

# **Best Practices Of Energy Efficiency Portfolios: Findings From The National Best Practices Study**

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## **ABSTRACT**

This paper shares some of the results of recent findings from the National Energy Efficiency Best Practices study regarding Best Practices of Energy Efficiency Portfolios. These findings are based on in-depth research and analysis of nine leading energy efficiency portfolios from around the U.S.

Findings are based on the application of a benchmarking and decomposition model similar to that applied in the previous phases of the study at the program level, but which has been customized to reflect the characteristics of energy efficiency portfolios. Information is presented on best practices for four key components that are analogous to those applied at the program level in the previous phase of the study: portfolio design, portfolio management, portfolio implementation and portfolio evaluation. In addition, regulatory and policy level best practices are also analyzed and reported on. The paper summarizes best practices benchmarking results across nine energy efficiency portfolios from around the country, highlighting findings from selected portfolio practices. The paper also identifies specific administrative and policy-level approaches that have been found to be most useful and effective and draws lessons learned in conducting the study.

To our knowledge, there are no studies to-date that have analyzed best practices at the portfolio level. This pioneering study meets an increased need to deepen and broaden the energy efficiency implementation knowledge base by providing an in-depth look at what makes a portfolio successful and provides others with ideas to help them replicate that success. The report, which is made available on the project website, enables portfolio administrators and regulators to quickly and easily access valuable insights on proven and transferable practices that they may apply to their own situations.

## **Introduction**

The original goal of the National Best Practices Study was to broaden the skills and capabilities of energy efficiency practitioners by developing a set of energy efficiency best practices that could be used as a resource to enhance the design, implementation, and management of energy efficiency programs in California. The study's results have proven to be valuable for program managers across the U.S. and in other countries, as a result of their widespread dissemination through the project website.

The current phase of the study has 4 key deliverables, one of which is a Portfolio Best Practices Report. The remainder of this paper will provide a brief look at the approach used to assess portfolio BPs, as well as key results and recommendations for selected areas.

Our objective was to perform a comparative analysis of Best Practices at the energy efficiency portfolio level. We used a framework similar to that developed in the previous phases of the study to assess best practices at the portfolio level, but extended it to include policy components that influence the environment that the portfolio operates in.

## Definition of Portfolios

We define “portfolio” as a set of programs designed to work strategically and comprehensively across specific technologies, practices, and programs at a market level. Portfolios of interest for this study were comprehensive in their coverage and include a wide range of different types of programs that address most or all of the following:

- Multiple customer sectors – residential, commercial, industrial, agricultural, low income
  - Multiple equipment markets – lighting, HVAC, motors, VFDs, etc.
  - Multiple vintage segments– retrofit, replace-on-burnout, major renovation, and new construction
  - Multiple policy goals – e.g., resource acquisition, market transformation, equity, economic development, greenhouse gas mitigation

## Portfolios Included in the Study

A total of nine portfolios were included in this study. In general, we sought to include a mix of different portfolio types from a representative mix of organizations around the country. Because the study was made possible by energy efficiency public goods charge funds collected by Pacific Gas and Electric Company (PG&E), Sempra Utilities, and Southern California Edison Company (SCE), each of these program administrators was also included. The first three portfolios listed are located in states that have undergone substantial restructuring of electricity markets. As a result, the energy efficiency program administrative functions in all three states were transferred from investor-owned utilities to a single, independent non-utility administrator. The 9 portfolios are:

- New York State Energy Research and Development Authority (NYSERDA)
- Efficiency Vermont (EVT)
- Energy Trust of Oregon (Trust)
- Xcel Energy – Minnesota (Xcel-MN)
- MidAmerican Energy (MidAmerican)
- Florida Power and Light (FPL)
- Pacific Gas and Electric (PG&E)
- Southern California Edison (SCE)
- Sempra Utilities - San Diego Gas and Electric (SDG&E) and Southern California Gas (SCG)

The following table provides a snapshot of these portfolios in terms of their scope, maturity and overall size. Size metrics are based on current budgets and energy savings levels.

