

2017 Utility Energy Efficiency Scorecard

Grace Relf, Brendon Baatz, and Seth Nowak

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529 14th Street NW, Suite 600, Washington, DC 20045
Phone: (202) 507-4000 • Twitter: @ACEEEDC
Facebook.com/myACEEE • aceee.org

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About the Authors

Grace Relf conducts research and analysis on utility-sector energy efficiency policies. Specifically, she focuses on programs and initiatives such as rate design and utility resource planning. Prior to joining ACEEE, Grace worked at Karbone Inc. as an energy and environmental markets analyst and broker, focusing on carbon, emissions, and biofuel credit markets. Grace earned a master of public administration in environmental science and policy from Columbia University in 2015. She also holds an honors bachelor of science with distinction in energy and environmental policy and an honors bachelor of arts in French from the University of Delaware.

Brendon Baatz is the senior manager of the utilities program at ACEEE. Brendon's research focuses on utility regulation, energy markets, utility resource planning, and utility-sector efficiency programs. Prior to joining ACEEE, Brendon worked for the Federal Energy Regulatory Commission, Maryland Public Service Commission, and Indiana Office of Utility Consumer Counselor. Brendon holds a master of public affairs in policy analysis from Indiana University and a bachelor of science in political science from Arizona State University.

Seth Nowak conducts analysis and writes about energy efficiency programs and policies in the electric and natural gas utility sector. Focus areas of his research include exemplary programs; best practices; and program evaluation, measurement, and verification. Seth earned a master of business administration from the Wisconsin School of Business and a master of public affairs from the La Follette School of Public Affairs at the University of Wisconsin.

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Executive Summary

Energy efficiency plays a critical role in meeting the needs of electric customers throughout the United States. It is a low-cost, low-risk resource option that delivers high levels of customer satisfaction. Electric utilities play a critical role in delivering energy efficiency programs to customers. *The 2017 Utility Energy Efficiency Scorecard* ranks the 51 largest US electric utilities on utility-sector energy efficiency programs and policies in 2015. We developed metrics reflecting how utilities are performing in a range of utility-sector energy efficiency areas. The report covers 18 metrics and allocates 50 total possible points across three categories:

1. Energy efficiency program performance: 25 points
2. Program diversity and emerging areas: 15 points
3. Energy efficiency-related regulatory issues: 10 points

The 51 utilities presented in the *Scorecard* operate within various state and regulatory environments, which are strong drivers of high performance in utility-sector energy efficiency. In this context, the utilities face constraints in decision making as regulated entities. Our ranking assesses energy efficiency programs, policies, and performance within the framework of these state and regulatory environments. Utilities have opportunities to deliver energy efficiency savings to customers in every state and regulatory context.

SCORES

Eversource Massachusetts (Eversource MA) and National Grid Massachusetts (NG MA) earned the most points overall with 45.5 out of 50. These top two performers excelled in all three categories and were nearly 10 points ahead of the next utility (Pacific Gas & Electric). The top 10 utilities in the *Scorecard* come from 8 states, including 3 utilities from California, 2 from Massachusetts, and one each from Maryland, Connecticut, Illinois, Oregon, Colorado, and Minnesota. Figure ES1 shows the top and bottom 10 utilities in the report and the percentage of total available points they earned.

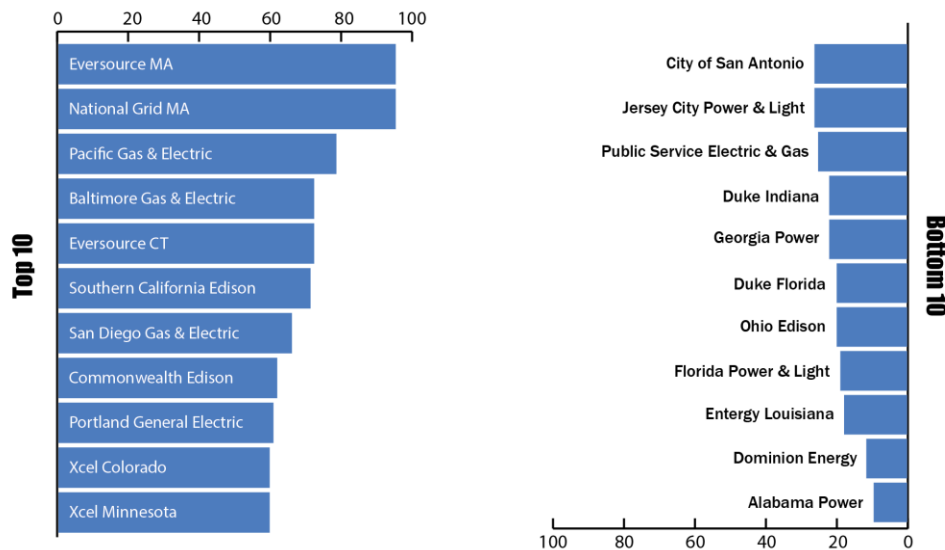


Figure ES1. Top and bottom 10 utilities and percentage of available points earned

On average, the group of 51 utilities earned 20.4 points, or just under 41% of the available 50. This indicates potential for growth in many areas of energy efficiency performance across the utility sector.

REGIONAL RESULTS

Regionally, utilities in the Northeast and West earned the highest average number of points. Table ES1 shows how utilities in each region performed, on average, as well as the percentage of available points earned by the top and bottom utilities.¹

Table ES1. Utility performance by region

Region	Number of utilities	Total average % of points achieved	% of points earned by highest-ranked utility	% of points earned by lowest-ranked utility	Top three utilities in the region (% of available points)
Mid-Atlantic	7	33%	69%	11%	Baltimore Gas & Electric (69%), PPL (39%), PECO (37%)
Midwest	13	42%	59%	19%	Commonwealth Edison (59%), Xcel MN (57%), Ameren IL (52%)
Northeast	6	62%	91%	35%	Eversource MA (91%), National Grid MA (91%), Eversource CT (69%)
Southeast	10	25%	44%	9%	Entergy AR (44%), Duke SC (35%), Duke NC (34%)
Southwest	7	33%	48%	25%	Arizona Public Service (48%), Salt River Project (44%), Centerpoint (30%)
West	8	57%	75%	42%	Pacific Gas & Electric (75%), Southern California Edison (68%), San Diego Gas & Electric (63%)

CATEGORY 1 RESULTS

Category 1 scores utilities on quantitative savings and spending performance by utilities in 2015. This is the most heavily weighted category, with half of the total possible points. We focused on quantitative metrics including

- Net energy savings
- Program spending
- Peak demand reductions
- Lifetime savings
- Achievement of energy savings goals

¹ The Mid-Atlantic includes utilities in MD, NJ, PA, and VA. The Midwest includes utilities in IA, IL, IN, MI, MN, MO, OH, OK, and WI. The Northeast includes utilities in CT, MA, and NY. The Southeast includes utilities in AL, AR, FL, GA, LA, NC, and SC. The Southwest includes utilities in AZ, NV, and TX. The West includes utilities in CA, CO, OR, UT, and WA.

Net energy savings as a percentage of sales is the largest point metric in the *Scorecard*, with 8 available points (16% of total points). The two Massachusetts utilities received full points for this metric by achieving more than 3% incremental annual savings. Figure ES2 shows the distribution of utility savings as a percentage of sales.

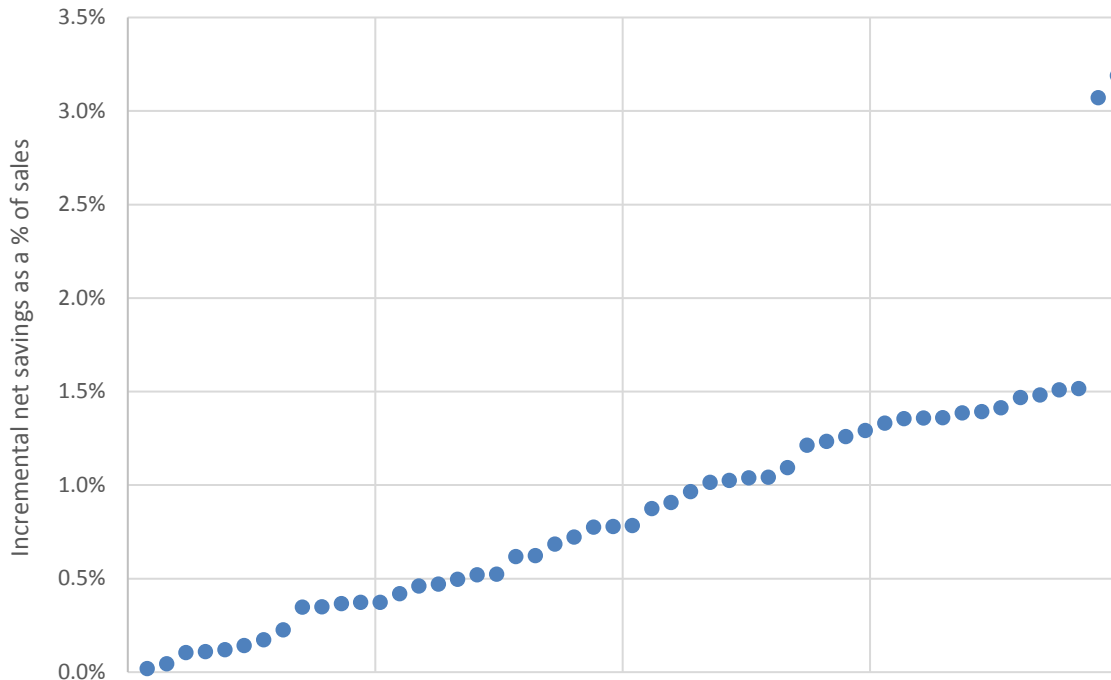


Figure ES2. Distribution of incremental net savings as a % of retail sales in 2015. Each dot represents a utility's 2015 performance.

As these results show, two utilities had savings higher than 3% of sales and another two had savings that surpassed 1.5% of sales. Twenty-two utilities had savings higher than 1% of sales in 2015. The average for all 51 utilities is 0.89%, and the median is similar at 0.78%.

The next metric, energy efficiency spending measured as a percentage of revenue, accounts for 14% of total points. The Massachusetts utilities outperformed the others in this metric as well, with program spending reaching more than 10% of utility revenue. The program spending of the next two utilities was more than 5.5% of utility revenue; on average, the figure was 2.7%.

CATEGORY 2 RESULTS

Category 2 awards up to 15 points for several metrics related to program offerings:

- Diversity of programs
- Emerging programs
- Pilot programs
- Low-income offerings
- Advanced metering penetration
- Utility data access
- Electric vehicles

This category evaluates utility performance in areas that are critical to effective program delivery. The top 10 utilities in this category include 3 from California, where there is a strong emphasis on implementation of emerging program areas by utilities. This category revealed some of the most common programs and technologies being used in the utility sector in 2015. Figure ES3 shows the number of utilities implementing a selection of different programs and technologies from Category 2. The different colors of bubbles correspond to different metrics in the report. Some were much more common than others, such as residential heating, ventilation, and air-conditioning (HVAC) programs, offered by 40 utilities, while others were much less common, such as zero net energy (ZNE) building programs, offered by only eight utilities.

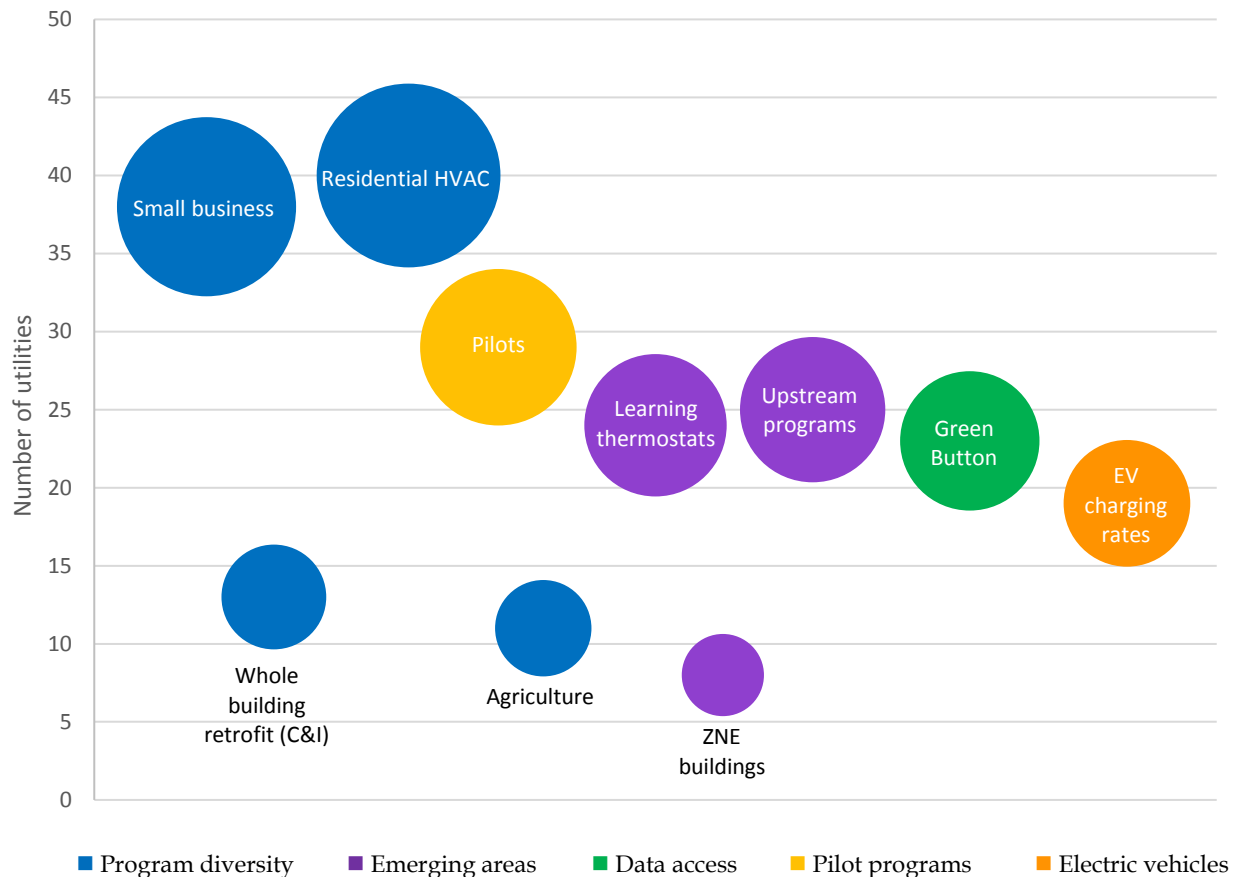


Figure ES3. Number of utilities implementing selected Category 2 programs in 2015

Program diversity and emerging areas are the most heavily weighted metrics in Category 2, with a combined total of 7 available points. Five utilities earned full points for program diversity, with 20 or more offerings. The most common programs include residential HVAC and industrial custom programs; among the least common are electric water heating (residential) and agricultural programs (commercial and industrial).

Eight utilities offered eight or more of the selected emerging areas in 2015, thereby earning full points for the metric. Half of the utilities implemented upstream energy efficiency programs, while only two pursued residential geotargeting. Twenty-nine utilities offered one or more pilot program. Of these, the most common were behavior programs relying on

home energy reports. Five utilities earned full points for their low-income energy efficiency programs. These included two utilities from coastal states (CT and MA) and three from noncoastal states (OH, OK, and TX).

CATEGORY 3 RESULTS

Category 3 scores utilities on several regulatory policies that promote energy efficiency. The metrics in this category rank utilities based on

- Energy savings targets
- Residential rate design
- Utility business model approaches
- Program evaluation practices

The policies and practices assessed in Category 3 create economic incentives for utilities to implement energy efficiency and strongly influence realized energy and demand savings. Although the policies are ultimately approved by regulators, utilities have strong influence based on what they propose and support.

The Massachusetts utilities performed well in this category, primarily due to strong state policies and a supportive regulatory environment for energy efficiency. On average, utilities earned less than half of the total available points in Category 3, demonstrating weak regulatory policy support for energy efficiency programs.

Establishing strong savings targets is critical to improving savings performance. The two Massachusetts utilities earned top points for energy savings targets in 2015 and beyond. Both had 2015 energy savings targets of over 2.5% of retail sales, more than a full percentage point above the next-highest utilities. Forty-five of the 51 utilities had established energy savings targets for 2015. On average, utilities set targets of 0.77% of retail sales. While our data show that utilities are generally meeting established targets, results also indicate that higher savings are likely possible for many utilities.

Electric rate design is important because it can provide customers with price signals to conserve electricity and engage in energy efficiency programs. Utilities can improve price signals by keeping customer charges low and offering time-of-use rates. Our review of residential rate design shows an average residential customer charge of \$8.65 per month and low participation in time-of-use rates.

Policies such as financial performance incentives and revenue decoupling can lead to greater savings levels and can help to counteract revenue lost from reduced energy sales. Thirty-two of the 51 utilities we reviewed are eligible to earn financial performance incentives, and 16 have full revenue decoupling. Only 11 have both revenue decoupling and performance incentives in place; seven of those utilities are in the top 10 overall.

EFFECTIVE STATE POLICIES

The results highlight the importance of strong state policies and regulatory support for high performance in utility-sector efficiency programs. Nine of the top 10 utilities in this report

are located in states that also break the top 10 in ACEEE's 2016 *State Energy Efficiency Scorecard*. The other two are in states within the top 15 in the *State Scorecard*. Policies in these states—such as energy efficiency resource standards (EERS) and financial opportunities for utilities to maintain and increase revenues while delivering efficiency—are important in driving performance.

CONCLUSION

All the utilities in the top 10 show a clear commitment to energy efficiency, with high energy savings achievement and leadership across a breadth of programs and metrics. This commitment indicates the importance of this resource to utilities and the benefits it provides to customers. Eversource Massachusetts and National Grid Massachusetts excelled in the *Scorecard*, both earning more than 90% of the available points. These two utilities are especially strong in quantitative energy efficiency program performance as well as energy savings targets. These strengths, along with full scores in Category 3, indicate both a commitment to efficiency and the presence of solid state and regulatory support.

The metrics evaluated in the *Scorecard* provide information to utilities, regulators, and others on how to realize the many benefits of efficiency for businesses, customers, and communities. The report adds transparency to utility-sector energy efficiency data and highlights areas where data availability can improve. It also provides a baseline for utilities to assess performance and gain insights into trends that will strengthen program efforts. A utility shows its commitment to energy efficiency through the quantitative performance assessed in the *Scorecard* and by including efficiency in future planning through pilot programs, implementation of emerging areas and technologies, and setting strong targets.

Introduction

Energy efficiency produces substantial benefits for the electric utility system. By reducing energy consumption, utilities can delay or avoid the need to build new infrastructure like power plants and distribution assets. Utilities can also reduce the need for higher-cost electricity from other sources such as natural gas. Reducing energy consumption can decrease harmful air pollutants associated with fossil fuel generation, and utilities can lower wholesale prices for electricity. These benefits reduce costs for all utility customers. Energy efficiency can also boost economic growth and create jobs.

Utility-sector efficiency programs play a key role in eliminating energy waste and have grown in recent years. From 2006 to 2015, annual utility spending on electric efficiency increased from \$1.6 billion to \$6.3 billion (Berg et al. 2016). Efficiency programs are also reducing the need for other generation sources and making up an increasing share of resources to meet customer demand. In 2015, energy efficiency represented 18% of electricity resources nationally, making it the third-largest resource behind natural gas and coal (Molina, Kiker, and Nowak 2016).

ACEEE's 2017 *Utility Energy Efficiency Scorecard* focuses on 18 areas of interest related to utility-sector energy efficiency efforts. Previous studies have made important contributions to ranking utility performance, among them the Ceres report, *Benchmarking Utility Clean Energy Deployment: 2016*, which examines three metrics related to energy efficiency and renewable energy (Mullen and Bakal 2016). The *Scorecard* builds on previous research with a more comprehensive analysis of achievements in the utility sector, focused primarily on end use energy efficiency. Each metric relies on primary data to assess a critical aspect of utility-sector energy efficiency. We highlight the successes of leading utilities in various areas of program implementation and innovation, and we point out areas for improvement.

Methodology

In this section, we provide information on the selection of the utilities and scoring metrics contained in the report. We also outline our approach to data collection, including limitations to the data we used.

SELECTION OF UTILITIES

We focused on the United States' 51 largest electric utilities by retail sales volume.² They represent various regions, ownership types, and program administrator models. This set of utilities accounts for 54% of 2015 electricity sales and covers 31 states (EIA 2016b). We used 2014 retail sales data published by the US Department of Energy's Energy Information Administration (EIA) to determine which utilities to include because 2015 sales data had not yet been finalized at the time of utility selection (EIA 2016d). EIA data used throughout the rest of the report are from 2015.

² Two of these utilities (Eversource Energy and PG&E) are represented on ACEEE's board of directors, and about 20 others have been ACEEE conference sponsors, research funders, or Ally Program members over the past two years. All 51 utilities had the opportunity to review the draft findings. None contributed to the report's funding.

The final list of utilities includes investor-owned (IOU), municipal, and state and other public utilities such as Long Island Power Authority.³ We focused on state jurisdictional utilities rather than parent or holding companies. For example, we included Georgia Power and Alabama Power as two separate utilities instead of focusing on their parent, Southern Company. We included both Duke Energy subsidiaries in North Carolina (Duke Energy Carolinas and Progress Energy) as separate utilities, as each individually ranked among the 51 largest utilities. While local power companies often offer energy efficiency programs under Tennessee Valley Authority's Energy Rights Solutions programs, we did not include Tennessee Valley Authority in this report because it is a wholesale supplier and none of its wholesale power customers fall within the 51 largest utilities.

A few states use a third-party program administration model to deliver energy efficiency programs to retail customers. For utilities in those states, we worked with both the utility and the program administrators to appropriately allocate savings, spending, and other program data from within a utility's territory, regardless of who administered the program. These administrators include Focus on Energy in Wisconsin, Energy Trust of Oregon, New York State Energy Research and Development Authority (NYSERDA), and other state- or third party-run programs.⁴ It is important to note that it can be difficult for third-party administrators to allocate data to specific utility territories, as programs are often run with a statewide orientation.

Table 1 lists the utilities included in this report sorted by sales and shows 2015 data on revenues, sales, and customers. Sales include both bundled and unbundled sales.

Table 1. Utilities included in this report

Utility Name	Abbreviation	State	Revenue (\$1,000's)	Sales (GWh)	Customers
Oncor Electric Delivery	Oncor	TX	\$3,150,078	116,760	3,358,030
Florida Power & Light	FP&L	FL	\$10,717,212	110,327	4,708,793
Southern California Edison	SCE	CA	\$12,273,071	86,856	5,019,897
Commonwealth Edison	ComEd	IL	\$4,326,964	86,732	3,896,654
Pacific Gas & Electric	PG&E	CA	\$13,468,509	86,234	5,417,166
CenterPoint Energy	CenterPoint	TX	\$2,077,403	84,191	2,366,814
Georgia Power	GA Power	GA	\$7,722,236	83,804	2,439,237
Virginia Electric & Power	Dominion	VA	\$6,797,975	76,159	2,405,876
Duke Energy Carolinas	Duke NC	NC	\$4,884,984	57,684	1,921,052
Consolidated Edison	ConEd	NY	\$8,070,652	57,035	3,397,754
Alabama Power	AL Power	AL	\$5,234,374	55,766	1,458,602

³ We did not include retail power marketers or utilities that do not operate a retail distribution system.

⁴ Utilities with portfolios that are fully or partially administered by the state or third parties include Ameren IL, BGE, ComEd, ConEd, JCP&L, LADWP, LIPA, NG NY, PG&E, PGE, PSE&G, SCE, SDG&E, and We Energies.

