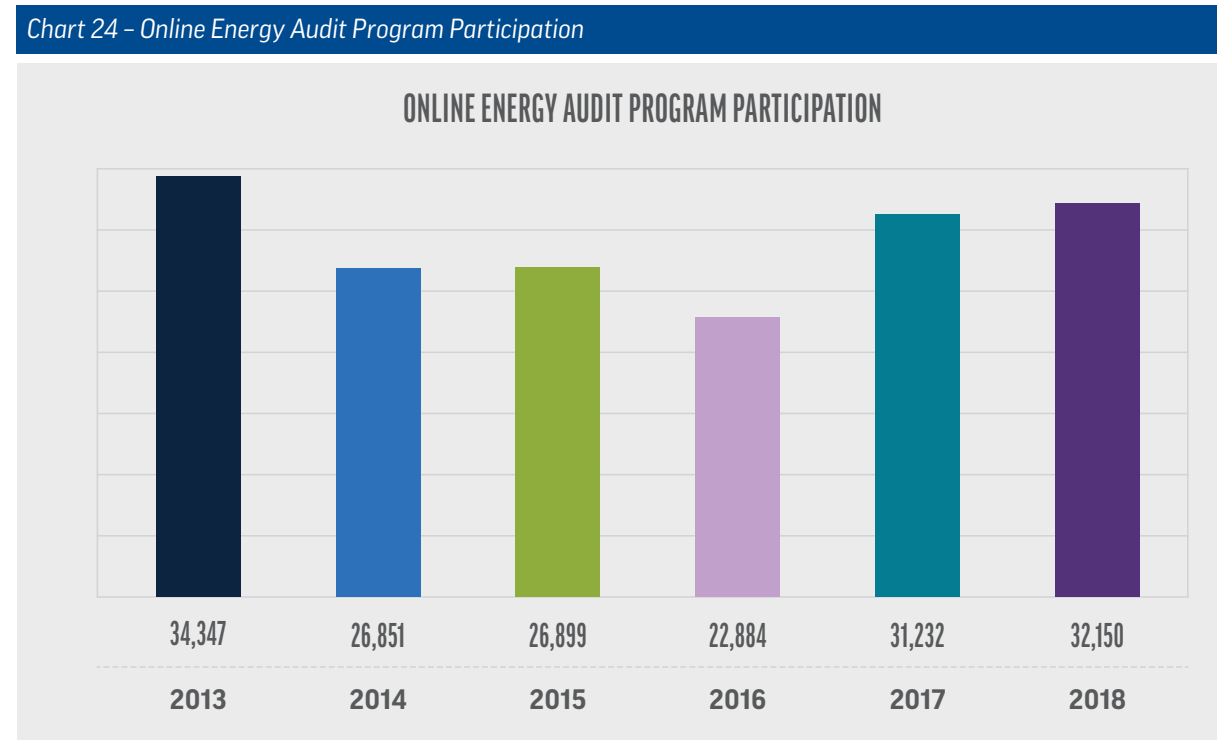


Program Participation

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 2018.



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 and electronic 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-savings 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. Additionally, encouragement can also be provided through active engagement via the DTE Insight mobile app where the customer is presented with electric usage data of their home. Customers that choose to receive the mobile application treatment download the mobile application to their smart device to receive a standard treatment. This treatment includes displaying hourly household electric consumption data. Other treatments include the ability to set an energy saving target and monitor progress towards it and various interactive feedback tools. Additionally, customers may request an additional piece of hardware that is connected to the home internet. This hardware, the Energy Bridge, enables an enhanced treatment by displaying one-minute household energy consumption history and displaying the real-time household electric energy consumption.

Challenges

- Comparisons shown on the Home Energy Report have not always been well received by customers. The opt-out process is tightly managed to prevent customer dissatisfaction.
- The DTE Insight app transitioned to a new platform in 2018. This presented some migration challenges for customers who were on the old platform.

Highlights

- In 2018, the Behavior program had over 800,000 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 2018, customer satisfaction was 71%.

Collaboration Efforts

- There are currently no collaboration efforts with this program.

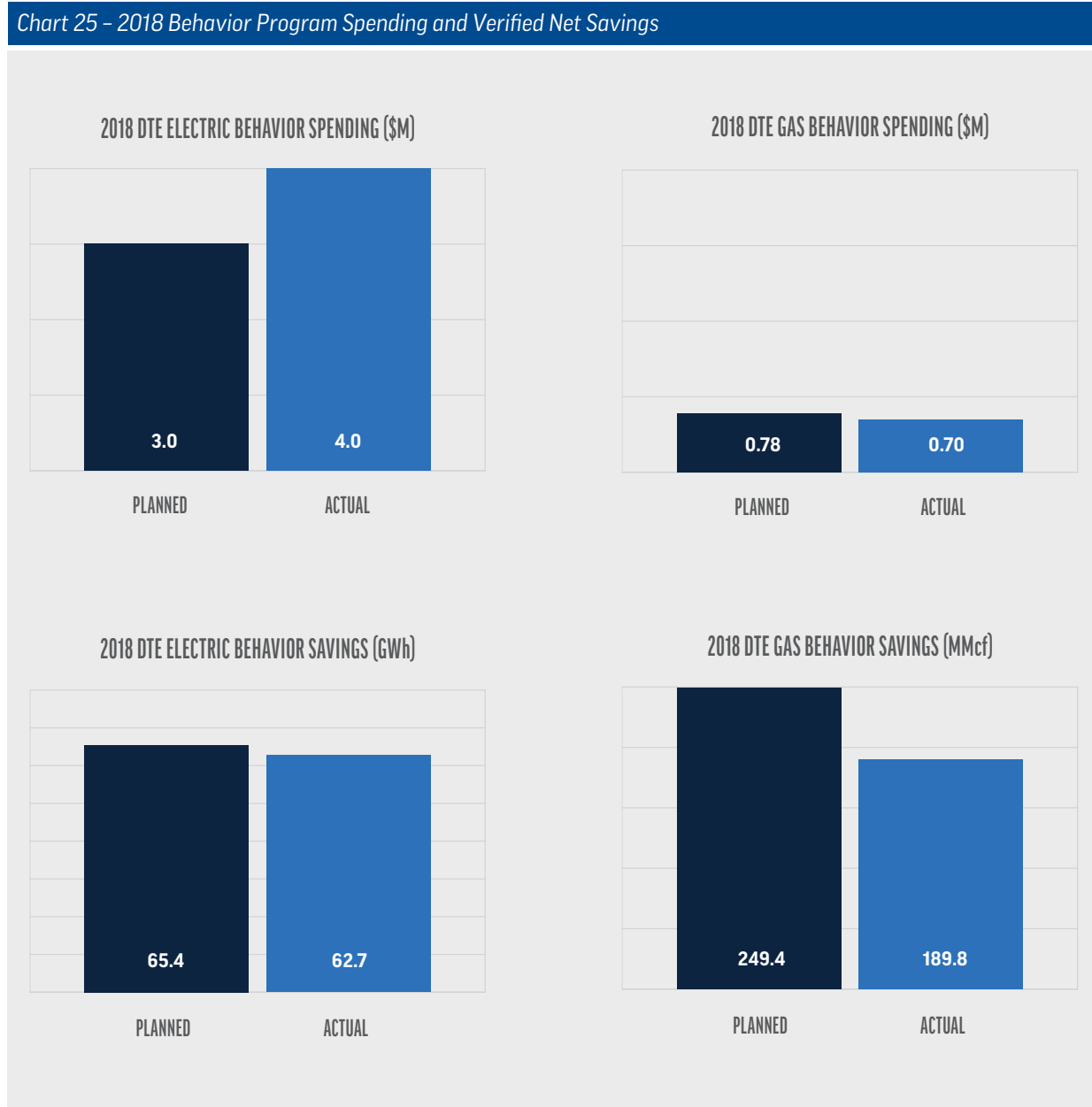
Lessons Learned

- After experiencing a couple of years of customer satisfaction between 69-70%, DTE continues to leverage strategies to sustain satisfaction.

Spend and Verified Net Savings Results

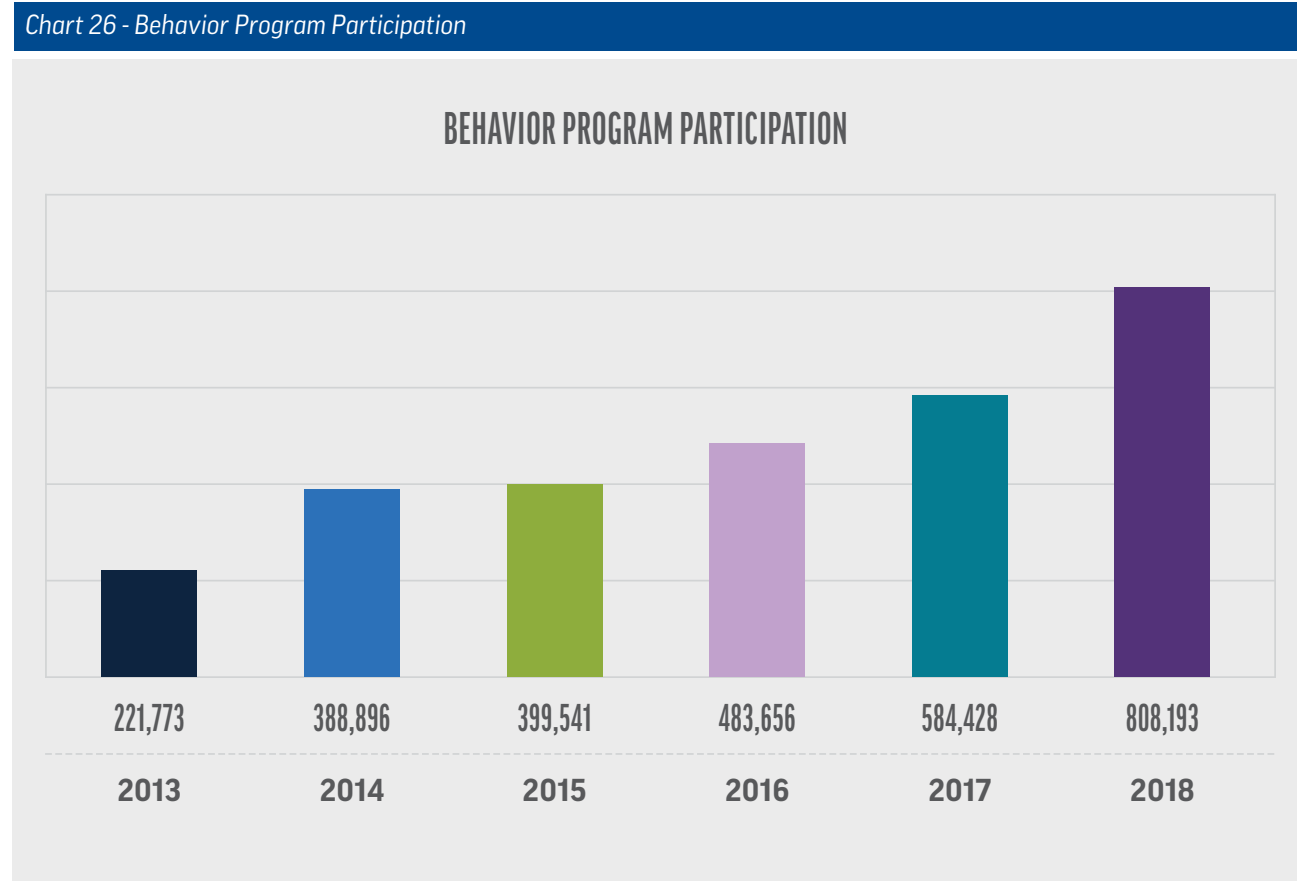
- DTE Electric spent \$4 million on the Behavior program. This amount was \$1 million more than the \$3 million plan.
- DTE Electric saved 62.7 GWh of verified net energy-savings. This was 2.7 GWh less than the 65.4 GWh plan.
- DTE Gas spent \$0.70 million on the Behavior program. This amount was \$0.08 million less than the \$0.78 million plan.
- DTE Gas saved 189.8 MMcf of verified net energy-savings. This was 59.6 MMcf less than the 249.4 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 continued in 2018 for the Behavior program but are expected to decline 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 night lights, 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 matures.
- Getting low-income customers to participate in the program has been a challenge. We have directed marketing efforts and outreach events to low-income areas to overcome this.

