

Evaluation & Data Collection – Develop Evaluation Plans

Description

Evaluation plans are critical tools used to measure the success of residential energy efficiency programs, and touch all aspects of program design and delivery. Your evaluation plan should include:

- An explanation of program goals
- The metrics to determine whether those goals are being achieved. See the [Marketing & Outreach – Develop Evaluation Plans handbook](#), [Financing – Develop Evaluation Plans handbook](#), [Contractor Engagement & Workforce Development – Develop Evaluation Plans](#) for more information
- Designs for data collection systems and processes
- Criteria for determining cost-effectiveness
- [Communication channels](#) to share the plans and results with stakeholders
- The scope, schedule, and budget for evaluation activities.

You need to plan carefully to ensure that your evaluation activities are aligned with your program design and implementation activities. The graphic below, from the State and Local Energy Efficiency Action Network (SEE Action) [Energy Efficiency Program Impact Evaluation Guide](#), illustrates the importance of this integration. The graphic shows the residential energy efficiency program implementation cycle, emphasizing the role of evaluation activities in providing feedback to current and future program decisions.

- **Program goal setting.** Both program goals and evaluation goals should be developed when a program is first envisioned, in order to adequately plan and budget for the activities necessary to measure progress towards goals.
- **Program design.** Evaluation planning should begin during the program design phase in order to ensure that processes and systems to collect data are integrated to support program administration and evaluation.
- **Program launch.** A detailed program evaluation plan should ideally be in place when the program is launched. This helps ensure program preparedness to evaluate program activities from the outset.
- **Implement Evaluation.** Program administrators should be evaluating their programs' success as a standard business practice; however, it is recommended that formal evaluation activities also occur, usually with an experienced third party to provide an unbiased perspective. While it can be valuable to coordinate third-party evaluations with program launch activities (see Clean Energy Works Oregon example on the [Step-by-Step tab](#)), typically third-party evaluations begin after a period of program performance.

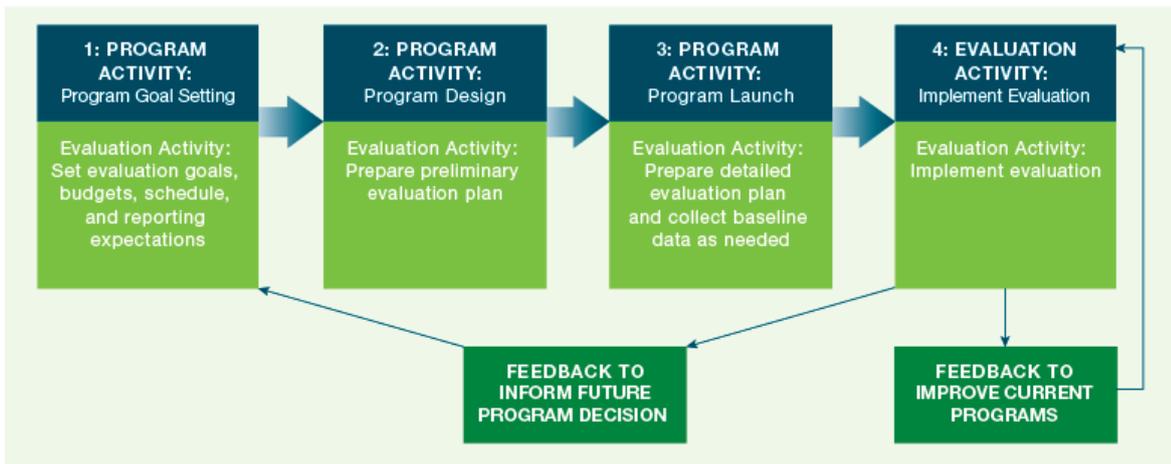
Program Implementation Cycle with High-Level Evaluation Activities

Evaluation & Data Collection

Stages:

[Overview](#)

1. [Develop Evaluation Plans](#)
2. [Develop Resources](#)
3. [Conduct Evaluation](#)
4. [Communicate Impacts](#)



Source: [Energy Efficiency Program Impact Evaluation Guide](#), State and Local Energy Efficiency Action Network, 2012.

This handbook addresses two types of external evaluations, described in the [Overview handbook](#) and defined below:

- **Impact evaluations** determine program-specific induced effects, such as reductions in energy use, demand, and non-energy benefits, such as avoided emissions of greenhouse gases, economic impacts, or job creation.
- **Process evaluations** assess how program performance can be improved and are an important adjunct to impact evaluations.

The [Evaluation & Data Collection Overview handbook](#) also describes **market assessments**, which look at your program's impact on market transformation. This type of assessment is further discussed in the [Market Position & Business Model – Assess the Market handbook](#).

This handbook discusses the steps you should take to develop evidence-based insights into your program's performance through third-party impact and process evaluations. These steps include:

- Determine the type(s) of evaluation
- Determine the scope of the evaluation(s)
- Develop a timeline for evaluation activities
- Decide how to determine your program's cost-effectiveness
- Solicit proposals for evaluation services
- Evaluate proposals
- Negotiate and execute the contract.

Subsequent handbooks in this component area discuss how to [develop resources](#) to support the evaluation plans, [execute the evaluation plans](#), and [communicate the results](#) of evaluation reports.

Find related information across other program components:

- **Market Position & Business Model – Develop Evaluation Plans**
Develop processes to evaluate your organization’s strengths, weaknesses, and market position on a regular basis.
- **Program Design & Customer Experience – Develop Evaluation Plans**
Establish metrics and measurement strategies for understanding whether you are effectively achieving your program goals and meeting your customers’ needs, while identifying areas that can be improved.
- **Marketing & Outreach – Develop Evaluation Plans**
Develop a plan and metrics to evaluate the effectiveness of your marketing and outreach strategies.
- **Financing – Develop Evaluation Plans**
Establish an evaluation plan that will allow you to determine how your financing activities are impacting the market.
- **Contractor Engagement & Workforce Development – Develop Evaluation Plans**
Determine processes for collecting and sharing data about key contractor metrics and workforce development activities.

Step-by-Step

Several public resources are available to help you plan your evaluation, including—the Energy Efficiency Program Impact Evaluation Guide (see below), and other reports, tools, and case studies referenced in this handbook.

Energy Efficiency Program Impact Evaluation Guide

Chapter 8 in the SEE Action Guide presents impact evaluation concepts and the steps involved in the planning process, including the development of evaluation approaches, budgets, and schedules. This chapter also discussed how evaluation planning and reporting is integrated into the program implementation process and presents issues and questions to help determine the scope and scale of an impact evaluation. The end of the chapter includes a checklist for preparing an evaluation plan.

Source: [Energy Efficiency Program Impact Evaluation Guide](#), State and Local Energy Efficiency Action Network, 2012.

