National Evaluation of US Department of Energy State Energy Program

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Abstract

The State Energy Program (SEP) provides grants and technical support to U.S. states and territories which enables them to carry out a wide variety of cost-shared energy efficiency and renewable energy activities that meet each state's unique energy needs while also addressing national goals such as energy security. Supplemented by funding from the American Reinvestment and Recovery Act (ARRA), the SEP budget was set at $3.1 billion for Program Years (PY) 2009 through 2011.

This paper describes the methodology developed to conduct a national evaluation of SEP. Managed by Oak Ridge National Laboratory (ORNL) on behalf of the U. S. Department of Energy (DOE) Office of Weatherization and Intergovernmental Program (OWIP), the principal objectives of the national evaluation are to develop an independent estimate of the following key program outcomes: reduction in energy use and expenditures, production of energy from renewable sources, reduction in carbon emissions associated with energy production and use, and generation of jobs through the funded activities.

The full-scale evaluation focuses on 82 unique programmatic activities (PAs) that together account for more than 80 percent of total funding.

SEP Program History

The U. S. Department of Energy (DOE) Office of Weatherization and Intergovernmental Program (OWIP) manages the State Energy Program (SEP). SEP provides grants and technical support to states and U.S. territories which enable them to carry out a wide variety of cost-shared energy efficiency and renewable energy activities that meet each state's unique energy needs while also addressing national goals such as energy security.

Congress created SEP in 1996 by consolidating the State Energy Conservation Program (SECP) and the Institutional Conservation Program (ICP), which were both established in 1975. SECP provided states with funding for energy efficiency and renewable energy projects. ICP provided hospitals and schools with a technical analysis of their buildings and identified the potential savings from proposed energy conservation measures. In the mid-1980s, the Warner Amendment (P.L. 95-105) allocated oil overcharge funds—called Petroleum Violation Escrow (PVE) funds—to state energy programs and, in 1986, $4 billion in funding was added as a result of the Exxon and Stripper Well settlements.

Over the years, SEP efforts included several mandatory activities, such as establishing lighting efficiency standards for public buildings, promoting car and vanpools and public transportation, and establishing policies for energy-efficient government procurement practices. The states and territories also engaged in a broad range of optional activities, including holding workshops and training sessions on a variety of topics related to energy efficiency and renewable energy, providing energy audits and building retrofit services, offering technical assistance, supporting loan and grant programs, and encouraging the adoption of alternative energy technologies.

By 2008, the scope and variety of energy efficiency and renewable energy activities undertaken by the various states and territories was extremely broad, reflecting the diversity of conditions and needs found across the country and the efforts of participating states and territories to respond to them. A total of $33 million in SEP funding was distributed to the states and territories during Program Year (PY) 2008, which was fairly consistent with prior years' funding levels.

However, in February 2009, the American Reinvestment and Recovery Act (ARRA) was signed into law and allocated $36.7 billion to DOE to fund a range of energy-related initiatives, including energy efficiency, renewable energy, electric grid modernization, carbon capture and storage, transportation efficiency, alternative fuels, environmental management, and other energy-related programs. The primary goals for DOE programs funded by ARRA included rapid job creation, job retention, and a reduction in energy use and the associated greenhouse gas emissions. SEP received $3.1 billion of these funds, which were disbursed beginning in late 2009 covering the PY2009-2011 period. The deadline for expenditure of all ARRA funds allocated to SEP was April 30, 2012. More information about SEP funding in the ARRA period can be found on the program's website.[1]

For PY2012, the mix of programmatic activities and funding for SEP is expected to return to the pre-ARRA levels. As such, OWIP elected to assess the outcomes of programmatic activities for one program year (PY2008) prior to the distribution of ARRA funding, as well as for programmatic activities that received ARRA support. OWIP believes that this approach will make best use of limited evaluation resources, given that future SEP program years are more likely to resemble the types of activities implemented during PY2008 as opposed to the ARRA-funded activities.

Prior Evaluation of SEP

In June 2005, Oak Ridge National Laboratory (ORNL) released an evaluation of PY2002 SEP program,[2] which reported that SEP activities generate $7.22 in cost savings from reduced energy bills for every dollar of federal investment. At that time, the estimated annual energy savings of 47.6 trillion source BTUs was deemed equivalent to the average amount of energy used for all non-transportation applications in more than 289,000 U.S. households over the course of an entire year. And the annual carbon reductions 826,000 metric tons were estimated to be equivalent to all carbon emissions produced by over 582,000 passenger cars in a one-year period.