## Portfolio Snapshot

Item	NYSERDA	Efficiency Vermont	Energy Trust of Oregon	Xcel Energy (MN)	MidAmerican Energy	Florida Power and Light	Pacific Gas & Electric	Southern California Edison	Sempra Utilities
Period Reviewed	FY ended March 31,2006	2006 - 2008	2006	2006	2005	2005	2006 - 2008	2006 - 2008	2006 - 2008
Programs Addressed by this Study	EE – electric Renewables – self use	EE – electric	EE – electric Renewables – self use	EE – electric and gas DR – mass market	EE – electric & gas DR – mass market, large customers	EE – electric DR – mass market	EE – electric & gas	EE – electric	EE – electric & gas
Maturity/ Outlook	Port. Admin. since 1998; extended through 2011	Port. Admin. since 1999; extended through 2012	Port. Admin. since 2002; extended through 2012	Long term Port. Admin. Since 1980s; no sunset date	Long term Port. Admin. since 1980s; no sunset date	Long term Port. Admin. since 1980s; no sunset date	Long term Port. Admin. since 1970s; no sunset date	Long term Port. Admin. since 1970s; no sunset date	Long term Port. Admin. since 1970s; no sunset date
Budget for Current Funding Cycle (\$ millions)	\$150.20	\$73.75 (3-yr)	\$50.00	\$46.50	\$42.90	\$135.00	\$1,113.03 (3-yr) <sup>3</sup>	\$771.03 (3-yr) <sup>3</sup>	\$421.13 (3-yr) <sup>3</sup>
Budget as a Percent of Revenues <sup>1</sup>	1.5%	3.0%	1.7%	2.0%	1.7%	1.8%	2.9%	2.7%	2.1%
Gross MWh Achieved	2,655,000	270,000 (3 year)	343,129	214,891	121,169	171,752	2,826,000 (3-yr) <sup>3</sup>	3,135,000 (3-yr) <sup>3</sup>	850,000 (3-yr) <sup>3</sup>
Gross KW Achieved	1,666,000	40,000 (3 year)	39,170	82,300	239,000 <sup>2</sup>	68,230	613,000 (3-yr) <sup>3</sup>	672,000 (3-yr) <sup>3</sup>	162,800 (3-yr) <sup>3</sup>

<sup>1</sup>Gross electric and gas revenues as reported by the U.S.DOE's Energy Information Administration (Direct Use and Retail Sales of Electricity to Ultimate Customers by Sector, by Provider)

<sup>2</sup>Nonresidential Load Management program accounts for 158,000 kW of the portfolio's savings

<sup>3</sup>Budgets and savings goals are from the utilities' filed October 2007 monthly progress reports to the CPUC.

## Best Practices Methodology<sup>1</sup>

We used a multi-step process to determine portfolio-level best practices:

- First, we developed the list of components used for the analysis of Portfolio BPs. The Best Practices Team developed a method for breaking portfolios down into components and sub-components in order to systematically determine which specific features are most important to overall portfolio success. The set of components used for our analysis of portfolio BPs consisted of portfolio and program design practices, portfolio management practices, and regulatory and policy practices.
- Second, portfolio information was gathered using primary and secondary sources. Primary data was collected largely through surveys of portfolio administrators and review of regulatory filings, annual reports and portfolio evaluations. The team conducted extensive interviews with portfolio managers using a detailed survey instrument to guide the conversations. The survey instrument collected information on three main areas: portfolio and program design practices, portfolio management practices, and regulatory and policy practices. The majority of the instrument was devoted to collecting detailed information for each portfolio component. For each component, respondents were asked to provide factual information on how the portfolio addressed each issue and qualitative judgments about what practices they felt contributed to the success of this portfolio and what practices should have been avoided or could be improved. The final set of questions elicited responses on how the portfolio might have been affected by the broader policy context in which it operates.
- Third, the final set of best practices for each component area is based on a structured and systematic comparison of specific approaches and features as reported by each portfolio. Best practices represent those elements that are key contributors to the overall success of the portfolio. Both qualitative and quantitative findings are used to establish the role of each element in contributing to the portfolio's overall performance.

## Best Practices Themes

Our findings include five major best practices themes which cut across all of the Portfolios included in our study. These themes are offered below.

**Successful Portfolios share many common characteristics, even if they appear to be very different in terms of their administrative models, funding sources and governance.** These characteristics are:

- Deeply committed senior management and program staff
- Clearly defined goals and objectives
- Tools for regularly monitoring progress against these objectives, and enabling mid-course corrections when results veer off-course
- A willingness to try new program approaches as well as to retain those that are “tried and true”
- Stable program funding sources and levels

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<sup>1</sup> Refer to Appendix A, Methodology, in the Portfolio Best Practices report for a detailed discussion of this process.