Determine the type(s) of evaluation

You will need to determine what type(s) of evaluation best help your program. The three common types of energy efficiency program evaluations are:

- **Impact evaluations** help you understand the extent to which program products and services are meeting the stated goals of your program, and may be necessary based on your program’s funding requirements. Impact evaluations may also measure the effects of the program on non-energy goals, such as job growth, economic impacts, water savings, and greenhouse gas reductions. Impact evaluations are often the highest-priority third-party evaluations because they provide objective analysis of your program’s success at meeting goals.
- **Process evaluations** can help you identify the extent to which existing processes and practices are, or are not, contributing to your program’s performance and gain insight into aspects of your program design that you can and should enhance.
- **Market evaluations** can help you gain market insights that are critical to designing and implementing effective residential energy efficiency programs. They can be useful for strategic planning and during your initial program design phase.

[Spotlight on the Better Buildings Neighborhood Program Evaluation](#)

DOE administered the Better Buildings Neighborhood Program (BBNP) to support programs promoting whole building energy upgrades. BBNP distributed a total of \$508 million to support efforts in hundreds of communities served by 41 grantees. DOE commissioned an independent evaluation to determine the direct impacts, market effects, and lessons learned from the Better Buildings Neighborhood Program.

The **impact evaluation** developed independent, quantitative estimates of the impacts of BBNP. Third-party evaluators conducted the impact evaluation of the three-year program in two phases and combined the findings to develop a verified energy savings estimate for BBNP. The impact evaluation comprised two broad activities to determine gross verified savings:

1. Measurement and verification of a sample of BBNP grantees and upgrade projects using an ex-post analysis (actual savings based on post-upgrade conditions); and
2. Billing regression analysis on projects from grantees with sufficient utility bill data.

The impact evaluation also constructed an economic impact model of the U.S. economy and estimated the economic impacts of BBNP, including jobs, economic output, income (personal and business), and tax revenue that result from the program spending relative to a base case scenario where BBNP did not exist. The impact evaluation is presented in [Savings and Economic Impacts of the Better Buildings Neighborhood Program](#) (Final Evaluation Volume 2).

The **market effects evaluation** sought to identify early indications that BBNP had an effect on the local building improvement markets in which the program operated, and to understand how and why home performance contractors and equipment distributors changed their business practices in a way that promoted greater adoption of energy efficiency. It explored changes in the market for energy efficient products and services and in market actors' behavior resulting from BBNP activities. The study drew on multiple data sources, including phone surveys with contractors and distributors, in-depth interviews with contractors, surveys with homeowners, and in-depth interviews with financial institutions. The market effects evaluation is presented in [Market Effects of the Better Buildings Neighborhood Program](#) (Final Evaluation Volume 5).

The **process evaluation** drew on interview and survey information collected from the grantees, DOE program staff and contractors, program participants and nonparticipants, home performance contractors serving homeowners, and financial institutions working with the grantees. In addition, an extensive literature review informed the evaluation. The process evaluation had two broad objectives:

1. To assess the degree to which BBNP met its goals and objectives related to program processes and grantee program activity.
2. To identify the most effective approaches – including program design and implementation activities – to completing building energy upgrades that support the development of a robust retrofit industry in the U.S.

The process evaluation and detailed analyses of specific program strategies are presented in three volumes:

- [Drivers of Success in the Better Buildings Neighborhood Program – Statistical Process Evaluation](#) (Final Evaluation Volume 3)
- [Process Evaluation of the Better Buildings Neighborhood Program](#) (Final Evaluation Volume 4)
- [Spotlight on Key Program Strategies from the Better Buildings Neighborhood Program](#) (Final Evaluation Volume 6).

A synthesis of the entire BBNP evaluation study is presented in [Evaluation of the Better Buildings Neighborhood Program](#) (Final Synthesis Volume 1).

Determine the scope of the evaluation(s)

Next, you will need to determine the scope of each type of evaluation you plan to conduct. The scope of your evaluation should derive from your [program's goals and objectives](#). It must clearly articulate what questions you would like answered:

- Will you be evaluating your program's energy savings and achievement of other goals (i.e., impact)?
 - You will need to list each of the program's goals and the time period you want the evaluator to examine.
- Will you be looking at your program's operational efficiency and ability to serve the market?

- Your scope of work will need to clearly state your program goals, as well as the areas you would like examined that can be improved through operational changes. For example, how easy or difficult is it for a customer to participate in the program? Are there ways to streamline processes for subcontractors that would make them more effective or more likely to participate? Could you lower the administrative cost of your program by eliminating ineffective processes?

[Guide for Benchmarking Residential Energy Efficiency Program Progress with Examples](#)

The guide provides an inventory of recommended Residential Program Progress Metrics, describes approaches for using them effectively, and gives examples of peer benchmarks from the Better Buildings Neighborhood Program for comparison. Appendix C of the guide provides planning worksheets to help identify the types of information that would be useful for documenting success in meeting your program goals.

Develop a timeline for evaluation activities

Third-party evaluations can only occur after the program has been operating for some time, generating enough data to make evaluations meaningful. Your evaluation plans should include a list of interim activities to ensure that program evaluation will be efficient and effective, such as:

- Communicating with your evaluator to ensure that you are collecting the right types of data, in a format that is easily transferrable once the evaluation begins
- Communicating with program participants for potential participation in evaluation activities (e.g., including authorizations on program forms)
- Identifying and preparing program staff who will be responsible for supporting evaluation activities

The [Develop Resources handbook](#) discusses the systems and tools that will support data collection and data quality necessary for efficient and effective evaluation. The [Conduct Evaluation](#) handbook discusses the steps program managers need to take to properly oversee evaluation activities and which steps you can plan for when you are developing your evaluation plan.

When sequencing events, consider the process and time to procure evaluation services and finalize a contract with a third-party evaluator. If you decide to run impact and process evaluations concurrently, you may want to include scopes for both activities in a single RFP and allow bidders to submit proposals for one or the other, as many evaluation firms specialize in one type of evaluation and you want to ensure you get the best value from the evaluation activity.

Phased third-party evaluation activities can also inform program design and implementation activities as your program ramps up. A phased evaluation approach engages an evaluator before program launch and evaluates program processes and impact as the program launches. This type of ongoing evaluation is ultimately what you would want your internal evaluation activities to look like; however, if you are on a tight launch timeframe in a complicated market, engaging a third-party evaluator to help you identify issues and improvements during the launch process can be very effective.

Clean Energy Works Oregon Used a Three-Phase Evaluation Process

Clean Energy Works Oregon conducted a [three-phase evaluation](#) of its pilot program, Clean Energy Works Portland (CEWP).

- The phase 1 (August–September 2009) evaluation provided rapid feedback about the initial CEWP 50-home test pilot program which allowed the program to adjust screening criteria, recruit additional home performance contractors, and build on experience with CEWP without a gap in program activity.
- The phase 2 (February–March 2010) evaluation documented participants' experiences and satisfaction with CEWP and summarized lessons learned. These were applied during phase 3.
- The phase 3 (June–August 2010) evaluation documented the status of projects and evaluators created a report with detailed results for all three phases.