Despite the magnitude of these impacts, the prior evaluation concluded that there is considerable uncertainty in the results. As discussed in the evaluation report, this uncertainty is related to the following four major factors:

- **Imprecise energy savings multipliers.** Energy savings were calculated from state-reported counts of specified activities and estimates of the average savings generated by a single activity of each type ("per-unit savings multipliers"). In most cases, those multipliers were taken from a limited number of recent evaluations of state energy efficiency and renewable

[1] http://www1.eere.energy.gov/wip/sep.html

[2] Martin Schweitzer, Bruce Tonn, Oak Ridge National Laboratory, *An Evaluation of State Energy Program Accomplishments: 2002 Program Year, June 2005*, http://naseo.org/sep/documents/SEP_study.pdf

energy efforts. Typically, the results of multiple studies were averaged and the mean energy-savings figure was multiplied by the number of relevant activities reported by each state and territory to yield a savings estimate.

- **Incomplete coverage of state activities.** The methodology used for the prior evaluation did not cover all SEP-supported activities performed by the various states and territories. In fact, the expenditures for the covered activities accounted for less than three-quarters of the total SEP funding during PY2002.

- **Lack of savings attribution estimates.** The prior evaluation did not attempt to estimate the effects of activities outside of SEP, such as leveraged funding from various sources and other factors, independently influencing decisions.

- **Exclusion of certain benefits.** The prior evaluation did not address certain benefits that are widely recognized as contributing to the value of energy efficiency and renewable energy programs. Examples of these benefits include spillover and networking effects, as well as a broad range of non-energy benefits such as positive effects on national security, the economy, and community health and safety.

The prior evaluation report went on to note that the uncertainty associated with the findings could both exaggerate as well as understate actual impacts and, as such, the study authors suggested that the results should be treated as estimates of SEP outcomes rather than as definitive measures of program accomplishments.

Following the completion of the prior evaluation, the Office of Energy Efficiency and Renewable Energy (EERE) hired an outside consulting firm to conduct an independent review of the study. In addition to concluding that the study was not grounded in reliable enough approaches to instill confidence in the energy impact results, the consultant's review indicated that the evaluation did not focus on key metrics (i.e., lifetime energy savings) and was not prioritized to focus on the most important, most costly, or least well understood programs.[3]

Design of the Current SEP Evaluation

The principal objectives of the current national evaluation of SEP are to develop independent estimates of key program outcomes of the PY2008 and ARRA periods, including:

- Reduction in energy use and expenditures,
- Generation of jobs through funded activities,
- Production of energy from renewable sources, and
- Reduction in carbon emissions associated with energy production and use.

[3] Nick Hall, Paul De Cotis, Marty Kushler, Lori Megdal, Edward Vine, *An Evaluation Approach for Assessing Program Performance from the State Energy Program,* October 2007, http://www.tecmarket.net/documents/Final%20SEP%20Evaluation%20White%20Paper%2010-18.pdf

The current SEP evaluation design addresses activities that represent more than 80% of SEP funding and includes a rigorous approach for the estimation of impacts. The following extracts from the Detailed Study Plan[4] summarize key elements of the study approach and methodology.

Program Characterization

Prior SEP evaluation efforts suffered from a lack of a comprehensive database detailing the program descriptions and operational theories on which each SEP program was based. Few states maintain databases of program efforts, markets and activities similar to those that are common for utility, public goods or public benefits charge funded programs. While DOE established program tracking databases to support SEP oversight efforts, it was less than adequate for evaluation purposes since not all states populate these databases with detailed program-specific information about their programs, the funding sources and funding levels.

As such, the first step in the evaluation effort was to understand the types of programmatic activities (PAs) offered through SEP and to sort them into evaluation groups for prioritizing the research efforts. Between PY2008 and the ARRA period, there were over 1,000 PAs identified. Each PA was initially assigned to a Broad Program Area Category (BPAC) as determined through prior SEP research, as shown in Attachment 1.

