

Designing for Effective Evaluation: Tools and Strategies to Support Energy Efficiency Programs Targeting Small, Low-Capacity Jurisdictions

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ABSTRACT

The tools and strategies utilized by the small cities and counties participating in the Energy Efficiency Conservation Block Grant (EECBG) program administered by the Washington State Energy Office (WSEO) were analyzed to determine which produced the most adequate and highest quality data for use in evaluating the program.

A review of program documents found that the majority of reporting tools used by grant recipients did not require an articulation of calculation methodology or cohesive strategies for calculating energy-savings impacts across programmatic activities. Analysis of survey responses suggests that a lack of internal staff capacity and the need for additional external support contributed to reporting inadequacies. The findings build upon the knowledge that small governments face unique constraints when attempting large-scale energy efficiency projects and that accurate reporting and evaluation of outcomes is often paramount in obtaining funding for future projects.

Recommendations for improving and designing future programs include: requiring an investment-grade energy savings audit up front; highly encouraging energy service company (ESCO) collaboration for capital projects; providing energy savings metrics and calculators for each eligible program activity type; clearly defining and providing evaluation criteria at the beginning of the program; and providing adequate resources and staff support for small jurisdictions.

The Need for Energy-savings Evaluation Tools in Small Jurisdictions

The government sector represents a major consumer group with significant potential for energy efficiency changes (Kyle et al. 2007). Local governments in particular possess the ability to influence energy efficiency policy in government operations, integrate energy efficiency into community design and public service provision, create local jobs through employment in projects and programs, improve the sustainability and efficiency of local infrastructure, enhance local energy security and reduce community greenhouse gas emissions (ACEE), and have the ability to leverage local dollars and obtain state and federal funding to finance large-scale projects and long-term initiatives.

Following the national economic recession beginning in 2007, governmental jurisdictions increasingly faced dual problems of decaying infrastructure and tightening budgets. Local leaders often responded with layoffs, cutting services, and delaying capital and infrastructure projects (Hoene, 2009). Though poised as an ideal customer group to benefit from the services of the energy efficiency market, small jurisdictions are often cash-poor and rely heavily on state, federal, or private subsidies, in

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conjunction with local funding and utility rebates, to fund energy efficiency projects. Evaluation has increasingly become an ingrained part of state and federal grant awards, with much of the data collection and reporting responsibility falling to the funding recipients. Evaluation outcomes are used not only to track performance, but also to make decisions regarding future funding efforts. Many small jurisdictions now face a situation where increased needs for external funding create increased project management and evaluation workloads for a smaller staff with tighter local budgets.

An evaluation of Energy Efficiency and Conservation Block Grant (EECBG) projects administered by the Washington State Energy Office (WSEO) in small, primarily rural jurisdictions found that grant recipients reported performance metrics and energy-savings estimates in inconsistent formats and often without adequate methodological underpinnings, substantially reducing the reliability of the performance data and masking real outcomes. This style of data reporting also made comparisons between project outcomes difficult, hindering process evaluation efforts. Without comparable data, project-to-project comparisons could not be made, and the identification of best practices for desired outcomes became more difficult.

Understanding what works and which public investments produce the most energy and financial savings is critical knowledge for decision makers guiding policy and investment in this arena, and identifying the optimal tools and strategies to produce adequate and useful data to evaluate such programs is a key concern. With small jurisdictions relying on fewer staff and resources, providing them with the tools to adequately and consistently report comparable project outcome data is critical to achieving an effective energy efficiency program evaluation with meaningful data and results.

Background on the EECBG Program in Washington State

The EECBG program was one of the largest investments in the energy economy made by the American Recovery and Reinvestment Act (ARRA), with \$3.2 billion in funding earmarked nationally. Originally authorized in 2007, the program had never before received an appropriation; ARRA funded EECBG for the first time. The program, administered by the United States Department of Energy (USDOE), awarded funding for energy efficiency retrofits, conservation strategy development, and a variety of related project types.² Funds were awarded by formula directly to large cities and counties, tribes, and state governments, nationwide. Similar to the long-standing Community Development Block Grant program, a portion of each state's allocation was reserved for sub-awards to smaller cities and counties.