**Portfolios use a combination of strategies to successfully address the many challenges they face, some which are common to all and others which are unique to a state or region.** These challenges include:

- Changing codes and standards and associated baselines, which require adjustment of energy efficient measures promoted by their programs
- Maturity in certain markets, and high saturations of energy efficient equipment installed
- Increasing savings targets
- Inadequate funding levels
- Increased need for integration with rapidly expanding set of related programs offered by sister organizations

**A strong commitment by senior management to the portfolio, their willingness to provide the resources needed to support it, and their creation of a culture that values and nurtures its activities and results, are key success elements.** Elements of a highly supportive working environment include:

- A mission statement that is aligned with the portfolio's objectives and values; role modeling of the mission in the organization's activities
- Senior management that continually emphasizes the importance of the portfolio's activities and accomplishments throughout the organization
- Budgets and staffing levels that are sufficient to support the portfolio's activities
- A work culture that emphasizes and rewards continuous improvement in portfolio achievements
- Advocacy of portfolio-friendly regulatory and legislative policies such as decoupling mechanisms, performance-based incentives, and cost-effectiveness procedures, among others

**Having clearly defined and measurable objectives, understanding the relative importance of each, and regularly monitoring progress against these objectives are key to a portfolio's ability to attain them. The principle underlying this best practice is that "you can't manage what you don't measure"** Effective management of the portfolio by its objectives requires:

- Objectives that are actionable, measurable and aligned with the overall policy goals
- Tools that provide for regular monitoring of progress against these objectives

**Having a balanced portfolio with a diverse set of programs representing different markets, delivery strategies, and maturity levels is essential. Of nearly equal importance is the need to continually adjust and rebalance offerings.** Reasons for rebalancing include:

- Changes in end-user and market acceptance of existing technologies (as compared to initial forecasts)
- Introduction of new technologies
- Changing codes and standards
- Desire to test new approaches to determine their effectiveness
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## **Examples of Best Practices**

This section will provide some of the detail behind the Best Practices findings for selected component areas. One goal of this is to illustrate how successful business practices of the portfolio administrator lead to identification of best practices for a given area.

## Portfolio Objectives

Despite significant differences in administrative structures, and regulatory and policy environments, the nine portfolios involved in the study have fairly similar objectives. An overarching objective cited by all nine portfolios is the cost-effective acquisition of energy savings (i.e., resource acquisition). Customer satisfaction is another objective shared by all. The most common secondary objectives include:

- market transformation
- addressing underserved markets
- lowering customers' bills and making energy more affordable
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All nine portfolios have established quantitative goals for their most important objectives, resource acquisition and cost-effectiveness. However only one administrator (Efficiency Vermont) has fully quantified and weighted objectives. Most of the other Portfolios have one or more secondary objectives that are qualitative only. Having objectives that are quantifiable or measurable is important for being able to understand your success in achieving the objective, and for bringing clarity to all aspects of the portfolio's operations.

Successful portfolio management also requires knowing how the portfolio is performing relative to the stated objectives. Having current information is ideal, as it enables management to identify performance issues or gaps and take corrective actions as needed. All nine Portfolios have tracking systems in place that allow them to monitor progress against their quantitative metrics. However, many of their systems are older and progress reporting is done manually, making it difficult for them to track progress on an ongoing basis<sup>2</sup>.

Best practices for setting and tracking Portfolio Objectives are:

- Develop and use clearly articulated objectives that are internally consistent, actionable and, if possible, measurable.
- Establish goals and objectives that bring clarity to all aspects of the portfolio's operation. The more specificity, the better.
- Set quantitative goals that are consistent with portfolio and policy objectives; informed by sound research; aligned with the portfolio administrator's available resources, program tools, and financial risk/reward mechanisms; and periodically updated.
- Develop tools to track the portfolio's performance against these objectives on a continuous basis and report progress back to the organization.

## Portfolio Planning

A well-structured and data-driven portfolio and program planning process can potentially benefit the Portfolio in many ways, by providing:

- Consistent development of the overall portfolio and underlying program plans, including goals, incentive levels, and other program attributes
- Well-designed programs incorporating industry best practices, market and technology research, and input from key stakeholders (such as trade allies)
- Stakeholder buy-in (if a collaborative process is used),
- Information to allow managers to assess program performance against stated milestones and make adjustments as needed

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▪ <sup>2</sup> Best practices for Reporting and Tracking are addressed later in this paper.