Highlights

- In 2018, there were over 24,000 non low-income HECs completed throughout the DTE service territory.
- The HEC program continues to have high customer satisfaction scores (95% in 2018), often exceeding the customers' expectations.
- The HEC outreach team participated in over 350 community events throughout 2018, including Customer Assistance Days, faith-based events, food pantries, green fairs, sporting events, community art fairs, libraries, Neighborhood Energy-Efficiency Days, etc.

Accomplishments

- In conjunction with the Week of Warmth, the HEC program concentrated on Hispanic neighborhoods in Detroit and Grand Rapids to immerse the energy-efficiency message and recruit customers to participate in the HEC program. The program participated in 36 community events with outreach materials in both English and Spanish leading up to a Neighborhood Energy-Efficiency Day (NEED) in each community. More than just conducting NEED, we made our presence felt in the communities. The NEED events produced 71 HECs in Grand Rapids and 111 HECs in Detroit. NEED volunteers walked the neighborhoods and left door hangers at customer residences to recruit for future HECs. Over 120 volunteers participated between the two cities.



- The HEC program continues to collect information helpful in conducting targeted marketing so that customers can continue their energy-efficiency journey.
- The HEC program measured marketing efforts with A/B testing which is where 2 types of communications were sent or placed. Each had different messages, subject lines and visual images. This was done with email and online digital ads. We then measured which type got the best response and adopted the ad that got the better response in future efforts.

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. Energy Specialists have a video remote tablet that provides live interpreting. Customers can ask questions and receive answers easily.
- Through an HEC program collaboration with the American Red Cross the HEC program was able to install smoke alarms in homes that needed them.

Lessons Learned

- Customer questions about programming thermostats come in the change of season. Customers misplace or discard program leave-behind materials that have instructions to change the thermostat season. To help customers change from season to season, a letter with “how-to” instructions was sent proactively to everyone that received a programmable thermostat. This made it easy for the customer to change their thermostats from heat to cool or cool to heat.

Spend and Verified Net Savings Results

- DTE Electric spent \$4.0 million on the HEC program. This amount was \$1.2 million more than the \$2.8 million planned.
- DTE Electric saved 8.3 GWh of verified net energy-savings. This was 3.6 GWh more than the 4.7 GWh planned.
- DTE Gas spent \$2.6 million on the HEC program. This amount was \$0.1 million more than the \$2.5 million planned.
- DTE Gas saved 116.6 MMcf of verified net energy-savings. This was 15 MMcf more than the 101.6 MMcf plan

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

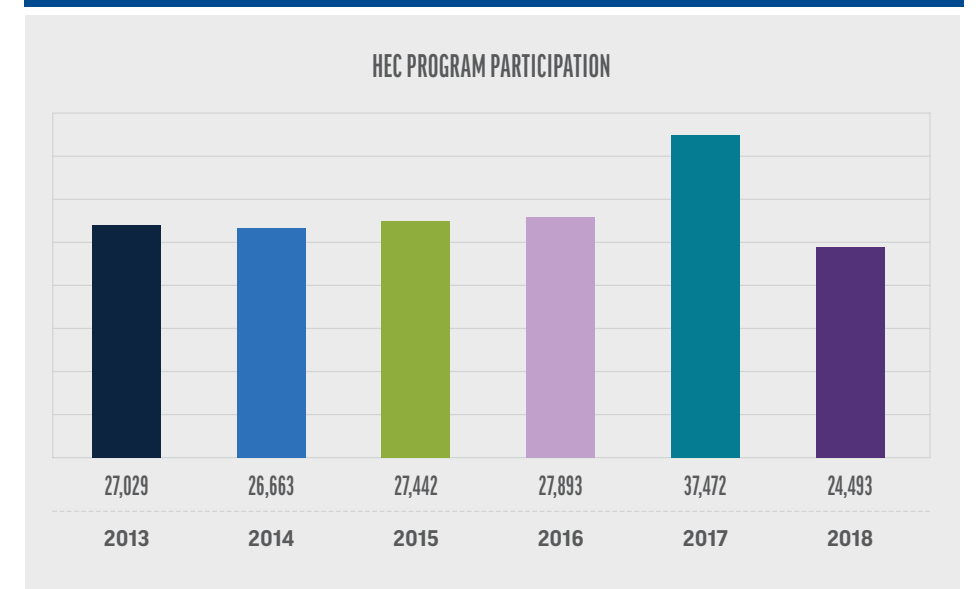
Chart 27 – 2018 HEC Program Spending and Verified Net Savings



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 2018 numbers on **Chart 31**.

Chart 28 – HEC Program Participation



Program Outlook

- The HEC program is looking to leverage its high-quality customer touch to create continuing customer engagement in 2019.
- The Alliance for Deaf Services outreach has been extended through 2019.
- In 2019, the program is adding Tier 1 power strips to the complement of measures for low-income customers.

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 night lights, 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

- 8,800 multifamily units received direct install energy-efficient measures.
- 38 electric “common area” jobs were completed.
- 72 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 not previously participated is getting difficult.
- Untouched properties are smaller in size, so less savings per property is achieved.
- 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

- All responsibilities outlined in the settlement agreement were achieved by the program.

Collaboration Efforts

- The Multifamily program collaborates with Consumers Energy to perform direct-install measures. Working together to jointly serve energy company 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.
- Shared learnings among the parties (DTE, Consumers, Walker-Miller Energy Services, and Franklin Energy Services).
- During 2018, over 2,900 collaborative units were completed.

Lessons Learned

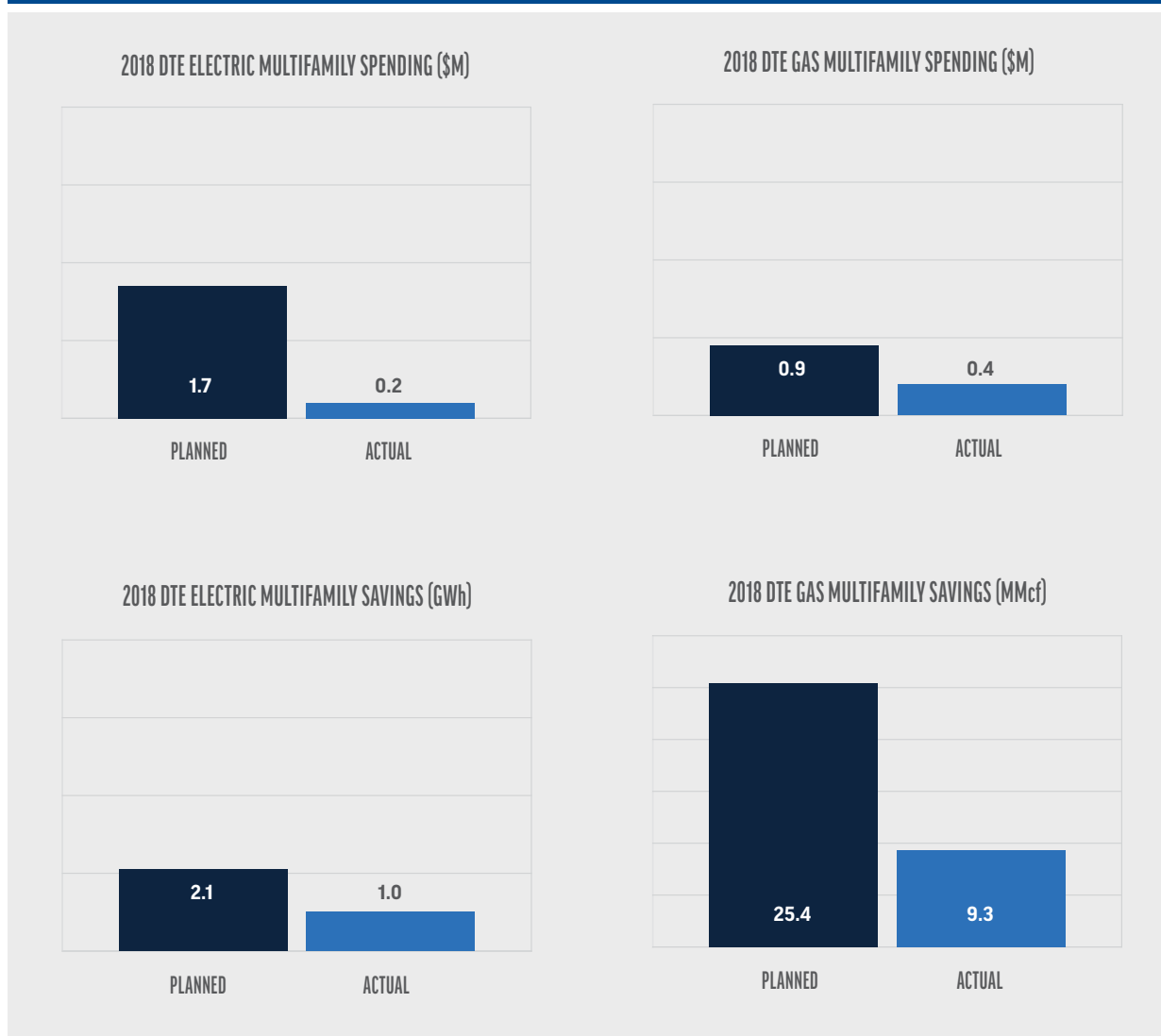
- As the program matures, direct-install measure opportunities decrease as do the remaining untouched property sizes, making it more difficult to meet energy-savings goals.
- Low-income properties have opportunity for common area improvements.

Spend and Verified Net Savings Results

- DTE Electric spent \$0.2 million on the Multifamily program. This was \$1.5 million less than the planned 1.7 million.
- DTE Electric saved 1 GWh of verified net energy-savings with the Multifamily program. This was 1.1 GWh less than planned 2.1 GWh.
- DTE Gas spent \$0.4 million on the Multifamily program. This amount was \$0.5 million less than the planned \$0.9 million.
- DTE Gas saved 9.3 MMcf of verified net energy-savings. This was 16.1 MMcf less than the planned 25.4 MMcf.

Chart 29 summarizes the 2018 DTE Electric and DTE Gas spend and verified net savings results for the program. (Does not include low-income multifamily units.)