Utility Name	Abbreviation	State	Revenue (\$1,000's)	Sales (GWh)	Customers
Entergy Louisiana & Entergy Gulf States	Entergy LA	LA	\$3,742,810	54,567	1,063,479
DTE Electric	DTE	MI	\$4,582,756	46,809	2,159,088
Ohio Power	AEP OH	OH	\$2,757,998	43,416	1,464,068
Public Service Electric & Gas	PSE&G	NJ	\$3,987,334	41,724	2,214,633
Duke Energy Florida	Duke FL	FL	\$4,442,866	38,553	1,721,849
PECO Energy	PECO	PA	\$2,181,591	38,067	1,601,669
Progress Energy	Progress NC	NC	\$3,437,850	37,217	1,303,473
PPL Electric Utilities	PPL	PA	\$1,803,316	36,981	1,418,528
Consumers Energy	Consumers	MI	\$4,031,759	36,930	1,797,237
Ameren Illinois	Ameren IL	IL	\$1,481,672	36,063	1,221,987
Ameren Missouri	Ameren MO	MO	\$3,209,918	35,876	1,203,538
Niagara Mohawk Power (National Grid New York)	NG NY	NY	\$2,258,324	34,437	1,647,838
Northern States Power	Xcel MN	MN	\$2,971,034	30,311	1,259,609
Baltimore Gas & Electric	BGE	MD	\$2,223,154	30,304	1,257,765
Public Service Co. of Colorado	Xcel CO	CO	\$2,737,509	28,700	1,423,796
Arizona Public Service	APS	AZ	\$3,286,013	27,950	1,177,494
Duke Energy Indiana	Duke IN	IN	\$2,450,991	27,821	804,322
Salt River Project	SRP	AZ	\$2,753,072	27,699	1,014,022
AEP Texas Central	AEP TC	TX	\$973,740	25,064	822,666
Ohio Edison	OH Edison	OH	\$1,270,928	24,292	1,037,216
PacifiCorp	PacifiCorp UT	UT	\$2,065,533	24,158	856,756
Oklahoma Gas & Electric	OG&E	OK	\$1,810,576	24,065	754,057
Wisconsin Electric Power	We Energies	WI	\$2,837,810	23,702	1,108,864
Los Angeles Department of Water & Power	LADWP	CA	\$3,506,166	23,336	1,413,211
Eversource Massachusetts	Eversource MA	MA	\$2,574,788	22,920	1,458,286
Puget Sound Energy	PSE	WA	\$2,073,085	22,523	1,103,627
South Carolina Electric & Gas	SCE&G	SC	\$2,477,906	22,173	694,834
Nevada Power	NPC	NV	\$2,336,098	22,073	887,964
Eversource Connecticut	Eversource CT	CT	\$2,615,259	22,071	1,232,614
City of San Antonio, TX	CPS	TX	\$2,057,559	21,513	776,840
Duke Energy Carolinas	Duke SC	SC	\$1,731,611	21,259	563,007

Utility Name	Abbreviation	State	Revenue (\$1,000's)	Sales (GWh)	Customers
Entergy Arkansas	Entergy AR	AR	\$1,820,796	21,160	704,170
Jersey Central Power & Light	JCP&L	NJ	\$1,709,504	21,062	1,106,242
MidAmerican Energy	MidAm IA	IA	\$1,424,541	20,922	662,798
Massachusetts Electric (National Grid Massachusetts)	NG MA	MA	\$2,407,140	20,886	1,307,820
Duke Energy Ohio	Duke OH	OH	\$966,303	20,144	701,129
West Penn Power Company	West Penn	PA	\$928,899	20,049	721,791
Long Island Power Authority	LIPA	NY	\$3,449,588	19,925	1,119,104
San Diego Gas & Electric	SDG&E	CA	\$3,619,762	19,919	1,421,831
Portland General Electric	PGE	OR	\$1,736,431	19,382	848,526

Revenue, sales, and customer data from 2015 EIA Form 861 (EIA 2016d). All utilities are IOUs except CPS, LADWP, LIPA, and SRP.

METRICS AND SCORING

The metrics in this report reflect the current utility energy efficiency landscape and cover customer-funded programs and initiatives as well as other areas of utility focus that relate more broadly to energy efficiency, such as electric vehicles and customer rates. The metrics allow for flexibility in how utilities can achieve points, as both their physical and political environments vary greatly, and what is effective in one territory may not be in another.

Utilities operate in a diverse landscape of regulatory and state policies that strongly influence planning, administration, and implementation of energy efficiency programs. Our metrics attempt to evaluate utility performance regardless of state or local policies.⁵ However we do recognize that electric utilities are regulated entities and often act only with regulatory approval. Our scoring represents what is happening within a utility service territory, and many actions are the result of complex legislative and regulatory processes.

We developed a set of 18 metrics that allocate a total of 50 points across three categories:

1. Quantitative energy efficiency savings and spending performance: 25 points
2. Program diversity and emerging areas: 15 points
3. Energy efficiency-related regulatory issues: 10 points

These categories recognize the importance not only of current-year performance but also of utility innovation, long-term planning, and policies that are critical to the continued success of energy efficiency programs.

We allocate 50% of the points to Category 1, energy efficiency program performance; 30% to Category 2, energy efficiency programs; and the remaining 20% to Category 3, policy issues including targets, utility business model, and evaluation. Point values for each set of metrics

⁵ ACEEE's *State Energy Efficiency Scorecard* provides more information on state energy efficiency policies.

and each individual metric indicate their approximate relative importance in energy efficiency achievement for utilities. However when allocating points we also took into account the quality and availability of data. Table 2 lists each metric included in the report and its point value.

Table 2. Metrics and scoring

Metric	Description	Points available	% of total
Category 1. Energy efficiency program performance		25	50%
Net incremental energy savings	Net incremental energy savings as % of total sales	8	16%
Spending	Total energy efficiency spending as % of revenue (includes performance incentives)	7	14%
Peak demand reduction	% of total peak demand reduction from energy efficiency (not demand response) on utility annual peak	4	8%
Net lifetime energy savings	Net lifetime electricity savings from measures installed in 2015 as % of total retail sales	4	8%
Savings target achievement	% of 2015 MWh savings target achieved	2	4%
Category 2. Energy efficiency programs		15	30%
Program diversity	Implementation of various residential, commercial, and industrial programs	3.5	7%
Emerging program areas	Inclusion of specific measures or programs	3.5	7%
Pilot programs	Existence of pilot programs	1	2%
Low-income program implementation	Spending, savings, and program comprehensiveness for residential low-income programs	3	6%
Advanced metering	% of meters installed in 2015 that are smart meters (AMI)	1	2%
Data access	Implementation of benchmarking services and Green Button	1	2%
Electric vehicles	Promotion of electric vehicles through education and rates encouraging off-peak charging	2	4%

Metric	Description	Points available	% of total
Category 3. Targets, utility business model, and evaluation		10	20%
Energy savings target	2015 net incremental energy savings target as % of 2015 sales	2	4%
Future energy savings targets	2016–2018 net incremental energy savings targets as % of 2015 sales	2	4%
Customer charges	Level of residential customer charge as part of primary rate option	1	2%
Time-of-use rates	Existence of an optional time-of-use rate for residential customers	1	2%
Utility business model	Presence of full revenue decoupling and performance incentives in 2015	2	4%
Evaluation, measurement, and verification	Independence of EM&V; calculation of net savings	2	4%
Maximum points available		50	

DATA COLLECTION

Each of the 18 metrics relies heavily on primary data. Appendix A lists our sources for these data. We asked utilities for annual reports, program plans, evaluations, and other sources including docket numbers and web links. We used evaluated data whenever possible. We relied on publicly available information but also worked closely with utility representatives who were willing to participate. We followed up with personal communications with utility representatives to clarify data or to fill gaps where we were unable to find data. We extracted data and program information largely based on 2015 regulatory filings and 2015–2018 planning documents, as well as additional filings on utility or public utility commission websites as necessary. For utilities that do not operate on the calendar year, we used data from the 2014–2015 program year.⁶

We also relied on publicly available data collected from EIA Form 861, FERC Form 1, active utility tariffs, and third-party websites such as ENERGY STAR® and utility energy efficiency evaluator group websites. We used publicly available data and information collected from other ACEEE research to cross-check data provided in utility filings. We used 2015 EIA Form 861 energy efficiency data for utilities that did not respond to requests for information and for which we were unable to find regulatory filings.

In tallying sales, revenue, and customer counts for each utility, we included customers who are eligible to opt out of energy efficiency programs. This accounts for the negative impact of opt-out provisions that allow large customers to avoid participating in utility energy efficiency programs. Including opt-out customers increases the denominator of several

⁶ For SRP we used program year 2015–2016 data, which include eight months of 2015.

metrics, although some utilities exclude opt-out customers from these figures in their own internal calculations.

We adjusted some data to normalize results for scoring purposes. For utilities in states relying on third-party program administrators, we used publicly available data as well as allocators to assign performance within a utility's territory. We confirmed these data with utility and program administrator staff. In all tables in this report, blank cells indicate that no data were found.

DATA LIMITATIONS

We encountered several issues related to data. Some utilities do not publicly disclose detailed information on energy efficiency programs and performance. Annual energy efficiency reports are not typically available on utility websites and are sometimes difficult to locate through public utility commission websites. Additionally, annual reports are sometimes broken into many documents without a summary, making data difficult to extract and interpret.

Utilities do not report data consistently and may include or exclude certain types of programs from their reporting. For example, some utilities include third-party programs as part of their own portfolio, while others report these programs separately. Utilities may also report data from certain programs separately on the basis of utility commission reporting standards and requirements. Utilities sometimes include demand response and renewable energy programs within efficiency portfolios. We do not include any spending or savings data related to demand response and renewable energy in any metrics in this report.

The level of detail in annual reports also varies widely across utilities. Many include extensive descriptions of programs, while others list program names without descriptions or provide only summary data. These variations make it difficult to consistently interpret and analyze program and emerging technology offerings. Similarly, definitions of energy efficiency-related terms vary widely across utilities. This makes comparison of utility performance challenging for many metrics, such as cost-effectiveness testing, research and development programs, and low-income programs.

Reported levels of savings for utilities are also inconsistent. For example, it is often unclear in annual reports and filings whether utilities report savings at the meter or at the generator. The difference between the two values is energy losses on the transmission and distribution system. Avoiding energy losses reduces the need for additional electricity and represents a large amount of energy savings. Many utilities also do not provide loss factors or program- or portfolio-level net-to-gross ratios.

We adjusted energy and demand savings as well as savings targets to net savings at the generator to account for additional savings from avoided line losses. For this adjustment we applied an average loss factor to savings figures that were not already reported at the generator level. In cases where utility-specific loss factors were unavailable, we used 6%, which is the average of EIA's estimated US transmission and distribution losses for 2005–2015 (EIA 2017). If we were unable to determine the reporting level for a utility's savings data (generator versus meter), we assumed generator level in order to be conservative. We

also applied loss factors to the EIA total retail sales and total peak demand data, as they are reported at the meter level.

Another inconsistency is that some utilities report net savings while other report gross savings, and it is often unclear which value they are reporting. Net savings are energy savings attributable to energy efficiency programs. These may implicitly or explicitly include the effects of factors such as free ridership, participant and nonparticipant spillover, and induced market effects (for a discussion of these effects, see Violette and Rathbun 2014).

We adjusted gross savings to net in cases where utilities reported gross. While it is not an exact comparison because states and utilities measure net savings differently, using net savings allows for more direct comparison of utility program achievement. Some utilities do not report net savings or net-to-gross ratios (NTGRs). For these utilities we applied a net-to-gross adjustment of 81.7%.⁷ If we were unable to determine whether savings were reported as net or gross, we assumed gross in order to be conservative. Appendix B provides more detail on reporting levels, line loss factors, and NTGRs.

Overall Scoring Results

Our review of the largest 51 utilities demonstrates wide variation in energy efficiency programs, actions, and other areas. When reviewing the results of performance in the three categories of energy efficiency, it is important to consider the operational constraints of these companies. Our scoring is an assessment of energy efficiency programs, policies, and performance within the context of state and regulatory environments.

All 51 utilities are regulated entities, meaning much of their behavior is constrained. For example, electric utilities will not undertake capital projects, including energy efficiency programs, without an opportunity to recover associated costs. Not only are these utilities' actions often driven by regulatory decisions, but they are also guided by state policies. These decisions and policies can sometimes hinder utility action on energy efficiency but can also drive greater performance, as has been shown to be the case with EERS policies.⁸

Table 3 shows the scores for each utility for all three categories of metrics, shaded by quintile.

⁷ This is the adjustment used in the ACEEE 2016 *State Energy Efficiency Scorecard* (Berg et al. 2016). It is the median NTGR calculated from states that reported both net and gross savings for the *State Scorecard*. See Berg et al. for more detail on this approach.

⁸ See Molina and Kushler 2015.

Table 3. Scores for all three categories of metrics

Rank	Utility	Energy efficiency program performance (25 pts)	Energy efficiency programs (15 pts)	Targets, utility business model, and evaluation (10 pts)	Total (50 pts)	% of total points
1	Eversource MA	24	11.5	10	45.5	91%
1	NG MA	24	11.5	10	45.5	91%
3	PG&E	15	14.5	8	37.5	75%
4	BGE	16	12.5	6	34.5	69%
4	Eversource CT	14	12.5	8	34.5	69%
6	SCE	11.5	14.5	8	34	68%
7	SDG&E	11.5	12	8	31.5	63%
8	ComEd	12.5	11	6	29.5	59%
9	PGE	10	12	7	29	58%
10	Xcel CO	12.5	9.5	6.5	28.5	57%
10	Xcel MN	11.5	10	7	28.5	57%
12	Ameren IL	12	8	6	26	52%
13	DTE	9.5	9.5	6	25	50%
13	MidAm IA	12.5	8	4.5	25	50%
15	APS	10.5	8	5.5	24	48%
15	PSE	11.5	8	4.5	24	48%
15	We Energies	7.5	12	4.5	24	48%
18	AEP OH	9.5	9	5	23.5	47%
18	NG NY	9.5	6.5	7.5	23.5	47%
20	LADWP	8.5	7.5	7	23	46%
21	Entergy AR	10	6	6	22	44%
21	SRP	9.5	9	3.5	22	44%
23	PacifiCorp UT	7.5	7	6.5	21	42%
24	Consumers	7	8	5	20	40%
25	PPL	6	9.5	4	19.5	39%
26	Ameren MO	8.5	4	6	18.5	37%
26	LIPA	10	3	5.5	18.5	37%
26	PECO	6	8	4.5	18.5	37%
29	ConEd	4	7	6.5	17.5	35%
29	Duke SC	7	5	5.5	17.5	35%

Rank	Utility	Energy efficiency program performance (25 pts)	Energy efficiency programs (15 pts)	Targets, utility business model, and evaluation (10 pts)	Total (50 pts)	% of total points
31	Duke NC	6.5	6.5	4	17	34%
32	Duke OH	6	6	4	16	32%
33	CenterPoint	3.5	7.5	4	15	30%
34	OG&E	3.5	8	3	14.5	29%
35	AEP TC	4.5	6.5	3	14	28%
35	NPC	6	5	3	14	28%
35	Progress NC	6	3.5	4.5	14	28%
35	West Penn	4	6	4	14	28%
39	Oncor	2.5	6.5	4	13	26%
39	SCE&G	4	4.5	4.5	13	26%
41	CPS	4.5	6.5	1.5	12.5	25%
41	JCP&L	4	5.5	3	12.5	25%
43	PSE&G	4	6	2	12	24%
44	Duke IN	2.5	3.5	4.5	10.5	21%
44	GA Power	3	5	2.5	10.5	21%
46	Duke FL	5	3	1.5	9.5	19%
46	OH Edison	2.5	4	3	9.5	19%
48	FP&L	4	3.5	1.5	9	18%
49	Entergy LA	1	5	2.5	8.5	17%
50	Dominion	0.5	2.5	2.5	5.5	11%
51	AL Power	0	3.5	1	4.5	9%

Figure 1 breaks down each utility's scores for all three categories of metrics.

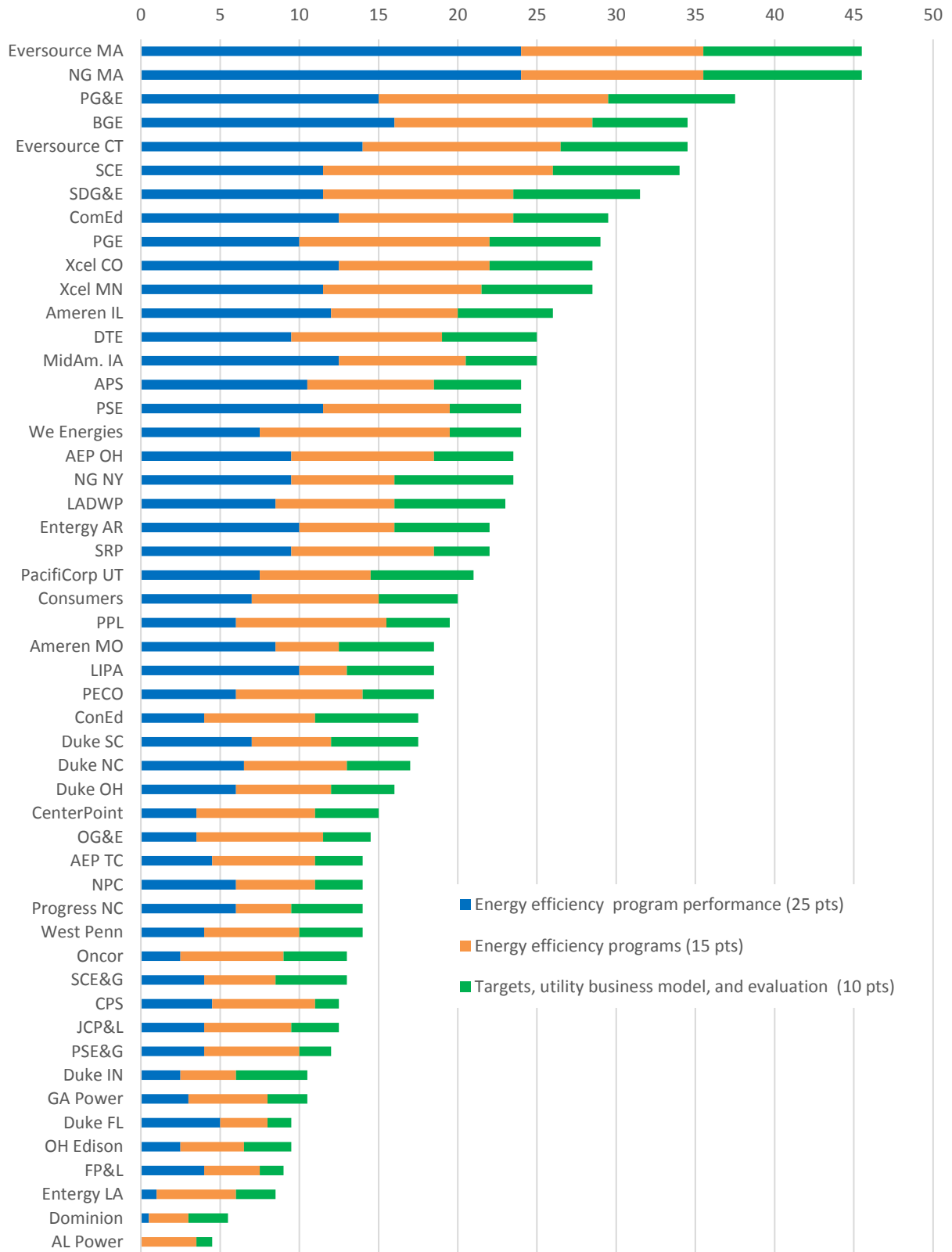


Figure 1. Scores by category

On average, the 51 utilities earned 20.4 points, or 40.8%, out of the available 50. The median was slightly lower at 18.5. Two pairs of utilities in the top 10 come from the same parent companies (Eversource and Xcel Energy). The top 10 come from 8 states, including 3 utilities from California. In contrast, 5 of the bottom 10 utilities are in the southeastern United States. The standings indicate that company commitment to energy efficiency and regional pressure to perform may be important to high efficiency achievement.

Eversource Massachusetts (Eversource MA) and National Grid Massachusetts (NG MA) earned the most points overall with 45.5 out of 50. These top two performers excelled in all three categories and were nearly 10 points in front of the next utility (Pacific Gas & Electric). Even the top 10 utilities show a wide range of points achieved, with Eversource MA and NG MA earning 91% of possible points and 10th-place Xcel CO and Xcel MN each earning 57%. This indicates there is opportunity for improvement even among the top performers.

The top two utilities are especially strong in the Category 1 quantitative program performance metrics, as well as in those that assess energy savings targets. The high level of achievement in these categories reflects the strong regulatory support and the state policy goal of reaching high levels of savings. These utilities also scored full points in Category 3, indicating that policies put in place to facilitate energy efficiency are important to achievement.

Regionally, there is wide variation in scores. The Northeast was the highest-scoring region, with 62% of available points earned on average, while the Southeast earned an average of only 25% of the points. Table 4 shows how utilities in each region performed, the percentage of possible points earned by the top and bottom utilities, and the three top-scoring utilities in each region.⁹

Table 4. Utility performance by region

Region	Number of utilities	Total average % of points achieved	% of points earned by highest-ranked utility	% of points earned by lowest-ranked utility	Top three utilities in the region (% of available points)
Mid-Atlantic	7	33%	69%	11%	Baltimore Gas & Electric (69%), PPL (39%), PECO (37%)
Midwest	13	42%	59%	19%	Commonwealth Edison (59%), Xcel MN (57%), Ameren IL (52%)
Northeast	6	62%	91%	35%	Eversource MA (91%), National Grid MA (91%), Eversource CT (69%)
Southeast	10	25%	44%	9%	Entergy AR (44%), Duke SC (35%), Duke NC (34%)

⁹ The Mid-Atlantic includes utilities in MD, NJ, PA, and VA. The Midwest includes utilities in IA, IL, IN, MI, MN, MO, OH, OK, and WI. The Northeast includes utilities in CT, MA, and NY. The Southeast includes utilities in AL, AR, FL, GA, LA, NC, and SC. The Southwest includes utilities in AZ, NV, and TX. The West includes utilities in CA, CO, OR, UT, and WA.

Region	Number of utilities	Total average % of points achieved	% of points earned by highest-ranked utility	% of points earned by lowest-ranked utility	Top three utilities in the region (% of available points)
Southwest	7	33%	48%	25%	Arizona Public Service (48%), Salt River Project (44%), Centerpoint (30%)
West	8	57%	75%	42%	Pacific Gas & Electric (75%), Southern California Edison (68%), San Diego Gas & Electric (63%)

All of the metrics in *The 2017 Utility Energy Efficiency Scorecard* are important to building a well-balanced, effective, and forward-thinking energy efficiency portfolio. This report offers a baseline to assess utility performance and provides insights into trends that will help inform portfolio design and delivery in the future. The benefits of efficiency for utilities and their customers are numerous, as evidenced by the group of utilities leading the way in this report. For utilities that are just getting started or continuing to develop their portfolios, this report can provide information on what elements are important to include.

Category 1. Energy Efficiency Program Performance

In Category 1 we review several key areas of utility-sector energy efficiency program performance: incremental energy savings, program spending, peak demand reduction, lifetime savings, and progress toward energy savings targets.