The portfolios in this study use fairly structured processes to design their portfolios and programs. Each of these processes has the following features in common: (1) planning processes and steps are deliberate, and are consistently applied across all programs; and (2) quantitative portfolio and program features and goals are data driven, and are based primarily on current, relevant market research. All 3 of the California IOU portfolio administrators have recently decided to set-up separate planning groups with dedicated staff. This will allow them to conduct program research and planning tasks on a more continuous basis.

There are several versions of these structured portfolio and program planning processes used, for example:

- Both FPL and PG&E design each program based on an in-house product development process model. The end result is programs that are designed based on a deliberate and structured planning approach, in a manner consistent with other products offered by these companies. One outcome of the PG&E model is a long-term market strategy for each targeted measure, based on the anticipated market transformation.
- MidAmerican uses a detailed and comprehensive program and portfolio planning process that involves use of:
  - Dedicated staff to lead the program design process
  - Large stakeholder teams to make decisions regarding program design changes
- Efficiency Vermont designs its programs based on their understanding of how markets work. They use market research to support this understanding in some cases. They design their delivery approaches based on input and feedback from trade allies, with whom they work extensively to deliver efficiency measures to end-users.
- Xcel – MN uses a data-driven process to design its programs and set savings goals, based on the results of a Potential Study. Like FPL and PG&E, their program design and development process is based on their product development process. They research successful program approaches and strategies used by others and adapt them to their own customers and market conditions.
- Sempra has developed a common set of materials and tools for program managers to use when planning programs. They have an internal tool called Program Builder that looks at technology data systematically, and gives them a snapshot of program data with detailed assumptions. They also have a budgeting tool for program managers, which reports historical administrative budgets, and incentive budgets. This helps them to forecast budgets for future years. They use technology data from the DEER database for standard measures, and perform market research of non-standard measures.

Best practices for **Portfolio Planning** are:

- Design programs within the portfolio based on sound program plans; where appropriate, utilize clearly but concisely articulated program theories.
- Solicit stakeholder input into the portfolio and program plans either through a formal interview process or a collaborative planning process involving key stakeholders.
- Conduct selective market analyses around information gaps and key issues, in order to understand market conditions.
- Conduct baseline research
- Allocate market research efforts strategically across the portfolio. Target resources toward the very largest markets, and those that are least understood.
- Use a structured and disciplined portfolio and program planning process, to ensure the integrity of the filed portfolio and program plans.

- Develop a long term market strategy and use it to guide market entry/exit decisions.
- Link strategic approach to policy objectives and constraints.
- Build feedback loops into program design & logic.
- Maintain the flexibility to rebalance portfolio initiatives, as needed, to achieve the portfolio's goals and objectives.

### **Adaptation to Changes in Technologies and Market Conditions**

One of the many challenges facing portfolio and program managers today is the current dynamic environment of constantly changing technologies, consumer preferences and lifestyles, and economic and market conditions. The advent of new codes and standards triggers a change in baseline conditions that, in turn, makes it necessary to raise the standards for program-qualifying measures. Any one of these factors can require program approaches to be significantly changed or eliminated. Managers need to be aware of these changes, in order to anticipate and plan for the resulting changes in their portfolios and programs.

All nine portfolios in this study have internal processes in place to monitor changes in technology, market and code/standards to varying degrees. They rely on a number of sources for gathering intelligence on new technologies and program approaches, which include:

- Syndicated research sources, such as ESource
- **Published secondary sources**, including conference proceedings and industry trade publications, and reports from research programs (such as the PIER program in California or the Florida Solar Energy Center).
- **Trade ally intelligence.** Portfolio programs rely heavily on the trade allies involved in program delivery to give them the “pulse” of information regarding new technologies that are forthcoming, and any changes in the market delivery structure.
- **Information from trade shows.** Programs which promote adoption of specialized equipment attend industry trade shows to learn of the latest technology developments and to network with manufacturers.
- **Intelligence from industry peers.** Portfolio and program managers network with their peers in the industry to share information about their program approaches and the factors that have made them successful.
- **Findings from dedicated research and development programs.** Some portfolios fund separate R&D efforts, tailored to address their own specific research needs, and are able to use the findings in the design of their programs. Both NYSERDA's R&D function and California's Emerging Technology and PIER programs fall into this category. FPL also funds its own conservation R&D effort, in order to stay current on promising new technologies that pertain to its customer base and climate zone.