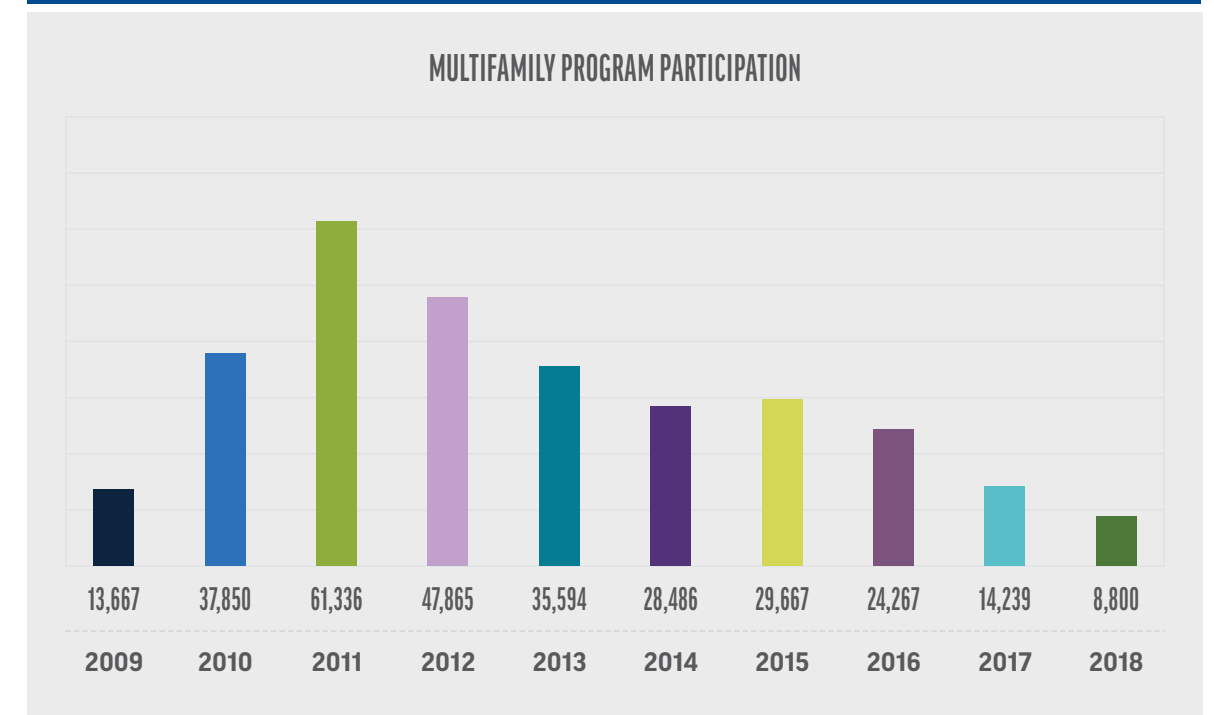
Chart 29 - 2018 Multifamily Program Spending and Verified Net Savings



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 2018 numbers on **Chart 31**.

Chart 30 - Multifamily Program Participation



Program Outlook

- In 2019, we are implementing a low-income multifamily program with much higher rebates to stimulate deeper savings.

LOW-INCOME PROGRAM (DTE ELECTRIC AND DTE GAS)

Program Description

The objective of the Low-Income program is to provide recommendations, direct installation of qualified EWR measures and education to income-qualified DTE customers in order to assist them in reducing their energy use and managing their energy company 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 deep savings measures, such as weatherization, furnace tune-up and replacement, insulation, water heater replacement, 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. The low-income multifamily program also expanded its measure offerings to multifamily tenants to include more expensive items, such as refrigerators, also at no cost to the customer. In addition to the measures’ installations, 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 light bulbs 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, water heater replacement, and heating system tune-ups or replacements (where health and safety issues were present).
- In 2018, 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

- Midyear investments into the program were slower to ramp up than expected due to additional contractor and agency onboarding, training, and timing constraints.
- Food pantries and local community organizations needed an easier way to request energy-efficient lighting packages so that packages went to where they are most needed.

Accomplishments

- Over \$2,000,000 in low-income single-family spending supports compliance with 2018-2019 rate case settlement.
- An additional \$250,000 in low-income multi-family spending supports compliance with 2018-2019 rate case settlement.
- Distributed over 200,000 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 4,295 requests for funding of home weatherization and furnace tune-ups or replacements.
- Provided over 2,700 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 energy 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.
- The program developed a collaboration with The Heat and Warmth Fund (THAW). This pilot focused on creating an agency partner who was able to coordinate direct installations while at the same time providing bill assistance in one package.

Lessons Learned

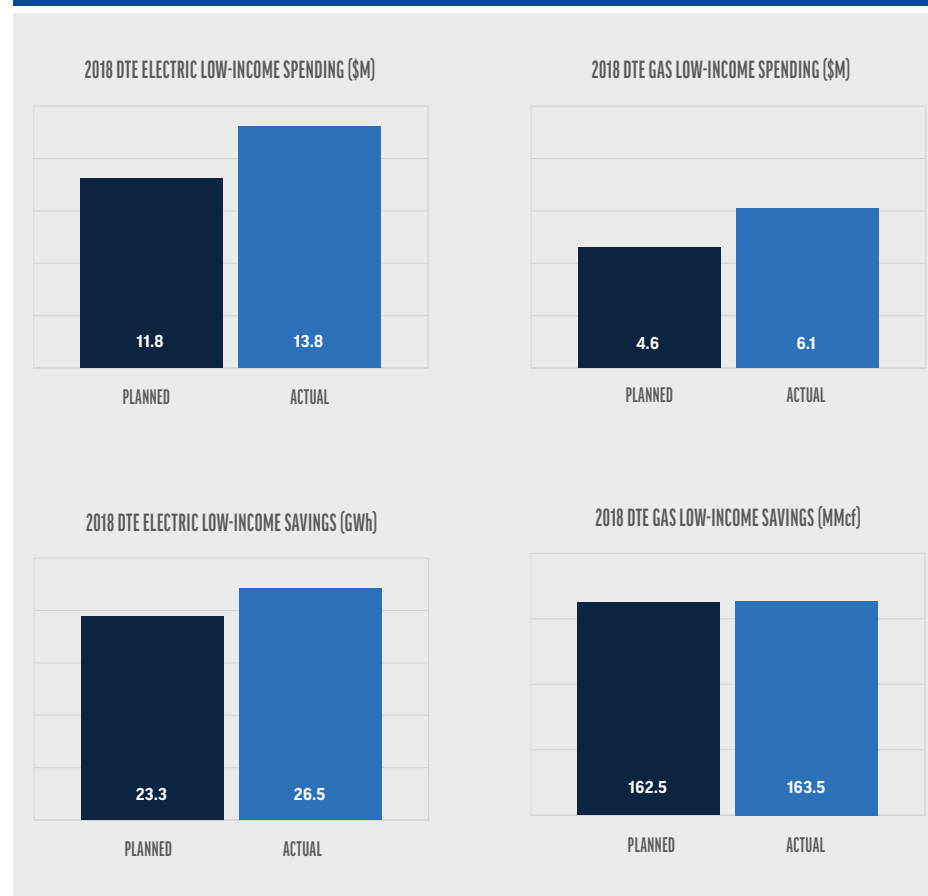
- Quality assurance and control processes and customer follow up help ensure the best energy-efficiency installations and service for DTE's low-income customers.
- The program is enhanced when landlords contribute toward heating and cooling system upgrades (among others) that improve their property, 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-savings 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 \$13.8 million on the Low-Income program. This amount was \$2 million more than the \$11.8 million planned.
- DTE Electric saved 26.5 GWh of verified net energy-savings. This was 3.2 GWh more than the 23.3 GWh planned.
- DTE Gas spent \$6.1 million on the Low-Income program. This amount was \$1.5 million lower than the \$4.6 million plan. DTE Gas saved 163.5 MMcf of verified net savings. This was 1 MMcf more than the 162.5 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.

Chart 31 – 2018 Low-Income Program Spending and Verified Net Savings

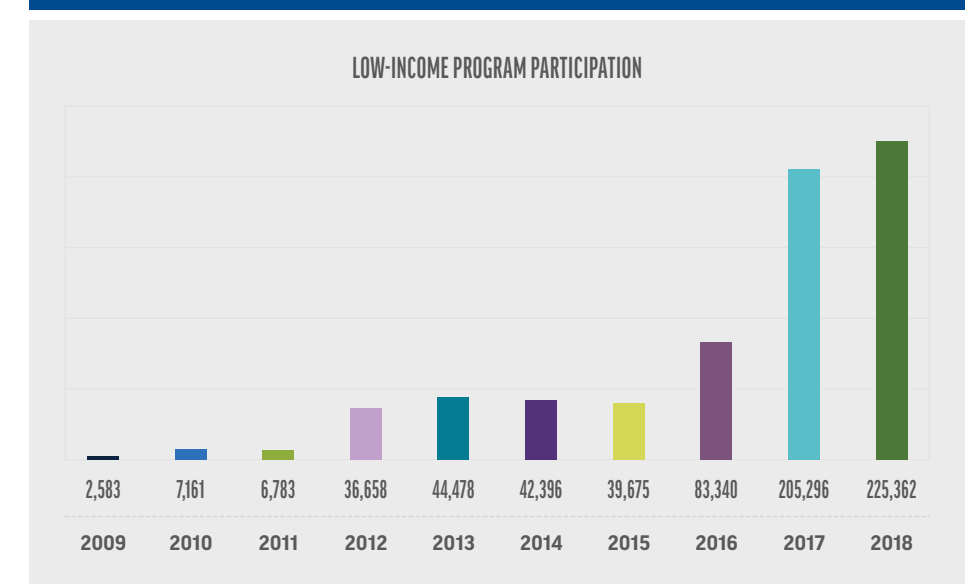


Program Participation

- Customer participation in the program continued to increase significantly in 2018 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.

Chart 32 – Low-Income Program Participation



Program Outlook

- DTE Electric and DTE Gas spending and savings are expected to stay flat beyond 2018.

RESIDENTIAL EMERGING MEASURES & APPROACHES

Program Description

The residential Emerging Measure 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 in 2018 included the Revolving Loan Fund program.

The Revolving Loan Fund program is designed to serve customers that are not eligible to participate in the Low-Income program but still are facing financial challenges in participating in the normal programs. This program targets customers that are above 200% Federal Poverty Levels (FPL) but are below 300% FPL.

Customers with incomes over 200% FPL but less than 250% FPL will have customized grant/loan split developed that allows customer to make major energy-efficiency upgrades and be annually cash flow neutral between the energy-savings and loan payment.

Customers with incomes over 250% FPL but less than 300% FPL will be provided a grant/loan split of 50% each.

The program began its foundational design phase in 2018. Program participation, and therefore the installation and financing of energy-efficient measures will begin in 2019.

Highlights

- Customers that have been traditionally underserved will have an option to participate.
- The Revolving Loan Fund program will offer customer financing options paired with grant amounts that provide an opportunity for these customers to participate.
- DTE has committed to operate this program for four years.

Challenges

- Until cost-effectiveness is better understood in the portfolio, the program is limited in size to 25-30 participants per year.

Accomplishments

- DTE is unaware of this program design elsewhere.

Collaboration Efforts

- The Revolving Loan Fund program is being operated with Michigan Saves.

Lessons Learned

- Program success will be dependent of both the customer engagement, as well as engagement from trade allies willing to be paid through external financing and work with the verification requirements that are associated with the program.