Table 4. Category 1 scores by metric

Utility	Incremental savings (8 pts)	Spending (7 pts)	Peak demand reduction (4 pts)	Lifetime energy savings (4 pts)	Progress toward 2015 goal (2 pts)	Total (25 pts)	% of Category 1 points
Eversource MA	8	7	4	4	1	24	96%
NG MA	8	7	4	4	1	24	96%
BGE	3.5	5.5	4	1	2	16	64%
PG&E	4	3	2.5	3.5	2	15	60%
Eversource CT	4	5.5	2	1.5	1	14	56%
ComEd	3.5	4.5	1.5	2	1	12.5	50%
MidAm IA	3.5	4	2.5	1.5	1	12.5	50%
Xcel CO	4	3	2	2.5	1	12.5	50%
Ameren IL	2	4	4	1	1	12	48%
PSE	3	4.5	2	1	1	11.5	46%
SCE	3.5	2.5	2	1.5	2	11.5	46%
SDG&E	3.5	3	2	1.5	1.5	11.5	46%

Utility	Incremental savings (8 pts)	Spending (7 pts)	Peak demand reduction (4 pts)	Lifetime energy savings (4 pts)	Progress toward 2015 goal (2 pts)	Total (25 pts)	% of Category 1 points
Xcel MN	3.5	3.5	2	1.5	1	11.5	46%
APS	4	2	2	1.5	1	10.5	42%
Entergy AR	3	3	1.5	1.5	1	10	40%
LIPA	3.5	2	2	1.5	1	10	40%
PGE	3.5	4	0	2	0.5	10	40%
AEP OH	3	2	1.5	1.5	1.5	9.5	38%
DTE	3.5	2	1.5	1.5	1	9.5	38%
NG NY	3.5	3	2	1	0	9.5	38%
SRP	4	1	2.5	1	1	9.5	38%
Ameren MO	3	1.5	1	1.5	1.5	8.5	34%
LADWP	3	2	1	2	0.5	8.5	34%
PacifiCorp UT	2.5	2.5	1	1	0.5	7.5	30%
We Energies	2.5	1.5	1	1	1.5	7.5	30%
Consumers	2	2	1	1.5	0.5	7	28%
Duke SC	2	1.5	1	0.5	2	7	28%
Duke NC	2	1	1	0.5	2	6.5	26%
Duke OH	2	3	0.5	0.5	0	6	24%
NPC	2	1	1.5	0.5	1	6	24%
PECO	1.5	3.5	0.5	0.5	0	6	24%
PPL	1.5	3	0	0.5	1	6	24%
Progress NC	2.5	1.5	1	0.5	0.5	6	24%
Duke FL	0.5	2	1	0	1.5	5	20%
AEP TC	1	1.5	0	0	2	4.5	18%
CPS	1.5	2	0.5	0.5	0	4.5	18%
ConEd	2	1	0.5	0.5	0	4	16%
FP&L	0.5	1	0.5	0	2	4	16%
JCP&L	1.5	1.5	0.5	0.5	0	4	16%
PSE&G	1.5	1.5	0.5	0.5	0	4	16%
SCE&G	1	0.5	0.5	0.5	1.5	4	16%
West Penn	1.5	1.5	0.5	0	0.5	4	16%
CenterPoint	0.5	1.5	0.5	0	1	3.5	14%
OG&E	1	1.5	0.5	0.5	0	3.5	14%

Utility	Incremental savings (8 pts)	Spending (7 pts)	Peak demand reduction (4 pts)	Lifetime energy savings (4 pts)	Progress toward 2015 goal (2 pts)	Total (25 pts)	% of Category 1 points
GA Power	1	0.5	0.5	0	1	3	12%
Duke IN	1	0.5	0.5	0	0.5	2.5	10%
OH Edison	1	0.5	0.5	0.5	0	2.5	10%
Oncor	0.5	1.5	0	0	0.5	2.5	10%
Entergy LA	0	0	0	0	1	1	4%
Dominion	0.5	0	0	0	0	0.5	2%
AL Power	0	0	0	0	0	0	0%

Utilities could earn half of the *Scorecard's* total possible points in Category 1. This category is the most heavily weighted in the *Scorecard* because energy and demand savings are the ultimate goal of energy efficiency portfolios. The category's results are a strong indicator of a utility's energy efficiency performance. No utilities earned full points in Category 1, although both Eversource MA and NG MA earned 24 out of 25. No other utilities broke into the 20-point range, and on average, utilities earned just 8 points. The top 10 utilities in this category include two from Massachusetts and two from Illinois. PG&E in California ranks fourth, with two other utilities from California just missing the top 10. Two utilities from the same parent company (Eversource) are in the top 10, and Xcel Energy has two utilities in the top 13.

Incremental net savings as a percentage of retail sales is the most heavily weighted metric in the report, with 8 available points. On average, the group achieved energy savings of 0.89% of retail sales in 2015. Two utilities, Eversource MA and NG MA, achieved more than 3% energy savings. This is significantly higher than the next-highest scorers, which achieved 1.51% energy savings in 2015. Eversource MA and NG MA also led the group with more than 10% of utility revenue spent on energy efficiency programs in 2015. The two next-highest utilities each spent around 5.5% of revenue on efficiency, and on average, the figure was 2.7%.

BGE, Eversource MA, NG MA, and Ameren IL all earned full points for peak demand reduction, achieving more than a 2% decline. Notably, SRP and APS in Arizona both fall among the top 10 utilities on this metric. This could indicate that there is a particular commitment to peak demand reduction by utilities in Arizona in order to avoid the additional costs associated with high peak demand. On average, the 51 utilities reduced their peak demand by 0.76% in 2015.

Three utilities—the three top performers overall—earned more than 30% lifetime savings as a percentage of retail sales. The top 10 performers in this category have a weighted average measure life of 12.73 years. The set of all 51 utilities has an average useful life of 11.14

years.¹⁰ These results are close, indicating that even greater success in this metric will depend not only on investments in measures with long lives but also on a commitment to achieving high incremental savings.

The final Category 1 metric evaluates the utility's progress toward its 2015 energy savings target. This metric is important, as targets drive energy efficiency performance, and results surpassing the established target indicate that a utility has gone beyond its own expectations. However it is also important to consider the stringency of the target, evaluated in Category 3. Average achievement of 105% of targets, with seven utilities achieving more than 150%, indicates that goals were likely set too low for many utilities. The top four performers in this metric all fall within the bottom of half of utilities overall.

Now we review each metric in greater detail.

INCREMENTAL SAVINGS: NET SAVINGS AS A PERCENTAGE OF RETAIL SALES

Incremental net savings as a percentage of retail sales is the highest point value metric with 8 possible points. This metric evaluates the level of electric savings (MWh) achieved in 2015 from energy efficiency programs run by the utility and in its territory. We used 2015 total retail sales data to score each utility's savings as a percentage of its total sales in order to normalize savings data across utilities of different sizes and regions. Table 5 shows the scoring for this metric.

Table 5. Scoring for net savings as a percentage of retail sales

Net savings as % of retail sales	Score
3.00+	8.0
2.80–2.99	7.5
2.60–2.79	7.0
2.40–2.59	6.5
2.20–2.39	6.0
2.00–2.19	5.5
1.80–1.99	5.0
1.60–1.79	4.5
1.40–1.59	4.0
1.20–1.39	3.5
1.00–1.19	3.0
0.80–0.99	2.5
0.60–0.79	2.0

¹⁰ This does not include the utilities for which we assigned an average effective useful life of 11.50 years.

Net savings as % of retail sales	Score
0.40–0.59	1.5
0.20–0.39	1.0
0.09–0.19	0.5

We define incremental annual savings as the savings in program year 2015 from all the measures implemented under the programs in that year only. These are annualized or full-year savings, regardless of when measures were installed during the program year. The numbers presented here may not match the values utilities report for spending and savings. This is because we adjusted savings data to be net at the generator and removed demand response and renewable energy programs when applicable.

Table 6 shows scores for net savings as a percentage of retail sales.

Table 6. Scores for net savings as a percentage of retail sales in 2015

Utility	Net incremental savings (MWh)	Savings as % of sales	Points	Utility	Net incremental savings (MWh)	Savings as % of sales	Points
Eversource MA	789,186	3.19%	8	Duke SC	175,192	0.78%	2
NG MA	679,852	3.07%	8	Duke NC	473,792	0.77%	2
Eversource CT	357,699	1.51%	4	Consumers	282,459	0.72%	2
APS ^b	451,330	1.51%	4	ConEd ^a	413,613	0.68%	2
PG&E	1,378,895	1.48%	4	Duke OH	134,080	0.62%	2
SRP ^b	430,152	1.47%	4	NPC	144,424	0.62%	2
Xcel CO	429,891	1.41%	4	PECO	214,205	0.52%	1.5
ComEd ^a	1,221,090	1.39%	3.5	PSE&G ^a	229,786	0.52%	1.5
LIPA	292,572	1.39%	3.5	West Penn	107,799	0.50%	1.5
PGE ^a	279,444	1.36%	3.5	JCP&L ^a	105,107	0.47%	1.5
SDG&E	286,642	1.36%	3.5	CPS	104,831	0.46%	1.5
SCE	1,247,559	1.36%	3.5	PPL	166,724	0.42%	1.5
NG NY ^a	485,693	1.33%	3.5	Duke IN	111,498	0.37%	1
BGE	414,587	1.29%	3.5	OH Edison	247,940	0.96%	2.5
Xcel MN	408,822	1.26%	3.5	SCE&G	86,171	0.37%	1
DTE	611,464	1.23%	3.5	GA Power	309,275	0.35%	1
MidAm IA	268,937	1.21%	3.5	OG&E	90,105	0.35%	1
Entergy AR	247,603	1.09%	3	AEP TC	59,732	0.22%	1
Ameren MO	400,266	1.04%	3	CenterPoint	154,532	0.17%	0.5

Utility	Net incremental savings (MWh)	Savings as % of sales	Points	Utility	Net incremental savings (MWh)	Savings as % of sales	Points
LADWP	256,671	1.04%	3	Duke FL	57,182	0.14%	0.5
PSE	247,013	1.02%	3	Oncor	149,411	0.12%	0.5
AEP OH	466,958	1.01%	3	Dominion	88,386	0.11%	0.5
PacifiCorp UT	254,152	0.96%	2.5	FP&L	121,527	0.10%	0.5
We Energies ^a	231,910	0.91%	2.5	Entergy LA	25,811	0.04%	0
Progress NC	341,568	0.87%	2.5	AL Power ^c	11,048	0.02%	0
Ameren IL ^a	299,532	0.78%	2	Average		0.89%	

Savings are net at the generator. We adjusted EIA retail sales data (shown in table 1, above) for line loss factors to be consistent with the generator-level reporting of savings. See Appendix B for meter-level savings and loss factors. ^a Includes savings separately allocated from a third-party program administrator. ^b SRP and APS report a NTGR of 100%, but we were unable to confirm these values using recently evaluated public information and so applied the 81.7% NTGR for their savings. ^c Savings from EIA 2016b.

Four utilities achieved savings levels higher than 1.50% of retail sales. Eversource MA and NG MA earned 8 points as the top performers with savings of more than 3.00%. These two utilities achieved significantly higher savings than the rest of the group. Eversource CT and APS are the next-highest, with 1.51% savings each. On average, the utilities achieved savings of 0.89% of retail sales. 22 of 51 utilities, or 43%, reached savings higher than 1%.

SPENDING AS A PERCENTAGE OF TOTAL REVENUE

Utilities could earn up to 7 points for spending on energy efficiency programs. This is a critical indicator of a utility's commitment to energy efficiency; higher levels of spending indicate significant investment in administration and evaluation of programs. Total spending includes all direct spending on energy efficiency programs, which may include direct incentives and technical services to customers; program administration, marketing, planning, and delivery; evaluation, measurement, and verification (EM&V); and education. Total spending also includes utility performance incentives, as these are customer funded. Appendix B provides more detail on performance incentive costs. For comparison of spending across utilities of different sizes, we calculated spending as a percentage of total utility revenue from retail sales.¹¹

Table 7 shows scoring for spending as a percentage of total revenue.

¹¹ Revenue from retail sales does not include wholesale power sales.

Table 7. Scoring for spending as a percentage of revenue

Spending as % of revenue	Score
7.00+	7.0
6.50–6.99	6.5
6.00–6.49	6.0
5.50–5.99	5.5
5.00–5.49	5.0
4.50–4.99	4.5
4.00–4.49	4.0
3.50–3.99	3.5
3.00–3.49	3.0
2.50–2.99	2.5
2.00–2.49	2.0
1.50–1.99	1.5
1.00–1.49	1.0
0.50–0.99	0.5
0.00–0.49	0.0

Table 8 shows scores for spending as a percentage of total revenue.

Table 8. Scores for spending as a percentage of revenue in 2015

Utility	Spending	Spending as a % of revenue	Points	Utility	Spending	Spending as a % of revenue	Points
NG MA	\$281,761,072	11.71%	7	CPS	\$41,570,977	2.02%	2
Eversource MA	\$265,165,064	10.30%	7	APS	\$66,134,335	2.01%	2
BGE	\$128,136,247	5.76%	5.5	Progress NC	\$68,154,263	1.98%	1.5
Eversource CT	\$145,547,769	5.57%	5.5	We Energies ^a	\$54,636,478	1.93%	1.5
Ameren IL ^a	\$70,859,975	4.78%	4	PSE&G ^a	\$75,798,240	1.90%	1.5
ComEd ^a	\$200,046,576	4.62%	4.5	West Penn	\$16,811,940	1.81%	1.5
PSE	\$93,197,600	4.50%	4.5	Ameren MO	\$57,966,586	1.81%	1.5
MidAm IA	\$62,826,095	4.41%	4	Oncor	\$55,654,322	1.77%	1.5
PGE ^a	\$75,586,384	4.35%	4	OG&E	\$30,896,106	1.71%	1.5
Xcel MN	\$115,038,264	3.87%	3.5	AEP TC	\$15,399,816	1.58%	1.5
PECO	\$80,824,678	3.70%	3.5	JCP&L ^a	\$26,695,217	1.56%	1.5

Utility	Spending	Spending as a % of revenue	Points	Utility	Spending	Spending as a % of revenue	Points
PG&E	\$461,166,260	3.42%	3	Duke SC	\$26,715,346	1.54%	1.5
Entergy AR	\$60,864,654	3.34%	3	CenterPoint	\$31,170,821	1.50%	1.5
PPL	\$58,754,000	3.26%	3	Duke NC	\$71,586,652	1.47%	1
Duke OH	\$31,349,457	3.24%	3	SRP	\$35,380,022	1.29%	1
SDG&E	\$113,966,172	3.15%	3	NPC	\$29,711,462	1.27%	1
Xcel CO	\$85,770,158	3.13%	3	FP&L	\$124,170,000	1.16%	1
NG NY ^a	\$68,925,330	3.05%	3	ConEd ^a	\$88,183,860	1.09%	1
SCE	\$338,020,547	2.75%	2.5	OH Edison	\$10,745,204	0.85%	0.5
PacifiCorp UT	\$56,148,289	2.72%	2.5	Duke IN	\$17,507,218	0.71%	0.5
AEP OH	\$65,147,500	2.36%	2	GA Power	\$52,646,946	0.68%	0.5
Duke FL	\$102,075,000	2.30%	2	SCE&G	\$12,680,376	0.51%	0.5
LADWP	\$78,571,738	2.24%	2	Dominion ^b	\$30,974,000	0.46%	0
DTE	\$100,200,000	2.19%	2	Entergy LA	\$5,817,801	0.16%	0
Consumers	\$87,603,581	2.17%	2	AL Power ^b	\$4,604,000	0.09%	0
LIPA	\$70,522,236	2.04%	2	Average		2.70%	

^a Includes spending separately allocated from a third-party administrator. ^b Spending data from EIA 2016b.

Eversource MA and NG MA earned a full 7 points with more than 10% of their revenue spent on energy efficiency programs. On average, utilities spent 2.7% of their revenue on energy efficiency. There is much more variability in spending levels among the top performers than among those lower on the list. The top 10 utilities spent from less than 4% to nearly 12% of revenue on energy efficiency, a difference of almost 8 percentage points, while the rest of the utilities all fell below 4%. It is important to note that some states have implemented energy efficiency spending caps for utilities that limit cost-effective savings opportunities.¹²

PEAK DEMAND REDUCTION AS A PERCENTAGE OF TOTAL PEAK DEMAND

While our primary focus is on energy savings, peak demand reduction is also an important aspect of utility-sector energy efficiency programs. Reducing peak demand provides multiple benefits to both the utility and the customer. Utilities avoid higher peak-period supply costs that must be recovered from customers, and they may also be able to defer or avoid costly investment in new power plants and transmission and distribution infrastructure that would otherwise be needed to meet future peak demand. We focus on peak demand reductions from energy efficiency rather than from demand response

¹² For example, in 2015, Illinois and Pennsylvania both limited utility spending on customer energy efficiency programs to 2% of customer rates and 2% of the electric distribution company's total annual revenue, respectively (Illinois Power Agency Act 2007; Pennsylvania Public Utility Commission 2015).

programs, as the latter generally shift load away from peak periods. Demand response initiatives provide additional reductions during peak periods, complementing the benefits of efficiency.

Utilities could earn up to 4 points for peak demand reduction from energy efficiency as a percentage of total peak demand in 2015. Table 9 shows the scoring.

Table 9. Scoring for peak demand reduction

Peak demand reduction as % of total peak demand	Score
2.00+	4.0
1.75-1.99	3.5
1.50-1.74	3.0
1.25-1.49	2.5
1.00-1.24	2.0
0.75-0.99	1.5
0.50-0.74	1.0
0.25-0.49	0.5
0.00-0.24	0.0

Table 10 shows the scores for peak demand reduction.

Table 10. Scores for peak demand reduction

Utility	Coincident peak MW savings	Peak demand reduction as % of total peak demand	Points
BGE	180.39	2.54%	4
Eversource MA	119.69	2.43%	4
NG MA	97.75	2.11%	4
Ameren IL ^{a, c}	45.61	2.02%	4
PG&E	293.89	1.49%	2.5
MidAm IA	72.42	1.48%	2.5
SRP ^b	102.45	1.38%	2.5
SDG&E	61.29	1.23%	2
APS ^b	91.42	1.17%	2
NG NY ^a	78.39	1.12%	2
Xcel CO	72.40	1.11%	2

Utility	Coincident peak MW savings	Peak demand reduction as % of total peak demand	Points
Consumers	41.40	0.53%	1
We Energies ^a	30.54	0.53%	1
PacifiCorp UT	60.52	0.53%	1
LADWP	33.80	0.51%	1
CPS	24.92	0.48%	0.5
Duke OH	20.10	0.46%	0.5
OG&E	27.22	0.44%	0.5
GA Power	73.05	0.43%	0.5
PSE&G ^a	43.13	0.42%	0.5
OH Edison	23.43	0.40%	0.5
PECO	33.70	0.39%	0.5

Utility	Coincident peak MW savings	Peak demand reduction as % of total peak demand	Points
Eversource CT	57.40	1.10%	2
Xcel MN	94.43	1.10%	2
PSE ^c	47.82	1.05%	2
SCE	250.92	1.05%	2
LIPA	53.83	1.00%	2
Entergy AR	45.52	0.91%	1.5
AEP OH	58.63	0.82%	1.5
NPC	49.33	0.78%	1.5
DTE	86.24	0.76%	1.5
ComEd ^a	152.25	0.75%	1.5
Ameren MO	56.27	0.69%	1
Progress NC	90.43	0.66%	1
Duke SC	32.21	0.66%	1
Duke NC	96.78	0.66%	1
Duke FL	56.74	0.57%	1

Utility	Coincident peak MW savings	Peak demand reduction as % of total peak demand	Points
West Penn	16.17	0.38%	0.5
SCE&G	19.24	0.37%	0.5
ConEd ^a	41.38	0.32%	0.5
CenterPoint	40.79	0.30%	0.5
JCP&L ^a	18.33	0.30%	0.5
FP&L	70.26	0.29%	0.5
Duke IN ^c	16.60	0.27%	0.5
PPL	19.36	0.23%	0
Oncor	46.67	0.17%	0
Dominion	16.56	0.08%	0
AL Power ^c	7.19	0.05%	0
Entergy LA	4.96	0.05%	0
PGE ^d			0
AEP TC	38.53		0
Average		0.76%	

Total peak demand data are from EIA 2016c. Blanks indicate no data were found. Savings are net at the generator. We adjusted total peak demand figures for line loss factors to be consistent with the generator-level reporting of savings. See Appendix B for meter-level savings and loss factors. ^a Includes savings separately allocated from a third-party program administrator. ^b SRP and APS report a NTGR of 100%, but we were unable to confirm these values using recently evaluated public information and so applied the 81.7% NTGR for their savings. ^c Data from EIA 2016b. ^d PGE does not track and report peak demand savings.

Four utilities earned full points on this metric. Topping the list, BGE earned full points with 2.54% savings. The average peak demand reduction from energy efficiency was 0.76% of total peak demand. The median, however, was lower, at 0.57%, indicating greater levels of demand savings in the top half of the 51 utilities. Nineteen utilities achieved savings above the group's average. Seven utilities at the bottom achieved very small savings that earned them no points. This may be because of data reporting issues, but we were not able to confirm this.

NET LIFETIME SAVINGS AS A PERCENTAGE OF TOTAL SALES

Lifetime savings are an important indicator of a utility's investment in long-term energy efficiency. Higher net lifetime savings indicate that the measures installed or programs run by the utility will continue to provide savings over a longer useful life.

Many utilities do not report on lifetime savings or measure lives, but others make this a priority. For example, Focus on Energy, the program administrator for We Energies, designs its efficiency portfolio and savings goals around maximizing lifetime savings. This indicates

that Focus on Energy values long-term savings over measures that may achieve greater savings in a single year but will not provide savings over a longer period of time.

Methodologies for calculating measure lives for technologies and programs vary across utilities. We relied on annual reports or other filings for either lifetime savings or a weighted average useful life for the total portfolio. Where these data were unavailable, we followed up with utility contacts. For utilities where neither lifetime savings nor a weighted average useful life was provided, we used an average useful life of 11.50 years to multiply with net annual savings.¹³

Utilities could earn up to 4 points for net lifetime savings as a percentage of 2015 retail sales. We present net lifetime savings data as a percentage of retail sales to allow for comparison across utilities of different sizes. Table 11 shows the scoring breakdown for this metric.

Table 11. Scoring for net lifetime savings as a percentage of retail sales

% of retail sales	Score
32.00+	4.0
28.00–31.99	3.5
24.00–27.99	3.0
20.00–23.99	2.5
16.00–19.99	2.0
12.00–15.99	1.5
8.00–11.99	1.0
4.00–7.99	0.5
0.00–3.99	0.0

Table 12 shows the scores for net lifetime savings as a percentage of retail sales.

¹³ We used 11.50 years because this is the average of effective useful lives reported in the 2015 EIA 861 data. The value is also approximately the same as the average for 39 utility values collected in our research, which is 11.14 years. This does not include the utilities for which we assigned an average effective useful life of 11.50 years.

Table 12. Scores for net lifetime savings in 2015

Utility	Weighted average measure life	Net lifetime savings as a % of retail sales	Points
Eversource MA	13.04	41.57%	4
NG MA	11.11	34.11%	4
PG&E	20.43	30.25%	3.5
Xcel CO	14.30	20.21%	2.5
PGE ^a	13.45	18.29%	2
LADWP	16.22	16.83%	2
ComEd ^a	11.50	16.01%	2
LIPA	11.50	15.93%	1.5
SCE	5.51	15.70%	1.5
Eversource CT	10.24	15.51%	1.5
SDG&E	11.15	15.14%	1.5
APS ^b	9.89	14.92%	1.5
DTE	12.04	14.84%	1.5
Xcel MN	11.50	14.47%	1.5
MidAm IA	11.50	13.95%	1.5
Ameren MO	13.20	13.75%	1.5
Consumers	18.13	13.08%	1.5
AEP OH	12.30	12.48%	1.5
Entergy AR	11.34	12.39%	1.5
SRP ^b	8.15	11.96%	1
PSE	11.50	11.79%	1
We Energies ^a	12.36	11.19%	1
BGE	8.03	10.36%	1
Ameren IL ^a	11.50	9.01%	1
NG NY ^a	6.72	8.95%	1
PacifiCorp UT	8.80	8.49%	1

Utility	Weighted average measure life	Net lifetime savings as a % of retail sales	Points
ConEd ^a	11.00	7.53%	0.5
PSE&G ^a	13.53	7.03%	0.5
NPC	10.85	6.70%	0.5
Duke OH	10.25	6.39%	0.5
JCP&L ^a	12.82	6.03%	0.5
CPS	11.50	5.28%	0.5
Duke SC	6.76	5.25%	0.5
Duke NC	6.76	5.24%	0.5
Progress NC	5.86	5.12%	0.5
PECO	9.72	5.09%	0.5
OH Edison	11.50	11.07%	1
PPL	11.49	4.81%	0.5
OG&E	13.35	4.64%	0.5
SCE&G	11.50	4.22%	0.5
West Penn	7.61	3.77%	0
Duke IN	7.49	2.80%	0
AEP TC	11.50	2.59%	0
CenterPoint	11.50	1.99%	0
Oncor	16.17	1.94%	0
Dominion	15.56	1.70%	0
Duke FL	10.82	1.53%	0
GA Power	3.69	1.29%	0
FP&L	11.50	1.20%	0
Entergy LA	11.50	0.51%	0
AL Power ^c	11.23	0.21%	0
Average	11.14 ^d	10.17%	

Savings are net at the generator. We adjusted EIA retail sales data (shown in table 1) for line loss factors to be consistent with the generator-level reporting of savings. See Appendix B for meter-level savings and loss factors. ^a Includes savings separately allocated from a third-party administrator. ^b SRP and APS reported a NTGR of 100%, but we were unable to confirm these values using recently evaluated public information and so applied the 81.7% NTGR for their savings. ^c Weighted average measure life data from EIA 2016b. ^d This average excludes the utilities for which we assigned an average effective useful life of 11.50 years.