In Washington State sub-awards were administered by the WSEO, which is housed in the Washington State Department of Commerce (Commerce). This unit has primarily provided energy policy support, analysis, and information for the Governor, Legislature, Commerce and other energy decision makers. However, the WSEO also manages contracts and provides financial and technical assistance for grants funded by USDOE.

In 2009 WSEO received \$10.6 million in ARRA funds for the state EECBG program. Of that total, \$6.4 million (60 percent) was distributed as grants to cities and counties with less than 35,000 and 200,000 in population, respectively, through the Energy Efficiency and Conservation Grants for Smaller Cities and Counties program. These funds are the subject of this paper.

WSEO developed guidelines for the program and conducted a competitive solicitation process in 2009. The program awarded 46 grants to applicants, some of which were partnerships of several jurisdictions, providing funding of approximately \$135,000 per jurisdiction. All recipients were Washington State cities, towns, counties, or partnerships of such jurisdictions. Among 14 categories of eligible activities, funded projects included energy efficiency retrofits, commercial and residential

² <http://www1.eere.energy.gov/wip/eccbg.html>

building audits, transportation programs, traffic signal or street lighting upgrades, and a variety of other related activities.³ The majority of projects were energy efficiency building retrofits (32 projects), generally focusing on HVAC and lighting systems, with the majority of expenditures being made in the construction industry.

Scope of the Research

Based on lessons learned by the EECBG program in Washington, this paper seeks to contribute ideas regarding how federal- and state-level government agencies can design energy efficiency programs that support small, low-capacity jurisdictions in successfully reporting adequate and accurate energy-savings data from programs. In this context, the term “small, low-capacity jurisdiction” refers to cities and counties with populations of less than 35,000 and 200,000, respectively, which also face capacity challenges partially including but not limited to staff size, staff expertise and experience managing similar projects, recent staff reductions due to economic conditions, and budget constraints.

This paper documents the different approaches taken by EECBG grant recipients in measuring and reporting energy efficiency impacts, and examines some of the difficulties and successes jurisdictions experienced in doing so. The purpose of the review is to identify which evaluation tools and strategies proved the most useful for small, low-capacity jurisdictions. Data sources include contract and reporting documents, as well as surveys and structured interviews with recipient jurisdictions’ project managers, state energy office program staff, and key informants.

The paper identifies the role energy-savings calculations played in the overall program, the impacts of such calculations on program success, and which calculation tools or strategies proved most helpful in providing adequate and accurate information to local jurisdiction program administrators. The research distinguishes between two elements of the energy-savings calculations: the strategy used to estimate the energy savings and the mechanism or tool used to convey the information to program stakeholders and other end users.

Of the 46 jurisdictions that received EECBG grants, two projects terminated early without completing the proposed projects. The remainder of the jurisdictions completed EECBG grant-funded projects and submitted some form of energy-savings calculations as a part of reporting project performance.

Evaluation Methodology

The research team employed both qualitative and quantitative approaches to discover and analyze the different approaches to measuring and reporting energy impacts used by small cities and counties receiving EECBG grant funding. From a quantitative perspective, contract and reporting documents, including quarterly jobs and process metrics recipients provided through the 1512 and PAGE reporting processes, were analyzed to determine the type of data collected and reported by grant recipients, and the approaches taken in calculating energy-savings estimates for reporting.

The analysis was augmented by qualitative data gathered by the researchers through phone interviews with recipient jurisdiction staff and in-person interviews with WSEO program staff following the completion of projects and close-out of the grant contracts. The recipient jurisdiction interviews included conversations with grant recipient project managers, contractors, and local jurisdiction staff and focused on the individuals’ experience facilitating the EECBG project in their jurisdiction. Feedback regarding the usefulness of federally-provided calculation tools, WSEO staff support, and other elements

³ Rossman, J, et al. (2013). *Economic Impact of Washington State's Energy Efficiency and Conservation Grants for Smaller Cities and Counties*. Olympia, WA: Washington State Department of Commerce. Some projects incorporated more than one programmatic activity, accounting for difference in total project grants awarded and total projects by activity type.

of the data reporting process was assessed by the research team using grounded theory coding and analytical techniques.