Spend and Verified Net Savings Results

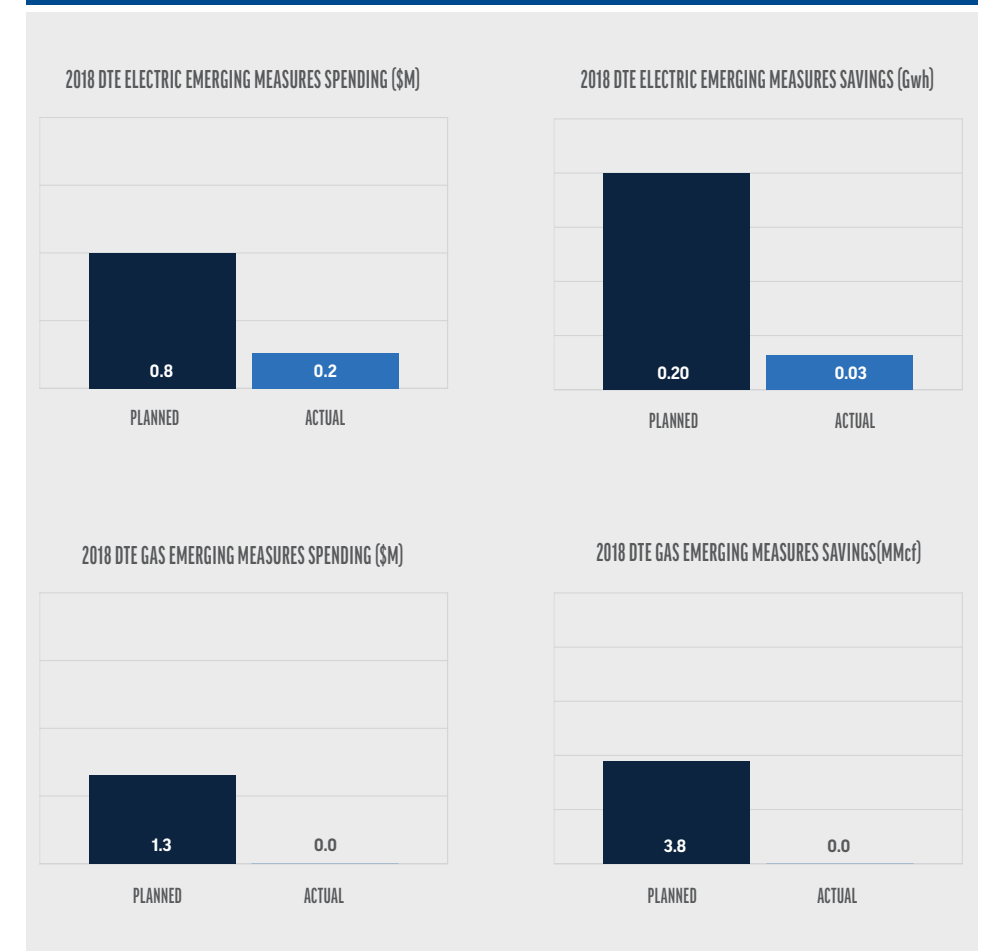
- DTE Electric spent \$250,000 toward the funding and administration of the program in 2018.
- There were no savings associated with the program in 2018, as no measures were installed at that time.

Chart 33 summarizes the spend and verified net savings results.

Program Outlook

- DTE Electric and DTE Gas spending and savings for the Emerging Measures and Approaches program are dependent on the pilots that are found to be ready for commercialization.

Chart 33 - 2018 Emerging Measures & Approaches Program Spending and Verified Net Savings



Commercial & Industrial (C&I) Programs

(DTE ELECTRIC AND DTE GAS)

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 businesses, improving their bottom lines. 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 C&I customers can apply for energy-efficiency incentives under these programs. As part of DTE C&I Emerging Measures and Approaches, DTE has commercialized the Midstream Lighting program and Business Energy Consultation (BEC) to our small-to-medium-business customers. Retro Commissioning was a commercialized program but has now been brought back to Pilots to be re-engineered.

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'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 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 2018 that was used to implement the C&I EWR programs in 2009 – 2017, 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.

	Electric	Gas
Customer	\$1,000,000	\$300,000

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% of the total custom project cost to purchase and/or install the eligible energy-efficiency measure(s). Several proactive specials were launched in 2018 to create broader customer participation. These included the promotion of Gas Express program, boiler tune-ups and stream traps, an LED Streetlight program, and DLC LED Lighting Special.

In 2018, EWR C&I programs performed well. In total, the EWR C&I programs achieved 370.6 GWh of verified net electric savings, which was approximately 4 percent above the 2018 plan of 357.6 GWh, and 722.3 MMcf of verified net gas savings, which is approximately 11 percent more than the 653 MMcf plan.

Chart 34 is a summary of the spending and verified net energy-savings achieved by each EWR C&I program in 2018, 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, Midstream Food Service, 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 Midstream Food Service and Business Energy Consultation.) No customers participated in the gas Self-Direct option.

Chart 34 - 2018 C&I Spending and Verified Net Savings

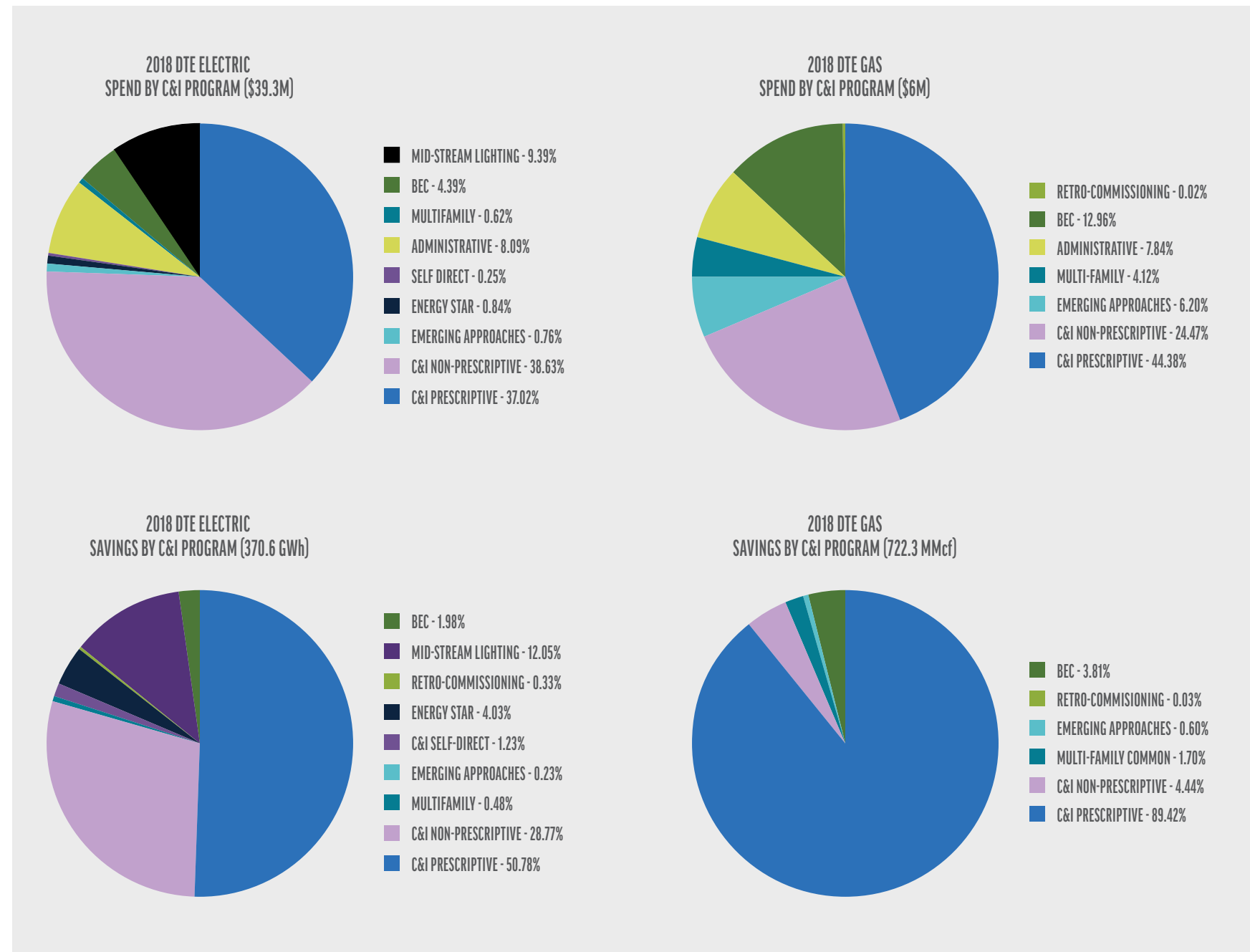


Chart 35 summarizes the electric and gas spending, and verified net energy-savings for the entire 2018 EWR C&I program.

The C&I programs received high customer satisfaction scores in 2018 as 93 percent of customers responded with “satisfied” or “extremely satisfied” ratings. In 2018, 203,526 customer applications were part of the C&I Electric and Gas programs.

Chart 35 – 2018 C&I Program Spending and Verified Net Savings

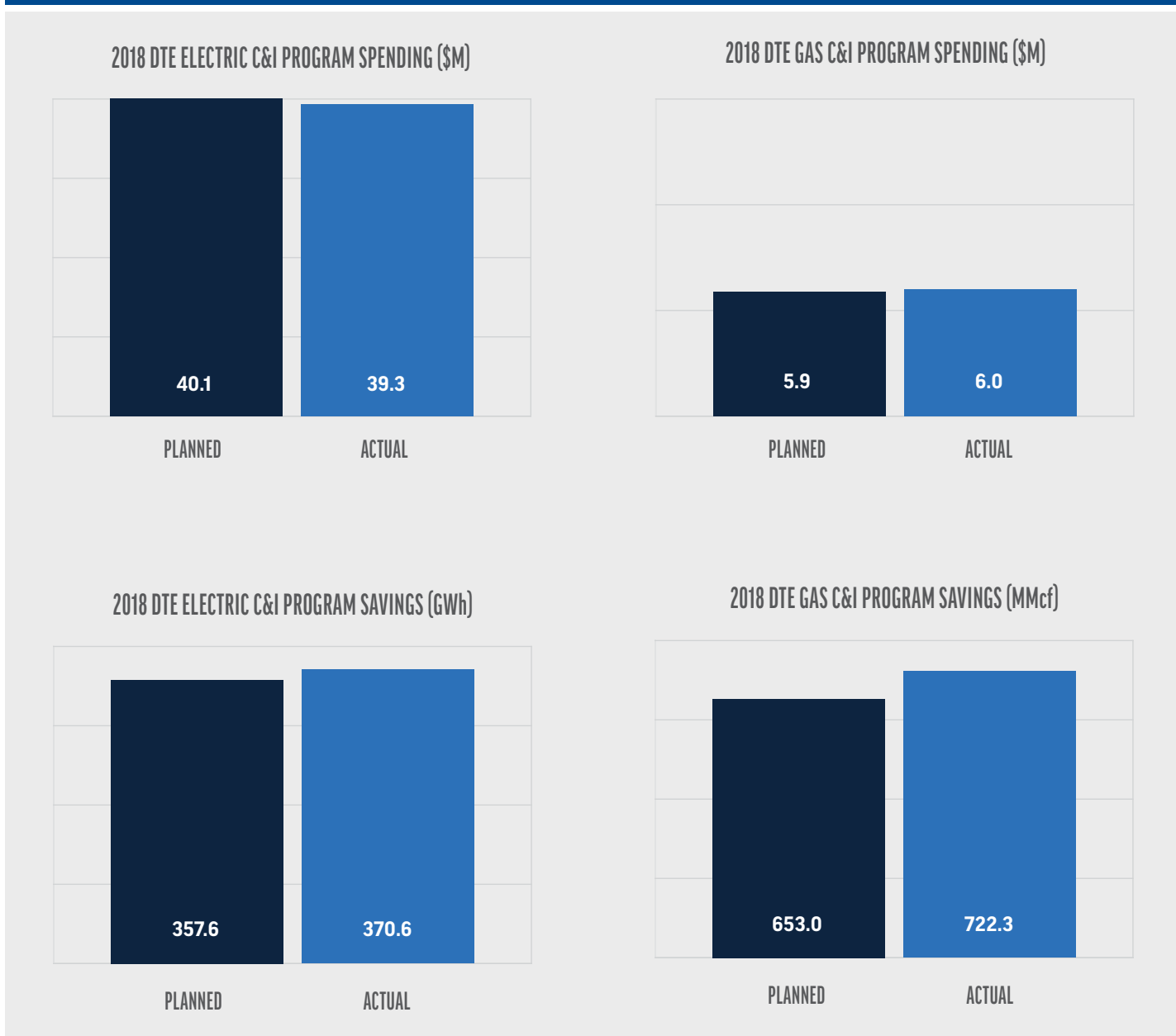
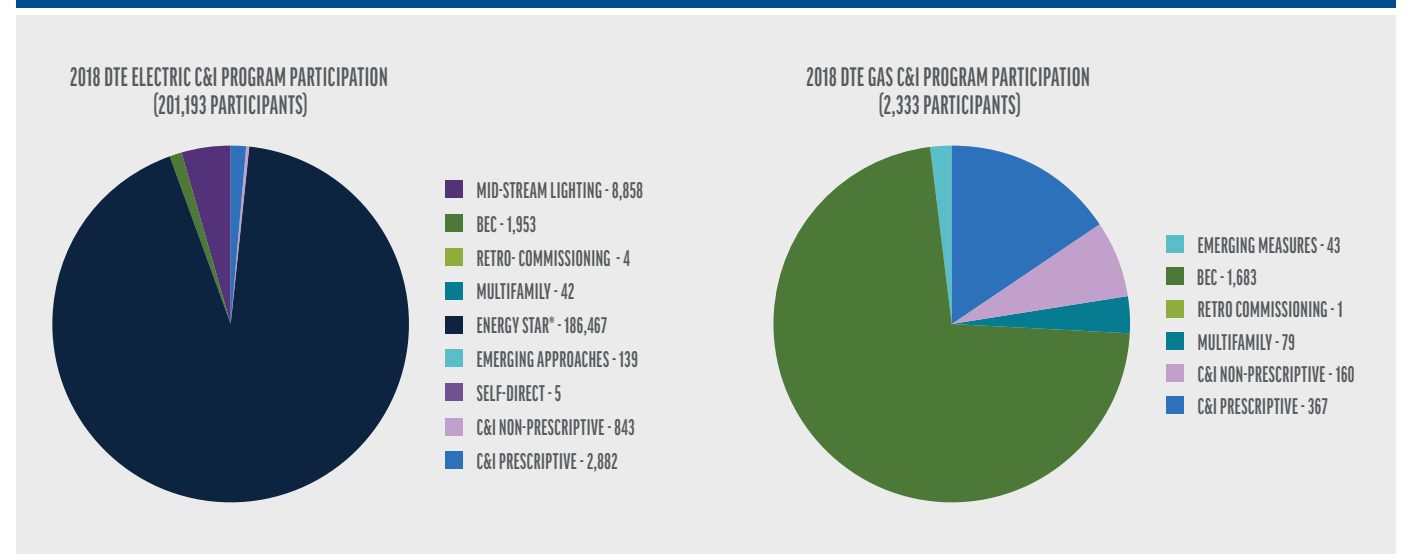


