

Cranking the Numbers: Using Tracking Systems to Strengthen Program Management

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Introduction

Results matter in energy efficiency implementation; increasingly they are all that matter, and program tracking systems are indispensable tools for storing those results. These systems tell us how much we spent, how many customers were served, how many of which measures were installed and, at least until the evaluators get through with us, they tell us what we saved. But these systems can be much more if designed and used creatively. More than just keepers of the record, these systems can become adjunct program and portfolio managers, telling us not only if we are on track, but whether we will be on track a year from now given the rate at which we fill our project pipeline, the project harvest rate and average time to harvest. They can tell us if our acquisition cost is dropping or rising, signaling that we are hitting program scale, or suggesting that marketing and recruiting is ineffective.

The well-trained tracking system also can give us a look at the portfolio as a whole. Letting us compare harvest rates, harvest times, costs per kW/kWh, or any other key metric in a way that signals all is well or portfolio rebalancing is needed. Used consistently, a good tracking system effectively substitutes for program management labor, providing a smaller number of actual staff with a powerful tool that extends management reach. The well-designed tracking system is the foundation for a needed development/maturation of energy efficiency business management practices.

This paper will describe the design and use of a web-based tracking system to help manage We Energies' portfolio of energy efficiency programs with a limited staff. Given internal staffing restrictions, the Company set out as one of its first orders of business, to design a tracking system that would give it real-time capability to monitor program implementation. Key requirements included web access for all field staff, detailed project level tracking, extensive reporting capability, and forecasting capability. Concurrent with system design, the Company developed a detailed program management guide based on the generation of a variety of periodic tracking reports.

We will review the objectives set for the system, key design issues, and the program management structure built around the system. More important, the paper will illustrate how the system has been used to monitor program and portfolio performance, diagnose emerging performance issues, and support annual planning. We will present several case studies of how program issues were discovered, diagnosed, and treated based on tracking system information.

Setting the Context

We Energies is an electric and natural gas utility based in Milwaukee, Wisconsin, serving 1.1 million electric and 1 million natural gas customers in Wisconsin and Michigan. In late 2003, the utility was ordered, as one condition for approval of an application to construct a power plant, to

prepare a plan to acquire 55 MW of energy efficiency—the amount of achievable potential estimated to be available by 2008 when the plant was due to come on-line. The plan, containing a market assessment, program templates for twelve new programs, and evaluation, implementation and management strategies, was approved by the Public Service Commission of Wisconsin in May 2004. A key element of the Company's implementation and management strategy was the design and application of a portfolio tracking system that would enable the Company to closely monitor program performance, pin-point performance issues and serve as a platform for a rolling evaluation of the programs. The overriding objective was to ensure that the Company's planned portfolio met its 55 MW goal on time and on budget, and to quickly redesign elements of the portfolio where necessary to maintain a sufficient kW harvest rate.

The Company's roll-out strategy targeted the fourth quarter of 2004 for implementation of most major programs. Therefore, the strategy called for simultaneous development of detailed program plans, an evaluation strategy, and the tracking system to ensure that all three elements of the portfolio management system were in-place in time for program launch.

The Requirements Phase

The design of the portfolio management system, which began in the third quarter of 2004, was driven in large part by a severe staffing constraint that limited portfolio management staff to two Company employees who continued to carry additional responsibilities. Virtually all program implementation activity, including development of final designs, recruiting, field services and incentive fulfillment was to be outsourced.¹ Given twelve programs to manage and intense internal and external scrutiny, the principal design criterion for the tracking system was to serve as an adjunct program manager, providing real-time information on program production and costs through a six-stage pipeline.

Tracking system development began with the standard requirements phase during which the Company specified required system functionality and data elements. Key functional requirements included:

- A web-based platform that would enable program implementers, managers and evaluators real-time access to the system from any location;
- Extensive data manipulation and report-writing capabilities;
- A tiered structure based that would link measures, projects, programs and the portfolio as a whole with respect to cost and production;
- Capacity to attach documentation to every project to support future audits and evaluation;
- An ability to link to the Company's existing customer information systems; and
- The ability to track projects through multiple stages from outreach through payment to support calculation of a variety of metrics, including project cycle time, project completion rates, funds committed and expected production.

¹ The Company implemented two programs internally. The QuickStart program was implemented in the summer of 2004 to provide custom incentives to large customers, and was intended to serve as a bridge to the full-scale Custom Program slated for implementation in January 2005. Recruiting was managed by the Company's large account managers. A Low Income CFL program was internally managed but implemented by local community action agencies.

