

All Together Now: Making the Most of Energy Efficiency Data through Consistent Reporting

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ABSTRACT

Consistent reporting of energy efficiency program impacts is currently a topic of great interest given increasing investments in energy efficiency to meet various energy and environmental policy goals. In order to build understanding and credibility of efficiency as a resource, transparency and consistency of reported energy efficiency impacts is extremely important, but achieving this goal is no small feat.

This paper will use Northeast Energy Efficiency Partnerships' Regional Energy Efficiency Database (REED) as a case study of why transparent and consistently reported energy efficiency program impacts are important and what is required to get there at the regional level. REED is a publicly available online resource that currently provides 2011 electric and natural gas energy efficiency program data for eight states in the northeast and mid-Atlantic regions, drawing from the Regional Evaluation Measurement & Verification (EM&V) Forum's Common Statewide Energy Efficiency Reporting Guidelines. REED provides for consistent definitions and the reporting of energy and demand savings and associated costs, avoided emissions and job impacts across the region.

This paper begins by discussing the Regional EM&V Forum, its development of the Common Statewide Energy Efficiency Reporting Guidelines, and the implementation of those Guidelines through REED. It then turns to a discussion of the value of consistently reported energy efficiency program impacts to various stakeholders in the energy efficiency field. It closes with a look at the future of common reporting and next steps for REED. The paper also addresses the importance of coordinating with other regional and national reporting efforts to ensure they build on common definitions and reporting parameters and reduce reporting burdens.

Introduction and Background

As many states engage in more aggressive environmental and energy policies, investments in energy efficiency are rapidly increasing to help meet attendant goals. But in some circles, there is continued uncertainty as to whether energy efficiency is truly a reliable and credible energy resource. By reporting efficiency program impacts using a common, transparent, and well-documented framework, energy efficiency will be more widely considered a credible and essential lowest-cost energy resource.

This paper focuses on Northeast Energy Efficiency Partnerships' (NEEP) Regional Energy Efficiency Database (REED) (NEEP 2013), which provides an important example of why transparent and consistently reported energy efficiency program impacts are beneficial to the efficiency industry and what is required to get there at the regional level. REED is a publicly available online resource that provides for consistent definitions and the reporting of energy and demand savings and associated costs, avoided emissions and job impacts across the region. REED, which is based on the Regional Evaluation Measurement & Verification (EM&V) Forum's Common Statewide Energy Efficiency Reporting Guidelines (Reporting Guidelines) (NEEP 2010), currently includes 2011 electric and natural gas energy efficiency program data for eight states in the northeast and mid-Atlantic regions and will expand in fall 2013 to include 2012 program year data for ten jurisdictions.

This paper begins by discussing the Regional EM&V Forum, its development of the Reporting Guidelines, and the implementation of the Reporting Guidelines through the development of REED. It then discusses the value and uses of consistently reported energy efficiency program impacts to different stakeholders in the energy efficiency field. It closes by discussing next steps and the future of consistent reporting through REED. The paper also addresses the importance of coordinating with other regional and national reporting efforts to ensure they build on common definitions and reporting parameters and reduce reporting burdens.

Regional EM&V Forum Overview

Launched in 2008, the Regional EM&V Forum is a project managed and facilitated by NEEP, whose purpose is to support the development and use of consistent protocols to evaluate, measure, verify, and report the savings, costs, and emission impacts of energy efficiency and other demand-side resources in order to support a range of state, regional and national energy, economic and environmental policies.

The Regional EM&V Forum is supported by a 2008 Mid-Atlantic Conference of Regulatory Utilities Commissioners (MACRUC) resolution and two New England Conference of Public Utilities Commissioners (NECPUC) resolutions (2008 & 2012) that speak to the importance of establishing common protocols to measure, verify and report demand resource impacts given substantially increasing investments in energy efficiency and other demand resources to meet energy and environmental goals. These resolutions provide several reasons that the development of common protocols for measuring and reporting energy efficiency is important, including the participation and expansion of demand resources in wholesale electricity markets and the Regional System Planning process, the important role of demand-side resources in reducing carbon emissions, and the integration of efficiency into forecasting electricity demand and modeling power pool interchange.

Over the past five years, the Regional EM&V Forum has delivered a range of products, as shown in Figure 1, through a consensus-driven participant process involving ten jurisdictions in the northeast and mid-Atlantic regions.