Chart 36 summarizes the number of customers participating in each of the C&I program categories.

Chart 36 – C&I Program Participation



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 C&I 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 not limited to: LED lighting and fixtures, control systems, HVAC, food service and refrigeration 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 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 2018 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 51% of electric savings in 2018.
- As a measure category, lighting continues to be a leading prescriptive measure.
- Michigan Saves financing option was used on over 181 projects.
- An Agricultural program offering is available to serve the agricultural industry.
- The greatest electric savings (more than 50%) came from combined Industrial businesses.

DTE Gas

- Prescriptive program offers more than 50 gas prescriptive measures in addition to its custom measures.
- HVAC system measures, such as process 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 process, HVAC controls and Boiler/furnace tune-ups.
- The Agricultural program offering continues to target the agricultural industry.
- The greatest gas savings (over 60%) came from the following vertical markets: light industry, heavy industry, and offices.

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.
- Completed 78 C&I customer energy assessments, which included 12 Strategic Energy Plans.

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.
- 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 \$14.5 million on the C&I Prescriptive program. This amount was \$1.1 million more than the approved 2018 EWR plan. The Prescriptive program overspend was allocated to the Emerging Measures and Approaches.
- DTE Electric Prescriptive program saved 188.2 GWh of verified net energy-savings. This was 44.2 GWh more than the approved 2018 plan.
- \$1.8 million was spent on the C&I component of the 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 1.8 GWh for the Multifamily program and 14.9 GWh for the Retail Lighting program.

DTE Gas Prescriptive Program

- DTE Gas spent approximately \$2.6 million on the C&I Prescriptive program which was around \$30,000 less than the approved 2018 plan.
- DTE Gas saved 645.9 MMcf of verified net energy-savings. This was 357.6 MMcf more than the approved plan of 288.3 MMcf.
- \$0.2 million was spent on the C&I component of the Multifamily program for common area measures.
- Energy saved was approximately 12.2 MMcf for the Multifamily program.

Chart 37 summarizes the spending and verified net savings results for the DTE C&I Prescriptive program and includes the C&I portion of the Multifamily and ENERGY STAR Retail Lighting programs.

Program Participation

- There were 1918 customer applications in 2018 for the Electric C&I Prescriptive program and an additional 42 multifamily applications.
- The gas C&I Prescriptive program had 324 customer applications and an additional 79 multifamily applications.

Chart 38 summarizes C&I Prescriptive program participation.

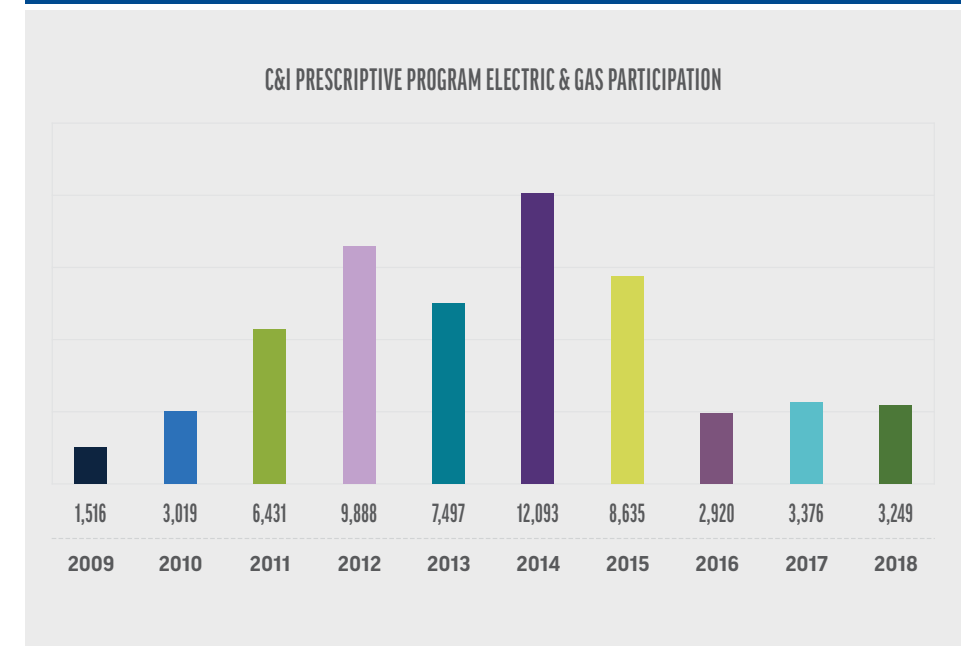
Program Outlook

- 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.

Chart 37 – 2018 C&I Prescriptive Spending and Verified Net Savings



Chart 38 – C&I Prescriptive Program Participation



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

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 2018 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% 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 29% of electric savings in 2018.
- Over 30% 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%) 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 4% 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 (over 60%) came from large industrial, light industrial, and the office markets.

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.
- 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, which is being implemented by DTE, 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 a multiple marketing strategies and potentially additional resources.

Spend and Verified Net Savings Results

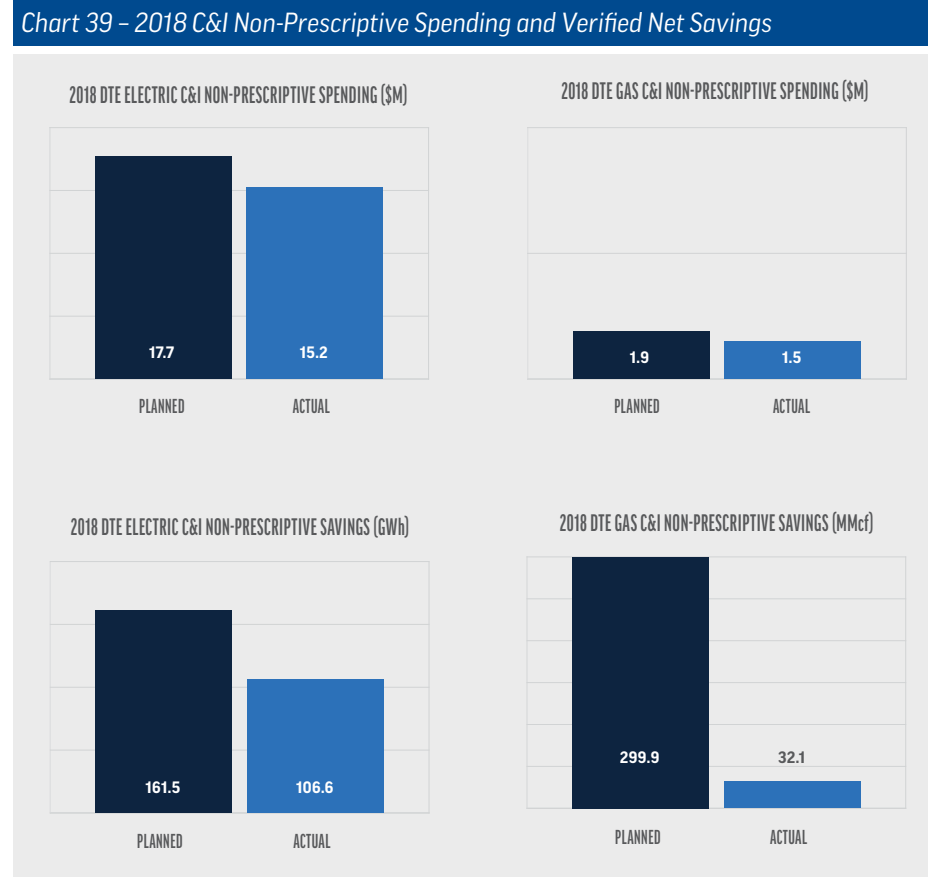
DTE Electric

- DTE Electric spent \$15.2 million on the C&I Non-Prescriptive program. This amount was \$2.5 million less than the \$17.7 million in the approved plan.
- DTE Electric saved 106.6 GWh of verified net energy-savings. This was 54.9 GWh less than planned.

DTE Gas

- DTE Gas spent \$1.5 million on the C&I Non-Prescriptive program. This amount was approximately \$0.4 million less than the approved plan of \$1.9 million.
- DTE Gas saved 32.1 MMcf of verified net energy which was 267.8 MMcf less than planned.

