

States Run Amok? Or Strength through Diversity? Results and Implications of a National Survey of State Approaches to the Evaluation of Ratepayer-Funded Energy Efficiency Programs

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ABSTRACT

A distinguishing feature of the electricity system in the United States is that regulation of retail utilities has been a responsibility of the individual states. In many respects, each state is its own little “kingdom” when it comes to designing the details of how the retail utilities within its borders are to be regulated.

One result of that fragmented structure is the diversity among the states in their approaches to the evaluation of ratepayer-funded energy efficiency programs. This inconsistency has been vexing to researchers and policymakers seeking to make comparisons among states in their reported energy efficiency program results. Among other things, this concern has led to a growing interest in the issue of whether a national “standard” for energy efficiency program evaluation should be established.

In order to gather information to help inform such a discussion, ACEEE conducted a national survey to obtain data on how each state approaches the issue of evaluation of ratepayer-funded energy efficiency programs. Overall, we find that there is indeed a great amount of diversity and inconsistency among states in how they handle the evaluation function, but that states take their responsibility for oversight and ratepayer protection seriously, and a substantial effort is devoted to “evaluating” energy efficiency programs. This paper summarizes the highlight results of that survey, and offers some observations and recommendations for areas where evaluation practices could be improved and/or made more consistent.

Introduction

In the United States, regulation of retail utilities is the responsibility of the individual states. This has led to a great diversity across the states in how, and even whether, utilities within a state provide ratepayer-funded energy efficiency programs. The policies and administrative frameworks for ratepayer-funded energy efficiency programs vary greatly (for example, see Kushler & Witte 2000; Kushler, York & Witte 2004; Sciortino et al. 2011).

Similarly, decisions regarding the *evaluation* of ratepayer-funded energy efficiency programs are generally determined on a state level. As a result, the methodologies and assumptions used in evaluations vary widely across the states. For example, substantial differences exist among states in the treatment and measurement of free riders, spillover, net savings, deemed savings, and non-energy benefits, making it difficult to interpret comparisons among states in reported energy efficiency results.

These discrepancies in evaluation approaches create challenges at several levels. State policymakers and regulators who are given the task of establishing or expanding ratepayer-funded energy efficiency policies and programs in their states are confronted with the challenge of deciding among various approaches to these issues. Researchers encounter substantial

difficulties in making “apples to apples” comparisons of energy efficiency program results across states. This makes it difficult for anyone seeking to fairly compare state and/or utility performance and also hinders the ability of states (or utilities) to benchmark their own performance relative to others. These types of concerns have led to discussion about the possibility and desirability of establishing a “national standard” for energy efficiency program evaluation. Although this paper does not attempt to resolve that issue here, we hope that the results of our nationwide survey can help inform this discussion.

Methodology

In an effort to provide a comprehensive assessment of the current “state-of-the-practice” of ratepayer-funded energy efficiency program evaluation across the 50 states and the District of Columbia, we conducted a detailed survey of all states with active utility ratepayer-funded energy efficiency programs. We identified appropriate individuals to survey in each of the 51 jurisdictions. Typically these were staff of the utility regulatory commissions in each state.

After an initial screening of the 50 states and the District of Columbia, we determined that 44 states and D.C. had some level of formally approved ratepayer-funded energy efficiency programs.¹ The results in this paper are based on those 45 jurisdictions.²

Some of the key program evaluation issues addressed in the survey include:

- Statutory/regulatory requirements for evaluation
- Administrator of the evaluation
- Public involvement in the evaluation process
- Gross vs. net savings
- Free-ridership and spillover
- Benefit/cost tests
- Discount rate and other benefit-cost calculation assumptions
- Avoided costs
- Deemed savings
- Use of evaluation results

We conducted telephone interviews with each of the state contacts. When necessary, the information was supplemented with e-mail correspondence and/or communication with other people in the state familiar with energy efficiency evaluation. The completed surveys were sent to the interviewees for review and to provide an opportunity for corrections or elaboration. We then tabulated and analyzed the survey data.

