

Evaluation Resuscitation: Breathing life into a slumbering evaluation group and defining the role of evaluation in the emerging ‘utility of the future’

*Rich Hazzard, Energy Market Innovations, Seattle, WA
Eric Brateng, Puget Sound Energy, Bellevue, WA*

Abstract

Since 2002, Puget Sound Energy’s Energy Efficiency Services (EES) programs have experienced significant growth. Energy savings targets, driven largely by a renewed upper management commitment, and direction provided by Integrated Resource Plans, have more than doubled 2002 levels. In 2006, annual energy savings totaled 166,254 MWh and 2,377,244 Therms with total EES expenditures of \$35,455,000.

Because of this significant growth in the overall portfolio of EES programs, the evaluation group was challenged to plan and implement projects to meet the emerging, increasingly complex market research and evaluation demands of the utility’s regulatory, planning and implementation stakeholders.

Working with an independent consultant starting in early 2006, the utility engaged in a comprehensive approach to evaluation planning that would address:

- Limited internal resources for evaluation of programs
- Organizational demand to ensure claimed savings were “as pure as the new driven snow”
- Recent Integrated Resource Plans (IRP) that placed energy efficiency in the resource acquisition category
- Anticipated regulatory action to attach a financial incentive to exceed energy savings targets

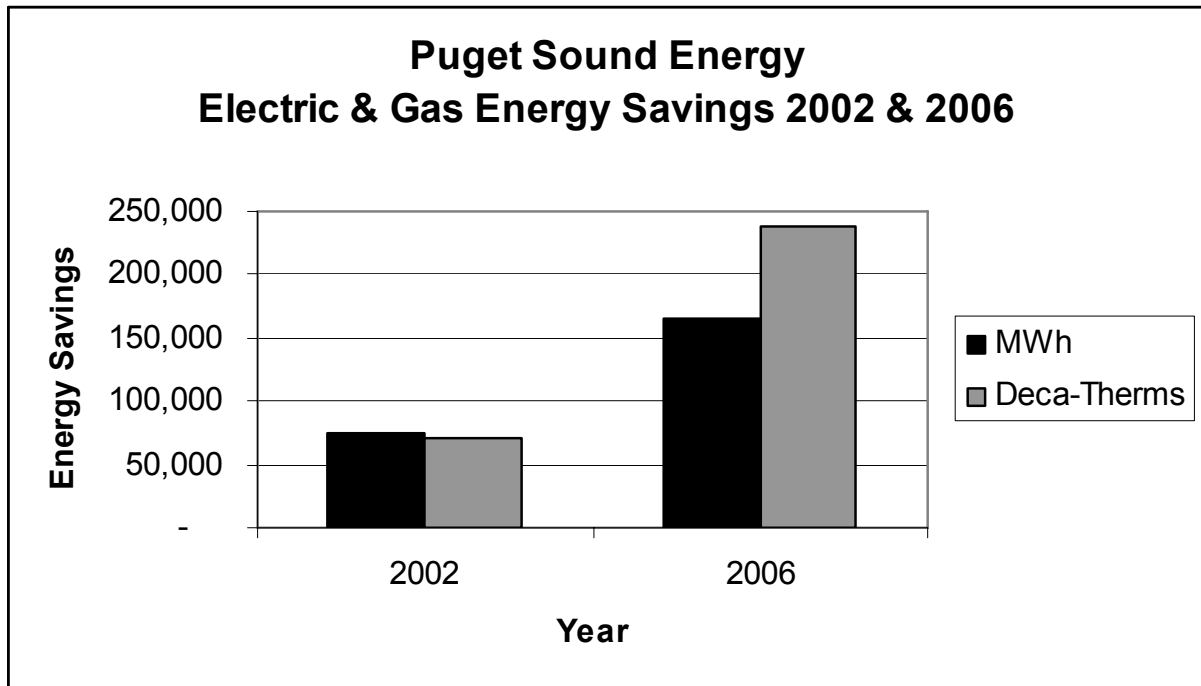
This paper will review the project rationale, present the detailed evaluation planning process, share the organizational and communication tools developed, and offer analysis of the overall impact the new evaluation processes have had on the planning, implementation and regulatory stakeholder groups.

