CEE Annual Industry Report

2014 State of the Efficiency Program Industry

BUDGETS, EXPENDITURES, AND IMPACTS

Consortium for Energy Efficiency

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PURPOSE AND LIMITATIONS

The purpose of this report is to provide an annual time series analysis, a point in time report for the US and Canadian program industry on trends in energy efficiency and demand response budgets, expenditures, and savings. While this effort constitutes a large and comprehensive survey of program administrators, and while extensive ongoing attention is devoted to data standardization, CEE cautions against making representations and comparisons beyond those provided in this report.

The report documents electric and natural gas DSM program industry trends at the regional and national level in the United States and Canada based on data collected through a survey of DSM program administrators. CEE believes that using these data to analyze trends at the national and regional level accurately portrays the annual state of the industry. The limitations of the data are disclosed below.

There are many limitations to budget, expenditures, and savings data in the DSM industry. First, an individual or group of individuals within each responding organization reports these data. Although CEE and our collaborator AGA work closely with each responding organization to help respondents properly interpret survey questions and enter the correct information, the accuracy of the data is not verified with any third party. Second, respondents provide data at different times during the data collection period from June to October, and not all program administrators report their information according to the calendar year. CEE and our collaborator have sought greater consistency in data collection from respondents over the years, however, the accuracy of the data are ultimately dependent upon each individual respondent's interpretation of the survey questions and ability to retrieve the relevant information. Furthermore, variation in state policies and reporting requirements along with inconsistent terminology complicates our efforts.

Additional factors that affect the viability of comparisons or analytical inferences include differences in regulatory structures, weather effects, customer demographic differences, electric and gas rates, the duration of program experience, and underlying interests given a particular program administrator model.

Given the wide variation in the circumstances surrounding individual data points, we do not believe these data are suitable for comparisons at any level other than the levels represented within this report. CEE encourages reviewers to inquire as to the sufficiency of the method or quality of supplemental data for the specified purpose when using this information beyond the stated limits.

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ACKNOWLEDGEMENTS

CEE would like to thank the gas and electric energy efficiency and demand response program administrators in the United States and Canada that participated in this year's industry data collection. We appreciate the time and effort given by all survey respondents throughout the data collection process, including extensive clarification and follow-up. CEE is also grateful to members who have provided feedback and insights on this work over the years.

CEE appreciates our continuing collaboration with the American Gas Association (AGA), which provides natural gas industry data collected from their members for a similar research effort. CEE extends special thanks to Mariam Arnaout and Chris McGill of the American Gas Association for their coordination on survey development and the logistics of data collection.

This report was produced by Hilary Forster, Nicolas Dahlberg, and Claire McIlvennie of the CEE Evaluation, Research, and Behavior Team. Assistance with database programming was provided by Adithi Murthy, and assistance with outreach and data verification was provided by Kai Mitchell.

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Consortium for Energy Efficiency, Annual Industry Reports, 2006–2015, http://www.cee1.org/annual-industry-reports

For an individual year, please cite the detailed report. The 2014 report is cited as an example below:

Consortium for Energy Efficiency. *State of the Efficiency Program Industry: Budgets, Expenditures, and Impacts 2014*. http://www.cee1.org/annual-industry-reports, posted May 2015.

Also, please state clearly in your analysis that whereas you are "using CEE data, the analysis is yours alone."

EXECUTIVE SUMMARY

This report shows that US and Canadian combined gas and electric DSM program budgets reached nearly $9.9 billion in 2014, representing a four percent increase over 2013 DSM budgets. US and Canadian combined gas and electric DSM program expenditures reached $8.0 billion in 2013, indicating that program administrators maintained a consistent level of spending between 2012 and 2013. CEE member programs accounted for just over $6.4 billion, or 80 percent, of these expenditures. US and Canadian DSM programs are estimated to have saved approximately 25,177 GWh of electricity and 473 million therms of gas in 2013, which represents 20 million metric tons of avoided CO_2 emissions.

Key findings from this year's industry data collection are listed below in US dollars (USD):

- US and Canadian combined gas and electric DSM program **budgets** from ratepayer funds totaled just over $9.7 billion out of the nearly $9.9 billion budgeted from all sources, which represents a three percent increase over 2013 ratepayer funded budgets.
- Other sources of funding for 2014 US electric DSM activity included wholesale capacity market revenues (1.32 percent of total budgets), the Regional Greenhouse Gas Initiative (0.71 percent), and the Weatherization Assistance Program (0.01 percent). US electric and gas program administrators also cited several miscellaneous sources; Canadian DSM program administrators reported 100 percent ratepayer funding.
- US and Canadian combined gas and electric DSM program **expenditures** from ratepayer funds reached $7.8 billion out of the $8.0 billion from all sources, indicating a consistent level of spending by program administrators between 2012 and 2013.
- Among the 320 program administrators who responded to both the 2013 and 2014 surveys, DSM expenditures increased by one percent.
- US DSM expenditures in 2013 represented 0.04 percent of US GDP and three percent of value added by the US utility industry. Canadian DSM expenditures in 2013 represented 0.05 percent of Canadian GDP and two percent of value added by the Canadian utility industry.
- US and Canadian program administrators spent just over $1.02 billion on demand response programs in 2013—over $1 billion of which came from ratepayers—repre senting decreases of ten percent as compared to 2012, for both overall and ratepayer funded expenditures.
- Natural gas program expenditures in the United States and Canada rose three percent in 2013, to just over $1.3 billion.
- CEE member programs accounted for 80 percent of expenditures from all sources, totaling just over $6.4 billion, and 80 percent, nearly $6.3 billion, of expenditures from ratepayer funds only.

- US gas and electric DSM expenditures totaled $7.2 billion from all sources and $7.0 billion from ratepayers in 2013, representing a decrease in inflation-adjusted expenditures of one percent as compared to 2012 in both cases.
- Canadian gas and electric DSM program expenditures increased to CAD $842 million (USD $818 million) in 2013, which represents a five percent increase over 2012 expenditures.

The average retail price of electricity in the United States has hovered near 10¢ per kWh since 2009—though residential prices have increased steadily towards 12.5¢ per kWh since 2002[1]— and, between 2008 and 2013, retail gas prices in the United States fell dramatically to levels not seen since 2004.[2] DSM industry expenditures have nevertheless generally increased year after year, particularly when considering those program administrators who have responded to consecutive CEE and AGA surveys. Thus, factors other than retail energy prices are almost certainly helping drive DSM investment. As of April 2014, twenty-five states had put in place energy efficiency resource standards for their electricity or natural gas generation or both.[3] In addition, Lawrence Berkeley National Laboratory has estimated the average, total levelized cost of electric energy efficiency programs to be 4.4¢ per kWh,[4] which is significantly lower than the levelized system costs of supply side resources such as conventional coal (9.6¢/kWh), advanced nuclear (8.6¢/kWh, with subsidies), and conventional combined cycle natural gas (6.6¢/kWh).[5] Regardless of energy prices, supportive policies and significantly lower implementation costs clearly bolster DSM program activity. These forces, coupled with new national policies such as standards for existing stationary sources of emissions under Clean Air Act section 111(d), will likely result in continued expansion of the DSM industry for years to come.

This report concludes the ninth consecutive CEE data collection effort and annual report publication. The primary purpose of this survey and accompanying report is to compile data for industry stakeholders that provide insight regarding overall growth trends for the electric and gas demand side management (DSM)[6] industry. This year's *State of the Efficiency Program Industry* report highlights 2014 budget data[7] and 2013

1 US Energy Information Administration. "Electricity Data Browser." http://www.eia.gov/electricity/data/browser/. Last updated April 14, 2015.

2 US Energy Information Administration. "Natural Gas Prices." http://www.eia.gov/dnav/ng/ng_pri_sum_dcu_nus_a.htm. Last updated April 14, 2015.

3 American Council for an Energy-Efficient Economy, "State Energy Efficiency Resource Standard (EERS) Activity." http://aceee.org/policy-brief/state-energy-efficiency-resource-standard-activity. April 2014.

4 Goldman, Charles A. et al. "The Total Resource Cost of Saved Energy for Utility Customer-funded Energy Efficiency Programs." Presentation to the National Association of Regulatory Utility Commissioners. http://emp.lbl.gov/sites/all/files/TR% 20CSE_NARUC_111714_Final%20Release.pdf. November 17, 2014.

5 US Energy Information Administration. "Annual Energy Outlook 2014: Levelized Cost and Levelized Avoided Cost of New Generation Resources in the Annual Energy Outlook 2014." http://www.eia.gov/forecasts/aeo/electricity_generation.cfm. Last updated April 14, 2015.

6 DSM programs encompass both energy efficiency (EE) and demand response (DR) funding.

7 The budget data from survey respondents were collected during the third quarter of 2014. This report does not capture changes made after that time.

expenditure and impact data[8] compared to previously reported figures to assess industry growth and observe significant changes.

This is the sixth consecutive year of collaboration with the American Gas Association (AGA). Working with AGA has streamlined data collection efforts and has helped increase participation and response rates for this survey. For the 2014 report, data were obtained from 347 utility and nonutility program administrators[9] operating efficiency programs in all 50 US states, plus the District of Columbia, and nine Canadian provinces.

8 "Impact data" refers to annually reported energy savings data commonly referred to as "ex ante" savings estimates. Ex ante savings are forecasted savings figures used for program and portfolio planning and reporting purposes. DSM program evaluators often review and revise ex ante savings during program or portfolio impact evaluation studies.

9 Survey respondents include electric and gas CEE members, program administrators who are members of AGA, large program administrators who are not members of either organization, and some other program administrators identified through the EIA Form 861 DSM data, http://www.eia.gov/electricity/data/eia861/.

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1 Introduction

The primary purpose of this report is to compile data that provide insight to industry stakeholders regarding overall trends for the electric and natural gas demand side management (DSM) industry. This report provides trends in 2013 program expenditures and savings and 2014 budgets reported by US and Canadian DSM program administrators, both electric and natural gas, via an online survey during the summer and fall of 2014.[10] CEE administers this survey annually to a variety of DSM program administrators, including investor-owned utilities, nonutility program administrators, municipal power providers, and co-ops. In 2009, CEE began collaborating with the American Gas Association (AGA)[11] to increase the report's coverage of natural gas programs.

A total of 347 utility and nonutility program administrators operating efficiency programs in all 50 US states, the District of Columbia, and nine Canadian provinces responded to this year's survey.[12] While this effort constitutes one of the largest and most comprehensive surveys of program administrators in the United States and Canada and extensive ongoing attention is devoted to data standardization, CEE cautions against making representations and comparisons beyond those provided in this report. As indicated in the Purpose and Limitations and in the Terms of Use, limitations to the comparability and consistency of the data reduce their analytical usefulness below the state or sometimes the regional level. Section 2 clarifies these limitations and outlines the reasons why use of this information at any level—state, regional, national, or binational—should not extend beyond the intended purpose stated above.

10 The electric survey collects information about demand response programs, but the natural gas survey does not because comparable demand response programs do not exist for natural gas.

11 The American Gas Association, founded in 1918, represents more than 200 local energy companies that deliver clean natural gas throughout the United States. There are more than 71 million residential, commercial, and industrial natural gas customers in the US, of which 94 percent—over 68 million customers—receive their gas from AGA members. AGA is an advocate for natural gas utility companies and their customers and provides a broad range of programs and services for member natural gas utilities, pipelines, marketers, gatherers, international natural gas companies, and industry associates. Today natural gas meets more than one-fourth of the United States' energy needs. To find out more, please visit: www.aga.org.

12 CEE has improved the way we track and define response rates for this report and future efforts. See Section 2.1 for more details on this change.

In previous survey years, CEE asked respondents to provide budget and expenditure figures from ratepayer funded sources, as well as to list other sources of funding in the survey. Respondents often listed other sources, such as the American Recovery and Reinvestment Act (ARRA), without providing any supporting data figures to indicate the significance of the additional funding. In 2013, CEE began asking electric survey respondents to report budget and expenditure figures using specifically defined categories that included both ratepayer and nonratepayer sources. This change was intended to identify the relative magnitude of funding from sources other than ratepayers. This year, for the first time, the report addresses these alternative sources.

CEE defines ratepayer funds as dollars secured through special regulator-approved benefit or on-bill tariff charges that are universally collected as supplemental charges to energy bills. One example of ratepayer funds is system benefit charges, or SBC funds. Funds derived from interest and carryover were also considered to be ratepayer funding. CEE defines nonratepayer funds as funds received from sources such as wholesale capacity market revenues, the Regional Greenhouse Gas Initiative (RGGI) proceeds, dollars specifically allocated to weatherization assistance programs, and funds dispersed from the American Recovery and Reinvestment Act (ARRA).

In this report, we disclose total figures that represent all funding sources in charts and graphs depicting historical trends. Where appropriate, the text specifically notes the percentage of 2014 budgets and 2013 expenditures and savings attributable to only ratepayer funds.

1.1 Report Structure

The 2014 State of the Efficiency Program Industry report is divided into eight sections.

This section, included under the heading of Introduction, provides an overview of the report's scope, key assumptions, and structure.

Section 2, Data Collection and Limitations, describes the report's methodology and includes detailed information on data collection methods, survey response rates, and the limitations of the data presented in this report.

Section 3, Demand Side Management Program Funding in the United States and Canada, presents regional and national data and analysis of natural gas and electric DSM programs.

Section 4, Evaluation, Measurement and Verification, presents analysis of program expenditures in these areas.

Section 5, titled Estimated Program Savings and Environmental Impacts, provides estimated national energy savings data from energy efficiency programs in the United States and Canada. These data are reported by country, fuel type, and customer class.

Appendix A Electric Energy Efficiency Program Categories provides a list of the electric energy efficiency program categories used in the 2014 survey and discussed throughout the report.

Appendix B List of US and Canadian Electric Energy Efficiency Program Category Expenditures contains tables with electric energy efficiency expenditures by program type for each country, grouped by program category, which are discussed in Section 3 of the report.

Appendix C Electric Demand Response Program Expenditures contains additional figures regarding electric demand response expenditures in the United States by program type. These figures also expand upon information in Section 3.

Additional data tables that accompany this report present energy efficiency and demand response program expenditures and budgets by state and province.[13] These tables present energy savings aggregated and reported at the regional level for the United States and the national level for Canada. CEE does not report savings data by state or province due to the risk of misinterpreting program cost-effectiveness and because of the limitations to the savings data, which are further explained in Section 2 of this report.

For more information on this report, or to obtain the Annual Industry Report brochure or graphics produced for this report, please visit cee1.org. For members, the report is posted in the CEE Forum.

The section below provides context regarding participant response rates, program funding, reporting periods, program categories, exchange rate information, and the limitations of the data required to properly interpret the results of this report.

2 Data Collection and Limitations

CEE collected data during the summer and fall of 2014 in conjunction with AGA. The survey frame included previous survey respondents, all member organizations of AGA and CEE,[14] nonmembers who were expected to have significant DSM programs, and some program administrators who submitted data to the Energy Information Administration (EIA).[15] Due to the constantly changing nature of the DSM industry, it is difficult to identify and survey every program administrator. Despite this challenge, CEE has continuously worked to make its sample frame as representative of the current industry as possible.

13 These tables are available at http://www.cee1.org/annual-industry-reports.

14 CEE members include electric and natural gas efficiency program administrators from across the United States and Canada. For more information on CEE membership, please visit www.cee1.org/content/members.

15 There are many community owned electric utilities operating efficiency programs in the United States that are not included in this report. The American Public Power Association (APPA) is a nonprofit organization created to serve the nation's more than 2,000 community owned electric utilities that collectively deliver power to more than 46 million Americans. For more information about APPA or its members, please visit: www.publicpower.org.

CEE collected all electric program data, while CEE and AGA collaborated to collect gas program data. AGA collected the majority of the natural gas efficiency information from among its membership, and CEE collected from organizations that are not AGA members, including statewide program administrators.

Collaboration with AGA has streamlined data collection and expanded the sample pool of program administrators over the years, and AGA is a major contributor to this report. AGA also publishes additional information on natural gas DSM programs, including a summary of budgets and expenditures as reported here, energy savings data, information on program implementation and evaluation, and regulatory information. Please contact AGA directly for more on these publications, which are available on their website.

2.1 Response Rates

Data for this report come from a voluntary survey administered to program administrators in the United States and Canada. Because responding organizations may vary by state or province from year to year, caution should be used in comparing data and inferring trends, especially at the state or provincial level. Despite numerous attempts to follow up, not all organizations included in the sample frame respond to the survey each year. Thus, year to year changes in the data reported here cannot be entirely attributed to new or expanded programs and new program administrators. Where appropriate, the analyses below compares only those 320 respondents who provided information in both 2013 and 2014, alongside the analyses of all data collected.