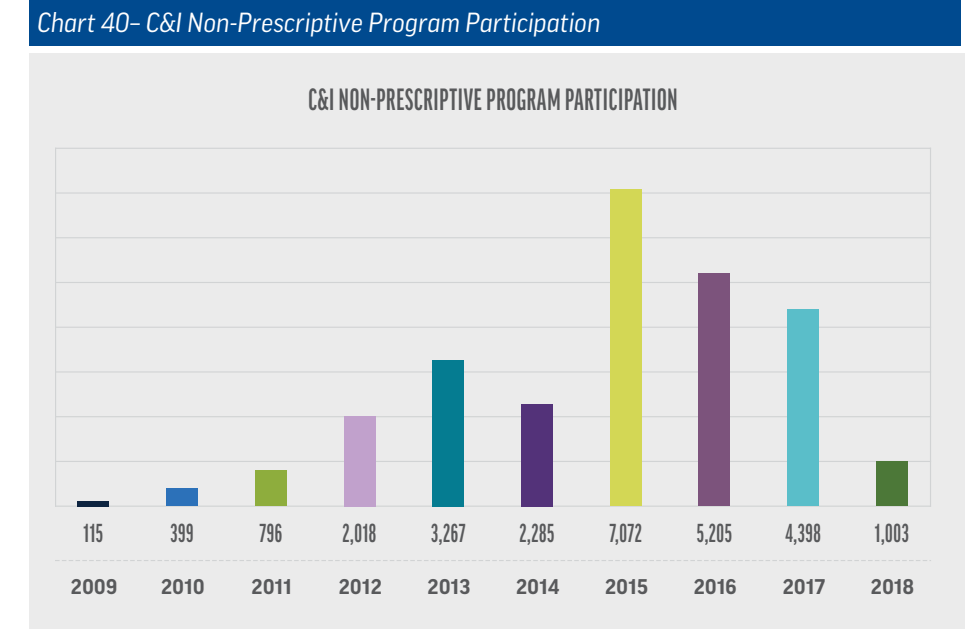
Chart 39 summarizes the spending and verified net savings results.



Non-Prescriptive Program Participation in 2018

- DTE Electric processed 843 customer applications.
- DTE Gas had 160 customer applications.

Chart 40 summarizes the C&I Non-Prescriptive program participation.



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 Midstream Food Service program is the only current EM&A program.

The Midstream Food Service program is a simplified marketing approach that targets food service cooking equipment distributors that provide a point of purchase incentive to the customer for purchasing and installing energy-efficient certified food service equipment.

Highlights

DTE Electric & DTE Gas

- Midstream Food Service was well received by C&I customers, distributors, and trade allies.
- The greatest vertical market opportunities for the Midstream programs are small- and medium-sized commercial DTE Customers.
- Midstream Food Service exceeded DTE expectations for distributor participation.

Challenges

- Effectively increasing small business participation.
- Small business customers require different strategies and tactics than larger Commercial & Industrial customers.
- Identifying new product offerings for Midstream Food Service.
- Creating awareness for new product offerings in Midstream Food Service.
- Identifying and on-boarding new distributors for Midstream Food Service to continue program growth.

Accomplishments

- Midstream Food Service allowed the C&I portfolio to meet its increased EWR goals that were implemented, while not negatively impacting the Prescriptive and Non-Prescriptive programs.
- The Business Energy Consultation (BEC) and Midstream Lighting programs were commercialized through their success as EM&A programs.

Collaboration Efforts

- Conducted Product Knowledge workshops that targeted specific technologies in which DTE designated trade allies were the main presenters.
- Collaborate with ENERGY STAR® on energy-efficient Food Service equipment qualification requirements.

Lessons Learned

- Small business customers are receptive to learning about the benefits of EWR measures.
- Touching the largest number of small businesses will require multiple marketing strategies, and additional resources will likely be needed.

Spend and Verified Net Savings Results

DTE Electric

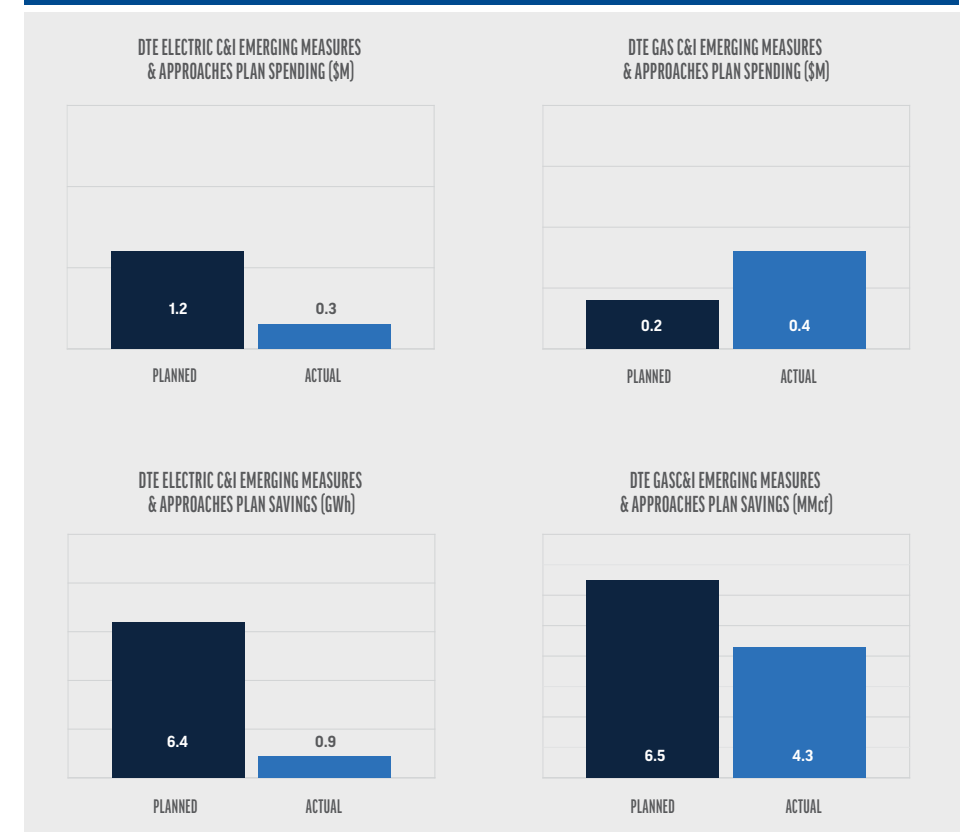
- DTE Electric spent \$0.3 million on the Emerging Measures & Approaches Programs. This amount was \$0.9 million less than the \$1.2 million in the current plan.
- DTE Electric saved .9 GWh of verified net energy-savings. This was 5.5 GWh less than the 2018 EWR plan.

DTE Gas

- DTE Gas spent \$0.4 million on the C&I Emerging Measures & Approaches programs which was \$0.2 million more than planned.
- DTE Gas saved 4.3 MMcf of verified net energy which was 2.2 MMcf less than plan.

Chart 41 summarizes the Emerging Measures & Approaches program spend and savings.

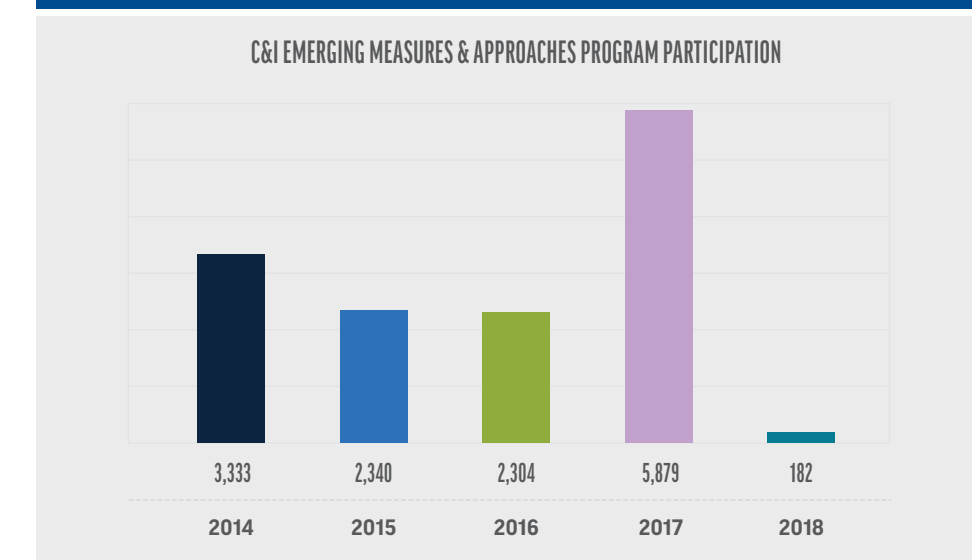
Chart 41 – 2018 C&I Emerging Measures & Approaches Spending and Verified Net Savings



Program Participation

Chart 42 summarizes the DTE Electric Emerging Measures & Approaches program participation.

Chart 42 - C&I Emerging Measures & Approaches Program Participation



Program Outlook

- The Midstream Food Service program will continue to grow and provide instant discounts for energy-efficient commercial food service equipment.

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 2018, five 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 2018 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

- Five electric customers participated in the 2018 Electric Self-Direct program.
- No gas EUT customers participated in the 2018 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 2018 was 1.0%.

Lessons Learned

- Customers adhere to the program requirements, submitting plans and annual reports.
- Account managers assist in communication to those customers.

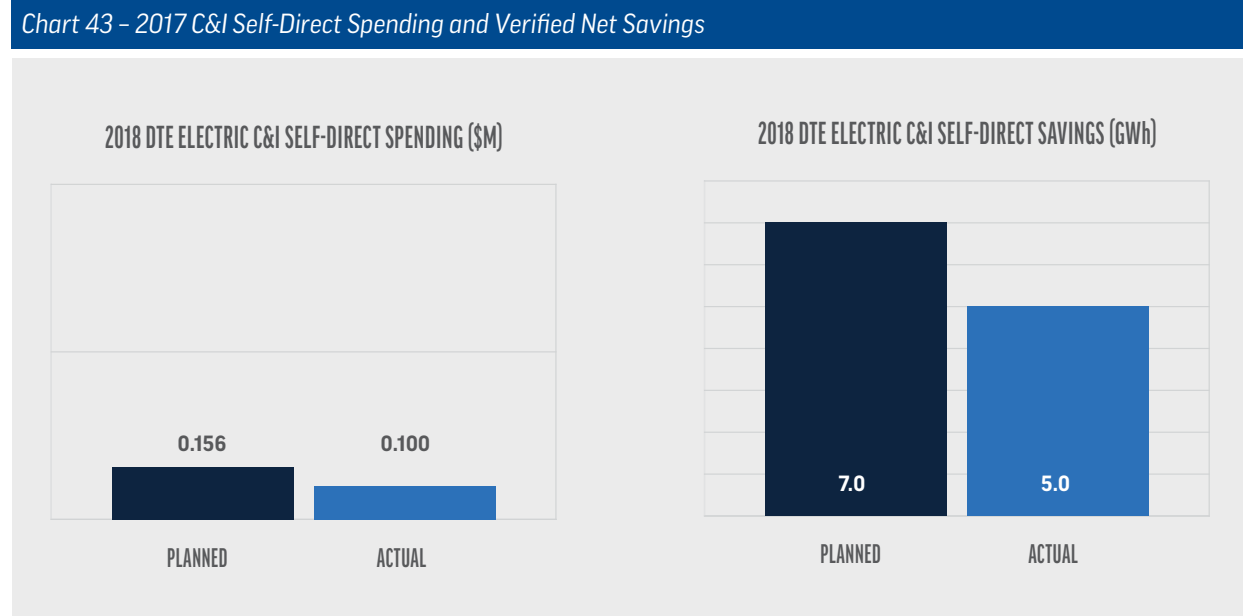
Spend and Verified Net Savings Results

DTE Electric

- DTE Electric spent \$0.1 million on the C&I Self-Direct program.
- DTE Electric saved 5.0 GWh verified energy-savings, which was 2GWh less than planned.



Chart 43 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 customers' annual reports.

