



Energy Efficiency Program Management and Reporting Systems

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Running a portfolio of energy efficiency programs is a data intensive business. Baseline and replacement technologies, measure lives, deemed savings, budgets, program and cost effectiveness tests results: these represent a small sample of the energy efficiency business information. The users of this information are diverse and support a wide range of processes, including program management, regulatory reporting and customer relationship management.

Having accurate, timely and accessible data is critical to running an energy efficiency portfolio. However, MCR's research suggests there is no standard set of data management strategies or software systems to manage this important business information. Instead, a wide range of incomplete solutions are being used across the industry.

Energy Efficiency Data and Program Management Systems

Based on our observations over the past decade, MCR has found that management of energy efficiency data is typically considered at the end of a long list of program management priorities. Despite its importance, it is often the last management tool to be put in place—at times after the programs are launched. As a result, energy efficiency program management and reporting systems (“PMRS”) are usually implemented in a piecemeal manner without a clear definition of the utility's business requirements.

Aligning around a clear definition of business requirements is important because there is often a basic disagreement about the scope and purpose of the system. Different users have different expectations based on their role in the process. For example,

- An EE planner may be interested in highly granular data, with an interest in comparing costs, savings and avoided costs at the measure level;
- An EE program manager or administrator will likely be focused on delivery of the portfolio, including participant recruitment and project tracking, all while tracking budgets and savings goals at the individual program level;
- An EE program manager may initiate payment of performance-based fees to implementation contractors based on calculated savings;
- An evaluator may need both program- and individual project-level data to provide both a process and an impact assessment of the portfolio;
- A regulatory reporting analyst may need to apply evaluation adjustments to annual, program-level data before preparing reports for regulatory bodies;

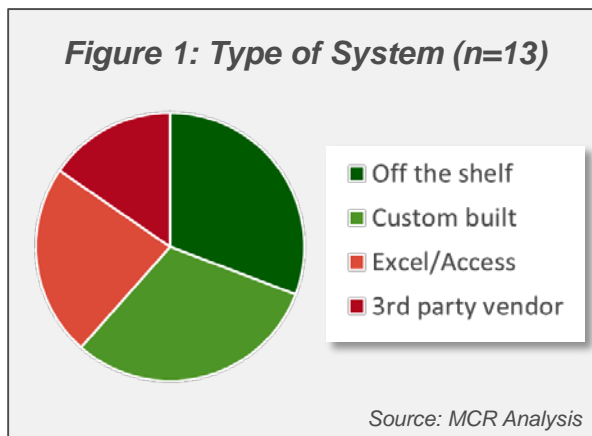
- A forecaster may require past and projected EE savings at the total level by rate class on a yearly basis; and
- A resource planner may incorporate similar data, but will also be interested in the timing of the savings on an hourly and seasonal basis.

In actual practice, however, program management and reporting systems are usually developed and modified over time and, as a result, meet the needs of these different users to varying degrees.

What Are Utilities Using Today?

To gain an understanding of how utilities are really managing their data, MCR conducted a series of interviews with 13 energy efficiency (“EE”) program managers and staff analysts from across North America who are responsible for running programs of various sizes and degrees of maturity. Our questions focused on the information technology (“IT”) system(s) used to operate and manage each utility’s portfolio of programs. The results are summarized below.

All of the utilities used some type of tracking system. As represented in Figure 1, roughly a third of the utilities use prepackaged “off the shelf” systems that were customized for the utility. Another third of the utilities developed custom-built tools either internally or by third-party developers. Three of the utilities used a combination of Microsoft Excel and Access and two utilities used systems provided by one or more third-party implementation vendors. The age of the systems matched closely with the age of the EE programs they are supporting, ranging from brand new to 20 years old.



MCR asked interviewees to characterize their tracking system, based on the functionality it provides, into one of two categories:

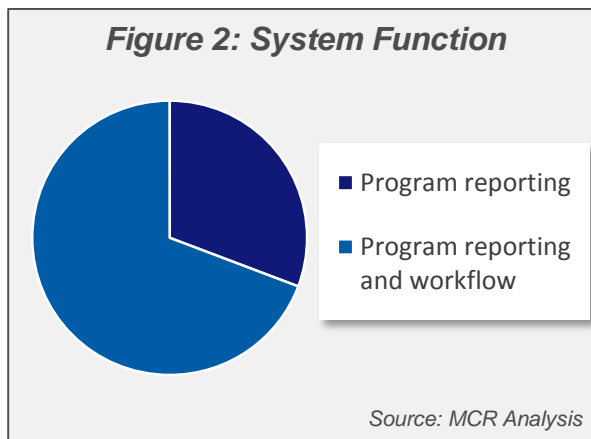
- A system that provides program reporting only
- A system that provides program reporting and facilitates program workflow

As can be seen in Figure 2 on the next page, nearly 70% of the systems performed additional functions beyond just program reporting.