In 2013, CEE began asking respondents to provide public regulatory documents, program plans, and implementation or evaluation documents in the survey. This has allowed us to verify information provided by survey respondents and, in some cases, to update inaccurate information or to supplement what we received with public data not provided in the survey. Most importantly, these supplemental documents have allowed CEE to uncover unreported information for program administrators who we expected to have significant DSM budgets, expenditures, or savings. In a handful of cases, CEE supplemented partial responses to the survey with data from the Energy Information Administration (EIA).[16] In addition, CEE carried over or estimated budgets based on previous year's data for seven program administrators who did not respond to the 2014 survey and were expected to have significant budgets.

This year CEE, in collaboration with AGA, obtained data from 347 utility and nonutility program administrators operating DSM programs in all 50 US states, the District of Columbia, and nine Canadian provinces. In total, this 2014 report describes budget, expenditure, and impact information for 14 fewer respondents than in 2013. Finally, only a few large DSM program administrators did not provide data to CEE or AGA this year.

16 Data from the 2013 EIA Form 861 collection effort are available here: http://www.eia.gov/electricity/data/eia861/.

Therefore, CEE concludes that this report represents the vast majority of large efficiency program administrators and that the data provided below sufficiently represent the DSM industry in 2013 and 2014.

2.2 Funding Sources

In previous years, CEE asked respondents to provide budget and expenditure figures from ratepayer funded sources only and to list any nonratepayer sources of funding separately. In 2013, CEE began asking electric survey respondents to report both budget and expenditure figures using specifically defined funding categories that included both ratepayer and nonratepayer sources. In 2014, CEE and AGA both began asking gas survey respondents to report additional funding from nonratepayer sources.[17] These changes were intended to improve the consistency and clarity of survey terminology and reporting categories, as well as to obtain a more comprehensive picture of the industry's financial landscape.[18]

In this report, the charts and graphs depicting historical trends display DSM budgets, expenditures, and savings derived from all funding sources. The percentage of 2014 budgets and 2013 expenditures and savings attributable to only ratepayer funds is noted in the text where appropriate.

2.3 Reporting Period

CEE asked respondents to provide data representing total program budgets for 2014 and total program expenditures and savings for 2013 that aligned with calendar years. CEE defined the budget year for this survey effort as beginning on January 1, 2014 and ending on December 31, 2014. Similarly, CEE defined the "expenditure and savings year" for this survey effort as beginning on January 1, 2013 and ending on December 31, 2013.

In some cases, respondents indicated that their organization reporting cycles did not align with calendar years and that figures reported were not adjusted accordingly. In these cases, CEE requested supplemental information regarding the specific start date and end date for annual budget figures and annual expenditures figures. CEE did not adjust their reported annual figures to align with the calendar year reporting cycle, however. Therefore, please note that some portion of the 2014 industry budget figures and some portion of the 2013 expenditures and savings figures may include data that

17 Only natural gas program expenditures and savings derived from ratepayer dollars are identified in this report. In all, gas program administrators reported that 99.6 percent of expenditures in 2013 were made using ratepayer funding. One hundred percent of natural gas savings reported to CEE and AGA were presumably derived from ratepayer funding. Section 3.2 below addresses nonratepayer sources of funding in 2014 budgets.

18 Ratepayer funds were defined as dollars secured through special regulator-approved benefit or on-bill tariff charges that are universally collected as supplemental charges to energy bills. One example of this is system benefit charges, or SBC funds. Funds derived from interest and carryover were also considered to be ratepayer funding. Nonratepayer funds were defined as funds received from sources such as wholesale capacity market revenues, the Regional Greenhouse Gas Initiative (RGGI) proceeds, dollars specifically allocated to weatherization assistance programs, and funds dispersed from the American Recovery and Reinvestment Act (ARRA).

fall outside of the January 1 to December 31 reporting cycle. Any year identified in this report should be taken to mean the associated program year for all program administrators.

2.4 Reporting Categories

This publication groups data into customer classes, as in previous years. Electric customer classes in 2014 include residential, low income where separable from residential, commercial, industrial, C&I where commercial and industrial were not separately reported or distinguishable, cross sector, and demand response. As in 2013, the category of EM&V used in previous reports is now included as part of cross sector, which covers activities that span multiple customer classes. Customer classes in the gas data include residential, low income where separable from residential, multifamily where separable from residential and commercial, which includes industrial if the two are not separable, industrial, and other.

In 2013, CEE introduced more granular categories within each electric customer class. The categories used in 2013 were adapted with a few minor changes from a typology developed through another national research effort.[19] CEE has incorporated questions into the survey that ask respondents to report budgets, expenditures, and impact data by program type if possible.[20] In 2014, CEE also allowed respondents to provide rough percentage breakdowns of their budgets, expenditures, and impacts by program category, even if they could not provide exact dollar or MWh figures for programs. These changes aim to provide more specific and useful information regarding electric program categories moving forward, which will allow for a more nuanced understanding of program offerings throughout the US and Canada. See Appendix A for a list of the program categories used in 2014, which are slightly modified from the categories used in 2013.

As in 2013, CEE based demand response program categories on those specified and defined by the US Federal Energy Regulatory Commission (FERC).[21] FERC defines several demand response program types and groups them into two major categories: "incentive programs," which tend to involve incentives for contracting with utilities to curtail load when necessary, and "time-based programs," which generally employ graduated pricing schemes that incent customers to reduce load during system peaks.

19 Hoffman Ian M., et al. "Energy Efficiency Program Typology and Data Metrics: Enabling Multistate Analyses Through the Use of Common Terminology." Lawrence Berkeley National Laboratory. http://emp.lbl.gov/sites/all/files/lbnl-6370e.pdf. August 2013.

20 CEE incorporated program level questions for the electric survey only. CEE will continue work with our members and with AGA in the future to determine whether this approach is feasible for the gas program administrators surveyed.

21 CEE sourced demand response terminology from the "2012 Assessment of Demand Response and Advanced Metering: Staff Report," Federal Energy Regulatory Commission, December, 2012.

Highlights of collected program data are presented in the appropriate sections below, but these data only represent respondents who chose, or were able, to provide information broken out into the specified program categories. The survey asked respondents who could not report at this level of granularity to break their budgets, expenditures, and savings into customer classes only.

The "not broken out" category includes respondent data not further divided into customer classes. These data appear in the binational and national aggregated totals and charts in this report but, by definition, are not included in the analysis of data by customer classes or program types.

2.5 Other Data Limitations

CEE makes every attempt to collect data that align with the definitions and data requirements outlined in the terminology section of the survey. When staff identifies outlying values in the data, we contact respondents and work with them to obtain accurate information. Furthermore, we believe that improvements resulting from the switch to an online survey format have reduced errors over the past few years.

With regard to budgets, considerable room exists for reporting error, and such errors are not always apparent. "Cycle budgets" provide a prime example; see Section 3.3 below for more information on cycle budgets. Annual budgets in this report also present limitations, as they are a snapshot from within the data collection period, whereas expenditures and savings are from the previous year and have often been finalized by the time the survey is fielded.

The data in this publication do not reflect changes to program budgets after the fall of 2014, such as those due to newly approved programs or budget cuts. In addition, unspent funds from 2013 may carry over into the budgets reported in 2014, which could result in double counting. In light of the caveats outlined above surrounding annual budgets, as in 2013, this report focuses on expenditures rather than budgets as the best indicator of industry investment.

Finally, several issues limit the comparability of the data—in particular the savings data—across the United States and Canada. These include, but are not limited to, variations in regulatory requirements or program administrator practices for reporting performance data; differences in the interpretation of the terms used in the survey even when standard definitions are provided; and differences in the focus or goals of programs, which often affect the tracking and reporting of different performance data.

Each regulatory jurisdiction provides specific policies for program administrators in that jurisdiction, which can lead to different assumptions and methods for cost-benefit tests, net-to-gross factors, savings equations, avoided transmission and distribution system line losses, measure persistence, and incremental savings reporting between states and provinces. For example, some program administrators may only account for incremen-

tal savings resulting from installation of efficient equipment using existing codes as a baseline, whereas others are allowed to account for savings using the efficiency of the replaced equipment as a baseline. These different baseline assumptions may lead to significant variations in the savings claimed by different program administrators for the same efficient equipment in the same replacement scenario. CEE believes that for these reasons, savings data in particular should only be aggregated at the US census region level in the United States and at the national level in Canada.

2.6 Currency Conversions and Corrections for Inflation

For ease of reading, all currency is reported in nominal US dollars (USD) unless otherwise specified. Where Canadian dollars (CAD) are used, they are also nominal unless otherwise specified. Real US dollars were calculated using the Bureau of Labor Statistics CPI Inflation Calculator,[22] and real Canadian dollars were calculated using the Bank of Canada CPI Inflation Calculator.[23] This report uses the 2013 average annual Bloomberg Exchange Rate of 0.9709 USD = 1 CAD for the 2013 expenditure information and the 2014 average Bloomberg Exchange Rate through June 30, 2014, of 0.9120 USD = 1 CAD for the 2014 budget information.

2.7 Corrections to 2013 Data

Please note that the 2013 budgets and 2012 expenditures and savings appearing in this report and associated data tables have been adjusted from last year's report where respondents subsequently corrected their 2013 survey responses.

22 "Bureau of Labor Statistics CPI Inflation Calculator." http://www.bls.gov/data/inflation_calculator.htm. Last updated April 14, 2015

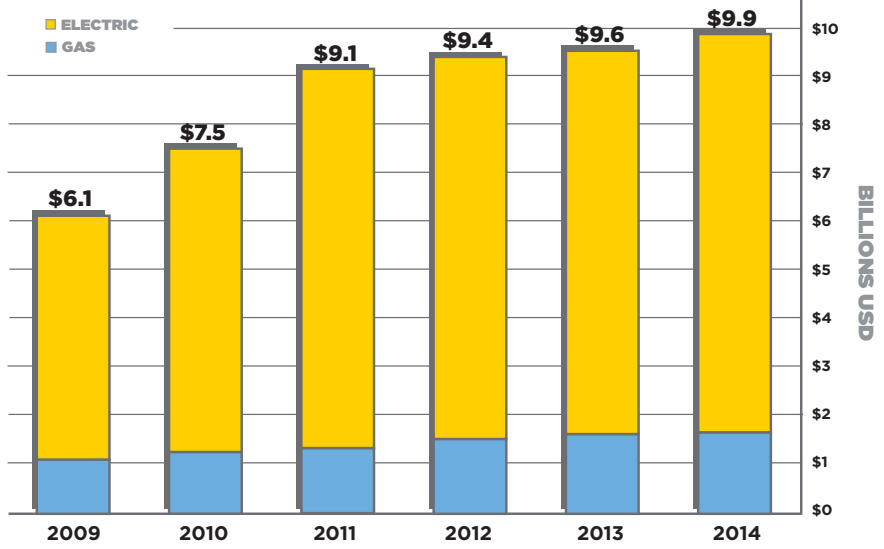
23 "Bank of Canada Inflation Calculator." http://www.bankofcanada.ca/rates/related/inflation-calculator/. Last updated April 14, 2015

3 Demand Side Management Program Funding in the United States and Canada

3.1 Combined DSM Budgets in the United States and Canada

US and Canadian electric and gas DSM program budgets— including both energy efficiency and demand response programs from all surveyed sources—reached nearly $9.9 billion in 2014, representing a four percent increase over 2013 (Figure 1).[24]

Figure 1 US and Canadian DSM Program Budgets—Gas and Electric Combined 2009–2014



Budgets derived exclusively from ratepayer funds accounted for 98 percent, or $9.7 billion, of the total 2014 budget figure. Figure 1 does not isolate demand response budgets, though in 2014, they represent 12 percent of the total DSM budgets from all sources, about $1.23 billion, and also 12 percent of the ratepayer funded DSM budgets, about $1.20 billion. This represents a slight decrease from both 2012 and 2013, when demand response budgets represented 14 percent and 13 percent of the totals, respectively. Overall, electric and gas program budgets in the US and Canada continue to increase year after year.

3.2 Funding Sources

In 2014, ratepayer dollars constituted 97.62 percent of funding for electric DSM programs in the United States. Remaining sources of funding included wholesale capacity markets (1.32 percent), the Regional Greenhouse Gas Initiative (0.87 percent), the Weatherization Assistance Program (0.02 percent), and unidentified sources (0.17 percent). No funding was reported as being derived from the American Recovery and

24 Percentage changes in combined US and Canadian data are not adjusted for inflation. Data are adjusted for inflation for each individual country, however, and are identified throughout the report.

Reinvestment Act. Regional Greenhouse Gas Initiative (RGGI) funding constituted three percent of the total funding reported in the RGGI states.

In 2014, ratepayer dollars constituted 99.56 percent of funding for natural gas energy efficiency programs in the United States. The remaining 0.44 percent was derived from various other sources, most notably state funding, shareholder funding, and RGGI. These other sources are not separately distinguishable.

All Canadian electric and natural gas program administrators reported that 100 percent of their 2014 DSM budgets were derived from ratepayer dollars.

3.3 Continued Program Funding

Since 2013, CEE has asked program administrators to report multiyear budgets, referred to in the survey and this report as "cycle budgets," that provide a glimpse into funding that has been set aside for DSM programs over the next several years. This is primarily a quality assurance procedure in that it allows CEE to verify that budgets for individual program years are not arbitrarily overreported and to estimate single year budgets when program administrators do not allocate funds on an annual basis. In addition, because DSM activity may ramp up at the beginning of a cycle and down at the end of a cycle, this information explains—and anticipates—certain trends.

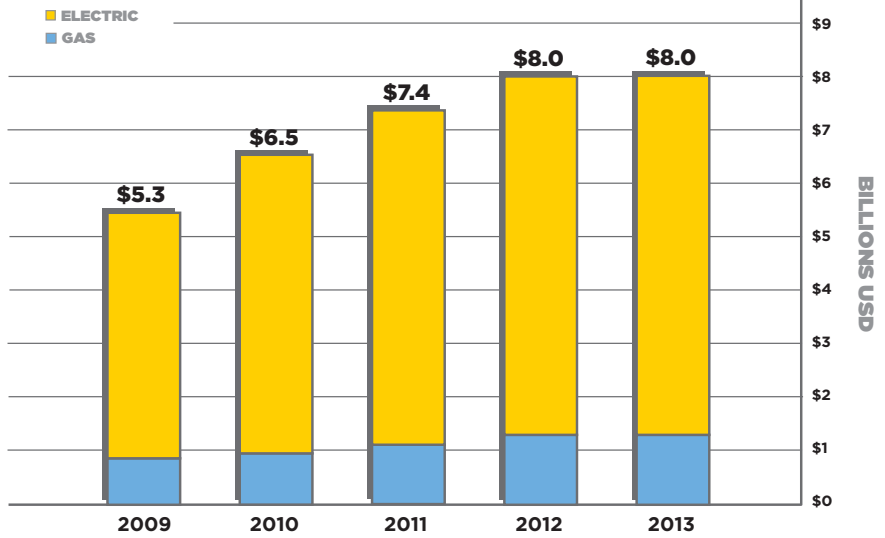
Roughly 36 percent of cycle budgets reported in this year's survey extend past the end of 2014—25 percent will end in 2015, six percent in 2016, and five percent in 2017 or 2018. Over half, or 64 percent, of the cycle budgets reported were for only one year or, if they were for multiple years, simply ended in 2014. In all, over $4 billion remains to be spent between 2015 and 2018 out of cycle budgets approved as of 2014. Although procurement plans for supply-side energy resources may extend several decades into the future, this signifies that multiyear planning is also integral to DSM activity. Furthermore, in some areas such as the Pacific Northwest, DSM is already anticipated in resource plans spanning a decade or more.

3.4 Combined DSM Expenditures in the United States and Canada

DSM expenditures of American and Canadian program administrators who participated in this year's survey totaled $8.0 billion in 2013, with $7.8 billion in expenditures derived from ratepayer funds, the same as in 2012 when rounded in both cases. The nominal difference between 2012 and 2013 is slightly negative, though it is too small to appear in Figure 2, due to a decrease in the number of survey respondents in 2014 and to relatively small percentage decreases in expenditures by large US electric program administrators. Based on respondent follow-ups and inferences from the data, these decreases appear to reflect tapering expenditures as program cycles come to a close or as programs reach maturity within a cycle, meaning upfront costs have been met and

maintenance costs are relatively small. Figure 2 illustrates the historic trend of US and Canadian combined DSM expenditures over the years.

Figure 2 US and Canadian DSM Program Expenditures—Gas and Electric Combined 2009–2013



Although not isolated in Figure 2, demand response expenditures represent 13 percent of total expenditures in 2013 regardless of funding source. This is similar to the proportion of total DSM expenditures spent on demand response in both 2011 and 2012, 14 percent.