Within these classifications, there were many different types of programs. Essentially, there were few programs that were alike in every way; however, many programs were alike in very general ways. For example, there were many types of renewable energy development programs. These programs all focused on some aspect of the renewable energy industry, but were very different in the services provided. These programs ranged from providing help in locating and permitting renewable power facilities, to renewable technology information programs, to advice on purchase decisions, to programs that increase market demand for renewable energy. Similarly, there were different types of audit programs. These programs varied in the markets they serve, the types of facilities they cover, and the service associated with the audit.

Transforming the PY2008 and ARRA program tracking data into a format that could support evaluation research was a key task in the design and execution of the evaluation. Working collaboratively with DOE and ORNL, the evaluation team established a set of distinguishing attributes and assigned PAs to each of the BPACs, as shown in Attachment 1.

In addition to program tracking data, the evaluation team used several other sources for assigning PAs to BPACs. First, analysts performed internet research to supplement information provided in the program tracking database. Second, interviews with DOE Project Officers were conducted to collect additional information and confirm assignments. Finally, interviews with State Energy Program staff were conducted to verify the status of all PAs and the final BPAC assignments.

[4] DNV KEMA Energy & Sustainability, Detailed Study Plan: Final, National Evaluation of the United States Department of Energy's State Energy Program, June 2011, http://weatherization.ornl.gov/pdfs/DetailedSEPEvaluationPlanFinal063011.pdf

The evaluation team established and followed some basic principles in its BPAC assignments because many, if not most, PAs had elements of multiple BPACs in them. The basic principles were:

- Assign the BPAC that most fits the programmatic activity.
- Assign the highest level rigor possible that reasonably fits the programmatic activity.
- Assign a secondary or tertiary BPAC if a programmatic activity exhibits strong supporting elements.
- Assign "Administration" as a BPAC for funded activities that are primarily administrative in nature and have no programmatic feature that would deliver energy savings.
- Assign "Energy Emergency Planning" as a BPAC since the 2008 SEP funding included such a requirement that the ARRA funding did not.

The next step in the sorting and classification task was to assign PAs to subcategories. Upon review of the PA data, the evaluation team determined that not only do the PAs within BPACs disaggregate into subcategories, but also the subcategories may overlap across BPACs as well. For example, the Loans, Grants and Incentives BPAC was at times hard to distinguish from a building retrofit or renewable energy rebate program. Workshops were often offered across many BPACs, and building retrofit programs could be delivered through technical assistance or audits. As a result, the evaluation team found that further specifying the BPACs to a finer level—such as the delivery mechanism or the targeted sector—became a useful basis for subcategorization. Additionally, the subcategories were also specified to be consistent with known impact evaluation methods, such that estimated energy impacts by BPAC can be reasonably reflected as the sum of all subcategories. The subcategories developed for this evaluation effort are also presented in Attachment 1.

Sample Design

As shown in Table 1, the program characterization activities resulted in identifying 450 PAs for SEP PY2008 and 546 PAs for the ARRA period. However, some of these PAs were removed from the sample frame based on DOE direction. First, activities that were primarily administrative in nature and did not have any programmatic feature that are expected to deliver energy impacts were removed from the sample frame. In addition, SEP typically includes activities designed to meet federal requirements to improve energy infrastructure and prepare energy emergency plans. These activities are typically related to mitigating energy disruptions during emergency situations, including monitoring energy supplies, demand, and prices, and communicating this information to the public. While an important component of SEP, DOE excluded these activities since their goals and expected outcomes are substantially different from what the evaluation is designed to study.

Table 1: SEP Evaluation Sample Design

		PY2008		ARRA	
		PAs	Percent of SEP Budget	PAs	Percent of SEP Budget
All Programmatic Activities (PAs)		450	n/a	546	n/a
Not Applicable to SEP Evaluation	Administrative PAs	109		62	
	Emergency Planning PAs	25		0	
SEP Sample Frame		**316**	**100%**	**484**	**100%**
Excluded	Evaluability threshold not met	14	3%	9	1%
	BPAC minimum size threshold not met	115	15%	147	11%
	PA minimum size threshold not met	47	1%	22	0%
Included	Reserve Sample	66	14%	263	71%
	Secondary Sample	21	6%	14	2%
	Primary Sample	**53**	**62%**	**29**	**15%**
BPACs Included in Primary Sample	Building Codes & Standards	7	7%	4	1%
	Building Retrofits	15	8%	8	1%
	Clean Energy Policy Support	8	3%	n/a	n/a
	Loans, Grants & Incentives	14	28%	12	10%
	Renewable Energy Market Development	6	3%	5	2%
	Technical Assistance	5	2%	n/a	n/a

