



The EEB Program Evaluation Plan, 2013

November 1, 2012

PREFACE

The EEB Evaluation Committee is pleased to present its Evaluation Plan for the Department of Energy and Environmental Protection (DEEP) and the Public Utility Regulatory Authority's (PURA) consideration. The Evaluation Plan is designed to provide cost effective studies of all the CL&M programs.

Program and measure evaluation, measurement and verification are conducted on an ongoing basis, with emphasis on impact and process evaluations, programs or measures that have not been studied, and those that account for a relatively high percentage of program spending. Evaluations use statistically valid monitoring and data collection techniques appropriate for the programs or measures being evaluated. All evaluations continue to contain descriptions of any problems encountered in the process of the evaluation, including, but not limited to, data collection issues, and make recommendations regarding addressing those problems in future evaluations. The Plan integrates gas and electric programs and takes advantage of opportunities to cooperate with others in the Northeast that offer the same types of measures as does Connecticut.

Most importantly, the Plan provides for an independent evaluation process. It is critical that the programs be evaluated, measured, and verified in a way that provides confidence to the public at large that the savings are real and in a way that enables the Companies to use those savings estimates and other results with full confidence. There is a need to ensure both the reality and the perception of the independence and objectivity of EM&V activities.

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INTRODUCTION

The Companies have a long history of providing efficiency programs to Connecticut energy consumers. An integral part of creating, delivering and maintaining quality programs is performing independent evaluations of programs and the markets they serve.

In 1998 the Energy Conservation Management Board (now the Energy Efficiency Board or EEB) was formed and charged with responsibility to advise and assist the utility distribution companies in the development and implementation of comprehensive and cost-effective energy conservation and market transformation plans. Since that time, the EEB has worked closely with the Companies to ensure all evaluations are relevant, independent, cost-effective and meet the needs of program administrators and planners. In 2005, The EEB formed an Evaluation Committee to work directly with an EEB Evaluation Consultant in overseeing evaluation planning and completion. In 2009, the Department's decision in Docket No. 08-10-03 ordered the EEB's Evaluation Committee and their consultant to be independent from and totally responsible for all aspects of the evaluation process.

The EEB and the Electric and Natural Gas Companies recognize the importance of conducting thorough, timely, and independent evaluations. The various types of evaluation studies exist to support continuous improvement in program offerings and to measure the results of those programs. The audiences for evaluation are many. Regulatory bodies, the regional electric system operator (ISO-New England), the Energy Efficiency Board, utility management, and program planners and administrators all need the information gained through evaluation in order to make decisions about program efficacy. Evaluation research can also provide the basis for determining program direction or focus. Research completed within the evaluation group approach is used to increase participation and savings, reduce costs, and fine-tune procedures. The research provides intelligence to be used to expand the reach of the programs, using messages more relevant to the non-participating customers. Appropriate evaluation can provide the information that program administrators need to enhance existing cost-effective programs or to take a non-cost-effective program and reconstitute it as a successful one.

The evaluation process is a critical tool to measure energy savings, as well as other key attributes of each program, to allow optimum program design and careful management of consumer conservation funds.

GUIDING PRINCIPLES

All members of the EEB recognize the importance of evaluation. Program evaluation provides a vital function in assessing program results and supporting continuous improvement in program performance. Evaluation should not be used to "prove" non-performance, but rather to point to areas where improvement would strengthen an otherwise viable program. It is critical that the programs be evaluated, measured, and verified in a way that satisfies regional jurisdictional requirements, provides confidence to the public at large that the savings are real, and enables the Companies¹ to use those savings estimates and other results with full confidence. There is a need to ensure both the reality and the perception of the independence and objectivity of Evaluation, Measurement and Verification (EM&V) activities.

¹ Whenever the terms "Company" or "Companies" are used, they should be understood to include only those Electric and Natural Gas Companies that offer the program being evaluated.

Program evaluations, market assessments and other studies should be performed on a statewide basis to the maximum extent possible while enabling, to the extent necessary, results at the Company level. It is recognized that circumstances could occur where a service territory specific or non-statewide evaluation or study would be appropriate. Electric and natural gas program evaluation efforts should be fully integrated to the maximum extent possible. Because of the statewide focus of program evaluation in Connecticut, it is important to continue to coordinate program procedures, measures and data collection processes.

Program evaluations are performed to inform program administrators, the Board, PURA and DEEP about results and progress of the programs. Process evaluations are formative, providing an assessment of where the programs are today and a roadmap to guide the programs to the desired future. Market assessments provide direction concerning customer needs that the programs can fill and how better to capture the cost effective savings required. In all, evaluations provide systematic assessments to help the CEEF programs in addressing energy opportunities and challenges and to take programs to the next level.