Results

Analyses of the survey data confirm that individual state approaches to the evaluation of ratepayer-funded energy efficiency programs vary considerably across the country. Below, we

¹ Six states (Alabama, Alaska, Louisiana, Mississippi, North Dakota, and West Virginia) reported that they have essentially no formally approved utility ratepayer-funded energy efficiency programs, chose not to participate in this survey, or did not have enough of an established evaluation function to respond to the survey.

² For convenience, we refer to the 45 jurisdictions as “states” and do not separately identify the District of Columbia.

present the results on some of the key survey variables,³ followed later by some discussion and recommendations regarding the practical implications of what we have observed.

Administration and Legal Framework for Evaluation

The survey documents substantial variation in the administrative structure for energy efficiency program evaluation across the states. Sixteen states (37%) indicate that their energy efficiency program evaluations are administered by “the utilities,” 12 states (27%) indicate administration by “other government agencies or designated non-utility organizations,” 8 states (18%) indicate administration by “the utility regulatory commission,” and 8 states (18%) indicate involvement of both the utilities and the commission in administering the evaluation function.

Similarly, the state surveys reveal considerable differences in the legal framework for the evaluation of ratepayer-funded energy efficiency programs. Only 20 states (45%) mention evaluation requirements that are based in statute. The evaluation requirements of most of the remaining states are expressed only in regulatory orders, and a few states report no formal state policy requirements for program evaluation. Overall, only 24 states (56%) report any form of written rules/procedures for their evaluation of ratepayer-funded energy efficiency programs.

The differences in evaluation administration and the inconsistency with which program evaluation is required and articulated by states reflect potential problems with persuading states to adopt a national standard for the evaluation of ratepayer-funded energy efficiency programs. With each state maintaining the decision-making authority over program evaluation, and a variety of different agencies and organizations involved in administering evaluation across the states, it would be an enormous task to get all of the states to voluntarily agree to use the same evaluation methodology.

Role of Various Parties in the Evaluation Process

Beyond the function of lead administrator, the survey sought more detail on the roles of key parties in the evaluation process. When asked about the role of the state utility regulatory commission, 12 states (28%) responded that the commission directly manages the evaluations. Eleven states (25%), however, report that the commission either has no role at all or only provides limited oversight, and does not require formal approval. Twenty states (47%) indicated that the commission’s main role is to exercise formal approval of the evaluation plans/products managed by the utilities or other entities but does not play a part in managing the evaluations themselves.

The roles of other interested parties in energy efficiency program evaluation are also varied. Of the 40 states that have some opportunity for public involvement, 19 (48%) said that they have at least some specific structural mechanism for input from other parties, but the processes vary widely. Sixteen of those states have some type of official “advisory” group established, and 3 of those states have a specific multi-party group that has some formal decision-making authority regarding evaluation. The remaining 21 states (52%) have less formal opportunities to comment (e.g., at public hearings).

There was more consistency across the states regarding who conducts the evaluations. Thirty-four states (79%) utilize consultants/contractors for that work. In three states (7%), the work is done by utility staff and in four states (9%), the work is done by a combination of

³ Percentages in the text reflect the percentage of states that answered that particular item.

consultants and utility staff. The fact that the majority of evaluation work is conducted by professional contractors suggests that the professional evaluation community might be a useful vehicle in developing a more standardized national approach to the evaluation of ratepayer-funded energy efficiency programs.

How Are Evaluation Results Used?

In our study, almost all of the states indicate that evaluations are used for “general oversight” of ratepayer-funded energy efficiency programs. Only 18 states (42%) say that they use evaluation results for determining eligibility for and/or the amount of performance incentives for utilities or program administrators, and 10 states (23%) say they use evaluation results for determining eligibility for and/or the amount of lost revenue recovery.⁴

In typical practice, utilities/program administrators are generally allowed full recovery of their authorized program costs (assuming prudent spending). Only two states indicate that they determine cost recovery based on program evaluation results. Several other states advise they can use evaluation results to modify recovery of program costs, but have rarely or not yet done so. In general, program evaluation results are used for shareholder/administrator performance incentives and lost revenue recovery but not for determining the amount of recovery of base costs of energy efficiency program delivery.