There is a large variation in the level of savings achieved for this metric, with a difference of more than 40 percentage points between the top and bottom performers. Eversource MA, NG MA, PG&E, and Xcel CO were the only utilities to earn more than 2 points here. These utilities achieved net lifetime savings of approximately 42, 34, 30, and 20% of retail sales, respectively. On average, utilities achieved net lifetime savings of 10.17% of retail sales, with half of them falling within the range of 5 to 15%. These results indicate a substantial opportunity to achieve deeper, longer-lived savings.

2015 ENERGY SAVINGS TARGET ACHIEVEMENT

Energy efficiency targets are an effective tool for encouraging higher levels of energy savings by utilities. They provide long-term market signals for utilities to invest in energy efficiency. Utilities are often encouraged to meet their targets by monetary performance incentives that are aligned with target achievement. While many of the targets are driven by state or regulatory commission directives, others are simply utility specific. This metric is not a review of energy efficiency resource standards (EERS).

There were 2 total points available for this metric, which evaluates the percentage of the utility savings target achieved in 2015. Table 13 shows how utilities could earn those 2 points.

Table 13. Scoring for achievement toward 2015 energy savings target

Achievement of energy savings target (%)	Score
150+	2.0
125-149	1.5
100-124	1.0
80-99	0.5
0-79, no target	0.0

Table 14 shows scores for the percentage achievement of an energy target.

Table 14. Scores for percentage achievement of 2015 energy target

Utility	Savings (MWh)	Target (MWh)	% of target	Points
FP&L	121,527	33,660	361%	2
AEP TC	59,732	24,860	240%	2
Duke SC	175,192	104,118	168%	2
Duke NC	473,792	300,110	158%	2
SCE	1,247,559	803,111	155%	2
PG&E	1,378,895	899,640	153%	2
BGE	414,587	270,495	153%	2

Utility	Savings (MWh)	Target (MWh)	% of target	Points
Xcel CO	429,891	406,677	106%	1
Eversource CT	357,699	339,336	105%	1
SRP ^b	430,152	409,383	105%	1
CenterPoint	154,532	148,201	104%	1
APS ^b	451,330	441,095	102%	1
PSE	247,013	242,588	102%	1
Progress NC	341,568	347,274	98%	0.5

Utility	Savings (MWh)	Target (MWh)	% of target	Points
Ameren MO	400,266	268,864	149%	1.5
SCE&G	86,171	59,021	146%	1.5
Duke FL	57,182	40,000	143%	1.5
SDG&E	286,642	207,585	138%	1.5
AEP OH	466,958	369,877	126%	1.5
We Energies ^{a, c}	231,910	184,752	126%	1.5
MidAm IA	268,937	220,073	122%	1
Eversource MA	789,186	663,066	119%	1
DTE	611,464	514,100	119%	1
Xcel MN	408,822	355,734	115%	1
Entergy LA	25,811	22,548	114%	1
NG MA	679,852	614,464	111%	1
PPL	166,724	151,366	110%	1
GA Power	309,275	284,596	109%	1
Entergy AR	247,603	228,312	108%	1
LIPA	292,572	272,040	108%	1
NPC	144,424	134,453	107%	1
Ameren IL ^a	299,532	279,578	107%	1
ComEd ^a	1,221,090	1,146,011	107%	1

Utility	Savings (MWh)	Target (MWh)	% of target	Points
Duke IN	111,498	114,375	97%	0.5
LADWP	256,671	268,466	96%	0.5
PGE ^a	279,444	296,088	94%	0.5
West Penn	107,799	116,080	93%	0.5
Consumers	282,459	331,887	85%	0.5
Oncor	149,411	179,803	83%	0.5
PacifiCorp UT	254,152	311,857	81%	0.5
PECO	214,205	291,397	74%	0
ConEd ^a	413,613	577,758	72%	0
NG NY ^a	485,693	687,440	71%	0
OG&E	90,105	137,361	66%	0
Dominion	88,386	139,342	63%	0
AL Power ^d	11,048		0%	0
CPS	104,831		0%	0
Duke OH ^e	134,080	0	0%	0
JCP&L ^a	105,107		0%	0
OH Edison ^e	247,940	0	0%	0
PSE&G ^a	229,786		0%	0
Average			105%	

Savings are net at the generator. See Appendix B for meter-level savings and loss factors. Blanks indicate no data were found. ^a Includes savings separately allocated from a third-party administrator. Target includes the portion of the third-party administrator's target for that utility's territory. ^b SRP and APS report a NTGR of 100%, but we were unable to confirm these values using recently evaluated public information and so applied the 81.7% NTGR for their savings. ^c We Energies' target has been allocated from its third-party administrator's lifetime savings target for 2015–2018 to reflect a 2015 incremental annual savings target for We Energies' territory. ^d Data from EIA 2016b. ^e Duke OH and OH Edison have targets of 0 because of a legislative freeze on targets in Ohio in 2015.

Seven utilities earned full points for this metric, and the majority of the utilities (32) surpassed their target. Eighteen utilities came within 10 percentage points (plus or minus) of their target. The average achievement was 105%.

While it is important to recognize the fulfillment of a target, utilities that are able to achieve several times their target are likely not being challenged by a stringent enough goal. Likewise, with so many utilities surpassing their targets, it is clear that as a group these targets are too low; we assess their stringency later in the report. Finally, some utilities have targets that we were unable to score. CPS has an ambitious demand savings target in place but does not currently have an energy savings target. New Jersey has a statewide energy savings target that we could not allocate to individual utilities.

Category 2. Energy Efficiency Programs

In Category 2 we review several areas of program implementation: diversity of programs, emerging program or measure offerings, pilot programs, low-income programs, smart meter implementation, energy usage data access, and electric vehicles. A total of 15 points were available for this category. Table 15 summarizes the scores for Category 2 metrics.

Table 15. Category 2 scores by metric

Utility	Program diversity (3.5 pts)	Emerging areas (3.5 pts)	Pilot programs (1 pt)	Low-income programs (3 pts)	AMI (1 pt)	Data access (1 pt)	Electric vehicles (2 pts)	Total (15 pts)	% of Category 2 points
PG&E	3.5	3.5	1	2.5	1	1	2	14.5	97%
SCE	3.5	3.5	1	2.5	1	1	2	14.5	97%
BGE	2.5	3.5	0.5	2	1	1	2	12.5	83%
Eversource CT	3.5	3.5	0.5	3	0	1	1	12.5	83%
PGE	3	3	1	2	1	1	1	12	80%
SDG&E	2.5	3.5	1	1	1	1	2	12	80%
We Energies	3	3	1	2.5	0	0.5	2	12	80%
Eversource MA	3.5	3.5	0	2.5	0	1	1	11.5	77%
NG MA	3.5	3.5	0.5	3	0	1	0	11.5	77%
ComEd	2.5	2	1	2	0.5	1	2	11	73%
Xcel MN	2.5	2	1	1.5	0	1	2	10	67%
DTE	1.5	1.5	1	2.5	1	0	2	9.5	63%
PPL	2.5	1.5	0.5	2.5	1	0.5	1	9.5	63%
Xcel CO	2.5	2	1	2	0	1	1	9.5	63%
AEP OH	2.5	2	1	3	0	0.5	0	9	60%
SRP	3	0.5	0.5	1.5	1	0.5	2	9	60%
Ameren IL	2	0.5	0.5	2	0	1	2	8	53%
APS	2	1.5	0.5	0.5	1	0.5	2	8	53%
Consumers	2.5	1	0	1.5	0.5	0.5	2	8	53%
MidAm IA	2	1	1	1.5	0	0.5	2	8	53%
OG&E	1	1	0	3	1	0	2	8	53%
PECO	2	0.5	0	2.5	1	1	1	8	53%
PSE	2	3	0.5	1	0	0.5	1	8	53%
CenterPoint	1.5	0.5	0.5	2	1	1	1	7.5	50%
LADWP	2	1	0.5	2.5	0	0.5	1	7.5	50%
ConEd	1.5	0.5	0	2	0	1	2	7	47%

Utility	Program diversity (3.5 pts)	Emerging areas (3.5 pts)	Pilot programs (1 pt)	Low-income programs (3 pts)	AMI (1 pt)	Data access (1 pt)	Electric vehicles (2 pts)	Total (15 pts)	% of Category 2 points
PacifiCorp UT	2.5	2.5	0	0	0	1	1	7	47%
AEP TC	0.5	0	0.5	2.5	1	1	1	6.5	43%
CPS	1.5	0.5	0.5	2.5	0.5	0	1	6.5	43%
Duke NC	2	1	0.5	1.5	0	0.5	1	6.5	43%
NG NY	2.5	0.5	0	2.5	0	1	0	6.5	43%
Oncor	0.5	0	0.5	3	1	0.5	1	6.5	43%
Duke OH	2	0.5	0.5	1	1	0	1	6	40%
Energy AR	1.5	3.5	0.5	0	0	0.5	0	6	40%
PSE&G	1.5	0.5	0	1.5	0	0.5	2	6	40%
West Penn	1.5	1.5	0	2	0	0	1	6	40%
JCP&L	2	0.5	0	1.5	0	0.5	1	5.5	37%
Duke SC	2	0.5	0.5	0.5	0	0.5	1	5	33%
Energy LA	1.5	3	0	0.5	0	0	0	5	33%
GA Power	1	0	0.5	0.5	1	0	2	5	33%
NPC	1.5	0.5	0	0	1	0	2	5	33%
SCE&G	2.5	0	0	1	0	0	1	4.5	30%
Ameren MO	1	0.5	0	1	0	0.5	1	4	27%
OH Edison	1.5	0	0	1.5	0	0	1	4	27%
AL Power	0	0	0	0	1	0.5	2	3.5	23%
Duke IN	1	0	0	1.5	0	0	1	3.5	23%
FP&L	1	0	0	0.5	1	0	1	3.5	23%
Progress NC	1.5	0.5	0	0.5	0	0	1	3.5	23%
Duke FL	0.5	0.5	0	1	0	0	1	3	20%
LIPA	1.5	0.5	0	0.5	0	0.5	0	3	20%
Dominion	0.5	0	0	0.5	0	0.5	1	2.5	17%

None of the 51 utilities received all 15 points for Category 2, although two California utilities came close with 14.5 points. The median score was 7 points and the average was 7.5.

Program diversity and emerging areas are the most heavily weighted metrics in Category 2, with a combined 7 available points. Five utilities offer 20 or more programs and earned full points for program diversity. The most common programs include residential HVAC and industrial and commercial custom programs, while the least common include water heating (residential) and agricultural programs (commercial and industrial). Eight utilities earned

full points for emerging areas by covering eight or more new technologies or programs. Half of the utilities (25) offer upstream programs, while only two offer residential geotargeting.

In Category 2 we also reviewed specific program offerings that are important to a utility's energy efficiency portfolio. Twenty-nine utilities offer one or more pilot programs. Of these, the most common are behavioral programs that rely on home energy reports. These provide residential customers with energy consumption data and compare their activity to that of similar customers.

The low-income metric assesses annual low-income program savings per residential customer, spending on low-income programs as a percentage of total efficiency spending, and the comprehensiveness of programs. While savings per customer is an important indicator of achievement, it should be noted that this metric represents a simplified approach; we evaluated program savings per residential customer rather than per participating household because participation data were not readily available.

The 10 utilities that saved the most through low-income programs averaged 15.82 kWh per residential customer. On average, utilities saved 5.29 kWh per customer. Median savings were 2.80 kWh, indicating that the top performers are bringing up the average. Similarly, utilities used an average of 8.93% of their efficiency spending on low-income programs while the 10 utilities that spent the most on low income programs as a percentage of total portfolios averaged 23.57%. Notably, three utilities in Texas fell within the top 10 both for kWh savings and for spending on low-income programs as a percentage of total efficiency spending. Twenty-two utilities have comprehensive low-income programs, which we defined as offering more than one low-income program and also offering natural gas efficiency programs or coordinating their low-income programs with a gas utility.

Utilities can utilize technology such as smart meters and electric vehicles to advance energy efficiency. Nineteen utilities earned full points for the advanced metering infrastructure (AMI) metric with 75% or more deployment of AMI. Only three utilities have between 25 and 75% deployment, indicating that utilities either fully deploy AMI or do not at all. Similarly, 18 utilities earned full points for data access, offering both benchmarking for use with ENERGY STAR, and Green Button data access services to customers. Another 19 offered one or the other. Almost all of the utilities (45) have educational information about electric vehicles on their websites, but just 19 offer rates that promote electric vehicle use. This indicates that most utilities are promoting electric vehicles but have much greater opportunity to do so.

Now we review each metric in greater detail. We present information on why each is important, our data sources and assumptions, and scoring.

PROGRAM DIVERSITY

The breadth and types of energy efficiency programs are essential determinants of utility energy efficiency capability and performance. ACEEE research into program best practices in areas such as small business, low income, multifamily, and others demonstrates that when utilities offer programs for specific customer segments and targeted energy end uses,

energy savings increase (Nowak 2016; Cluett, Amann, and Ou 2016; Johnson 2013). Our goal is not to capture all program types but to assess the breadth of portfolios at a high level.

For this metric we used a checklist of 22 program types, 10 residential and 12 commercial and industrial.¹⁴ The criteria for selecting these program types included whether the program serves particular market segments; whether it targets underserved or niche market segments; and whether it has high potential for energy savings, potential for nonenergy benefits, and long-term or lifetime savings potential. Low-income programs are covered in a separate metric. Utilities were given credit for energy efficiency programs offered by statewide program administrators in their state.

We scored these residential program types:

- Appliance recycling
- Behavior
- Education
- Home appliances
- Home retrofit
- HVAC
- Lighting
- Multifamily
- New construction
- Water heating

We also scored these commercial and industrial program types:

- Agriculture
- Combined heat and power
- Efficient motors
- HVAC
- Industrial custom
- Kitchens and restaurants
- Lighting
- Lighting systems and controls
- Retrocommissioning
- Small business
- Strategic energy management
- Whole-building retrofits

We scored utilities using an even distribution of points based on the total number of programs or program/technology types covered in their utility portfolios in 2015. For a utility to score the maximum 3.5 points, it needed to offer programs in at least 20 of the 22 areas on the list, as shown in table 16. There are limitations to this approach, given that

¹⁴ We reviewed other literature on program types, including LBNL 2013: emp.lbl.gov/sites/all/files/lbnl-6370e.pdf.

utilities may categorize program types differently. However this simplified approach does provide a review of program diversity. See Appendix C for a listing of all program types offered by each utility, by sector.

For statewide program administrator states, program types were counted for the utilities wherever the administrators' programs were available in the utility service territory in 2015. For example, 25% of energy efficiency programs in Illinois are offered through the Department of Commerce and Economic Opportunity (DCEO). We counted those program types when scoring Ameren IL and ComEd on program diversity.

Table 16. Scoring for program diversity

Number of specified programs	Score
20+	3.5
17-19	3.0
14-16	2.5
11-13	2.0
8-10	1.5
5-7	1.0
2-4	0.5
0-1	0.0

Table 17 shows the scores for program diversity. The median number of 2015 program types is 11, with an average of 12.

Table 17. Scores for program diversity (2015 programs)

Utility	Number of programs	Score	Utility	Number of programs	Score
Eversource MA	21	3.5	LADWP	11	2
NG MA	21	3.5	PECO	11	2
PG&E	21	3.5	PSE	11	2
Eversource CT	20	3.5	PSE&G ^a	11	2
SCE	20	3.5	Entergy AR	10	1.5
We Energies ^a	19	3	ConEd NY ^a	9	1.5
PGE ^a	18	3	CPS	9	1.5
SRP	17	3	Entergy LA	9	1.5
ComEd ^a	16	2.5	LIPA	9	1.5
PPL	16	2.5	NPC	9	1.5

Utility	Number of programs	Score	Utility	Number of programs	Score
SDG&E	16	2.5	OH Edison	9	1.5
SCE&G	15	2.5	Progress NC	9	1.5
Xcel CO	15	2.5	West Penn	9	1.5
Xcel MN	15	2.5	CenterPoint	8	1.5
BG&E	14	2.5	DTE	8	1.5
Consumers	14	2.5	Oncor	8	1.5
NG NY ^a	14	2.5	Duke IN	7	1
OH Power	14	2.5	GA Power	7	1
PacifiCorp UT	14	2.5	Ameren MO	6	1
APS	13	2	FPL	6	1
MidAm IA	12	2	OG&E	6	1
Ameren IL ^a	11	2	AEP TC	4	0.5
Duke NC	11	2	Dominion	4	0.5
Duke OH	11	2	Duke FL	3	0.5
Duke SC	11	2	AL Power		
JCP&L ^a	11	2			

Blanks indicate no data were found. ^a In states with statewide program administrators, we counted program types offered by administrators for the utilities in that state.

EMERGING PROGRAM AREAS

Technological and programmatic innovations lead to greater energy savings and often become standard practice as technology and implementation improve. Utilities that undertake the most cutting-edge programs and technologies show that they are committed to energy efficiency in the long run and clearly understand the value that investments in energy-efficient technologies and programs provide. They are also well positioned to more quickly adopt new measures or programs once they are cost effective.

We selected a list of 15 emerging program areas that are important to the future of energy efficiency in the utility sector. These technologies and program areas push the bounds of what is currently standard and widely implemented across the utility sector. Some of these technologies directly lead to greater energy and demand savings, while others make energy efficiency programs run more effectively. As more utilities undertake such programs, they will begin to become standard across the industry.

To assess whether a utility was undertaking programs in the selected areas, including pilot programs, we reviewed 2015 annual reports and planning documents for program descriptions that included the selected technologies and programs. Table 18 shows the areas

we selected as important emerging technologies and programs for the utility sector, based on current research and new trends in the industry.

Table 18. Emerging program areas

Emerging area	Description
Advanced space-heating heat pumps	Programs that encourage the adoption of cold- or warm-climate heat pumps with HSPF above 10. To receive credit, utilities must provide extra incentives for advanced heat pumps relative to those provided for moderate-efficiency heat pumps.
Commercial and industrial geotargeting	Energy efficiency programs that target businesses in specific geographic locations that will yield high savings. Does not include geotargeted marketing efforts or comparative business energy report programs.
Conservation voltage reduction (CVR) or volt/var optimization (VVO)	Voltage reduction systems to improve the efficiency of a utility's transmission and distribution system, whether explicitly included in the utility's energy efficiency portfolio or not.
Energy use feedback to consumers in real time	Programs that allow consumers to better understand their behavior and react to their energy usage to increase savings. Includes programs that provide feedback in near real time.
Heat pump water heaters	Programs to improve the efficiency of water heating systems, either stand-alone or included as part of another program.
High-efficiency ceiling fans	Efforts to promote the installation of high-efficiency ceiling fans, either stand-alone or included as a part of another program.
High-efficiency consumer electronics (residential)	Efforts to promote the purchase and use of high-efficiency consumer electronics, including through rebates, midstream and upstream programs, and the use of smart strips with consumer electronics.
High-efficiency residential clothes dryers	Programs offering rebates for high-efficiency clothes dryers, or participation in the Super-Efficient Dryers Initiative. Does not include advocacy for dryer efficiency standards.
Midstream and upstream programs	Programs to transform the market for energy-efficient products by targeting midstream and/or upstream retailers and partners to improve choices and reduce costs for consumers. Includes midstream and upstream lighting and appliance programs. Midstream and upstream programs are scored separately.
Quality HVAC installation	Programs to improve and ensure the quality installation of HVAC equipment.
Reduction of plug and other miscellaneous load in commercial buildings	Programs that aim to reduce plug or other loads in commercial buildings, including midstream and upstream programs.
Residential geotargeting	Energy efficiency programs that target residents in specific geographic locations that will yield high or particularly valuable savings. Does not include geotargeted marketing efforts or comparative home energy reports.
Residential learning thermostats	Programs to boost savings for consumers by increasing energy-efficient behaviors through smart thermostats. Includes learning thermostats, Wi-Fi enabled thermostats, and other smart thermostat programs.
Zero net energy buildings	Developing zero net energy buildings through codes and standards or other methods. Does not include programs or participation in zero net energy forums or coalitions.

Utilities could earn a total of 3.5 points for the emerging areas metric. Table 19 shows the scoring breakdown.

Table 19. Scoring for emerging program areas

Number of specified program areas	Score
8+	3.5
7	3.0
6	2.5
5	2.0
4	1.5
3	1.0
2	0.5
1 or fewer	0.0

Table 20 shows the scores for emerging areas.

Table 20. Scores for emerging areas in 2015

Utility	Number of emerging areas covered	Score	Utility	Number of emerging areas covered	Score
PG&E	12	3.5	Ameren IL ^a	2	0.5
Eversource CT	11	3.5	Ameren MO	2	0.5
Eversource MA	10	3.5	CenterPoint	2	0.5
BGE	9	3.5	ConEd ^a	2	0.5
NG MA	9	3.5	CPS	2	0.5
SCE	9	3.5	Duke FL	2	0.5
SDG&E	9	3.5	Duke OH	2	0.5
Entergy AR	8	3.5	Duke SC	2	0.5
Entergy LA	7	3	JCP&L ^a	2	0.5
PGE ^a	7	3	LIPA	2	0.5
PSE	7	3	NG NY ^a	2	0.5
We Energies ^a	7	3	NPC	2	0.5
PacifiCorp UT	6	2.5	PECO	2	0.5
AEP OH	5	2	Progress NC	2	0.5
ComEd ^a	5	2	PSE&G ^a	2	0.5

Utility	Number of emerging areas covered	Score	Utility	Number of emerging areas covered	Score
Xcel CO	5	2	SRP	2	0.5
Xcel MN	5	2	Dominion	1	0
APS	4	1.5	Duke IN	1	0
DTE	4	1.5	FP&L	1	0
PPL	4	1.5	OH Edison	1	0
West Penn	4	1.5	Oncor	1	0
Consumers	3	1	SCE&G	1	0
Duke NC	3	1	AEP TC	0	0
LADWP	3	1	AL Power	0	0
MidAm IA	3	1	GA Power	0	0
OG&E	3	1			

^a In states with statewide program administrators, we counted program types offered by administrators for the utilities in that state.

No utility on this list was undertaking all 15 of the selected emerging program areas in 2015. Eight utilities earned full points with eight or more programs or technologies offered. This indicates a commitment to advancing and transforming the energy efficiency market. Entergy AR and Entergy LA fell within the top 10 utilities in this metric, offering eight and seven of the emerging areas, respectively. Entergy LA is in the first program year of its energy efficiency portfolio, so while its programs are less mature than many others on this list, the utility's ability to offer so many emerging programs and technologies in its first year is a notable accomplishment. The California investor-owned utilities all scored well on this metric, likely in part due to California's Emerging Technologies Coordinating Council and state mandates on zero net energy buildings and plug load reduction.¹⁵

Of the programs on the list, upstream programs are the most prevalent, with 25 utilities implementing them in 2015. Additionally, 24 utilities offered heat pump water heater programs, and the same number had residential learning thermostat programs. On the other end of the spectrum, only PG&E and Xcel MN were conducting residential geotargeting in 2015. For a full list of what programs each utility offered in 2015, see Appendix D.

PILOT PROGRAMS

When a utility offers pilot programs, this can indicate that the utility is innovating and nurturing the development of a comprehensive portfolio on an ongoing basis. In conjunction with other metrics, including emerging programs and annual energy savings targets, the presence of pilot programs signals a future-oriented approach to energy efficiency. Pilots are an important way to test new program ideas on a smaller scale and can provide valuable data to inform the design and administration of a full-scale program. This

¹⁵ To learn more about the Emerging Technologies Coordinating Council, see etcc-ca.com/.

metric is limited to the extent that some utilities conduct related or similar initiatives, such as field testing of new efficiency measures, that they do not call pilots.

For this metric, we reviewed annual reports and planning documents for spending or savings from any 2015 pilot programs and for descriptions of such programs. If there were no 2015 pilot programs included in the reports we reviewed, we did not award any points, as shown in table 21. Pilots implemented in 2016 were outside the scope of this review.