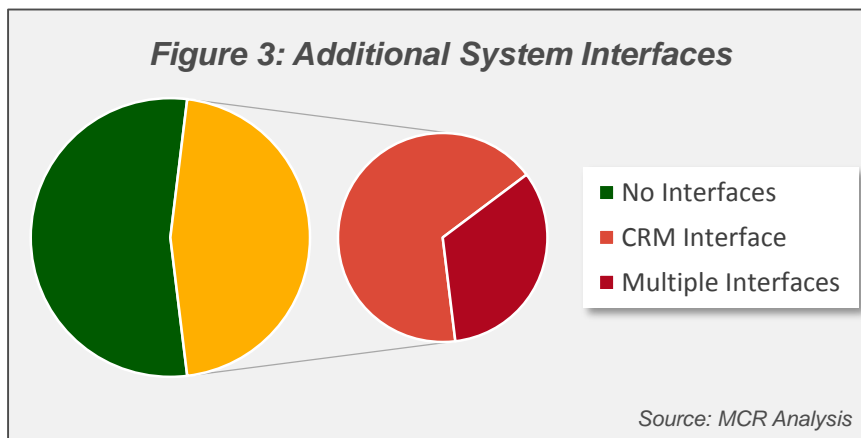
When prompted for more details, respondents identified specific functionality under each of these categories:

- Program reporting, which they defined as:
 - Regulatory reports
 - Internal management reports

- Workflow, which they defined as:
 - Pipeline reporting to monitor the activity and progress of internal programs and third-party vendors
 - Entry and tracking of measure-level transaction data for calculating savings and avoided costs
 - Project review and approval
 - Bulk upload of third-party vendor projects



We also asked respondents to identify any additional business systems with which their energy efficiency tracking systems might interface. For example, the tracking system might be linked with the utility’s customer information and vendor program implementation systems. As depicted in Figure 3, roughly half of those surveyed have such interfaces. The remaining interviewees either have no system interfaces or use manual batch processes to transfer data into or out of the tracking system.



Not surprisingly, many of the respondents identified features and/or functionality they would like to utilize, but that are not available with their current systems. Interviewees that used a simple spreadsheet-based system or one provided by implementation vendors expressed the desire to have more detailed program data in-house to be used for other business purposes (e.g., tracking lost revenue, generating automatic reports, tying to their customer relationship management (“CRM”) system). Those with “off the shelf” and custom systems also identified a number of unmet needs: data output appropriate for resource planning, more customizable reporting and ad hoc analysis capacity, better integration with other utility systems and greater automation.

Finally, the interviewees identified a number of important lessons learned through their own system implementation:

- It is difficult to properly specify the systems when they are initially developed. Designing the system to quickly and easily handle changes in program data

requirements suggests capturing as much granularity in the data as possible. However, it is also important to keep in mind that detailed data has a cost in terms of system complexity and data management, so an effort should be made to keep the scope focused and achievable.

- If all users of the system, including program managers, resource planners, regulatory staff, and IT staff, are not involved in the system specification, the system will not be able to meet everyone's needs.
- The ability to independently make quick modifications is crucial. Reliance on an outside vendor to modify reports and update savings algorithms (to match an updated technical reference manual ("TRM"), for example) can compromise the ability to respond quickly to new requirements. In addition, such external maintenance of the system might involve significant ongoing expense.