Cost-Effectiveness Tests

One aspect that provides some hope for the possible establishment of a national standard is the issue of cost-effectiveness testing. Essentially all of the states in our target population use some type of benefit-cost test in connection with their ratepayer-funded energy efficiency programs.⁵ Most states require the tests, either by legislation (41%) or regulatory order only (44%).

The survey indicated that many of the states in the study examine the results of more than one benefit-cost test associated with their programs: 36 states (85%) examine the Total Resource Cost (TRC) test; 28 states (63%) examine the Utility Cost Test/Program Administrator’s Cost Test; 23 states (53%) examine the Participant’s Test; 17 states (40%) examine the Societal Cost Test; and 22 states (51%) examine the Ratepayer Impact Measure (RIM).

Forty-one of the states (95%) say that they consider one test to be their primary test. Twenty-nine states (71%) indicate that the TRC is their primary test, 6 states (15%) indicate the Societal Test; 5 states (12%) indicate the Utility/Program Administrator test, and just 1 state considers the RIM Test to be its primary benefit-cost test.

Notably, every state in the study relies upon one or more of the five “California Tests” first outlined in the California Standard Practices Manual.⁶ This degree of acceptance of a single

⁴ We distinguish “lost revenue recovery mechanisms” from true “decoupling” mechanisms. Revenue adjustments under true decoupling are tied to actual sales volumes and not dependent upon “program evaluation” estimates of energy savings.

⁵ Interestingly, that is not the case for load management/demand response programs or renewable energy programs, where only 67% and 28% of states, respectively, reported using benefit-cost tests for those ratepayer-funded programs.

⁶ The California standard practice manual was first developed in February 1983. It was later revised and updated in 1987-88 and 2001; a Correction Memo was issued in 2007. The 2001 California SPM and 2007 Correction Memo can be found at: <http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/EM+and+V>.

common source⁷ for that purpose may provide some hope for the possibility of establishing certain national standard evaluation practices across the states.

Level of application of cost-effectiveness tests. Thirty states (70%) that participated in the survey report that they apply the benefit-cost tests at the “portfolio” level. Similarly, 30 states (70%) report that they apply the benefit-cost tests at the “program” level. Nearly half of the states that apply the tests at the program level note that they have some exceptions (e.g., low-income programs, pilot programs, etc.) where they do not require the benefit-cost test. Only 13 states (30%) apply their benefit-cost test requirements at the measure level, and a majority of those states also provide exceptions for things like low-income programs and/or situations where measures can be bundled together into a cost-effective package of measures (e.g., certain “whole house” type programs).

Types of benefits and costs considered. Of increasing concern in recent years is the disparity between the types of benefits and costs that states include in the most prevalent benefit-cost test, the TRC test (for example, see Neme & Kushler 2010). This survey specifically inquired about the types of benefits and costs that each state considers in its primary benefit-cost test.

Every state that was interviewed for the survey indicated that it uses some measure of “utility system avoided costs”⁸ as a benefit and treated the “energy efficiency program costs” as a cost. However, while 36 states treated “participant costs” for the energy efficiency measures as a cost, only 12 states treated any type of participant “non-energy benefits” as a benefit.

The majority of the “non-energy” participant benefits that states quantified in their primary benefit-cost test were “water and other fuel savings.” Only 2 states quantified a benefit for “participant O&M savings,” and none quantified any benefit for things like “comfort,” “health,” “safety,” or “improved productivity.” The magnitude of those types of non-energy benefits can be substantial (e.g., Skumatz & Dickerson, 1998; Riggert et. al. 2000; Skumatz et al. 2010), even exceeding the value of the energy savings benefits for some types of programs.⁹ In addition, omission of these non-energy benefits is problematic given that energy efficiency programs are increasingly emphasizing those types of participant non-energy benefits when marketing energy efficiency programs to customers. Arguably, those factors play an important role in persuading customers to make the significant investments necessary to achieve comprehensive energy savings in a home or business and could be used in marketing the programs.

