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**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Examine the Commission's Post-2008 Energy Efficiency Policies, Programs, Evaluation, Measurement, and Verification, and Related Issues.

Rulemaking 09-11-014  
(Filed November 20, 2009)

**ASSIGNED COMMISSIONER'S RULING**

**1. Introduction**

California Public Utilities Commission (Commission) Decision (D.) 09-09-047 identified the need for a comprehensive review of the Commission's existing energy efficiency evaluation, measurement, and verification (EM&V) practices.<sup>1</sup> The Commission explained that the purpose of the review was to "set a course to develop effective EM&V going forward, post - 2012." The EM&V Review ordered by D.09-09-047 began on May 21, 2010 with an Assigned Commissioner Ruling (ACR) and Scoping Memo.

This ACR continues the EM&V review by summarizing party responses to the May 21, 2010 ACR and asking follow up questions based on party input.

**2. Background**

On June 4, 2010 comments on questions raised in the May 21, 2010 ACR were filed by the Division of Ratepayer Advocates (DRA), the Natural Resource Defense Council (NRDC), Pacific Gas and Electric Company (PG&E), OPower,

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<sup>1</sup> D.09-09-047, at 302.

Southern California Gas Company and San Diego Gas & Electric Company (Joint Parties), Southern California Edison Company (SCE), The Utility Reform Network (TURN), and Women's Energy Matters (WEM). Reply comments were filed on June 18, 2010, by the City and County of San Francisco (CCSF), DRA, NRDC, and PG&E. The following summarizes these comments and reply comments.

### **2.1. EM&V Objectives**

The May 21, 2010 ACR first asked whether the EM&V core objectives adopted in D.09-09-047 were sufficient to allow the Commission to assess California's progress in achieving the goals of the California Energy Efficiency Strategic Plan (Strategic Plan) and the utilities' contribution thereto.

Though parties generally found the adopted objectives to be well-suited to the challenge, several suggestions were offered on how the Commission's EM&V objectives may be better aligned with the objectives of the Strategic Plan. In particular, several parties suggest the EM&V objectives be modified to include an explicit reference to the Strategic Plan's goal of market transformation.<sup>2</sup>

### **2.2. EM&V Framework and Protocols**

The May 21, 2010 ACR next asked if the Commission's adopted EM&V Protocols and Framework are capable of, and the best tools for, measuring program impacts in what will be an increasingly dynamic energy efficiency environment.

Parties' responses to this question varied significantly. PG&E asserts that the "new landscape of energy efficiency" will require new protocols. SCE

suggests improvements to the Protocols and Framework should not be a priority for the Commission at this time.<sup>3</sup> Joint Parties find the existing protocols provide “optimum flexibility” for EM&V studies.<sup>4</sup> The NRDC suggests new protocols are needed to improve savings attribution and market transformation. DRA argues that new protocols are needed to measure market affects and transformation.<sup>5</sup> OPower advocates for increased application of experimental design, a methodology that “uses regression analysis to determine the net energy savings resulting from its products as measured by the average difference in energy consumption between the treatment and control groups.”<sup>6</sup>

### **2.3. Macro Consumption Metrics**

The May 21, 2010 ACR also asked parties to review “Macro Consumption Metrics” which could be used to produce an aggregate-level estimate of energy efficiency impacts on consumption over time. Parties reviewed several scholarly articles which suggest Macro Consumption Metrics could be woven into the framework of California’s EM&V.

In general, parties expressed optimism for Macro Consumption Metrics but expressed a need for caution in the selection and application of new techniques. For example, PG&E asserts that Macro Consumption Metrics would eliminate the need for controversial Net-to-Gross ratios, but asserts that “the

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<sup>2</sup> See DRA Comments, at 5; SCE Comments, at 5; Turn Comments, at 2; and NRDC Comments, at 3.

<sup>3</sup> SCE Comments, at 4.

<sup>4</sup> Joint Parties Comments, at 2.

<sup>5</sup> DRA Comments, at 6.

<sup>6</sup> OPower Comments, at 2.

inherent limitation of such a metric is that factors outside of the energy efficiency arena could skew the perceived effect of the energy efficiency programs themselves.”<sup>7</sup> Similarly, NRDC “supports and encourages exploration of aggregate-level energy metrics to supplement, but not replace the current energy and demand saving metrics”<sup>8</sup> while TURN finds the development and application of such metrics to be an imperative step in improving the Commission’s accounting of greenhouse gases (GHG) reductions caused by energy efficiency programs.<sup>9</sup> Thus, parties generally agree that the development of a Macro Consumption Metric for use on a pilot basis in 2010 - 2012, as ordered by D.10-04-029, should be a priority for the Commission.

#### **2.4. EM&V Beyond California**

The May 21, 2010 ACR next asked parties to look beyond the borders of California to consider how California’s application of EM&V could be made more collaborative.