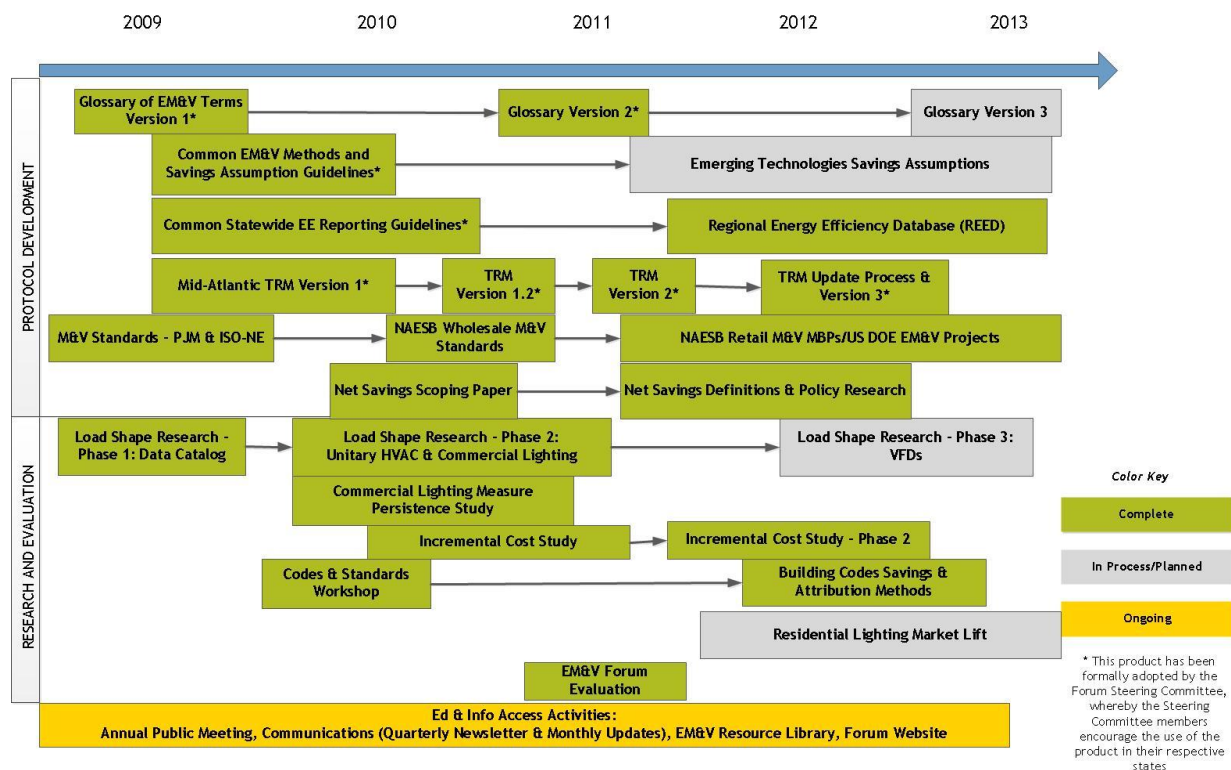


Figure 1. Completed and Ongoing Regional EM&V Forum Projects

Regional EM&V Forum products completed to date have helped to establish a framework for the evaluation of energy efficiency resources, and additional Regional EM&V Forum projects underway will help to further strengthen and formalize this framework and meet the intent and goals of the NECPUC and MACRUC resolutions.

Common Statewide Energy Efficiency Reporting Guidelines

Recognizing the importance of a common platform for the reporting of energy efficiency impacts, one of the first projects the Regional EM&V Forum engaged in was the development of the Reporting Guidelines in 2009-2010.

With the guidance of a subcommittee comprised of energy efficiency program administrators, public utility commission staff, federal agency staff, and other interested stakeholders, NEEP retained NMR Group, Inc. to produce a report that provides recommendations for the development of common guidelines and templates for reporting energy efficiency savings, costs, emissions, and job impacts (NMR, Cadmus & Conant 2010). To inform their recommendations, the NMR team catalogued current and planned reporting practices from available energy efficiency documents in the Regional EM&V Forum region and compared them to reporting parameters and data needs the subcommittee identified as important to support multiple energy, economic and environmental policies or market drivers. The recommended reporting guidelines and templates primarily include data that are already reported and/or collected by energy efficiency program administrators in the region. NMR's work was informed by the Regional EM&V Forum stakeholder process, including extensive review and input by the project subcommittee, Regional EM&V Forum participants, and external peer review.

