Driving to Consistent Evaluation Protocols in the U.S.: Are We There Yet? (... and If Not How Much Farther?)

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ABSTRACT

In recent years, energy efficiency has expanded in the U.S. and is under increased scrutiny as a viable, cost-effective resource. National policy, more aggressive state environmental and energy policies, and increases in the number of states engaged in energy efficiency contribute to these trends. One consequence is that various evaluation protocols are now being developed throughout the U.S. to coordinate, standardize, and increase the transparency of EM&V. Key questions include: What are these efforts, their purpose and primary audience(s) and where are they heading? Will they generate competition, confusion, or coordination? This paper documents the range of EM&V protocol efforts over several decades across the country. It further considers the value of common, transparent and rigorous EM&V protocols. It attempts to identify commonalities across the efforts, and to pinpoint opportunities for greater coordination. The paper also identifies many challenges of determining a uniform set of best practices for all or most situations, such as funding limitations, lack of contractor expertise, and local regulatory oversight which may complicate efforts to advance common EM&V protocols. Finally, the paper discusses SEE Action, an important opportunity for stakeholders currently working to develop a national EM&V protocol that enhances the credibility of energy efficiency as a critical resource to meet the nation's energy and environmental policy goals.

Introduction

In recent years, energy efficiency has expanded in the U.S. and has come under increased scrutiny as a viable, cost-effective resource. Potential national policy, more aggressive environmental and energy policies in some states, and increases in the number of states engaged in energy efficiency, all contribute to these trends. One consequence is that a number of different efforts to develop protocols for EM&V methodology are being conducted in the U.S. by state, regional, and national organizations. With these trends, the authors maintain there is important value and merit to developing national EM&V protocols despite the attendant challenges.

This paper chronicles the long journey to national protocols. It reviews existing and developing EM&V protocol or guidance documents and the audiences, policies or markets they serve. It identifies: various commonalities and differences across the protocols; merits and need for common EM&V protocols; and opportunities to support national protocol development. It notes road blocks such as evaluation funding, available contractor expertise, and local regulatory oversight.

The journey concludes with an update on the development of a federally-led national EM&V platform. We maintain that the efficiency industry will have arrived as a credible and critical resource when it evaluates, measures and verifies its resource using a common foundation that is transparent, documented, rigorous and widely applicable to practitioners, program designs and technologies.

A Glance at the Protocol Development Map

The evaluation, measurement, and verification, (EM&V) protocols discussed in this paper address impact evaluation, the analysis of the performance of efficiency programs to determine their energy savings. M&V is a subset of activities associated with calculating savings at individual sites or projects. EM&V protocols or guidance documents for energy efficiency first emerged in the late 1990s. Our review of the key documents focuses on:

- 1) The intended audience served by the protocol;
- 2) Common practices addressed, such as, M&V, billing analysis and deemed savings;
- 3) Savings uncertainty;
- 3) Whether the protocol covers gross savings or also net savings; and
- 4) The level of detail/prescription of protocol elements.

While EM&V practices have been in use for years by a wide range of energy efficiency practitioners, their documentation is much more limited.

International Performance Measurement and Verification Protocol (IPMVP). Developed in 1997, the IPMVP is a widely accepted industry standard that is used by energy service companies (ESCOs) for performance contracting projects, typically government facility retrofit projects. While referred to as a protocol, the IPMVP is a framework of M&V options for single site efficiency projects. The document was developed to provide an overview of best practice techniques for verifying energy savings in order to create "an unbiased, technically rigorous and cost-effective method to measure and verify energy savings estimates that form the basis of the contract between a service provider and service receiver." Its underlying principles are to a) increase certainty, reliability, and level of savings; b) reduce transaction costs by providing industry consensus approach and methodologies; c) reduce financing costs by providing project M&V standardization; d) provide a basis for demonstrating emission reduction; and e) provide a basis for negotiating contractual terms to ensure that an efficiency project achieves or exceeds its goals of saving money and improving efficiency.