Document Analysis of Tools and Strategies - Federal, state and agency reporting requirements provided detailed information about each project, and all reporting documents were analyzed by the research team. The grant process was established by the federal USDOE and administered at the state level by the WSEO, and included: providing initial energy savings, generation, and job impact estimates at the application stage; completing ongoing reporting requirements during the period of grant performance; and submitting a final close-out report. Grant recipients were also required to meet and report on Davis-Bacon Act labor requirements and Buy American product sourcing requirements for most aspects of the projects. Jurisdictions also had the choice to participate in a close-out survey regarding their experience in the program.

Researchers created a matrix to evaluate the type of energy-savings data collected by each reporting tool required by the EECBG program, or tools commonly used by recipients. The objective of this analysis was to determine which reporting mechanisms were most effective in conveying the amount and type of data needed with the appropriate level of detail and validity.

Additionally, contract documents for each of the 46 EECBG grant recipients, including the required reporting tools and reports, were reviewed and analyzed to determine the strategy taken by each jurisdiction to calculate energy-savings estimates. Based on a review of close-out reports and survey responses, the primary source or producer of each jurisdiction's energy-savings estimates was also identified.

Surveys to Inform Document Analysis - To better understand the impact of the EECBG program on participating small cities and counties in Washington, the researchers created and conducted a survey of recipient project managers and key staff to evaluate their experience participating in the program and the impacts the program had on their jurisdiction. While certain project impacts such as the number of jobs created or estimated kilowatt hours saved could in some cases be collected from document analysis, a qualitative recipient survey was selected as a viable means of evaluating aspects of the EECBG program not captured by the formal reporting process.

The research team conducted interviews in the fall of 2012. Of the 46 total EECBG grants for small cities and counties awarded by Commerce, two terminated early and two were not completed as of November 2012. Of the remaining 42 grant recipients, 24 participated in the survey, a 57 percent response rate.

Participants were asked to complete a 20-minute phone survey with the research team regarding their participant experience in the EECBG program and the impacts of the program to their jurisdiction. Survey questions were arranged into four categories: influencing factors, project impacts, project administration, and program outcomes. Survey questions were designed using the KEMA national survey and other surveys deployed in energy efficiency program evaluations as models. Participants were advised that their responses would remain anonymous in any reporting and analysis.

The researchers applied grounded theory interview coding techniques to analyze survey responses and construct meaning. Charmaz (2006) summarized grounded theory methods as consisting of, "systematic, yet flexible guidelines for collecting and analyzing qualitative data to construct theories 'grounded' in the data themselves." The grounded theory approach was selected in order to identify and determine the nature of programmatic concerns from the participants' responses, rather than analyzing responses with preconceived hypotheses looking to be supported or rejected. With this methodology, researcher bias is minimized by relying on participant-provided language and data to identify themes and construct meaning, by beginning with data collection based in the respondent's experiences rather than hypothesis-forming and testing.

The research team administered the survey via a phone interview with each individual participant and a member of the research team. Participant responses were typed as accurately as possible by researchers into a response document while the participant responded to each question. Researchers conducted line by line coding of responses, assigning each response relevant themes as they arose. Themes were then aggregated by survey question and condensed into categories. The more times a category or theme appeared within the responses for each question, the more weight it was assigned.