Additional PAs were removed from the SEP sample frame for other reasons:

- **Evaluability Threshold.** Based on the data contained in the DOE databases as well as supplemental information collected from DOE Project Officers, State Energy Office contacts and other research activities, the evaluation team assigned each PA an "evaluability score." PAs were assigned a score of 0 if there was strong evidence that the type of information needed to evaluate the included activities was not going to be available to the evaluation team.

- **BPAC/Subcategory Size Threshold.** In order to be eligible for inclusion in the final sample, PAs within a given BPAC/subcategory combination were required to represent at least 3% of the overall SEP budget. That is, if the total funding for all of the PAs assigned to a particular BPAC/subcategory combination was less than 3%, all of the PAs assigned to that BPAC/subcategory combination were excluded from the sample.

- **PA Size Threshold.** Individual PAs were excluded if their budgets were less than a minimum size threshold ($10,000 for PY2008 and $100,000 for the ARRA period).

Once all of these were excluded, the final sample frame contained 140 PAs from PY2008 and 316 PAs from the ARRA period. Together, these PAs represent more than 82% of PY2008 SEP funding and 88% of SEP funding during the ARRA period.

The next step in the sample design was to assign PAs to either the primary, secondary, or reserve sample categories. Target sample sizes of 53 PAs for PY2008 and 29 PAs for the ARRA period were established, and PAs were sampled randomly based on probability proportional to size techniques. An additional 21 PAs were assigned to the secondary sample for PY2008 and 14 PAs were assigned to the secondary sample for the ARRA period. The remaining PAs made up the reserve sample.

Evaluation Planning

Once the sampling activities were completed, evaluation plans for each BPAC were finalized. These plans consider the specific goals and objectives of the sampled PAs, the underlying market environment, and the quality and completeness of the available data. Individual BPAC evaluation plans are concise, highly structured documents that specify the type and amount of data collection to be carried out, the types of analytic approaches to be applied, the staff and subcontractors to be used, the labor and direct costs required, and the implementation schedule. These plans are meant to serve as a tool for managing project resources and quality control.

Estimate Energy Impacts

For each individual PA, the evaluation team will carry out an assessment of energy impacts – i.e., energy savings, renewable energy capacity and generation, and energy cost savings. For this evaluation, two levels of rigor were established for the assessment of energy impacts:

- **High-rigor evaluations** require verification of savings through best practice methods, particularly methods recognized in the California Evaluation Protocols, DOE's Impact Evaluation Framework for Technology Deployment Programs, and the International Performance Measurement and Verification Protocol (IPMVP). These methods include on-site verification, metering, and/or performance monitoring, surveys of participants and nonparticipants, and combinations of building simulation modeling and other engineering analysis with the first two methods. In some cases these verification methods will be mixed with less intensive approaches, such as file review and telephone contact with program participants, to increase sample size. Sample results will be expanded to the population using statistical methods, such as ratio estimation and regression analysis.

- **Medium-high-rigor evaluation** requires verification of savings with individual participants, using less intensive data collection and analysis methods than those prescribed for high rigor. Input data will be collected through telephone contact with participants and supplemented by review of program documentation. These data will be combined with documented input assumptions and applied to standard engineering formulae to estimate savings for all, or a sample of, participants.

Assess Attribution

The evaluation team will assess each sampled PA to determine the portion of estimated energy impacts that are attributable to the SEP funding of that activity, as opposed to other influences such as general developments in the market, or the activities of other organizations offering similar kinds of programs or services. Because multiple funding sources are common during the PY2008 and ARRA funding periods, it will be important to clearly distinguish impacts that are attributable to SEP versus other sources.

The evaluation will use a multi-step attribution approach to include logic models, model validation, cause and effect relationships, funding stream analysis, behavior change assessment, and other established techniques to quantify effects. In addition, to the extent data are available and reliable, the evaluation will explicitly account for SEP-induced capacity development over time.