The IPMVP allows users to select from four M&V approaches (shown in Table 1) in order to best match their specific project costs, savings requirements and particular EE technologies (IPMVP, 2010).

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M&V Option	How Savings Are Calculated	Cost
Option A: Focuses on physical assessment of equipment changes to ensure the installation is to specification. Key perform- ance factors (e.g., lighting wattage or chiller efficiency) are determined with spot or short- term measurements and operational factors (e.g. lighting operating hours or cooling ton- hours) are stipulated based on analysis of historical data or spot/short-term measure- ments. Performance factors and proper operation are measured or checked annually	Engineering calculations using spot or short-term measurements, computer simulations, and/or historical data	Dependent on number of measurement points. Approximately 1-5% of project construction cost of items subject to M&V.
Option B: Savings determined after project completion by short-term or continuous measurements taken throughout the term of the contract at the device or system level. Performance and operations factors are monitored.	Engineering calculations using metered data	Dependent on number and type of systems measured and the term of analysis/ metering. Typically 3-10% of project construction cost of items subject to M&V.
Option C: After project completion, savings determined at the "whole-building" or facility level using current year and historical utility meter (gas or electricity) or sub-meter data.	Analysis of utility meter (or sub-meter) data using techniques from simple comparison to multivariate (hourly or monthly) regression analysis.	Dependent on number and complexity of parameters in analysis. Typically 1- 10% of project construction cost of items subject to M&V.
Option D: Savings determined through simulation of facility components and/or the whole facility	Calibrated energy simulation/modeling; calibrated with hourly or monthly utility billing data and/or end-use metering	Dependent on number and complexity of systems evaluated. Typically 3- 10% of project construction cost of items subject to M&V.

 Table 1: IPVMP Measurement and Verification Options

Each option is applicable to different situations depending on: types of performance contracts: and efficiency measure(s); the expectations for risk and risk sharing; the potential for changes in key factors between the baseline and performance period, among other factors. The options vary in accuracy, cost, strengths, and limitations.

Even though IPMVP was developed to serve ESCOs and their clients with large, singlesite efficiency projects, the framework is increasingly being used as the M&V guideline for entire efficiency portfolio savings calculations. For example, the typology and terms of IPMVP (Option A through D) have been adopted or referenced in EM&V guidance/standards documents in Florida, Iowa, Illinois, Minnesota, Oregon, New York, Texas, Wisconsin and California, the state with the most comprehensive protocols using the IPMVP options as a base.

The US DOE's Federal Energy Management Program (FEMP) M&V Guidelines. Originally developed in 1996, these use IPMVP for energy retrofits in federal buildings, but differ in that they were developed specifically for the federal sector and provide more detailed guidance on the application of different M&V options for specific efficiency measures.

The American Society of Heating, Refrigerating, and Air Conditioning Engineer's (ASHRAE) Guideline 14: Measurement of Energy and Demand Savings. This guidance document is functionally equivalent to IPMVP with some differences. For example, where IPMVP makes a provision for limited metering under Option A ASHRAE requires metering for all options. Further, IPMVP's discussions on balancing of uncertainty and cost (Volume 1 Chapter 4.11) are enhanced by ASHRAE's definition of ways to quantify uncertainty so that M&V design decisions can consider costs in light of the best available methods for quantifying uncertainty.

The 2004 California Evaluation Framework (the Framework). This landmark Evaluation Framework helped consolidate the IPMVP position as the reference standard for M&V of energy-efficiency.

The 2006 California Energy Efficiency Evaluation Protocols: Technical, Methodological and Reporting Requirements for Evaluation Professionals (CA Protocols). Issued by the California Public Utilities Commission (CPUC) these superseded the Framework in California. The CA Protocols offer comprehensive, consistent, and detailed requirements for all aspects of evaluation, measurement and verification, including requirements for: direct and indirect impact evaluations; measurement & verification; market effects evaluations; emerging technology; codes and standards; process evaluation; and effective useful life (EUL). These individual protocols are designed be used together, and are further supported by the sampling and uncertainty protocol and the reporting protocol.

