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EPA EM&V Guidance Comments

Presented to the Illinois SAG

Navigant Consulting

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EPA EM&V Guidance Overview

- The Environmental Protection Agency (EPA) issued the final Clean Power Plan (CPP) rule on August 3, 2015 and the rule was published in the Federal Register on October 23, 2015.
- Along with the final CPP rule, the EPA issued the draft EM&V Guidance (Guidance) document.
- The EPA requested comments on the Guidance over a 90-day period that started upon publication in the Federal Register – the comment periods runs through January 21, 2016.
- *It is suggested that any comments be filed with the EPA prior to January 21t to ensure the 90-day period does not lapse.* Following is a brief overview of the Guidance and an outline of key issues that Navigant has identified to date.

EPA EM&V Guidance Overview

EE Removed as Building Block

- **Even though energy efficiency (EE) was removed as a CPP building block (the draft CPP rule included EE as Building Block 4), the EPA has made it clear that it expects and wants EE to be used as a compliance option in state CPP compliance plans.**

EM&V Req'd. for Rate-Base Plan

- **EM&V is required for EE deployed in a rate-based plan, while EM&V is not required for mass-based plans** (e.g., mass-based emission reductions will be measured at the source).

EPA Respects EM&V Best Practices

- **The Guidance makes it clear that the EPA respects state EM&V best practices** – this is noted consistently throughout the Guidance.

Overview

The draft Guidance leverages existing states experiences and expertise.

Guidance is Based Upon

- EM&V for demand-side EE that is well established
- Several decades of EM&V experience with further refinements along the way
- Well-established EM&V protocols and guidelines
- EM&V overseen by PUCs, State Energy Offices and other implementing agencies and authorities
- Many large firms implement EM&V best practices with hundreds of individual practitioners
- Training and certification programs currently exist and expand
- Rich library of published reports and publicly available data and technical resources

EPA's Goal(s)

- Leverage existing protocols and procedures that are widely used
- Strike a reasonable balance between EM&V rigor and accuracy, and evaluation costs and effort
- Avoid excessive interference with EM&V practices that are already robust, transparent and working well

Source: EPA CPP

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Core EM&V Guidance Detail

EM&V Methods	• Deemed Savings • Project-based measurement and verification • Comparison group methods (e.g., RCTs, regression, comparison differences)
Metrics and Baselines	• Baseline determinations - Savings defined as difference between observed usage and "common practice baseline" (CPB) - CPB is measure that would've been in place absent the EE installation • Guidance distinguishes between gross and net savings, but defers to CPB resulting "gross savings" for MWh savings and CPP reporting
Reporting Timeframes	• Report over the 12 month calendar year • Report incremental and cumulative savings • Stipulated EUL value savings should be reported pro rata based on day savings began
Deemed Savings	• Savings for a single installed unit that's widely considered acceptable • Typically documented in TRMs or other databases – to be updated regularly • A single deemed value isn't used for a program as a whole, only single measures
Factors Affecting Savings	• Apply consistent assumptions for independent factors • Quantify savings using factor values that are expected to apply over life of a measure • Provide justification for first year savings are to be used for the EUL of project or measure
Accuracy of Savings	• Assumptions should be reasonable – neither conservative (low) or too high (optimistic) • Report statistical confidence/precision values are applied • Apply and document industry statistical best practices – address risks and biases

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Core EM&V Guidance Detail – *con't.*

Avoiding Double Counting	• Implement systematic tracking, accounting and reporting to prevent double counting • Provides steps to implement to prevent double counting using consumer data, etc. • For incremental activity in a behavioral program, subtract out incremental activity
Effective Useful Life, Persistence	• Use the Guidance Sec. 2.9 to determine if a measure was properly installed, functioning • Determine EUL through best practices by independent or public sources • Deemed EULs require reporting incremental & cumulative savings, use persistence studies
Savings Quant. & Cycles	• Independent verification of installed measures and quantified MWh savings • Use verification findings to adjust annual electricity savings on a going forward basis • Use EM&V and derived RR to adjust claimed annual electricity savings
T&D Savings Adders	• Difference generated electricity (busbar) and consumed (metered) due to line loss • EIA average is 6% of transmitted electricity in the US – avoided consumption avoids losses • Guidance requires using lesser of 6% of site level savings or calculated statewide annual average loss
Interactive Effects	• Must address interactive effects of electricity consumption in plans and reports • Use of standard methods (UMP or other methods to estimate interactive effects • *Not necessary* to quantify effects of non-electricity fossil fuels (e.g., NG) for EGUs
Existing EM&V Protocols	• Guidance recognizes various industry EM&V best practices: UMP, SEE Action, NEEP, CALMAC, IPMVP, ASHRAE, ISO-NE, PMJ 18B • These don't provide a recipe approach and professional judgement is required – document as needed, provide minimum requirements to justify judgement, etc.