Over 200 specific data elements were specified initially, either as direct inputs or internally-generated data. In addition, given that several programs would incorporate measures for which savings were to be deemed, the Company specified a series of measure look-up tables that would be used to automatically populate project files when deemed measures were selected. The Company's evaluation contractor was intimately involved in this process to ensure that data required for their ongoing evaluations would be directly accessible.

Following specification of data elements and preparation of a formal requirements document, the Company solicited and evaluated proposals from a short list of vendors, most of whom had developed tracking systems specifically for utility energy efficiency programs. At the same time, the Company prepared an assessment of the feasibility of modifying a customer relationship management (CRM) system known as *iAvenue* then used by the We Energies' large account management team, to serve tracking system needs. A comparison of systems proposed and *iAvenue* led to a decision to retain Saratoga Systems, the *iAvenue* vendor, to modify that system. The decision was based on the relatively lower cost of modification and maintenance, compatibility with system requirements, existing We Energies' business processes, and the Company's existing customer information and financial systems, and the expected faster development time given an internal pool of IT staff with *iAvenue* experience.

The System

System modifications and installation took place over two phases, the first of which extended from late October 2004 through early February. During the first phase, all system screens were designed and tested, customer account data were migrated from the existing system, and the web interface was tested. All Phase One work was complete and the system was operational by the time the Company's three key C&I programs were launched in mid-February. Phase Two took place over the spring and early summer of 2005 and involved improvements to input and output screens, enhanced reporting and clarification/correction of data relationships. Subsequent to completion of Phase Two, an employee of the Company's IT group has managed a continuous upgrade process, further enhancing and simplifying reporting functions, quality-checking the input data and managing upgrades to the *iAvenue* platform. As an indication of the robustness of the system's design, the system was quickly modified to accommodate the addition of natural gas measures and several new gas efficiency programs in late 2005 and early 2006.

The final system defined four basic levels of program activity illustrated in the **Figure 1**.

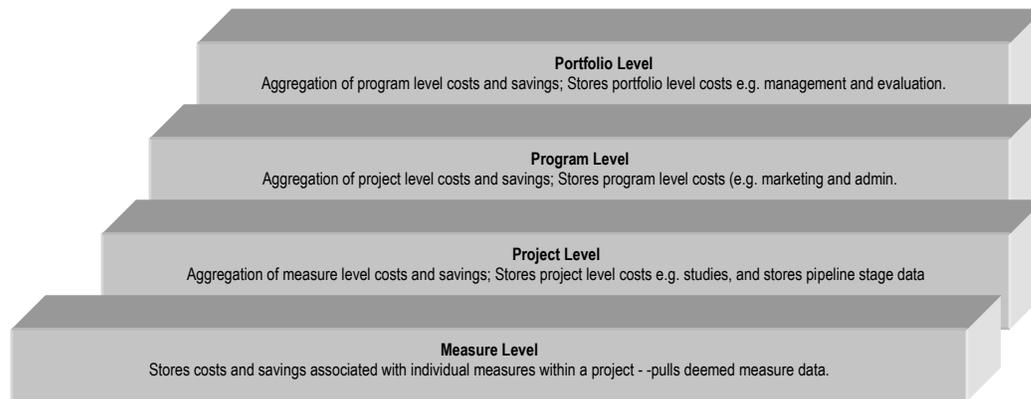


Figure 1. Tracking System data Hierarchy

Figure 3 reproduces top-level screens for each tracking system level to illustrate system detail.

Using the System

Concurrent with development of the tracking system, management report templates were designed consistent with a portfolio management “handbook” that the Company prepared. These reports were designed to provide weekly, monthly, quarterly, semi-annual and annual portraits of program and portfolio performance relative to three broad metrics: (1) Program production (kW) versus annual production targets²; (2) Production cost (\$/kW) versus a production cost benchmark³; and (3) Costs reported by the tracking system versus costs booked in the We Energies’ corporate accounting system. These reports were intended to serve the role of surrogate program manager by providing a constant but concise flow of information to the portfolio manager regarding performance.

For example, the Company recognized that, given project cycle times for each program, project pipelines provided a important leading indicator of future performance that would be increasingly important as the Company neared its year-end 2008 portfolio end-date. Sharply lagging production, a thin pipeline, excessive time in the pipeline or heavy reliance on a few measure and/or customer types were all indicators of design or implementation issues.