Introduction

Since 2002, Energy Efficiency Services programs of Puget Sound Energy (PSE) have experienced significant growth. Energy savings targets, driven largely by a renewed upper management commitment, and direction provided by two IRPs, where Conservation was treated as a resource, have more than doubled 2002 levels.

In 2002, the utility’s Energy Efficiency Services (EES) division offered programs in residential and commercial sectors that achieved energy savings of 75,307 MWh and over 69,901,000 therms with expenditures totaling \$11,848,000. During 2006, PSE’s EES programs totaled first year savings of 166,254 MWh at a cost of \$28,695,854 and a savings of 2,377,244 therms at a cost of \$6,759,062.

Figure 1.



Energy savings, expressed as first year savings, more than doubled since 2002.

In 2004, with renewed upper management interest in energy efficiency, a director was appointed to manage the EES division, and additional staffing was added to bolster the tracking and reporting functions. A new group assumed responsibility for program tracking, reporting, planning, and evaluation. Even with the new organizational structure and added resources, the coordination of program planning and Utility and Transportation Commission (UTC) tariff filings still remained a significant priority on staff time and impeded staff ability to effectively plan and implement a broader range of evaluation activities.

PSE's EES evaluation group hired an independent consultant, Energy Market Innovations, Inc., in 2006, to assist in the development of a comprehensive approach to evaluation planning that would meet the current and anticipated needs.

Project Rationale

For years, EES Program Evaluation operated 'under the radar' with activities largely limited to tracking and quality control issues. Between 2002 and 2004, Evaluation budgets and staffing had not increased commensurately with overall EES program growth. Limited staffing meant that process and impact evaluation priorities were often supplanted by program planning and regulatory filing requirements. What can be described as the "Evaluation Group" consisted of little more than one FTE, responsible for:

- coordination of program planning,
- filing of EES tariffs with the Utility and Transportation Commission (UTC), and
- program impact and process evaluation.

Because of the significant growth in PSE's overall EES portfolio of programs, and directives from upper management to ensure that claimed energy savings were "as pure as the driven snow," the

EES division was faced with a simple problem: a “business-as-usual” approach was not sufficient to meet the emerging, increasingly complex market research and evaluation demands of the utility’s regulatory, planning and implementation stakeholders. A new approach to evaluation planning was required.

The EMI team was uniquely suited to conduct this work as it had been providing PSE with an array of evaluation, market research, and strategic planning services for its Commercial/Industrial and Residential programs, and was intimately familiar with the organizational structure and business functions of EES. Having participated in various aspects of PSE’s two-year planning and evaluation cycle, EMI recognized the opportunity to address and improve key evaluation functions that would provide significant benefits to EES stakeholders (e.g., program managers, implementers and service representatives, marketing group).

Project Goals

Through the scoping of this project a number of goals were identified. Some of these were organizational, others administrative, others related to productivity.

Organizational

Because the Evaluation Group was understaffed and under funded, program evaluation did not have a high profile nor was it highly valued within the EES culture. It was determined that, over time, a concerted effort would be made to articulate and demonstrate the benefits that more rigorous evaluation work would provide management, implementation, and planning interests. In order to do this, a business case would need to be made to provide more resources for evaluation support services.

Administrative

In order to enable PSE to effectively define, budget, and manage its two-year Program Planning and Program Evaluation process, the following goals were identified:

- Improve the quality, consistency and flow of information within EES,
- Facilitate management and implementation decision-making,
- Standardize business practices for the Evaluation Group,
- Provide EES stakeholders with a clear understanding of the roles and responsibilities of the Evaluation Group.