The purpose of the CA Protocols is to provide a consistent approach for conducting evaluations, documenting program effects, supporting the performance basis for judging program and portfolio achievements, and providing data to support cost-effectiveness assessments. The M&V protocol is intended to support impact studies by providing measured quantitative data from the field. It uses the four IPMVP "Options" as a framework, so M&V studies must adhere to the IPMVP and all of the Protocols. The CA M&V Protocol includes requirements for both "basic" and "enhanced" rigor levels, which specify provisions for verification, IPMVP Option, source of stipulated data, baseline definition, monitoring duration, weather adjustments, and calibration criteria (if applicable). It further provides examples of the IPMVP options that may be used for various measures.

National Action Plan for Energy Efficiency Model Impact Evaluation Guide (the 'NAPEE Guide'). The NAPEE Guide was developed in response to a growing need and interest for guidance on EM&V where utilities were just starting to roll out rate-payer funded efficiency programs. The Guide outlines evaluation planning and implementation processes and options that can be used for calculating savings, and provides guidance on key evaluation issues. The NAPEE Guide addresses energy, demand and emissions impacts of energy efficiency programs in facilities (i.e., resource acquisition and not market transformation).

Compared to other available evaluation resources, the NAPEE Guide follows the 2007 IPMVP most closely, yet introduces the use of stipulated or deemed parameters in place of measured values. It also goes beyond the IPMVP by accommodating factors such as HVAC interactions. The terminology and methodology are taken directly from program administrators in leading states, and have been reviewed and approved by the NAPEE Leadership Group. As a document developed by consensus at the national level, it is a solid foundation for making decisions at the state and regional level, but it is not considered sufficiently detailed to be the exclusive resource guiding program evaluation. However, the NAPEE Guide is not intended to serve as a national protocol and other efforts have emerged since its publication¹.

¹ In most states EM&V guidance is fairly general. In New York, the Evaluation Guidelines (2008) refer to the NAPEE Guide, developed by US EPA and US DOE in 2007 (NAPEE, 2007).

Regional Protocols – Are We (More Than) Half Way There?

At the regional level, EM&V protocols have been developed in the Northwest, the Northeast, and by regional ISO/RTOs to support efficiency resources that bid into electric wholesale capacity markets.

Northwest Protocols. The Bonneville Power Authority (BPA) requires that its customer utilities use M&V to demonstrate energy savings from efficiency projects. BPA is currently updating protocols as well as preparing protocol application guides on building commissioning and end-use metering for new construction. Existing M&V protocols used include the Regional Technical Forum (RTF) Energy Savings Verification Protocols (RTF 2000), BPA's Site Specific Verification Guidelines (Harding 1992), or ASHRAE Guideline 14-2002. New tools include two technical guides (sampling and regression), an M&V protocol selection guide, and a glossary (Research Into Action, 2010).

While BPA generally encourages the use of IPMVP-adherent M&V, its reports discuss other tools available including: "light" M&V (verification of measure installation and operation combined with corroboration of the engineering calculations underpinning the pre-installation savings estimate); deemed savings estimation calculators; deemed measures; programmatic approaches; and evaluations of programs and measure types.

The Northwest Regional Technical Forum is in the process of updating its Simplified M&V Protocol and its deemed saving database as well as developing a suite of measure-specific, simplified M&V protocols. The RTF will also review and consider adoption of the BPA M&V protocols.

Regional Evaluation, Measurement & Verification Forum. The Regional EM&V Forum, established in 2008 and managed and facilitated by Northeast Energy Efficiency Partnerships (NEEP), represents states in New England, New York, New Jersey, Maryland, Delaware, and the District of Columbia. In 2010, Regional EM&V Methods and Savings Assumptions Guidelines (Forum Guidelines, 2010) were formally adopted by regulators represented on the Forum Steering Committee. The intent of the Forum Guidelines is to provide clarity, transparency, and a common understanding of methods to consider in determining gross energy and demand savings, and related assumptions for fourteen key energy efficiency measures. The project recognizes the importance of improving the credibility and comparability of energy efficiency resources in regional markets, informing national protocols as well as local policy goals, and leveraging EM&V costs.