Table 21. Scoring for pilot programs

Number of pilot programs	Score
4+	1.0
1-3	0.5
0 (or no data)	0.0

Table 22 presents the scores for pilot programs.

Table 22. Scores for pilot programs in 2015

Utility	Number of pilots	Score	Utility	Number of pilots	Score
SCE	17	1	Oncor	1	0.5
ComEd	11	1	PPL	1	0.5
DTE	11	1	SRP	1	0.5
PG&E	11	1	Ameren MO	0	0
SDG&E	10	1	ConEd	0	0
PGE	9	1	Consumers	0	0
AEP OH	7	1	Dominion	0	0
MidAm IA	5	1	Duke FL	0	0
We Energies	5	1	Duke IN	0	0
Xcel CO	4	1	Entergy LA	0	0
Xcel MN	4	1	Eversource MA	0	0
BGE	3	0.5	FPL	0	0
Eversource CT	3	0.5	NG NY	0	0
Duke NC	3	0.5	NPC	0	0
NG MA	3	0.5	OH Edison	0	0
Ameren IL	2	0.5	PacifiCorp UT	0	0
APS	2	0.5	PECO	0	0
CenterPoint	2	0.5	Progress NC	0	0
CPS	2	0.5	PSE&G	0	0

Utility	Number of pilots	Score	Utility	Number of pilots	Score
Duke OH	2	0.5	SCE&G	0	0
GA Power	2	0.5	West Penn	0	0
LADWP	2	0.5	AL Power		0
PSE	2	0.5	JCP&L		0
AEP TC	1	0.5	LIPA		0
Duke SC	1	0.5	OG&E		0
Entergy AR	1	0.5			

Blanks indicate no data were found.

Twenty-nine of the utilities offered at least one pilot in 2015. The remaining utilities either did not offer any 2015 pilots or did not report them as pilots specifically in regulatory filings we reviewed. Among the utilities running at least one pilot, the average utility offered between four and five pilot programs. The number of pilots in the table for the three California investor-owned utilities (SCE, PG&E, and SDG&E) is higher in part because they all offer at least six ongoing financing pilot programs.

The pilot programs revealed wide diversity, with both residential and business program pilots in many end use areas and many program types. Examples include benchmarking, small-business behavior, LED street lighting, retrocommissioning, multifamily, lighting markdown, and midstream lighting. The most frequently occurring type were pilots involving residential behavior, such as those using comparative home energy reports. We provide a more complete list of pilots by utility in Appendix E.

LOW-INCOME PROGRAMS

Installing energy efficiency measures helps consumers reduce the amount they spend on energy every month, a primary benefit for low-income customers. The existence of programs directed at low-income customers is important because it signals customer equity in program offerings. These customers are the least able to participate in programs requiring customer investment in energy efficiency measures.

To assess utility performance regarding administration of low-income energy efficiency programs, we collected savings and spending data for programs that target low- or limited-income customers from annual reports. We also relied on utility contacts for additional information. It is important to note that utilities use varying definitions of “low income” and “limited income.” This may include different methods of calculating qualifying incomes or inclusion of different types of customers such as age-qualifying or commercial customers.

Three points were available to utilities for this metric. We split that scoring into three sections worth 1 point each: savings achieved per residential customer, spending on low-

income energy efficiency programs, and comprehensiveness of the program offered.¹⁶ While achieved savings indicate actual performance of low-income programs, we feel it is important to consider spending as well, because low-income programs are not always the most cost effective on an energy savings basis. Spending can indicate a robust low-income program.

We used EIA data to collect the number of total residential customers served by a utility in order to normalize low-income savings figures across utilities. Ideally, this would be normalized on the basis of the number of low-income customers served by a utility, but these data are not readily available and are inconsistent due to varying definitions of low-income customers. Additionally, we normalized low-income spending by assessing the percentage of total spending (as defined in the efficiency program spending metric) that went to low-income programs.

To assess comprehensiveness of the low-income program being offered, we awarded half a point for any utility offering more than one low-income program, and another half point for a utility that also offered a low-income gas efficiency program (dual fuel program) or coordinated with a gas utility on low-income program offerings. These factors indicate a broad and coordinated effort to reach low-income customers with efficiency programs. Table 23 shows the scoring criteria for this metric.

Table 23. Scoring for low-income programs

Low-income kWh savings per residential customer	Low-income spending as a % of total spending	Comprehensiveness of low-income program	Score
6.00+	10.00+	Offers multiple low-income programs and coordinates with gas efficiency programs	1.0
2.00–5.99	3.00–9.99	Either offers multiple low-income programs or coordinates with gas efficiency programs	0.5
0.00–1.99	0.00–2.99	Neither offers multiple low-income programs nor coordinates with gas efficiency programs	0.0

Table 24 shows the scores for low-income programs.

¹⁶ Low-income programs in this report do not include bill assistance programs.

Table 24. Scores for low-income programs in 2015

Utility	Annual LI electric savings (MWh)	LI savings per residential customer (kWh)	Savings per customer score	LI spending (\$1,000s)	LI spending as % of total spending	% spending on LI score	More than one program offered	Dual fuel or gas utility coordination	Comprehensiveness score	Total LI score
AEP OH	7,844	6.15	1.0	\$6,652	10.21%	1.0	Yes	Yes	1.0	3.0
Eversource CT	15,085	13.49	1.0	\$17,345	11.92%	1.0	Yes	Yes	1.0	3.0
NG MA	21,850	19.05	1.0	\$31,703	11.25%	1.0	Yes	Yes	1.0	3.0
OG&E	11,744	18.17	1.0	\$5,936	19.21%	1.0	Yes	Yes	1.0	3.0
Oncor	24,576	8.43	1.0	\$12,981	23.32%	1.0	Yes	Yes	1.0	3.0
AEP TC	6,026	8.60	1.0	\$2,388	15.51%	1.0	Yes	No	0.5	2.5
CPS	13,759	19.85	1.0	\$21,804	52.45%	1.0	Yes	No	0.5	2.5
DTE	27,031	13.84	1.0	\$7,000	6.99%	0.5	Yes	Yes	1.0	2.5
Eversource MA	30,313	28.50	1.0	\$26,360	9.94%	0.5	Yes	Yes	1.0	2.5
LADWP	8,146	6.19	1.0	\$7,494	9.54%	0.5	Yes	Yes	1.0	2.5
NG NY	8,326	5.64	0.5	\$8,742	12.68%	1.0	Yes	Yes	1.0	2.5
PECO	18,716	13.00	1.0	\$9,394	11.62%	1.0	No	Yes	0.5	2.5
PG&E	34,517	7.27	1.0	\$71,873	15.58%	1.0	No	Yes	0.5	2.5
PPL	18,900	15.27	1.0	\$7,727	13.15%	1.0	Yes	No	0.5	2.5
SCE	28,285	6.46	1.0	\$51,331	15.19%	1.0	No	Yes	0.5	2.5
We Energies	4,024	4.05	0.5	\$18,264	33.43%	1.0	Yes	Yes	1.0	2.5
Ameren IL	6,179	5.83	0.5	\$6,542	9.23%	0.5	Yes	Yes	1.0	2.0
BGE	2,892	2.55	0.5	\$7,136	5.57%	0.5	Yes	Yes	1.0	2.0
CenterPoint	8,769	4.22	0.5	\$5,597	17.96%	1.0	Yes	No	0.5	2.0
ComEd	8,712	2.47	0.5	\$8,751	4.37%	0.5	Yes	Yes	1.0	2.0
ConEd	8,248	2.86	0.5	\$5,493	6.23%	0.5	Yes	Yes	1.0	2.0
PGE	3,874	5.22	0.5	\$6,802	9.00%	0.5	Yes	Yes	1.0	2.0
West Penn	1,743	2.80	0.5	\$2,124	12.63%	1.0	Yes	No	0.5	2.0
Xcel CO	6,894	5.69	0.5	\$3,088	3.60%	0.5	Yes	Yes	1.0	2.0
Consumers	2,374	1.51	0.0	\$3,746	4.28%	0.5	Yes	Yes	1.0	1.5
Duke IN	1,446	2.07	0.5	\$676	3.86%	0.5	Yes	No	0.5	1.5
Duke NC	2,007	1.22	0.0	\$16,334	22.82%	1.0	Yes	No	0.5	1.5
JCP&L	1,131	1.16	0.0	\$2,557	9.58%	0.5	Yes	Yes	1.0	1.5

Utility	Annual LI electric savings (MWh)	LI savings per residential customer (kWh)	Savings per customer score	LI spending (\$1,000s)	LI spending as % of total spending	% spending on LI score	More than one program offered	Dual fuel or gas utility coordination	Comprehensiveness score	Total LI score
MidAm IA	1,642	2.89	0.5	\$750	1.19%	0.0	Yes	Yes	1.0	1.5
OH Edison	2,785	3.02	0.5	\$2,175	20.24%	1.0	No	No	0.0	1.5
PSE&G	3,326	1.75	0.0	\$6,043	7.97%	0.5	Yes	Yes	1.0	1.5
SRP	2,354	2.57	0.5	\$1,082	3.06%	0.5	Yes	No	0.5	1.5
Xcel MN	2,597	2.31	0.5	\$2,375	2.06%	0.0	Yes	Yes	1.0	1.5
Ameren MO	5,426	5.20	0.5	\$3,454	5.96%	0.5	No	No	0.0	1.0
Duke FL	4,202	2.76	0.5	\$341	0.33%	0.0	Yes	No	0.5	1.0
Duke OH	1,162	1.86	0.0	\$396	1.26%	0.0	Yes	Yes	1.0	1.0
PSE	1,861	1.92	0.0	\$3,489	3.74%	0.5	No	Yes	0.5	1.0
SCE&G	1,258	2.11	0.5	\$503	3.97%	0.5	No	No	0.0	1.0
SDG&E	3,986	3.15	0.5		0.00%	0.0	No	Yes	0.5	1.0
APS	1,793	1.71	0.0	\$2,274	3.44%	0.5	No	No	0.0	0.5
Dominion	777	0.36	0.0		0.00%	0.0	Yes	No	0.5	0.5
Duke SC	742	1.58	0.0	\$602	2.25%	0.0	Yes	No	0.5	0.5
Entergy LA	348	0.38	0.0	\$505	8.69%	0.5	No	No	0.0	0.5
FP&L	127	0.03	0.0	\$89	0.07%	0.0	Yes	No	0.5	0.5
GA Power			0.0	\$2,046	3.89%	0.5	No	No	0.0	0.5
LIPA	1,052	1.05	0.0	\$2,700	3.83%	0.5	No	No	0.0	0.5
Progress NC	3,079	2.78	0.5	\$1,402	2.06%	0.0	No	No	0.0	0.5
AL Power			0.0		0.00%	0.0	No	No	0.0	0.0
Entergy AR	170	0.29	0.0	\$185	0.30%	0.0	No	No	0.0	0.0
NPC			0.0		0.00%	0.0	No	No	0.0	0.0
PacifiCorp UT	246	0.32	0.0	\$60	0.11%	0.0	No	No	0.0	0.0

Savings are net at the generator, using a NTGR of 100%. Blanks indicate no data were found. ^a Includes performance separately allocated from a third-party administrator.

Five utilities earned full points for this metric. On average, utilities reported 5.29 kWh of low-income energy savings per residential customer and spent 8.93% of total energy efficiency program funds on low-income programs. However the medians for both of these categories are lower, at 2.80 kWh/residential customer and 6.23% spending on low-income programs, indicating that the top performers are boosting the group average. Notably,

Eversource MA saved more than 28 kWh/residential customer, and CPS spent more than half of total expenditures on low-income programs. Twenty-two utilities offer comprehensive programs including more than one low-income program as well as gas programs or coordination with a gas utility. We were unable to locate low-income savings and spending data for several utilities, indicating either a lack of publicly available data or an absence of these programs from the utility portfolio.

ADVANCED METERING INFRASTRUCTURE

Advanced metering infrastructure (AMI) meters, also called smart meters, collect customer usage data in intervals of one hour or less, often every 15 minutes, and send it to the utility. Smart meters do not save energy or reduce peak by themselves but are part of the foundation for a more efficient electricity grid and improved energy efficiency programs. Interval meter data are a powerful resource providing multiple benefits for utilities. The data can be analyzed to model load shapes and energy usage patterns for customers of different sizes, rate classes, and building types. This is important because it can help support system-level efficiency and planning, not only for energy efficiency and demand response programs and portfolios, but also for integrating these with generation, transmission, and distribution decisions. AMI can therefore be a significant enabling technology for energy efficiency as a utility system resource.

Also, utilities with smart meters can provide feedback to customers about their electricity usage patterns. Feedback can be online or on paper, through energy use comparison reports for residential or small-business customers. Comparison reports present customers with their energy and demand levels relative to similar customers, indicating whether they are above or below their peers. For large energy users, the more granular data collected in shorter time intervals are used for more sophisticated analysis to identify energy and demand savings opportunities.

For this metric, we gathered the number of AMI meters and total number of meters for all 51 electric utilities from EIA (EIA 2016a). Table 25 shows the scoring for this metric.

Table 25. Scoring for smart meter installations

% of residential customers with AMI	Score
75.00+	1.0
25.00–74.99	0.5
Less than 24.99	0.0

Table 26 shows the scores for smart meter installations.

Table 26. Scores for smart meter installations

Utility	% of residential customers with AMI meters	Score	Utility	% of residential customers with AMI meters	Score
AL Power	100%	1	AEP OH	9%	0
APS	100%	1	We Energies	9%	0
CenterPoint	100%	1	Duke FL	4%	0
GA Power	100%	1	Entergy LA	2%	0
OG&E	100%	1	LADWP	1%	0
Oncor	100%	1	LIPA	1%	0
PGE	100%	1	NG MA	1%	0
PPL	100%	1	PSE&G	1%	0
SDG&E	100%	1	SCE&G	1%	0
AEP TC	99%	1	Xcel CO	1%	0
FP&L	99%	1	Ameren MO	0%	0
PECO	99%	1	Eversource CT	0%	0
SCE	99%	1	ConEd	0%	0
Duke OH	98%	1	Duke IN	0%	0
PG&E	97%	1	Entergy AR	0%	0
DTE	96%	1	Eversource MA	0%	0
BGE	91%	1	JCP&L	0%	0
NPC	85%	1	MidAm IA	0%	0
SRP	85%	1	NG NY	0%	0
Consumers	46%	0.5	OH Edison	0%	0
ComEd	44%	0.5	PacifiCorp UT	0%	0
CPS	28%	0.5	Progress NC	0%	0
Duke NC	21%	0	PSE	0%	0
Ameren IL	20%	0	West Penn	0%	0
Dominion	15%	0	Xcel MN	0%	0
Duke SC	15%	0	Average	41%	

We gave a full point to the 19 utilities with greater than 75% smart meters. Three utilities fell in the 25% to 75% half-point range. The 29 utilities below 25% scored zero points. The median AMI penetration is 12% with an average of 41%. Of the 51 utilities, 19 have penetration of 85% or higher, and 21 have less than 1.5%. This distribution demonstrates that utilities tend to either do a full implementation or very little to none. Many with a small percentage are piloting smart meters.

UTILITY CUSTOMER DATA ACCESS

Customers with access to information regarding energy usage are better able to manage consumption and engage with energy efficiency. Utilities that provide energy usage information to residential households, owners and managers of large buildings, and communities allow these customers to better plan budgets, select and evaluate energy efficiency programs, and reduce overall energy consumption. Allowing customers to track their reduction in energy usage and corresponding dollar savings demonstrates the value of energy efficiency and encourages further investments in it.

As shown in table 27, utilities could receive up to 1 point for the data access metric. They could receive 0.5 points for implementing benchmarking services for use with ENERGY STAR and 0.5 points for implementing Green Button data services.

Table 27. Scoring for data access

Description	Score
Implementation of both benchmarking services and Green Button	1.0
Implementation of either benchmarking services or Green Button	0.5
Implementation of neither benchmarking services nor Green Button	0.0

While these are not the only options, ENERGY STAR and Green Button are standardized ways to provide energy consumption data to residential customers and owners and managers of large buildings. Benchmarking services for use with ENERGY STAR include Benchmarking with Portfolio Manager, Portfolio Manager Web Services, Aggregate Whole Building Data Downloads, and Building Performance with ENERGY STAR. These four programs include features like automated benchmarking services (ABS) for ENERGY STAR Portfolio Manager, which automatically inputs utility data into the EPA's Portfolio Manager tool. This tool is commonly used for energy benchmarking in commercial buildings. It reduces the time building owners and managers spend collecting data and allows them to recognize usage patterns and prioritize energy usage reduction efforts, as well as to track progress in energy savings.

Green Button data services similarly provide energy usage data at regular intervals to metered customers, including residential households, in a way that ensures customer privacy. This gives households the opportunity to understand their energy usage patterns and reduce their consumption and spending on energy. Additionally, customers can share data directly with contractors and other service providers who are able to interpret it and recommend priority actions.

Table 28 shows the scores for data access.

Table 28. Scores for data access

Utility	ABS	Green Button	Score
AEP TC	Yes	Yes	1
Ameren IL	Yes	Yes	1
BGE	Yes	Yes	1
CenterPoint	Yes	Yes	1
ComEd	Yes	Yes	1
ConEd	Yes	Yes	1
Eversource CT	Yes	Yes	1
Eversource MA	Yes	Yes	1
NG MA	Yes	Yes	1
NG NY	Yes	Yes	1
PacifiCorp UT	Yes	Yes	1
PECO	Yes	Yes	1
PG&E	Yes	Yes	1
PGE	Yes	Yes	1
SCE	Yes	Yes	1
SDG&E	Yes	Yes	1
Xcel CO	Yes	Yes	1
Xcel MN	Yes	Yes	1
AEP OH	No	Yes	0.5
AL Power	Yes	No	0.5
Ameren MO	No	Yes	0.5
APS	Yes	No	0.5
Consumers	Yes	No	0.5
Dominion	No	Yes	0.5
Duke NC	Yes	No	0.5
Duke SC	Yes	No	0.5
Entergy AR	Yes	No	0.5
JCP&L	Yes	No	0.5
LADWP	Yes	No	0.5
LIPA	Yes	No	0.5
MidAm IA	Yes	No	0.5
Oncor	No	Yes	0.5
PPL	No	Yes	0.5
PSE	Yes	No	0.5
PSE&G	Yes	No	0.5
SRP	Yes	No	0.5
We Energies	Yes	No	0.5
CPS	No	No	0
DTE	No	No	0
Duke FL	No	No	0
Duke IN	No	No	0
Duke OH	No	No	0
Entergy LA	No	No	0
FP&L	No	No	0
GA Power	No	No	0
NPC	No	No	0
OG&E	No	No	0
OH Edison	No	No	0
Progress NC	No	No	0
SCE&G	No	No	0
West Penn	No	No	0
Total	32	23	

Data are from ENERGY STAR 2016 and DOE 2017.

In total, 18 utilities earned the full point value for this metric, 19 utilities earned half a point, and 14 utilities, no points. This indicates that standardized and automated data access can be expanded for a majority of utilities included in this report.

ELECTRIC VEHICLES

Although electric vehicles increase the need for electricity production, they are more energy efficient than conventional gasoline-powered vehicles, even when power generation and distribution losses are taken into account (Molina, Kiker, and Nowak 2016).

For this metric, we considered two aspects of utility promotion of electric vehicle adoption: customer education, and the existence of rate options to benefit electric vehicle owners—not only EV-specific rates but other, nonspecific options.

We determined the level of customer education on electric vehicles by reviewing utility websites. We awarded 1 point for utilities presenting educational materials on electric vehicles. The scope or quality of information varied significantly, but we did not score utilities on that basis.

We also used utility websites on electric vehicles to assess whether specific electric rates were promoted for the use of electric vehicles. For this metric we focused on the existence of a rate encouraging customers to charge electric vehicles (or otherwise use electricity) during off-peak periods, such as a time-of-use rate, as well as EV-specific rates for which customers have to prove ownership of an EV. We awarded 1 point to utilities promoting any rate option that would financially benefit electric vehicle owners, not just EV-specific rates.

Table 29 shows the scores for this metric.

Table 29. Scores for electric vehicle metric

Utility	Education on website (1=yes, 0=no)	EV promo rate (1=yes, 0=no)	Total points	Utility	Education on website (1=yes, 0=no)	EV promo rate (1=yes, 2=no)	Total points
AL Power	1	1	2	Duke NC	1	0	1
Ameren IL	1	1	2	Duke OH	1	0	1
APS	1	1	2	Duke SC	1	0	1
BGE	1	1	2	Eversource CT	1	0	1
ComEd	1	1	2	Eversource MA	1	0	1
ConEd	1	1	2	FLP	1	0	1
Consumers	1	1	2	JCP&L	1	0	1
DTE	1	1	2	LADWP	1	0	1
GA Power	1	1	2	OH Edison	1	0	1
MidAm IA	1	1	2	Oncor	1	0	1
NPC	1	1	2	PacifiCorp UT	1	0	1
OG&E	1	1	2	PECO	1	0	1
PG&E	1	1	2	PGE	1	0	1
PSE&G	1	1	2	PPL	1	0	1

Utility	Education on website (1=yes, 0=no)	EV promo rate (1=yes, 0=no)	Total points	Utility	Education on website (1=yes, 0=no)	EV promo rate (1=yes, 2=no)	Total points
SCE	1	1	2	Progress NC	1	0	1
SDG&E	1	1	2	PSE	1	0	1
SRP	1	1	2	SCE&G	1	0	1
We Energies	1	1	2	West Penn	1	0	1
Xcel MN	1	1	2	Xcel CO	1	0	1
AEP TC	1	0	1	AEP OH	0	0	0
Ameren MO	1	0	1	Energy AR	0	0	0
CenterPoint	1	0	1	Energy LA	0	0	0
CPS	1	0	1	LIPA	0	0	0
Dominion	1	0	1	NG MA	0	0	0
Duke FL	1	0	1	NG NY	0	0	0
Duke IN	1	0	1	Total	45	19	

In total, 45 of 51 utilities provide educational materials on electric vehicles to customers through their websites. The level of educational materials varies, but common information includes types of electric vehicles and charging stations, federal and state financial incentives for the purchase of electric vehicles, and benefits of owning an electric vehicle. Some utilities also include calculators to determine the financial savings of owning an electric vehicle and contact information for utility representatives who can assist customers with electric vehicle questions.

Only 19 utilities promoted a rate option to encourage off-peak charging for electric vehicles. Of these 19, 14 promoted rate options that were specific to electric vehicles, meaning customers needed to document ownership to participate in the rate and often needed to install a second electric meter. The great majority of rate options were time-of-use, meaning customers paid less for electricity used to charge an electric vehicle during off-peak periods, often during the night.

Texas does not allow utilities to implement rates specifically for electric vehicles. ComEd promoted the use of its real-time pricing program for electric vehicles, and DTE offered a flat rate, meaning customers were able to pay a flat fee for unlimited charging.

Category 3. Targets, Business Models, and Evaluation

In Category 3 we review several metrics related to utility business models, energy efficiency savings targets, and program evaluation. We also consider two aspects of residential rate design: the size of the monthly customer charge and the existence of time-of-use rates. A total of 10 points were available in Category 3. Table 30 presents the scores.