CEE has previously noted that increases in the number of survey respondents year after year could explain some of the historical growth in budgets, expenditures, and savings.[25] As explained in Section 2.1 Response Rates, despite our best efforts, Figure 2 does not depict expenditures year after year from the exact same pool of survey respondents.[26] This survey received 14 fewer responses compared to the previous year; in aggregate, those 14 respondents accounted for about three percent of the 2012 expenditures cited in last year's report. However, when strictly comparing the 320 survey respondents in the US and Canada who participated in both the 2013 and 2014 surveys, expenditures actually increased one percent in 2013.[27] In addition, total reported budgets increased over the previous year, despite the decrease in respondents. These comparisons indicate a sustained level of spending and continued growth in the

25 Please note that as the CEE survey panel now contains most large program administrators in the US and Canada, and CEE believes that since 2012, the panel of survey respondents targeted each year for data is representative of the DSM industry at large. Therefore, CEE believes that increases due to new respondents no longer has a large impact. However, the effects of a "large" respondent not participating in subsequent years could potentially cause notable variation.

26 As stated in Section 2.1, where appropriate, CEE will provide supplemental analyses that include comparisons of only those respondents who provided information in both 2013 and 2014, alongside the analyses of all data collected, because responding organizations may vary from year to year. Thus, the year to year changes in the historical trend graphs cannot be entirely attributed to new or expanded programs and to new program administrators.

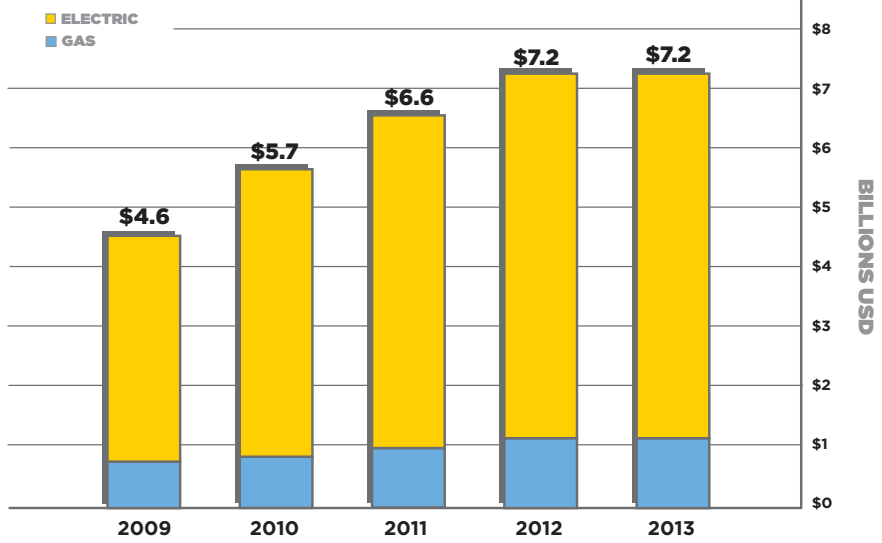
27 Survey respondents that provided both 2012 and 2013 expenditure data spent $87.2 million more on DSM programs in 2013 than in 2012.

industry beyond the effects of drop-offs or new respondents between the 2013 and 2014 survey years.

3.5 United States DSM Trends

US program administrators spent $7.2 billion[28] from all sources for gas and electric DSM programs in 2013. This total includes both energy efficiency and demand response (Figure 3).

Figure 3 US DSM Expenditures—Gas and Electric Combined 2009–2013



These expenditures remained consistent with 2012 DSM expenditures in the US and represent a one percent decrease in spending when adjusted for inflation. This difference is not significant enough to appear in Figure 3. Comparing just those program administrators who responded to both the 2013 and 2014 surveys, ratepayer funded expenditures increased by just over $50 million, or one percent.

The $7.2 billion spent by US DSM program administrators represent 0.04 percent of 2013 US gross domestic product and three percent of the value added by the US utility industry to gross domestic product in 2013. DSM expenditures were closest in scope to the value added by the "apparel and leather and allied products" industry, $10.4 billion.[29]

Although not depicted in Figure 3 above, in 2014, natural gas and electric DSM program administrators in the United States budgeted over $8.9 billion from all sources, representing a two percent increase over 2013 when adjusted for inflation.

28 $7.0 billion of these expenditures were derived solely from ratepayers, the same when rounded as in 2012 in both nominal dollars and when adjusted for inflation.

29 Comparisons in this paragraph are based on data from the US Department of Commerce Bureau of Economic Analysis: http://www.bea.gov. Last updated April 14, 2015

The average retail price of electricity in the United States has hovered near 10¢ per kWh since 2009, though residential prices have increased steadily towards 12.5¢ per kWh since 2002.[30] Between 2008 and 2013 retail gas prices in the United States fell dramatically to levels not seen since 2004 or earlier.[31] DSM industry expenditures have nevertheless generally increased year after year, particularly when considering those program administrators who have responded to consecutive CEE and AGA surveys. Thus, factors other than retail energy prices are almost certainly helping drive DSM investment. As of April 2014, twenty-five states had put in place energy efficiency resource standards for their electricity or natural gas generation—or both.[32] In addition, Lawrence Berkeley National Laboratory has estimated the average, total levelized cost of electric energy efficiency programs to be 4.4¢ per kWh,[33] which is significantly lower than the levelized system costs of supply side resources such conventional coal (9.6¢/kWh), advanced nuclear (8.6¢/kWh, with subsidies), and conventional combined cycle natural gas (6.6¢/kWh).[34]

Regardless of energy prices, DSM program activity is clearly bolstered by supportive policies and significantly low implementation costs. These forces, coupled with new national policies such as standards for existing, stationary sources of emissions under Clean Air Act section 111(d), will likely result in continued expansion of the DSM industry for years to come.

3.5.1 United States Electric DSM Trends

In 2013, US program administrators spent $6.0 billion on electric DSM programs, representing a one percent decrease from 2012 expenditures, or a two percent decrease when adjusting for inflation.[35] Figure 4 presents the breakdown of US electric expenditures from 2009 to 2013 by customer class, which in 2012 and 2013 represents the sum of either program level data rolled up to customer classes or customer class data

30 US Energy Information Administration. "Electricity Data Browser." http://www.eia.gov/electricity/data/browser/. Last updated April 14, 2015.

31 US Energy Information Administration. "Natural Gas: Natural Gas Prices." http://www.eia.gov/dnav/ng/ng_pri_sum_dcu_nus_a.htm. Last updated April 15, 2015.

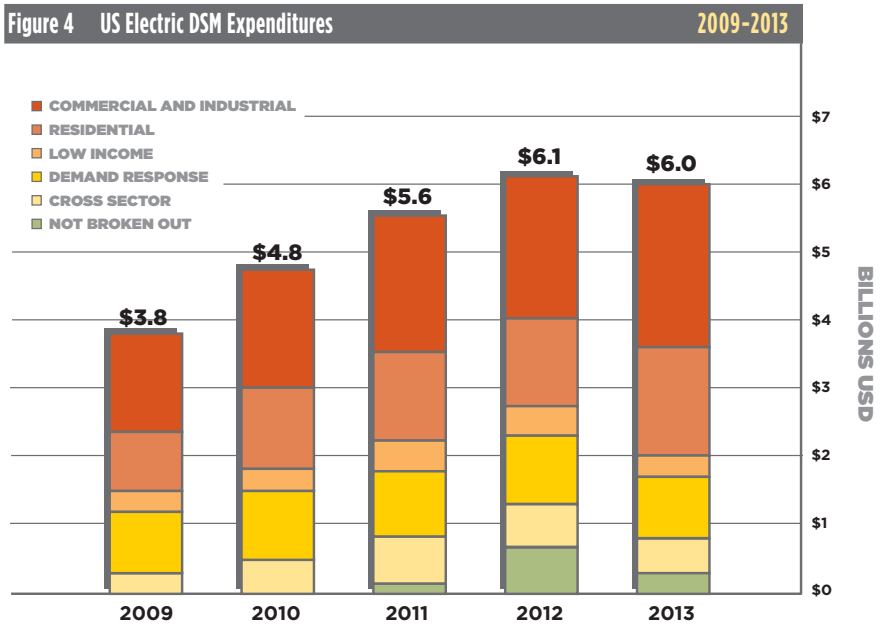
32 American Council for an Energy-Efficient Economy. "State Energy Efficiency Resource Standard (EERS) Activity." http://aceee.org/policy-brief/state-energy-efficiency-resource-standard-activity. April, 2014.

33 Ian M. Hoffman et al. "Energy Efficiency Program Typology and Data Metrics: Enabling Multi-state Analyses Through the Use of Common Terminology." Lawrence Berkeley National Laboratory. http://emp.lbl.gov/sites/all/files/lbnl-6370e.pdf. August, 2013.

34 US Energy Information Administration. "Annual Energy Outlook 2015: Levelized Cost and Levelized Avoided Cost of New Generation Resources in the Annual Energy Outlook 2014." http://www.eia.gov/forecasts/aeo/electricity_generation.cfm Last updated April 15, 2015.

35 In 2013, $5.9 billion of the total expenditures were derived solely from ratepayer funds. This remains roughly consistent with the proportion of expenditures from ratepayers in 2012 and represents a one percent decrease when adjusted for inflation.

provided directly by respondents. "Not broken out"[36] contains data that program administrators could not allocate to a specific program or customer class.

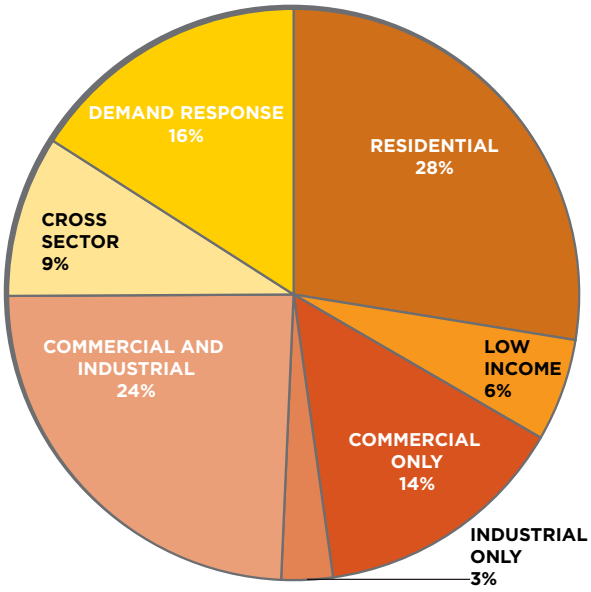


Notably in 2013, the proportion of DSM electric expenditures appropriated to the "not broken out" category dropped significantly, with total spending in the category decreasing by 64 percent. This is largely due to changes in the most recent survey that allowed program administrators to provide a rough percentage breakdown of expenditures by common program types, even if it was not possible to provide exact dollar amounts. The drop in expenditures that were "not broken out", as well as decreases in DR expenditures (see Section 3.5.3), were nearly compensated by increases in the residential and C&I customer classes.

Figure 5 provides a more granular breakdown of 2013 US electric expenditures from all sources by customer class, with the "not broken out" class removed and with commercial and industrial separated into commercial, industrial, and C&I classes. Continuing the trend from previous years, the data illustrate that commercial and industrial efficiency programs received the largest share of electric program funding in the US, comprising 41 percent of 2013 US electric DSM expenditures. The residential sector received the second largest share of 2013 DSM electric expenditures, 28 percent. Demand response also maintained a sizable portion of expenditures at 16 percent, followed by cross sector, 9 percent, and low income programs, 6 percent.

36 Please note that the "not broken out" class was added in 2011 to capture any expenditure figures that could not be allocated to individual customer classes, which in some cases includes overall portfolio activities such as EM&V or administration and marketing.

Figure 5 US Electric DSM Expenditures by Customer Class 2013



CEE also collected information on expenditure (cost) categories for electric energy efficiency programs, as depicted in Figure 6.

Figure 6 US Electric Energy Efficiency Expenditures by Category 2013

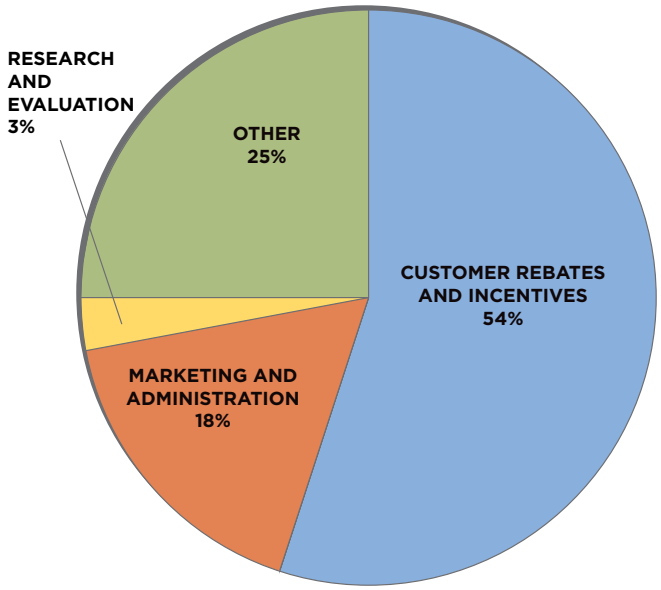


Figure 6 provides an overview of how US program administrators currently allocate electric energy efficiency program expenses, regardless of the targeted customer class. As in 2012, customer rebate and incentive costs, sometimes classified as direct program costs, represented over half of US electric energy efficiency expenditures in 2013. Marketing and administration costs, often referred to as indirect program costs, represented 18 percent of 2013 energy efficiency program expenditures in the United States, a slightly lower proportion than in 2012. The "other" category, which makes up 25

percent of 2013 US electric expenditures, contains all funds that US program administrators could not separate into one of the other three categories.

Although not depicted in Figure 6, program administrators who responded to the survey in both 2013 and 2014 spent roughly 85 percent of the ratepayer funds that were budgeted for electric DSM in 2013.

3.5.2 United States Program Level Electric DSM Expenditures

Since 2013, CEE has incorporated questions into the US electric survey that ask respondents to report budgets, expenditures, and impact data at the program level when possible[37] (please refer to Section 2.4 for more details on program categories). By collecting electric expenditures by program category, CEE intends to track and provide information to help better understand changes or trends in program offerings.

Of the 170 US program administrators who participated in the 2014 electric survey, 91 percent provided program level energy efficiency or DR expenditures. When data reported at the program level is aggregated by customer class, these data indicate an expenditure breakdown similar to that in Figure 5, which represents all 2013 expenditure data reported in the 2014 survey and includes the remaining 11 percent of electric DSM expenditures not reported on the program level. Therefore, we conclude that the program level energy efficiency data we obtained in 2014 are representative of overall US electric expenditure trends.

Figure 7 lists the most common energy efficiency program types in terms of expenditures; these programs represent 42 percent of all the program level energy efficiency expenditures reported by respondents. Demand response program expenditures are not listed in this report but are discussed in general in Appendix C.

Figure 7 Most Common US Electric Energy Efficiency Program Types by Expenditures 2013

CUSTOMER CLASS	PROGRAM TYPE	2013 EXPENDITURES
COMMERCIAL AND INDUSTRIAL	CUSTOM	$420,900,342
LOW INCOME	—	$361,219,281
COMMERCIAL AND INDUSTRIAL	PRESCRIPTIVE	$324,854,017
COMMERCIAL	PRESCRIPTIVE—IT AND OFFICE EQUIPMENT	$298,606,944
RESIDENTIAL	CONSUMER PRODUCT REBATE FOR LIGHTING	$214,116,909
COMMERCIAL AND INDUSTRIAL	MIXED OFFERINGS	$210,012,938
RESIDENTIAL	PRESCRIPTIVE FOR HVAC	$181,761,248

Consistent with 2012, Figure 7 shows that prescriptive and custom programs in the commercial and industrial classes constitute a large portion of the program category

37 CEE incorporated program level questions for the electric survey only. CEE will continue to work with members and with AGA in the future to determine whether this approach is feasible for the gas program administrators surveyed.

expenditures provided, followed by low income and residential lighting and HVAC programs. For a full listing of the US electric energy efficiency program expenditures provided by survey respondents, please refer to .

3.5.3 United States Electric Demand Response Expenditures

Over 50 percent of program administrators who reported 2013 energy efficiency program expenditures also provided demand response expenditures, which suggests that the majority of US electric survey respondents administer a mix of both energy efficiency and demand response programs. Demand response expenditures represent 16 percent of US electric DSM expenditures in 2013 (Figure 5), though they dropped 14 percent between 2012 and 2013 (15 percent when adjusting for inflation), coming in just over $925 million in total.[38] As noted previously, CEE followed up with respondents to understand the driving forces behind expenditure declines. The drop in US demand response expenditures was primarily due to cancellation of programs or the beginning of new program cycles at several large program administrators along with the fact that maintenance costs for established programs can be low compared to the greater capital outlays needed to ramp up programs earlier in a program cycle. That is, it costs more to start a program than to keep it running.

Figure 8 provides a regional snapshot of DSM expenditures in the US in 2013, separated into energy efficiency and demand response.