Estimate Carbon Emissions Impacts

Estimates of annual and lifetime energy savings attributable to the program will serve as the primary inputs to a model that estimates carbon emissions reductions based on the carbon content of fossil fuels and electricity consumption avoided.

Estimate Employment Impacts

Energy impact estimates will be combined with other program information, such as matching funds contributed, participant expenditures for labor and materials, and direct program expenditure as inputs into a regional economic model to estimate employment impacts.

Estimate Costs and Benefits

SEP reporting guidelines require that sponsors use only one cost-effectiveness test, designated the SEP Recovery Act Cost (SEP RAC) Test which is computed as source BTUs saved per $1,000 in program expenditure or investment. The SEP Recovery Act Financial Assistance Funding Opportunity Announcement specified that states should seek to achieve annual energy savings of 10 million source BTUs per $1,000 of program investments. In addition to the RAC test, the evaluation team also plans to compute a net present value benefit/cost ratio which, in addition to the estimates of energy savings, customer costs and program costs, will require specification of energy prices and discount rates.

Methodological and Logistical Challenges and Solutions

A national evaluation of this nature and scope poses several considerable challenges, as summarized briefly below.

Lack of Available Data on PY2008 Activities

Data collection efforts in support of the study did not begin until 2011. The lag between the PY2008 activity and subsequent evaluation efforts presents two fundamental challenges.

First, program documentation and participant-level tracking data for the PY2008 period is no longer available and/or difficult to obtain and, second, staff with knowledge of PY2008 SEP activities are no longer working at the State Energy Offices. This is particularly challenging given the nature and size of PY2008 SEP activities – i.e., funding levels were very small, quite diverse, and in most cases, very different from the activities implemented during the ARRA period. Despite these challenges, DOE Project Officers have been extremely helpful in identifying contacts and data sources for the sampled PY2008 PAs.

Paperwork Reduction Act Requirements

In the US, legislation known as the Paperwork Reduction Act (PRA) requires that all data collection instruments and protocols administered to 10 or more "people of the general public, including federal contractors" be reviewed and approved by the Office of Management and Budget (OMB). The 11-step process is known as an Information Collection Request (ICR) and includes two periods of public comment totaling 90 days, and OMB has 60 days to make its final approval decision following the close of public comments. This process can require nine months or more to complete. Once data collection instruments are reviewed and approved by OMB, they may not be changed except within prescribed bounds to facilitate their administration in a variety of settings.

In order to expedite the ICR process, the evaluation team designed an overall research effort to minimize the number of data collection forms and protocols that require OMB review. Table 2 presents a summary of the types of data collection instruments developed for this effort, as well as the anticipated sample sizes for each. In addition to conducting indepth interviews with all SEP managers for 82 sampled PAs, the evaluation team will conduct 620 indepth interviews, 4,955 telephone surveys, and 150 site visits. Telephone surveys are limited to PAs that fall within the Building Retrofit and Renewable Energy Market Development BPACs, and site visits are limited to the high-rigor evaluations of PAs within the Building Retrofit BPAC. There are three types of PAs for which OMB approval is not required – i.e., Renewable Energy Manufacturing, Clean Energy Policy Support and Transportation Infrastructure – because the evaluations of these efforts will not collect data from 10 or more respondents.

Table 2: SEP Evaluation Data Collection Instruments and Targeted Sample Sizes

BPAC	Respondent Category	Type of Respondent	Number of Respondents by Type of Data Collection Instrument			Total Number of Respondents
			Indepth Interview	Site Visit	Telephone Survey	
Building Codes & Standards	Market Actors	Construction Firms	24			24
		State and Local Code Officials	24			24
Building Retrofits	End-Use Customers	Building Owners/ Facility Managers		150	850	850[1]
		Home Owners/ Renters		50	560	560[1]
	Market Actors	Students/Trainees			2,480	2,480
		Vendors, Installers, Project Developers	158			158
	Program Implementation Staff	Other Program Manager	76			76
		Program Delivery Contractor	48			48
Renewable Energy Market Development	End-Use Customers	Building Owners/ Facility Managers			25	25
		Home Owners/ Renters			560	560
	Market Actors	Students/Trainees			480	480
		Vendors, Installers, Project Developers	80			80
	Program Implementation Staff	Other Program Manager	16			16
		Program Delivery Contractor	16			16
Technical Assistance	Market Actors	Instructors	36			36
		Vendors, Installers, Project Developers	80			80
	Program Implementation Staff	Program Delivery Contractor	62			62
		Total	**620**	**150**	**4,955**	**5,613[1]**

[1] Site visits will be conducted with a nested sample of the respondents to the telephone surveys.