Table 30. Category 3 scores by metric

Utility	2015 savings targets (2 pts)	Future savings targets (2 pts)	Customer charge (1 pt)	Time-of-use rates (1 pt)	Utility business model (2 pts)	EM&V (2 pts)	Total (10 pts)	% of Category 3 points
Eversource MA	2	2	1	1	2	2	10	100%
NG MA	2	2	1	1	2	2	10	100%
Eversource CT	1.5	1.5	0	1	2	2	8	80%
PG&E	1	1	1	1	2	2	8	80%
SCE	1	1	1	1	2	2	8	80%
SDG&E	1	1	1	1	2	2	8	80%
NG NY	1.5	1	0	1	2	2	7.5	75%
LADWP	1.5	1.5	1	1	1	1	7	70%
PGE	1.5	1.5	0	1	1	2	7	70%
Xcel MN	1.5	1	0.5	1	2	1	7	70%
ConEd	1	0.5	0	1	2	2	6.5	65%
PacifiCorp UT	1.5	1	1	1	0	2	6.5	65%
Xcel CO	1.5	1	1	1	1	1	6.5	65%
Ameren IL	1	1	0	1	1	2	6	60%
Ameren MO	1	0.5	0.5	1	1	2	6	60%
BGE	1	0.5	0.5	1	1	2	6	60%
ComEd	1.5	1.5	0	0	1	2	6	60%
DTE	1.5	0.5	1	1	1	1	6	60%
Entergy AR	1.5	0	0.5	1	1	2	6	60%
APS	1.5	1.5	0.5	1	1	0	5.5	55%
Duke SC	0.5	0.5	0.5	1	1	2	5.5	55%
LIPA	1.5	1	0	1	1	1	5.5	55%
AEP OH	1	0.5	0.5	1	2	0	5	50%
Consumers	1	0.5	0.5	1	1	1	5	50%
Duke IN	0.5	0.5	0.5	0	1	2	4.5	45%
MidAm IA	1	1	0.5	1	1	0	4.5	45%
PECO	1	1	0.5	0	0	2	4.5	45%
Progress NC	1	0.5	0	1	1	1	4.5	45%
PSE	1.5	0.5	0.5	0	1	1	4.5	45%
SCE&G	0.5	0	0	1	1	2	4.5	45%
We Energies	1	0.5	0	1	0	2	4.5	45%

Utility	2015 savings targets (2 pts)	Future savings targets (2 pts)	Customer charge (1 pt)	Time-of-use rates (1 pt)	Utility business model (2 pts)	EM&V (2 pts)	Total (10 pts)	% of Category 3 points
CenterPoint	0	0	1	0	1	2	4	40%
Duke NC	0.5	0.5	0	1	1	1	4	40%
Duke OH	0	0	1	1	2	0	4	40%
Oncor	0	0	1	0	1	2	4	40%
PPL	0.5	0.5	0	1	0	2	4	40%
West Penn	0.5	0.5	1	0	0	2	4	40%
SRP	1.5	1	0	1	0	0	3.5	35%
AEP TC	0	0	1	0	1	1	3	30%
JCP&L	0	0	1	1	0	1	3	30%
NPC	0.5	0.5	0	1	0	1	3	30%
OG&E	0.5	0.5	0	1	1	0	3	30%
OH Edison	0	1	1	0	1	0	3	30%
Dominion	0	0	0.5	1	0	1	2.5	25%
Entergy LA	0	0	0.5	0	1	1	2.5	25%
GA Power	0.5	0	0	1	1	0	2.5	25%
PSE&G	0	0	1	0	0	1	2	20%
CPS	0	0	0.5	0	0	1	1.5	15%
Duke FL	0	0	0.5	1	0	0	1.5	15%
FP&L	0	0	0.5	1	0	0	1.5	15%
AL Power	0	0	0	1	0	0	1	10%

Both Eversource MA and NG MA earned full points for Category 3. These two utilities earned the top two spots overall, indicating that putting policies and targets in place to facilitate energy efficiency is critical to high achievement of savings. On average, the 51 utilities earned half of the available points in this category.

The two Massachusetts utilities earned top points for 2015 energy savings targets. Eversource MA and NG MA both have targets of over 2.5% of retail sales, which puts them more than a full percentage point above of the next-highest utilities. On average, utilities set targets of 0.77% of retail sales for 2015. Given average savings of 0.89% of retail sales in 2015, it can be inferred that targets are being set too low. Eversource MA and NG MA are also the leaders for setting future targets, with goals almost 3 percentage points greater than the next-highest utilities. For all 51 utilities, three years' worth of energy savings targets are only 2.4% of 2015 sales on average. These targets, for 2016–2018, indicate that there is much more that utilities can do to include efficiency in future planning.

The remainder of the metrics in Category 3 score utilities on the basis of residential rate design, utility business models, and efficiency program evaluation independence. For residential rate design, one-third of the utilities earned 1 point for having a customer charge below \$7, and more than 75% of the utilities earned 1 point for time-of-use rates for customers. However less than 2% of residential customers are on time-of-use (TOU) rates. Notably, both Arizona utilities, Arizona Public Service Company and Salt River Project, have high numbers of customers on TOU rates, at 52.28% and 30.61%, respectively. Sixteen utilities have revenue decoupling in place, and 32 have performance incentives; only 11 have both. In order to approximate the rigor of a utility's EM&V process, we assessed whether a utility calculates net savings and whether there is an additional level of evaluation review above a third-party evaluator. Fewer than half (24) of the utilities earned full points on this metric, and 11 utilities earned no points. Rigorous evaluation processes are critical to effective efficiency program administration, and this could be improved for most utilities.

Now we go into more detail on each metric.

2015 ENERGY SAVINGS TARGETS

Establishing energy savings targets is an important part of achieving high levels of energy savings. A recent ACEEE study found that the utilities performing best in this area all operated under energy efficiency resource standards prescribing strong energy savings targets (Baatz, Gilleo, and Barigye 2016). While many targets are driven by state- or commission-mandated EERSs, many are not. This metric is not a review of EERSs.

For this metric, we review 2015 energy savings targets. The target is the energy savings goal outlined in a utility program plan. We normalized the targets by dividing each by total electric sales in 2015. This method is similar to how we evaluate energy savings achievements and progress toward goals. Normalizing by using 2015 electric sales for all utilities allows a direct comparison across utilities of different sizes.

Utilities presented data in several different ways. For example, some reported gross savings targets at the customer meter. To ensure comparability, we converted all energy savings targets to net at the generator, meaning savings from avoided line losses are included.¹⁷

Table 31 shows the scoring for this metric.

¹⁷ The methodology used to convert all data to net at the generator is explained in greater detail in the Methodology section of this report.

Table 31. Scoring for energy savings targets

Savings target as % of sales	Score
2.00+	2.0
1.00–2.00	1.5
0.70–0.99	1.0
0.20–0.69	0.5
0.00–0.19	0.0

Table 32 shows the scores for energy savings targets.

Table 32. Scores for energy savings targets as a percentage of total retail sales in 2015

Utility	Target (MWh)	Target as % of 2015 sales	Score	Utility	Target (MWh)	Target as % of 2015 sales	Score
Eversource MA	663,066	2.68%	2.0	SCE	803,111	0.87%	1.0
NG MA	614,464	2.78%	2.0	SDG&E	207,585	0.98%	1.0
APS ^b	441,095	1.47%	1.5	We Energies ^{a,c}	184,752	0.72%	1.0
ComEd ^a	1,146,011	1.31%	1.5	Duke IN	114,375	0.38%	0.5
DTE	514,100	1.04%	1.5	Duke NC	300,110	0.49%	0.5
Entergy AR	228,312	1.01%	1.5	Duke SC	104,118	0.46%	0.5
Eversource CT	339,336	1.44%	1.5	GA Power	284,596	0.32%	0.5
LADWP	268,466	1.09%	1.5	NPC	134,453	0.57%	0.5
LIPA	272,040	1.29%	1.5	OG&E	137,361	0.53%	0.5
NG NY ^a	687,440	1.88%	1.5	PPL	151,366	0.38%	0.5
PacifiCorp UT	311,857	1.18%	1.5	SCE&G	59,021	0.25%	0.5
PGE ^a	296,088	1.44%	1.5	West Penn	116,080	0.53%	0.5
PSE	242,588	1.01%	1.5	AEP TC	24,860	0.09%	0.0
SRP ^b	409,383	1.40%	1.5	AL Power		0.00%	0.0
Xcel CO	406,677	1.34%	1.5	CenterPoint	148,201	0.17%	0.0
Xcel MN	355,734	1.09%	1.5	CPS		0.00%	0.0
AEP OH	369,877	0.80%	1.0	Dominion	139,342	0.17%	0.0
Ameren IL ^a	279,578	0.73%	1.0	Duke FL	40,000	0.10%	0.0
Ameren MO	268,864	0.70%	1.0	Duke OH ^d	0	0.00%	0.0
BGE	270,495	0.84%	1.0	Entergy LA	22,548	0.04%	0.0

Utility	Target (MWh)	Target as % of 2015 sales	Score	Utility	Target (MWh)	Target as % of 2015 sales	Score
ConEd ^a	577,758	0.96%	1.0	FP&L	33,660	0.03%	0.0
Consumers	331,887	0.85%	1.0	JCP&L ^a		0.00%	0.0
MidAm IA	220,073	0.99%	1.0	OH Edison ^d	0	0.00%	0.0
PECO	291,397	0.71%	1.0	Oncor	179,803	0.14%	0.0
PG&E	899,640	0.97%	1.0	PSE&G ^a		0.00%	0.0
Progress NC	347,274	0.89%	1.0	Average		0.77%	

Targets are net at the generator. Blanks indicate that no data were found. ^a Includes savings separately allocated from a third-party administrator. Target includes the portion of the third-party administrator's target for that utility's territory. ^b SRP and APS report a NTGR of 100%, but we were unable to confirm these values using recently evaluated public information and so applied the 81.7% NTGR for their savings. ^c We Energies' target has been allocated from its third-party administrator's lifetime savings target for 2015–2018 to reflect a 2015 incremental annual savings target for We Energies' territory. ^d Duke OH and OH Edison have targets of 0 because of a legislative freeze on targets in Ohio in 2015.

Only two of the 51 utilities earned the maximum points for a 2015 energy savings target, National Grid and Eversource, both in Massachusetts. The average energy savings target was 0.77%. Six utilities did not report savings targets for 2015. Many of the energy savings targets presented in table 32 are the result of statewide energy efficiency resource standards.¹⁸ New Jersey has statewide energy savings targets but does not allocate them to individual utilities. CPS has an ambitious demand savings target but does not currently have one for energy savings.

FUTURE SAVINGS TARGETS

Some states have binding energy efficiency resource standards mandating that regulated utilities achieve MWh energy savings targets at or beyond a set percentage of retail sales. State-established savings targets are important because they demonstrate an intent to build a substantial energy efficiency resource over time. ACEEE research finds that EERS is the state policy most highly correlated with energy savings impacts when compared with other policies including revenue decoupling, performance incentives, and lost revenue adjustment mechanisms.

The correlation holds true at the utility level as well. For this metric, we included any planned MWh annual savings for the years 2016 to 2018 published in regulatory filings or other plan documents, in addition to targets mandated by policy. A state or a utility may not have a mandatory, binding target but may have identified some type of goal for one or multiple years. We give credit for such goals because they indicate a future-oriented, longer-term commitment to energy efficiency. These softer future savings levels might be expressed as planned, estimated, or forecast savings. In cases where there were both, we generally used the required or mandated target for scoring, or, if the utility proposed lower targets that were approved by regulators, then we used those targets for scoring.

¹⁸ See ACEEE 2017 for more information on energy efficiency resource standards.

We compiled annual incremental savings targets estimated as net savings at the generator. If targets were expressed as gross, we applied a NTGR of 81.7% to normalize it unless a utility-specific ratio was available. We then took the sum of the three years' targets and divided by total 2015 sales. For example, if a utility's sales for 2015 were 1,000,000 MWh, and its annual savings target was 10,000 MWh for 2016, 2017, and 2018, we would calculate that as 3%. If that utility had planned for only two years, we would score it as 2%.

We credited utilities with target savings for statewide third-party program administrators. We allocated the target to the utility if a target for a specific utility was reported. For example, planned savings from NYSEERDA were allocated to the New York utilities NG NY and ConEd using the prior proportion of savings achieved in respective utility territories. The New Jersey statewide targets were not allocated to specific New Jersey utilities because proportional allocation would not be accurate. Therefore we did not award points for this metric to New Jersey utilities.

Table 33 shows the scoring for this metric.

Table 33. Scoring for 2016-2018 savings targets

Sum of incremental savings target for each year	Score
6%+	2.0
4.5-5.99%	1.5
3-4.49%	1.0
1-2.99%	0.5
Under 1%	0.0

Table 34 shows the scores with the corresponding three-year savings targets, except where data were not available.

Table 34. Scores for 2016-2018 savings targets

Utility	2016 target		2017 target		2018 target		Total %	Score
	MWh	%	MWh	%	MWh	%		
NG MA	641,043	2.9%	650,358	2.9%	647,901	2.9%	8.8%	2.0
Eversource MA	717,210	2.9%	710,153	2.9%	713,195	2.9%	8.6%	2.0
ComEd	1,593,722	1.7%	2,032,394	2.1%	1,907,366	2.0%	5.7%	1.5
LADWP	384,164	1.6%	447,612	1.8%	470,210	1.9%	5.3%	1.5
APS ^a	491,408	1.6%	491,408	1.6%	491,408	1.6%	4.9%	1.5
Eversource CT	349,241	1.5%	355,255	1.5%	375,791	1.6%	4.6%	1.5

Utility	2016 target		2017 target		2018 target		Total %	Score
	MWh	%	MWh	%	MWh	%		
PGE	294,899	1.4%	306,330	1.5%	348,195	1.7%	4.6%	1.5
SRP ^a	409,383	1.4%	413,126	1.4%	483,763	1.6%	4.4%	1.0
Xcel CO	425,532	1.4%	425,532	1.4%	425,532	1.4%	4.2%	1.0
SDG&E	309,444	1.5%	287,388	1.4%	224,678	1.1%	3.9%	1.0
Ohio Edison	335,878	1.3%	333,951	1.3%	331,277	1.3%	3.9%	1.0
NG NY	481,966	1.3%	449,895	1.2%	471,888	1.3%	3.8%	1.0
PacifiCorp UT	303,040	1.2%	333,400	1.3%	351,640	1.4%	3.8%	1.0
LIPA	261,174	1.2%	263,687	1.2%	268,579	1.3%	3.8%	1.0
Ameren IL	696,072	1.8%	699,843	1.8%		0.0%	3.7%	1.0
SCE	1,257,083	1.4%	1,158,509	1.3%	906,783	1.0%	3.6%	1.0
PG&E	1,157,011	1.2%	1,138,533	1.2%	995,652	1.1%	3.5%	1.0
Xcel MN	355,395	1.1%	354,578	1.1%	353,761	1.1%	3.3%	1.0
PECO	398,299	1.0%	419,848	1.0%	439,995	1.1%	3.1%	1.0
MidAm IA	223,508	1.0%	226,248	1.0%	228,194	1.0%	3.1%	1.0
PPL	337,310	0.9%	340,885	0.9%	364,467	0.9%	2.7%	0.5
Progress NC	329,799	0.8%	320,024	0.8%	317,759	0.8%	2.5%	0.5
Ohio Power	369,301	0.8%	369,910	0.8%	370,518	0.8%	2.4%	0.5
PSE	531,660	2.2%		0.0%		0.0%	2.2%	0.5
Duke SC	161,310	0.7%	164,007	0.7%	157,803	0.7%	2.1%	0.5
DTE	511,733	1.0%	516,456	1.0%		0.0%	2.1%	0.5
We Energies	165,379	0.6%	165,379	0.6%	165,379	0.6%	1.9%	0.5
ConEd NY	482,355	0.8%	352,463	0.6%	319,162	0.5%	1.9%	0.5
BG&E	300,655	0.9%	298,318	0.9%		0.0%	1.9%	0.5
West Penn	108,197	0.5%	108,197	0.5%	108,197	0.5%	1.5%	0.5
Ameren MO	187,388	0.5%	182,618	0.5%	188,669	0.5%	1.5%	0.5
Consumers	331,951	0.7%	336,428	0.7%		0.0%	1.4%	0.5
NPC	119,810	0.5%	97,403	0.4%	97,223	0.4%	1.3%	0.5
Duke IN	155,675	0.5%	161,011	0.5%		0.0%	1.1%	0.5
OG&E	86,760	0.3%	88,120	0.3%	85,448	0.3%	1.0%	0.5
Duke NC	309,909	0.5%	315,271	0.5%		0.0%	1.0%	0.5
Entergy AR	191,787	0.9%		0.0%		0.0%	0.9%	0.0
AEP TC	56,404	0.2%	56,530	0.2%		0.0%	0.4%	0.0

Utility	2016 target		2017 target		2018 target		Total %	Score
	MWh	%	MWh	%	MWh	%		
Oncor	111,294	0.1%	111,294	0.1%	111,294	0.1%	0.3%	0.0
Duke FL	30,556	0.1%	26,798	0.1%	22,059	0.1%	0.2%	0.0
CenterPoint	90,955	0.1%		0.0%		0.0%	0.1%	0.0
FPL	37,255	0.0%	38,808	0.0%	40,442	0.0%	0.1%	0.0
AL Power							0.0%	0.0
CPS							0.0%	0.0
Dominion							0.0%	0.0
Duke OH							0.0%	0.0
Entergy LA							0.0%	0.0
GA Power							0.0%	0.0
JCP&L							0.0%	0.0
PSE&G							0.0%	0.0
SCE&G							0.0%	0.0

Savings and targets are net at the generator. Blanks indicate that no data were found. * SRP and APS report a NTGR of 100%, but we were unable to confirm these values using recently evaluated public information and so applied the 81.7% NTGR for their savings.

Utilities in states with strong EERS policies, such as Massachusetts, tended to score highest. In table 35, there are 32 utilities with future savings levels published for all three years, 8 for two years, and 4 for one year. For those with at least some future target for at least one year, the average was 2.8%. Of 30 utilities reporting savings goals for all three years, 3 had targets year-to-year percentage increases. Most had a consistent percentage savings target for all three years, suggesting that policy ramp-up requirements have leveled off for these utilities or that they are held accountable for results only at the end of each planning cycle. For nine utilities we could find no published 2016–18 annual savings goals.

Many utilities have a multiple-year energy efficiency planning cycle, most commonly three years. This does not necessarily mean that the planning cycle lines up with 2016–18. For example, some three-year planning cycles end in 2017, and for those utilities only two years of savings appear in the table.

RESIDENTIAL RATES: CUSTOMER CHARGES

Residential rates provide price signals to customers to reduce consumption and engage in energy efficiency. Here we examined two metrics: the size of the monthly customer charge and the existence of a time-of-use rate.

Customer charges, also known as fixed monthly charges, are intended to collect metering, billing, and customer service costs. Utility proposals to increase customer charges have proliferated in recent years (Whited, Woolf, and Daniel 2016). This is problematic for several reasons. Higher customer charges result in a lower variable (per kWh) charge because of the

fixed revenue requirement for each customer class, and therefore they reduce the price signal for customers to engage in energy efficiency. They also result in higher relative costs for low-usage customers and provide a price signal to increase overall consumption.

For this metric, we collected customer charges for all 51 electric utilities. We focused on the default rate for residential customers or the rate with the highest subscription based on data reported in FERC Form 1. We collected customer charges from active utility tariffs as of December 2016; some of these values may have changed. Most of the customer charges we collected were based on a monthly collection amount. For those collected at a daily level, we assumed a 30-day month. To score this metric we utilized a tiered approach, awarding utilities 1 point for a customer charge of \$6.99 per month or less, 0.5 points for a customer charge between \$7.01 and \$9.99 per month, and 0 points for anything over \$10 per month. Table 35 shows the scoring for this metric.

Table 35. Scoring for customer charge

Description	Score
\$6.99 and under	1.0
\$7.00 to \$9.99	0.5
\$10.00+ per month	0.0

Table 36 shows the scores for the customer charge metric.

Table 36. Scores for monthly customer charge

Utility	Customer charge	Score	Utility	Customer charge	Score
PG&E	\$0.00	1	AEP OH	\$8.40	0.5
SDG&E	\$0.00	1	Entergy AR	\$8.40	0.5
SCE	\$0.93	1	PECO	\$8.43	0.5
LADWP	\$1.70	1	MidAm IA	\$8.50	0.5
JCP&L	\$1.92	1	APS	\$8.55	0.5
PSE&G	\$2.43	1	CPS	\$8.75	0.5
Oncor	\$3.06	1	Duke FL	\$8.76	0.5
NG MA	\$4.00	1	Duke IN	\$9.40	0.5
OH Edison	\$4.00	1	GA Power	\$10.00	0
CenterPoint	\$5.47	1	SCE&G	\$10.00	0
West Penn	\$5.81	1	PGE	\$10.50	0
DTE	\$6.00	1	LIPA	\$10.80	0
Duke OH	\$6.00	1	Progress NC	\$11.13	0
PacifiCorp UT	\$6.00	1	Duke NC	\$11.80	0
Eversource MA	\$6.43	1	NPC	\$12.75	0

Utility	Customer charge	Score	Utility	Customer charge	Score
AEP TC	\$6.74	1	OG&E	\$13.00	0
Xcel CO	\$6.75	1	ComEd	\$14.22	0
Consumers	\$7.00	0.5	AL Power	\$14.50	0
Dominion	\$7.00	0.5	PPL	\$14.50	0
Entergy LA	\$7.04	0.5	ConEd	\$15.76	0
PSE	\$7.49	0.5	We Energies	\$15.78	0
FPL	\$7.57	0.5	Ameren IL	\$16.95	0
BGE	\$7.90	0.5	NG NY	\$17.00	0
Ameren MO	\$8.00	0.5	SRP	\$18.50	0
Xcel MN	\$8.00	0.5	Eversource CT	\$19.25	0
Duke SC	\$8.29	0.5	Average	\$8.65	

Eversource MA includes data only from NSTAR Electric and does not include WMECo as it does in the rest of the report.

The median residential customer charge for our utilities is \$8.29 with an average of \$8.65. Eversource CT has the highest customer charge at \$19.25 per month.¹⁹ Only 11.7% of the 51 utilities have a customer charge higher than \$15 per month, and 29.4% have a charge higher than \$10.

RESIDENTIAL RATES: TIME-OF-USE PRICING

Time-of-use rates charge different prices for electricity during different times of the day and year. Many time-of-use rates charge a higher rate during peak periods during the week in the summer months. Time-of-use rates are intended to send price signals to customers about how much it actually costs to produce and deliver electricity at various times. This type of pricing has significant benefits in terms of reducing system peak demand. These rates also are demonstrated to reduce overall consumption (Baatz 2017). While only 3% of residential customers are on time-of-use rates, the proliferation of advanced metering infrastructure is driving more utilities and states to increase the number of customers on these rates.

For this metric, we reviewed residential tariffs for all 51 utilities to gather information on which utilities offer a time-of-use rate. We awarded 1 point to utilities that do so. We also reviewed relevant FERC Form 1 data to determine subscription levels for these rates. However we did not award points for utilities with higher subscription rates because not all utilities report this information to the FERC. All utilities we reviewed that offer time-of-use rates do so on an optional basis. California, Arizona, and Massachusetts are moving toward default time-of-use rates but did not yet have them in place at the time of this review.

¹⁹ Eversource CT is currently engaged in an active rate case. In 2016 Connecticut passed legislation that limited the scope of costs to be included in the customer charge to meters, billing, and customer service. This legislation is expected to decrease this charge.

Table 37 presents the scores for the time-of-use metric. It also shows the number of customers on time-of-use rates for each utility and the percentage of total residential customers on these rates.

Table 37. Scores for time-of-use rates

Utility	No. of customers on TOU	% of residential customers	Score (1=yes, 0=no)
AEP OH	1,225	0.10%	1
AL Power	209	0.02%	1
Ameren IL	11,002	1.04%	1
Ameren MO	40	0.00%	1
APS	547,360	52.28%	1
BGE	0	0.00%	1
ConEd		0.00%	1
Consumers	1,936	0.12%	1
Dominion		0.00%	1
DTE	2,009	0.10%	1
Duke FL		0.00%	1
Duke NC	315	0.02%	1
Duke OH	16	0.00%	1
Duke SC		0.00%	1
Entergy AR	76	0.01%	1
Eversource CT	406	0.04%	1
Eversource MA	157	0.01%	1
FLP	114	0.00%	1
GA Power	9,821	0.46%	1
JCP&L	17,420	1.78%	1
LADWP		0.00%	1
LIPA		0.00%	1
MidAm IA	11	0.00%	1
NG MA	85	0.01%	1
NG NY	3,618	0.25%	1
NPC	4,684	0.60%	1

Utility	No. of customers on TOU	% of residential customers	Score (1=yes, 0=no)
OG&E	4,364	0.68%	1
PacifiCorp UT	381	0.05%	1
PG&E	136,265	2.87%	1
PGE		0.00%	1
PPL		0.00%	1
Progress NC	0	0.00%	1
SCE	9,225	0.21%	1
SCE&G	76	0.01%	1
SDG&E	9,557	0.75%	1
SRP	279,876	30.61%	1
We Energies	21,096	2.12%	1
Xcel CO		0.00%	1
Xcel MN	456	0.04%	1
AEP TC		0.00%	0
CenterPoint	0	0.00%	0
ComEd	0	0.00%	0
CPS	0	0.00%	0
Duke IN	0	0.00%	0
Entergy LA	0	0.00%	0
OH Edison	0	0.00%	0
Oncor	0	0.00%	0
PECO	0	0.00%	0
PSE	0	0.00%	0
PSE&G	0	0.00%	0
West Penn	0	0.00%	0

Blanks indicate no data were found. Texas restricts distribution companies from offering time-of-use rates to retail customers. Eversource MA includes data only from NSTAR Electric and does not include WMECo as it does in the rest of the report.