Third-party evaluation of program activities while the pilot was phasing in allowed the program to identify many process and policy issues in order to develop a program design that could attract the support to expand the program statewide.

Decide how to determine your program’s cost-effectiveness

Cost-effectiveness analysis compares the benefits (i.e., outputs or outcomes) associated with a program or a measure with the costs (i.e., resources expended) to produce them. It is commonly used to make decisions about funding programs or program approaches. Since cost-effectiveness can be defined in numerous ways, it is important to understand what is required by your program’s utility regulators, legislation, or funders. For example, if you receive public funding to administer a residential energy efficiency program, make sure to understand what cost-effectiveness test(s) will be used by regulators or funders to evaluate the program’s performance. Even if a cost-effectiveness test is not prescribed or a required measure of performance.

Some programs are required to use a combination of tests to measure different aspects of the program.

- For example, the California Public Utilities Commission’s [Standard Practice Manual](#) contains the Commission’s method of evaluating energy saving investments using multiple tests.

Even if cost-effectiveness tests are not prescribed or a required measure of performance, it can provide an assessment of program performance, and perhaps open up opportunities for financial support.

Measuring the Cost-Effectiveness of Your Program

Five cost-effectiveness tests have been developed to consider efficiency costs and benefits from different perspectives.

Summary of Common Cost-Effectiveness Tests

TEST	KEY QUESTION ANSWERED	SUMMARY APPROACH	IMPLICATIONS
Societal Cost	Will total costs to society decrease?	Includes the costs and benefits experienced by all members of society.	Most comprehensive comparison, including the impact to all of society.
Total Resource Cost	Will utility costs and program participants’ costs decrease?	Includes the cost and benefits experienced by all utility customers, including energy efficiency program participants and non-participants.	Includes the full incremental cost of the efficiency measure, including participant cost and utility cost.
Program Administrator Cost	Will utility costs decrease?	Includes the costs and benefits that are experienced by the energy efficiency program administrator.	Limited to impacts on utility revenue requirements. Most consistent with supply-side cost-effectiveness methodologies.
Participant Cost	Will program participants’ costs decrease?	Includes the costs and benefits that are experienced by the customer who participates in the efficiency program.	Provides distributional information. Useful in program design to improve participation. Of limited use for cost-effectiveness screening.
Rate Impact Measure	Will utility rates decrease?	Includes the costs and benefits that will affect utility rates, including program administrator costs and benefits and lost revenues.	Provides distributional information. Useful in program design to find opportunities for broadening programs. Should not be used for cost-effectiveness screening.

Source: U.S. Department of Energy, 2014.

Three tests—the Program Administrator Cost Test, the Total Resource Cost test, and the Societal Cost test—are predominately used by states as the primary way to screen efficiency programs.

While the choice of test is important, it is even more important to ensure that you are applying the tests properly—that each test is being applied in a way that achieves its underlying objectives, is internally consistent, accounts for the full value of energy efficiency resources, and uses appropriate planning methodologies and assumptions.

Best practices to use in applying the cost-effectiveness tests include:

- Fully accounting for other program impacts where appropriate
- Properly estimating avoided costs
- Using the most appropriate discount rate
- Capturing spillover effects
- Fully accounting for the risk benefits of energy efficiency.

Source: [Best Practices in Energy Efficiency Program Screening](#), Synapse Energy Economics, Inc., 2013.

Improving Cost-Effectiveness Tests

Efforts are underway to reform the existing cost-effectiveness tests. The National Efficiency Screening Project (NESP) is working to improve the way that utility-funded energy efficiency resources are screened for cost-effectiveness through the development of the Resource Value Framework. The [Resource Value Framework](#) is a collection of principles and recommendations to provide guidance for states to develop and implement tests that are consistent with sound principles and best practices.

The Resource Value Framework recommends that states that use the framework to design or modify their cost-effectiveness screening tests take the following steps:

1. Decide which overall perspective - utility or societal - is appropriate for the state.
2. Identify the state's energy policy goals that are relevant to, and might be affected by, energy efficiency resources. For example: assist low-income customers with high energy burdens, increase the diversity of energy resources, and reduce energy price volatility.
3. Identify a way of accounting for those energy policy goals in the state's screening test.
4. Use the Resource Value Framework template to explicitly identify the assumptions and methodologies necessary to ensure that the test is balanced, transparent, and takes the appropriate energy policy goals into account.

Source: [The Resource Value Framework: Reforming Energy Efficiency Cost-Effectiveness Screening](#), National Efficiency Screening Project, 2014.

As a program administrator, you will likely find value in evaluating your program from many different perspectives; however, there are constraints that limit the effectiveness of program evaluations and it will be necessary to decide where your evaluation resources are best spent. Here is a series of questions to help you identify how to evaluate the cost-effectiveness of your program:

- What cost-effectiveness tests should be used?
 - The criteria for determining cost-effectiveness may be prescribed by a public utility commission or state legislation.
 - Even if you're not required to measure cost-effectiveness, you may want to regularly evaluate your program's performance using multiple tests. This information can be used to communicate your program's results to potential funders.
- Should savings be assessed for the first year, over the estimated life of the measure, or for a target year for savings/reductions?
 - Considering lifetime savings will encourage investments that maximize long-term energy savings.
 - Some funders and stakeholders may be interested in first-year savings, which show the magnitude of annual program activities.

- What non-energy benefits should be included (e.g., water savings, comfort, carbon emissions reduction) and how should they be quantified?
 - Usually, a legislative or regulatory body decides whether cost-effectiveness screening must include non-energy benefits. However, even if capturing non-energy benefits is not mandated, you may wish to do so to demonstrate the broader value of your program.
 - Consider the cost of capturing the data necessary to measure non-energy benefits, and compare it to the benefits of your program.

Solicit proposals for evaluation services

Ultimately you will need to enter into a formal partnership with an evaluator to conduct your evaluation. Most organizations that operate residential energy efficiency programs issue formal requests for proposals (RFPs) to solicit, assess, and select an evaluator. This process is typically used to encourage market competition. Some organizations have strict rules for when you must seek a competitive bid for services, so be sure to look for these when you are designing your evaluation.

- Typically, any organization that receives federal funding is subject to financial audits that require competitive procurement policies.
- State and local governments may have procurement policies that require competitive bids for work above a certain dollar threshold.
- An RFP is not necessary in all situations; your program's procurement rules may allow a less rigorous process, such as using a request for information (RFI) or request for qualifications (RFQ).

If you determine that an RFP is necessary or preferable for your purposes, your RFP should include a scope of work (SOW) that documents the work you are asking the evaluation team to do. The SOW should include:

- Key questions that the evaluation should attempt to answer
- How evaluation findings will be used
- How evaluators can access the available data and other sources of information
- Any regulatory reporting requirements
- A list of work products and the associated delivery schedule
- The review process for the evaluation reports.