Based on the recommendations provided in NMR's report, NEEP Regional EM&V Forum staff developed a separate guiding document: the Reporting Guidelines, for Regional EM&V Forum Steering Committee review and approval. The Reporting Guidelines focus on electric and gas energy efficiency

savings, impacts and program expenditures, where such investments are funded by natural gas and electric service ratepayers. They include recommended reporting templates for energy efficiency program: 1) energy savings, 2) demand savings, 3) expenditures and cost of saved energy, 4) avoided air emissions, and 5) jobs impacts.

The Reporting Guidelines also include process recommendations for improved data exchange between energy efficiency stakeholders. The reporting templates reflect what is feasible for jurisdictions in the Regional EM&V Forum region to report without having to make significant changes to current practices. Data fields in the templates can be easily populated by pulling data from annual efficiency reports or program administrator tracking systems for any data parameters that are not formally reported. Each reporting template in the Reporting Guidelines includes supporting definitions that closely match those used in the Regional EM&V Forum's Glossary of Terms and Acronyms (NEEP 2011), which is a living document that is updated annually. The Regional EM&V Forum views consistency in definitions as a key part of consistent energy efficiency reporting, and as such has worked to ensure that definitions for key terms used in various EM&V protocol development efforts across the country are consistent. To this end, the definitions in the Reporting Guidelines and Glossary of Terms and Acronyms also closely match those used in the State and Local Energy Efficiency Action Network's Energy Efficiency Program Impact Evaluation Guide (SEE Action 2012), an EM&V resource widely used across the country. The Regional EM&V Forum is also working closely with the Consortium for Energy Efficiency (CEE) to ensure definitions used for reporting program impacts in CEE's annual State of the Efficiency Program Industry Report match those used in EM&V Forum projects.

While the Regional EM&V Forum is helping to guide the region towards greater consistency in definitions of key reporting parameters by encouraging use of the definitions in the Reporting Guidelines and Glossary of Terms and Acronyms, it recognizes that some definitions continue to vary by jurisdiction. In response, the Reporting Guidelines currently provide for transparency of underlying definitions by allowing users to include more information about how key terms are defined in their jurisdiction. For example, the Reporting Guidelines ask users to indicate which types of adjustments are made to net savings and to provide their jurisdiction's defined peak period, recognizing that the definition of net savings and peak vary across the region.

Developing the Reporting Guidelines required the Regional EM&V Forum to balance the needs and interests of 10 states, which was a long and intricate process. The NMR report was finalized in July 2010, and it took an additional five months of outreach to and input from key Regional EM&V Forum stakeholders for Regional EM&V Forum staff to develop and refine the Reporting Guidelines before they were presented to the Forum Steering Committee for adoption in December 2010. The Regional EM&V Forum's participant-driven, inclusionary process was critical to ensuring support for the Reporting Guidelines and a unanimous Steering Committee decision in favor of adoption. By adopting the Reporting Guidelines, the Steering Committee encouraged their use or implementation by and in the participating Regional EM&V Forum states and acknowledged the criteria for adopting Regional EM&V Forum products, which is that the product, if ultimately adopted and practiced by the states, serves the Regional EM&V Forum's goals and objectives to: 1) increase consistency in EM&V practices, 2) reduce EM&V costs for the states, and 3) help to improve the credibility of energy efficiency resources.

Development of the Regional Energy Efficiency Database

After the Reporting Guidelines were adopted in December 2010, the Regional EM&V Forum turned to the major task of implementing them through the development of REED. After an RFP process that produced a dozen contractor bids, in July 2011 a subcommittee of Regional EM&V Forum participants (known as the REED subcommittee) selected Peregrine Energy Group (Peregrine) as the REED contractor. Peregrine was tasked with developing a series of data collection forms in Excel format

based on the Reporting Guidelines' reporting templates, an associated energy efficiency database, and a website to allow for interactive reporting of the data. The REED subcommittee continued to be actively involved in the project throughout REED's development, frequently weighing in on key issues to make the data collection forms and website more user-friendly and to maximize REED's value to various stakeholder groups.

