Building resilient custom C&I programs

Part of the Next Generation of Energy Savings project

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November 14, 2017

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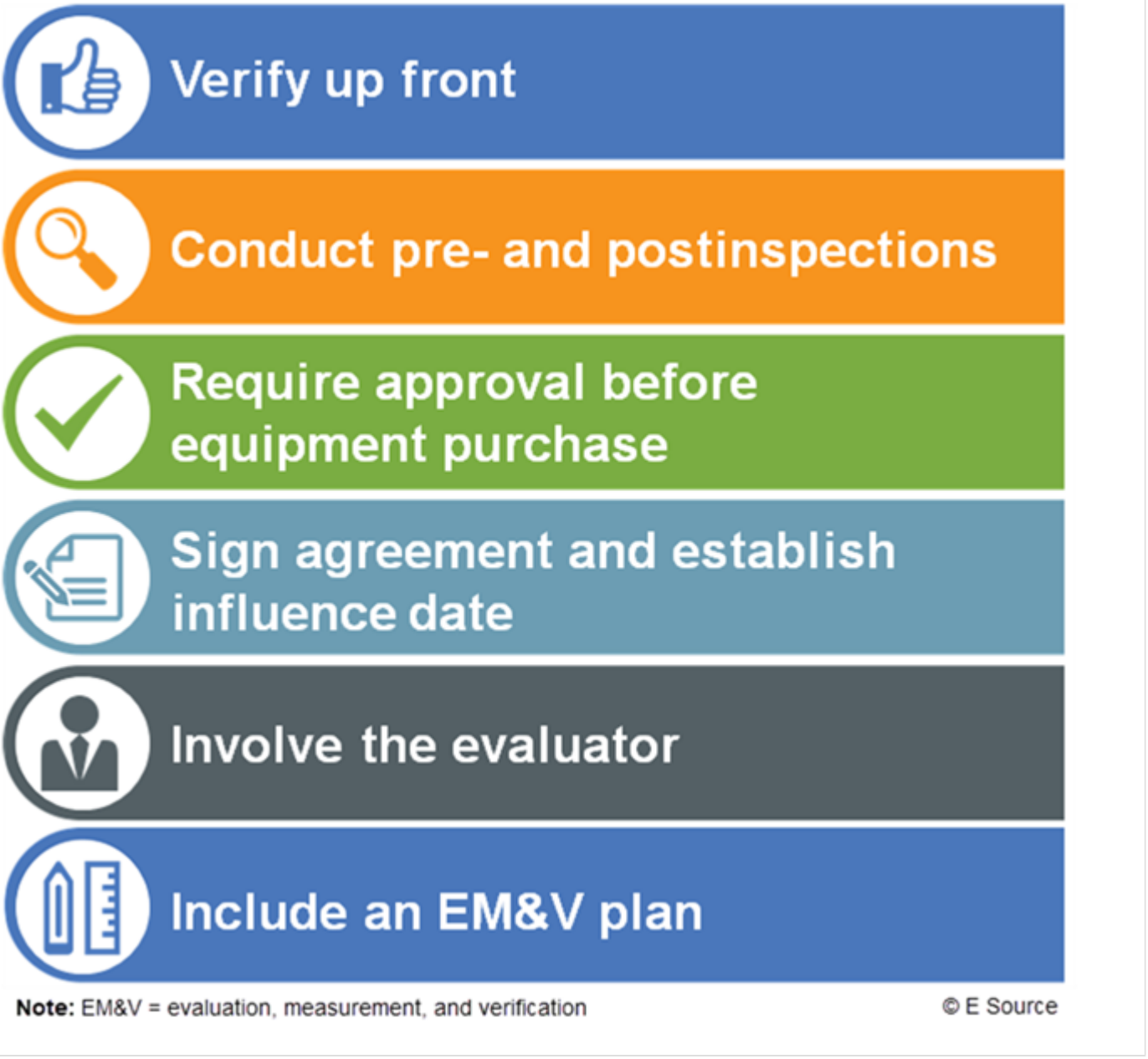
As lighting savings become less certain, one way to achieve the next generation of savings is to go beyond equipment replacement and focus on whole-building, customized approaches tailored to specific commercial and industrial (C&I) customers. This report—the first in our series on the "Next Generation of Energy Savings"—offers six best practices in custom C&I program design to increase realized savings and maximize program value (**Figure 1**).

Figure 1: Custom commercial and industrial program best practices

Follow these six steps to realize your utility's project savings potential.



We spoke to program managers at utilities with some of the highest custom C&I program net-to-gross (NTG) ratios: DTE Energy, Entergy Arkansas, and Xcel Energy. We identified these companies after analyzing NTG data in E Source DSM Insights, our tool containing data on demand-side management (DSM) program goals, budgets, spending, and savings from DSM regulatory filings. If a program achieves close to a 1.0 NTG ratio, it's more likely to generate the full energy savings that the utility planned for.

Top Utility Programs Based on NTG Ratios

Our DSM Insights data from 2014 to 2016 demonstrates that NTG values for custom C&I programs range from 0.58 to 1.0, with an average of 0.75. **Table 1** shows the top nine utility custom C&I programs with NTG ratios at or above 0.90.