Figure 8 US Electric Energy Efficiency and Demand Response Expenditures by Region 2013

The South and West continue to lead in demand response expenditures. Data indicate that roughly 45 percent of US demand response expenditures in 2013 occurred in the

38 2013 US electric demand response expenditures totaled $904 million from ratepayer funded sources only. This represents a 14 percent decrease over 2012 in both nominal and real dollars.

South, and 40 percent occurred in the West. Nevertheless, the Southeast experienced the second largest drop in demand response expenditures in dollar terms, and the Northeast experienced the largest drop in both dollar terms and as a percentage of 2012 regional demand response expenditures.

Another possible reason for the decline in demand response activity in the Northeast and Southeast, other than those noted above, is fewer capacity constraints in utility and wholesale electricity systems, and therefore a decreased need for demand response, as a result of mild summer weather. According to National Oceanic and Atmospheric Administration,[39] in 2013, the Northeast climate region—covering an area slightly larger than Northeast Census Region—saw its lowest number of June to August heating and cooling degree-days and its lowest Residential Energy Demand Temperature Index (REDTI) since 2009. Similarly, in 2013, the Southeast climate region—covering most of the South Atlantic Census Division—experienced its fewest June through August heating and cooling degree-days and its lowest REDTI since 2001. It is therefore reasonable to estimate that weather played a significant part in these regions' demand response expenditure decreases between 2012 and 2013.

In 2013, CEE modified the demand response program categories to align with those used by FERC (see Section 2.4 for more information). FERC defines several demand response program types and groups them into two major categories: "incentive" programs" and "time-based" programs. Appendix C contains charts and supporting information regarding these two categories of demand response programs.

3.5.4 United States Natural Gas Trends

This section discusses natural gas energy efficiency program expenditures in the United States.[40] Figure 9 shows that gas expenditures for energy efficiency programs in the US continued to increase in 2013. US gas program administrators spent $1.15 billion on natural gas efficiency programs in 2013, which represents a two percent increase over expenditures in 2012, both in nominal dollars and when adjusted for inflation.

39 National Climate Data Center. "Residential Energy Demand Temperature Index (REDTI)." http://www.ncdc.noaa.gov/societal-impacts/redti/. Last updated April 15th, 2015. According to NOAA, "the Residential Energy Demand Temperature Index (REDTI) is based on population weighted heating and cooling degree days, and as such, is a valuable tool for explaining year to year fluctuations in energy demand for residential heating and cooling. Residential energy consumption is known to be highly correlated with heating and cooling degree-days."

40 Please note that natural gas programs are considered to be only energy efficiency programs. Natural gas demand response programs do not exist within the industry.

Figure 9 US Natural Gas Expenditures 2009–2013

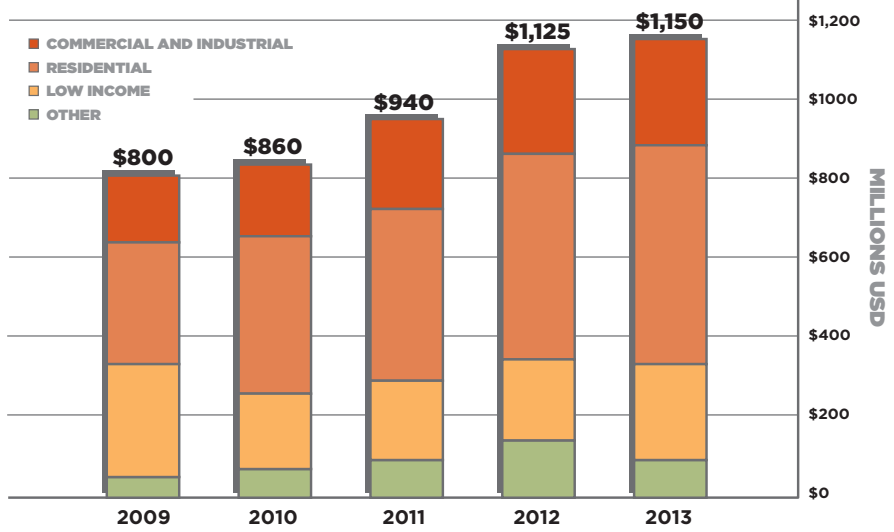
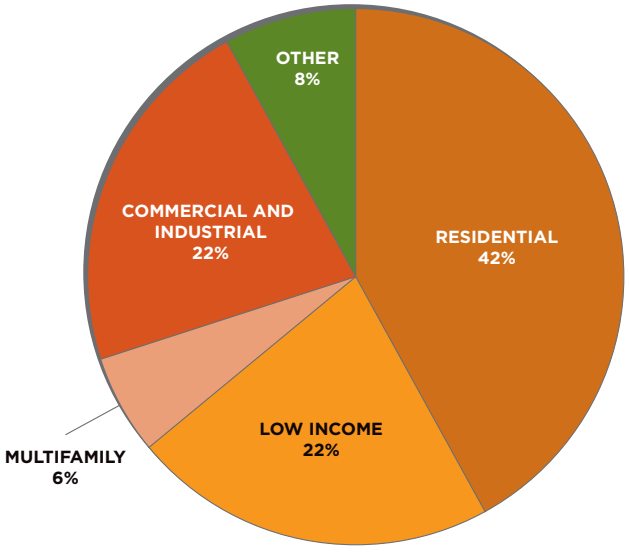


Figure 9 also presents the magnitude of expenditures from 2009 to 2013 by customer class.[41] The data show that residential efficiency programs continue to receive the largest share of natural gas program funding in the US, followed by C&I and low income programs. Figure 10 provides a more granular breakdown of 2013 US gas expenditures by customer class. For ease of comparison with previous years' reports and with a concurrent report by AGA, we did not break commercial and industrial into separate classes in Figures 9 and 10, but multifamily expenditures are separated from residential expenditures in Figure 10.

Figure 10 US Natural Gas Expenditures by Customer Class 2013

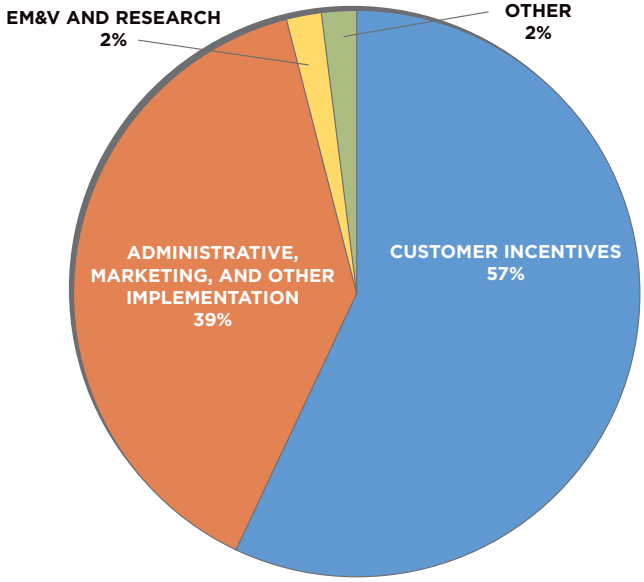


41 For ease of comparison between years, note that Figure 9 combines the 2013 and 2014 customer classes commercial and industrial into one commercial and industrial category and combines residential and multifamily into one residential category.

Over the past two years, residential expenditures have maintained their share of the total, making up 42 percent of total gas program expenditures in 2013. The commercial and industrial class has also maintained a relatively stable share between 2012 and 2013. Although the percentage of the total gas expenditures made up by low income programs has dropped since 2009, this percentage stayed relatively constant, at 22 percent, between 2012 and 2013.

Figure 11 separates 2013 gas expenditures in the US into expenditure categories, which are slightly different from the categories used for US electric programs.[42]

Figure 11 US Natural Gas Expenditures by Category 2013



Customer incentives represented more than half of expenditures in 2013, 57 percent, followed by administrative, marketing, and other implementation spending, 39 percent. Research, evaluation, measurement and verification, and "other" expenditures each accounted for two percent of spending. The "other" category contains all funds that could not be separated into the three former categories.

Although not depicted in Figure 11, US natural gas program administrators budgeted nearly $1.5 billion for natural gas efficiency programs in 2014, which is similar to 2013. Considering just those program administrators who responded to the survey in both 2013 and 2014, programs spent 81 percent of the funds that were budgeted for natural gas programs in 2013.

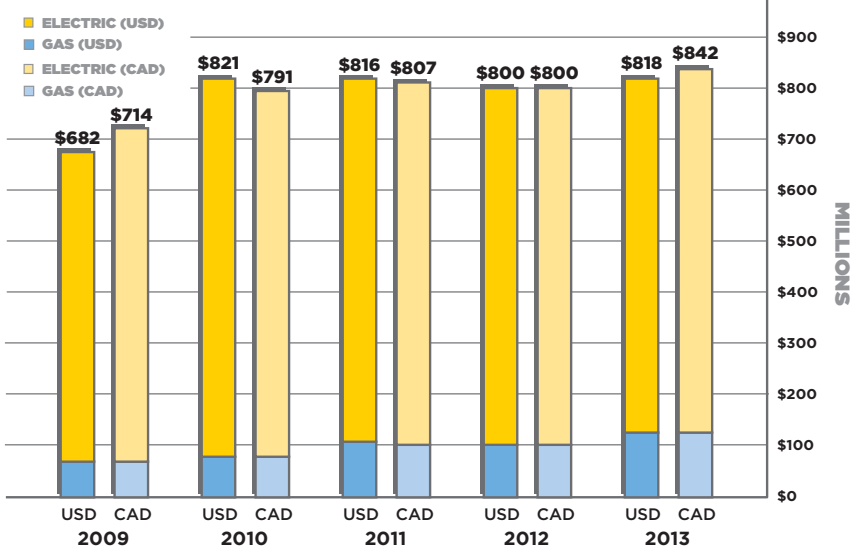
3.6 Canadian DSM Trends

Canadian DSM expenditures increased to CAD $842 million (USD $818 million) in 2013. This represents a five percent increase in expenditures over 2012, or a four percent

42 The electric and gas surveys request this information in ways that are similar, though not identical.

increase in expenditures when adjusting for inflation.[43] Figure 12 presents Canadian DSM expenditures—including both energy efficiency and demand response programs—from 2009 to 2013 in nominal US and Canadian dollars.

Figure 12 Canadian DSM Expenditures—Gas and Electric Combined 2009–2013



The CAD $842 million spent by Canadian DSM program administrators represent 0.05 percent of 2013 Canadian Gross Domestic Product and two percent of value added by the Canadian utility industry in 2013. DSM expenditures were slightly larger than the value added by the "paint, coating and adhesive manufacturing" industry (CAD $804 million in 2013 dollars) and slightly smaller than the value added by the "pesticide, fertilizer and other agricultural chemical manufacturing" industry (CAD $872 million in 2013 dollars).[44]

In 2013, one large program administrator reported to CEE that a current energy surplus had caused them to curtail DSM activity slightly for the near future. Regardless of this scenario, Figure 12 illustrates that investments in Canadian DSM have increased substantially since 2009—for both electric and gas programs—and that they have remained near $800 million for the past few years.

In 2014, reporting natural gas and electric DSM program administrators in Canada budgeted just under CAD $1.06 billion, almost USD $963 million, on energy efficiency and demand response programs. Funding came exclusively from ratepayers and represents an increase of five percent over 2013 DSM budgets.

43 All Canadian program administrators reported 100 percent ratepayer funding in the 2014 survey.

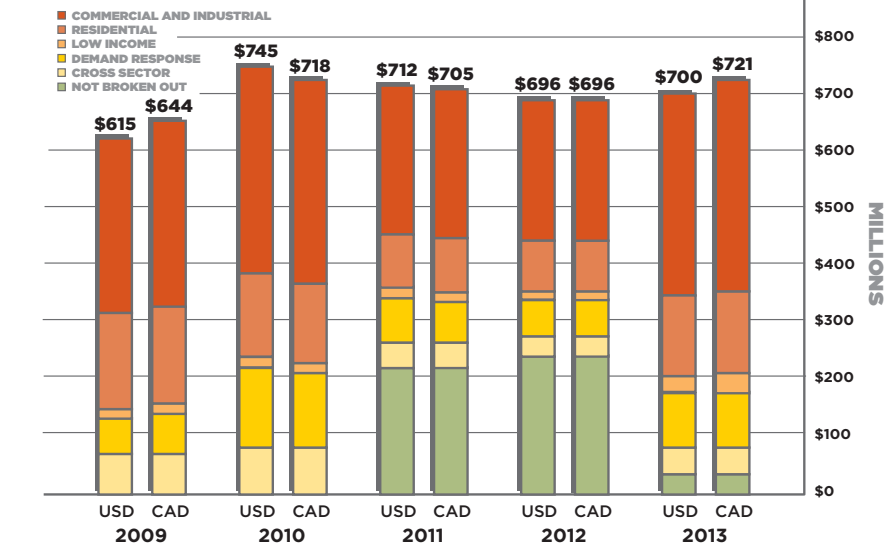
44 Comparisons in this paragraph are based on data from Statistics Canada: Statistics Canada. No date. *Table 379-0031 Gross Domestic Product (GDP) at basic prices, by North American Industry Classification System (NAICS), Monthly* (table). CANSIM (database). Last updated March 3, 2015. http://www5.statcan.gc.ca/cansim/ Accessed March 4, 2015.

3.6.1 Canadian Electric DSM Trends

CEE reports electric DSM trends by customer class. As discussed in previous sections, CEE asks survey respondents to provide program level data when possible. Respondents who were able to provide these data were asked to select a specific program type for each program (see Section 2.4 and Appendix A for more information); CEE then aggregates these data in order to report figures for customer class comparisons.

Canadian electric DSM expenditures totaled USD $700 million in 2013, as shown in Figure 13[45].

Figure 13 Canadian Electric DSM Expenditures 2009–2013



The CAD $721 million spent on electric DSM programs in Canada in 2013 represent a four percent increase from 2012 expenditures, or a three percent increase when adjusting for inflation. The proportion of Canadian electric expenditures represented by each customer class has remained largely stable over time. In 2011, CEE added the "not broken out" class to capture any expenditures program administrators could not allocate to individual customer classes,[46] which in some cases includes overall portfolio activities such as EM&V or administration and marketing.

Notably, the proportion of expenditures classified as "not broken out" decreased from 34 percent in 2012 to four percent in 2013. This drop is largely the result of at least one large program administrator responding in 2011 and 2014 but not in 2012 and 2013. Prior expenditures for this program administrator were carried into the 2012 and 2013 data as an estimate in the "not broken out" category, but CEE again received up-to-date expenditures by customer class in 2014.

45 Figure 13 combines the 2013 customer classes commercial, industrial, and C&I into commercial and industrial. These categories are separated out in Figure 14.

46 See Section 2.4 above for more detail about the collection and differentiation of budgets, expenditures, and savings in the 2014 survey.

Figure 14 depicts 2013 Canadian electric DSM expenditures on a more granular level, broken out by customer class and excluding the "not broken out" category. This view of 2013 expenditures illustrates that commercial and industrial programs continue to constitute the largest spending class in Canada in 2013, representing over half (54 percent) of electric DSM expenditures; Figure 13 indicates a trend in relatively high spending on C&I in Canada since 2009. In addition to C&I expenditures, demand response, residential, low income, and cross sector expenditures retained similar shares of total spending as compared to 2011 and 2012.