² The tracking system was designed to store monthly and annual production targets for each program. Annual targets were set initially in the We Energies Energy Efficiency Procurement Plan and have been adjusted subsequently in an annual planning review. Monthly targets initially were simply average monthly production rates required to achieve the annual goals. Subsequently, these monthly goals have been revised to more accurately reflect expected production. These goals are used to produce annual budget estimates.

³ Expected program costs per kW (total and incentive cost) were calculated during the initial planning process and continue to serve as benchmarks for the cost performance of the programs.

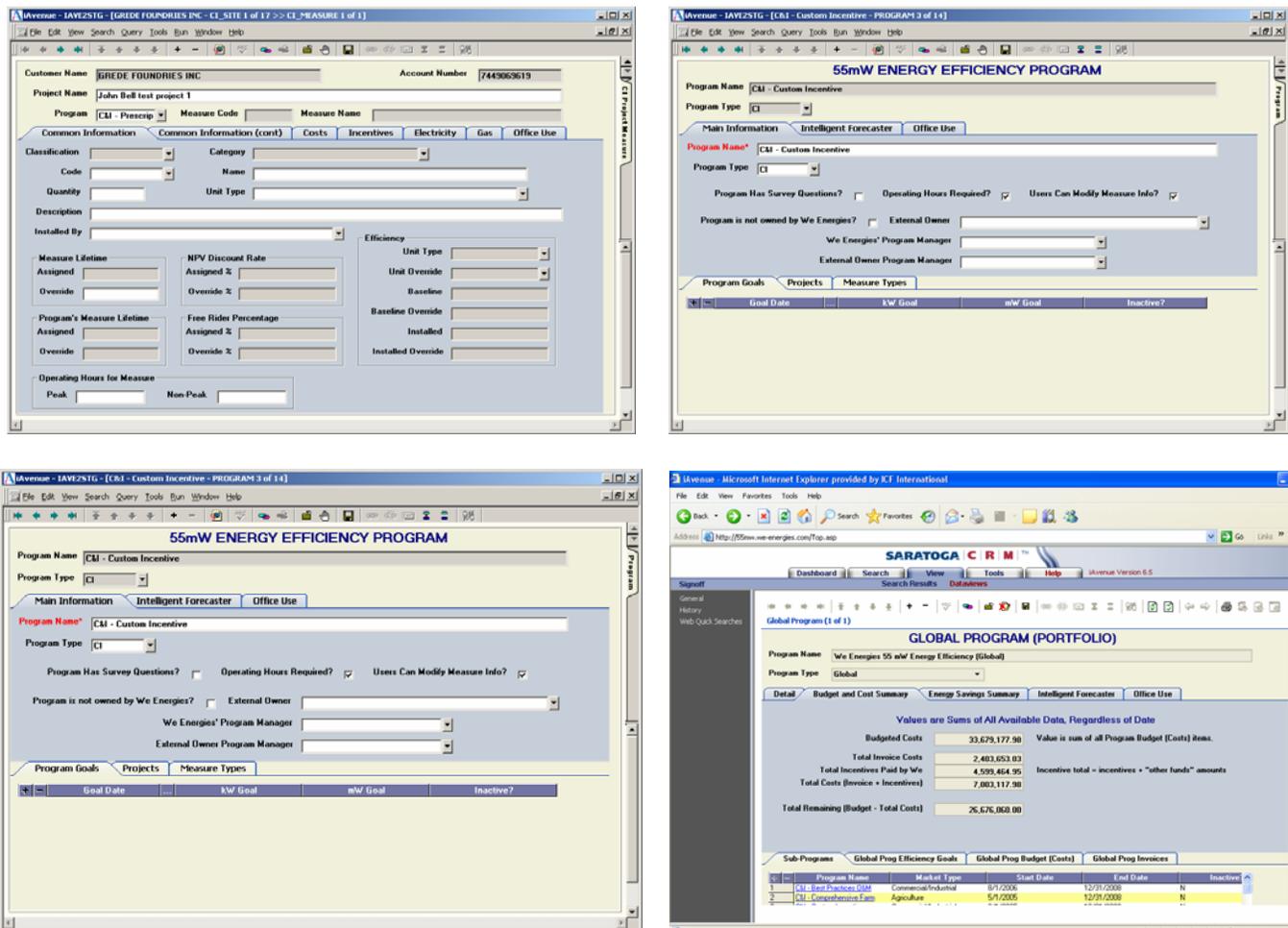


Figure 2. Master Screens for Measure, Project, Program, and Portfolio Levels

These reports were available to program implementation contractors and evaluators as well, giving all parties in the program chain simultaneous access to the same performance information. This created an unanticipated but extremely beneficial self-correcting behavior within the management structure. Implementers, knowing that We Energies management was closely monitoring performance, used the system themselves to monitor progress, identify production issues and proactively develop proposed corrective measures. This reinforced a collaborative approach to program performance management.