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Rate vs Mass

Since the Guidance applies mostly to rate-based states, it's important to understand benefits and challenges with each approach.

Benefits	
Rate	Mass
Load growth flexibility, no hard cap on emissions	Multi-state coordination & trading is easier, also likely to be less costly
States that have GDP growth may find the "rate" approach appealing since there is no hard "cap"	Consistent carbon price signal
Challenges	
Multi-state coordination more challenging	Leakage challenges (new plant additions)
Carbon price signal less consistent	Load growth less flexible
EM&V plan required for EE measures	

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Points to Consider in Commenting on the Guidance

EM&V Guidance isn't clear at all on the use of gross vs. net savings approaches.

Gross vs. Net

The EM&V Guidance defines gross savings and net savings, but does not make it clear whether gross or net savings are needed for final state plans.

Comment

- Given the EM&V Guidance focus on allowing "EM&V best practices" from the states, it is not clear whether the EPA wants gross savings or net savings in final state plans.
- Further, the Common Practice Baseline (CPB) approach described in detail in the Guidance further confuses the net or gross savings question in the Guidance. Detailed clarity on whether the Guidance requires a gross or net savings analysis is required for an EM&V document of this type.

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Points to Consider in Commenting on the Guidance

EPA's statement that EM&V isn't needed for mass-based states is misleading.

Rate-Based EM&V

EPA's blanket statement that EM&V is not needed in mass-based states is misleading and requires further detail from the EPA.

Comment

- This should be clarified early on in the Guidance since some states may believe that if a mass-based state plan approach is chosen, then no EM&V or use of the Guidance is needed for any EE programs or measures – this is not correct.
- The EPA probably did not intend to create a two-tiered EM&V system (one for rate-based and another for mass-based states), but, essentially, that is what the EPA created.
- EM&V should continue for EE programs at the state level even though the EPA does not expect EM&V analysis to be submitted for mass-based state plans.
- EM&V is essential and should continue for non-CPP EE plan purposes in either a rate-based or mass-based state.

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Points to Consider in Commenting on the Guidance

Ongoing use of deemed savings values and existing TRMs should be clarified and stressed by the EPA.

State & Regional TRMs

Deemed savings and the use of TRMs should be clarified.

Comment

- The EM&V Guidance refers to deemed savings and TRMs, but does not emphasize the importance of these approaches and tools for standardization and consistency of EE savings, and, more specifically, how deemed savings and TRMs should be used in parallel to the Guidance.
- Further, TRMs are useful aspects of evaluation. Their use should be made more clear and emphasized and encouraged further by the EPA.

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Points to Consider in Commenting on the Guidance

Emphasis on Common Practice Baseline (CPB) should be clarified and potentially conflicts with EM&V best practices.

Emphasis on CPB

The EPA's strong emphasis and detail on CPB methods appears to be in conflict with EPA's statement that best practice EM&V methods are encouraged. ***Also, CPB is only used in the Northwest U.S.***

CPB Defined: *EE Savings are defined as difference between observed usage and CPB - Default technology or condition that would have been in place at the time of EE implementation without a decision to install a more efficient system or measure (e.g., system or measure a building owner would've had in place)*

Comment

- By emphasizing CPB, the EPA detracts from its goal to encourage state and regional EM&V best practices, which may not include CPB.
- Also, CPB may not be in line with many TRMs across the US which would significantly inhibit state effort to standardize savings – state standardization and deeming efforts required a tremendous amount of time and work and lack of clarify on this topic could derail much of that success.
- Thus, clarification on the importance of CPB, whether CPB is required and how other EM&V best practices can be used needs to be addressed in detail to make it clear that "other EM&V methods" are acceptable for CPP compliance purposes.

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Points to Consider in Commenting on the Guidance

Guidance's emphasis on multiple-year savings is a large shift for state EE frameworks that should be addressed by the EPA.

Annual Savings vs. Multiple Years

State-level EM&V regulatory requirements typically focus on annual savings, rather than multiple year savings, implying an added cost for tracking cumulative savings over multiple years.