Timeline for ARRA Funded Activities

Funding for the ARRA period SEP activities included in this evaluation ended in April 2012. This, combined with the OMB timeline described above, creates several challenges. For example, many states were finalizing their SEP programs during March-April 2012 such that data collection could not begin until May 2012. Conversely, some states received extensions such that close-out for their ARRA programs was delayed (extensions ranged from 2-17 months). The timing of ARRA program close-out in a particular state had the potential to hamper the evaluation effort as states were preoccupied trying to wrap-up their programs and were not available to support the data collection effort. Also, some states were reluctant to provide evaluation data until well after the programs concluded and wanted to ensure that program data provided to the evaluators was consistent with the overall results they were reporting to DOE. In some cases this caused delays and, in other cases, it caused inconsistencies when preliminary data deviated significantly from what was ultimately provided to DOE. Finally, due to the magnitude and nature of ARRA funds, many states outsourced program implementation such that, by the time the evaluation effort kicked-off, some states no longer had access to contractors who were supporting program implementation activities.

Coordination with State Led Evaluations

There are a number of evaluations of ARRA-funded SEP programmatic activities conducted by state energy offices and other program sponsors. Coordination with these efforts was necessary to avoid sampling programmatic activities evaluated by the states. In some cases, the methods used by the states and/or utilities were in line with DOE's requirements and, as such, the national evaluation was able to incorporate the results of those studies into the estimation of national impacts.

Next Steps

Evaluation activities are underway for three BPACs for which the planned data collection activities do not require OMB approval. Results from these early studies are expected in August 2012. Draft evaluation results for all BPACs are expected in December 2012, with results finalized and published by early 2013.

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Attachment 1: Broad Program Area Category (BPAC) Distinguishing Attributes and Subcategories

BPAC	Distinguishing PA Attributes Relevant to Primary BPAC Designation	Subcategories
Building Retrofits	• Provides financial incentives for building retrofit and equipment replacement projects in non-residential and residential buildings. • Non-residential projects typically identify specific facilities, or facility owners in the grant application or PA description. • Residential programs do not identify specific projects, facilities, or customers.	• Building Retrofits: Nonresidential • Building Retrofits: Residential • Energy Audits: Commercial, Industrial and Ag • Energy Audits: Residential • Generalized Marketing and Outreach • Generalized Workshops and Demonstrations • Targeted Training and/or Certification • Technical Assistance to Building Owners
Technical Assistance	• Provides technical assistance other than audits for building retrofit or equipment replacement projects: e.g. technical studies for specific improvements, building modeling, project financial analysis, support in negotiating with contractors. • Open to commercial, industrial, and agricultural facility owners or specified subgroups thereof. • May be combined with financial incentives.	• Generalized Workshops and Demonstrations • Targeted Training and/or Certification • Technical Assistance to Building Owners
Energy Audits: Commercial, Industrial and Agricultural	• Provides funding for or direct services for energy audits of commercial, industrial, and agricultural facilities. Could range from simple checklist to investment-grade audits, mostly involves onsite delivery. • Audits are oriented to identifying cost-effective building retrofit and/or equipment replacement projects. • May be combined with financial incentives.	• Energy Audits: Commercial, Industrial and Ag • Targeted Training and/or Certification
Energy Audits: Residential	• Provides funding for or direct services for energy audits of residential facilities. Could range from on-line to on-site audits. • Audits are oriented to identifying cost-effective building retrofit and/or equipment replacement projects. • May be combined with financial incentives.	• Energy Audits: Residential • Targeted Training and/or Certification
Renewable Energy Market Development	• Provides financial incentives and/or technical assistance to support the development of renewable energy facilities including: solar, wind, biomass, small hydro. • Includes PAs that develop or expand existing manufacturing capacity for renewable energy equipment or components. • At least some portion of the output of the new or expanded capacity is intended for domestic installation.	• Generalized Marketing and Outreach • Generalized Workshops and Demonstrations • Renewable Energy Market Development: Manufacturing • Renewable Energy Market Development: Projects • Targeted Training and/or Certification • Technical Assistance to Building Owners
Clean Energy Policy Support	• Develops and obtains legislative, executive, or regulatory approval for policies to facilitate the completion of renewable energy facilities. Examples might include statewide zoning laws, feed-in tariffs, favorable back-up tariffs, renewable portfolio standards.	• Generalized Marketing and Outreach • Policy and Market Studies; Legislative Support