RESEARCH AREA APPROACH TO ORGANIZING EVALUATION

In 2011, due to the unprecedented need for new evaluation and market assessment studies, the Evaluation Committee instituted a Research Area Approach to managing and structuring the overall evaluation function.

Under a research area approach, expected and potential studies are divided among a number of research areas. For example, all Residential Retrofit and Retail Products studies through 2014 will be completed within one such research area. An RFP/RFQ is released for each research area. Respondents provide detailed information on work scope and budgets for the near-horizon studies, understanding of the issues and broad approach to addressing those issues, and a guaranteed set of rates for the full time period – in this case through 2014. After assessment of the expertise each team brings to the set of studies, a team of Contractors is selected. That team, and any additions required to meet the needs of the project, is then expected to complete any studies assigned to them.

Organizing evaluation in this fashion provides clear benefits and few potential risks. First, this approach allows substantial flexibility in study selection and timing. At times like this when substantial new program requirements and aggressive new goals are being fast-tracked, it is essential to be able to meet identified needs as they arise. When new studies are needed, other studies can be put on the back burner for a while to free up personnel and resources for supporting research.

Second, using this approach greatly reduces the lead time required to start new studies. Under typical approaches, lead time is required to:

- Develop RFP including provision of contract structure, scope of work, program descriptions and explanatory data, followed by review by interested parties
- Release of RFP to bidders list, providing time for response to questions and time for bidders to prepare their proposals
- Review and assess the proposals by interested parties. Follow-up questioning and reference checks are part of that process
- Selection and contract development

All told, the lead time requirements prior to selection sum to at least 2 months. When contract development is considered, an additional 6 months has been required for some projects. Use of the research area approach still requires the same upfront timeframe. However, that process is only required to be completed once for each research area. After selection, lead time is reduced to a discussion of the requirements of a particular study; discussion of data availability and development of an abbreviated workplan. Lead time with review of approximately 1 week is anticipated.

Related to these first two benefits is the ability to co-develop a study. Under the typical approach, a RFP goes out with study objectives described. The bidder then interprets those objectives and develops a proposal that

describes their preliminary workplan. At that point, it becomes much more difficult to ensure that the goals are clearly understood and to repurpose the workplan as needed. Better studies are likely to result when the discussion starts at the project objectives rather than having an existing workplan as the starting place for discussion. The difference can be described as “we need the study to produce this,” rather than “we need your proposal to change that.”

On a simple and pragmatic front, this approach provides an incentive to attract more bids. Since contractors are bidding on a multi-year project, they face reduced risk in hiring/increased certainty of profitability. The approach reduces the time and energy cost to CEEF of educating Contractors on how the system works in Connecticut, how programs are structured and how to capture information needed for the study. Finally, the CEEF is provided better cost-certainty. Bidders are asked to guarantee a set of hourly rates over the time frame of the contract.

The winning contractor team would be the sole evaluation contractor for their particular research area. That team is expected to handle all evaluation issues and therefore is responsible to do what is needed to make sufficient resources available for negotiated studies. However, the research area approach does not guarantee that the contractor will be provided any particular volume of work, nor does it guarantee the contractor team will retain the contract if their work is unsatisfactory or the research area is no longer needed.

EVALUATION AND RESEARCH TYPES

Early in the program planning process and periodically throughout the programs’ evolutions, **Market Assessments** examine pre-existing market conditions and ascertain the extent to which efficiency programs are likely to influence customer adoption of measures and practices. Careful market assessments are conducted to identify effective ways to influence key market players to take efficiency actions and to increase the breadth and depth of the actions taken.

Market assessments examine overall market conditions related to energy efficiency products and services, including current standard practices, average efficiency of equipment, consumer purchasing practices, and identification of market barriers.

Impact Support evaluation research encompasses all foundational research important as a basis for future evaluation. Assessment of the adequacy of engineering methodologies and background assumptions supporting the PSD provides the foundation against which evaluations will assess program performance.

Baseline studies provide direct impact support by assessing pre-conditions that will no longer be measurable after program interventions have occurred.

After the program is fielded, **Process Evaluations** are used to determine the efficacy of program procedures and measures. Process evaluations assess the interactions between program services and procedures and the customers, contractors, and ancillary businesses that participate in them. Process evaluation is essential to provide for improved program delivery, increased cost effectiveness and customer satisfaction.

Impact evaluations verify the magnitude of energy savings and sources for differences between projected and realized savings; reporting the results and value of energy efficiency programs to regulatory bodies, ISO-New England, utility management, and program planners and administrators. Many different types of impact studies may be completed including end-use metering, engineering modeling, billing analyses, participant interview, surveys, and combinations of all of these.

Cost effectiveness assessment is part of impact evaluation, pointing the way to improve, expand, or reassess program offerings. These evaluations are conducted under the supervision of the EEB to provide credible, unbiased and transparent results.