Features of an Effective PMRS

While there will be variations across each utility's PMRS, there are a number of features that are common and fundamental to achieving high performance. Specifically, a PMRS needs to fully address each of the following:

Data Management	The data captured, managed, and reported by the system should support the actual EE business processes, and the processes of the larger utility business. The system should support the entry of these data through direct entry and file-based uploads (e.g., spreadsheet or csv) of individual or multiple projects.
Automated Data Capture	Where possible, the system should include automated interfaces with internal systems (e.g., CRM or accounts payable), external systems (e.g., third-party implementation contractors and fulfillment service vendors) and product information lists (e.g., ENERGY STAR and other product qualification activities).
Project-level Workflow Management	As depicted in Figure 2 on page 3, most utilities have systems that provide some workflow management; but, interestingly, there is little consensus on how interviewees define workflow management. In MCR's experience, supporting workflow management means that the system should allow for management and tracking of large prescriptive and custom projects during project inception, project approval, project close-out and payment of rebates and performance-based fees.
Third Party Vendor Tracking	As an extension of the previous point, the system ought to provide the program manager with a project pipeline and progress of third-party implementation vendors and any other third-party vendors.

Document Management	To support documentation for project creation and approval, business processes and program guidelines and forms should be stored as an integral component of the PMRS, accessible by all of the relevant users.
EM&V	The PMRS should be designed to support program evaluation sampling requirements and, where applicable, document program influence. Tracking the customer engagement process (first contact through project adoption and project completion) can result in higher findings of programmatic influence, net-to-gross ratios and reportable program savings impacts (e.g., application by evaluators of an enhanced self-report approach to estimating net-to-gross ratios). Programs, processes and systems that make evaluation easier consistently achieve higher realization rates.
Reporting	<p>The PMRS should have flexible reporting tools that are capable of providing information at all levels, from the measure-, to the program-, to the portfolio-level in tabular, graphic and geographic form. Examples of important tracking metrics include:</p> <ul style="list-style-type: none"> ● Participation levels ● Savings levels tracked against goals ● Incentive payments committed ● Cost effectiveness ● Budgets to actuals

A fully implemented PMRS with these features will serve as an effective management tool that supports the efficient administration of a utility’s portfolio.

How do you get there?

As our interviewees observed, the development and implementation of an effective EE program management and reporting system must be a focused, dedicated effort. Energy efficiency staff are often fully subscribed with portfolio and program management responsibilities, leaving little to no time to pursue system improvements, even on a part-time basis. As a result, utilities interested in developing a PMRS should consider forming a dedicated team of internal staff with representation from multiple departments, or hiring outside assistance.

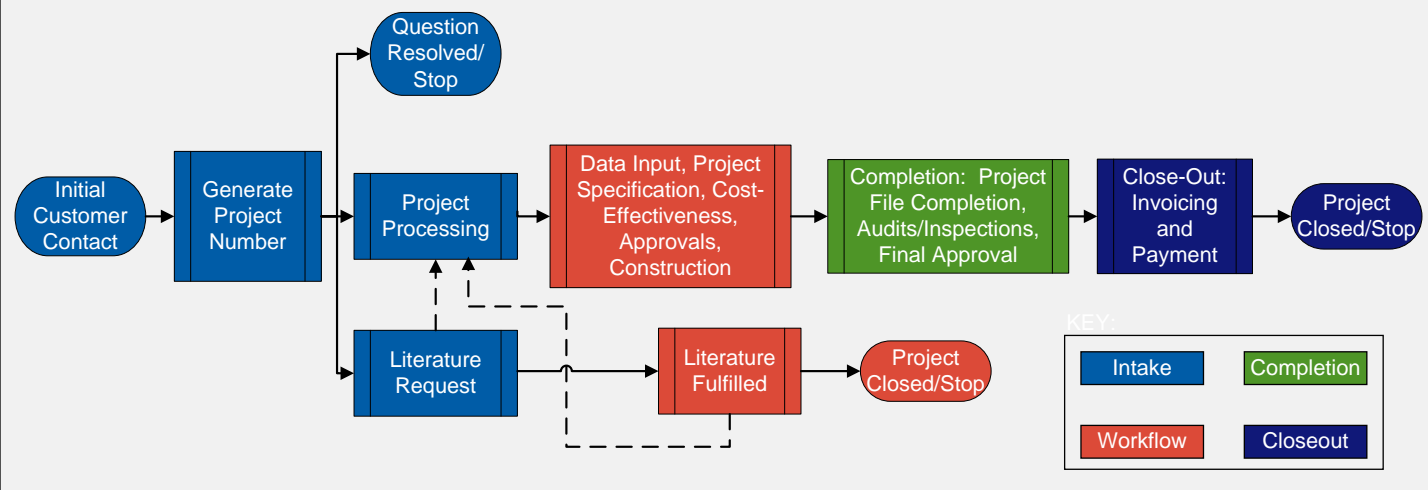
The first step in implementing a system is to develop a comprehensive analysis of the utility’s energy efficiency business requirements. Failing to define clearly and precisely what the system needs to do invariably leads to a partial solution. A large part of this process involves soliciting participation from every business unit that uses or produces data related to the EE program. This typically diverse group has varied needs; it is rare to find one person who knows everything about how EE information should be captured and used.