Table 1 lists a number of the key management reports. Each of these reports can be produced at any point; the more frequent reports are those that are considered the most important leading indicators.

Metric	Weekly	Monthly	Semi-Annually	Annually
Production	<ul style="list-style-type: none"> kW and kWh by pipeline stage and program 	<ul style="list-style-type: none"> Production vs. goal Forecasted annual production 	<ul style="list-style-type: none"> Number of projects and kW by measure by program Number of projects and kW by customer type and program 	<ul style="list-style-type: none"> Project average cycle time⁴ Project harvest rate⁵ Projected monthly production for the following year
Production Cost	None	<ul style="list-style-type: none"> Average incentive cost per project by program 	<ul style="list-style-type: none"> Average total cost per program; actual and expected. 	<ul style="list-style-type: none"> % Budget spent versus % kW goal achieved

Table 1. Illustrative Management Reporting Structure

Given the structure of the tracking database, an almost infinite number of reports can be generated based on different data views and simple calculations. The following set of figures illustrates the status of the portfolio as of July 2006, approximately 18 months into full-scale implementation.

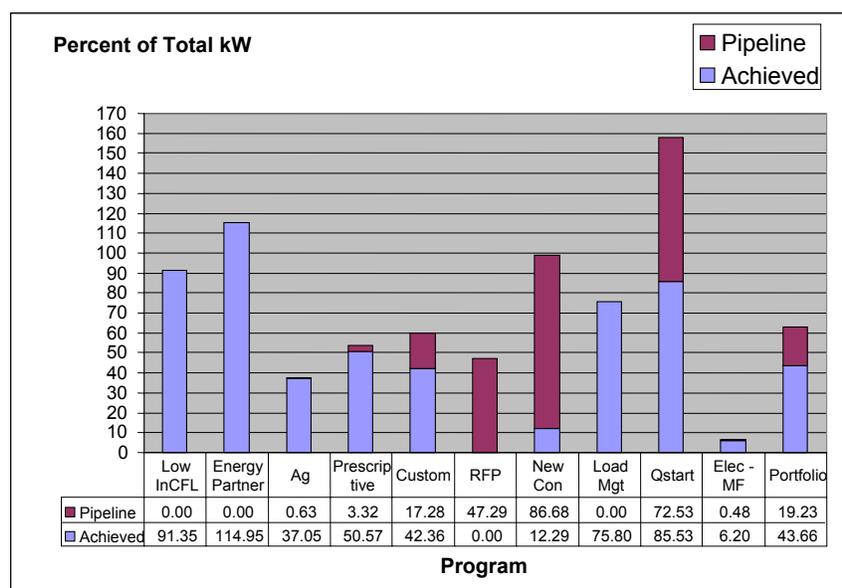


Figure 3. Program Production versus Total Goal

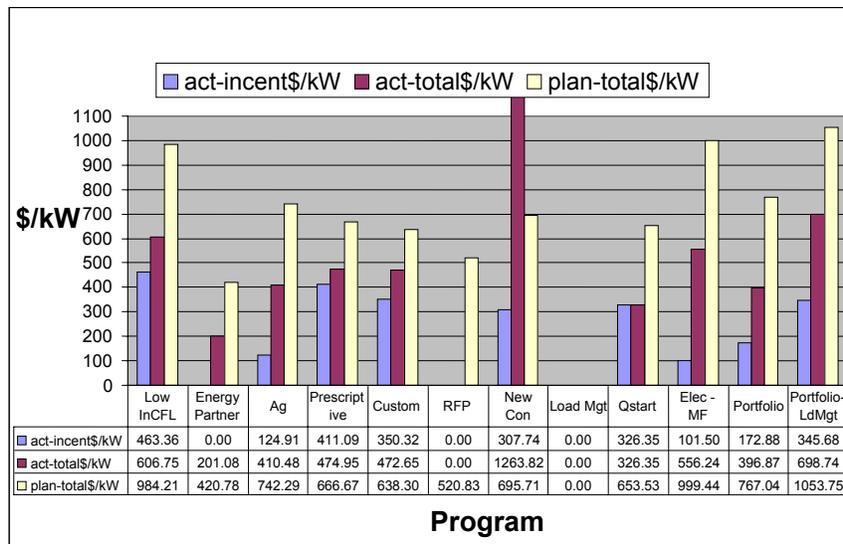
⁴ Project cycle time has been defined in several ways in an effort to develop a reliable measure of how long a project takes to move through the pipeline. Generally, cycle time is defined as the time it takes a project to move from the outreach stage to the paid stage.