In addition to the SOW, your RFP should clearly articulate how the proposals will be assessed. This will make your decision-making process transparent and may avoid challenges from non-winning bidders, which can delay the start of the evaluation work.

Some organizations have RFP templates that include approved legal requirements. Visit [Examples](#) for sample RFPs that you may find useful in drafting your own.

Evaluate proposals

After you issue a solicitation for evaluation services, the next task is to assess the proposals, considering your program's budget, and select an evaluation firm.

Best practice for assessing proposals is to develop a scoring sheet that gives members of the proposal review team a way to rank the qualifications of bidders objectively. You should carefully assess the proposal for:

- Whether it adequately addresses the key objectives in the SOW
- Bidder experience evaluating residential energy programs, including the experience of the lead staff person named in the bid and any other staff resources
- Value the evaluation can provide, within the proposed schedule and the budget available.

When making your final selection, you must also consider your program's budget for evaluations. Some programs have mandated budgetary guidelines for evaluation activities (e.g., a percentage of the total annual program budget is set aside for program evaluation). The amount spent on evaluation is widely variable, depending on the level of evaluation activity and whether the program has been evaluated before (and thus the evaluator can build on previous evaluations rather than starting from scratch).

Negotiate and execute the contract

Once you have chosen your evaluator, be sure to use the contract negotiation period to confirm data that must be gathered, data transfer protocols, changes to routines to accommodate the evaluation activities, and the final list of deliverables.

- **Identify whether any data must be gathered in addition to those already used for internal purposes.** Evaluators know the best types of data to measure program progress toward goals, so consider engaging your evaluator early in the program design process. Ideally, data collection systems have been designed with both internal and external evaluation needs in mind, so your need for additional data should be minimal. If your evaluator requests data that your systems were not designed to collect, use the contract negotiation period to determine if the program can accommodate the need for more data.
- **Determine the data transfer protocols and timeline.** Data that do not meet the evaluator's specifications or are not transferred in a timely fashion will slow down the evaluation process. This can make results less accurate.
- **Determine how you will need to adjust existing routines to accommodate the evaluation.** Process evaluations rely heavily on interviews with staff and customers to understand how the program operates and where there are opportunities for improvement. Therefore, you will need to ensure that the appropriate staff will be available for interviews or to provide the evaluator with customer contact information, or perhaps contact customers on behalf of the evaluator. Use the contract negotiation period to finalize these processes.
- **Negotiate the scope of interim and final deliverables, and their due dates.** When determining due dates, identify if outside stakeholders should be involved in the review of interim and final deliverables. Include time for stakeholder review or even a peer review; the latter can take two months or more.

Tips for Success

In recent years, hundreds of communities have been working to promote home energy upgrades through programs such as the Better Buildings Neighborhood Program, Home Performance with ENERGY STAR, utility-sponsored programs, and others. The following tips present the top lessons these programs want to share related to this handbook. This list is not exhaustive.

Develop data collection and evaluation plans in conjunction with program design

Many Better Buildings Neighborhood Program partners found that it was important to communicate during the program design phase with organizations and individuals that will collect or supply data for the evaluation. In this way, the involved individuals and organizations understand why the data is being collected and are invested in the process. Also, involving evaluators in the design of the program ensures that the right data is collected from the start.

- The [Southeast Energy Efficiency Alliance](#) (SEEA) programs experienced challenges collecting the information needed for third-party evaluation, measurement, and verification activities. SEEA contracted a third party, Cadmus Group, to evaluate its programs' activities, and the evaluator found that the data they used as inputs - programmatic data from the Quarterly Program reports to DOE and utility bill data to perform their analysis - did not always correlate entirely with the data that programs were collecting from homeowners and contractors. SEEA and Cadmus worked with each of the programs to fill in the gaps. In some cases the programs were able to provide this information. For others, they were unable to because it only existed in paper format or the program did not have the time or resources to provide the information. To address this issue, Cadmus developed a flexible approach to determine savings for each program, based on database reviews, billing analysis, technical desk reviews, whole-house energy modeling, and engineering analysis.
 - Cadmus conducted technical desk reviews when sufficient billing data was not available, but when SEEA provided data files from simulation models or other project documentation for a sufficient sample of participant homes.
 - They used whole-house energy modeling to assess the reported savings when sufficient billing or simulation data was not available, but program tracking data was complete enough to populate required model inputs.
 - Engineering analysis was used to estimate savings for measures not incorporated into the models or to evaluate the applicability of data from other program locations when little or no data other than the program tracking data was available.
 - When data was not available, Cadmus compared weather and participant profiles to other program locations for similarities.
- For [EnergyWorks](#) in Philadelphia, problems with data tracking became apparent during the data analysis conducted for the program evaluation. EnergyWorks determined that these problems could have been avoided by clearly articulating and communicating data collection goals to program staff and defining key program performance indicators early in the program. The program established an overarching goal of 2,000 upgrades but found that it would have also been good to have set smaller specific goals tied to performance in order to better understand trends as they were occurring over the life of the program and how these trends were impacting the overall goal of 2,000 upgrades.

Provide adequate time for data system development and testing

Many Better Buildings Neighborhood Program partners found that setting up their information technology (IT) systems early in the program design stage ensured that data terms and data entry procedures were consistently applied by all system users. Reaching agreement with stakeholders (e.g., contractors, lenders, marketing partners, evaluators, program staff) on what data the data system would collect, known as system requirements, and how the collected data would be used to evaluate the program helped programs ensure that the data collected was complete. Programs have also found that they receive data of the quality needed for graphs and cost-effectiveness calculations when stakeholders agree up front that the data will be used for these purposes and not just to track energy savings and expenditures.

- [Be SMART Maryland](#) found that transitioning from spreadsheet-based data collection system to a customized energy IT system was crucial to administering a multifaceted energy efficiency program with rigorous data collection requirements. Investing in their system while they were still designing their program allowed Be SMART to smoothly integrate the system into the program's operations and to ensure quality data collection and integrity over time. Be SMART also found that while spreadsheets were useful tools in collecting data, their use in analyzing data and generating reports was limited, since the program had to go through a time-consuming consolidation process to combine data from different sources and spreadsheets.

- In Boulder County, Colorado, [EnergySmart](#) found that it took between four to six months for a database developer and coding consultant to fully develop and test the data system because of its high level of complexity and the customization required. The program also found that having actual users test the system with real inputs and real reporting requirements helped ensure better data quality and user-friendliness. In addition, EnergySmart found that before beginning database development, it was important to reach agreement among stakeholders on what reporting will be expected, and design the database to facilitate building and exporting the reports. For EnergySmart, it was important to set expectations with report recipients about the IT system's reporting capabilities early on in the process, so recipients did not expect reports that the system was unable to produce.

Establish data sharing relationships as early as possible

Though potentially challenging, establishing relationships for sharing energy consumption data is critical for evaluating program impact on energy and cost savings. Many Better Buildings Neighborhood Program partners found success by approaching utilities during the program planning phase, or at least several months in advance of when they planned to start collecting data, to outline shared goals, assets, tools, needs and constraints. Clear and concise data requests helped speed up utilities' response times for providing the data and alleviated utility concerns and questions regarding data needs.