Productivity

Given staffing and resource constraints and significant workload, it was necessary to conduct a thorough, systemic inventory and prioritization of evaluation work, and an EES resource assessment in order to determine the capacity of existing staff. Once completed, the Evaluation Group would be able to understand more clearly what work they would be able to take responsibility for and what work they would need to sub-contract.

There were a number of important variables “in play” while this project was being conceived, that would influence the potential outcomes and success of activities. The first and most important was that it was known that additional EES organizational restructuring was going to occur, yet the actual restructuring was not announced for quite some time. Needless to say, any significant organizational or budgetary changes that might be proposed or recommended as outcomes of this project would not be adopted until after the EES restructuring process was finalized. Secondly, PSE hired another evaluation analyst, effectively doubling staff resources focused on program evaluation. Also, effective in 2006, the budget for EES program evaluation activities was elevated as a distinct line item, separate from program implementation budgets. This simple act enabled the Evaluation Group to control and prioritize program

evaluation expenditures independently from program implementation budget limitations. While the needs of program implementation were, and will remain, important in the planning and execution of evaluation activities, competition for limited budget was no longer a factor.

Project Scope

In order to accomplish these goals, PSE and EMI negotiated a work plan that included four key components:

- Review and mapping of all existing data sources/bases and reporting tools
- Comprehensive program review & identification of key research questions related to each
- A structured EES needs assessment that provided all stakeholders with a framework to consider their respective evaluation and market research requirements.
- Development of an evaluation prioritization framework for all potential evaluation and market research projects. Prioritization criteria included risk management, program optimization, planning, and organizational equity issues.
- Standardized program documentation and project management tools

Project Activities

Review & Mapping of Organizational Data

It was accepted that a key first step in understanding the flow of information throughout EES was to examine all data tracking and reporting processes. Specifically, the project team:

- Reviewed all existing reporting and tracking tools
- Mapped existing data sources and owners
- Conducted interviews with individual program managers, department managers and all related support staff to review and assess the quality, currency, and usability of program related data
- Organized and analyzed findings

Comprehensive Program Review

Given the dramatic increase in the number of programs and pilot projects fielded by EES from 1999 to 2004, it was determined that a critical step was to collect and review all program and pilot program documentation. Aside from a bi-annual effort to develop program descriptions for regulatory filings, there had not been established protocols for developing and maintaining consistent, easily assessable program documentation. The project team:

- Reviewed all program descriptions and documentation
- Conducted a gap analysis for each, as means of ensuring complete and consistent documentation
- Developed an Evaluation Matrix that included all relevant program information for future evaluation project scoping
- Defined Program documentation standards to be used for future program planning and evaluation efforts
- Identified key research questions for each program and pilot to inform subsequent process and impact evaluation efforts
- Established a protocol for prioritizing evaluation projects

EES Needs Assessment

Once the comprehensive program review had been completed, there was a need to involve program stakeholders in the process of determining what evaluation projects would be most valuable or important. This effort was designed to accomplish three key things:

- Establish the Evaluation Group as proactive and attentive to the needs and interests of its customers/stakeholders
- Broaden, deepen or refine the inventory of evaluation questions,
- Involve EES staff in understanding how limited resources would be allocated and establish ownership of the prioritization process

In-depth interviews were conducted with all key staff related to each program or pilot. In these interviews, they were asked to identify any and all key short and long-term concerns and research questions.

Evaluation Prioritization Framework

Because the Evaluation Group was relatively understaffed and under-funded given the overall potential evaluation projects related to over 20 programs and pilots, it was imperative that criteria be established to allocate scarce resources.. The following key factors were identified, that would be considered relative to any potential project. Each potential project was scored based on these factors.

- Risk Management – As an Investor Owned Utility, PSE is answerable to regulators, to document and substantiate claimed energy savings. Evaluation is a critical tool in doing so. What process or impact studies are necessary to verify accuracy and accountability to regulators?
- Program Optimization – What process or impact related research could be done to best help program implementers meet their near term goals?
- Strategic Planning – What process or impact related research would be most helpful to inform EES planning functions with longer term program and/or portfolio development?
- Organizational Equity – It is important that evaluation resources not be dominated by one sector over another.