Once the utility analyzes its EE business requirements, it is also important to ensure that solutions are tailored to those particular business requirements. While there are many similarities in EE portfolio/program management requirements across utilities, there are a number of distinguishing factors, as well. These differences are often driven by:

- Regulatory requirements
- Management's strategy and approaches
- Types of programs and program design
- Internal and external evaluation, measurement and verification protocols
- Size and future direction of the EE program

As the business requirements are developed, it is important to align each requirement with the EE business processes. Proper alignment allows each EE program stakeholder to see how the system will support his or her needs. Carefully mapping the business processes in visual form provides an important tool for evaluating this alignment. A high-level example of this mapping can be seen in Figure 4; a complete business process map would include sub-process diagrams for each of these high-level steps.

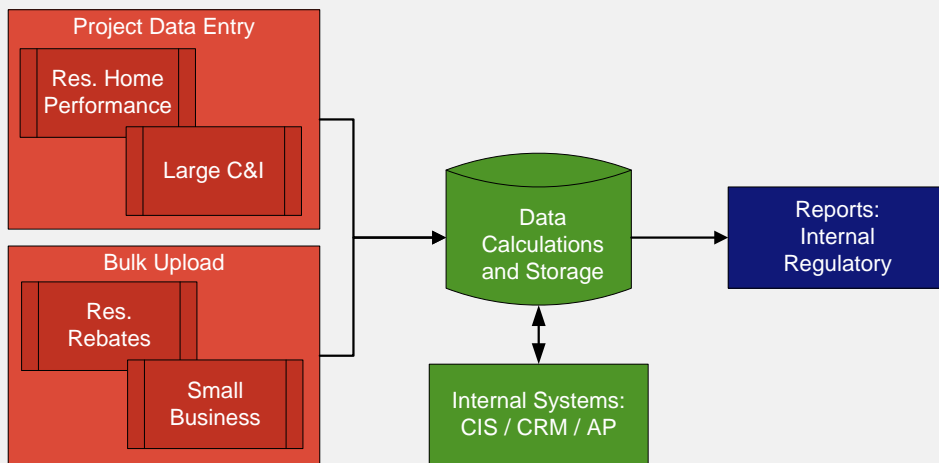
Figure 4: Example Business Process Analysis



Additionally, utilities should define the data acquisition requirements and processing flow in order to make sure they conform to the business processes. In the end, system specifications need to include a high-level diagram describing the system and its major features and functionality. This diagram, an example of which appears in Figure 5, will also be supported by additional written descriptions and details.

A comprehensive set of business requirements should drive the decision on what kind of system is needed. Will an off the shelf solution with customization work? Does the system need to be custom built from the ground up? Can an existing system be modified?


Figure 5: Example Data Diagram



Investing in a PMRS: How to Get Started

EE programs are multi-million dollar businesses, deserving of an adequate set of information tools. When considering an investment in a PMRS, it is important to realize these systems are not ancillary to the functioning of energy efficiency programs. Rather, a PMRS is a “mission-critical system” for an EE organization. This system is absolutely necessary to manage existing programs, keep up with changing requirements and launch new program initiatives to reach today’s aggressively rising EE goals.

If the EE organization finds itself with an outdated or inadequate PMRS, or no PMRS at all, then it is time to consider making a significant investment. There are several key steps to acquiring the right PMRS solution. First, recognize that a dedicated and focused team needs to be assembled that represents the key users of the system. These personnel are subject-matter experts crucial to the process and include program managers, IT staff and regulatory personnel. Second, a detailed set of business requirements should be developed by the team that defines all of the functions that the system should have. This process can take several weeks, but it is time well spent because the resulting business requirements document will become the blueprint for the new system. Third, research the marketplace to determine the best type of solution to meet your needs. There are a few “off the shelf” solutions available and custom-developed solutions are good alternatives as well. Use your business requirements to drive the selection of the solution. Finally, choose a solution and implement it. Make sure the EE team stays involved throughout the entire process from solution implementation to testing and rollout.