Researchers analyzed survey responses quantitatively with regards to the number of participants that answered a certain question or identified a certain theme, as well as qualitatively by observing the nature and magnitude of each theme that appeared. Responses to each question were formatted in the following way:

- 1) Quantitative summary of responses to each question by the number of jurisdictions (24 total) responding and/or the number of times a theme occurred, by jurisdiction. For example, a question with a yes/no response would show 24 total responses, whereas a question asking to identify major challenges or successes (themes) may have more than 24 total responses depending upon each participant's answer.
- 2) A narrative analysis of the participant responses, which elucidated major themes, explored potential causes and effects, and provided context for understanding the significance of the responses.
- 3) Analysis of emergent themes by magnitude of total participant response.⁴ The magnitude of response themes was considered significant in that the survey sought to identify those issues or themes which most concerned participants. The result of this coding allowed for the themes that occurred the most number of times among responses to a certain question to be identified not just by occurrence, but by magnitude of occurrence. For example, a simple identification of the themes that occurred would reveal some information about the nature of the responses to each question; however the method of coding employed in this case allows for response themes that received more time and information to become predominant.

This approach differed from a quantitative identification of the number of themes of issues that occurred by providing a weighted context of the survey conversations overall. In this manner, those themes or issues which were most discussed by participants were given greater weight. This level of coding demonstrated the total amount of response volume that was dedicated to certain themes, providing an analysis for participants who provided extended and detailed answers as opposed to a simple yes/no or one-sentence description. For example, one theme mentioned in passing by three jurisdictions would potentially show up less intensively in the analysis than a theme that was mentioned only twice but extensively detailed by two jurisdictions.

Findings

Document Analysis of Tools and Strategies - Contract documents for each EECBG grant recipient, including the required reporting tools and reports, were reviewed and analyzed. A matrix was created documenting which reporting tools requested recipients to report various aspects of their project energy-savings estimates.

⁴ Following grounded theory coding techniques, line by line coding was employed and each element (phrases or sentences) of each participant's response to each question was assigned a theme, such as "small jurisdictions lacking adequate funding and resources to complete project alone" and "realizing cost and energy savings." Themes were constructed using participant-created language as the guide, reducing researcher bias. Responses received three rounds of coding, distilling like themes into fewer categories with each round.

Table 1 – Energy-Savings Estimates Data Sources

Where Reported	Information Provided						
	Energy-saving activities	Energy-savings estimates	Energy-savings per dollar invested	Calculation methodologies	Follow-up methodologies	ESCO information	PUD audit or assistance
Application	x	x			x		x
Monthly Report	x						
Quarterly Report	x	x	x				
Close-out Report	x	x	x	x			
Survey (Optional)	x				x	x	x

The close-out report required, and thus ultimately provided, the largest amount of energy-savings data with the greatest amount of detail. The report had five fields requiring relevant information:

- 1) *Have your estimated annual energy savings changed from the estimate provided in your application?*
- 2) *What do you estimate energy savings will be on an annual basis?*
- 3) *What do you anticipate energy savings to be per total dollar invested on an annual basis (do not include energy savings associated with other federally funded activities)?*
- 4) *What methodology was used to calculate estimated annual energy savings?*
- 5) *The grant application asked you to describe how this project would provide energy savings over the long term. At the conclusion of this project, do you think that estimated energy saving are still reasonable? If not, how would you adjust your estimate?*

As a reporting tool, the close-out report provided the most consistent source of project energy-savings data with the greatest detail, as it asked for energy-savings estimates in multiple formats (both annual and per-dollar invested annually), and required a justification or methodology for the estimates provided. The close-out report also asked for details regarding any changes in the energy-savings estimates from the beginning of the project to the project completion, which was useful as 18 projects reported some sort of change to their project scoping and activities.

Who provided the energy-savings data? The majority of jurisdictions had energy-savings estimates calculated by either in-house local government staff or a local utility provider (the later often in tandem with an energy audit). A review of the close-out reports revealed that nine of the jurisdictions did not provide sources for the energy estimates provided. In most cases, this meant the jurisdictions skipped the calculation estimates and methodology portions of the close-out report all together. The large number of jurisdiction staff completing energy-savings estimates could in part contribute to the lack of data consistency amongst recipient reporting, as the self-reported relationship of these staff to the jurisdiction ranged from accountant to project manager to engineer, reflecting a diverse skillset and knowledge of energy-efficiency conservation activities and technology.