The REED website, available to the public as of February 2013 at <http://www.neep-reed.org>, allows users to easily generate state-level energy efficiency reports and download underlying program-specific data. The database currently includes 2011 electric and natural gas energy efficiency program data for eight states: Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island and Vermont. Annual energy efficiency data for year 2012 from these states, along with Delaware and the District of Columbia, will be added to REED this fall.

REED's development was guided by several key objectives: 1) data collected for REED should be consistent with data collected by Independent System Operators and Regional Transmission Operators to support long-term energy efficiency, 2) REED should minimize states' reporting burden and avoid duplicative reporting requirements, and 3) REED should be built so that future changes and modifications can be readily implemented.

To address the first two objectives, the Regional EM&V Forum coordinated REED data collection with Independent System Operator – New England's (ISO-NE) data collection effort to support its 2013 Energy Efficiency Forecast (ISO-NE 2013). Before REED was in place, ISO-NE started to collect electric energy efficiency program impact data from the New England states to inform its 2012 forecasting efforts. As the REED data collection process got underway, rather than asking each state to submit its electric energy efficiency program data to both ISO-NE and to the Regional EM&V Forum for REED, ISO-NE agreed to send the data it collected from the New England states to Peregrine, and Peregrine set up a process through which the data was directly imported into REED. This cooperative process was important for two reasons: 1) it ensured that the same data are being used for both REED and ISO-NE, and 2) it significantly streamlined the REED data collection process and reduced states' reporting burden. New England states had to submit only natural gas program data for REED, a much smaller task than submitting both gas and electric. To address the third objective, the Regional EM&V Forum retained Peregrine for 2013 to implement any changes to REED going forward, some of which are described in the conclusion of this paper.

The REED data collection process took place in fall 2012. A designated contact in each participating state was charged with filling out the data collection forms with program year 2011 data for their state and uploading them to the REED website. These designated contacts ranged from program administrators to state energy office staff to commission staff, depending on the preference of each state.

The Regional EM&V Forum encountered several challenges in the data collection effort. A few states found it too burdensome to transfer their data to the format required by the REED data collection forms. For those states, Regional EM&V Forum staff transferred the data from whatever format the state was using to the REED forms. Some states also wanted to provide more information about their efficiency programs than the REED data collection forms allowed, in order to clearly identify key differences between states that affect the savings and expenditures data. The Regional EM&V Forum addressed this by including a State Observations page as part of the larger REED website that includes key additional information about each state's energy efficiency programs.

After data collection was complete, the Regional EM&V Forum engaged in an extensive quality control process. External reviewers with familiarity with state energy efficiency program impacts reviewed the REED website and data. Staff from CEE compared the data in REED to the data they collected for their 2011 State of the Efficiency Program Industry Report (Wallace & Forster 2012). The designated contacts in each state who submitted their state's data reviewed the draft REED reports for accuracy. And finally, REED's use of the same electric data that ISO-NE had already used for its 2013

Energy Efficiency Forecast provided additional quality assurance. The quality control process also revealed several data outliers that, though correct, would benefit from additional research and analysis into root causes. To this end, NEEP is issuing a REED 2011 Program Year Annual Report in summer 2013 to explore these outliers as well as other similarities and differences between state program impacts and discuss likely reasons.

Why Consistent Reporting? Benefits and Uses to the Energy Efficiency Industry

The process the Regional EM&V Forum undertook to develop the Reporting Guidelines and implement them through REED required a great deal of effort over four years and the involvement of hundreds of energy efficiency stakeholders across the Forum region. This challenging, drawn-out process begs the questions: “Is consistent reporting worth the effort?” “What are the benefits and uses to the energy efficiency industry?” This section of the paper speaks to why transparent and consistent reporting of efficiency impacts is important and how various energy efficiency stakeholders are now putting the REED data to use.

One of the primary reasons that consistent reporting of electric and natural gas energy efficiency program savings, costs and emission impacts across states is important is to build understanding and credibility of efficiency as a resource. As investment in energy efficiency resources increases, there is increased pressure on the efficiency resource to prove its worth. Policymakers have more confidence in energy efficiency when it is being reported using a common framework. Energy efficiency can be a key component of meeting state and regional energy, economic and environmental goals, but disparate reporting practices undermine energy efficiency as a resource.