Environmental benefits. Thirteen states (32%) in the study indicated that they quantify some level of environmental benefits. Of those, at least 8 states attempt to calculate a specific value for the benefits (e.g., using \$XX per ton of pollutants emitted, etc.). The remaining 5 states use a

⁷ Admittedly, while it is true that the “California tests” tend to be nearly universally referenced, the exact manner of choosing among and implementing those tests does vary widely across the states.

⁸ These are the life-cycle economic benefits to the utility system from the energy efficiency programs. These are the costs that would have been spent on other energy resources and infrastructure if the energy efficiency had not been put in place.

⁹ In our experience, common reasons for not including these benefits in state benefit-cost analyses include that they are difficult and/or expensive to quantify, that they can be “controversial,” and that they are “outside the scope” of regulators’ purview.

more general “environmental adder”¹⁰ to reflect the environmental benefits from energy efficiency.

Specifically, we attempted to examine whether states were including a recognition of “carbon costs” (i.e., somehow incorporating a benefit for reducing carbon dioxide emissions) in their use of a quantified value for “environmental benefits.” We found that at least 10 states included the issue of carbon (i.e., climate change) as part of their rationale for quantifying an environmental benefit.¹¹

Overall, while there are some noteworthy examples of states quantifying environmental benefits, the most prevalent practice thus far in the utility industry is to leave the environmental benefits of energy efficiency as an unquantified externality.

The wide disparity in evaluation inputs, like those for environmental benefits, provides another illustration of the potential difficulty in developing a national standard for evaluating ratepayer-funded energy efficiency programs.

Avoided costs. Twenty-six (63%) of the states surveyed calculate avoided costs individually for each utility, while 14 states (34%) make those calculations on a statewide basis (and 1 state uses a combined approach).

When asked who develops the avoided cost estimates, 24 states (67%) indicated that the utility develops and files these estimates; 6 states (17%) said the commission develops them; 4 states (11%) use estimates developed in other states; and 2 states (6%) have the estimates developed by another designated organization.

We also inquired about the methodology they use as a basis for their avoided costs. Twelve states (32%) indicated that they use essentially fixed values based on an assumed “next power plant;” 11 states (29%) base them on a more sophisticated modeling of average or marginal system cost; 12 states (32%) use some “market price” based methodology; and 3 states (8%) use some other methodology that didn’t fit neatly into those categories. Most of the states (82%) also indicated that they include some value for avoided transmission and distribution (T&D) in their calculation of avoided costs.

We were also able to gather some information on discount rates used in their primary benefit-cost test, although this is just based on a subset of 12 states. For those states, the median discount rate was 5.5%, with a range of 2% to 8.89%.

The variation in the calculation of avoided costs across the states is yet another challenging element that would have to be addressed in order to develop a national evaluation standard that would truly enable an “apples to apples” comparison of energy efficiency program impacts.

Calculating Energy Savings

We asked states to categorize their approach to calculating energy savings as essentially a “bottom-up” approach (using “per-measure” or project savings applied to the number of measures/projects installed) or a more comprehensive “top-down” approach (with specific “program evaluations” applied to whole programs to establish a unique energy savings estimate for that program).

¹⁰ For example, providing an extra 10% bonus to the calculated benefits.

¹¹ Note: this does not include the monetization of carbon emissions that is accomplished through the “auction” mechanism in the states participating in the Regional Greenhouse Gas Initiative (RGGI) in New England.

It appears that the bottom-up, per measure approach has gained widespread acceptance in the industry. Twenty-three states (60%) indicated the bottom-up approach as their methodology, while only 1 state indicated that it relies solely upon the “top-down” approach. Fourteen states indicated that they use both types of approaches.