Table 2 – Sources of Energy-Savings Estimates

Energy-savings estimate provider	Recipients using this strategy
Jurisdiction staff	15
Utility	14
Unknown	9
Consultant	3
ESCO	2
Terminated early	2
No baseline, not applicable	1
Total	46

Which calculation methodologies were used? While project energy-savings estimates were required for the initial grant application, documentation of the estimate or the calculation methodology was not. However, jurisdictions were asked on the close-out report to identify total project energy savings, changes between projected and actual savings, as well as the methodology used to calculate energy-savings estimates. A review of the close-out reports identified that several grant recipients did not demonstrate their energy-savings methodology or detail how they arrived at their estimated energy-savings calculations. Those who did seemed to rely primarily on a variety of calculators and software tools, utility-provided energy audits, and comparisons between current and previous utility statements regarding energy use. It was found that all nine of the “Unknown” estimate provider indicators detailed in Table 2 above correlated with a “No methodology provided” indicator in Table 3 below. While some jurisdictions detailed the entity (such as a PUD or local utility) that provided their energy-savings estimates, actual calculations or methods used to determine savings were often not provided to verify estimates.

Table 3 – Energy-Savings Calculation Methodologies Used

Stated energy-savings calculation methodology	Recipients using this methodology
No methodology provided	16
Comparison of utility statements	5
Other calculator	5
Utility energy audit	4
EECBG Estimated Benefits Calculator	4
Simple calculations	3
Comparison of equipment performance standards	3
Advanced ESCO calculations	2
Terminated early	2
Comparison with similar facility	1
No baseline, not applicable	1
Total	46

The review of the close-out reports and other relevant documents demonstrated that the data being captured by the reporting tools designed and used by USDOE and WSEO staff was both limited, and in many cases, not fully useful in evaluating the performance of the program overall. The sheer number of jurisdictions which did not provide methodologies for their reported energy-savings estimates (16 jurisdictions) created a gap in the understanding of how (and if) grant recipients achieved the environmental and energy-savings objectives of the EECBG program. With this information in mind, surveys were conducted with grant recipients to discover some of the rationale behind this gap in the data and ask recipients how they thought better data collection and reporting could be achieved.

Surveys to Inform Document Analysis - The survey employed by the research team helped shed light on the disparate use of the various reporting protocols by providing context for which each jurisdiction was operating within, including that of limited information, resources, and staff capacity. The interviews also validated what the document analysis had revealed – that project reporting was often inconsistent in formatting and methodology and the reporting documents were not designed to effectively capture useful evaluation information. For example, while only two jurisdictions identified ESCO assistance on reporting forms in Table 2, information from the participant surveys revealed that at least seven jurisdictions utilized an ESCO.

The results of the participant survey provide valuable information regarding inefficiencies in the grant administration process, narrative context for understanding the impacts of the grant projects to local jurisdictions, and a more complete picture of the extent to which the EECBG program met its goals of reducing energy use, improving efficiency, and creating and retaining jobs.⁵ In particular, the survey allowed grant jurisdiction staff to identify and elaborate on challenges faced during the grant process which could be ameliorated through improved program design. Areas where grant recipients reported experiencing difficulties included:

- reporting requirements were difficult to interpret, and there were too many reporting requirements with too many facets and data points to report on;
- obtaining the required reporting data was difficult, complex and time-consuming;
- the reporting requirements were inconsistent and changed throughout the duration of the grant;
- an overview of required reporting was not developed at the time the grant was awarded and/or project started;
- being new to the grant process or not understanding the “lingo” was difficult; and
- grant program staff provided support to local staff throughout the process, however, some jurisdictions indicated that more help was needed.