Accomplishments

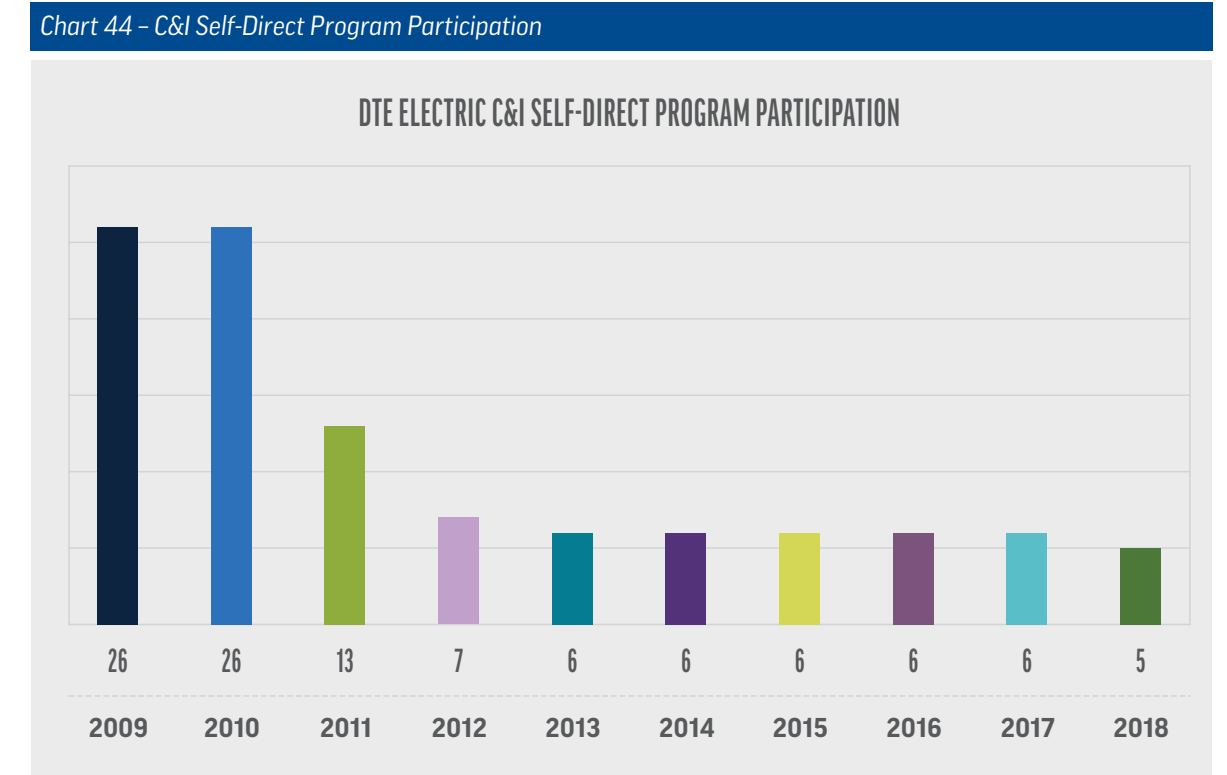
- All five customers' reports were received on time.
- Five customers reported meeting or exceeding their energy saving goal.

Collaboration Efforts

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

Program Participation

Chart 44 summarizes the DTE Electric C&I Self-Direct program participation.



Program Outlook

- Based on current program offerings, DTE does not anticipate any significant changes.
- DTE Gas Self-Direct program did not have any customers apply in 2018, so the projected spend and savings are zero.

Education & Awareness (E&A) Program (DTE ELECTRIC AND DTE GAS)

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 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 2018, DTE 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 2018, 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 2018 are as follows:

- Residential campaigns including radio, print, direct mail and digital advertising focused on low-cost or no-cost tips. Beyond energy-efficiency, message themes to the advantage of making these home improvements included improved comfort.

- Small business campaigns including radio, 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.
- Various contests and promotions were held at events and online to educate and engage customers about energy-efficiency.
- Events for residential and business customers such as the DTE and Engineering Society of Detroit (ESD) Energy-Efficiency Conference, trade associations events, community festivals, and Earth Day events.
- Sports sponsorships, including partnering with the Detroit Red Wings, Detroit Lions, Detroit Tigers, The Whitecaps, and Griffins where direct event marketing opportunities were executed along with various additional messaging.
- Every year since 2015, DTE sponsorships have included the USGBC's Michigan Battle of the Buildings Competition to reach businesses.
- Employee outreach through the DTE intranet, employee events, and monthly and weekly electronic newsletters.

As in previous years, new collateral was updated with fresh messaging and was created in an effort to educate customers on energy-efficiency. This included brochures, case studies, trinkets, shade banners, ambassador cards, and energy-saving tips handouts. In addition, a print 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 2018, overall customer satisfaction with DTE 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. Continuing messaging related to improving comfort and other non-energy benefits, such as safety, environment and productivity was leveraged in an effort to keep messages engaging. 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.

Accomplishments

- In 2018, the DTE electric residential familiarity with energy-efficiency programs was 50%, surpassing the national and Midwest large energy company average.
- In 2018, DTE achieved a first quartile score for variety of energy-efficiency programs offered for business customers.

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 30,000 entries.
- Detroit Red Wings sponsorship and contests—Engaged fans through email communications, website features and on-site scoreboard messaging. More than 33,000 entries were received.
- Participation in more than 44 community events.
- Executed 142 direct outreach tactics 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

- Continued the Business Pride contest among customers allowing them to tell their story of energy-efficiency improvements and why they're proud of their business. We selected winners and provided them an energy-efficiency makeover and developed their story into media and communications to educate other business customers about energy-efficiency.
- Executed 77 direct outreach tactics 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 offered by the US Green Buildings Council. The competition is an awards and recognition program for energy use reduction 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.
- Continued the relationships with the Detroit 2030 District and Grand Rapids 2030 District community programs. In 2018, we created a new partnership with the Ann Arbor 2030 district. This effort will encourage the member businesses in Ann Arbor to become more energy-efficient and serve as a communication channel to reach these audiences. This is a collaborative business community effort in which they sign themselves up to be more sustainable, obviously including energy-efficiency.

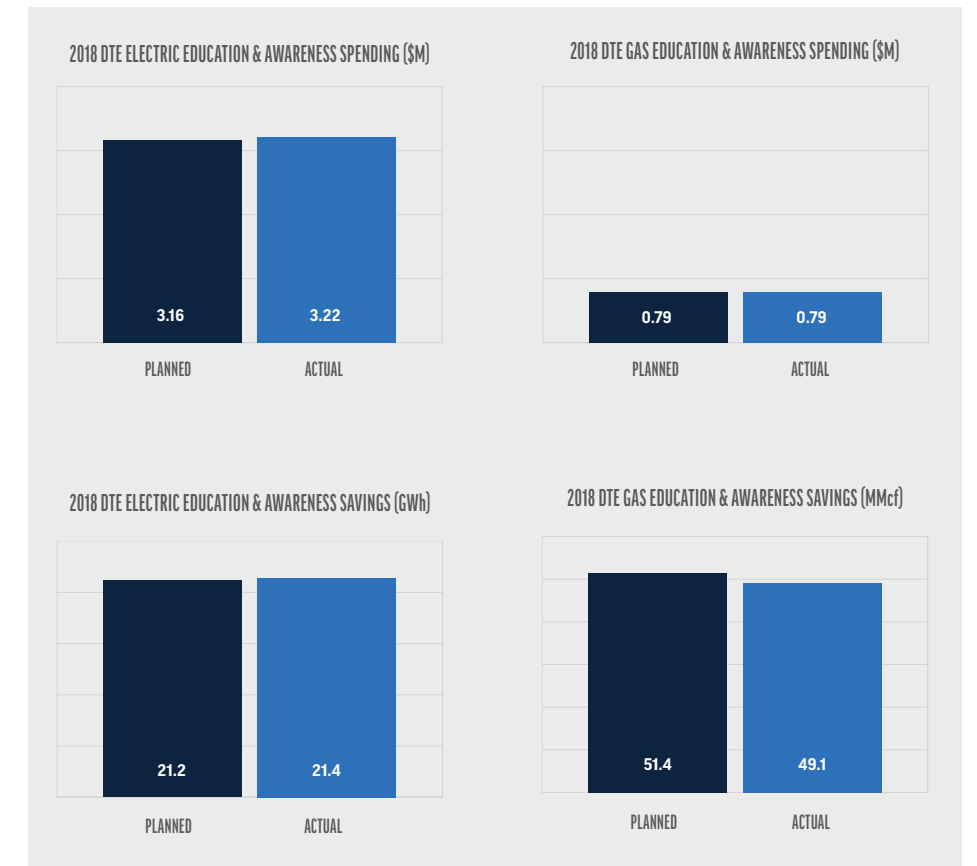
Lessons Learned

- Partnering with business organizations such as chambers of commerce and associations creates advocates for the programs and information.
- Mass media is 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 45 summarizes the spend and associated verified net savings results for E&A.

Chart 45 – 2018 E&A Spending and Verified Net Savings



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 resonate with the target audience.

Pilot Programs

(DTE ELECTRIC AND DTE GAS)

Program Description

The purpose of the Pilot program was to explore technologies and approaches not included in the commercialized programs described in the approved 2018 EWR Plan. The Pilot program also enabled DTE to measure energy-savings and test 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 both Residential and C&I programs.

Highlights

The Pilots team targeted a variety of projects across the portfolio in 2018. The following are examples of Residential and C&I pilot projects implemented:

Residential Focus

HVAC Tune-Up Developed as a joint effort between DTE Electric 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 leveraged proprietary applications and tune-up procedures not currently adopted in the DTE Electric service territory. The pilot aimed to serve customers, train contractors on a new approach, and enhance HVAC system efficiencies. The pilot was concluded in 2018.

The Heat Pump Dryers Pilot sought to drive market transformation by educating and incentivizing customers to purchase Heat Pump Clothes Dryer technologies. The pilot incentivized and promoted a variety of ENERGY STAR® Electric Heat Pump Dryer models through an assortment of marketing channels, supplemental to DTE Electric's ENERGY STAR program. The pilot concluded in 2018 with several qualified ENERGY STAR Heat Pump dryer models that are now incentivized with rebates as part of the DTE Electric's Residential ENERGY STAR appliances program.

ENERGY STAR® Retail Product Platform (ESRPP) A National scale, midstream collaboration between energy-efficiency program sponsors, retailers, program partners, and stakeholders facilitated by the U.S. Environmental Protection Agency. ESRPP enabled DTE Electric to engage national retailers to increase availability and accelerate adoption of select ENERGY STAR certified products. ESRPP influenced retailers to stock and promote more energy-efficient models through a combination of mid-stream incentives and engagements that included retailer agreements, marketing, and field services. The pilot was concluded in 2018.

Manufactured Homes Pilot objective was to develop a cost-effective solution to achieve energy-savings for residential customers who reside in a manufactured home. The pilot field-tested a broad range of measures including the installation of duct sealing, roof insulation, belly insulation, pipe wrap, furnace tune-ups, bathroom, kitchen and showerhead aerators, and a variety of LED lighting options. The pilot continues into 2019.

Multifamily Low-Income This pilot was developed to encourage low-income property owners to upgrade their building envelope, mechanical equipment and appliances that save tenants energy and money. The pilot employed a "Concierge Model" that includes an Energy Advisor performing a Level 1 audit assessment, which comprises gathering billing history, visually inspecting the property for energy-efficiency opportunities, energy modeling, and presenting opportunities for the customer to save on their energy bill. The pilot encompasses the gathering of bids from contractors for the project(s) and supervising installation of the measure(s). The pilot will continue in 2019.

Non-Wire Alternative The non-wire alternatives pilot will continue in 2019 with ongoing collaboration with MPSC Staff and stakeholders to explore the potential for geographically targeted energy-efficiency measures to cost-effectively defer distribution system upgrades. The focus includes both Residential and C&I customer segments. Field testing launched in 2018 and continues in 2019.