- [Energize Phoenix](#) formed a partnership with the local electric utility, Arizona Public Service, while designing the program and coordinated with them throughout program development. Energize Phoenix found that understanding Arizona Public Service's concerns and challenges related to data sharing was a key ingredient in forging a successful partnership, as was instituting a formal agreement to clarify roles and responsibilities.
- [Southeast Energy Efficiency Alliance](#) (SEEA) found that not all of their programs were successful in obtaining utility bill data. Common obstacles included that the utility did not have the technology infrastructure to easily export the information, would only release data for a fee (based on how many records were pulled), or simply did not have the time or resources to provide the information even if the program had a signed client release form from the homeowner. Among SEEA's programs, those that were most successful in obtaining utility billing information—including [NOLA WISE](#) in New Orleans, Louisiana; [Local Energy Alliance Program](#) (LEAP) in Charlottesville, Virginia; Atlanta SHINE in Atlanta, Georgia; and [DecaturWISE](#) in Decatur, Georgia - consulted with the utilities to determine what information the program needed to include in the client release form. Additionally, some programs developed a written memorandum of understanding with the utility specifying data collection and transfer roles and responsibilities. SEEA programs also found it best to make data requests to utilities on a quarterly basis to minimize the burden on the utility as many utilities do not have staff dedicated to data exporting. Some programs received data more frequently, but in these situations the utility had the means to easily pull and export data.
- When local utilities Philadelphia Gas Works (PGW) and Philadelphia Electric Company (PECO) shared customers' energy usage data with [EnergyWorks](#), all parties made sure that the proper data sharing requirements were observed and all parties signed the necessary forms. Philadelphia EnergyWorks built its customer data release approval language into the [program's loan application form](#) to minimize the number of additional forms that a customer or contractor would need to handle.
- [EnergySmart](#) in Eagle County, Colorado, successfully developed partnerships with utilities during and after the Better Buildings Neighborhood Program grant period, but in hindsight found it would have been more beneficial to engage utilities prior to submitting the original DOE grant application. By not fully engaging utilities up front, EnergySmart created the following environment where the utilities are only partially included in the program and retained similar or redundant in-house services. As EnergySmart continued forward, they were able to gain the trust of the utility by offering help, data, and information. EnergySmart also shared their results with the utility's management and board of directors. Through this gained trust, utilities were more willing to share data.

Use compatible formats for data sharing and reporting, and work with partners to implement standard data exchange protocols

Many Better Buildings Neighborhood Program partners found that it was critically important to use compatible formats for data sharing and reporting with partners. Aligning data formats and collection plans with national data formats (e.g., [Home Performance XML schema](#) (HPXML), [Standard Energy Efficiency Data platform](#) (SEED), [Building Energy Data Exchange](#) (BEDES)) ensured compatibility for aggregation and reporting.

- For [Arizona Public Service's \(APS\) Home Performance with ENERGY STAR® Program](#), a lack of transparency and access to data meant it took hours each month to compile progress reports. Coordination with trade allies was difficult for similar reasons—both the utility and its contractors lacked visibility into project status and task assignment, as well as the ability to identify program bottlenecks, which impacted APS customer service. Program delivery metrics, from administrative overhead to customer and trade ally satisfaction, were lower than expected. APS then began the search for a more dynamic software platform to engage customers, track and manage projects, empower trade allies, and analyze and report results. The program needed HPXML, an open standard that enables different software tools to easily share home performance data. The new HPXML-compliant platform, EnergySavvy's Optix Manage, resulted in higher cost effectiveness and greater satisfaction for the program, including 50% less administrative time to review and approve projects, a 66% reduction in data processing time for APS reporting, 31% less contractor administrative time to submit projects, and a three-fold increase in trade ally satisfaction. HPXML also had the added benefit that contractors can choose their own modeling software.
- The [New York State Energy Research & Development Authority](#) (NYSERDA) heard from home performance contractors and other stakeholders that a more streamlined data collection process was needed to reduce the paperwork burden and time spent on a per project basis. In response, the program launched the NY Home Performance Portal in July 2013. This web-based interface made it easier for customers to choose and apply for the home performance program and made the application process for a home energy assessment clear, fast, and simple. In 2015, NYSERDA further refined their data collection process and began processing of all projects in a web-enabled interface designed to facilitate program coordination. This new platform allowed NYSERDA to automate project approvals for 85-90% of projects. In addition, the platform supported HPXML which facilitates data sharing among multiple New York programs, thereby reducing the administrative burden for contractors participating in multiple programs. It allowed NYSERDA to automate the work scope approval process through validation of standardized data. An additional benefit of HPXML for NYSERDA was creating an open modeling software market.
- [Massachusetts Department of Energy Resources](#) (MassDOER) provides statewide oversight to energy efficient programs administered by utilities under the [Mass Save](#) brand. Originally, contractors from Conservation Services Group, Inc. and Honeywell International Inc. used audit software customized for the program in their home energy assessments. When MassSave piloted the [Home MPG program](#), contractors were also required to generate an Energy Performance Scorecard for each home. The existing audit software, however, did not have this capability. To address this problem, software developers added the Energy Performance Scorecard capability, so the contractors could use the same software to record the audit results and generate the energy performance scorecard. Despite implementation delays, this solution allows the use of the Energy Performance Scorecards to potentially expand to statewide.

Provide materials and training to ensure data quality, consistency, and accuracy

Many Better Buildings Neighborhood Program partners found that it is important to get buy-in from program staff and contractors on the importance of data integrity to the program mission and then to invest time to develop materials and train everyone who has a role in data collection and analysis. In this way, programs administrators can ensure that staff understand the what, how, and why of data collection and analysis requirements.

- In the Maryland Department of Housing & Community Development's (DHCD) commercial, multifamily and residential programs - collectively known as [Be SMART Maryland](#), discrepancies arose in the variety of ways contractors determined energy savings and the type of energy modeling software used. Contractors utilized diverse auditing software which in turn used different factors and algorithms to determining overall energy savings. At times, their upgrade reports submitted to the program omitted many input fields used to determine the energy cost savings and did not include units of measure (therms, kWh, etc.). Be SMART Maryland developed a standard methodology for estimating energy savings by requiring certain information fields such as estimated energy savings percent and having DHCD quality assurance inspectors (who are Building Performance Institute, Inc. certified and trained in energy auditing) review energy audits reports for reasonableness. For the multifamily energy efficiency programs, the program developed a [standard energy audit guide](#), and energy auditors were required to follow one of several DOE approved audit approaches.
- The [Missouri Agricultural Energy Saving Team —A Revolutionary Opportunity](#) (MAESTRO) program faced a challenge concerning the level of specificity in auditors' reports and the precision used in determining audit results. In many of the most rural areas of the state, auditors were simply unaccustomed to the level of precision required by the program. To address the problem with those auditors, the program identified the utility company supplying energy to the audited homes, identified their utility rates at the time of the audit, and then applied these data to a data-driven model established by auditors who operated at the required level of quantifiable data.
- Seattle's [Community Power Works](#) (CPW) program provided contractors with [multiple trainings](#) and a well-staffed hotline for communication and assistance throughout the grant period. Training began with a program overview session for new participating contractors focused on program logistics that informed contractors of the program's intent, rebate structures, and expectations. Other trainings covered basic safety, quality oversight, and use of their mandatory reporting database, which the program used to track projects and workforce development. To help contractors improve their performance, program staff used survey results to provide feedback to contractors on quality assurance, customer satisfaction, and compliance with program requirements.