EVALUATION STUDIES 2012 - 2014

In planning which and how many evaluations to conduct each year, the EEB Evaluation Committee considers many factors, including but not limited to: the magnitude of cost and energy savings associated with the program, how recently comparable studies were done, needs expressed by program administrators, requirements of outside organizations, market conditions, recent or planned program changes, and any gaps identified. The EEB also works in a broad regional manner when planning evaluation activities for the upcoming program years. Through collaboration with regional agencies and utilities with similar interests, the EEB takes full advantage of opportunities to gather information in the most cost-effective manner.

Occasionally, opportunities to participate in evaluation studies are unforeseen and, therefore, are not included in the planning process. If an unplanned opportunity proves to be in the best interest of Connecticut customers, the EEB Evaluation Committee will commit resources to those efforts as well. There are also occasions when a planned evaluation study no longer offers the value expected. The EEB Evaluation Committee assesses those conditions with the assistance of the Evaluation Consultant and determines whether changes should be made to the Program Evaluation Plan.

CURRENT STUDIES

The Tables below indicate evaluation studies either beginning, underway, or completed in 2012. Table 1 highlights activities and studies that are not part of the Research Area process (i.e. Stand-Alone Studies). It is anticipated that most studies going forward will be completed within the Research Area process.

Table 1: Stand Alone Evaluation Studies During 2012

Project Name- Residential	Project Type	Project Name Non-Res	Project Type
CL&P Home Energy Report Year 1 (Complete in 2012)	Impact and Process	O&M Services/RCx/BSC (Complete in 2012)	Impact
CL&P Home Energy Report Year 2 (Complete in 2013)	Impact and Process		
UI Home Energy Report (Complete)	Market Acceptance		
Residential New Construction Baseline (Complete)	Baseline/Impact Support		

Table 2 outlines those 2012 projects either beginning, underway, or completed in 2012 and that are included in the Research Areas. In Table 1 and Table 2, Studies shown in bold will continue into 2013.

Table 2: Research Area Studies During 2012*

Project Name- Residential	Project Type	Project Name Non-Res	Project Type
Residential Research Area		Small C&I Research Area	
HES-IE Process Evaluation and Measure Persistence HES-IE	Process and Impact Support	SBEA Trend Assessment (2013)	Impact

Residential Lighting Saturation and Market Assessment (Complete)	Impact Support and Market	SBEA Impact Evaluation (2 Year Study)	Impact
Characterization of Residential Housing (2013)	Baseline	Cross Sector Studies Research Area	
Lighting after EISA – Focus Groups (Complete)	Market Assessment	Free Rider and Spillover – C&I (Complete in 2012)	Impact
Current Weatherization Saturation	Impact Support	PSD Research Prioritization (Complete)	Implementation Support
Central Air Conditioning (2 Year Study)	Impact and Market	Large C&I Research Area	
HES Performance Measures (Complete)	Market	Large C&I Trend Assessment – All C&I Programs	Impact
Ground Source Heat Pumps (will be nearly complete within 2012)	Impact	EO Evaluation (2 Year Study)	Impact

* Studies in **bold** will continue into 2013

Table 3 provides a listing of studies developed through the regional EM&V Forum (Forum). Each year, the CEEF supports the Forum in order to capture the economies of scale available through joint efforts.

Table 3: EM&V Forum Studies During 2012

EM&V Forum – C&I		EM&V Forum - Other	
Measure Persistence C&I Lighting (Complete)	Impact	Incremental Cost Study Phase 2	Impact Support
Variable Frequency Drives Loadshape	Impact Support	Development of Load Shape Sharing Protocols	Protocol Development
		Emerging Technologies – DSHP, Advanced Power Strips (2 office buildings in Vermont)	Impact Support

EVALUATION STUDIES 2013 – 2015 (PRELIMINARY)

Table 4 indicates evaluation studies being considered to begin in 2013. These studies are listed according to current priorities.

Table 4: Preliminary Evaluation Plan 2013

Residential Research Area		Estimated Costs
HES Impact Evaluation	Impact	\$325,000 - \$450,000 (depends on methods)
HES-IE Impact	Impact	Included above
Residential Measure Life	Impact	\$328,000

Lighting Hours of Use (regional)	Impact Support	\$290,000
CFL Net to Gross*	Impact Support	\$380,000
Free Rider/Spillover Net to Gross*	Impact Support	\$375,000
Small C&I Research Area		
SBEA Barriers to Project Completion (2013)	Impact	\$160,000
Barriers to Reaching Low Income/Limited English Businesses	Market – Program Support	\$160,000
Small Business Measure Persistence	Impact	\$300,000
SBEA Process Assessment*	Process	\$300,000
Large C&I		
Methods to Capture All Cost-Effective Savings	Market/ Impact Support	\$350,000
Other		
EM&V Forum	Procedures/ Impact Support	\$160,000
FCM Measure Life	Impact Support	\$150,000
Evaluation Planning and Management	Management	\$250,000
IRP-Related Studies	Efficiency Potential	\$150,000
TOTAL New Studies		\$3,678,000 - \$3,803,000
TOTAL Including 2012 Cost		\$5,481,577 - \$5,606,577