⁵ Harvest rate is defined as the ratio of paid kW to initial kW. As with cycle time, the Company has worked to refine the denominator for this measure. Clearly the rate is much lower when the denominator is defined as kW at the outreach stage than when it is defined as kW at a project reservation or application stage.

The Company’s Prescriptive, Custom, and RFP programs account for approximately half of the portfolio goal and thus their performance is critical. **Figure 3** shows that with over two years remaining for program implementation, these programs are close to 50 percent of their goal, although all RFP projects still remain in the pipeline. Since there is yet no information that enables the Company to estimate a harvest rate for the RFP program, this program constitutes a risk for the Company that needs to be carefully monitored.⁶

Figure 4 shows the Company doing well with respect to production cost. In all but two cases, the percent of budget spent is lower than the percent of goal achieved, implying that projects are coming in below the benchmark cost per kW. In addition, in virtually all cases, the percent of total goal achieved exceeds the expected achievement at this stage in the implementation period.

Figure 5 presents project cycle time for several key programs. Cycle time is used in conjunction with the information on pipeline and harvest rates to provide an indication of what future production will look like, as well as to predict when costs will hit We Energies’ books. As would be expected the cycle times for the Custom and New Construction programs are significantly longer than those for the Prescriptive and Multi-Family programs. Prescriptive cycle time essentially represents the time required to process an application and issue a check, while the Custom, QuickStart, and New Construction programs all involve incentive reservation steps that predate an actual incentive application by months or years in some cases.



Note: The final set of bars show portfolio totals minus load management.

Figure 4. Average Cost per kW

⁶ Several programs have no pipeline or are not tracked. Principal among these are the load management programs (Energy Partner and Load Mgt). The contribution of these programs is capped at 20% of the portfolio total and already has exceeded this cap. The Low Income CFL program (Low InCFL) is complete.

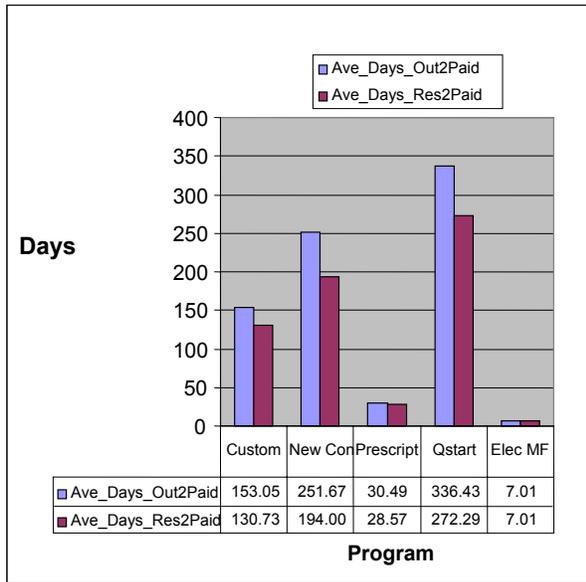


Figure 5. Average Cycle Time⁷

Figure 6 plots the distribution of measures included in paid projects. This figure highlights a concern that first began to emerge in the spring of 2006 when weekly and monthly tracking showed a persistent reliance on lighting measures. Although the pipeline suggests this over-reliance will correct itself to some extent, most of the non-lighting projects are associated with RFP projects which, as noted above, have yet to begin producing. The evidence of heavy reliance on lighting projects combined with an observed dramatic fall-off in production and pipeline for the Custom program led the Company to undertake a detailed reassessment of program design and implementation that is described below.

Case Study—Diagnosing Prescriptive and Custom Performance Issues

Beginning in early 2005, the Company began weekly tracking of each program’s pipeline. By the third quarter of the year it had become apparent that the Prescriptive program was persistently behind goal, while other programs appeared to be filling the pipeline and completing projects roughly as expected. In an effort to jump-start Prescriptive program participation, the Company approved a special High Bay prescriptive lighting incentive in late 2005. The special incentive was extremely successful in boosting participation and kilowatt-saved production.⁸ However, as the weekly production reports showed a strong upswing in Prescriptive activity, they also signaled an alarming fall-off in Custom program production. Particularly troubling was that the pipeline was growing very slowly.