This trend toward a bottom-up “per measure” approach seems to be driven by the cost and time savings it provides.

Net vs. gross. When asked if they use a net or gross methodology to report the energy savings results of ratepayer-funded energy efficiency programs, 21 states (50%) said they report net savings; 12 states (29%) said gross savings; and 9 states (21%) said they report both (or use one or the other for different purposes). It should be noted, however, that states also can have differing definitions of ‘net’ vs. ‘gross.’ As an example, while 28 states (67%) reported they make an adjustment for free-riders, only 17 states (44%) make an adjustment for free-drivers/spillover.

This variation in state approaches to the issue of net vs. gross savings is one of the most significant examples of how state-to-state variation in methodology makes it difficult to compare the efficiency program evaluation results across the states.

The use of “deemed” values. The survey results revealed that 36 states (86%) use some type of deemed values in their evaluation of energy efficiency programs. Thirty-five states (97% of those that use some type of deemed values) use deemed savings amounts for particular measures; 32 states (89%) deem the “lifetime” over which to claim savings for particular measures; and 20 states (65%) deem free-ridership or “net-to-gross” factors.

When asked about the source of the deemed values, 26 states (70%) cite the use of sources or databases from other states. In 9 states, the utilities develop and file key deemed values, and in 2 states the commission is responsible for developing the deemed values. In 28 states (80%), the results of their own in-state evaluations are used to revise and update deemed values over time.

Retroactive vs. prospective. One remaining evaluation issue that the industry deals with differently depending upon the state is whether the energy savings results that are used to modify the deemed values that are assumed for planning and implementing a program should be applied retroactively to the program that has already been delivered, or applied only prospectively to future program cycles.

Utilities and program implementers argue that it is unfair and financially risky if the core assumptions under which a program was designed and approved are changed after-the-fact. Others argue that savings calculations should be made on the basis of the best available data, even if that differs from prior assumed values. Without attempting to resolve that argument here, we note that 31 states (81%) report that they only apply changes to deemed values on a prospective basis, while 6 states (16%) apply them retroactively and 1 state reports using retroactive application for some purposes and prospective for others.

Discussion and Recommendations

This study confirms that there is considerable variability among states in the organizational structure, input assumptions, and analytical methodologies used by the states to

evaluate their ratepayer-funded energy programs. Some of our key observations and recommendations are noted below.

Administration and Legal Framework for Evaluation

Given the great diversity in the statutes and administrative structures among the states, we find no basis for recommending any one particular administrative or legal structure. Although as a general observation, we would note that it is usually helpful to have some statutory authority in place for regulators to require program evaluations and define the parameters of those activities.

As for the details, however, it appears that most states leave the specifics of evaluation rules and procedures to the regulatory setting rather than try to dictate those in legislation. We tend to support that strategy. In most cases, the regulatory setting has the advantages of a more concentrated focus and much greater experience and expertise regarding utility matters, as well as greater procedural flexibility to make small adjustments and improvements over time.

Role of Various Parties in the Evaluation Process

While not a requirement for success, we do observe that it can be beneficial to involve outside interested parties in the evaluation/planning process. Many successful states have formal opportunities for other interested parties to observe and comment on the evaluation process. This can help secure “buy-in” on the front end, and help reduce the incidence of objections and legal challenges to evaluation results on the “back end” of the process.

How Are Evaluation Results Used?

All of the states reported that they use the results of their evaluations for “general oversight” of their ratepayer-funded energy efficiency programs. In that regard, we would like to emphasize that while sometimes overlooked in the preoccupation with “impact” results, the use of “process evaluation” can be very important in improving program performance and helping to ensure that energy efficiency programs are effective. While this paper focuses primarily on issues relating to impact evaluation, we want to underscore the importance of process evaluation as well.