Parties generally supported the idea of drawing new, best practices in EM&V from other regions. The Comments showed support for establishing a California EM&V forum through which stakeholders could work collaboratively to improve energy efficiency EM&V on an ongoing basis. Specific examples of comparable efforts in New York, the Northwest, and the Northeast were identified.<sup>10</sup> In particular, DRA suggests that the market transformation protocols employed by the Northwest Energy Efficiency Alliance (NEEA) may be

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<sup>7</sup> PG&E Comments, at 12.

<sup>8</sup> NRDC Comments, at 2.

<sup>9</sup> TURN Comments, at 7.

<sup>10</sup> PG&E Comments, at 14; Joint Parties Comments, at 6.

used by California to measure its progress in achieving the goals of the Strategic Plan.<sup>11</sup>

## **2.5. Technological Innovations**

The May 21, 2010 ACR next asked parties to consider how technological innovations, especially Advance Metering Infrastructure (AMI), may be leveraged to advance California's EM&V methodologies. SCE says "there are exciting new opportunities for more precision in studies with more detailed data available at far lower cost than before."<sup>12</sup> However, parties generally refrain from stating exactly how the increased availability of energy usage data may improve energy efficiency EM&V. Instead, parties recommend the Commission consult technical experts to address this question.

## **2.6. EM&V Needs and Activities of the California Energy Commission (CEC)**

Finally, the May 21, 2010 ACR asked parties to consider the EM&V needs of the CEC, municipal utilities, and California Air Resources Board and suggest what changes should be made to Commission's EM&V framework to accommodate those needs. Parties offered broad support for ensuring the Commission's energy efficiency EM&V met the needs of these stakeholders, but did not specify what changes should be made. Numerous parties suggest these stakeholders bring their perspective to the record.

## **3. Discussion**

Comments on the May 21, 2010 ACR indicate support for two key core principles. First, the Commission needs to consider the impact of energy

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<sup>11</sup> DRA Comments, at 7.

<sup>12</sup> SCE Comments, at 9; and see PG&E Comments, at 16.

efficiency on energy consumption distinct from traditional measurements of “energy savings.” Making this distinction appears critical to fulfilling the Commission’s commitment to GHG emission reductions under Assembly Bill 32 and the California Air Resources Board’s Scoping Plan.<sup>13</sup> As TURN points out, there is a “need to reconcile two realms, the realm of “savings” familiar to energy efficiency practitioners, and the realm of reduced energy consumption that reflects the accounting practices associated with GHG emissions reductions.”<sup>14</sup>

Second, most parties agree that measuring the impact of energy efficiency programs on the markets in which they operate should be a priority for the Commission. The Commission has previously voiced its support for this core principle.<sup>15</sup>

This EM&V review will support the Commission’s commitment to accurately measuring the impact of energy efficiency programs on energy consumption, GHG emission reductions, and market transformation; however, it is evident from party comments that the mechanisms to support these principles through EM&V are unclear. The remainder of this EM&V review will seek to consider what additional EM&V methods, practices, or resources should be brought to bear to support these core principles.

#### **4. Questions**

The following questions build on party comments provided in response to the May 21, 2010 ACR.

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<sup>13</sup> D.08-10-037, at 6-7.

<sup>14</sup> TURN Comments, at 7.

<sup>15</sup> See D.09-09-047, Findings of Fact 28 and 29, Conclusions of Law 11 and 12, and Ordering Paragraph 10 and 11.

#### 4.1. EM&V Objectives

- A. Several parties suggest adding a reference to the Strategic Plan's goal of market transformation to the Commission's adopted EM&V objectives. In particular, DRA proposes adding the following phrase to the "Market Assessment" objective adopted in D.09-09-047: "The goal of market assessment is to identify a common set of Market Transformation definitions based on CPUC assigned market indicators, which will allow the Commission to determine when market transformation has occurred for a program." Do parties support the addition of this phrase to the Market Assessment objective?
- B. Do parties support SCE's suggestion that the Market Assessment objective be expanded to specify that the purpose of Market Assessment is to assist the Commission in "[m]onitoring and guiding progress on meeting the goals of the Strategic Plan; and guiding updates to the Strategic Plan by providing new information about what market changes are most feasible and cost-effective"?<sup>16</sup>
- C. Can the suggestions in questions 1 and 2 above be reconciled and, if so, how?

#### 4.2. Macro Consumption Metrics

- A. The NRDC supports and encourages exploration of Macro Consumption Metrics as a supplement to, but not replacement of, the current energy and demand saving metrics.<sup>17</sup> Do parties agree with NRDC?
- a. If Macro Consumption Metrics cannot replace current impact evaluation practices, do they offer other benefits?
- b. The NRDC suggests Macro Consumption Metrics are necessary to "help inform progress towards the state's objective to limit greenhouse gas emissions."<sup>18</sup> However, SCE

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<sup>16</sup> SCE Comments, at 5.

<sup>17</sup> NRDC Comments, at 5.