Commonly reported energy efficiency data, with consistent and/or transparent definitions and readily available supporting data and EM&V methods, as provided by REED, is valuable to a variety of energy efficiency stakeholders for myriad uses and helps strengthen energy efficiency’s position as a widely-used least-cost energy resource. Figure 2 shows how consistently reported data is used to improve the understanding and credibility of energy efficiency, and the section below provides more detailed examples of how several key energy efficiency stakeholder groups can use/are using REED.

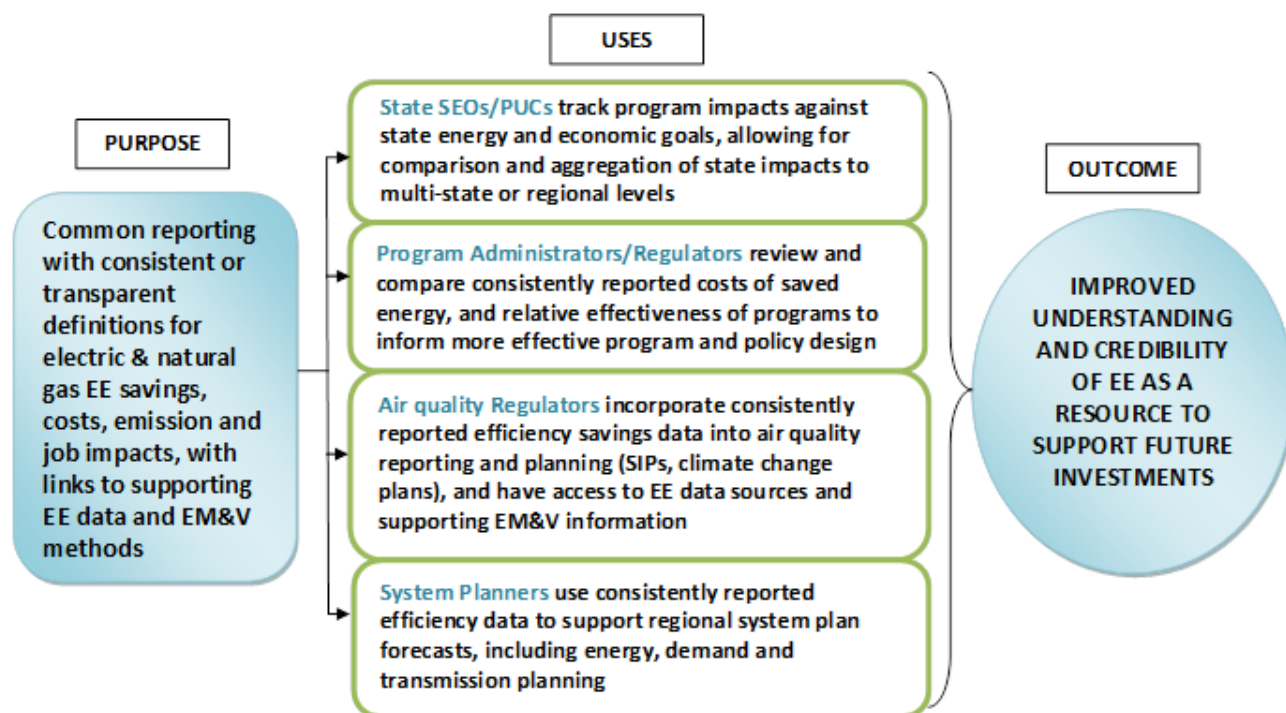


Figure 2. Common Statewide Energy Efficiency Reporting Guidelines & REED Purpose, Uses and Outcome

State Energy Offices / Public Utility Commissions / Program Administrators: REED allows regulators and program administrators to review and compare REED’s consistently reported program savings data and associated expenditures across states and sub-regions to identify best practices and modify/improve program design and energy efficiency policies.