Changes to project scope and activities. Seventy-five percent of respondents experienced some change to their project between the time the jurisdiction applied for the grant and the time the project was completed. The majority of these respondents, 13 out of 18, suggested these changes were minor, or involved reductions or additions in scope - e.g., reducing the number of electric vehicle charging stations installed or the number of LED lights purchased, adding additional energy savings measures to take advantage of lower-than-expected costs, updating contractor estimates or agreement documents, and some minor architectural changes experienced during the course of project implementation. Five jurisdictions experienced major changes to their EECBG projects, including a site change, complete change of project scope, significant change to contract parameters due to inaccurate contractor estimates, changes in key contractors, and significant unanticipated construction costs incurred during the implementation phase.

⁵ Final Application Guidelines. (2009, September 1). *Energy Efficiency and Conservation Grants for Smaller Cities and Counties*. Olympia, Washington: Washington State Department of Commerce.

Difficulty meeting reporting requirements. Difficulty meeting federal reporting and compliance requirements was the primary challenge small jurisdictions faced in completing the EECBG project. As one jurisdiction summarized, “It seems to me like an awful lot of work to produce a little information.” Reporting requirements were generally viewed as excessive and time-consuming, as well as difficult to understand and obtain, as in the case of Davis Bacon and Buy American requirements. These requirements led to difficulties for a few jurisdictions in receiving contractor bids and working efficiently with contractors. These difficulties were further exasperated by changes to the reporting process made by the USDOE after the grant application process had completed, at which point several projects had already commenced and needed to create or provide additional information.

Meeting deadlines and providing timely reporting information was a consistent difficulty for respondents. Participants cited specific obstacles, including a lack of resources, too many reporting requirements, and difficulty obtaining the needed information. Deadline reminders and assistance through the reporting process were noted as appreciated contributions on the part of grant program staff. Overall, the majority of grant recipients were frustrated with the amount of reporting the grant required and the lack of coordination from the federal level, but understood there would be reporting associated with the grant and appreciated WSEO grant program staff’s assistance through the process.

Staff capacity and turnover. Aside from grant funding, state-level administrative and technical support, local staff, and ESCOs were cited as being the most important factors in making projects possible. WSEO program administration staff was seen as helpful, knowledgeable and providing meaningful guidance through the grant process. Local staff co-workers who were knowledgeable and dedicated were also seen as critical to several projects’ success. Respondents mentioned that a lack of information on the part of the local staff was a major setback. For example, local staff that had experience managing federal grants and “knew the lingo” were viewed as major assets, whereas jurisdictions with no staff on hand possessing federal contracting experience had a harder time overcoming learning curves and meeting Davis Bacon and Buy American requirements.

Staff turnover, at both the local and state level, was as a major setback for a few projects. Interviews with both WSEO and local jurisdiction staff identified that staff turnover contributed to a lack of knowledge at the state and local levels, making understanding and meeting federal reporting requirements additionally difficult for both parties. Changes in reporting requirements made by the USDOE after the program’s projects had started added to these difficulties, as new staff often lacked the background knowledge regarding the program, project, or federal requirements. A lack of staff capacity and/or coordination on either the part of WSEO or local jurisdiction surfaced as a primary challenge for projects reporting experiencing difficulties completing the project. A few respondents advised the grant did not have any long-term employment impacts but did add to local staff workload without any additional compensation to local staff, thereby creating stress and contributing to reporting difficulties.

Ongoing monitoring of energy outcomes. Seventy-five percent of survey respondents advised they had plans for ongoing monitoring of energy savings and outcomes for the grant project. The most frequently cited method of monitoring was month-by-month comparison of energy bills and usage to those of previous years. Some jurisdictions, particularly those that had installed renewable energy generating capacity, had elaborate online monitoring and tracking systems already established and easily available to the public. Other jurisdictions were planning to conduct annual comparisons of energy consumption and spending, adjusted for utility rate changes and inflation. Jurisdictions that did not have plans for ongoing monitoring either advised that they were utilizing RCM or contractor estimates as their justification, or provided no further explanation.