Another interesting observation regarding the use of evaluation is that the study found that almost no states tie the recovery of basic program delivery costs to impact/energy savings evaluation results. Absent some finding of imprudence, we agree that utilities/program administrators should recover their authorized costs for implementing approved energy efficiency programs.

We believe that more stringent evaluation methodologies are justified, however, when states have “performance incentives” for utilities/program administrators, or when “lost revenue recovery” is based on the energy savings results of the programs.

Cost-Effectiveness Tests

The results of the survey confirmed that the Total Resource Cost test is currently the most prevalent benefit-cost test in the energy efficiency program evaluation industry. The TRC suffers from a fundamental and important imbalance, however, in that all participant costs for an energy efficiency upgrade are counted as costs, but most or all of the customer benefits outside of the utility fuel savings are not counted. Our study, for example, determined that while 36 states treated “participant costs” for the energy efficiency measures as a cost, only 12 states treated any type of participant “non-energy benefits” as a benefit. Possible remedies for this imbalance might include expanding the TRC test to incorporate all or most of those “non-energy benefits” or switching to other tests such as the Utility/Program Administrators test or the Societal Test. We recommend that states seriously consider this imbalance issue and pursue the best available remedies. See Neme & Kushler (2010) for additional discussion of this issue.

Our study revealed that less than a third of the states apply a benefit-cost test requirement at the individual measure level. We recommend following the more prevalent approach in the industry, which is to apply the benefit-cost requirement at the program level (allowing some exceptions, such as for low-income programs, experimental “pilot” programs, and certain longer-term “market transformation” programs) or at the overall “portfolio” level.

One last issue regarding specific benefit cost tests is related to the Ratepayer Impact Measure test. This test is used as the primary test in only 1 of the 44 states in our study.¹² The flaws with the RIM test have been well documented (e.g., Biewald et al. 2003) and we recommend that the RIM test not be used to determine whether and/or which energy efficiency measures or programs will be delivered.

Avoided costs. Avoided costs¹³ are a critical component of any assessment of the cost-effectiveness of energy efficiency programs. Our study showed that states varied widely in how they define and compute “avoided costs.” We found that approximately one-third of the states use each of three basic approaches: (1) fixed values based on an assumed “next power plant;” (2) values derived from a more sophisticated modeling of average or marginal system cost; and (3) values determined through some type of “market price” indicator (plus a few states using some approach that didn’t fit neatly into those basic categories).

We’d like to stress the importance of and recommend including a full valuation of the long-run avoided energy and capacity costs. With the use of a short-run perspective (e.g., short-run energy cost plus a peaker capacity cost), there is some risk of undervaluing the true avoided capacity cost benefits of energy efficiency over the lifetime of the energy efficiency effects. Ideally, states could use a 10-year (or more) integrated resource plan perspective, considering the effects of a “with energy efficiency vs. without energy efficiency” case comparison. This would take into account differences in the need for incremental baseload and/or intermediate load generation sources over the full time period.

¹² That state is ranked in the “bottom 10” in utility energy efficiency program policies and performance in ACEEE’s most recent *2011 State Energy Efficiency Scorecard*.

¹³ In other words, the utility system supply costs “avoided” due to the implementation of energy efficiency measures by customers.

Calculating Energy Savings/Use of “Deemed Savings”¹⁴

One of the striking observations of this study was the widespread use of the “bottom-up” evaluation, based on the application of estimates of “savings per measure/project” applied to the number of measures/projects installed, rather than a more traditional “top-down” comprehensive evaluation of a specific overall program (e.g., conducting a “billing analysis” on a random sample of program participants). Along with this trend, we saw an increase in the number of deemed savings databases (to provide “per-unit” savings estimates as well as other key input parameters).

We generally support the strategic application of this type of approach, which might be termed “verification-based evaluation.” We feel that the use of “deemed savings databases” are an appropriate and useful strategy for saving time and evaluation resources, as long as they are carefully developed, objective, and regularly updated as new evaluation information becomes available. This short-cut “deemed savings” approach should be accompanied, however, by periodic, rigorous, full-scale (which we have here termed “top-down”) program evaluations.