Expect the implementation of a new PMRS to take six months or more from beginning to end—it is a significant investment of time and financial resources. The return on this investment is huge, however, resulting in a mission-critical project management and reporting tool that will improve the efficiency of your EE team and transform the data generated by your programs into actionable intelligence, ensuring you meet and surpass your EE goals. 

Case Study: Duquesne Light Company Implementing a Project Management and Reporting System (PMRS)

Background

Duquesne Light Company (“DLC”) is headquartered in Pittsburgh, Pennsylvania, and serves more than 560,000 customers in Allegheny and Beaver counties. The Pennsylvania Act 129 of 2008 required each electric distribution company serving Pennsylvania to develop an energy efficiency and conservation plan by July 1, 2009. The four-year plan requirements included reducing electric consumption by at least 1% by May 31, 2011 and 3% by May 31, 2013. In response, DLC filed with the Pennsylvania PUC a plan that included 19 programs spanning all customer segments. The plan was approved by the PUC on October 22, 2009, and DLC began to launch the programs on December 4, 2009.

Prior to Act 129, DLC had no energy efficiency programs and therefore no system in place to facilitate, track and report on each program. With the programs scheduled to begin ramping up in January 2010 and the first quarterly progress reports due in February 2010, DLC needed to get a tracking system in place...fast.

Approach

MCR worked with the DLC staff to develop policies, processes and a system infrastructure to launch the energy efficiency programs. Through a series of workshops, the DLC/MCR team achieved the following:

- Defined and developed the business processes and mapping for the implementation and management of each program
- Developed business requirements for the PMRS system to support the data capture, workflow and reporting of all data supporting the programs
- Conducted PMRS system design sessions with DLC’s information technology staff
- Worked with the DLC information technology staff in supporting the development and testing of the PMRS system
- Provided user training to third-party implementation vendors

Solution

The PMRS system was developed in approximately four months and was rolled out in early 2010. Today, it is used by DLC program managers and staff, third-party implementation vendors, the DLC EM&V evaluator and the Pennsylvania statewide evaluator. Custom developed to meet DLC’s needs, the PMRS system features include:


- A centralized database housing all project information and serving as the system of record for all project and program data
- User functionality for contact management of customer prospects; project development, approval and tracking; cost effectiveness calculations; incentive and rebate processing and payment of performance-based fees to implementation contractors

Case Study (continued)

- A document management module for managing all project documentation, as well as internal energy efficiency policies and procedures
- Interfaces to external systems, including the DLC customer information system, for validating customers and bulk loading of data from third-party rebate processing and appliance recycling vendors
- Reporting tools capable of reporting information at all levels from the consolidated portfolio to the measure level

Results

The PMRS system was developed and rolled out in time to support DLC's energy efficiency program launch and ramp up. The system supports the processes for each DLC program in the portfolio. Project data for C&I projects is entered directly by program implementation vendors and DLC support staff. Large volume data from residential programs is bulk loaded from the project files provided by third-party implementers.

Through the PMRS system, DLC has been able to accurately capture and track all project and program data, allowing the company to meet all of its reporting deadlines. The PMRS system played a key role in DLC's success in meeting its 2009–2013 Phase I savings and cost effectiveness goals, while achieving a 97% realization rate as determined by the statewide EM&V process. It will continue to serve the company in its implementation and management of Phase II (2013-2016) programs. 

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Ed is a Director at MCR. Ed has 20 years experience in energy efficiency and resource planning, forecasting, rates and regulation in both gas and electric utilities. His expertise includes all aspects of energy efficiency program policy, planning, program design and implementation, as well as utility regulatory policy analysis and testimony. He was the division executive responsible for the founding of the DesignLights Consortium's LED qualified products process. He has presented to audiences including The Executive Office of the President, US DOE, US EPA, ACEEE and The Energy Foundation.

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Jacob is a consultant at MCR and has over five years experience in data analysis and energy efficiency programs and policy. His expertise includes advanced lighting technologies, where he served on a federal technical committee for solid-state lighting. Jacob has worked with utilities from around North America, including investor owned utilities and rural electric member cooperatives in the Midwest and Mid-Atlantic states.

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