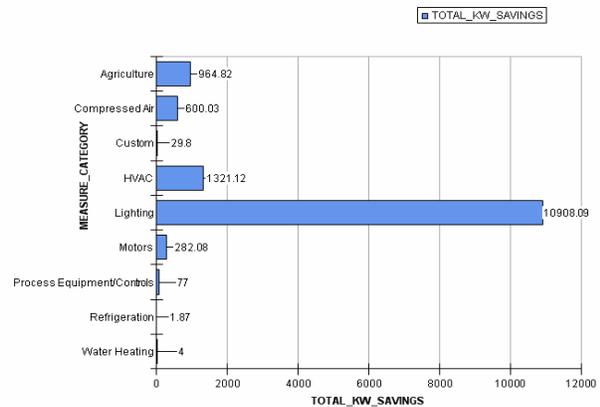


Figure 6. Paid Projects by Measure

⁷ Ave Days Out2Paid measures cycle time from initial outreach to payment, while Ave Days Res2Paid measures the time from an incentive reservation or application to payment.

⁸ The High Bay Incentive was extremely successful, delivering 3.3 MW out of the 4.8 MW completed or in the Prescriptive pipeline at the end of the second quarter of 2006.

Figure 7 and **Figure 8**, both drawn from a weekly production report run in April 2006, illustrate the problem. The effect of the special lighting incentive is obvious in the sharp up-tick in Prescriptive payments in the first quarter of 2006. At the same time Figure 7 shows the total pipeline for the Custom program leveling off at about the same time and an actual drop in project reservations.