Net vs. gross.¹⁵ This is one of the most prominent and controversial issues in the industry today, and has certainly received substantial discussion elsewhere (e.g., Vine et al. 2010). Rather than making a recommendation about using either a net or gross energy savings estimate methodology, our primary recommendation, in the short term, is for states to fully disclose the methodologies and assumptions that were used, regardless of the methodology. That way, others seeking to interpret the results will be able to take that into consideration when comparing results across states.

Beyond that, we suggest that there may be merit in tailoring the approach on the net vs. gross issue to the intended use of the information. For certain purposes (e.g., tracking program administrator performance, estimating overall energy efficiency impacts from all sources, monitoring public policy goals such as reductions in carbon emissions, etc.), the use of responsibly verified “gross” savings may be sufficient.

On the other hand, there are times when estimating net energy savings may be more important (e.g., programs known to have high levels of free riders, calculation of “lost revenue” claims, efforts to help a program achieve its optimal impact; etc.). In such cases, we recommend that clear parameters and rules be established in advance (hopefully in a consensus-based process) in order to minimize the bitter arguments that can ensue when the net savings determination occurs after the fact. In addition, for states that do report “net” savings, we recommend that their methodology incorporate both free riders and free drivers/spillover.

¹⁴ “Deemed savings” refers to the practice of setting an “agreed-upon” value for certain variables that will be incorporated in the estimation of energy efficiency program impacts. These values will be “deemed” rather than subjected to specific measurement in an evaluation (although evaluation is commonly used to refine and adjust these values over time).

¹⁵ “Gross savings” represent the total energy savings achieved by customers through their energy efficiency actions. “Net savings” are intended to be the amount of energy savings specifically attributable to the energy efficiency program.

Retroactive vs. prospective. Another timely issue of concern in some jurisdictions is the question of whether to apply evaluation results on key parameters (e.g., deemed savings per unit, free-ridership levels, etc.) on a retroactive or a prospective basis (i.e., to re-calculate savings for the program just completed, or to just apply the changed factors to the next program cycle).

Our recommendation in this area also depends upon the uses for which the information is being applied. For purposes relating to judging program administrator performance (and perhaps for determining whether and how much “incentive” has been earned), we tend to be supportive of applying savings results prospectively. In general, when program designs and budgets have been constructed based on agreed-upon values for certain key factors like deemed savings per unit, net-to-gross ratios, etc., we believe it is reasonable to not retroactively “change the playing field” and thus retroactively change the credited accomplishments of the program administrator due to those factors.¹⁶ Of course, as recommended earlier, “deemed savings” type databases should be regularly updated based on the best available evaluation information and applied to the next program cycle.

On the other hand, there are certainly other purposes for which applying a retroactive correction, in order to produce the “best available” estimate of actual savings, including any updated assumptions or inputs, is most appropriate. A prime example of this would be for producing estimates of energy efficiency program impacts for use in utility system resource planning.

National Evaluation Standard

One last issue we would like to address in this paper is the question of whether policymakers should establish a national standard for the evaluation of ratepayer-funded energy efficiency programs. Arguments in favor of a national standard include that it would improve the ability to make cross-state comparisons, that it could improve the level of evaluation in some states, and that it could conceivably enhance the perception among certain stakeholders that energy efficiency is a reliable utility system resource.¹⁷

As this study has documented, there is considerable inconsistency in how states handle the issue of evaluating ratepayer-funded energy efficiency programs. In an ideal world, a national standard would remove many of those discrepancies. However, as this paper has noted, the historical policy approach in the U.S. leaves the regulation of retail utilities to the states, and there are many practical obstacles to securing a national standard.