Recommendations

Based on the findings from the document analysis, surveys and key stakeholder interviews, the research team constructed the following potential recommendations for future energy efficiency programs targeting small, low-capacity jurisdictions:

Require an investment-grade energy savings audit up front. While jurisdictions were required to provide project energy-savings estimates on the grant application, jurisdictions were allowed to use USDOE-provided tools, or could select their own estimation methodologies. Other proofs of estimation claims, including worksheets or calculation methodologies, were provided by many applicants. A potential best practice, adopted by other grant programs at Commerce targeting energy-efficiency projects in small jurisdictions, requires investor-grade energy audits up-front as a part of grant applications for capital projects, in order to verify the calculations, obtain baseline data, and ensure the likelihood that outcomes can be achieved and measured.

While such a requirement would add costs, it would also yield valuable baseline data and characteristics before projects started, as well as comparable estimates of energy savings across projects. Requiring energy-savings calculation methodologies up front could also help application reviewers to better evaluate the potential success of a project, and detect any flaws in a jurisdiction's calculation methods. Partnering jurisdictions with a local utility provider could be one viable option for obtaining investor-grade energy audits at low cost to the jurisdictions, as 20 of the 24 survey participants stated they had received pro-bono energy audits, rebates, or incentives from their local PUD or investor-owned utility provider.

Highly encourage ESCO collaboration for capital projects. Based on the document analysis and interviews, jurisdictions utilizing ESCOs for their projects generally provided the most detailed and methodologically sound data of all recipients, and often reported the intent to conduct measurement and verification into the future. Jurisdictions utilizing ESCOs mentioned the contracts as being worthwhile and cost-effective, with one respondent stating, *"The people [we] worked with made it all work. ESCO added a bit of cost, but the time would take to go out to bid, etc. the projects would NEVER get done. ESCO was quick, fast, and freed [me] up to do other work. Worth the extra 15-20% cost."* In many cases, ESCOs guarantee the energy-savings estimates they produce, as by providing cash reimbursement to the jurisdiction if savings fall short of expectations, making ESCOs excellent partners for large capital construction or infrastructure projects. Encouraging ESCO collaboration for such projects when internal project management resources are constrained or unavailable could improve project outcomes and the reliability of the energy savings estimates data produced.

Provide energy savings metrics and calculators for each program activity type. Recipients were required to identify program activities contained within their grant projects from a detailed list of 14 categories provided by the USDOE, including items such as retrofitting buildings, installing energy-efficient street lighting, and creating transportation plans. Performance metrics for each activity varied, for instance, retrofitting a building required the number of square feet retrofitted while an activity including a public information seminar required the number of attendees.⁶ Despite the variety of programmatic activities, reporting forms consistently asked for summarized project energy-savings estimates, without providing methodologies for how to consolidate metrics and estimates from differing programmatic activities. If such reporting is to continue, we recommend that federal and state program

⁶ As Rossman et al. (2013a) demonstrate, this allowed recipients significant discretion in selecting and categorizing programmatic activities during reporting, and complicated the resulting data as various perspectives and assumptions made by project reporters resulted in similar activities being categorized differently.

managers provide energy-savings calculation worksheets for each program activity area that reports activity energy savings in a comparable format. Using such a tool could both help grant recipients to delineate and track progress across the different activity areas, as well as provide a more sound methodology for estimating total project energy-savings.

Clearly define and provide evaluation criteria at the beginning of program. Difficulties finding and reporting data, meeting deadlines and requirements, and having to document compliance with grant restrictions such as Davis Bacon and Buy American requirements were cited as frustrations by recipients. Respondent sentiment in this regard generally focused on the difficulties experienced during the reporting process and the need for a more streamlined approach and overall increased program coordination at the federal level.

Respondents expressed a desire for making the grant process more simple and adaptable. A large part of this concern stemmed from the myriad of changes to the grant reporting process that were made by USDOE after the grants had been awarded and projects had commenced. Making federal and state reporting guidelines known and available at the beginning of the project or during the grant application phase was the major suggestion by respondents and WSEO staff alike in this topic area.