Figure 14 Canadian Electric DSM Expenditures by Customer Class 2013

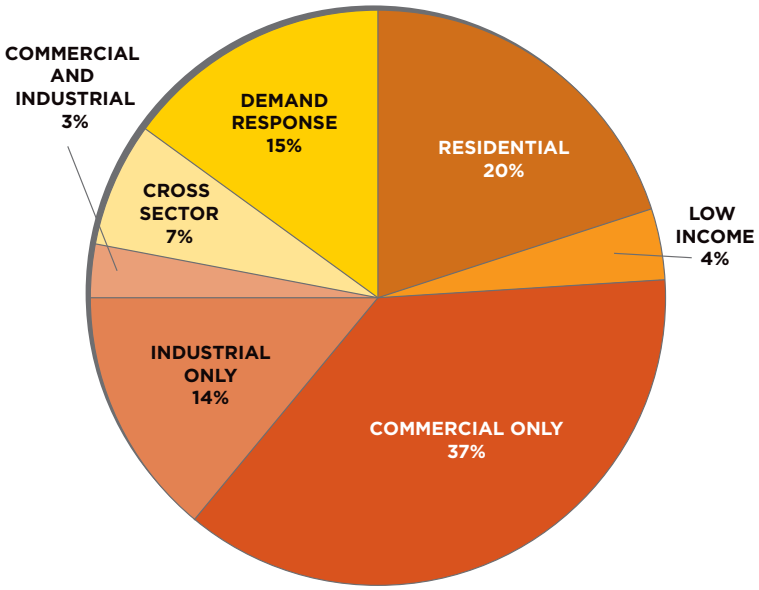
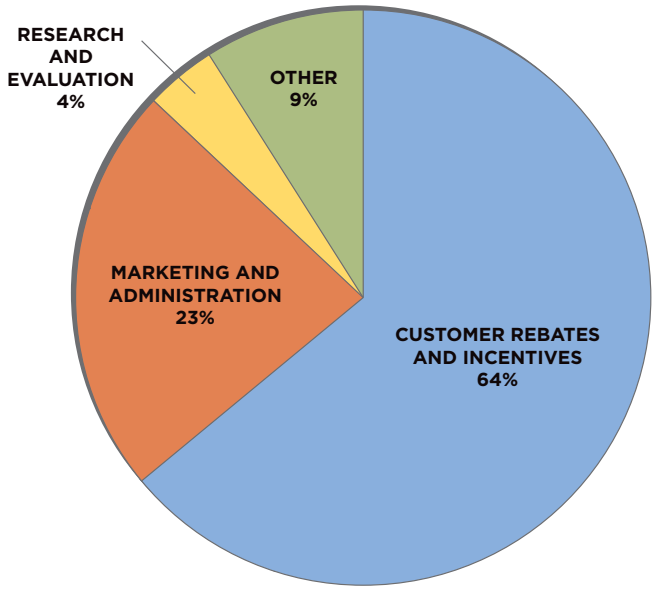


Figure 15 presents the classification of 2013 electric energy efficiency expenditures in Canada by cost category. Customer rebates and incentives represented about two-thirds (64 percent) of 2013 expenditures, followed by marketing and administration (23 percent) and research and evaluation (four percent). The other category (nine percent) contains all funds that could not be separated into the previous three categories. This breakdown is similar to that of the 2012 expenditure categories.

Figure 15 Canadian Electric Energy Efficiency Expenditures by Category 2013



Considering only those program administrators who responded to the survey in both 2013 and 2014, Canadian program administrators spent 81 percent (down from 96 percent in 2012) of the ratepayer funds budgeted for electric DSM in 2013.

Although not depicted in Figure 15 above, in 2014, Canadian program administrators budgeted nearly CAD $921 million (over USD $839 million) for electric DSM programs. Funding came exclusively from ratepayers and represents an increase of four percent over 2013 budgets when adjusted for inflation.

3.6.2 Canadian Program Level Electric DSM Expenditures

In 2013, CEE introduced more granular categories for each electric customer class to begin to better understand what types of electric programs and possibly equipment are most common in the industry. CEE has incorporated questions into the electric survey that ask respondents to report budgets, expenditures, and impact data at the program level if possible[47] (please refer to Section 2.4 for more details on program categories). These data, aggregated to customer class, indicate a breakdown similar to that in Figure 14, which includes data from the remaining three program administrators who were unable to provide information at the program level and correcting for the fact that no demand response expenditures were reported on the program level in Canada. Therefore, we conclude that the program level data we obtained in 2014 are representative of overall Canadian electric energy efficiency expenditure trends.

Figure 16 lists the most common energy efficiency program types in terms of expenditures, excluding program funding categorized as "other." These programs represent just under 26 percent of all the program level energy efficiency expenditures reported by

47 CEE incorporated program level questions for the electric survey only. CEE will continue to work with our members and with AGA in the future to determine whether this approach is feasible for the gas program administrators surveyed.

respondents. Demand response program expenditures are not listed in this report but are discussed in general in Appendix C.

Figure 16 Most Common Canadian Electric Efficiency Program Types by Expenditures 2013

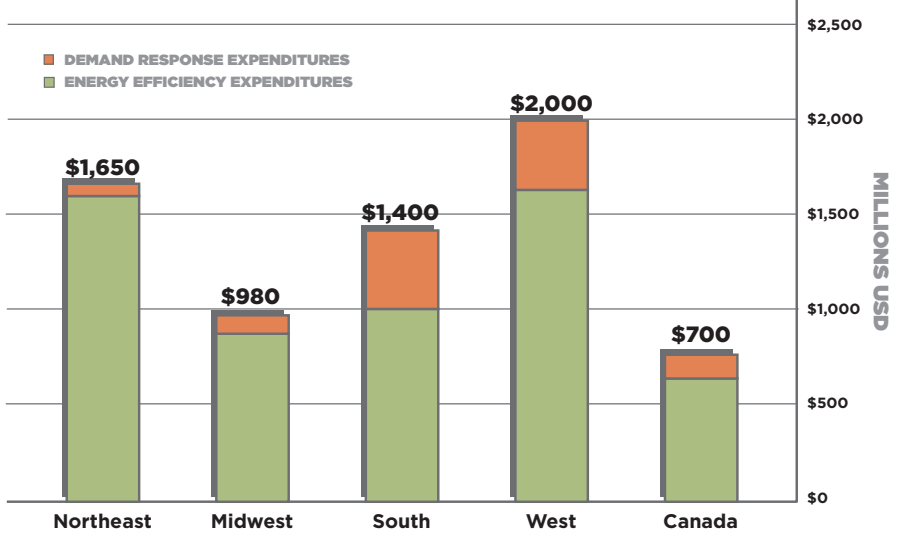
CUSTOMER CLASS	PROGRAM TYPE	2013 EXPENDITURES USD	2013 EXPENDITURES CAD
INDUSTRIAL	CUSTOM DATA CENTERS	$34,077,669	$37,366,165
COMMERCIAL	PRESCRIPTIVE PERFORMANCE CONTRACTING OR DSM BIDDING	$33,595,145	$36,837,077
LOW INCOME	—	$18,266,929	$20,029,688
RESIDENTIAL	WHOLE HOME DIRECT INSTALL	$11,039,805	$12,105,147
COMMERCIAL	PRESCRIPTIVE LIGHTING	$8,841,802	$9,695,036

While Figure 16 indicates that custom programs in the industrial class and prescriptive programs in the commercial class again constitute the top program category expenditures in 2013, the residential and commercial class programs classified as "other" made up almost half, 45 percent, of reported program expenditures. For a full disclosure of the Canadian electric energy efficiency program expenditures provided by survey respondents, please refer to Appendix B.

3.6.3 Canadian Electric Demand Response

The Canadian electric program administrators that responded to this survey spent CAD $104 million (USD $101 million) on their demand response programs in 2013, representing a 60 percent increase in expenditures over 2012, 58 percent when adjusting for inflation. Demand response accounted for 15 percent of total electric DSM expenditures (Figure 14).

Figure 17 US and Canadian Electric DSM Expenditures by Region 2013



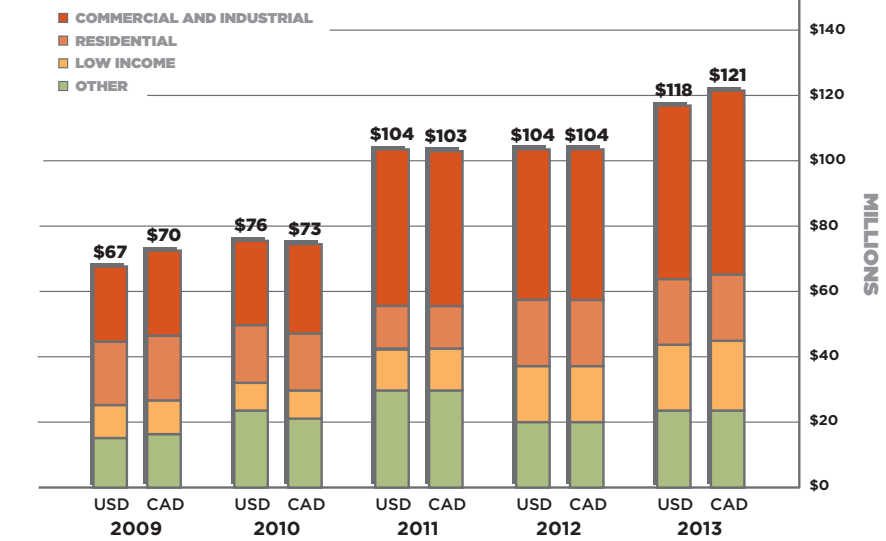
The increase in Canadian demand response expenditures could be partially attributed to one large program administrator who did not respond to the survey in 2012 or 2013, but for whom CEE did receive up-to-date demand respond expenditure information in 2014. During 2012 and 2013, CEE carried through previously reported expenditure information for this program administrator as an estimate regarding their demand response program activity.

The percentage of electric expenditures devoted to demand response programs in Canada falls between the percentages of expenditures devoted to demand response in the Midwestern and Western United States and roughly equals, in absolute terms, the amount program administrators in the Midwestern United States spent on demand response in 2013. See Appendix C for a breakdown of Canadian demand response expenditures into the overall incentive and time-based categories. [48]

3.6.4 Canadian Natural Gas Trends

Canadian natural gas program CAD expenditures in 2013 increased by 17 percent in comparison to expenditures reported in 2012, 15 percent when adjusted for inflation. Figure 18 shows that Canadian program administrators reported 2013 expenditures of CAD $121 million (USD $118 million).

Figure 18 Canadian Natural Gas Expenditures 2009–2013



For ease of comparison between years, note that Figure 18 combines the 2013 and 2014 customer classes commercial and industrial into one commercial and industrial category and combines residential and multifamily into one residential category. As in previous years, commercial and industrial programs continue to represent the largest percentage of expenditures in 2013. In addition, the figure above shows that each customer class

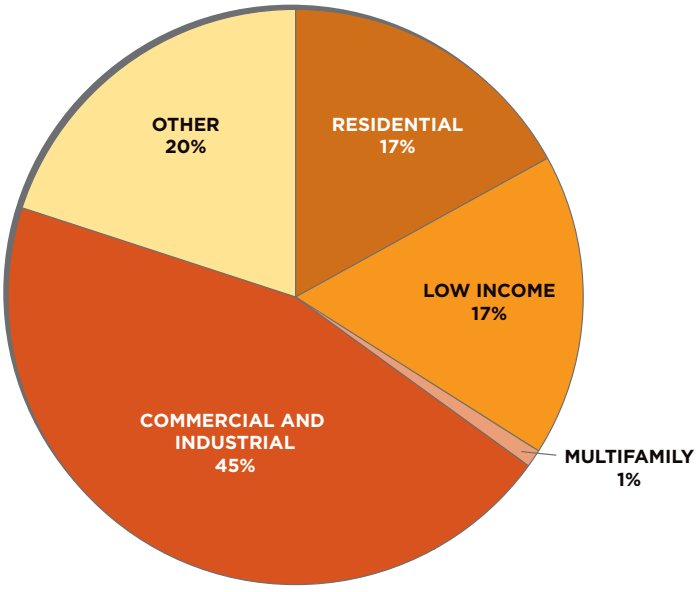
48 In 2013, CEE modified the demand response program categories to align with those used by FERC (see Section 2.4 for more information).

maintained roughly the same share of total Canadian gas spending as compared with 2012.

In 2013, CEE reported that the change in the relative share of Canadian gas expenditures represented by various customer classes over time has been opposite to that in the United States. In particular, actual expenditures on residential programs have remained largely the same since 2008, but the share of expenditures on residential programs has dropped ten percent since 2008. Data on 2013 gas program expenditures confirm this trend. Commercial and industrial expenditures, on the other hand, have increased greatly since 2008 and have consistently represented 45 percent of the total gas expenditures for the past three years.

To further illustrate this point, Figure 19 shows that commercial and industrial programs accounted for the largest share of total Canadian natural gas efficiency program expenditures in 2013, followed by cross sector programs (20 percent) and residential and low income programs (17 percent each). These percentages are almost identical to the 2012 expenditure breakdown. For ease of comparison with previous year's reports and with a concurrent report by AGA, we did not break commercial and industrial into separate classes in Figures 18 and 19, but multifamily expenditures are separated from residential expenditures in Figure 19.

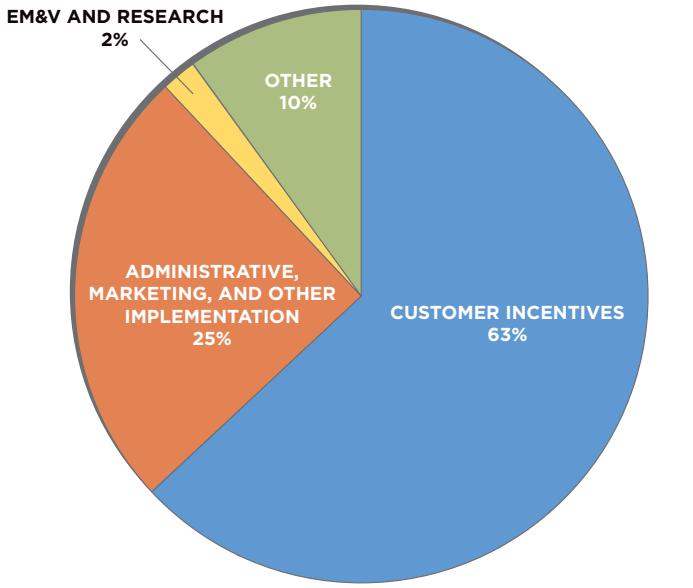
Figure 19 Canadian Natural Gas Expenditures by Customer Class 2013



Canadian gas expenditure data in Figure 20 are broken out into slightly different cost categories than those used in the electric data sections of this report.[49]

49 The electric and gas surveys request this information in ways that are similar, though not identical.

Figure 20 Canadian Natural Gas Expenditures by Category 2013



Customer incentives represented roughly two-thirds of expenditures in 2013 (63 percent), followed by administrative, marketing, and implementation spending (25 percent), and the "other" category, which expanded from four percent of spending in 2012 to ten percent in 2013. This category contains all funds program administrators could not separate into the three more specific categories. Research, evaluation, measurement, and verification expenditures accounted for the remaining two percent of spending.

Canadian natural gas program administrators budgeted nearly CAD $135 million (just over USD $123 million) for programs in 2014, which represents an increase of 13 percent from 2013 budgets when adjusted for inflation. Considering just those program administrators who responded to the survey in both 2013 and 2014, programs spent 90 percent of the funds that were budgeted for natural gas programs in 2013.

4 Evaluation, Measurement and Verification

CEE, along with AGA, asked survey respondents to report spending on research and evaluation, measurement and verification (EM&V) in 2013. Respondents to the electric survey were asked to provide the percentage of their total 2013 energy efficiency expenditures allocated to EM&V, whereas respondents to the gas survey were asked to provide the dollar amount.[50] Figures 21 and 22 present the 2013 EM&V expenditures for electric and gas energy efficiency programs in the United States and Canada.[51]

Figure 21 US and Canadian Electric EM&V Expenditures 2013

COUNTRY	EM&V EXPENDITURES (MILLIONS USD)	TOTAL EFFICIENCY EXPENDITURES MILLIONS USD*	EM&V PERCENT OF TOTAL EXPENDITURES
UNITED STATES	126	4,473	3%
CANADA	22	557	4%
TOTAL	148	5,030	3%

* This table includes estimates of EM&V expenditures for electric energy efficiency programs that were derived by multiplying total reported expenditures from all sources by an EM&V percentage reported by respondents. Total 2013 expenditures only include data from those respondents who provided a percentage breakout of expenditures by category and are therefore smaller than total energy efficiency expenditures listed earlier in the report.

Figure 22 US and Canadian Natural Gas EM&V Expenditures 2013

COUNTRY	EM&V EXPENDITURES MILLIONS USD	TOTAL EFFICIENCY EXPENDITURES MILLIONS USD	EM&V PERCENT OF TOTAL EXPENDITURES
UNITED STATES	22	1,145	2%
CANADA	2	118	2%
TOTAL	24	1,263	2%

Not all respondents allocate funding for evaluation purposes on an annual basis, and some respondents simply did not respond to this portion of the survey. Based on total energy efficiency expenditures, 75 percent of US and Canadian electric energy efficiency program administrators and 100 percent of US and Canadian gas program administrators provided 2013 EM&V data. EM&V expenditures comprised between two and four percent of the 2013 energy efficiency expenditures in the US and Canada, which is consistent with findings by other research efforts.[52]

Since programs and their evaluation procedures do not necessarily occur at the same time, CEE urges caution when comparing program expenditures to expenditures allocated for EM&V activities in any given year.

50 Like last year, electric EM&V expenditures in this report exclude demand response.

51 Please note that the total electric expenditures in these figures only include data from program administrators who provided expenditure breakouts by category, so they are smaller than the expenditure totals presented earlier in this report.

52 State and Local Energy Efficiency Action Network. "Energy Efficiency Program Impact Evaluation Guide." State & Local Energy Efficiency Action Network's Evaluation, Measurement, and Verification Working Group. December, 2012, http://www1.eere.energy.gov/seeaction/pdfs/emv_ee_program_impact_guide.pdf, page 7-14.