The Forum Guidelines are based on research that captures existing EM&V methods used in the industry today; they reference the IPMVP framework and address topics such as rigor, site inspections and measure life determination. The recommended EM&V methods can be used independently for any one program/measure type or in combination, depending on the specific program needs. While Forum Guidelines may be difficult to implement for the entire Forum Region given differences between state programs, these attempt to strike a balance between flexibility and comprehensive detail.

The impetus for the Regional EM&V Forum was in part driven by developments in New England in 2007-08, where energy efficiency project savings that meet predefined requirements may be bid into wholesale capacity markets. Both the New England ISO-NE Forward Capacity Market (FCM) and the mid Atlantic PJM Reliability Pricing Model market set M&V requirements for energy participating efficiency providers. The requirements are significant drivers for the design of M&V activities.

ISO/RTO M&V Manuals. In April 2007, the ISO New England published its Manual for Measurement and Verification of Demand Reduction Value from Demand Resources (Manual M-MVDR). While the M-MVDR follows the nomenclature of IPMVP Options A through D, it does not explicitly reference the IPMVP. Furthermore, the M-MVDR makes some substantial allowances for methods that are not consistent with the IPMVP and allows project sponsors to "propose alternative methodologies."² In April 2009, the PJM Interconnection published its Manual 18B: Energy Efficiency Measurement & Verification, which drew heavily from the ISO-NE M-MVDR.

One noteworthy distinction between the "wholesale" ISO/RTO M&V Manuals and "retail" efficiency protocols pertains to differences in use of terminology. Both PJM and ISO-NE M&V Manuals discuss "M&V" in ways that are more commonly referred to as "impact evaluation" among retail efficiency practitioners. For example, the M&V Manuals require that participants submit "M&V Plans" that describe how the peak demand savings will be determined to support the demand reduction value bid into the market. However, in the efficiency industry a plan that describes how the savings will be determined for a program is an "impact evaluation plan," and in the efficiency industry the term "M&V Plan" is applied to project level savings rather than program level savings. These differences are currently being debated in national protocol development discussions.

Driving Protocols to the National Level

At the same time that various state and regional EM&V protocol efforts were underway from 2004 - 2010, national level efforts also emerged. These are briefly described below.

American Recovery and Reinvestment Act (ARRA) Guidelines. These guidelines were developed to support ARRA's short term influx of funds to energy efficiency activities to states and communities across the country. The primary objective of these funds has been to stimulate the economy, not to develop capacity for, or acquisition of, energy efficiency resources. Evaluation guidelines were promulgated by the U.S. Department of Energy (DOE) in its Recovery Act Reporting Guidelines Program Notice and include evaluation of State Energy Programs (SEP), a major conduit for ARRA efficiency funding. Separately, evaluation guidance was also developed for Energy Efficiency Community Block Grant (EECBG) recipients. The SEP Guidelines provide recommendations for the successful management and administration of energy performance and evaluation activities, and recommended technical standards for the methods and research approaches used in evaluation studies. It recommends that state evaluations focus on the same four metrics that will be used in the national evaluation of ARRA activities: energy and demand savings, renewable energy capacity and generation, carbon emission reductions, and job creation.

The document offers guidance on some of the technical aspects of evaluation. While it does not provide any detail on the methods for evaluating specific energy efficiency measures, it refers readers to other relevant guidelines, including many of the ones discussed earlier in this paper. Notably, the US DOE recommends that field data be collected using the methods outlined in the four IPMVP M&V options. In addition, the DOE recommends that for SEP third party

² The most notable Option A allowance is "The factors, parameters and/or variables not measured can be stipulated based on assumptions, analysis of historical data, or manufacturer's data" (ISO-NE M-MVDR, p. 5-2).

evaluations, the statistical rigor of sampling should be no less than a 90% level of confidence with a precision limit of plus or minus 10% (90/10), and that state-of-the-art technical approaches should be used in such evaluations.