One option for making some progress would be to take advantage of the professional energy program evaluation community’s nearly ubiquitous presence in conducting energy program evaluation in the states. Perhaps that professional network could be helpful in achieving more standardization in key aspects of evaluation practice, which they could then carry forward in their work for the states. Of course, this may not be easy, as there is certainly diversity of opinion within the evaluation community on some of these issues.

Another option would be to develop several different evaluation protocols and encourage states to adopt one of them. Such an approach would improve consistency while leaving states

¹⁶ In contrast, other key factors more under the control of the utility/program administrator (such as the actual number of units installed, the size of the measures replaced, etc.) should indeed be based on “actual” data observed in the evaluation. This is the essence of the concept of “verified gross” savings.

¹⁷ We would maintain that the current inconsistency across states in their approach to evaluation is not a legitimate reason to impugn the validity or reliability of energy efficiency as a utility system resource.

to make strategic decisions on which approach to use. One example of this is the International Performance Measurement and Verification Protocol (<http://www.evo-world.org/>), which provides a small set of core approaches that can be used to evaluate energy savings from a specific project at a specific facility. Perhaps this type of strategy could be modified to provide an accepted set of “recommended” methods for evaluating overall energy efficiency programs.

Meanwhile, we should note that there are important efforts going on to pursue increased adoption of important evaluation practices and standards, both at the regional level (e.g., the NEEP Regional Evaluation, Measurement & Verification Forum) and at the federal level (e.g., NAPEE 2007; Schiller et al. 2011; and the current DOE Uniform EM&V Methods Project). We applaud and support those efforts.

Conclusion

The results of this study clearly confirm that there is a great diversity across the states in terms of how they handle the evaluation issue. The variability covers everything from legal framework and administrative structure to the details regarding key methodologies and assumptions. As an initial reaction from a national perspective, the situation might be regarded as “states run amok.”

Despite this inconsistency in approaches, however, it would be a major mistake for one to conclude that ratepayer-funded energy efficiency programs aren’t being adequately evaluated. (See Vine, Kushler & York 2010 for a thorough examination of energy efficiency as a reliable utility system resource.) Indeed, states take their responsibility for ratepayer protection very seriously, and ‘dollar-for-dollar,’ it’s hard to think of any other aspect of utility operations that receives as much scrutiny as energy efficiency.

So while the broad diversity of evaluation approaches can be frustrating when trying to accomplish exact “apples to apples” comparisons across states, there is likely some added value from this diversity in terms of the overall information provided. More importantly, it would be a serious error for policymakers or others to conclude that we don’t have sufficient evaluation data to make a judgment about the cost-effectiveness of energy efficiency programs. Indeed, energy efficiency has been shown to be robustly cost-effective across states using many different specific approaches to evaluation. In ACEEE’s national examination of the cost-effectiveness of ratepayer-funded energy efficiency (Friedrich et al. 2009) across 14 different leading states—despite differences in evaluation approaches—the results on reported utility cost-of-conserved-energy only ranged from 1.6 cents/kWh to 3.3 cents/kWh. Any point in that range is far cheaper than any available new electric supply resource.

Given that context, we take the perspective that what we have here regarding state approaches to evaluation is not a ‘crisis,’ but rather, an ‘opportunity for improvement.’ In that spirit, we have offered some observations and recommendations for areas where evaluation practices could be improved and/or made more consistent.

As for the issue of a national standard for energy efficiency program evaluation, we support and encourage efforts to explore that subject, but we are not yet persuaded that it is time to call for a single national evaluation standard. We have concerns both about what exactly such a standard might require, as well as what practical mechanism(s) might be used to achieve implementation.

For now, we at least support the development and adoption of guidelines for evaluation reporting. More transparency in reporting evaluation results and state summary data would be

very helpful, including key assumptions and inputs such as measure lives, discount rates, methodologies for calculating avoided costs, etc. In this manner, at least key information would be provided so that results reported by any state could be properly interpreted and placed into context with reported results for other states.¹⁸

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¹⁸ We note that some good work is going on in this area, at least on a regional basis (e.g., see NEEP 2010).

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