When new code/standard changes are announced, most portfolio administrators wait until close to when the change goes into effect before modifying their programs. This allows the programs to maintain a continuous market presence with trade allies, buying time while they revise their program based on the new standards.

California is very proactive in the technology lifecycle, starting first with performing technology R&D (through the PIER/ Emerging Technologies program), then promoting adoption of the technology through portfolio programs offered by the investor-owned utilities, and finally, institutionalizing the technology into its building codes via its Codes/Standards program. All of these efforts are funded through the utilities' energy efficiency portfolio budgets.

Best practices for **Adaptation to Changes in Technologies and Market Conditions** are:

- Maintain a separate R&D function (even if it is small) to keep abreast of new developments in technologies and program delivery strategies
- Proactively track new codes and standards that affect program baselines. Adjust programs when appropriate based on the longer term market strategy.
- If possible, participate in the development of new codes and standards.
- Be willing to experiment with new program approaches that have proven successful elsewhere. Balance these against established, proven strategies.
- Network with industry leaders and peers; stay connected to developments in the market.
- Foster close relationships with market actors; rely on them for market intelligence.

### **Portfolio Management: Program Integration**

Excellent portfolio management practices lead to efficient and cost-effective operations and high-quality results. This study addresses management practices in four key areas, one of which is Program Integration.

The need for program integration results from end users' growing interest in energy and environmental issues, and desire to do something to respond. Many voluntary programs are now available to support this. The types of programs include:

- Energy Efficiency
- Demand Response
- Green Pricing
- Green Buildings/LEED certification
- Renewable Energy
- Distributed Generation
- Related Loan Programs and Tax Credits

Some of these programs are within the portfolio, but many are not. Program integration involves packaging or bundling benefits from multiple related programs into one offering to the customer. For end-users undertaking large, complex projects (such as a whole building retrofit or new construction project), each of these programs or services may provide benefits to their project. The challenge to portfolio administrators is how to access and leverage these individual program benefits in a way that is both efficient and understandable to the end-user.

All of the portfolios in the study expressed strong support for providing integrated delivery, simplifying program delivery by bundling benefits from multiple programs and simplifying communications using a central point of contact. Administrators see several benefits to integrated delivery of related programs' benefits:

- It is seen as a smarter way to achieve savings; in effect, using one transaction to yield impacts from multiple programs
- It complements the goal of minimizing lost opportunities by requiring them to consider all applicable programs and measures when identifying and recommending projects to end-users
- It makes certain complex projects financially viable, by combining the purchasing power from several different program budgets
- For those who are under pressure to meet increased goals, it provides them another way to "think outside the box". They see program integration as a necessity for achieving ever-higher goal levels
- Bundling delivery of energy efficiency with demand response offers a way to consider and realize the joint benefits of both types of programs when marketing to end-users.

Although portfolios see the merits of bundled program delivery, they also realize that this approach is far more complicated than if they simply focus on delivering their own programs. Some of the challenges they face are:

- The logistics of coordinating roles and responsibilities among the many organizations involved
- Differences in program design may make it challenging to fully leverage all program features.
- Difficulties in packaging the project, including the incentives and savings contributions from each program
- Liability concerns associated with providing tax advice to program participants
- Savings attribution issues – difficulties in establishing the savings contribution and level of free ridership from each program and measure
- The need to keep communications simple, working through a single point of contact, and consolidating marketing messages, so that the sponsor is not overwhelmed with too much information.

Portfolios' current integrated program delivery efforts are narrowly focused, and include:

- Using findings from energy audits and technical assessments to “steer” customers towards their other prescriptive equipment programs, and demand response programs
- For large customers' projects, leveraging the utilities' assigned account representatives to serve as a single point of contact and program integrator.
- Routinely conducting billing analysis to identify the lowest-cost rate option for each of their large and medium sized customers. This, in effect, is used to market lower-cost demand response programs to customers who can tolerate the load reduction.
- Cross-promoting related and complementary programs. For example, the California utilities promote the Self-Generation Incentive Program, the California Solar Initiative and the Climate Change Action Registry, along with their own programs.