Of the 51 utilities, 39 offer residential time-of-use rates. Among the utilities that reported data in FERC Form 1, subscription rates are generally low, with an average of 1.86% of all residential customers. APS and SRP had the highest percentage of customers enrolled in TOU rates in 2015 with 52.28% and 30.61% of residential customers, respectively. The subscription rates are expected to grow as more utilities move toward default time-of-use and expand metering capabilities.

UTILITY BUSINESS MODEL

Among the critical drivers of utility-sector energy efficiency programs are policies that attempt to address the economic disincentives (lost sales revenues) that utilities face if customers use less electricity. Here we consider two important elements of utility business models, full revenue decoupling and performance incentives. We scored decoupling and performance incentives as separate metrics, presented in table 38.

Full Revenue Decoupling

Within the context of traditional revenue recovery, utility revenues and return on investment are based on sales volumes. This model provides a disincentive for utilities to promote reductions in consumption. Full revenue decoupling is a mechanism that disconnects revenue recovery from sales volumes and reduces the utility disincentive to promote customer conservation and energy efficiency.²⁰ In combination with energy savings targets and performance incentives, revenue decoupling is positively correlated with energy efficiency results (Molina and Kushler 2015). For this metric, we consider full revenue decoupling only; we do not include partial decoupling mechanisms like lost revenue adjustment, another regulatory policy aimed to mitigate the utility disincentive to pursue energy efficiency. We compiled information on decoupling from the ACEEE State and Local Policy Database web pages at database.aceee.org/state.

Performance Incentives

Performance incentives offer a utility a financial return on its energy efficiency achievements. Incentives may take a variety of forms but are most commonly calculated as a percentage of the present value of the net benefits from energy efficiency (Nowak et al. 2015).

Of the 51 utilities, 19 are in states where no policy has been established for utility performance incentives. Among these 19, one utility, We Energies, is in a state that provides performance incentives to be paid to the independent statewide third-party program administrator (Focus on Energy), not to the utility. We did not assign credit in this case. Four public power utilities in our set, LADWP, LIPA, CPS, and SRP, are in states that authorize incentives for IOUs but are not eligible themselves because they are not regulated the same as IOUs and do not have the same economic incentive structure. The remaining 32 utilities are eligible for earning incentives. Experience has shown that where such incentives are in place, utilities typically manage to earn them. It is extremely rare for any utility to miss its energy-saving targets to such an extent that it does not receive any incentive at all.

²⁰ See RAP 2016 for a full discussion of decoupling.

Scores

Utilities with full revenue decoupling in 2015 scored 1 point, and utilities with performance incentives in place scored 1 point. Table 38 shows the results.

Table 38. Scores for utility business model

Utility	Revenue decoupling (1=yes, 0=no)	Performance incentive (1=yes, 0=no)	Total points	Utility	Revenue decoupling (1=yes, 0=no)	Performance incentive (1=yes, 0=no)	Total points
ConEd	1	1	2	LADWP	1	0	1
Duke OH	1	1	2	LIPA	1	0	1
Eversource CT	1	1	2	MidAm IA	0	1	1
Eversource MA	1	1	2	OG&E	0	1	1
NG MA	1	1	2	OH Edison	0	1	1
NG NY	1	1	2	Oncor	0	1	1
Ohio Power	1	1	2	PGE	1	0	1
PG&E	1	1	2	Progress NC	0	1	1
SCE	1	1	2	PSE	1	0	1
SDG&E	1	1	2	SCE&G	0	1	1
Xcel MN	1	1	2	Xcel CO	0	1	1
AEP TC	0	1	1	AL Power	0	0	0
Ameren IL	0	1	1	CPS	0	0	0
Ameren MO	0	1	1	Dominion	0	0	0
APS	0	1	1	Duke FL	0	0	0
BGE	1	0	1	FP&L	0	0	0
CenterPoint	0	1	1	JCP&L	0	0	0
ComEd	0	1	1	NPC	0	0	0
Consumers	0	1	1	PacifiCorp UT	0	0	0
DTE	0	1	1	PECO	0	0	0
Duke IN	0	1	1	PPL	0	0	0
Duke NC	0	1	1	PSE&G	0	0	0
Duke SC	0	1	1	SRP	0	0	0
Entergy AR	0	1	1	We Energies	0	0	0
Entergy LA	0	1	1	West Penn	0	0	0
GA Power	0	1	1	Total	16	32	

EVALUATION, MEASUREMENT, AND VERIFICATION

Evaluation, measurement, and verification (EM&V) is another critical aspect of utility-sector energy efficiency programs. EM&V validates the energy and demand savings from the programs, estimates how many customers would have installed the measures with or without the program, and provides useful guidance on program performance and ways to improve. EM&V is a complex process involving sophisticated measurement and analysis of energy savings data. Since EM&V is not a standardized process across jurisdictions, the rigor of evaluation can vary by utility. For this metric, we focused on two important aspects of EM&V: the independence of the evaluation process and the estimation of net savings. While not yielding a complete picture of EM&V, a focus on these factors can lead to improved EM&V efforts.

Independence of EM&V involves freedom from influence during the evaluation process. A utility often conducts program evaluations in house or hires a third-party contractor to complete the work. For this metric, we considered an evaluation process to be independent only when another layer of review or participation existed beyond the utility staff or contractor. It could occur through direct oversight of the evaluation process (including oversight of the third-party contractor) from an outside group, such as a government agency or stakeholder group. For example, program evaluations are conducted by utilities in Maryland but are also verified by a consultant retained by the Maryland Public Service Commission.

To determine whether a utility's EM&V process was independent in 2015, we reviewed evaluation framework documents, public filings related to the evaluation process, technical resource manuals, and evaluation reports. We awarded 1 point for evidence of independence beyond a third-party contractor hired by a utility.

Estimation of net savings is important because it demonstrates energy savings directly attributable to a program. Several factors should be included in a net savings estimation, including free ridership, spillover, and market effects.²¹ Not all utilities account for all factors. Estimation of net savings is useful in modifying program design after understanding how a market responds, assessing market transformation over time, and evaluating resource options in a procurement planning process (Violette and Rathbun 2014). We awarded 1 point to utilities reporting net savings. We did not consider specific factors such as measurement of free ridership, spillover, or market effects. For states that assume net is equal to gross, we gave a point only if a study was completed in the past three years verifying that net equals gross savings.

Table 39 shows the scores for the independence of the evaluation process and net savings reporting.

²¹ A free rider is a program participant who would have implemented the program measure or practice even in the absence of the program. Spillover refers to reductions in energy consumption and/or demand caused by the presence of an energy efficiency program, beyond the program-related gross savings of the participants and without financial or technical assistance from the program. Market effects are changes in the structure or functioning of a market, or the behavior of participants in a market, that result from one or more program efforts (NEEP 2011).

Table 39. Scores for independence of EM&V and net savings calculations

Utility	EM&V oversight (1=yes, 0=no)	Net savings reported (1=yes, 0=no)	Total EM&V points	Utility	EM&V oversight (1=yes, 0=no)	Net savings reported (1=yes, 0=no)	Total EM&V points
Ameren IL	1	1	2	Dominion	0	1	1
Ameren MO	1	1	2	DTE	0	1	1
BGE	1	1	2	CPS	0	1	1
CenterPoint	1	1	2	Duke NC	0	1	1
ComEd	1	1	2	Entergy LA	0	1	1
ConEd	1	1	2	JCP&L	1		1
Duke IN	1	1	2	LADWP	0	1	1
Duke SC	1	1	2	LIPA	0	1	1
Entergy AR	1	1	2	NPC	0	1	1
Eversource CT	1	1	2	Progress NC	0	1	1
Eversource MA	1	1	2	PSE	1	0	1
NG MA	1	1	2	PSE&G	1		1
NG NY	1	1	2	Xcel CO	0	1	1
Oncor	1	1	2	Xcel MN	0	1	1
PacifiCorp UT	1	1	2	AEP OH	0	0	0
PECO	1	1	2	AL Power	0		0
PG&E	1	1	2	APS	0	0	0
PGE	1	1	2	Duke FL			0
PPL	1	1	2	Duke OH			0
SCE	1	1	2	FP&L	0	0	0
SCE&G	1	1	2	GA Power	0	0	0
SDG&E	1	1	2	MidAm IA	0	0	0
We Energies	1	1	2	OG&E			0
West Penn	1	1	2	OH Edison	0	0	0
AEP TC	1		1	SRP	0	0	0
Consumers	0	1	1	Total	28	36	

Blank cells indicate that no data were available.

Of the 51 utilities, 28 had established EM&V independent oversight in 2015. Thirty-six reported net savings, and 24 received points in both categories. Again, we awarded both of these points based on publicly available data. Some utilities, such as APS and SRP, calculate

net savings but do not report results publicly or have not updated the research within the past three years.

Areas for Future Research

There are several areas of utility operations and energy efficiency program implementation we did not include in this report. The primary reason for their exclusion is a lack of publicly available data. Many of the potential metrics would require significant levels of research to adequately score, and this research was beyond the scope of this report. However these are important metrics that should be reviewed in future research, and we may consider them in a future *Scorecard*.

COST-EFFECTIVENESS RESULTS

Most utility-sector energy efficiency program portfolios undergo cost-effectiveness screening during the planning and evaluation process. Many utilities still rely on traditional tests in the *California Standard Practice Manual*, with most states using the total resource cost (TRC) test as the primary metric. The National Efficiency Screening Project also plans to release a standard practice manual for screening tests in 2017 (NESP 2017). While we were able to gather relevant data on cost effectiveness for utilities in 2015, we did not use the results as a scoring metric. This is primarily because of the significant differences in assumptions used in the standard tests. For example, utilities often include different benefits, and the methodologies to estimate these benefits vary substantially.²² These tests also rely on present value calculations and use different discount rates. Due to these significant differences in assumptions and methodology, comparing these results among the utilities in our study would not have proved useful.

CUMULATIVE ENERGY SAVINGS

Cumulative energy savings, also known as annual or total annual savings, are the total energy savings in a given year from all programs and measures installed in that year *and* those installed in previous years that continue to save energy (i.e., have not yet reached the end of their useful life). Some measures save energy for decades, meaning the cumulative annual energy savings in 2015 could contain savings from programs put in place as far back as the mid-1990s. Some states, such as Arizona and Illinois, have utility-sector energy efficiency targets based on cumulative savings. While we did not include cumulative energy savings as a metric for this report due to a lack of data, we do consider it to be an important metric because it indicates energy savings from longer-lived measure and a longer history of program implementation.

DISTRIBUTION SYSTEM EFFICIENCY

End use energy efficiency is the primary focus of this report. However utilities also have significant opportunity to improve system efficiency at the distribution, generation, and transmission levels. On the distribution system, utilities can reduce line losses and install higher-efficiency transformers, such as amorphous core transformers. This type of improvement can greatly increase distribution system efficiency, reducing the need for

²² For more on these differences, see Baatz 2015 and Kushler, Nowak, and Witte 2012.

generation infrastructure. We did not consider distribution system efficiency as a metric in this report primarily due to data limitations in this area.

ELECTRIC VEHICLES

Utilities play an important role in the integration of electric vehicles into the distribution system. We examined a very limited set of metrics related to this role. Demand response programs targeted to electric vehicle owners to shift charging times and optimize grid operation can provide value to both the grid and vehicle owners without compromising transportation needs. Other aspects, such as utility investment in charging infrastructure and incentives provided by utilities for private investment in public charging infrastructure, are worth exploring.

ENERGY EFFICIENCY IN RESOURCE PLANNING

The majority of states require some form of utility resource planning. Some utilities owning generation assets use a process called integrated resource planning to determine the least-cost generation portfolio to meet future customer demand. Many states doing integrated resource planning do not evaluate demand and supply-side resources on a comparable basis. For example, many states include energy efficiency or demand response as a reduction in future needs based on predetermined savings targets. This approach is flawed because it does not allow energy efficiency to compete with other supply-side options on a cost basis and could lead to inefficient or suboptimal planning outcomes.

However some utilities do not own generation assets. These utilities do not conduct integrated resource planning but do project future load growth to determine needs in the distribution system. Some, such as ConEd in New York and PG&E in California, do consider energy efficiency as a resource option in distribution planning, but this practice is not widespread. The consideration of energy efficiency in distribution planning is an area of future research for ACEEE.

The inclusion of energy efficiency in distribution system and integrated resource planning is critical because energy efficiency is often a low-cost, clean energy resource with other positive attributes such as zero emissions, low risk to utilities, and lower customer bills. Excluding or not properly considering energy efficiency in system planning can lead to higher utility system costs because instead of investing in low-cost energy efficiency, utilities may invest in unnecessary and costly infrastructure. While we consider this area of study critically important, we did not collect information on the use of energy efficiency in system planning for this report. Because only a few utilities are currently engaged in these efforts, available data are limited, and the complexity of analysis necessary to properly evaluate this area is challenging.

HARD-TO-REACH SECTORS

Strong energy efficiency program portfolios will offer energy efficiency incentives to all customer segments. Program measures, incentives, and services can be designed in ways that make them accessible to particular customer groups. Some segments require more tailored approaches than others, such as renters, low-income households, and multifamily building owners. For these groups, varying responsibility for utility bills and varying access

to up-front capital often hinder participation in programs that are available for single-family and/or commercial buildings. Research suggests that these markets are often overlooked by utility programs and as a result have fewer energy efficiency upgrades (Drehobl and Ross 2016). Utility programs can accelerate energy savings in these sectors. In this edition of the *Scorecard*, we assessed utilities' performance regarding administration of low-income energy efficiency programs and will aim to assess other hard-to-reach sectors in future editions.

RESEARCH AND DEVELOPMENT

Utility research and development can be an indicator of future-oriented energy efficiency innovation, program and portfolio expansion, and market transformation efforts. Utilities fund internal research efforts but also provide financial support to, or collaborate in other ways with, outside organizations such as the Consortium for Energy Efficiency, Electric Power Research Institute, Department of Energy, national laboratories, and Edison Electric Institute.

We considered measuring research and development in conjunction with other metrics we scored, such as emerging areas and pilot programs, to emphasize innovative, future-focused efficiency. However this year we did not award points for R&D due to lack of data and inconsistency of available metrics. A possible measure for the future may be annual budgets or spending on R&D line items including emerging technologies, market development, program investigation, and demonstration.

Conclusion

The 2017 Utility Energy Efficiency Scorecard highlights a clear commitment to energy efficiency on the part of many utilities. The report also recognizes substantial opportunities to realize additional benefits by implementing more rigorous energy efficiency programs. Utilities show their commitment to energy efficiency by their actual performance and by including efficiency in future planning through pilot programs, emerging areas, and strong targets. The *Scorecard* can help them assess and improve their current efforts and continue to realize the many benefits of efficiency for their business, their customers, and their communities.

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AEP Texas Central. Robert Cavazos, energy efficiency and consumer programs manager, November 11, 2016.

Ameren Missouri. Tom Thompson, project management supervisor, November 18, 2016.

Arizona Public Service. Roger Krouse, account executive, November 17, 2016.

Baltimore Gas and Electric. Sheldon Switzer, manager of evaluation, measurement, and verification, November 4, 2016.

City of San Antonio. Rick Luna, senior manager of product development, November 15, 2016.

Commonwealth Edison. Rebecca McNish, energy efficiency services, November 21, 2016.

Connecticut Light and Power. Gentiana Darragjati, energy efficiency, November 29, 2016.

Consolidated Edison. Michael Harrington, manager of market research and analytics, November 7, 2016.

Duke Energy. Daniel Maddox, customer program performance, November 8, 2016.

- . Melissa Adams, manager of EE performance, November 8, 2016.
- Energy Trust of Oregon. Andrew Hudson, planning project manager, February 8, 2017.
- Entergy Arkansas, Inc. Richard Smith, operations, November 16, 2016.
- Eversource Energy. Lisa Shea, Manager, regulatory, planning, and support, November 29, 2016.
- Los Angeles Department of Water and Power (LADWP). Gretchen Hardison, efficiency solutions, December 13, 2016.
- Maryland Public Service Commission. Amanda Best, energy analysis and planning, July 12, 2016.
- National Grid. Joseph Dolengo, energy efficiency, November 29, 2016.
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- New Jersey Board of Public Utilities. Michael Winka, senior policy advisor NJBPU, February 10, 2017.
- New York State Energy Research and Development Authority. Allyson Burns, program manager for reporting and quality assurance, December 12, 2016.
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- Oklahoma Gas and Electric. Dean Pollock, manager of sales and customer support, December 2, 2016.
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- Oregon Housing Stabilization Division. Dan Elliott, senior energy policy analyst, March 1, 2016.
- Pacific Gas and Electric. Chris Kato, senior policy analyst for energy efficiency, February 2, 2017.
- . Meghan Dewey, manager of EE strategy and policy, December 6, 2016.
- Pacificorp. Michael Snow, manager of regulatory affairs, November 8, 2016.
- PECO. Maria Mancuso, senior business analyst of evaluation and measurement, November 10, 2016.
- PPL. Dirk Chiles, senior energy efficiency consultant, November 7, 2016.
- Puget Sound Energy. Jim Perich-Anderson, energy efficiency evaluation lead, December 2, 2016.

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Appendix B. Savings and Spending Data

Table B1. Savings data

Utility	Net incremental electric savings at meter (MWh)	Net incremental electric savings at generator (MWh)	Gross incremental electric savings at generator (MWh)	Net coincident peak savings at generator (MW)	Net lifetime electric savings at generator (MWh)	Weighted average useful life (years)
AEP OH	440,526	466,958	571,552	58.63	5,743,583	12.30
AEP TC	56,351	59,732	70,190	38.53	686,919	11.50
AL Power	10,422	11,048	13,522	7.19	124,040	11.23
Ameren IL ^a	282,577	299,532	363,201	45.61	3,444,614	11.50
Ameren MO	373,652	400,266	489,921	56.27	5,283,509	13.20
APS	419,737	451,330	552,424	91.42	4,462,320	9.89
BGE	389,712	414,587	514,986	180.39	3,327,979	8.03
CenterPoint	145,785	154,532	187,995	40.79	1,777,114	11.50
ComEd ^a	1,207,780	1,221,090	1,606,127	152.25	14,042,536	11.50
ConEd ^a	390,201	413,613	506,258	41.38	4,549,743	11.00
Consumers	265,511	282,459	313,843	41.40	5,120,863	18.13
CPS	98,458	104,831	128,313	24.92	1,205,560	11.50
Dominion	83,383	88,386	115,256	16.56	1,375,284	15.56
DTE	576,853	611,464	677,748	86.24	7,361,222	12.04
Duke FL	54,496	57,182	69,990	56.74	618,809	10.82
Duke IN	103,214	111,498	136,472	16.60	835,501	7.49
Duke NC	445,364	473,792	527,122	96.78	3,201,776	6.76
Duke OH	124,962	134,080	164,112	20.10	1,374,315	10.25
Duke SC	164,681	175,192	194,963	32.21	1,183,911	6.76
Entergy AR	231,240	247,603	303,064	45.52	2,806,752	11.34
Entergy LA	24,262	25,811	31,592	4.96	296,824	11.50
Eversource CT	334,298	357,699	437,820	177.78	3,664,003	10.24
Eversource MA	730,728	789,186	965,956	119.69	10,290,989	13.04
FP&L	114,523	121,527	148,748	70.26	1,397,559	11.50
GA Power	290,719	309,275	378,550	73.05	1,142,266	3.69
JCP&L ^a	98,801	105,107	128,650.523	18.33	1,347,088	12.82
LADWP	242,142	256,671	314,162	33.80	4,163,480	16.22
LIPA	275,018	292,572	358,105	53.83	3,364,578	11.50
MidAm IA	253,714	268,937	329,176	72.42	3,092,778	11.50

Utility	Net incremental electric savings at meter (MWh)	Net incremental electric savings at generator (MWh)	Gross incremental electric savings at generator (MWh)	Net coincident peak savings at generator (MW)	Net lifetime electric savings at generator (MWh)	Weighted average useful life (years)
NG MA	639,061	679,852	832,132	97.75	7,551,948	11.11
NG NY ^a	458,201	485,693	594,483	78.39	3,267,073	6.72
NPC	135,758	144,424	176,773	49.33	1,567,243	10.85
OG&E	83,616	90,105	98,499	27.22	1,202,748	13.35
OH Edison	90,489	95,918	117,403	23.43	1,183,596	13.08
Oncor	140,091	149,411	174,979	46.67	2,415,614	16.17
PacifiCorp UT	233,594	254,152	311,065	60.52	2,236,542	8.80
PECO	197,925	214,205	307,626	33.70	2,083,050	9.72
PG&E	1,276,755	1,378,895	1,503,880	293.89	28,170,831	20.43
PGE ^a	262,677	279,444	342,037	-	3,758,522	13.45
PPL	154,972	166,724	233,843	19.36	1,914,909	11.49
Progress NC	324,148	341,568	421,134	90.43	2,000,961	5.86
PSE	230,853	247,013	302,341	47.82	2,840,648	11.50
PSE&G ^a	216,779	229,786	282,272	43.13	3,108,893	13.53
SCE	1,172,705	1,247,559	1,527,000	250.92	14,458,872	5.51
SCE&G	81,293	86,171	110,106	19.24	990,962	11.50
SDG&E	270,417	286,642	350,847	61.29	3,197,283	11.15
SRP	405,225	430,152	526,502	102.45	3,505,740	8.15
We Energies ^a	214,731	231,910	278,930	30.54	2,865,638	12.36
West Penn	98,636	107,799	155,026	16.17	819,848	7.61
Xcel CO	405,557	429,891	367,453	72.40	6,147,436	14.30
Xcel MN	379,423	408,822	500,394	94.43	4,701,447	11.50

^a Includes savings separately allocated from a third-party program administrator

Table B2. Energy efficiency spending data

Utility	Total EE program costs (w/o performance incentives)	Performance incentive costs	Total costs w/ performance incentives
AEP OH	\$65,147,500		\$65,147,500
AEP TC	\$11,938,140	\$3,461,676	\$15,399,816
AL Power	\$4,604,000		\$4,604,000

Utility	Total EE program costs (w/o performance incentives)	Performance incentive costs	Total costs w/ performance incentives
Ameren IL ^a	\$70,859,975		\$70,859,975
Ameren MO	\$57,966,586		\$57,966,586
APS	\$60,858,598	\$5,275,737	\$66,134,335
BGE	\$128,136,247		\$128,136,247
CenterPoint	\$31,170,821		\$31,170,821
ComEd ^a	\$200,046,576		\$200,046,576
ConEd ^a	\$88,183,860		\$88,183,860
Consumers	\$76,173,581	\$11,430,000	\$87,603,581
CPS	\$41,570,977		\$41,570,977
Dominion	\$30,974,000		\$30,974,000
DTE	\$87,100,000	\$13,100,000	\$100,200,000
Duke FL	\$102,075,000		\$102,075,000
Duke IN	\$16,217,555	\$1,289,663	\$17,507,218
Duke NC	\$57,215,195	\$14,371,457	\$71,586,652
Duke OH	\$31,349,457		\$31,349,457
Duke SC	\$21,101,463	\$5,613,883	\$26,715,346
Entergy AR	\$57,363,047	\$3,501,607	\$60,864,654
Entergy LA	\$5,817,801		\$5,817,801
Eversource CT	\$137,349,914	\$8,197,855	\$145,547,769
Eversource MA	\$247,986,302	\$17,178,762	\$265,165,064
FP&L	\$124,170,000		\$124,170,000
GA Power	\$52,646,946		\$52,646,946
JCP&L ^a	\$26,695,217		\$26,695,217
LADWP	\$78,571,738		\$78,571,738
LIPA	\$70,522,236		\$70,522,236
MidAm IA	\$62,826,095		\$62,826,095
NG MA	\$265,921,470	\$15,839,602	\$281,761,072
NG NY ^a	\$68,925,330		\$68,925,330
NPC	\$29,711,462		\$29,711,462
OG&E	\$20,678,194	\$10,217,912	\$30,896,106
OH Edison	\$10,745,204		\$10,745,204
Oncor	\$45,762,090	\$9,892,232	\$55,654,322

Utility	Total EE program costs (w/o performance incentives)	Performance incentive costs	Total costs w/ performance incentives
PacifiCorp UT	\$56,148,289		\$56,148,289
PECO	\$80,824,678		\$80,824,678
PG&E	\$436,566,260	\$24,600,000	\$461,166,260
PGE ^a	\$75,586,384		\$75,586,384
PPL	\$58,754,000		\$58,754,000
Progress NC	\$54,010,229	\$14,144,034	\$68,154,263
PSE	\$93,197,600		\$93,197,600
PSE&G ^a	\$75,798,240		\$75,798,240
SCE	\$315,480,547	\$22,540,000	\$338,020,547
SCE&G	\$12,680,376		\$12,680,376
SDG&E	\$113,966,172		\$113,966,172
SRP	\$35,380,022		\$35,380,022
We Energies ^a	\$54,636,478		\$54,636,478
West Penn	\$16,811,940		\$16,811,940
Xcel CO	\$74,705,455	\$11,064,703	\$85,770,158
Xcel MN	\$84,647,297	\$30,390,967	\$115,038,264

^a Includes spending separately allocated from a third-party program administrator

Table B3 shows whether each utility's data were originally reported as net or gross and at the meter or generator level, or what we assumed if this information was not available. The table also shows the NTGR and line loss factor used to adjust each utility's data as necessary. For utilities where a NTGR was not available, we utilized a NTGR of 81.7% to adjust figures as necessary. This is the same adjustment used in the ACEEE 2016 *State Energy Efficiency Scorecard* and is the median NTGR calculated from states that reported both net and gross savings for the *State Scorecard*. The derivation of this factor is further explained there (Berg et al. 2016).