For EECBG grantees, US DOE guidance focused on use of energy performance management tools for municipal building projects, specifically ENERGY STAR Portfolio Manager, and IPMVP Option C (billing analysis for pre- and post-installation of efficiency measures) as an M&V strategy. On-going Technical Assistance on EM&V is also being provided by US DOE through its Technical Assistant Network, in the form of guidance documents, webinars, and best practice case studies which are all posted to the US DOE Solutions Center website (US DOE Solutions Center, 2011).

Protocol Development at NAESB. In 2009, a strong interest in national EM&V protocol development surfaced from the South, where there was a void of any protocols in place. As a result, NAESB began a project to develop M&V standards for the wholesale energy efficiency markets, and M&V "Model Business Practices" (MBPs) for the retail energy efficiency market.

On the wholesale side, after a year of standards development with a voluntary stakeholder group, NAESB adopted an M&V standard in early 2011. The standard is essentially a modified version of the ISO New England and PJM M&V Manuals for efficiency, put into NAESB standard format that FERC can potentially adopt as a national requirement for energy efficiency in wholesale markets. The development of the wholesale standard, led by ISO/RTO representatives, included comments submitted by a range of evaluation experts, in part represented by the Regional EM&V Forum. Specific comments noted the standards language on measurement equipment specifications was superfluous in that it would impose unnecessary evaluation costs, and may encourage use of other less accurate more undocumented measurements. Alternative language was proposed but rejected by the NAESB Wholesale Electric Quadrant Executive Committee (WEQ EC) (NAESB, 2011), raising concerns from key stakeholders about adequate representation of efficiency expertise on the WEQ EC with regard to large scale efficiency program evaluation and metering.

On the retail side, NAESB is tasked to develop MBPs, which if adopted will be referred to NARUC, as well as FERC (although FERC has no jurisdiction over retail markets). The MBPs are considered voluntary, and as such NARUC cannot require that states adopt the MBP, however, states can propose use of the NAESB MBP to their state commission, or commissions can opt to require use of the MBP in its state. The primary audience is expected to be regulators and evaluation managers in states without well established program evaluation frameworks.

The NAESB retail working group has spent over a year developing the MBPs, primarily confronting the challenge of agreeing on the scope, largely centered on distinguishing between EM&V and M&V, and the extent to which the scope should address evaluation principles, objectives, and framework/planning. Such elements are considered outside the realm of NAESB standard setting as they imply underlying "policy". Current drafting efforts are building the MPBs onto the NAPEE Guide EM&V elements, focusing on impact evaluation for ratepayer-funded efficiency programs, with guidance at a high level. The draft MBPs reference IPMVP as a best practice for project level M&V (and as such aligns with the wholesale standards), and include common definitions and EM&V elements (e.g., savings certainty) from outside sources such as the NAPEE Guide and the Regional EM&V Guidelines. Draft MBPs are expected to be available for public comment in Summer 2011.

The primary strength of a NAESB document is that NAESB is an American National Standards Institute (ANSI) accredited standards organization. Standards developed by ANSI-accredited organizations are favored by some entities, including the Federal Energy Regulatory Commission. A challenge to widespread adoption of efficiency standards developed by NAESB may be its limited history and expertise in energy efficiency standards, as many of its more active members are familiar with wholesale generation capacity markets standards but less so with retail or wholesale efficiency protocols. Stakeholders in states with well established program evaluation frameworks will not likely choose to adopt the NAESB retail MBPs. Nonetheless, the development of such MBPs by NAESB, in light of the NAPEE Guide and more recent efforts by US DOE and US EPA to build on the NAPEE Guide, presents potential confusion in the market and among stakeholders.

From NAPEE to SEE Action. In the past year, NAPEE has transitioned to a successor known as the State Energy Efficiency Action Network ("SEE Action"). SEE Action includes an overarching goal to transform EM&V to yield more accurate, credible, and timely results that accelerate deployment and improve management of energy efficiency. Its objectives are to build and support an environment where:

- The credibility of energy efficiency is significantly increased;
- EM&V planning and reporting processes are streamlined, transparent, reliable, and result in comparable information across jurisdictions and portfolios.
- EM&V is integrated into the portfolio planning and implementation processes with frequent and useful feedback loops.
- Energy efficiency is fully and reliably incorporated into load forecasts, so as to accurately inform infrastructure investments.
- Human, data, and tool resources are sufficient to meet growing demand for EM&V to support increasing energy efficiency investments and associated impacts.