* Could be deferred to 2014

TOTAL New Studies w/o Deferrable		\$2,748,000
TOTAL Including 2012 Cost		\$4,551,577

NOTE:

Please note that budgets are not necessarily expended in the year the study begins. Many studies are designed to take place over more than one year. Other studies – most studies - begin later in the year and therefore may have expenditures in more than one calendar year. This can make budget tracking complicated. Therefore the EEB Evaluation Committee uses timing to keep annual invoicing in line with calendar-year budgets. Total invoiced dollars during 2012 are anticipated to be approximately \$3,281,510, compared with a budget of \$3,380,000. This figure includes costs from 2011 projects that continued into 2012 as well as the 2012 costs of studies initiated in 2012. Some of the studies shown above as 2012 studies will also result in invoiced expenditures into 2013. Currently, the expected expenditure in 2013 for studies started in 2012 is \$1,803,577. All of the 2012 studies are expected to be filed with DEEP and PURA prior to the end of 2013.

Naturally, the same tracking of invoices and management of start dates will occur for the studies listed below for 2013.

Additionally, as with other years, changes in priorities and opportunities to participate in regional studies may eliminate studies or move them either earlier or later than is presented below. At this time, many

programmatic changes are anticipated. It is quite likely that additional studies will be needed and, therefore, that priorities may change from those presented.

The expected expenditure of \$1,803,577 for studies already started should be considered in assessing these figures. For example, including the list of studies absent the starred studies, the 2013 budget would total approximately \$4.55 million. This amount should be the lowest amount considered.

PRELIMINARY STUDY PLAN FOR 2014-2015

Studies slated for 2014 and 2015 are more tentative than those for 2013. Much will change relative to the programs and their characteristics, needs for information about those programs and the markets they support, state energy policy and other requirements. The following slate of studies then provides initial recommendations on when periodic studies should take place and what additional information needs are foreseen at this time.

Program or Study Name - Residential	Type of Study	Year Implementation Planned
Residential New Construction Program	Impact	2014
Residential CAC	Impact	2015
Ductless Heat Pump	Impact	2014
HES-IE Barriers to Participation and Full Savings in Under-served Populations	Market Assessment	2014
Potential for Promoting Efficiency in Consumer Electronics		2014
Potential for Heat Pump Water Heaters	Market Assessment	2015
Barriers to Program Implementation in Multifamily	Market Assessment	2015
Program or Study Name - Small C&I	Type of Study	Year Planned
SBEA Measure Persistence	Impact	2014
SBEA	Impact	2015
Program or Study Name - Large C&I	Type of Study	Year Planned
Energy Conscious Blueprint	Impact	2014
Energy Opportunities	Impact	2015
Business and Energy Sustainability	Impact	2015

EM&V FORUM EVALUATION 2013

Projects initiated within the Regional EM&V Forum also affect evaluation activities in 2013 and beyond. The Forum determines, in consultation with its membership, the studies that will be completed and the budgets for each project. This planning process is not expected to be completed until November. Ten states and the District of Columbia participate in the Forum, but not all subscribe to every study commissioned by the Forum.

Connecticut has been an active participant since the Forum's inception and intends to continue doing so. Participation in the Forum provides cost-effective solutions for projects that might be too costly to do without regional support, and provides opportunities to achieve consistency in reporting results across the region.

CONCLUSION

The Evaluations and non-evaluation Research Studies presented in this Annual Plan are carefully selected and designed to provide crucial information to guide and assess the CEEF programs within budgetary constraints. Study selection has been completed by the Evaluation Committee and the Evaluation Consultant in consultation with the Program Administrators, EEB Technical consultants, and DEEP representatives.

The EEB Evaluation Committee takes its responsibility for program evaluation very seriously. It is critical that the programs be evaluated, measured, and verified in a way that provides confidence to the public at large that the savings are real and in a way that enables the Companies to use those savings estimates and other results with full confidence. There is a need to ensure both the reality and the perception of the independence and objectivity of EM&V activities.

Moreover, the current and future efficiency programs are supported and improved through careful research into current use and equipment, customer segments and the associated barriers for each, ownership patterns, and examination of best practices in other jurisdictions. Research completed within the evaluation group provides that information.

These research studies assist regulators, the Energy Efficiency Board and the program administrators to maintain excellent practices and develop new programming options to meet Connecticut's efficiency needs. We are convinced that the Plan outlined in this document will provide these critical studies with objectivity, with excellence, and with the best interests of Connecticut rate payers in the forefront.