The Trust's integration efforts are somewhat more comprehensive. It routinely works cooperatively with many other program sponsors such as the Northwest Energy Efficiency Alliance, the State of Oregon, the Bonneville Power Administration, the Climate Trust in Oregon and the investor owned utilities. The Trust has helped to structure some large multi-million dollar project deals by combining its incentives with benefits offered by these other organizations. Without the combined benefits of all of these programs, the Trust believes some of its largest projects would not have been viable.

PG&E has recently developed a customer-centric Integrated Market-based DSM portfolio design. In developing this design, a key interest was in facilitating integrated program delivery, based on the customer's needs. The customer-centered perspective enables PG&E to provide more integrated program offerings to the customer, thereby increasing the customer's satisfaction with PG&E service.

Best practices for **Program Integration** are:

1. In designing an integration strategy, seek to include programs with related and complementary goals, (for example, energy conservation, water conservation, renewables and demand response).
2. Simplify participation in multiple programs. Offer one “bundle” that may consist of energy efficiency, renewables, and financing measures from several different organizations but are seamless to the customer.
3. Efficiently deliver integrated programs to all end-users regardless of their size. Larger customers should be assigned a single point of contact that represents all related programs. Smaller customers should be offered a whole building strategy that

- incorporate measures from multiple programs.
4. In assigning roles and responsibilities among complementary organizations, play to each organization's strengths and key interests. Clearly define roles and responsibilities that leverage their strengths.
  5. Leverage relationships from complementary organizations such as utilities, trade allies, industry specialists, etc.

### **Portfolio Management: Reporting and Tracking**

Efficient, accurate and timely tracking and reporting are important for portfolio operations, because they allow managers to monitor their performance versus their objectives, and make adjustments and take corrective actions as needed when results are lagging. Tracking databases perform the following functions, each of which is essential to effective portfolio operations:

- They provide documentation of portfolio and program projects and activities that lead to achievement of the portfolio's objectives. In essence, they provide proof of what was accomplished for the money that was spent.
- They serve as an important portfolio and program management tool, allowing the portfolio and program managers to:
  - track progress towards achieving quantitative Portfolio and program objectives
  - monitor the pipeline of identified and committed projects
  - understand where savings have come from – which technologies, market segments, etc.
- They provide valuable information to support the marketing function, such as project leads, a contact management system, a history of prior participation, etc.
- They also provide data to support the evaluation, audit and quality control functions.

Newer tracking and reporting systems take advantage of advanced computer technology. Many of the newer systems are internet-based, and can be accessed by all key stakeholders involved in the portfolio's programs, including program staff, subcontractors, and trade allies. Routine functions such as reporting, and financial tracking and payment functions are typically automated. Some databases can track and report results on a near-real time basis. Several also have electronic program application forms, which are accessible by program staff, trade allies, and participants.

The portfolio administrators in this study use both older and newer tracking and reporting systems. In general, utility administrators tend to use older databases, while non-utility administrators have newer internet-based systems. Two of the non-utility administrators, the Trust and EVT, have newer, highly sophisticated databases which are internet-based and have near-real time reporting of results, automated financial functions, and electronic program application forms. The third non-utility administrator, NYSERDA, uses an older system, but is in the process of developing an electronic project application portal that will allow auto-population of some fields. NYSERDA is also working on a new database that is intended to combine the functions of finance, contracting, and project tracking for all of its programs, and for specific projects. It will centralize all of the independent spreadsheets that contractors are currently using. They estimate that it will take another 2 years to complete.

Best practices for **Reporting and Tracking** are:

1. Clearly articulate the data requirements for measuring portfolio and program success.
2. Design tracking systems to support the requirements of all major users: program administrators, managers, contractors and evaluators.
3. Use the Internet to facilitate data entry & reporting; build in real time data validation

- systems that perform routine data quality functions.
4. Automate, as much as is practical, routine functions (e.g., monthly portfolio and program reports, financial tracking).
  5. Integrate financial tracking and payment functions.
  6. Develop accurate algorithms and assumptions on which to base savings estimates.
  7. Conduct regular checks of tracking reports to assess program performance; if possible, develop real-time reporting capability.
  8. If possible, incorporate data likely to be needed for project assessments (such as historical billing data for large end-users).
  9. Periodically “mine” tracking data to understand historical portfolio and program experiences.

## **Final Note**

This paper provides a brief glimpse at some of the findings and recommendations in the Portfolio Best Practices report. For a full copy of the report, please visit the project website ([www.eebestpractices.com](http://www.eebestpractices.com)).