For example, the Vermont Department of Public Service (VT DPS) finds future value in REED because it is the first tool to systematically collect and report regional energy efficiency program expenditure and performance data. Vermont regulators have identified the following ways to functionally utilize REED in evaluation plans and public proceedings going forward¹:

- **Overall Performance Assessment** – The Vermont Public Service Board (VT PSB) found in its 11/24/09 order that “benchmarking” is an appropriate tool to ensure that Vermont’s programs compare well to programs in other jurisdictions. The VT DPS plans to use REED to benchmark and compare Vermont utilities electric and natural gas energy efficiency program performance to that of other northeast states. Benchmarking is one evaluation component the VT PSB requires for appointed energy efficiency providers, of which currently two exist: Efficiency Vermont (EVT), operated by Vermont Energy Investment Corporation, and Burlington Electric Department (BED). This evaluation and benchmarking happens through a public Overall Performance Assessment (OPA) in which energy efficiency providers are subject to a review process that considers each provider’s effectiveness in a number of areas. The OPA is a transparent process conducted by the VT PSB to inform a determination as to whether it is in the best interest of Vermont ratepayers to solicit competitive bids for delivery of efficiency services, or to appoint the incumbent. In addition, this method of performance review is used to inform the

¹ It is important to note, the Vermont Public Service Board, in its Order of 11/24/09, altered the structural model of Vermont’s energy efficiency service delivery from a contract-based model to an Order of Appointment model. Currently, the two Vermont electric energy efficiency utilities with Orders of Appointment are Efficiency Vermont and Burlington Electric Department. An Order of Appointment is currently being considered as the mechanism for Vermont Gas Systems (VGS) to continue delivery of natural gas efficiency services.

setting of future indicators of performance for individual energy efficiency appointees. The OPA and benchmarking using REED for appointed energy efficiency providers, EVT and BED, will occur every six years.

- **Initial Overall Performance Assessment** – An Initial Overall Performance Assessment (IOPA) is required by the VT PSB when new energy efficiency providers are being evaluated as potential appointees. Benchmarking is also used as a tool to assess performance in the IOPA process, and REED will be a valuable tool for future IOPAs in Vermont. For example, the VT PSB in an Order dated 4/23/12 determined that an IOPA of Vermont Gas System (VGS) should be performed prior to the issuance of any Order of Appointment for an entity to provide natural gas efficiency services in VGS’s service territory. REED was not publicly available at that time, however, the VT DPS assessed and benchmarked the overall performance of VGS energy efficiency services relative to other regional providers over the past two decades with the assistance of NEEP and data that had been collected manually over many years. With this data, the VT DPS was able to conclude that VGS’s performance and achievements have been excellent relative to other states and that the continued delivery of efficiency services by VGS would promote the general good of the state. Therefore, the VT DPS recommended that the VT PSB appoint VGS an Energy Efficiency Utility (EEU) to become the natural gas energy efficiency provider within its territory. The VT DPS recommended that VGS’s Order of Appointment be generally consistent and similar in structure to existing electric EEU Orders of Appointment. While the VT DPS did not use REED for its initial benchmarking of EVT and BED electric efficiency programs because it had not been publicly launched at the time of this proceeding, the VT DPS plans to use REED as a benchmarking tool for ongoing natural gas and electric efficiency programs in the future, as well as IOPAs should the need arise.

Air Quality Planners / Regulators: REED provides air quality planners and regulators with easy access to underlying state energy efficiency data, EM&V, and data assumptions (as provided in REED’s links to technical reference manuals) that can be used to support the incorporation of energy efficiency-related avoided emissions into air quality plans at the state and/or regional levels.

For example, the United States Environmental Protection Agency (US EPA) has recently released a guidance document, “Roadmap for Incorporating Energy Efficiency/Renewable Energy Policies and Programs into State and Tribal Implementation Plans,” (US EPA 2012) encouraging jurisdictions designated as non-attainment to consider incorporating energy efficiency and renewable energy into their State or Tribal Implementation Plans (SIP/TIP) to help achieve National Ambient Air Quality Standards (NAAQS). In this guidance document, US EPA states that the increased investment in and adoption of energy efficiency and renewable energy programs and policies has the potential to produce notable emissions reductions that should be recognized in air quality planning efforts. US EPA also states that the incorporation of energy efficiency into SIP/TIPs is “made possible by the abundance of information available on the energy impacts of EE/RE policies and programs,” such as the energy efficiency program impact data provided in REED. A credible source of energy efficiency data like REED provides air quality planners with ready access to energy efficiency data and underlying supporting documents, calculations of annual and cumulative avoided emissions, and links to regional energy efficiency forecasts. REED helps make it possible for jurisdictions to use energy efficiency as a means to meet Clean Air Act requirements.