5 Estimated Program Savings and Environmental Impacts

CEE collected data on energy efficiency savings from gas and electric program administrators in 2013.[53] In order to help respondents report their savings consistently across states and provinces, CEE used the Energy Information Administration (EIA) definitions of incremental savings. According to the EIA Form EIA-861, incremental savings include all energy savings that accumulated in 2013 from new 2013 participants in existing energy efficiency programs and all participants in new 2013 programs.

CEE collected two different categories of savings values in the survey: net incremental savings and gross incremental savings.[54,55] In keeping with previous reports, this report focuses on gross incremental savings. We emphasize gross incremental savings because they are the most widely tracked savings in the industry. Gross incremental savings are also the most comparable across the United States and Canada because they contain the fewest assumptions embedded in them. In addition, gross savings provide the most useful metric for energy system planners because they include all of the savings that occur regardless of whether they were directly caused by the particular program being evaluated. On the other hand, evaluators and regulators often use net savings to measure against savings goals or to plan subsequent programs because they include only those savings that resulted directly from the program under evaluation. In all tables, CEE intended only to aggregate gross savings figures, but because program administrators did not always report gross savings values in the survey, CEE uses net savings where gross savings were not available.[56]

Although CEE worked with survey respondents to ensure they reported savings data as consistently as possible, many organizations calculate and report savings according to requirements in their states or provinces, which may not align exactly with EIA definitions. Not all organizations adjust their estimates to reflect EIA definitions. Finally, due to the timing of the request and differing evaluation cycles across organizations and jurisdictions, savings were often reported prior to evaluation and are subject to change.

53 CEE also collects data on energy savings from demand response programs. However, these data are not presented in this report because of inconsistencies that prevented our ability to draw a robust conclusion. CEE is currently examining ways to improve collection of demand response savings data in the future.

54 Gross savings generally include all savings claimed by a program, regardless of the reason for participation in the program.

55 Net savings exclude whatever is typically excluded in the jurisdictions of reporting organizations. This often includes, but is not limited to, free riders, savings due to government mandated codes and standards, and the "natural operations of the marketplace," such as reduced use because of higher prices and fluctuations in weather or business cycles. Also depending on the jurisdiction, net savings sometimes incorporate additional savings resulting from spillover and market effects, which may outweigh the factors noted above and result in values that are greater than gross savings.

56 CEE worked closely with our collaborator AGA to collect savings information from survey participants. This includes collection of "annual" savings, which are incremental savings plus savings in the current year from measures that were implemented in previous years but are expected to still achieve savings. In some cases, AGA has elected to emphasize different savings data collected jointly through this effort from those CEE has chosen to emphasize. For more information on what AGA has published specifically and why, please refer to the reports that are publically available on their website.

5.1 Ratepayer Funded Electric Program Savings

Ratepayer funded energy efficiency programs save energy and reduce the amount of greenhouse gases emitted in the United States and Canada. Reporting electric efficiency programs in the United States and Canada estimated incremental electricity savings of approximately 25,177 GWh[57] in 2013 (Figure 23). This is equivalent to roughly 17.4 million metric tons of avoided carbon dioxide (CO_2) emissions.[58] CEE member programs accounted for 78 percent of these estimated savings.

As noted in Section 2.2 above, this report focused only on ratepayer funded programs in previous years. Since 2013, CEE and our collaborators have collected information on electric programs derived from all funding sources in order to provide a more comprehensive picture of the DSM industry. Figures 23 and 25 show ratepayer funded electric energy efficiency savings by sector and totals for both ratepayer funded programs and for programs that received funding from other sources.

Figure 23 US and Canadian Gross Incremental Electric Energy Efficiency Savings GWh 2013

	RESIDENTIAL	LOW INCOME	C&I	OTHER	NO BREAKOUT	RATEPAYER TOTAL*	ALL SOURCES TOTAL*
UNITED STATES**							
NORTHEAST	1,753	94	2,036	5	464	4,352	4,652
MIDWEST	2,266	17	2,388	22	1,881	6,574	6,613
SOUTH	1,137	63	1,292	0	1,854	4,347	4,493
WEST	1,430	63	2,185	1,864	2,346	7,888	8,285
US SUBTOTAL	6,586	237	7,902	1,894	6,545	23,160	24,042
CANADA***	148	4	163	0	170	2,016	2,016
BINATIONAL TOTAL	6,734	240	8,065	1,894	8,246	25,177	26,059

Notes

* Based on estimated total of all energy savings that accumulated from new participants in existing programs and all participants in new programs in 2013.

** Ninety-seven (97) percent of electric survey respondents in the US that reported energy efficiency programs reported a value for incremental energy savings. Of those that reported a value for incremental energy savings, eighty-eight (88) percent reported gross incremental savings. For respondents that did not report gross incremental savings, CEE used net incremental savings in calculating totals.

*** Ninety (90) percent of electric survey respondents in Canada that reported energy efficiency programs reported a value for incremental energy savings. Of those that reported a value for incremental energy savings, fifty-six percent reported gross incremental savings. For respondents that did not report gross incremental savings, CEE used net incremental savings in calculating totals.

Figure 24 shows that across the United States and Canada, ratepayer funded commercial and industrial electric programs together accounted for almost one-half of the total energy savings (48 percent), followed by residential (40 percent), other (11 percent), and low income (one percent). This breakdown is very similar to that of US and Canadian ratepayer electric energy efficiency expenditures, with the exception that the low

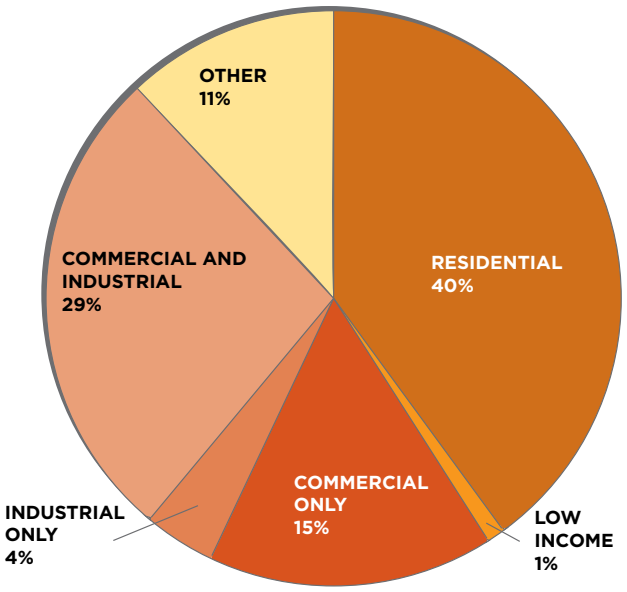
57 As explained in Section 2.7 above, we have subsequently revised some data from last year's report based on new information obtained during the 2014 survey process.

58 Calculated using the EPA Greenhouse Gas Equivalencies Calculator, http://www.epa.gov/cleanenergy/energy-resources/calculator.html. March 2015.

income customer class makes up a smaller percentage of savings (one percent) than of expenditures (five percent) and that the residential customer class makes up a larger percentage of savings (40 percent) than of expenditures (32 percent). As ACEEE points out,[59] low income programs are generally mandated for the public benefit. Whereas they may not result in high savings, they may result in significant benefits for program administrators in the form of reduced arrearages, and for customers in the form of lower energy bills and higher disposable income. This likely explains the difference in the proportions of expenditures and savings represented by low income programs.

As noted in Section 2.4, respondents to the survey may interpret the categories differently, and not every respondent broke their information out by customer class. Therefore, Figure 24 represents only those savings reported at the customer class level.

Figure 24 US and Canadian Gross Incremental Electric Savings by Customer Class 2013



59 American Council for and Energy-Efficient Economy. "Low-Income Programs." http://aceee.org/topics/low-income-program. Last updated April 15, 2015.

Based on the gross incremental savings figure for electric efficiency programs provided in Figure 23 above, in 2013, the value of ratepayer funded electric energy efficiency savings across the United States and Canada was nearly $2.6 billion.[60] [61]

Beginning in 2013, CEE asked respondents to provide estimates of capacity savings from their energy efficiency programs. Capacity saving estimates are depicted in Figure 25.

Figure 25 US and Canadian Gross Incremental Electric Capacity Savings MW 2013

	RESIDENTIAL	LOW INCOME	C&I	OTHER	NO BREAKOUT	RATEPAYER TOTAL*	ALL SOURCES TOTAL*
UNITED STATES**							
NORTHEAST	379	12	1,011	259	17	1,678	1,781
MIDWEST	216	2	336	6	914	1,473	1,478
SOUTH	375	24	376	0	581	1,356	1,388
WEST	163	10	219	169	357	919	944
US SUBTOTAL	1,133	48	1,941	434	1,869	5,425	5,591
CANADA***	27	1	25	0	359	413	413
BINATIONAL TOTAL	1,161	49	1,966	434	2,228	5,838	6,004

Notes

* Based on estimated total of all capacity savings that accumulated from new participants in existing programs and all participants in new programs in 2013

** Seventy-three (73) percent of electric survey respondents in the US that reported EE programs reported a value for incremental capacity savings. Of those that reported a value for incremental energy savings, eighty-six (86) percent reported gross incremental savings. For respondents that did not report gross incremental savings, CEE used net incremental savings in calculating totals

*** Seventy (70) percent of respondents in Canada that reported EE programs reported a value for incremental capacity savings. Of those that reported a value for incremental savings, fifty-seven (57) percent reported gross incremental savings. For respondents that did not report gross incremental savings, CEE used net incremental savings in calculating totals.

Unlike energy savings, which are reported in kilo, mega, or gigawatt hours and measure the amount of energy saved over time, capacity savings are measured in kilo, mega, or gigawatts and represent reductions in forecasted demand that occur at a particular time, generally during hours of peak demand. The capacity savings that result from

60 US electric retail values were calculated based on the average retail price of electricity for the ultimate customer by end use across the US in 2013 using data from the Energy Information Administration's Electric Power Monthly January 2015 issue, which contains YTD 2013 data. Accessed March 2015 http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_5_03. Average electric rate used: ¢12.12 per kWh (residential), ¢10.28 (commercial), and ¢6.84 (industrial). The residential retail rate was used for low income program savings. The rate for combined C&I programs was determined by taking the average of the commercial and industrial retail rates. The rate for "other" programs was determined by taking the average of the residential, commercial, and industrial retail rates.

61 Canadian electric retail values were calculated based on the average rate per kWh across Canada in 2013 using data from a report published by Hydro-Québec titled: "Comparison of Electricity Prices in Major North American Cities." Accessed March 2015. http://www.hydroquebec.com/publications/en/docs/comparaison-electricity-prices/comp_2013_en.pdf. Average electric rate used: CAD ¢12.08 per kWh for residential and CAD ¢9.82 per kWh for commercial and industrial. The residential retail rate was used for low income program savings. The rate for "other" programs was determined by taking the average of the residential and the commercial and industrial retail rates. These figures are an average of the rates for 12 major cities in Canada and may not reflect the average electricity price for Canada as a whole.

energy efficiency programs can be very valuable, particularly in areas with constrained transmission capacity or high summer or winter peaks.

5.2 Ratepayer Funded Natural Gas Program Savings

Reporting natural gas efficiency programs in the United States and Canada estimated incremental savings of nearly 473 million therms of gas in 2013 (Figure 26). This is equivalent to 2.5 million metric tons of avoided CO_2 emissions. CEE member programs accounted for 82 percent of the total energy savings estimate.

Figure 26 US and Canadian Incremental Natural Gas Savings MDth 2013

	RESIDENTIAL	LOW INCOME	MULTI-FAMILY	C&I	OTHER	NO BREAK-OUT	RATEPAYER TOTAL*
UNITED STATES**							
NORTHEAST	2,880	905	402	2,848	83	0	7,118
MIDWEST	5,951	546	1,471	8,452	207	0	16,627
SOUTH	664	41	3	383	0	0	1,092
WEST	2,035	669	320	5,492	493	0	9,008
US SUBTOTAL	11,530	2,160	2,195	17,175	784	0	33,845
CANADA***	241	161	344	12,699	0	0	13,445
BINATIONAL TOTAL	11,771	2,322	2,539	29,874	784	0	47,290

Notes

* Based on estimated total of all energy savings that accumulated from new participants in existing programs and all participants in new programs in 2013.

** Seventy-nine (79) percent of all gass respondents in the US that reported energy efficiency programs reported a value for incremental savings. Of those that reported a value for incremental energy savings, eighty-two (82) percent reported gross incremental savings. For respondents that did not report gross incremental savings, CEE used net incremental savings in calculating totals.

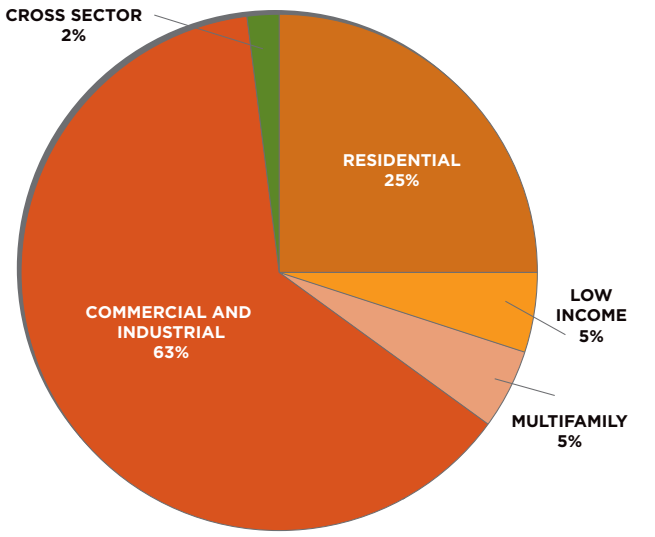
*** Eighty-three (83) percent of all gas respondents in Canada that reported gas programs reported a value for incremental savings. Of those that reported a value for incremental energy savings, one hundered (100) percent reported gross incremental savings.

As shown in Figure 27, across the United States and Canada, commercial and industrial programs accounted for the majority of energy savings (63 percent), followed by residential programs (25 percent). Multifamily programs came in at five percent, and low income programs also represented five percent of total savings. "Other" programs accounted for two percent of the estimated natural gas energy savings and include programs not allocable by customer class. This breakdown is somewhat different from that of US and Canadian gas energy efficiency expenditures, in which residential programs accounted for 39 percent of expenditures, low income programs accounted for 22 percent, and C&I programs accounted for 24 percent. This may indicate high savings per dollar spent in the C&I sector, but it may also reflect a difference in reported savings type—gross or net—between program administrators with high residential and high C&I expenditures.[62]

62 See the opening paragraphs of section 5 for more information on the savings accounting scheme used in this report.

Based on the gross incremental savings for natural gas efficiency programs provided in Figure 26 above, in 2013, the value of natural gas energy efficiency savings across the United States and Canada totaled approximately $350 million.[63] Figure 27 depicts gross incremental savings for US and Canadian natural gas programs broken out by customer class.

Figure 27 US and Canadian Gross Incremental Natural Gas Savings by Customer Class 2013



63 Natural gas retail values for the United States and Canada were calculated based on the average retail price per thousand cubic feet across the United States in 2013 using data from Energy Information Administration: Natural Gas Prices, Released February 27, 2015. Accessed March 2015. http://www.eia.gov/dnav/ng/ng_pri_sum_dcu_nus_a.htm. Average natural gas prices used: $10.32 per Mcf for residential, $8.08 per Mcf for commercial, and $4.64 per Mcf industrial. The residential retail rate was used for low income and multifamily program savings. The rate for combined C&I programs was determined by taking the average of the commercial and industrial retail rates. The rate for "other" programs was calculated by taking the average of the residential, commercial, and industrial retail rates.

Appendix A Electric Energy Efficiency Program Categories

Respondents who could provide data for individual programs were asked to select a customer class and then a program type for each program they identified. If it was not possible to provide data on the program level, respondents were asked to provide rough percentage breakdowns of their budgets, expenditures, and savings into customer classes and then to provide further percentage breakdowns by common program types (again, if possible). This appendix provides the title and definition for each program type, grouped by customer class. CEE slightly modified some program categories in 2014 based on feedback from respondents and discussions with Lawrence Berkeley National Laboratory; similar modifications may occur in future years for the purposes of the CEE research effort.

Residential Programs

Appliance recycling Programs designed to remove less efficient appliances, typically refrigerators and freezers, from households.

Behavior, online audit, feedback Residential programs designed around directly influencing household habits and decision making on energy consumption through quantitative or graphical feedback on consumption, sometimes accompanied by tips on saving energy. These programs include behavioral feedback programs in which energy use reports compare a consumer's household energy consumption with those of similar consumers, online audits that are completed by the consumer, and in-home displays that help consumers assess their use in near real time. This program category does not include on-site energy assessments or audits.

Consumer product rebate for appliances Programs that incentivize the sale, purchase, and installation of appliances such as refrigerators, dishwashers, clothes washers, and dryers, that are more efficient than current standards. Appliance recycling and the sale, purchase, and installation of HVAC equipment, water heaters, and consumer electronics are accounted for separately.