Invest in information and communications technology

Paper-based or spreadsheet-based information collection processes can be low cost to develop and easy to roll-out, but more often than not, they become cumbersome to aggregate and store the data from many sources. Many Better Buildings Neighborhood Program partners found that investing in information and communications technologies (ICT) eased program implementation and was well worth the effort because they were able to regularly monitoring progress and automate what would otherwise be time-intensive, manual processes. For more information on the future of ICT, see ACEEE's [How Information and Communications Technologies Will Change the Evaluation, Measurement, and Verification of Energy Efficiency Programs](#).

- [Garfield Clean Energy](#) in Garfield County, Colorado, at first used a series of Excel spreadsheets and hardcopy file folders to track participants, their energy upgrade measures, and resulting energy savings. As the number of participants reached into the hundreds, the program realized that spreadsheets did not offer the level of sophisticated searching and reporting that was needed to analyze the results of their work. They explored several online customer relationship management systems and contracted with a third-party developer to customize their selected system so that it could track building and energy data, energy upgrades, contractors, dollars spent, rebates awarded, and deemed energy savings. The customization and data entry work, which took several months to complete, enabled Garfield Clean Energy to create detailed reports based on a wide variety of reporting parameters, and to better analyze the effectiveness of program activities.
- When [Enhabit](#), formerly Clean Energy Works Oregon, scaled up their pilot program to the entire city of Portland, it was clear to them that an IT solution was needed to meet the demands of funding agencies, media requests, and good project management from the customer perspective. Enhabit worked with software company EnergySavvy to develop a unified service delivery platform to manage the home energy upgrade process from application to completion. The software platform provides a web-based interface between homeowners, contractors, and lenders, enabling each party to document progress through the Enhabit program. The platform also streamlined data collection and analysis.
- In Boulder, Colorado, [EnergySmart](#) used spreadsheets to manage data for its predecessor energy efficiency programs. As the program expanded under the Better Buildings Neighborhood Program, it became clear that EnergySmart needed to pursue a more user-friendly, real-time, cloud-based IT system for tracking customers through the implementation process. They selected a system to allow for tracking of many metrics in a much more consistent, accurate, and organized fashion than the previously used spreadsheet. The system can be accessed in the field by EnergySmart Energy Advisors using iPads or tablets to enter basic customer information, building baseline information, assessment findings for upgrade opportunities, completed upgrades with associated energy and cost savings, rebates and financing received, and the supporting documentation. The collected data is compiled for reporting to various stakeholders, including the U.S. Department of Energy, county commissioners, and city staff and leaders. The ability of Energy Advisors to access the system in the field allows for much greater efficiency and accuracy than the static logging of data upon returning to the office.

Examples

The following resources are examples from individual residential energy efficiency programs, which include case studies, program presentations and reports, and program materials. The U.S. Department of Energy does not endorse these materials.

Case Studies

None available at this time.

Program Presentations & Reports

[How to Conduct a Real-Time Evaluation](#)

Author: Lilah Glick, Greater Cincinnati Energy Alliance

Publication Date: 2011

Presentation from the Greater Cincinnati Energy Alliance on how to conduct a real-time evaluation of programs and services.

[Preliminary Process and Market Evaluation: Better Buildings Neighborhood Program](#)

Author: Research Into Action, Inc.; NMR Group Inc.

Publication Date: 2012

This report presents the preliminary process and market evaluation of the Better Buildings Neighborhood Program. As part of the evaluation, the report identifies the factors most strongly correlated with the 10 most successful grantees' performance and offers recommendations to the Energy Department and grant recipients for the final program year.

[Pilot Process Evaluation Report \(802 KB\)](#)

Author: Research Into Action, Inc.

Publication Date: 2010

This report describes the process evaluation of a pilot project in Portland Oregon that informed the refinement and expansion of the program statewide into Clean Energy Works Oregon (now Enhabit).

[Key Findings and Recommendations From the Process Evaluation of Clean Energy Works Oregon \(now Enhabit\) \(4 MB\)](#)

Author: Energy Trust Oregon (Prepared by Johnson Consulting Group)

Publication Date: 2012

This report presents key findings and recommendations from the process evaluation of Clean Energy Works Oregon's (now Enhabit's) energy efficiency financing program. Table 1 provides a good list of key process evaluation research questions which may help others scope comprehensive process evaluations.

[Preliminary Energy Savings Impact Evaluation: Better Buildings Neighborhood Program](#)

Author: Research Into Action, Inc.

Publication Date: 2013

This document presents the findings from the preliminary impact evaluation of the U.S. Department of Energy's (DOE) Better Buildings Neighborhood Program (BBNP). The overall objective of the preliminary impact evaluation was to develop independent, quantitative estimates of BBNP's economic impacts and energy savings for projects completed from the onset of programmatic activities through 2012.

Program Materials

[Sample RFP: Third-party Process Evaluator](#)

Author: Michigan Saves

Publication Date: 2009

Sample RFP from Michigan Saves for a third-party to conduct an evaluability assessment and process evaluation for the program during the first phase of implementation.

[Me2 and Green Madison Process Evaluation Plan \(147 KB\)](#)

Author: Wisconsin Energy Conservation Corporation

Publication Date: 2011

Example Me2 and Green Madison process evaluation plan to conduct an in-depth investigation and assessment of the major program areas.

[Lawrence Berkeley National Laboratory RFP for Better Buildings Program Assessment](#) (3 MB)

Author: Lawrence Berkeley National Laboratory

Publication Date: 2011

Sample Request for Proposals (RFP) was issued by Lawrence Berkeley National Laboratory for a process and impact evaluation for the U.S. Department of Energy's Better Buildings Neighborhood Program.

Toolbox

The following resources are available to help design, implement, and evaluate possible activities related to this handbook. These resources include templates and forms, as well as tools and calculators. The U.S. Department of Energy does not endorse these materials.

Templates & Forms

[Creating an Evaluation Plan Worksheet](#)

Author: U.S. Department of Energy

This worksheet can help you organize your ideas and methods for creating an effective evaluation plan.

[NEEP Data Collection Protocols](#)

Author: Northeast Energy Efficiency Partnerships; Inc.