Regional Energy Planning and Forecasting: REED’s consistently reported energy efficiency data can also be used to support regional system and transmission planning forecasts. Energy efficiency is now being incorporated into long-term system plans (including ISO-NE, as previously mentioned, and New York Independent System Operator (NYISO)) and shows significant impacts on load growth.

Energy efficiency impacts also are being considered in coordinated planning across regions, including in the Inter-Area Planning Stakeholder Advisory Committee's work to inform the Northeastern Coordinated System Plan. With increased use of efficiency in forecasting applications comes the increased importance of consistent and credible reporting of efficiency data, like that provided in REED.

The cooperative energy efficiency data collection effort between ISO-NE and the Regional EM&V Forum that both informed ISO-NE's 2013 Energy Efficiency Forecast and provided data for REED is an important first step towards using consistent regional data. As the Regional EM&V Forum works to populate REED with 2012 program year data, it plans to also explore a similar data collection and sharing arrangement with NYISO.

Federal Government / NGOs / Other Energy Efficiency Stakeholders: REED allows energy efficiency stakeholders at the federal level, as well as energy efficiency NGOs and others in the efficiency field with a national outlook to aggregate and/or compare energy efficiency impacts across states.

For example, Lawrence Berkeley National Laboratory (LBNL), which receives funding from the United States Department of Energy's (US DOE) Office of Science, has been researching and quantifying the effect of ratepayer-funded energy efficiency programs. This research, driven in large part by the proliferation of, and associated increase in funding for, these programs across the United States, requires access to program administrator planning documents, annual reports, and evaluations. However, LBNL has found comparing the reported expenditures and savings between states to be challenging, in large part due to the inconsistency in reporting requirements between states. In many cases, even states that use the same terminology to report their savings often define terms like "net savings" differently from their neighbors. In addition to the reporting and terminology challenges, there is also a significant investment of time required to track down the annual reports for each program administrator.

Access to program level expenditures and savings data, compiled in REED's user-friendly online database, allows researchers to quickly gather the data needed for modeling inputs and provides a reputable source for the inevitable questions about the range of programs costs and achieved savings. While it's still challenging to provide a direct comparison between states without providing the requisite caveats about the state policy environment, efficiency program history and differences in the ways cost effectiveness is determined, REED's standard terminology, definitions, and reporting framework have significantly reduced the time spent digging through annual reports in search of a single savings data point.

The Regional EM&V Forum's 2012 Annual Public Meeting also highlighted the importance of REED's consistent energy efficiency reporting framework to the federal government, with representatives from the Federal Energy Regulatory Commission, US EPA, and US DOE all speaking to the importance of REED in supporting their work.

Conclusion – Next Steps

Since REED's public launch, thousands of users from across the country have accessed the REED website and are using the data for the purposes described above and others. REED's platform for transparent and consistently reported energy efficiency data is successfully helping to build understanding and credibility of energy efficiency as a resource and to ensure that energy efficiency can be used as a key component of meeting state and regional energy, economic and environmental goals.

The Regional EM&V Forum is encouraged by REED's enthusiastic reception and use and is continuing its work to support the consistent reporting of energy efficiency impacts. In 2013, the Regional EM&V Forum is engaging in several REED-related projects to further increase REED's value, including:

- Reviewing the Cost of Saved Energy values in REED relative to state legislative reports and bringing a recommendation to the Forum Steering Committee regarding the possible development of Cost of Saved Energy methodological guidelines.
- Analyzing the 2011 data currently in REED to compare energy efficiency program impacts across states and better understand what's driving key differences and similarities (e.g., differences in EM&V methods, program design, etc.).
- Scoping a potential study to estimate job impacts from energy efficiency programs for all Regional EM&V Forum states, and/or develop a common methodology for energy efficiency job impacts. REED currently includes job impacts for only two states, and this project would allow for all states in the Regional EM&V Forum region to report job impact data.
- Collecting 2012 program year data from all Regional EM&V Forum states and making it publicly available in REED by year-end 2013.
- Addressing potential modifications to REED suggested by the REED subcommittee, including linking data collection with state energy efficiency databases, creating new report formats, and adding a peak-to-energy ratio report.

Though challenging, the Regional EM&V Forum will continue its work at the regional level to further strengthen REED's common platform for reporting energy efficiency impacts with the intent of fostering both transparent and consistent reporting of energy efficiency across the region and potentially beyond.

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