Consumer product rebate for electronics Programs that encourage the availability and purchase or lease of more efficient personal and household electronic devices, including but not limited to televisions, set-top boxes, game consoles, advanced power strips, cordless telephones, PCs and peripherals specifically for home use along with chargers for phones, smart phones, and tablets. A comprehensive efficiency program to decrease the electricity use of consumer electronics products includes two foci: product purchase and product use. Yet not every consumer electronics program seeks to be comprehensive. Some programs embark on ambitious promotions of multiple electronics products, employing upstream, midstream, and downstream strategies with an aggressive marketing and education component. At the other end of the continuum, a program administrator may choose to focus exclusively on consumer education.

Consumer product rebate for lighting Programs aimed specifically at encouraging the sale, purchase, and installation of more efficient lighting in the home. These programs range widely from point-of-sale rebates to CFL mailings or giveaways. Measures tend to be CFLs, fluorescent fixtures, LED lamps, LED fixtures, LED holiday lights, and lighting controls, including occupancy monitors and switches.

Financing Programs designed to provide or facilitate loans, credit enhancements, or interest rate reductions and buy downs. As with other programs, utility costs are included, such as the costs of any inducements for lenders (for example, loan loss reserves, interest rate buy downs, et cetera). Where participant costs are available for collection, these ideally include the total customer share, that is both principal (meaning the participant payment to purchase and install measures) and interest on that debt. Most of these programs are directed towards enhancing credit or financing for residential structures.

Multifamily Multifamily programs are designed to encourage the installation of energy efficient measures in common areas, units, or both, for residential structures of more than four units. These programs may be aimed at building owners or managers, tenants, or both.

New construction Programs that provide incentives and possibly technical services to ensure new homes are built or manufactured to energy performance standards higher than applicable code, for example, ENERGY STAR® Homes. These programs include new multifamily residences and new or replacement mobile homes.

Prescriptive HVAC Programs designed to encourage the distribution, sale, purchase, and proper sizing and installation of HVAC systems that are more efficient than current standards. Programs tend to support activities that focus on central air conditioners, air source heat pumps, ground source heat pumps, and ductless systems that are more efficient than current energy performance standards, as well as climate controls and the promotion of quality installation and quality maintenance.

Prescriptive insulation Programs designed to encourage the sale, purchase, and installation of insulation in residential structures, often through per square foot incentives for insulation of specific R-values versus an existing baseline. Programs may be point-of-sale rebates or rebates to insulation installation contractors.

Prescriptive pool pump Programs that incentivize the installation of higher efficiency or variable speed pumps and controls, such as timers, for swimming pools.

Prescriptive water heater Programs designed to encourage the distribution, sale, purchase, and installation of electric or gas water heating systems that are more efficient than current standards, including high efficiency water storage tank and tankless systems.

Prescriptive windows Programs designed to encourage the sale, purchase, and installation of efficient windows in residential structures.

Prescriptive other Residential programs that provide or incentivize a set of preapproved measures not included in, or distinguishable from, the other residential program categories, such as whole home direct install, HVAC, or lighting. For example, if a residential program features rebates for a large set of mixed, preapproved offerings, such as insulation, HVAC, appliances, and lighting, yet the relative contribution of each measure to program savings is unclear or no single measure accounts for a large majority of the savings, then the program should be classified simply as a "prescriptive other" program.

Whole home audits Residential audit programs provide a comprehensive, stand-alone assessment of a home's energy consumption and identification of opportunities to save energy. The scope of the audit includes the whole home, although the thoroughness and completeness of the audit may vary widely, from a modest examination and development of a simple engineering model of the physical structure to a highly detailed inspection of all spaces, testing for air leakage or exchange rates, testing for HVAC duct leakage, and highly resolved modeling of the physical structure with benchmarking to customer utility bills.

Whole home direct install Direct install programs provide a set of preapproved measures that may be installed at the time of a visit to the customer premises or provided as a kit to the consumer, usually at modest or no cost to the consumer and sometimes accompanied by a rebate. Typical measures include CFLs, low flow showerheads, faucet aerators, water heater wrap, and weather stripping. Such programs also may include a basic walk-through energy assessment or audit, but the savings are principally derived from the installation of the provided measures. Education programs that supply kits by sending them home with school children are not included in this program category as they are classified as education programs.

Whole home retrofit Whole home energy upgrade or retrofit programs combine a comprehensive energy assessment or audit that identifies energy savings opportunities with whole house improvements in air sealing, insulation, and often HVAC systems and other end uses. The HVAC improvements may range from duct sealing, to a tune-up, or a full replacement of the HVAC systems. Whole home programs are designed to address a wide variety of individual measures and building systems, including but not limited to: HVAC equipment, thermostats, furnaces, boilers, heat pumps, water heaters, fans, air sealing, insulation (of the attic, walls, or basement), windows, doors, skylights, lighting, and appliances. As a result, whole home programs generally involve one or more rebates for multiple measures. Whole home programs generally come in two types, comprehensive programs that are broad in scope, and less comprehensive prescriptive programs, sometimes referred to as "bundled efficiency" programs. This

category addresses all of the former and most of the latter, but it excludes direct install programs that are accounted for separately.

Other Programs designed to encourage investment in energy efficiency activities in residences but are so highly aggregated and undifferentiated (such as existing homes programs that include retrofits, appliances, equipment, et cetera) that they cannot be sorted into the residential program categories that are detailed above.

Low Income

Low income programs are efficiency programs aimed at lower income households, based upon some types of income testing or eligibility. These programs most often take the form of a single family weatherization, but a variety of other program types are also included in this program category, for example, multifamily or affordable housing weatherization, or low income direct install programs.

Commercial Programs

Custom audit Programs in which an energy assessment is performed on one or more participant commercial or industrial facilities to identify sources of potential energy waste and measures to reduce that waste.

Custom retrocommissioning Programs aimed at diagnosing energy consumption in a commercial facility and optimizing its operations to minimize energy waste. Such programs may include the installation of certain measures, such as occupancy monitors and switches, but program activities tend to be characterized more by tuning, coordinating, and testing the operation of existing end uses, systems, and equipment for energy efficient operation. The construction of new commercial facilities that include energy performance commissioning should be categorized as “new construction”. The de novo installation of energy management systems with accompanying sensors, monitors, and switches is regarded as a major capital investment and should be categorized under “custom other”.

Custom other Programs designed around the delivery of site-specific projects typically characterized by an extensive onsite energy assessment and identification and installation of multiple measures unique to that facility. These measures may vary significantly from site to site. This category is intended to capture whole building approaches to commercial sector efficiency opportunities for a wide range of building types and markets (for example, office or retail) and a wide range of measures.

Financing Programs designed to provide or facilitate loans, credit enhancements, or interest rate reductions and buy downs. As with other programs, utility costs are included, such as the costs of any inducements for lenders (for example, loan loss reserves, interest rate buy downs, et cetera). Where participant costs are available for

collection, these ideally include the total customer share, that is, both principal (meaning the participant payment to purchase and install measures) and interest on that debt. Most of these programs are directed toward enhancing credit or financing for commercial structures.

Government, nonprofit, MUSH Government, nonprofit, and MUSH (municipal, university, school, and hospital) programs cover a broad swath of program types generally aimed at public and institutional facilities and include a wide range of measures. Programs that focus on specific technologies, such as HVAC and lighting, have their own commercial program categories. Examples include incentives or technical assistance to promote energy efficiency upgrades for elementary schools, recreation halls, and homeless shelters. Street lighting is accounted for as a separate program category.

New construction Programs that incentivize owners or builders of new commercial facilities to design and build beyond current code or to a certain certification level, such as ENERGY STAR® or LEED®.

Prescriptive grocery Grocery programs are prescriptive programs aimed at supermarkets and are usually designed around indoor and outdoor lighting and refrigerated display cases.

Prescriptive HVAC Commercial HVAC programs encourage the sale, purchase, and installation of heating, cooling, or ventilation systems at higher efficiency than current energy performance standards, across a broad range of unit sizes and configurations.

Prescriptive IT and office equipment Programs aimed at improving the efficiency of office equipment, chiefly commercially available PCs, printers, monitors, networking devices, and mainframes, not rising to the scale of a server farm or floor. Programs for data centers are included in the industrial sector, under the "custom data centers" category.

Prescriptive lighting Commercial lighting programs incentivize the installation of higher efficiency lighting and controls. Typical measures might include T8 or T5 fluorescent lamps and fixtures, CFLs and fixtures, LEDs (for lighting displays, signs, and refrigerated lighting), metal halide and ceramic lamps and fixtures, occupancy controls, daylight dimming, and timers.

Prescriptive performance contract or DSM bidding Programs that incentivize or otherwise encourage energy services companies (ESCOs) and participants to perform energy efficiency projects, usually under an energy performance contract (EPC), a standard offer, or another arrangement that involves ESCOs or customers offering a quantity of energy savings in response to a competitive solicitation process with compensation linked to achieved savings.

Prescriptive other Prescriptive programs that encourage the purchase and installation of some or all of a specified set of preapproved measures besides those covered in other measure-specific prescriptive programs, such as HVAC and lighting.

Small commercial custom Custom programs applied to small commercial facilities. See the "custom" commercial categories for additional detail.

Small commercial prescriptive Prescriptive programs applied to small commercial facilities. See the "prescriptive" commercial categories for additional detail. Such programs may range from a walk-through audit and direct installation of a few preapproved measures to a fuller audit and a fuller package of measures. Audit only programs have their own category.

Street lighting Street lighting programs include incentives or technical support for the installation of higher efficiency street lighting and traffic lights than current baseline.

Other Programs not captured by any of the specific industrial or commercial categories but that are sufficiently detailed or distinct to not be treated as a General C&I program. For example, an energy efficiency program aimed specifically at the commercial subsector but is not clearly prescriptive or custom in nature might be classified as "other".

Industrial or Agricultural Programs

Custom audit Programs in which an energy assessment is performed on one or more participant industrial or agricultural facilities to identify sources of potential energy waste and measures to reduce that waste.

Custom data centers Data center programs are custom designed around large-scale server floors or data centers that often serve high tech, banking, or academia. Projects tend to be site specific and involve some combination of lighting, servers, networking devices, cooling chillers, and energy management systems and software. Several of these may be of experimental or proprietary design.

Custom industrial or agricultural processes Industrial programs that deliver custom designed projects that are characterized by onsite energy and process efficiency assessment and a site specific measure set focused on process related improvements that may include, for example, substantial changes in a manufacturing line. This category includes all energy efficiency program work at industrial or agricultural sites that is focused on process and not generic (such programs belong in the custom category) and not otherwise covered by the single measure prescriptive programs, such as lighting, HVAC, and water heaters.

Custom refrigerated warehouses Warehouse programs are typically aimed at large-scale refrigerated storage facilities and often target end uses such as lighting, climate controls, and refrigeration systems.

Custom other Programs designed around the delivery of site specific projects typically characterized by an extensive onsite energy assessment and identification and installation of multiple measures unique to that facility. These measures may vary significantly from site to site. This category is intended to capture whole facility approaches to industrial or agricultural sector efficiency opportunities for a wide range of building types and markets.

Financing Programs designed to provide or facilitate loans, credit enhancements, or interest rate reductions and buy downs. As with other programs, utility costs are included, such as the costs of any inducements for lenders (for example, loan loss reserves, interest rate buy downs, et cetera). Where participant costs are available for collection, these ideally include the total customer share, that is, both principal (meaning the participant payment to purchase and install measures) and interest on that debt. Most of these programs are directed toward enhancing credit or financing for industrial or agricultural structures.

New construction Programs that incentivize owners of builders of new industrial or agricultural facilities to design and build beyond current code or to a certain certification level, such as ENERGY STAR® or LEED®.

Prescriptive agriculture Farm and orchard agricultural programs that primarily involve irrigation pumping and do not include agricultural refrigeration or processing at scale.

Prescriptive motors Motors programs usually offer a prescribed set of approved, higher efficiency motors, with industrial motors programs typically getting the largest savings from larger, high powered motors, greater than 200 horsepower.

Prescriptive other Prescriptive programs that encourage the purchase and installation of some or all of a specified set of preapproved measures besides those covered in other measure specific prescriptive programs on this list.

Self direct Industrial programs that are designed to be delivered by the participant, using funds that otherwise would have been paid as ratepayer support for all DSM programs. These programs may be referred to as “opt out” programs, among other names.

Other Programs not captured by any of the specific industrial or agricultural program categories but that are sufficiently distinct to the industrial and agricultural sector to not be treated as a C&I program, e.g. programs aimed specifically at an industrial subsector, but that are not clearly prescriptive or custom in nature.

C&I Programs

Audit Programs in which an energy assessment is performed on one or more participant facilities to identify sources of potential energy waste and measures to reduce that waste.

Custom Programs designed around the delivery of site-specific projects typically characterized by an extensive onsite energy assessment and identification and installation of multiple measures unique to that facility. These measures may vary significantly from site to site. This category is for programs that address both the commercial and industrial sectors and cannot be relegated to one sector or another for lack of information on participation or savings.

Mixed offerings Programs that cannot be classified under any of the specific commercial or industrial program categories and that span a large variety of offerings aimed at both the commercial and industrial sectors.

New construction Programs that incentivize owners or builders of new commercial or industrial facilities to design and build beyond current code or to a certain certification level, such as ENERGY STAR® or LEED®. This category should be used sparingly for those programs that cannot be identified with either the commercial or industrial sector on the basis of information available about participation or the sources of savings.

Prescriptive Prescriptive programs that encourage the purchase and installation of some or all of a specified set of preapproved industrial or commercial measures but which cannot be differentiated by sector based upon the description of the participants or the nature or source of savings.

Self direct Generally large commercial and industrial programs that are designed and delivered by the participant, using funds that otherwise would have been paid as ratepayer support for all DSM programs. This category is to be used for self direct or opt out programs that address both large commercial and industrial entities but that cannot be differentiated between these sectors because the nature and source of the savings is not available or is also too highly aggregated.

Other Programs not captured by any of the specific industrial or commercial categories and are sufficiently distinct to the industrial and commercial sectors but cannot be differentiated by individual sector.

Cross Sector

Codes and standards In codes and standards programs, the program administrator may engage in a variety of activities designed to advance the adoption, application or compliance level of building codes and end use energy performance standards. Examples might include advocacy at the state or federal level for higher standards for HVAC equipment; training of architects, engineers, builders, and developers on compliance; and training of building inspectors in ensuring the codes are met.

Market transformation Programs that encourage a reduction in market barriers resulting from a market intervention, as evidenced by a set of market effects that is

likely to last after the intervention has been withdrawn, reduced, or changed. Market transformation programs are gauged by their market effects, for example increased awareness of energy efficient technologies among customers and suppliers, reduced prices for more efficient models, increased availability of more efficient models, and ultimately, increased market share for energy efficient goods, services, and design practices. Example programs might include upstream incentives to manufacturers to make more efficient goods more commercially available and point-of-sale or installation incentives for emerging technologies that are not yet cost-effective. Workforce training and development programs are covered by a separate category. Upstream incentives for commercially available goods are sorted into the program categories for those goods, fore example, consumer electronics or HVAC.

Marketing, education, and outreach Includes most standalone marketing, education, and outreach programs, e.g. statewide marketing, outreach, and brand development. This category also covers in-school energy and water efficiency programs, including those that supply school children with kits of prescriptive measures such as CFLs and low flow showerheads for installation at home.

Multisector rebates Multisector rebate programs include those providing incentives for commercially available end use goods for multiple sectors, such as PCs, or HVAC.

Planning, evaluation, other program support These programs are separate from marketing, education, and outreach programs and include the range of activities not otherwise accounted for in program costs, but that are needed for planning and designing a portfolio of programs and for otherwise complying with regulatory requirements for DSM activities outside of program implementation. These activities generally are focused on the front and back end of program cycles, in assessing prospective programs; designing programs and portfolios; assessing the cost-effectiveness of measures, programs, and portfolios; and arranging for, directing, or delivering reports and evaluations of the process and impacts of those programs where those costs are not captured in program costs.

Research These programs are aimed generally at helping the program administrator identify new opportunities for energy savings, for example, research on emerging technologies or conservation strategies. Research conducted on new program types or the inclusion of new, commercially available measures in an existing program are accounted for separately under cross cutting program support.

Shading and cool roofs Shading and reflective programs include programs designed to lessen heating and cooling loads through changes to the exterior of a structure, such as tree plantings to shade walls and windows, window screens, and cool roofs. These programs are not necessarily specific to a sector.

Voltage reduction transformers Programs that support investments in distribution system efficiency or enhance distribution system operations by reducing losses. The

most common form of these programs involve the installation and use of conservation voltage regulation or reduction or optimization systems and practices that control distribution feeder voltage so that utilization devices operate at their peak efficiency, which is usually at a level near the lower bounds of their utilization or nameplate voltages. Other measures may include installation of higher efficiency transformers. These programs generally are not targeted to specific end users but typically involve changes made by the electricity distribution utility.