The SEE Action EM&V working group, co-chaired by a state energy office director and PUC commissioner, is represented by a range of state, regional and national EM&V stakeholders, who recently have helped to craft a "blueprint" for meeting SEE Action's EM&V goals and objectives. The blueprint lays out three strategic pathways to meet its overarching goals. They are to: Develop a foundation for improving credibility and cross-jurisdictional comparability (Pathway 1); Explore new methods to address emerging issues and technologies (Pathway 2); and Build capacity and increase adoption of best practices (Pathway 3).

Of particular relevance to this paper, the first pathway includes efforts to a) review and update EM&V resource guides (in particular the NAPEE Guide summarized earlier, including creating resources to develop evaluation budgets to fit local conditions), and b) prepare a voluntary set of generally accepted detailed EM&V methods and/or protocols that can be useful for state regulatory bodies and energy offices new to documenting energy efficiency benefits. This effort would create a framework that describes how a jurisdiction would address the key issues covered in an updated NAPEE Guide. The document plans to take regional and local needs into account, including appropriate levels of rigor and varying needs of ratepayers. Fundamentally, this SEE Action effort intends to ensure that a kWh or energy saved in one state is comparable to a kWh saved in another state.

SEE Action recently released the report: National Energy Efficiency Evaluation, Measurement and Verification (EM&V) Standard: Scoping Study of Issues and Implementation Requirements (LBNL 2011). The Scoping Study provides background information on EM&V protocols in the US (some of which are covered herein), reasons for developing national protocols, an outline for what national protocols might look like, and next steps to proceed with protocol development.

Around the time this paper is published US DOE will have begun an initiative to bring uniformity to how energy savings are calculated for an individual program or measure. The DOE process uses technical consultants and stakeholder input to develop a single method to calculate energy savings for an individual measure or program. The adoption of the methodology is voluntary, with the hope that state public utility commissions will endorse the methods developed through this process.

Gravel, Pavement, Asphalt ... Comparing Key Elements Across Protocols

The protocols described above vary in many respects, in terms of EM&V definitions, elements and approaches covered. However, as shown in Table 2, there is consistency across the board in terms of how IPMVP is referenced.

First Steps Toward National Protocols. Any national protocol development effort needs to identify and build on EM&V best practices while considering the different objectives, audiences, and applications for conducting evaluation. We see one of the first steps needed is to address development of basic common definitions for key terms. While this can be done by building off the existing glossaries, achieving consensus poses challenges. Deemed savings, for example, is typically defined as a negotiated savings value (or input assumption) agreed upon by a group of technical experts, but increasingly is being referred to as any savings value included in a program administrator or state Technical Reference Manual (TRM), when in fact values in TRMs are often based on previous year evaluation studies. Differences also exist in net savings, gross savings, and net-to-gross ratio definitions. Another important first step will be to achieve consensus on the treatment of underlying policy issues, specifically whether and/or how to define EM&V principles, objectives and a framework for evaluation planning. As we have shown in our review of existing and ongoing protocol development efforts, we currently have examples of very high level guidance (NAPEE) as well as multiple examples of more targeted, detailed protocols.