Table B3. Utility NTGR and line loss factor data

Utility	Data originally reported as net/gross	Data originally reported at meter/generator	NTG ratio	Line loss factor
AEP OH	Gross	Meter	0.817	0.060
AEP TC	Gross	Meter	0.851	0.060
AL Power	Gross	Meter	0.817	0.060
Ameren IL	Gross	Meter	0.817	0.060
Ameren MO	Gross	Meter	0.817	0.071
APS ^a	Both	Generator	0.817	0.070
BGE	Both	Generator	0.805	0.060
CenterPoint	Gross	Meter	0.822	0.060
ComEd	Both	Meter	0.760	0.011
ConEd	Net	Meter	0.817	0.060
Consumers	Net	Generator	0.900	0.060
CPS	Net	Generator	0.817	0.061
Dominion	Both	Meter	0.767	0.060
DTE	Both	Meter	0.902	0.060
Duke FL	Gross	Both	0.817	0.047
Duke IN	Gross	Both	0.817	0.074
Duke NC	Net	Generator	0.817	0.060
Duke OH	Gross	Generator	0.817	0.068
Duke SC	Net	Generator	0.817	0.060
Entergy AR	Net	Meter	0.817	0.071
Entergy LA	Net	Generator	0.817	0.060
Eversource CT	Net	Meter	0.817	0.070
Eversource MA	Net	Meter	0.817	0.080
FP&L	Gross	Both	0.817	0.058
GA Power	Gross	Generator	0.817	0.060
JCP&L	Gross	Generator	0.817	0.060
LADWP	Gross	Meter	0.817	0.060
LIPA	Net	Generator	0.817	0.060
MidAm IA	Gross	Meter	0.817	0.060
NG MA	Net	Generator	0.817	0.060
NG NY	Net	Meter	0.817	0.060

Utility	Data originally reported as net/gross	Data originally reported at meter/generator	NTG ratio	Line loss factor
NPC	Gross	Generator	0.817	0.060
OG&E	Both	Meter	0.915	0.078
OH Edison	Gross	Meter	0.817	0.060
Oncor	Gross	Meter	0.854	0.067
PacifiCorp UT	Both	Both	0.817	0.091
PECO	Both	Generator	0.696	0.076
PG&E	Gross	Meter	0.850	0.080
PGE	Net	Generator	0.817	0.060
PPL	Both	Meter	0.713	0.076
Progress NC	Net	Generator	0.817	0.051
PSE	Gross	Meter	0.817	0.070
PSE&G	Gross	Generator	0.817	0.060
SCE	Gross	Generator	0.817	0.060
SCE&G	Both	Meter	0.783	0.060
SDG&E	Gross	Meter	0.817	0.060
SRP ^a	Gross	Generator	0.817	0.058
We Energies	Gross	Meter	0.817	0.080
West Penn	Both	Generator	0.695	0.085
Xcel CO	Both	Meter	0.855	0.060
Xcel MN	Gross	Generator	0.817	0.072

^a SRP and APS report a NTGR of 100%, but we were unable to confirm these values using recently evaluated public information and so applied the 81.7% NTGR for their savings.

Appendix C. Program Diversity Data

Table C1. Residential program types by utility

Utility	Home appliances	Appliance recycling	HVAC	Water heating	Home retrofit	Lighting	Behavior	Multifamily	New construction	Education/kits	Total residential
AEP OH	X	X		X	X	X	X	X	X	X	9
AEP TC			X						X		2
AL Power											0
Ameren IL		X	X		X	X	X	X	X	X	8
Ameren MO		X	X			X			X		4
APS		X	X		X	X	X	X	X		7
BGE	X	X	X		X	X	X	X	X		8
CenterPoint			X		X	X		X	X	X	6
ComEd	X	X	X		X	X	X	X	X	X	9
ConEd		X	X		X	X		X	X		6
Consumers	X	X	X	X	X	X	X	X	X		9
CPS		X	X	X	X	X			X		6
Dominion		X	X								2
DTE	X		X		X		X	X		X	6
Duke FL			X								1
Duke IN		X				X	X	X		X	5
Duke NC	X	X	X				X	X		X	6
Duke OH		X			X		X	X		X	5
Duke SC	X	X	X				X	X		X	6
Entergy AR	X		X		X	X	X	X	X		7
Entergy LA	X					X					2
Eversource CT	X		X	X	X	X	X	X	X	X	9
Eversource MA	X	X	X	X	X	X	X	X	X	X	10
FPL			X		X				X		3
GA Power	X	X			X	X			X		5
JCP&L	X	X	X		X	X		X	X		7
LADWP	X	X	X	X	X	X			X		7
LIPA	X				X	X		X	X		5

Utility	Home appliances	Appliance recycling	HVAC	Water heating	Home retrofit	Lighting	Behavior	Multifamily	New construction	Education/kits	Total residential
MidAm IA	X	X	X			X	X			X	6
NG MA	X	X	X	X	X	X	X	X	X	X	10
NG NY	X	X	X	X	X	X		X	X		8
NPC		X	X			X	X				4
OG&E	X		X			X					3
OH Edison	X	X	X		X	X	X				6
Oncor	X		X		X						3
PacifiCorp UT	X	X	X	X	X		X		X		7
PECO	X	X	X				X	X	X	X	7
PG&E	X	X	X	X	X	X	X	X	X		9
PGE	X	X	X	X	X	X		X	X	X	9
PPL	X	X		X	X	X	X	X	X	X	9
Progress NC		X			X	X	X	X	X	X	7
PSE	X		X	X	X	X	X	X	X		8
PSE&G	X	X	X		X	X		X	X		6
SCE	X	X	X	X	X	X	X	X	X	X	10
SCE&G		X	X			X	X		X		5
SDG&E	X	X	X		X	X		X	X		7
SRP		X	X		X	X	X	X	X	X	8
We Energies	X	X	X	X	X	X		X	X	X	9
West Penn		X			X		X		X	X	5
Xcel CO		X	X	X	X	X	X		X	X	8
Xcel MN		X	X		X	X	X		X	X	7
Total	30	38	41	16	37	38	30	32	37	23	322

In states with statewide program administrators, we counted program types offered by administrators for the utilities in that state.

Table C2: Commercial and industrial program types by utility

Utility	Lighting	Lighting systems/controls	HVAC	Efficient motors	Small business	Strategic energy mgmt.	Combined heat and power	Agriculture programs	Retrocommissioning	Industrial custom	Kitchens/restaurants	Whole-building retrofit	Total C&I	Total all sectors
AEP OH					X	X	X		X	X			5	14
AEP TC			X		X								2	4
AL Power													0	0
Ameren IL	X								X	X			3	11
Ameren MO									X	X			2	6
APS	X	X	X	X	X					X			6	13
BGE	X	X			X		X		X	X			6	14
CenterPoint					X				X				2	8
ComEd	X		X		X		X		X	X	X		7	16
ConEd					X		X			X			3	9
Consumers					X	X		X	X			X	5	14
CPS	X		X							X			3	9
Dominion	X		X						X				2	4
DTE		X								X			2	8
Duke FL						X				X			2	3
Duke IN					X					X			2	7
Duke NC	X		X		X	X				X	X		6	12
Duke OH	X	X	X	X	X					X			6	11
Duke SC	X		X		X					X	X		5	11
Entergy AR					X			X		X			3	10
Entergy LA	X	X	X	X	X					X	X		7	9
Eversource CT	X	X	X	X	X	X	X		X	X	X	X	11	20
Eversource MA	X	X	X	X	X	X	X		X	X	X	X	11	21
FPL	X		X							X			3	6
GA Power						X				X			2	7
JCP&L					X		X			X		X	4	11
LADWP	X				X				X	X			4	11
LIPA	X		X	X	X								4	9

Utility	Lighting	Lighting systems/controls	HVAC	Efficient motors	Small business	Strategic energy mgmt.	Combined heat and power	Agriculture programs	Retrocommissioning	Industrial custom	Kitchens/restaurants	Whole-building retrofit	Total C&I	Total all sectors
MidAm IA	X		X	X				X		X		X	6	12
NG MA	X	X	X	X	X	X	X		X	X	X	X	11	21
NG NY	X	X			X		X	X		X			6	14
NPC	X	X	X	X	X								5	9
OG&E	X				X					X			3	6
OH Edison	X			X	X								3	9
Oncor	X		X	X	X					X			5	8
PacifiCorp UT	X		X	X	X	X		X			X		7	14
PECO	X					X	X			X			4	11
PG&E	X	X	X	X	X	X	X	X	X	X	X	X	12	21
PGE	X	X	X	X		X		X		X	X	X	9	18
PPL	X	X	X		X	X	X			X			7	16
Progress NC	X				X								2	9
PSE						X	X					X	3	11
PSE&G					X		X			X		X	4	10
SCE	X	X	X		X	X		X	X	X	X	X	10	20
SCE&G	X	X	X	X	X	X			X	X	X	X	10	15
SDG&E	X	X	X		X	X	X	X	X	X			9	16
SRP	X	X	X	X	X			X	X	X	X		9	17
We Energies	X	X	X	X	X	X		X		X	X	X	10	19
West Penn	X				X				X	X			4	9
Xcel CO	X		X	X	X	X			X	X			7	15
Xcel MN	X		X	X	X	X			X	X	X		8	15
Total	36	18	28	19	38	20	15	11	19	40	15	13	272	594

In states with statewide program administrators, we counted program types offered by administrators for the utilities in that state.

Appendix D. Emerging Areas Data

Table D1. Emerging areas by utility

Utility	Advanced space-heating heat pumps	Commercial and industrial geotargeting	Conservation voltage reduction (CVR)/Volt/VAR optimization (VVO)	Heat pump water heaters	High-efficiency ceiling fans	High-efficiency consumer electronics	High-efficiency residential clothes dryers	Midstream programs	Programs to reduce plug and other miscellaneous loads in commercial	Providing energy use feedback to consumers in real time	HVAC Installation	Residential geotargeting	Residential learning thermostats	Upstream programs	Zero net energy buildings	Total
AEP OH			X	X	X	X							X			5
AEP TC																0
AL Power																0
Ameren IL					X	X										2
Ameren MO				X										X		2
APS			X			X					X			X		4
BGE			X	X			X	X	X	X	X		X	X		9
CenterPoint								X					X			2
ComEd			X		X	X		X					X			5
ConEd				X									X			2
Consumers					X								X	X		3
CPS				X									X			2
Dominion									X							1
DTE						X		X		X				X		4
Duke FL				X									X			2
Duke IN			X													1
Duke NC				X				X					X			3
Duke OH				1									X			2
Duke SC				X				X								2
Entergy AR			X		X	X	X	X		X			X	X		8
Entergy LA			X	X		X	X			X	X			X		7

Utility	Advanced space-heating heat pumps	Commercial and industrial geotargeting	Conservation voltage reduction (CVR)/Volt/VAR optimization (VVO)	Heat pump water heaters	High-efficiency ceiling fans	High-efficiency consumer electronics	High-efficiency residential clothes dryers	Midstream programs	Programs to reduce plug and other miscellaneous loads in commercial	Providing energy use feedback to consumers in real time	HVAC Installation	Residential geotargeting	Residential learning thermostats	Upstream programs	Zero net energy buildings	Total
Eversource CT	X	X		X			X	X	X	X	X		X	X	X	11
Eversource MA	X			X		X	X	X		X	X		X	X	X	10
FP&L													X			1
GA Power																0
JCP&L						X	X									2
LADWP						X			X						X	3
LIPA					X		X									2
MidAm IA										X	X			X		3
NG MA	X			X		X	X			X	X		X	X	X	9
NG NY			X											X		2
NPC													X	X		2
OG&E			X		X								X			3
OH Edison			X													1
Oncor					X											1
PacifiCorp UT				X		X		X			X		X	X		6
PECO							X							X		2
PG&E		X	X	X		X	X	X	X	X	X	X		X	X	12
PGE				X		X	X		X				X	X	X	7
PPL				X					X	X				X		4
Progress NC				X							X					2
PSE			X	X		X	X			X	X		X			7
PSE&G						X	X									2
SCE		X	X	X		X		X	X		X			X	X	9
SCE&G				X												1

Utility	Advanced space-heating heat pumps	Commercial and industrial geotargeting	Conservation voltage reduction (CVR)/Volt/VAR optimization (VVO)	Heat pump water heaters	High-efficiency ceiling fans	High-efficiency consumer electronics	High-efficiency residential clothes dryers	Midstream programs	Programs to reduce plug and other miscellaneous loads in commercial	Providing energy use feedback to consumers in real time	HVAC Installation	Residential geotargeting	Residential learning thermostats	Upstream programs	Zero net energy buildings	Total
SDG&E			X			X		X	X	X	X		X	X	X	9
SRP											X			X		2
We Energies				X		X	X	X		X			X	X		7
West Penn				X		X		X						X		4
Xcel CO				X				X			X		X	X		5
Xcel MN								X			X	X	X	X		5
Total	3	3	14	24	8	20	14	17	9	13	16	2	24	25	8	200

In states with statewide program administrators, we counted program types offered by administrators for the utilities in that state.

Appendix E. Pilot Programs

Table E1. Pilot programs data

Utility	Pilot program names
AEP OH	Advanced Lighting Controls, EMotor Rewind, Multi-Family, Energy Code Support, Energy ABCs (Auditing, Benchmarking, and Capturing Savings), Energy Efficiency Advisor, Intelligent Prospecting (commercial analytics)
AEP TC	Efficiency Connection Pilot MTP
AL Power	
Ameren IL	Business Large C&I, Voltage Optimization
Ameren MO	
APS	Residential Prepaid Energy Conservation, Home Energy Information (HEI)
BG&E	PeakRewards Wi-Fi, BGE Cool Savings, Small Business Behavioral Report (SBBR)
CenterPoint	Data Centers, Pool Pump
ComEd	Small Commercial and Industrial Behavioral EnergyCheck Pilot, LED Street Lighting, Operational Opportunities, Staples Energy Refrigeration for Small Business, Wildan Schools, Green per Square Foot, Grocery RCx, First Fuel, Strategic Energy Management, BERT Plug Load Controller, EcoFactor Smart Thermostat
ConEd	
Consumers	
CPS	Nest Rush Hour Rewards, ThinkEco Room Air Conditioner
Dominion	
DTE	Retro-Commissioning, First Fuel, Midstream Lighting, SMB Online Behavior, Home Energy Report (HER), DTE Insight (mobile app), Behavioral Demand Response
Duke FL	
Duke IN	
Duke NC	Save-a-Watt, Smart Energy Now, Business Energy Report
Duke OH	Low-Income People Working Cooperatively, Weatherization
Duke SC	Residential Retrofit Pilot
Entergy AR	Residential Benchmarking
Entergy LA	
Eversource CT	Clean Energy Communities/Behavior, Energize CT Smart Thermostat, CT Clean Trades
Eversource MA	
FP&L	
GA Power	Lighting Markdown, Distributor Lighting Markdown
JCP&L	
LADWP	RCx Express, Smart Grid Regional Demonstration Program

Utility	Pilot program names
LIPA	
MidAm IA	City of Urbandale Residential Assessment, Neighborhood Outreach, Small Business Lighting, Expanded New Construction, Manufactured Housing Weatherization
NG MA	Heat Pump Dryer Technical Demo, Wi-fi Thermostat Technical Demo, Smart Energy Solutions
NG NY	
NPC	
OG&E	
OH Edison	
Oncor	2015 Residential Demand Response Pilot MTP
PacifiCorp UT	
PECO	
PG&E	Retail Products Platform (RPP), HVAC “Upstream” Distributor Incentive and Code Compliance, TDSM Pilots, financing pilots, Step Up & Power Down, Zero Energy Pilot for Local Educational Agencies and Community Colleges
PGE	Variable Refrigerant Flow (VRF), Cadet Energy Plus Heaters, Advanced Power Strips (APS), Heat Pumps in Existing Manufactured Homes, Path to Net Zero, Mpower Oregon (on-bill repayment pilot), Ductless Heat Pumps (DHP) (multifamily), Prescriptive Air Sealing with Attic Insulation, Nest Thermostat–Heat Pump
PPL	Fuel Switching
Progress NC	
PSE	Residential Pilot: HER Expansion, Business Pilot: Business Energy Reports
PSE&G	
SCE	Financing pilots, Local Government Strategic Planning, IDSM Food Processing, Preferred Resources, Home EE Survey (HEES) Enhancement, Energy Pledge, 10-10-10+ Multi-family Behavior, Advanced Lighting Control Systems, Sustainability Circles, Prop 39 ZNE, Energy Upgrade California Multifamily, Midstream Lighting
SCE&G	
SDG&E	Prop 39 Zero Net Energy (ZNE) Schools, financing pilots, Green Business Network (GBN), Tubular LED
SRP	Multifamily Energy Efficiency
We Energies	Seasonal Savings, Smart Thermostat, Retail Products Platform, On Demand Savings, Manufactured Homes
West Penn	
Xcel CO	Energy Feedback, Multifamily Buildings, Smart Thermostat, Smart Building DR
Xcel MN	Energy Information Systems, Business Feedback, Smart Thermostat, ENERGY STAR Retail Products Platform

Appendix F. Electric Vehicle Data

Table F1. Electric vehicle data

Utility	Promotion of charging rate (1=yes, 0=no)	Rate type	EV-specific rate (1=yes, 0=no)
AEP OH	0		0
AEP TC	0		0
AL Power	1	PEV off-peak rider	1
Ameren IL	1	Real-time pricing	0
Ameren MO	0		0
APS	1	EV time-of-use plan	1
BGE	1	Schedule EV TOU	1
CenterPoint	0		0
ComEd	1	Real-time pricing	0
ConEd	1	TOU	0
Consumers	1	EV TOU	1
CPS	0		0
Dominion	0		0
DTE	1	TOU, flat rate	1
Duke FL	0		0
Duke IN	0		0
Duke NC	0		0
Duke OH	0		0
Duke SC	0		0
Entergy AR	0		0
Entergy GS	0		0
Entergy LA	0		0
Eversource CT	0		0
Eversource MA	0		0
FLP	0		0
GA Power	1	PEV TOU	1
JCP&L	0		0
LADWP	0	Off-peak discount	1
LIPA	0		0
MidAm IA	1	TOU	0

Utility	Promotion of charging rate (1=yes, 0=no)	Rate type	EV-specific rate (1=yes, 0=no)
NG MA	0		0
NG NY	0		0
NPC	1	EV TOU	1
OG&E	1	Smart hours TOU	0
OH Edison	0		0
Oncor	0		0
PacifiCorp UT	0		0
PECO	0		0
PG&E	1	EV TOU	1
PGE	0	Separate meter TOU	1
PPL	0		0
Progress NC	0		0
PSE	0		0
PSE&G	1	TOU	0
SCE	1	EV TOU	1
SCE&G	1		0
SDG&E	1	EV TOU	1
SRP	1	EV TOU	1
We Energies	1	TOU	0
West Penn	0		0
Xcel CO	0		0
Xcel MN	1	EV rate plan	1

Appendix G. Evaluation, Measurement, and Verification Data

Table G1. EM&V data

Utility	Oversight organization	Outside oversight (1=yes, 0=no)	Net savings reported (1=yes, 0=no)	Net savings factors included
AEP OH	Utility	0	0	
AEP TC	Third-party evaluation team retained by PUCT	1		
AL Power	Utility	0		
Ameren IL	Working group	1	1	Free riders, spillover
Ameren MO	Ameren MO Evaluation Team	1	1	Free riders, spillover
APS		0	0	
BGE	Utility, but PSC contractor also oversees evaluations	1	1	Free riders, spillover
CenterPoint	Third-party evaluation team retained by PUCT	1	1	Free riders, spillover
ComEd	Working group	1	1	Free riders, spillover
ConEd	Evaluation advisory group	1	1	Free riders, spillover
Consumers	Utility	0	1	Free riders, spillover
CPS	Utility	0	1	Free riders, spillover
Dominion	Utility	0	1	Free drivers, free riders, standards
DTE	Utility	0	1	Free riders, spillover
Duke FL				
Duke IN	Utility but with review from stakeholder oversight board	1	1	Free riders, spillover
Duke NC	Utility	0	1	Free riders, spillover
Duke OH				
Duke SC	Utility but with review from Office of Regulatory Staff	1	1	Free riders, spillover
Entergy AR	State-hired evaluator	1	1	Free drivers, free riders, standards
Entergy LA	Utility	0	1	Free riders
Eversource CT	Energy Efficiency Board	1	1	
Eversource MA	Massachusetts Energy Efficiency Advisory Council	1	1	Free riders, spillover, market effects
FP&L		0	0	
GA Power	Utility	0	0	

Utility	Oversight organization	Outside oversight (1=yes, 0=no)	Net savings reported (1=yes, 0=no)	Net savings factors included
JCP&L	Oversight from several groups including the Office of Clean Energy and Board of Public Utilities	1		
LADWP	Utility	0	1	
LIPA	Utility	0	1	Free riders, spillover
MidAm IA	Utility	0	0	
NG MA	Massachusetts Energy Efficiency Advisory Council	1	1	Free riders, spillover, market effects
NG NY	Evaluation Advisory Group	1	1	Free riders, spillover
NPC	Utility	0	1	Free riders, spillover
OG&E				
OH Edison	Utility	0	0	
Oncor	Third-party evaluation team retained by PUCT	1	1	Free riders, spillover
PacifiCorp UT	DSM Advisory Group	1	1	Free riders, spillover, secondary market effects, induced replacement
PECO	Statewide evaluation team	1	1	Free riders, spillover, market effects
PG&E	CPUC	1	1	Free riders, spillover, market effects
PGE	Energy Trust of Oregon	1	1	Common practice baseline
PPL	Statewide evaluation team	1	1	Free riders, spillover, market effects
Progress NC	Utility	0	1	Free riders, spillover
PSE	NWPCC	1	0	
PSE&G	Oversight from several groups including the Office of Clean Energy and Board of Public Utilities	1		
SCE	CPUC	1	1	Free riders, spillover, market effects
SCE&G	Utility but with review from Office of Regulatory Staff	1	1	Free riders, spillover
SDG&E	CPUC	1	1	Free riders, spillover, market effects
SRP	Utility	0	0	

Utility	Oversight organization	Outside oversight (1=yes, 0=no)	Net savings reported (1=yes, 0=no)	Net savings factors included
We Energies	Focus on Energy	1	1	Standard market practice
West Penn	Statewide evaluation team	1	1	Free riders, spillover, market effects
Xcel CO	Utility	0	1	Free riders, spillover
Xcel MN	Utility	0	1	Free riders, spillover