Workforce development Workforce training and development programs are a distinct category of market transformation program designed to provide the underlying skills and labor base for deployment of energy efficiency measures.

Other This category is intended to capture all programs that cannot be allocated to a specific sector, or are multisectoral, and cannot be allocated to a specific program type.

Appendix B List of US and Canadian Electric Energy Efficiency Program Category Expenditures

Figure B-1 US Electric Energy Efficiency Program Category Expenditures in USD

CUSTOMER CLASS	PROGRAM TYPE	2013 EXPENDITURES
COMMERCIAL AND INDUSTRIAL	CUSTOM	$420,900,342.56
RESIDENTIAL	OTHER	$397,692,090.64
LOW INCOME	—	$361,219,281.03
COMMERCIAL AND INDUSTRIAL	PRESCRIPTIVE	$324,854,017.02
COMMERCIAL	PRESCRIPTIVE, IT AND OFFICE EQUIPMENT	$298,606,944.74
COMMERCIAL AND INDUSTRIAL	OTHER	$261,511,594.10
CROSS SECTOR	OTHER	$233,518,356.54
RESIDENTIAL	CONSUMER PRODUCT REBATE FORLIGHTING	$214,116,908.96
COMMERCIAL AND INDUSTRIAL	MIXED OFFERINGS	$210,012,938.00
RESIDENTIAL	PRESCRIPTIVE FOR HVAC	$181,761,247.53
CROSS SECTOR	MARKET TRANSFORMATION	$166,842,639.29
COMMERCIAL	OTHER	$137,985,899.91
RESIDENTIAL	WHOLE HOME AUDITS	$133,510,173.20
RESIDENTIAL	PRESCRIPTIVE OTHER	$114,770,779.43
RESIDENTIAL	WHOLE HOME RETROFIT	$114,563,794.02
COMMERCIAL AND INDUSTRIAL	NEW CONSTRUCTION	$110,788,845.84
COMMERCIAL	PRESCRIPTIVE GROCERY	$91,644,337.35
CROSS SECTOR	PLANNING, EVALUATION, OTHER PROGRAM SUPPORT	$85,643,241.92
RESIDENTIAL	WHOLE HOME DIRECT INSTALL	$83,345,658.18
RESIDENTIAL	BEHAVIORAL, ONLINE AUDIT, FEEDBACK	$78,320,843.44
RESIDENTIAL	CONSUMER PRODUCT REBATE FOR APPLIANCES	$71,804,838.48
RESIDENTIAL	APPLIANCE RECYCLING	$68,286,554.25
INDUSTRIAL	CUSTOM INDUSTRIAL OR AGRICULTURAL PROCESSES	$63,936,493.87
RESIDENTIAL	NEW CONSTRUCTION	$61,784,279.90
COMMERCIAL	PRESCRIPTIVE FOR LIGHTING	$54,116,399.69
COMMERCIAL	PRESCRIPTIVE FOR PERFORMANCE CONTRACTING OR DSM BIDDING	$50,552,425.23
INDUSTRIAL	SELF DIRECT	$48,673,423.92
COMMERCIAL	GOVERNMENT, NONPROFIT, MUSH	$43,501,377.35
COMMERCIAL	NEW CONSTRUCTION	$39,158,020.75
INDUSTRIAL	PRESCRIPTIVE MOTORS	$36,273,936.94
RESIDENTIAL	MULTIFAMILY	$35,874,456.12
COMMERCIAL	SMALL COMMERCIAL PRESCRIPTIVE	$34,584,500.89
COMMERCIAL	PRESCRIPTIVE HVAC	$29,874,896.56

Continued on next page

CUSTOMER CLASS	PROGRAM TYPE	2013 EXPENDITURES
COMMERCIAL	SMALL COMMERCIAL CUSTOM	$29,147,506.93
COMMERCIAL AND INDUSTRIAL	AUDIT	$24,918,910.05
CROSS SECTOR	MARKETING, EDUCATION, OUTREACH	$24,412,608.16
COMMERCIAL AND INDUSTRIAL	SELF DIRECT	$20,200,186.73
RESIDENTIAL	FINANCING	$13,714,432.96
CROSS SECTOR	CODES AND STANDARDS	$13,583,780.91
COMMERCIAL	CUSTOM AUDIT	$12,248,090.00
INDUSTRIAL	CUSTOM DATA CENTERS	$10,856,850.71
COMMERCIAL	CUSTOM OTHER	$7,971,160.77
CROSS SECTOR	MULTISECTOR REBATES	$5,157,199.17
COMMERCIAL	CUSTOM RETROCOMMISSIONING	$3,336,979.80
INDUSTRIAL	CUSTOM AUDIT	$3,283,087.43
CROSS SECTOR	RESEARCH	$2,737,528.89
RESIDENTIAL	PRESCRIPTIVE WINDOWS	$2,554,393.00
RESIDENTIAL	PRESCRIPTIVE WATER HEATER	$2,298,326.86
INDUSTRIAL	OTHER	$2,197,779.16
COMMERCIAL	PRESCRIPTIVE OTHER	$2,021,361.00
INDUSTRIAL	CUSTOM OTHER	$1,258,853.92
RESIDENTIAL	PRESCRIPTIVE POOL PUMP	$1,130,613.00
RESIDENTIAL	CONSUMER PRODUCT REBATE ELECTRONICS	$1,092,000.00
CROSS SECTOR	SHADING, COOL ROOFS	$965,968.33
COMMERCIAL	STREET LIGHTING	$682,546.00
INDUSTRIAL	PRESCRIPTIVE AGRICULTURE	$484,867.74
INDUSTRIAL	NEW CONSTRUCTION	$446,700.67
RESIDENTIAL	PRESCRIPTIVE INSULATION	$397,442.00
INDUSTRIAL	CUSTOM REFRIGERATED WAREHOUSES	$328,308.74
INDUSTRIAL	FINANCING	$255,348.00
CROSS SECTOR	WORKFORCE DEVELOPMENT	$63,214.00
CROSS SECTOR	VOLTAGE REDUCTION, TRANSFORMERS	$1,437.00

Figure B-2 Canadian Electric Energy Efficiency Program Category Expenditures

CUSTOMER CLASS	PROGRAM TYPE	2013 EXPENDITURES USD	2013 EXPENDITURES CAD
COMMERCIAL	OTHER	$122,418,966.16	$134,232,396.39
RESIDENTIAL	OTHER	$61,760,786.92	$67,720,702.86
INDUSTRIAL	CUSTOM DATA CENTERS	$34,077,669.90	$37,366,165.05
COMMERCIAL	PRESCRIPTIVE PERFORMANCE CONTRACTING OR DSM BIDDING	$33,595,145.63	$36,837,077.18
INDUSTRIAL	OTHER	$23,967,210.13	$26,280,045.91
CROSS SECTOR	OTHER	$20,300,752.39	$22,259,775.00
LOW INCOME	—	$18,266,929.90	$20,029,688.63
RESIDENTIAL	WHOLE HOME DIRECT INSTALL	$11,039,805.83	$12,105,147.09
COMMERCIAL	PRESCRIPTIVE LIGHTING	$8,841,802.91	$9,695,036.89
INDUSTRIAL	CUSTOM INDUSTRIAL OR AGRICULTURAL PROCESSES	$8,590,167.10	$9,419,118.22
RESIDENTIAL	PRESCRIPTIVE OTHER	$7,684,466.02	$8,426,016.99
COMMERCIAL	SMALL COMMERCIAL PRESCRIPTIVE	$7,454,249.47	$8,173,584.54
COMMERCIAL AND INDUSTRIAL	CUSTOM	$7,184,466.02	$7,877,766.99
COMMERCIAL AND INDUSTRIAL	OTHER	$5,825,242.72	$6,387,378.64
COMMERCIAL AND INDUSTRIAL	PRESCRIPTIVE	$5,825,242.72	$6,387,378.64
RESIDENTIAL	APPLIANCE RECYCLING	$5,657,643.07	$6,203,605.63
RESIDENTIAL	BEHAVIORAL, ONLINE AUDIT, FEEDBACK	$5,060,194.17	$5,548,502.91
CROSS SECTOR	MARKETING, EDUCATION, OUTREACH	$4,991,262.14	$5,472,918.93
RESIDENTIAL	NEW CONSTRUCTION	$4,916,504.85	$5,390,947.57
RESIDENTIAL	CONSUMER PRODUCT REBATE APPLIANCES	$3,944,660.19	$4,325,319.90
RESIDENTIAL	CONSUMER PRODUCT REBATE FOR LIGHTING	$2,834,466.02	$3,107,991.99
COMMERCIAL	CUSTOM OTHER	$1,482,524.27	$1,625,587.86
RESIDENTIAL	PRESCRIPTIVE WINDOWS	$1,422,330.10	$1,559,584.95
RESIDENTIAL	WHOLE HOME RETROFIT	$1,227,184.47	$1,345,607.77
RESIDENTIAL	PRESCRIPTIVE INSULATION	$907,766.99	$995,366.50
RESIDENTIAL	PRESCRIPTIVE HVAC	$766,504.85	$840,472.57
INDUSTRIAL	SELF DIRECT	$558,252.43	$612,123.79
COMMERCIAL	PRESCRIPTIVE - HVAC	$287,732.83	$315,499.05

CROSS SECTOR	CODES AND STANDARDS	$240,291.26	$263,479.37
CROSS SECTOR	PLANNING, EVALUATION, OTHER PROGRAM SUPPORT	$218,446.60	$239,526.70
COMMERCIAL	CUSTOM RETROCOMMISSIONING	$122,103.67	$133,886.68
COMMERCIAL	PRESCRIPTIVE IT AND OFFICE EQUIPMENT	$81,789.66	$89,682.37
COMMERCIAL	CUSTOM AUDIT	$65,048.54	$71,325.73
COMMERCIAL	STREET LIGHTING	$10,270.40	$11,261.50

Appendix C Electric Demand Response Program Expenditures

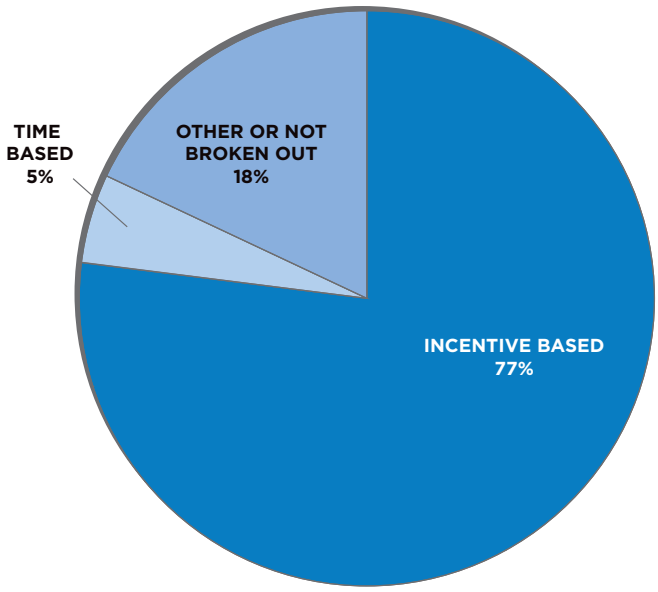
In 2013, CEE modified the demand response program categories to align with those used by FERC. FERC defines several demand response program types and groups them into two major categories:

- Incentive programs, which tend to involve incentives for contracting with utilities to curtail load when necessary
- Time-based programs, which generally employ graduated pricing schemes that incent customers to reduce load during system peaks

US Electric Demand Response Program Category Expenditures

Over three-quarters of 2013 demand response program expenditures went to incentive-programs, as shown in Figure C-1 below.

Figure C-1 US Electric Demand Response Expenditures: General Categorization 2013



Of those expenditures, over half, 56 percent, went to direct load control programs, followed by interruptible load at 28 percent and emergency demand response and load as a capacity resource at three percent each (Figure C-2). Five percent of demand response expenditures went to time-based programs.

Figure C-2 US Electric Demand Response Expenditures: Incentive Programs 2013

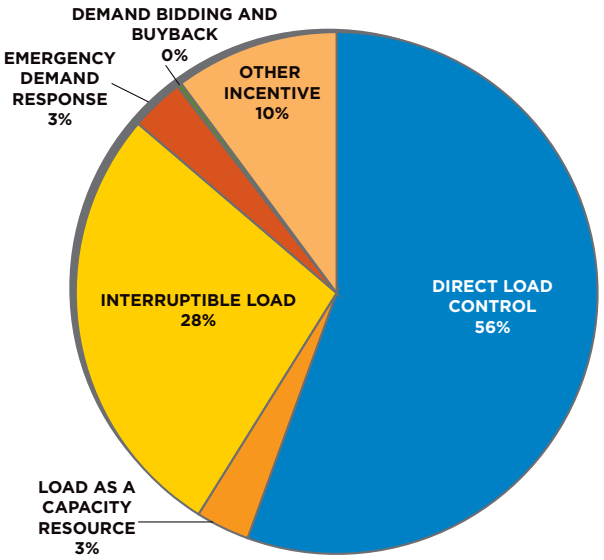
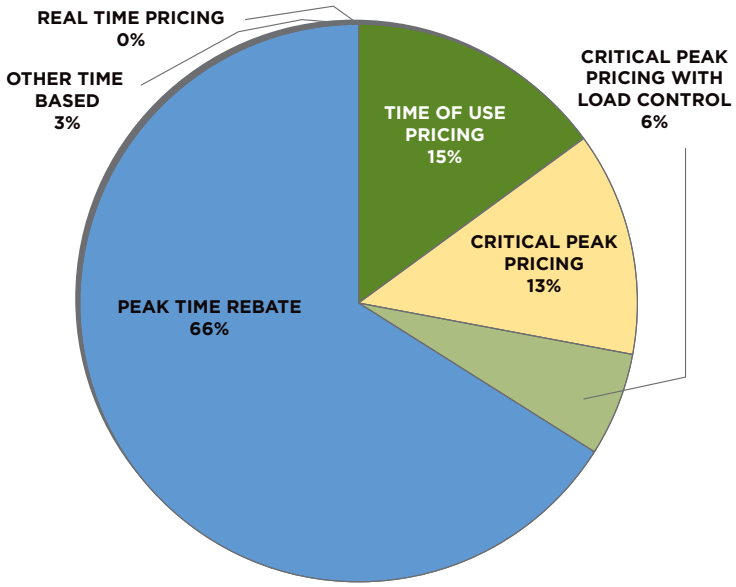


Figure C-3 shows that two thirds, 66 percent, of these expenditures went to peak time rebate programs, followed by time of use pricing, 15 percent, and critical peak pricing, 13 percent. These breakdowns are largely similar to those in 2012, except that within incentive programs, the proportion of emergency demand response programs decreased significantly while the proportion of direct load control programs increased significantly. Within time-based programs, the proportion of real time pricing programs decreased significantly while the proportion of time of use pricing programs increased significantly.

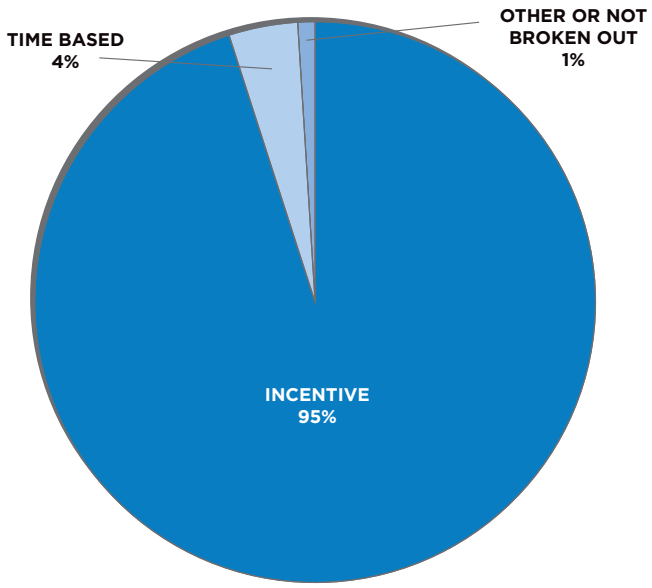
Figure C-3 US Electric Demand Response Expenditures: Time-based Programs 2013



Canadian Electric Demand Response Program Category Expenditures

This year, CEE was also able to provide a rough breakdown of Canadian demand response program expenditures into the high level FERC categories, though Canadian program administrators did not report any individual demand response programs. The breakdown is based solely on percentage estimates by respondents of total demand response expenditures in the various categories. As shown in Figure C-4, ninety-five percent of expenditures on demand response in Canada went to incentive programs.

Figure C-4 Canadian Electric Demand Response Expenditures: General Categorization 2013



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