		EM&V Approach Specifically Covered				Level of	Level of Detail/Prescription*	
EM&V	Intended Audience				Savings	Savings		
Protocol/Guidance					Certainty	Covered		
		Deemed	M&V	Large Scale	(Sampling -	Gross	General/High	Detailed or
		Savings	(IPMVP)	Billing	Bias/Validity	and/or Net	Level	Prescriptive (by
				Analysis	Statistical Sign.)			measure)
National:								
NAPEE Model	PAs, policymakers, regulators,							
Impact Evaluation	evaluators	Yes	Yes	Yes	Yes	Both	Х	
Guide								
NAESB Retail	PAs, Regulators	TBD	TBD	TBD	TBD			
NAESB Wholesale	PAs, wholesale markets	No	Yes	No	Yes	Gross	Х	
						01000		
IPMVP Framework	ESCOs, customers	No	Yes	No	No	Gross	Х	
FEMP	ESCOs	No	Ves	No	Vec	Both		V
I LIVII	ESCOS	INU	105	110	105	Dotti		Λ
ARRA Evaluation	SEOs, communities and towns						XX	
Guidelines		Yes	Yes	Yes	Yes	Both		
Regional:								
NW Regional	PAs, regulators, evaluators							
Technical		Yes	Yes	Yes	Yes	Both	Х	Х
Forum/BPA								
Regional EM&V	PAs, regulators, evaluators							
Forum (Northeast		Yes	Yes	Yes	Yes	Gross	Х	Х
and Mid-Atlantic)								
ISO-NE/PJM M&V	PAs, EE providers, evaluators							
Manuals		No	Yes	No	Yes	Gross	Х	Х
States:								
California	PAs, regulators	Yes	Yes	Yes	Yes	Both		XX
New York	PAs, regulators	Yes	Yes	Yes	Yes	Both	XX	

Table 2. Similarities and Differences in Sample of Existing EM&V Protocols/Guidelines

*Protocols vary in terms of guidance on EM&V principles, framework and planning. Some high level documents address general evaluation principles, while detailed documents address both general EM&V guidance and more detailed guidance on methods/approaches, while some only cover the latter.

How Much Farther to National EM&V Protocols?

The year 2011 will be a pivotal one for moving forward with national protocols, whether led by the US DOE/EPA SEE Action project, or in coordination with the NAESB process and possibly others. Somehow, we hope a common platform of key protocol principles and elements will emerge from these efforts, recognizing that other, more specific protocols appropriate for specific audiences and needs may branch from the national products. The key audiences include: state public utility commissions, program administrators, air regulators, energy service companies, federal agencies, state energy offices, representatives of national organizations such as NARUC, NASEO, NAESCO, regional organizations, as well as other stakeholders with EM&V expertise. The challenges to a collective national effort will likely be on the appropriate level of prescription/detail to be determined e.g., reaching consensus on the specific details beyond the broad IPMVP options and the NAPEE Guide's general EM&V methods. This effort will require balancing the overall objective to develop common protocols, while recognizing that important differences (and associated benefits) may exist in protocol use and application across range of users and audiences. An additional challenge will be building on existing experience while appropriately considering and proposing improvements to current practice and new developments in technology that can support EM&V activities.

One key limitation is the increasing tight labor market for those with the deep understanding of the technical details of EM&V. There simply are not enough qualified evaluation professionals, particularly in the engineering and statistical analysis areas to meet the explosive growth in the need for EM&V. This holds true for both those conducting the evaluations themselves as well as those with responsibility for reviewing and approving the application of the study results to calculate program savings and shareholder incentives.

Similarly, with the growing diversity of stakeholders advocating for a national protocol – and the differing perspectives they bring – it may become increasingly challenging to maintain rigor, credibility, and usefulness while meeting multiple needs and objectives. Some efficiency programs and measures may lend themselves more to common protocols than others. It is unlikely any one standard or protocol can meet all specific EM&V needs. Compromise and patience will be needed to develop consensus standards and protocols that meet most needs for some level of rigor but provide practical solutions.

The SEE Action Scoping Study takes a critical first step to address key scope and implementation issues, and offers an outline for what a national EM&V standard might cover (LBNL 2011). While the final destination for developing a national protocol is not yet in sight, and based on previous experiences, we can expect a rough road, our hope is that the collective effort of key stakeholders will lead to a product that supports making EM&V and reporting practices more uniform, transparent, understood and accessible, with the ultimate goal of improving the credibility and comparability of energy efficiency resources to support state and regional energy, environmental and economic policies and markets.

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