Publication Date: 2012

The ultimate objective of the protocol is to develop a system that can be used to guide the production of readily usable dataset that can leverage project data from future meter-based measurement and evaluation studies, or metering studies to develop end-use load shapes. The protocol includes a "NEEP Residential Data Collection Protocol Report" template.

Tools & Calculators

[Better Buildings Residential Program Energy Efficiency Cost Effectiveness Tool](#)

Author: U.S. Department of Energy

Publication Date: 2013

This tool, developed in Excel, supports the development and analysis of residential energy efficiency programs using standard cost-effectiveness analysis methods. Policy makers, utilities, energy efficiency program managers, architects and engineers may find the tool useful for supporting and scaling up residential energy efficiency programs. The tool estimates cost-effectiveness, using industry standard approaches, of both deep-home energy efficiency retrofits and individual measures. The user can build up a program based on up to 5 different 'project types' (or measures implemented) and identify the number of homes to be targeted for retrofits over the program cycle. The tool reports cost-effectiveness metrics of the program, including program budgets, and allows the user to conduct sensitivity analysis against key inputs.

[The State and Local Energy Efficiency Action Network \(SEE Action\) Evaluation, Measurement, and Verification \(EM&V\) Resource Portal](#)

Author: State and Local Energy Efficiency Action Network

Publication Date: 2013

The State and Local Energy Efficiency Action Network (SEE Action) Evaluation, Measurement, and Verification (EM&V) Resource Portal serves as an EM&V resource one-stop shop for energy efficiency program administrators and project managers. The resources focus on tools and approaches that can be applied nationwide, address EM&V consistency, and are recognized by the industry.

[Small Town Energy Program \(STEP\) Toolkit](#)

Author: Small Town Energy Program

Publication Date: 2013

The Small Town Energy Program (STEP) toolkit gives a complete overview of STEP from planning to implementation. It also includes access to a wide variety of materials developed by the program, including: local asset materials, partner materials, personnel materials, program administrative materials, outreach materials, and surveys. STEP has posted these toolkit documents with the hope that it will assist other small towns and communities in building and running more energy efficiency programs.

Topical Resources

The following resources provide additional topical information related to this handbook, which include presentations, publications, and webcasts. Visit [Examples](#) for materials from and about individual programs.

Topical Presentations

[How to Get Useful Information](#)

Author: Jane Peters; Research Into Action; Inc.

Publication Date: 2011

This presentation describes steps programs can take to obtain useful feedback from customers regarding their programs.

[Using Data for Better Program Management \(446 KB\)](#)

Author: Jane Peters; Research Into Action; Inc.

Publication Date: 2010

This presentation covers the importance of collecting and evaluating program data, including data related to marketing efforts.

[Data Driven Quality Assurance & Quality Control](#)

Author: Patrick Roche; Conservation Services Group

Publication Date: 2012

Presentation describing how Conservation Services Group uses data to monitor market transformation and for internal QA/QC purposes.

Publications

[Better Buildings Neighborhood Program Evaluation Report: Volume 1. Evaluation of the Better Buildings Neighborhood Program \(Final Synthesis Report\)](#)

Author: U.S. Department of Energy

Publication Date: 2015

Volume 1 of the Better Buildings Neighborhood Program Evaluation Report provides findings from a comprehensive impact, process, and market effects evaluation of the program period, spanning from September 2010 through August 2013.

[Better Buildings Neighborhood Program Evaluation Report: Volume 2. Savings and Economic Impacts of the Better Buildings Neighborhood Program](#)

Author: U.S. Department of Energy

Publication Date: 2015

Volume 2 of the Better Buildings Neighborhood Program Evaluation Report comprises a measurement and verification process, as well as billing regression analysis on projects with sufficient utility bill data, to determine gross verified savings.

[Better Buildings Neighborhood Program Evaluation Report: Volume 4. Process Evaluation of the Better Buildings Neighborhood Program](#)

Author: U.S. Department of Energy

Publication Date: 2015

Volume 4 of the Better Buildings Neighborhood Program Evaluation Report assesses the degree to which the Better Buildings Neighborhood Program met its process goals and objectives to identify the most effective program design and implementation approaches.

[Better Buildings Neighborhood Program Evaluation Report: Volume 5. Market Effects of the Better Buildings Neighborhood Program](#)

Author: U.S. Department of Energy

Publication Date: 2015

Volume 5 of the Better Buildings Neighborhood Program Evaluation Report provides findings from a comprehensive impact, process, and market effects evaluation of the program period, spanning from September 2010 through August 2013.

[Energy Efficiency Program Impact Evaluation Guide \(3 MB\)](#)

Author: State and Local Energy Efficiency Action Network

Publication Date: 2012

This guide provides an introduction to the key issues, practices, and steps for calculating energy savings, avoided emissions, and other non-energy impacts associated with energy efficiency programs.

[Best Practices in Energy Efficiency Program Screening: How to Ensure that the Value of Energy Efficiency is Properly Accounted For](#)

Author: National Home Performance Council

Publication Date: 2012

This report provides a comprehensive review of a wide range of problems and inconsistencies in current cost-effectiveness test practices, and recommends a range of best practices to address them.

[The Resource Value Framework: Reforming Energy Efficiency Cost-Effectiveness Screening](#)

Author: National Efficiency Screening Project

Publication Date: 2014

This document provides an overview of the National Efficiency Screening Project's recommendations for using the Resource Value Framework (RVF) to improve cost-effectiveness testing. The RVF is a collection of principles and recommendations to provide guidance for states to develop and implement tests that are consistent with sound principles and best practices.

[Cost-Effectiveness Screening Guidelines](#)

Author: Northeast Energy Efficiency Partnerships

Publication Date: 2014

This document was prepared by the Regional Evaluation, Measurement and Verification Forum. Cost-effectiveness screening for energy efficiency investments is fundamental to customer energy efficiency programs. It is, in essence, the benefit-cost analysis framework that helps stakeholders – including utility regulators, program administrators, and other policymakers – determine which types of energy efficiency investments represent net beneficial investments for ratepayers according to what is in the public interest based on the state's energy policies.

[Recommendations for Reforming Energy Efficiency Cost-Effectiveness Screening in the United States](#)

Author: Energy Efficiency Screening Coalition

Publication Date: 2013

The purpose of this position paper is to introduce a new framework efficiency screening designed to address known problems with cost-effectiveness tests.

[The Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific Measures](#)

Author: National Renewable Energy Laboratory

Publication Date: 2013

This report provides a set of model protocols for determining energy and demand savings that result from specific energy efficiency measures or programs. The methods described are among the most commonly used approaches in the energy efficiency industry for certain measures or programs; they draw from the existing body of research and best practices for energy efficiency evaluation, measurement, and verification (EM&V).

[Measure it Right: Best Practices in the Selection and Implementation of Cost-Effectiveness Tests](#)

Author: National Home Performance Council

Publication Date: 2012

This paper describes the problems and issues that arise for energy efficiency programs as a result of common cost-effectiveness test implementation practice. It also provides recommendations for how to address these challenges.