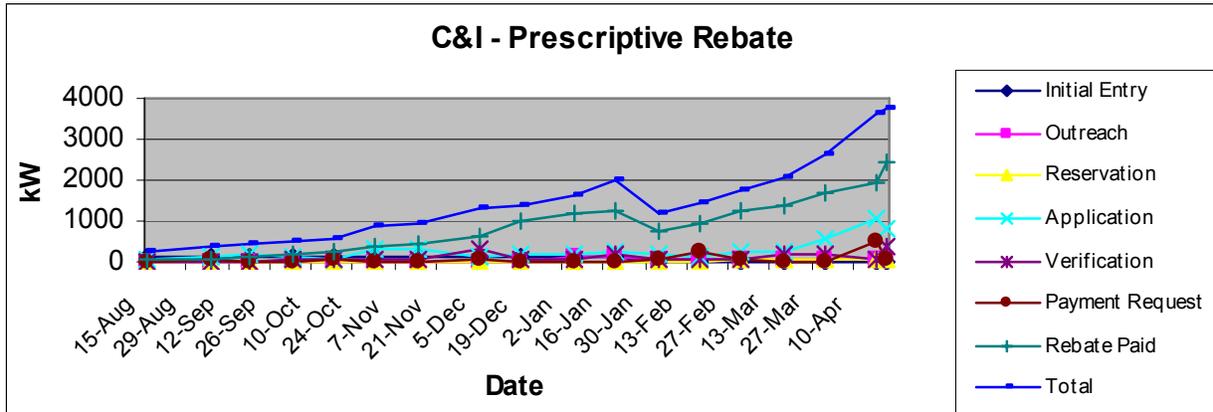


Figure 7. Weekly Tracking of Prescriptive Program Production

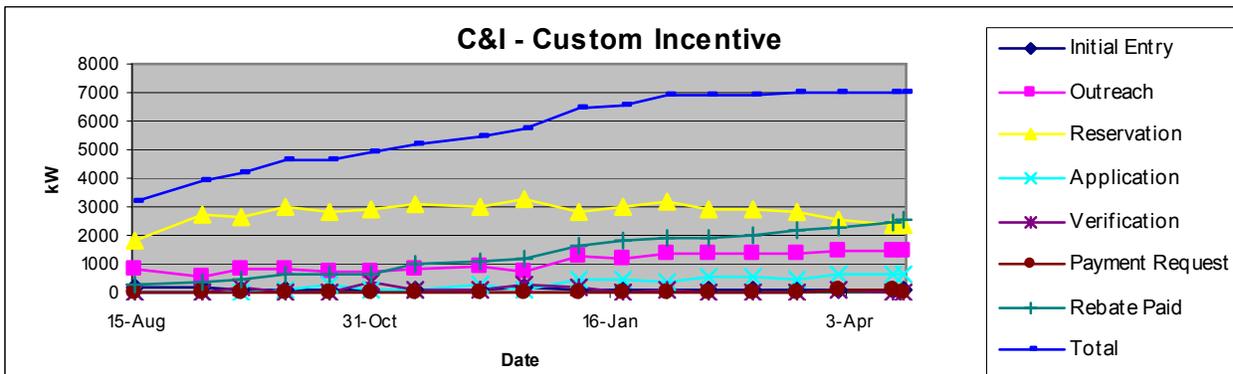


Figure 8. Weekly Tracking of Custom Program Production

Figure 9 provides a different look at the issue, showing a plot of lighting and non-lighting projects over the first 18 months of the programs. The chart clearly shows lighting projects taking off in the first quarter of 2006 as the lighting bonus took effect. Simultaneously, non-lighting projects began to fall off. Something very distinct was happening in the market.

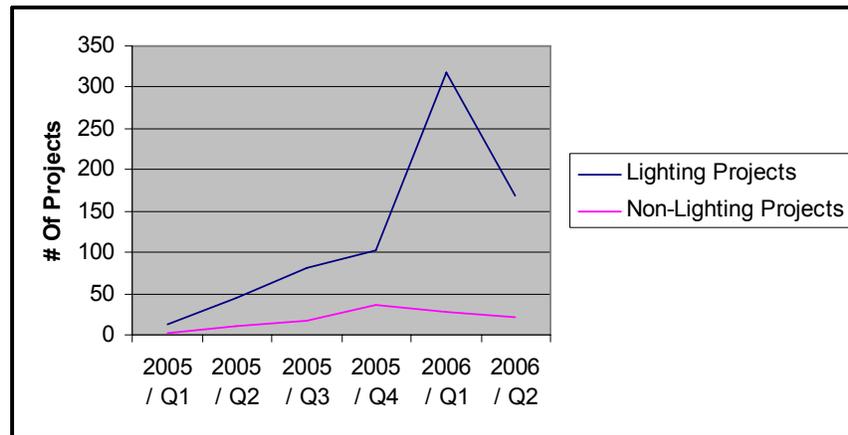


Figure 9. Lighting and Non-Lighting Projects by Quarter

Coincident with the Company's and the program implementer's recognition of these trends, the implementer held a series of meetings with trade allies who are key participants in both programs' implementation strategies. Interviews with these allies indicated some confusion concerning program overlap and a general view that Custom program requirements were too complex relative to those of the Prescriptive program. The tracking system data combined with this anecdotal information led the Company to open a more formal examination of program design and implementation strategy. A market research firm was retained to conduct more formal interviews with a broader sample of allies and to provide an independent review of tracking system data in an attempt to answer two basic questions: (1) Are there flaws in program design and/or implementation that are causing the fall-off in Custom program participation and (2) Are there flaws that are contributing to the over-reliance on lighting projects?

Forty-five interviews with a mix of trade allies and participating and nonparticipating customers were conducted in addition to extensive data mining and analysis. The results of the assessment both confirmed initial suspicions and suggested some relatively minor program design and implementation "fixes." Key findings included:

- The heavy reliance on lighting projects is a product of several factors:
 - The We Energies' portfolio is measured based on peak kW reduction, and the definition of peak period for program purposes is sufficiently narrow that it eliminates many significant energy saving opportunities (e.g. variable speed drives).
 - Lighting projects are much easier for allies to sell.
 - The special incentive either brought forward lighting projects that otherwise would have been delayed and/or shifted these projects higher in customers' investment queue.
- The special incentive also appeared to bring lighting projects into the Prescriptive program that otherwise would likely have gone through the Custom program.
- Allies and customers did not entirely understand the differences between the Custom and Prescriptive programs and tended to think in terms of problems and solutions rather than program types.

- Participants in the Custom program were likely to have additional, non-lighting opportunities, but were not necessarily aware of incentive opportunities, and there was no formal process in place for program follow-up with these customers to mine these opportunities.

In response to these findings, the Company and the implementation contractor implemented a series of program design and implementation changes, including:

- Design of a non-lighting bonus for customers who implemented additional measures under the custom program.
- Launching an Energy Consultant Bonus promotion offering energy consultants \$100/kW for any installed non-lighting kW that were previously identified
- Dropping the minimum payback period for custom projects to 1.5 years from two years to enable more projects to qualify.
- Boosting the HVAC incentive available the programs and moving chillers and VSD projects to the Prescriptive program from the Custom program.

As shown in **Figure 10** and **Figure 11**, performance of both programs has improved considerably as a result of the program changes, although performance of both programs leveled off during the summer of 2006, a typically slower period.