EMI developed a spreadsheet calculating tool that also scored programs based on relative value of savings (both gas and electric) to the overall EES portfolio as a means of helping guide resource allocation decisions.

Standardized program documentation and Project Management Tools

There were a few key tools that were developed as a result of, or in conjunction with, the aforementioned key activities. These are defined below as key project deliverables.

Evaluation Project Matrix. In order to help the Evaluation Group inventory and manage their overall potential evaluation responsibilities, a comprehensive spreadsheet was developed, that housed all relevant program and pilot information. The matrix included:

- Project Name and number
- Project objective and key research questions
- Lead, stakeholders
- Prioritization score
- Project schedule and status
- Budget (\$ and staff resources allocation)

- Evaluation tasks (e.g., metering, billing analysis, survey type and audience, best practice review, etc.)
- Status Notes

Program-at-a Glance Documentation. As a result of the comprehensive program review and finding inconsistent or incomplete program documentation, a Program-at-a-Glance (PAAG) document was developed, that would provide centralized, standardized documentation for program planning, implementation and evaluation needs. PAAG contents included:

- Program Overview (e.g., rate schedule, sector, accounting order number, filing reference)
- Budget & Goals
- Staffing
- Program Detail (e.g., measures, incentives, target market)
- Marketing Strategy
- Evaluation Plan
- Tracking Information
- Notes

Project Requisition Template. A template Project Requisition document, provided a tool for development of scopes of work to be approved by management prior to implementation of an evaluation project, either conducted internally or let out as an RFP. Use of this document served to encourage adequate planning up front, foster input from stakeholders, and prepare management for budgetary authorization. Adapted over time, it has evolved into a free-form outline that can be tailored to a project's specific needs. The outline follows:

- Project Name
- Purpose
- Stakeholders
- Project Lead
- Scope of Work
 - Research Questions
 - Methodology
- Budget
- Schedule
 - Request for Proposals
 - Proposal Review/Selection of Contractor
 - Project Kick-off
 - Data Collection
 - Analysis
 - Reports
- Stakeholder & Management Approval

Project Results

It was acknowledged at the outset that this collaborative effort was more of a long-term process than a project with a specific end date. A great deal of effort has been made over time to accomplish the organizational, administrative and productivity goals and a great deal has been accomplished. We have

indeed “breathed life” into the evaluation group and we can site the following as decidedly positive outcomes as a result of our work.

Reorganization Clearly Defines Role of Evaluation Group

In 2006, the EES department reorganization moved program evaluation staff to a new group within the EES division. This action defined evaluation as a separate, independent activity, yet maintained its connection to service EES implementers as one of its customer groups.

As a result of our work, processes now allow the evaluation group to effectively identify program needs, more quickly develop scopes of work, and prioritize and implement projects.

Improved Strategic Allocation of Evaluation Resources

Development and utilization of the project prioritization tool has given the Evaluation Group a much clearer understanding of PSE staff capacities and enabled them to more carefully and accurately budget for projects.

More important evaluation work completed: We have been able to define, conduct and utilize a substantial amount of evaluation and market research. The years 2005 and 2006 included market characterization studies, key to the refinement of new commercial program offerings including rebates for VFDs, Commercial Washers, and Gas Boiler Maintenance, Tier 2 HVAC RTUs. Similar work led to the refinement of a gas single-family home weatherization program and informed developed of a multi-family retrofit program. Studies have been launched to address the saturation of CFL lighting in residential housing and verify energy savings from commercial and industrial lighting measures. Other studies focusing on pilot programs and programs contributing large shares of energy savings are in the queue of projects to launch in 2007 and 2008.