In part because of the difficulties experienced in administering the EECBG and other ARRA-funded programs, a subsequent Washington State grant program requires recipients to develop an evaluation plan that would return methodologically valid savings estimates until those savings exceed the amount of that outlined in the grant or 10 years had passed. While this can potentially add costs, it can also ensure that reporting requirements and expectations are clear, and that outcomes will be adequately documented. This is a potential option for future energy-efficiency grant programs.

Provide adequate resources and staff support for small jurisdictions. Survey responses indicated that WSEO staff was helpful, great to work with, and provided useful and timely assistance in ushering recipients through the grant reporting process. Where technical support was provided by the state, the response was generally favorable. Specific examples of helpful technical assistance included: providing information about reimbursement requirements, Buy American requirements, Davis Bacon requirements; assisting with meeting deadlines; walking recipients through the grant process; providing assistance with quarterly and final reporting; helping recipients avoid errors and corrections; and providing knowledge and explanations of grant requirements.

Survey respondents also noted that adequate internal staff and technical support was important to a project's success. In combination with document analysis, it was shown that those projects in which a local jurisdiction staff member had past experience managing a federal grant described experiencing fewer reporting problems.

While the majority of respondent feedback regarding WSEO staff support was positive, some jurisdictions, especially those who did not possess internal staff with knowledge of the federal grant process, stated they could have benefited from additional state-level support and training. Providing more technical resources to small jurisdictions, including administering pre-project, in-person trainings and making program reporting requirements known and available at the time of the grant application, were key suggestions provided by respondents. Providing more education and reporting resources to local jurisdictions and reducing the volume and frequency of reporting requirements for the grant were also suggested as future program improvements.

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References

- American Council for an Energy-Efficient Economy (ACEE). (n.d.). *Energy Efficiency Policies for Local Governments*. Retrieved November 28, 2012 from American Council for an Energy-Efficient Economy: <http://www.aceee.org/files/pdf/fact-sheet/local-govt-ee-policy.pdf>.
- Charmaz, K. (2006). *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis*. Thousand Oaks, California: SAGE Publications Inc.
- Energy, U. D. (2010, September 9). *Energy Efficiency and Conservation Block Grant*. Retrieved November 28, 2012, from U.S. Department of Energy Weatherization & Intergovernmental Program: <http://www1.eere.energy.gov/wip/eeecbg.html>.
- Final Application Guidelines. (2009, September 1). *Energy Efficiency and Conservation Grants for Smaller Cities and Counties*. Olympia, WA: Washington State Department of Commerce.
- Hoene, C. W., & Pagano, M. A. (2009). *Research Brief on America's Cities: City Fiscal Conditions in 2009*. Washington, D.C.: National League of Cities.
- KEMA, I., Dyson, C., Agnew, K., Goldberg, M., & Palmgren, C. (2008). *Impact Evaluation of the Education and Training Program, Program Area: Business Programs - Final Report*. State of Wisconsin, Public Service Commission of Wisconsin. Madison, WI: PA Consulting Group.
- Kyle, D., Galligan, K., & Elizabeth Titus, L. L. (2007). *Get the Government! Understanding and Serving Government Customers through Energy Efficiency Programs* (pp. 457-463). Chicago: International Energy Program Evaluation Conference, August 2007.
- Rossmann, J., LeDuc, A., & Parrington, G. (2013a). *Apples to Audits: Challenges Affecting the Reliability of Performance Metrics for ARRA-Funded Energy Programs*. Chicago: International Energy Policy Evaluation Conference, August 2013.
- Rossmann, J., LeDuc, A., & Parrington, G. (2013b). *Economic Impact of Washington State's Energy Efficiency and Conservation Grants for Smaller Cities and Counties*. Olympia, WA: Washington State Department of Commerce.

⁷ The following disclaimer is required for reports prepared in part with ARRA funds: This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.