Table 1: Top nine utility custom programs with high net-to-gross ratios

According to 2014–2016 data from the E Source DSM Insights tool, nine utility programs have an NTG value between 0.58 and 1.0. If a program achieves close to a 1.0 NTG ratio, it's more likely to generate the full energy savings that the utility planned for.

Administrator	Program name	Net-to-gross value	Program year
DTE Energy	C&I Self-Direct	1.0	2016
Xcel Energy CO	Custom Efficiency	0.93 (therms)	2014
Entergy Arkansas	C&I Custom Solutions	0.93, 0.92	2015, 2016
Indiana Michigan Power	C&I Custom	0.93	2015
Xcel Energy CO	Self-Directed Custom Efficiency	0.91	2014
Xcel Energy CO	Process Efficiency	0.90	2014
Alectra Utilities (formerly Enersource)	Energy Manager	0.90	2014
PowerStream	Energy Manager	0.90	2014
Toronto Hydro	Energy Manager	0.90	2014

Notes: C&I = commercial and industrial.

C&I Program Design Best Practices

These six best practices can help you design C&I programs that deliver consistent savings and maximize program savings potential.

Verify Up Front

Before implementing the project, the contractor, in-house engineers, and third parties should verify estimated savings and existing equipment. DTE Energy performs its own engineering calculations to verify the customer's energy-savings calculations. If the calculations yield a large enough incentive, DTE will ask an implementation contractor or a headquarters engineer to further evaluate the numbers. For very large applications, the utility sometimes brings in a third-party evaluation, measurement, and verification (EM&V) contractor. Distinct from the evaluation contractor who focuses on project results, this contractor provides verification up front to increase the accuracy of savings projections and therefore increase the potential for a high NTG ratio.

Conduct Pre- and Postinspections

Complete a pre- and postinspection of the customer facility to identify all efficiency opportunities and inventory the customer's equipment. The preinspection maximizes the available energy savings in a facility by identifying all potential improvements. DTE Energy completes its final inspection with both the implementation contractor and an in-house quality assurance expert to verify the equipment installed. This process confirms counted savings and obviates savings-verification variances between parties.

Require Approval Before Equipment Purchase

Require utility approval of a custom rebate application before the customer purchases equipment. This step ensures that the equipment meets program eligibility requirements and will exclude free riders. It also excludes customers who have already ordered equipment. Xcel Energy's customers must apply for a rebate and receive approval from the utility before purchasing equipment. If the project proves to be cost-effective, the utility's efficiency engineers complete a custom calculation to estimate kilowatt-hour savings and determine the appropriate rebate amount. Once the application is approved, the customer receives a letter with the projected rebate amount and the project completion deadline.

Sign Agreement and Establish Influence Date

Before completing a custom efficiency study that identifies savings opportunities for the customer, require the customer to sign an agreement saying they'll install the equipment with the exact specifications you, your engineers, and your contractors recommended. This ensures that you maximize your investment in a custom efficiency study and realize the anticipated savings. Xcel Energy has a third party complete the comprehensive study and produce a report outlining efficiency opportunities. The utility considers the report date to be the "influence date," because it's the moment the customer becomes aware of the efficiency opportunities from the study.

Involve the Evaluator

Communicate with the evaluator throughout the project installation process to avoid surprises at the time of the evaluation. Note that in some states, regulators don't allow evaluators to communicate with implementers until the project is completed. Entergy Arkansas maintains communication with the evaluator throughout the project to let them know if something questionable arises. This allows the utility to get the evaluator's perspective and avoid making assumptions that could hurt the utility later. If the evaluator is going to discount savings, the utility wants to know up front and not overpay for it later.

Include an EM&V Plan

As part of the project proposal and application process, include an EM&V plan for the evaluator to approve. This step mitigates the chances that miscalculations or inaccurate assumptions will decrease realized savings. Entergy Arkansas uses the state technical reference manual for measure specifications, but for larger or more-complex projects, the utility requires an EM&V plan be included in the proposal. The utility presents the EM&V plan to the third-party independent evaluator to approve. In the past, Entergy Arkansas has run into issues when it thought the verification plan made sense but the evaluator didn't look at the plan until late in the

project, at which time the evaluator disputed savings.

Remember the Customer Experience

Take care when implementing these best practices. While they can increase your utility's savings, they can also negatively affect the customer's experience by adding supplemental application and verification requirements. To make the experience better for customers, some utilities have incorporated customer-centric design throughout the program process.

Entergy Arkansas has combined site visits to minimize customer inconvenience. **To make the experience better for customers, some utilities have incorporated customer-centric design throughout the program process.** For example, if the implementation contractor schedules a pre- or postinspection, the utility sends its in-house quality assurance staff at the same time to verify the contractor's findings. It also requires only one inspection visit for the customer. Custom energy-efficiency programs require multiple touchpoints with the customer, which gives Entergy Arkansas numerous opportunities to create a positive customer experience.

Resources

The Results Are In: Here Are the Most Energy Efficient Utilities in the US, American Council for an Energy-Efficient Economy (ACEEE) (2017)

Frontiers of Energy Efficiency: Next Generation Programs Reach for High Energy Savings, ACEEE (2013)