Improved Communication w/Stakeholders/Customers

The efforts to involve stakeholders in evaluation planning have been fruitful. Stakeholder input to the development of scopes of work is deliberately sought. Working relationships with program management are fostered. These efforts lead to greater acceptance of findings and value shared. We have increased the profile and value of Evaluation group to EES stakeholders and their input has helped define and address organizational needs and priorities. As a result, we have experienced improved project management and collaboration with planning and implementation teams.

Increased Organizational Adoption of Evaluation Tools

We have developed and adapted usable tools for ongoing refinement and tracking of evaluation planning and implementation tasks.

Measure analysis is a good example of this. Before 2005, measure analysis could be characterized as cost effectiveness analysis applied to a summation of tracked energy savings and costs by program. Today, measure analysis includes a detailed look at measures and measure categories by programs and market sector. Where sufficient detail exists, yearly examination of the penetration of measures and the calculation of cost effectiveness by measure and market sector enables more informed decisions about how to optimize program delivery, as well as inform the Evaluation Group of opportunities for further study.

EES is in the process of adopting the PAAG documentation standard for the two-year cycle to file EES programs with the Washington State Utilities and Transportation Commission. These documents form the basis of PSE’s program descriptions supporting the filing.

The evaluation project matrix has become an invaluable project management tool. It is a working document used weekly to plan and track all active and pending evaluation projects.

Documentation of the basis for measure energy savings has occurred in past years but not centrally collected or tabulated in a way to easily inventory or assess gaps in information. The Evaluation Group has taken on the task of maintaining a central file for all measures offered under PSE's programs. Where energy savings values are deemed, the basis of the savings value is noted in the form of reference to studies or calculation method. Where energy savings are based on engineering analysis, the analysis methodology is described in detail.

Keys to Success

There are several factors that have contributed to the emergence of the evaluation group as a more efficient and robust presence within the organization. One key has been a persistence of vision and commitment to change. Organizations are often resistant to changing 'business as usual.' Without persistence, changing the way the evaluation group could function would not have been possible. Second, clear communication with EES stakeholders has been vital in obtaining acceptance and agreement. Clear and consistent documentation of processes and methodologies have contributed to a greater shared understanding of the role and value of evaluation amongst staff as well. A third element has been support from key allies within the organizational, specifically upper management. Progress could not have been made without support from department managers and others. Of course, over time it is necessary to continuously demonstrate the value that a more comprehensive approach to evaluation can bring to planning, implementation, and regulatory interests.

Conclusion

Overall, PSE has a more organized, efficient, confident and effective evaluation staff. The evaluation group currently consists of two staff members with an overall budget for 2006-2007 of about \$1,200,000. This is roughly 1.6% of total EES program expenditures and, while a smallish allocation by some measures, it is a significant increase in resources from previous years. These dollars have allowed PSE to conduct an array of process and impact evaluations managed internally, partner with neighboring utilities, and contribute to regional studies, including:

- Compact Fluorescent Lighting Saturation Study
- Commercial/Industrial Lighting Savings Verification
- Gas Water Heater Billing Analysis
- Powerful Choices Longitudinal Study
- Circuit Voltage Regulation Satisfaction Survey
- Commercial New Construction Baseline Study
- Commercial HVAC RTU Savings Verification (Phase 2),
- Resource Conservation Manager Impact Analysis
- Smart Grocer Process Evaluation
- Sprayhead Savings Verification
- Tankless Water Heater Market Examination
- Showerhead Flow Rate Study
- Multi-family New Construction Model Development

- Market research and market characterization studies

Steps are underway to add further staffing dedicated to evaluation activities. PSE anticipates significantly increased evaluation budgets for the 2008-09 planning cycle.

Looking forward, challenges remain. These include:

- Securing additional funding that reflects the organization's ongoing commitment to improving the capacity of evaluation services
- Optimizing communication and information flow within the organization
- Leveraging existing, external resources
- Development of additional internal resources
- Ongoing refinement of evaluation planning and implementation processes

PSE expects to set significantly higher conservation goals on the near horizon, and well into the future. It is our expectation that evaluation will play an increasingly valuable role in pursuit of them.