Comment

- The Guidance emphasizes savings over multiple years and this is contrary to many states approaches to savings calculations today.
- At a minimum, the EPA needs to recognize the additional cost that would be required to create a two-tier tracking environment. Also, the Guidance would require many EE tracking systems to be modified to include cumulative savings calculations that account for persistence.
- Based upon this, the EPA needs to provide more specificity on the exact nature of cumulative savings and the EPA's expectations from an EM&V perspective.

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Points to Consider in Commenting on the Guidance

Continuing use of existing EM&V "best practices" for CPP Compliance Plan purposes.

Existing EM&V Best Practices

The Guidance frequently references existing EM&V best practices at the state level and how those should be respected. However, it is not clear whether those existing and established EM&V best practices can continue to be used for EPA CPP compliance purposes.

Comment

- There are numerous forums and approaches to proper EM&V as well as state-specific EM&V frameworks that should be leveraged for CPP compliance.
- The ability of states and practitioners to leverage these practices is not clear. Best practices commonly used today include:
  - International Performance Measurement and Verification Protocol (IPMVP)
  - State and regional protocols such as Illinois, California, Pacific Northwest, and Independent System Operators (ISOs) in the Northeast and Midwest
  - U.S. Department of Energy (DOE) documents, including the State and Local Energy Efficiency Action Network (SEE Action) publications and the Uniform Methods Project (UMP)
  - ASHRAE Standard 90.1, *Energy Standard for Buildings Except Low-Rise Residential Buildings*, and ASHRAE Guideline 14, *Measurement of Energy and Demand Savings*

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Points to Consider in Commenting on the Guidance

EPA included a 6% line loss factor which is very conservative and contrary to the practice of applying utility-specific factors.

Line-Loss Factors & Utility-Specific Factors

The Guidance recommends a line-loss of factor of 6%. This factor is low in comparison to factors used across the nation today.

Comment

- It is unclear why this would be used in place of a utility-specific factor which is likely to be more accurate.
- Line-loss factors, like many other factors, are utility-specific and calculated and updated regularly by individual utilities. Such factors should not be required by the Guidance.
- If the Guidance recommends a minimum factor (to be conservative, for example), then the Guidance should make it clear that utility-specific factors are acceptable and preferred with sufficient back-up analysis that would be available to the EPA upon request.
- *This should be the case and approach for every utility-specific factor.*

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Points to Consider in Commenting on the Guidance

EPA should clarify and allow federal product standards and codes that have already been determined to be cost-effective.

Incremental Savings

The EPA Guidance does not appear to allow for electricity savings associated with federal product standards or adopting codes that the federal government has already determined to be cost-effective and cannot be used for compliance with EPA's emissions guidelines.

Comment

- Many utility programs (e.g., residential lighting, business lighting programs, etc.) already account for changing codes and standards requirements (e.g., EISA) – this occurs for general service lamps, linear fluorescent lighting and motors.
- As written, the Guidance excludes these savings for CPP compliance purposes.
- Given the difficulty in altering these important programs and removing savings that exist from codes and standards improvements, as well as the lack of logic in doing so, the EPA should clarify that existing savings from changing codes and standards should be allowed.

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Points to Consider in Commenting on the Guidance

The Guidance is drafted unevenly and various areas are given greater than which leads to difficult in assessing requirements.

Guidance Drafting Issue

The Guidance covers a broad range of topics. Some of the topics are written in great detail and with great depth (e.g., CPB), while, in comparison, many key areas are referenced and in some instances glossed-over without in depth discussion whatsoever (e.g., existing EM&V state best practices). This lends to confusion in analyzing the Guidance and understanding how to apply its contents.

Comment

- A great deal of detail is afforded to CPB - readers are led to believe that the CPB is the only approach to assessing savings, while other portions of the Guidance imply otherwise (but it doesn't state that CPB is only one approach).
- The EPA should clarify and redraft portions of the Guidance so that users understand the following key points:
  - What is a required approach or method? For example is the CPB the only method?
  - If an alternate best practice or method is allowed, that needs to be stated clearly for each method or approach and the EPA should articulate a minimum standard of evaluation where that's applicable.
  - The EPA should clarify if the Guidance is a "guide" to implementing EM&V and is a broad-stroke approach which does not attempt to alter existing state EE and EM&V frameworks that are working well today.

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