[Energy Efficiency Program Typology and Data Metrics: Enabling Multi-State Analyses Through the Use of Common Terminology](#)

Author: Lawrence Berkeley National Laboratory

Publication Date: 2013

This policy brief presents a program typology and standardized data metrics for assessing energy efficiency program characteristics, costs, and impacts. Based on a review of nationwide regulatory filings, the research serves as part of an effort to analyze the cost per unit of savings for utility customer-funded energy efficiency programs. The paper discusses the program categories and definitions, which are based primarily on review of several years of annual energy efficiency reports from 108 program administrators in 31 states for approximately 1,900 unique programs.

[Evaluation, Measurement, and Verification of Residential Behavior-Based Energy Efficiency Programs: Issues and Recommendations](#)

Author: State and Local Energy Efficiency Action (SEE Action)

Publication Date: 2012

This report provides guidance and recommendations to help residential energy efficiency programs to more accurately estimate energy savings. It identifies steps program managers can take to ensure precise savings estimates, apply impact estimates over time, and account for and avoid potential double counting of savings.

[Guide for Benchmarking Residential Energy Efficiency Program Progress With Examples \(2 MB\)](#)

Author: U.S. Department of Energy

Publication Date: 2015

This guide provides recommended benchmarking metrics for measuring residential program performance.

[How Information and Communications Technologies Will Change the Evaluation, Measurement, and Verification of Energy Efficiency Programs](#)

Author: American Council for an Energy-Efficient Economy

Publication Date: 2015

Information and communications technologies (ICT) can automate and transform the evaluation, measurement, and verification (EM&V) of energy efficiency programs. ICT enables the remote monitoring and sophisticated analysis of energy usage, increasing the speed and scale of many EM&V activities. This report reviews traditional EM&V practices, explores new enabling technologies including the Internet of Things and remote building analysis, and describes the application of ICT to each stage of the EM&V process. The report then projects ways forward through a number of challenges (e.g., data overload) and concludes that ICT-enabled EM&V could eventually change the design of efficiency programs and the responsibilities of program administrators, implementers, and evaluators.

Webcasts

Developing an Evaluation Measurement and Verification Plan for Your Energy Efficiency Project/Program [Presentation](#), [Media](#), [Transcript](#)

Author: Julie Michals, Northeast Energy Efficiency Partnerships, Inc.; Jonathan Kleinman, CLEAResult

Publication Date: 2011

This webcast discussed developing an Evaluation Measurement and Verification Plan for energy efficiency programs, including the collection of data and analysis of program performance.

Developing an Evaluation, Measurement and Verification Plan For Residential Retrofit Programs [Presentation](#), [Transcript](#)

Author: Julie Michals, Northeast Energy Efficiency Partnerships, Inc.; Chris Neme, Energy Futures Group

Publication Date: 2011

This webcast defines Evaluation Measurement and Verification (EM&V), provides DOE guidance on EM&V and reporting, and discussed how to develop a plan for Residential Retrofit Energy Efficient programs.

EM&V Basics, Tools and Resources to Assist EECBG and SEP Grantees

[Presentation](#), [Media](#) (43 MB), [Transcript](#)

Author: Julie Michals, Northeast Energy Efficiency Partnerships, Inc.; Phil Sieper, The Cadmus Group, Inc.; Mark Stetz, Stetz Consulting

Publication Date: 2010

This webinar offers an introduction to EM&V basics, including data collection, tracking tools, M&V approaches, and reporting energy savings.

Energy Efficiency Cost-Effectiveness Testing

[Presentation 1](#), [Presentation 2](#), [Presentation 3](#), [Presentation 4](#), [Presentation 5](#), [Media](#)

Author: Steven Schiller, Schiller Consulting; Snuller Price, Energy and Environmental Economics Inc.; Sami Khawaja, The Cadmus Group Inc.; Tim Woolf, Synapse Energy Economics; Tom Eckman, Northwest Power and Conservation Council

Publication Date: 2014

This webcast provides an introduction to cost-effectiveness testing for energy efficiency programs. It also covers key drivers in the cost-effectiveness results and cost-effectiveness tools developed for the U.S. Department of Energy.

Energy Efficiency and Conservation Loan Program Webinar Series: #1 Overview and Cost Effectiveness [Presentation, Media, Transcript](#)

Author: U.S. Department of Agriculture; U.S. Department of Energy

Publication Date: 2014

This webinar is the first (in a series of six) hosted by USDA Rural Utility Service (RUS) and focusing on the Energy Efficiency and Conservation Loan Program (EECLP). This webinar provides an overview of the Energy Efficiency and Conservation Loan Program. It covers the requirements and benefits of the program and also discusses steps you can take to evaluate the cost effectiveness of energy program options.

Energy Efficiency and Conservation Loan Program Webinar Series: #2 Evaluation, Monitoring & Verification

[Presentation, Media, Transcript](#)

Author: U.S. Department of Agriculture; U.S. Department of Energy

Publication Date: 2014

This webinar is the second (in a series of six) hosted by USDA Rural Utility Service (RUS) and focusing on the Energy Efficiency and Conservation Loan Program (EECLP). This webinar covers the key concepts of Evaluation, Monitoring & Verification (EM&V), gives an overview of the full process, from estimating savings before programs are implemented to measuring and verifying the savings at the end. The webinar also covers EM&V framework, evaluation plans, technical reference manuals and measurement and verification studies.

Setting Baselines for Planning and Evaluation of Efficiency Programs

[Presentation, Media](#)

Author: Robert G. Ozar; Michigan Public Service Commission; Carmen Best; California Public Utilities Commission; Jeff Harris; Northwest Energy Efficiency Alliance

Publication Date: 2016

The key challenge with quantifying savings from end-use efficiency activities is the identification of an accurate baseline from which to determine the savings. Regardless of the protocol or procedure applied, all savings values are determined by estimating likely energy use in the absence of the program or project (the "counterfactual" scenario, or baseline). This webcast provides an introduction to considerations and common practices for defining baselines, the relationship between baselines and savings attribution, and examples of how different jurisdictions are addressing market baseline studies, setting baselines for retrofit measures, and market transformation program baselines.

Using Deemed Savings and Technical Reference Manuals for Efficiency Programs and Projects

[Presentation, Media](#)

Author: Tina Jayaweera; Northwest Power and Conservation Council; Jennifer Easler; Iowa attorney General's Office; Chuck Rea; MidAmerican Energy Company

Publication Date: 2016

Applying well documented stipulated (deemed) values is a common practice for determining the savings from energy efficiency projects and programs and the databases where such deemed values are cataloged are called Technical Reference Manuals (TRMs). This webcast introduces the use of deemed savings, information on setting up and updating TRMs, lessons learned, and resources for state officials. As examples, speakers discuss the content and development processes used for the Northwest regional TRM and the Iowa state TRM.