New Homes Construction This pilot program launched in the fourth quarter of 2018 with the objective of increasing builders' adoption of high-efficiency building practices and methods. Partnering with Home Energy Rating System (HERS) raters and builders, the pilot will evaluate training, field support, marketing and incentives to ensure cost-effective packages are designed to maximize the energy-efficiency of new homes. These measures include appliances, HVAC equipment and insulation. This pilot will continue in 2019.

Home Energy Management (HEM) with DTE Insight This is a multi-year pilot designed to understand customers' willingness to adopt smart home products and smart home functionalities that save energy. In the pilot, market research, benchmarking, competitive analysis, and various pricing scenarios were explored. DTE Insight's platform was enhanced with new features that leveraged smart home connected devices, including voice integration via Amazon Alexa, smart lightbulbs and smart thermostats, and many other connected devices. The pilot is ongoing.



DTE Insight AMR Gas This pilot 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 who have an Automatic Meter Reader (AMR) meter. The pilot identified interconnection issues across both software and hardware. The root cause of these has now been identified and is being resolved. This pilot is in progress.

E-Challenge 3 This is a pilot where DTE has 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, including lighting, HVAC controls and humidification. The pilot produced three finalists and has concluded.

Commercial and Industrial Focus

Strategic Energy Management This pilot provides technical support and financial incentives for customers interested in moving beyond project-by-project energy-savings to managing energy continuously in a holistic approach through Strategic Energy Management (SEM). This program offers up to 24

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 serving hospitals and is ongoing.

Rooftop Unit Market Assessment This 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 has concluded.

Mid-Stream HVAC The pilot was designed to increase the market share of efficient HVAC systems, accelerating the adoption of rooftop air-conditioning by providing streamlined incentives to distributors, which in turn leverage their sales and outreach capabilities. The program is designed to test

and expedite a simple solution for C&I customers, providing an instant discount at the point of sale with the distributor. Paperwork is virtually eliminated for both the end-use customer and energy company. This pilot continues into 2019.

Retro-Commissioning This pilot offers an onsite energy analysis for customers to determine operational energy-efficient measures, with simple payback periods of less than 1.5 years. The focus of the analysis is on controls and HVAC systems, and is on-going.

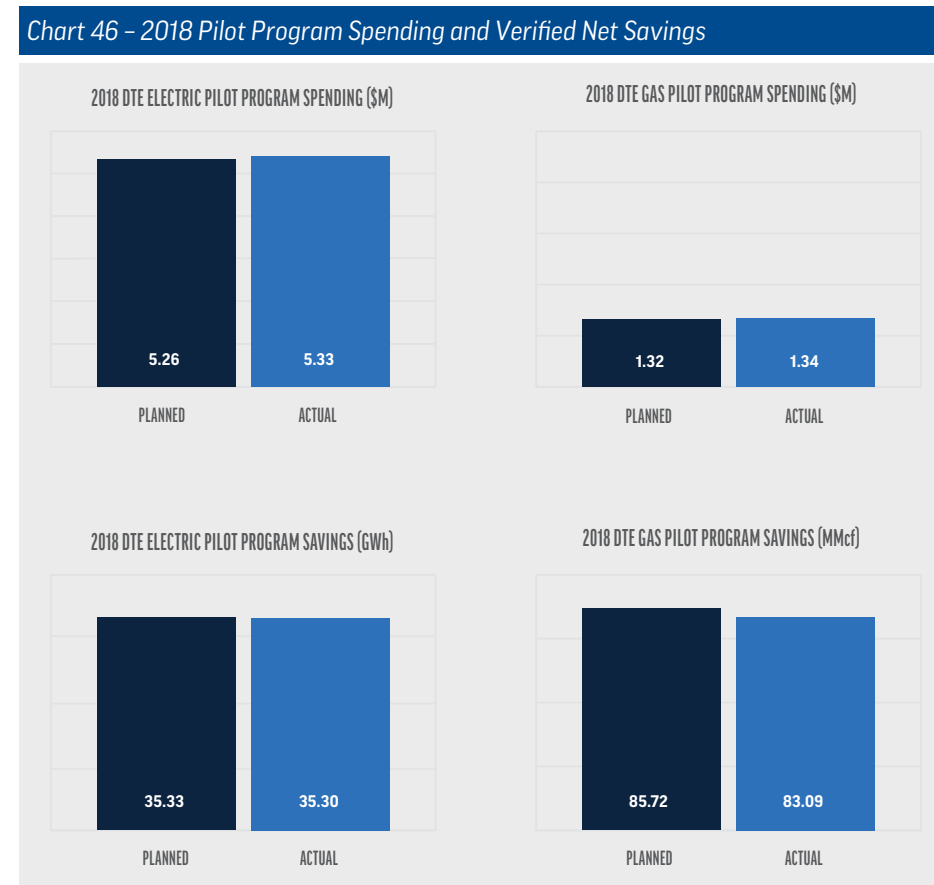
New Commercial Energy Codes This pilot supports the development of training materials for building code officials, builders, designers, contractors, architects, engineers, state code agencies, and commercial trade allies. This activity has concluded.

Acomplishments

- **Market Transformation:**
DTE is recognized as a thought leader and partner, collaborating with other utilities, industry leaders and distributors in pioneering new approaches that accelerate the adoption of energy-efficiency solutions through market transformation.
- **Non-Wire Alternatives:**
Taking a strategic approach, the pilot has received positive recognition for both the innovative design approach and the evaluation methodology, developing potential energy company cost deferment solutions utilizing energy-efficiency enhancements. These are being applied concurrently to both residential and business customers.
- **For C&I customers:**
The Strategic Energy Management pilot provides a unique approach encompassing both technical support and financial incentives, enrolling hospitals in a continuous energy management process to enhance efficiencies. The adoption for energy-efficient roof top air conditioners will be accelerated, following validation of a proven rooftop pilot.

Spend and Verified Net Savings Results

Chart 46 summarizes the spend and associated verified net savings results.



Program Outlook

The Pilots team will continue to serve the future portfolio needs of the EWR team by investigating, exploring and testing new innovations in collaboration with industry leaders and partner utilities. These include:

- Serving underserved communities and working with trade resources to develop partnerships and process enhancements that increase cost-effectiveness and energy-efficiency while laying the groundwork for a commercialized program.
- Exploring opportunities in collaboration with Consumers Energy, to enhance the energy-efficiency of new home construction beyond established building codes.
- Applying open-ended innovation techniques to evolve and study new ideas to fulfill future portfolio needs.
- Exploring new midstream marketing approaches to broaden the reach of additional product markets in both Residential, and Commercial and Industrial applications beyond cooking and HVAC systems.

DTE Electric

- DTE spent \$5.3 million in 2018 on the Electric EWR pilot program. This is \$0.1 million over the planned spend. 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.
- Energy-savings were determined to be 35.3 GWh; this amount was on plan.

DTE Gas

- Consistent with the planned spend, DTE Gas 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 83.1 MMcf in gas savings, which was 2.6 MMcf under the planned 85.7 MMcf.

EWR Program Achievements



Energy-Savings

- Since its inception in 2009, more than 3.8 million electric customers and 2.7 million gas customers have directly participated in DTE's energy-efficiency programs.
- As a result, DTE customers have saved approximately 5,800 gigawatt hours (GWh) of electricity and over 13,000 million cubic feet of gas (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 around ten 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 over two years.

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 customers will save more than \$4.30 in avoided energy costs.

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 2018, 309 Michigan-based jobs have been created by the ICs under contract and with DTE 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

IC Name	Michigan-Based Jobs
DTE Energy	37
ICF International	38
Solutions for Energy-Efficient Logistics (SEEL)	87
DNV-GL	52
Navigant Consulting	13
Walker Miller Energy Solutions	75
Ignite	7
Total	309

Program Participation

Since its inception in 2009, more than 3.8 million electric customers and 2.7 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 2018 alone, more than 770,000 DTE Electric customers and 670,000 DTE Gas customers took control of their energy use through the EWR program and saved millions of dollars as a result.

To give some perspective on the magnitude of this effort, here are some of DTE's 2018 accomplishments:

- Over 500,000 residential customers received Home Energy Reports and over 24,000 Home Energy Consultations were performed at customers' homes, helping them save energy.
- Similarly, over 2,600 small-to-medium-size business customers received Business Energy Consultations at their place of business.
- DTE distributed over 200,000 LED bulbs to approximately 10,000 low-income customers in partnership with local food banks.
- DTE incentivized approximately 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 30,000 customers benefited from HVAC upgrades.
- DTE customers received 23,000 energy saving kits in their homes.
- Over 4,000 of DTE's low-income customers have received home weatherization, furnace tune-up or replacement funding.
- The Schools program was able to serve over 17,000 households in combination service territory, plus over 10,000 electric only households and over 6,500 gas only households through collaboration efforts.
- Business applications served included lighting, lighting controls, HVAC and heating controls, food services, process electric, and food services.
- 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 1,680,000 tons of waste instead of sending it to the landfill, equivalent to 240,000 garbage trucks.
- The annual carbon emissions reduction from over 576,000 homes' energy use for one year.
- A reduction in the greenhouse gas emissions equivalent to more than 1,020,000 cars driven in one year.
- The carbon sequestered by over 5.6 million acres of forest in one 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 Waste Reduction Collaborative. Currently Navigant Consulting fulfills this role for DTE.

DTE 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). The 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 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.

Challenges

Opportunities and challenges lie ahead, and DTE is well-positioned to continue to provide value to its customers and other stakeholders through a robust and well-run energy-efficiency program. Beyond 2018, 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, DTE may face other challenges such as:

- DTE's EWR portfolio is now in its eleventh year and is experiencing some saturation of existing programs.

- There are many unknowns associated with the implementation of the Energy Independence and Security Act (EISA) lighting standards, as well as the upgrades to building codes, and the rollout of increasingly strict appliance efficiency standards. Old planning assumptions about what portfolios can achieve, based on high levels of LED residential lighting savings, are no longer applicable. For example, DTE currently relies on lighting for approximately 70% of its residential energy savings. The implementation of EISA lighting standards may have a significant impact on DTE's ability to achieve energy-savings in the future.
- Customer baseline installed efficiency keeps rising as energy-efficiency programs and other factors make customers more energy-conscious. This will continue to decrease NTG ratios as free-ridership increases.
- Non-incentive costs will likely increase when attempting to capture hard-to-reach segments, further increasing cost to DTE's customers, necessitating higher rates.
- There is uncertainty around design and delivery of emerging and future pilot programs.

Implementation Contractors

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

Table 9 - List of Implementation Contractors

IMPLEMENTATION CONTRACTOR LISTING			
EWR Program	IC Name	Corporation Location	Local Office
ENERGY STAR® Products, HVAC, Audit & Weatherization	ICF International/Ignite	Fairfax, VA Birmingham, MI	Detroit, MI Birmingham, MI
Online Energy Audits, Energy-Efficiency Assistance, Home Energy Consultations, Multifamily	Walker-Miller Energy Services	Detroit, MI	Detroit, MI
Schools	National Energy Foundation	Salt Lake City, UT	Milford, MI
Business Energy Consultations, Appliance Recycling	Solutions for Energy Efficient Logistics (SEEL)	Detroit, MI	Detroit, MI
Behavior	OPOWER	Arlington, VA	N/A
C&I Programs	DNV-GL	Oakland, CA	Detroit, MI
EM&V	Navigant Consulting	Chicago, IL	Ann Arbor, MI

Conclusion



2018 was another successful year for DTE'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 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 2018 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's customers.

Opportunities and challenges lie ahead, and DTE is well-positioned to continue to provide value to its 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.

2019 will be another pivotal year for DTE's EWR program, as DTE 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.