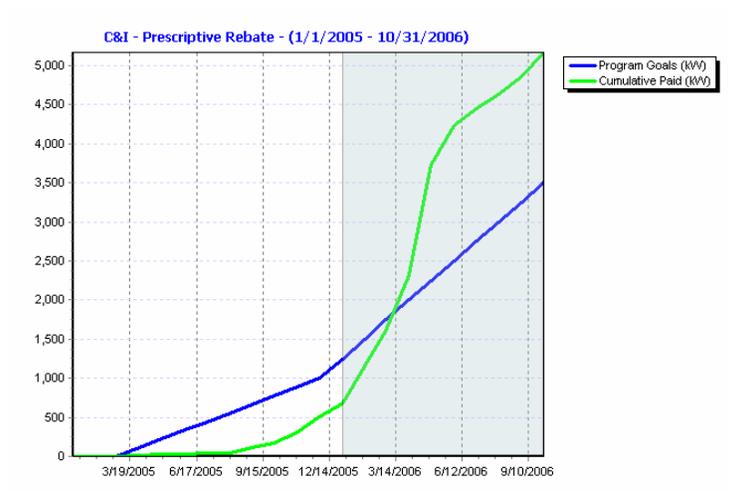


Figure 10. Prescriptive Program Performance – Start to October 31, 2006

Summing Up

The portfolio tracking system installed by We Energies has become an invaluable tool for the Company, program implementation contractors and evaluators for more effectively manage programs with limited staff. The cost of the system, excluding internal IT staff time, was approximately \$170,000, roughly the annual cost of a senior program manager. And while substantial time was required on the part of implementation contractors and IT staff to test the system and develop deemed savings tables, recurring costs are low. Actual reporting costs for implementation contractors are lower than they otherwise would be since most of what would be reported is available through standard output tables. Incentive fulfillment time and quality

control have been improved by use of a weekly system report of completed projects against which contractor rebate invoices can be compared. And a weekly report on all projects falling within managed accounts has improved coordination between the Company's large account management group and implementation contractors.

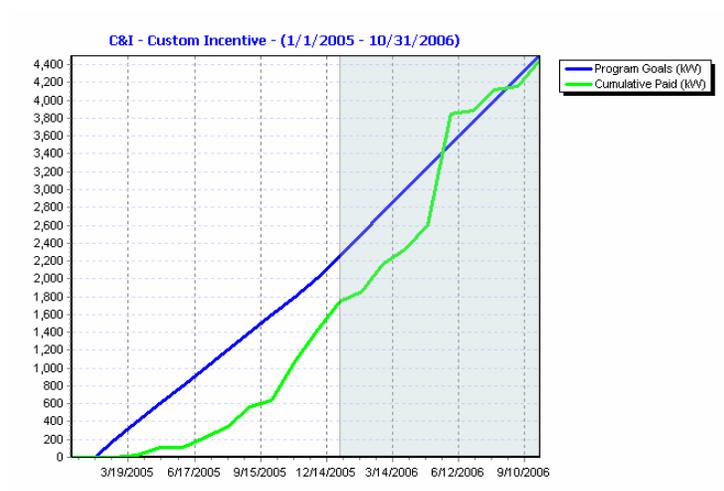


Figure 11. Custom Program Performance – Start to October 31, 2006

Perhaps the most significant benefit of the system as a surrogate program manager is that its ability to provide a continual real-time view of program implementation progress has fostered a focus on continuous improvement. While the data do sometimes “lie,” the process of discovering the truth with respect to project and program performance has forced all parties to focus on the elements of execution that would be hidden without the system. Using the system, the Company has found a low “repeat rate” for customers who have taken advantage of lighting incentives, leading to increased efforts to follow-up with these customers for additional projects—efforts that have a much lower customer acquisition cost than bring a new customer to the program.

Ultimately, the quality of any tracking system depends on the discipline applied to data entry. Recognizing the value that the system could bring to their own processes, implementation contractors generally have been diligent in their use of the system. This diligence is supported, however, by explicit contractual requirements for entry of all project data within 48 hours of an event.

Typically, tracking systems have been used to support regulatory compliance, evaluation, and planning. Properly designed and used, however, a portfolio tracking system serves as the backbone for a series of business processes including fulfillment, budgeting, quality assurance, recruiting, and planning. Such a system effectively substitutes for labor by monitoring program performance at a level that would be difficult for an actual program manager, and provides an enormous and rich data set for purposes of benchmarking.