BPAC	Distinguishing PA Attributes Relevant to Primary BPAC Designation	Subcategories
Transportation	• Provides training, financial support, technical assistance, marketing assistance, and/or administrative assistance to facilitate the development and operation of car and van pools. • Supports capital improvements to support substitution of renewable fuels or electricity for conventional transportation fuels. • Supports improvements to fleet vehicle efficiency and operations. • Includes traffic signal optimization and control upgrades that reduce idling times.	• Alternative Fuels, Ride Share and Traffic Optimization • Generalized Marketing and Outreach • Generalized Workshops and Demonstrations • Targeted Training and/or Certification)
Traffic Signals	• Provides incentives and technical support for LED traffic signals retrofit and replacement. • Controls upgrades that aim primarily at reducing idling times are included in the Transportation BPAC.	• Traffic signals
Building Codes and Standards	• Provides marketing support for products that meet the higher energy efficiency standards. • Provides training to vendors in marketing and installation of products that meet the higher energy efficiency standards. • Provides technical and administrative support for the development of more energy-efficient state and federal equipment standards and building codes. • Provides training and technical services to strengthen enforcement of the energy elements of state building codes.	• Building Code Development and Support • Generalized Marketing and Outreach • Generalized Workshops and Demonstrations • Targeted Training and/or Certification • Technical Assistance to Building Owners
Energy Efficiency Rating and Labeling	• Provides technical and administrative support for the development of energy efficiency ratings of energy-using equipment or buildings. • Provides marketing services to build customer awareness of the subject energy efficiency ratings. • Provides training and technical services to build vendor awareness and use of energy efficiency ratings in their business activities.	• Building Code Development and Support • Generalized Marketing and Outreach • Government, School and Institutional Procurement
Government, School and Institutional Procurement	• Provides technical and administrative support for government initiatives to purchase energy-efficient equipment or energy-efficient design services.	• Generalized Marketing and Outreach • Government, School and Institutional Procurement • Targeted Training and/or Certification
New Construction and Design	• Provides technical and administrative support for the development of energy efficiency ratings of energy-using equipment or buildings. • Provides marketing services to build customer awareness of the subject energy efficiency ratings. • Provides training and technical services to build vendor awareness and use of energy efficiency ratings in their business activities.	• Building Code Development and Support • Generalized Marketing and Outreach • Generalized Workshops and Demonstrations • New Construction and Design • Targeted Training and/or Certification • Technical Assistance to Building Owners

BPAC	Distinguishing PA Attributes Relevant to Primary BPAC Designation	Subcategories
Loans, Grants, and Incentives	• Provides financial incentives for building retrofit and equipment replacement projects in non-residential buildings. • Does not identify specific projects, facilities, or customers. • Incentives allocated according to an open application process for eligible customer groups. • Financial incentives are the principal program offering, but may be combined with others such as audits.	• Alternative Fuels, Ride Share and Traffic Optimization • Building Retrofits: Nonresidential • Building Retrofits: Residential • Energy Audits: Commercial, Industrial and Ag • Energy Efficiency Rating and Labeling • Generalized Marketing and Outreach • Generalized Workshops and Demonstrations • Industrial Retrofit Support • Renewable Energy Market Development: Manufacturing • Renewable Energy Market Development: Projects • Renewable Energy Market Development: Projects • Targeted Training and/or Certification • Technical Assistance to Building Owners
Tax Incentives and Credits	• Provides or facilitates access to state and federal tax credits for building retrofit or energy-efficient equipment replacement projects in residential facilities. • May be combined with technical services.	• Targeted Training and/or Certification