<sup>18</sup> *Id.*

argues that converting existing energy savings metrics to GHG emission reductions is sufficient to accomplish the same goal.<sup>19</sup> Which perspective is most valid?

- B. Do parties agree with PG&E's suggestion that the inherent limitation of Macro Consumption Metrics is that "factors outside of the energy efficiency arena could skew the perceived effect of the energy efficiency programs themselves?"<sup>20</sup>
  - a. Is it possible to control for factors like economic activity or electrification of transportation such that the impact of energy efficiency is more evident?
  - b. Would the availability of certain data strengthen Macro Consumption Metrics? If so, what data, if any, would improve the reliability of econometric evaluations?
- C. Would the addition of a Macro Consumption Metric comparable to that suggested by Horowitz,<sup>21</sup> or other approaches, provide more certain measures of the aggregate impact of California's energy efficiency policies than is available through existing EM&V?
- D. Would the addition of a Macro Consumption Metric comparable to that suggested by Horowitz, or other approaches, provide evaluation results more quickly than existing EM&V?

#### **4.3. EM&V Beyond California**

- A. Parties suggest California establish a working group of evaluation practitioners and users to explore best practices for

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<sup>19</sup> SCE Comments, at 9-10.

<sup>20</sup> PG&E Comments, at 12.

<sup>21</sup> "Measuring the Savings From Energy Efficiency Policies: A Step Beyond Program Evaluation." Horowitz, M.J. April 2010. (<http://www.springerlink.com/content/120908/?Content+Status=Accepted>)



California and facilitate increased collaboration.<sup>22</sup> What form would this working group take?

- a. What should be the responsibilities of such a group?
- b. Who should lead the effort?
- c. What would be the group's relationship with the Commission?
- d. How should the Commission use the group's recommendations?

#### **4.4. Experimental Design**

A. D.10-04-029 adopted a policy to measure and count savings from "comparative usage programs" using experimental design. OPower suggests that there may be an expanded role for experimental design in California's energy efficiency evaluation framework. OPower admits that experimental design cannot be used for every energy efficiency initiative, but argues that it should be the preferred initiative when practical.<sup>23</sup>

- a. Could and should experimental design be practically applied to energy efficiency initiatives beyond comparative usage programs?
- b. Would experimental design be an appropriate methodology to measure the impact of each of the 12 statewide programs approved in D.09-09-047?<sup>24</sup> Please delineate between the subsets of each statewide program as necessary, and indicate which subset would be well served by experimental design.

#### **4.5. Market Transformation**

A. D.09-09-047 directed the Commission's Energy Division to develop market transformation metrics, a process which is

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<sup>22</sup> PG&E Comments, at 14; Joint Parties Comments, at 6.

<sup>23</sup> OPower Comments, at 2.

<sup>24</sup> D.09-09-047, at 102-103.

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- a. Are there available best practices from NEEA that should be adopted by California? Please be specific.
- b. What would be the primary challenges in adopting market transformation metrics from NEEA? What strategies could be applied to overcome such challenges?

**4.6. EM&V Needs and Activities of the CEC**

- A. D.08-07-047 sets interim energy efficiency savings goals for 2012 through 2020 for electricity and natural gas on a Total Market Gross (TMG) basis. The TMG goals encompass forecasted energy savings from a wide range of energy efficiency activities beyond investor-owned utility (IOU) programs. Can existing EM&V practices adequately determine the impact of energy efficiency initiatives beyond the Commission’s energy efficiency programs (i.e., compliance with codes and standards)? If not, should this capability be added and how?
  - a. If the Commission’s EM&V should measure energy efficiency initiatives beyond its own programs, how should such activities be coordinated with the CEC?
- B. Parties note that EM&V impact evaluations, as well as other parts of the current EM&V framework need to provide support for long-term demand forecasts, such as those prepared by the CEC, and used in the Commission’s long-term procurement planning. Should IOUs be directed, and funded through EM&V, to develop disaggregated demand forecasting models that more directly

<sup>25</sup> Market Transformation is defined in D.09-09-047 at 86-87.

<sup>26</sup> DRA Comments, at 7 and 10. DRA does not refer to specific metrics in its comments, but parties could look to following web address for more specific information:  
<http://www.nwalliance.org/research/marketresearchreports.aspx>.

allow energy efficiency program impacts to be included in long-term forecast models?

- a. Are there additional analytical efforts which could be undertaken to better support the integration of projected energy savings into California's demand forecasts?

**IT IS RULED** that:

1. Parties may file and serve comments to this ruling by July 16, 2010, and Reply Comments by July 23, 2010.
2. All comments, reply comments, and other submittals made pursuant to this ruling shall be served on the service list in this proceeding pursuant to Rules 1.9 and 1.10.

Dated July 2, 2010, at San Francisco, California.

/s/ MATTHEW TISDALE for  
Dian M. Grueneich  
Assigned Commissioner

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Dated July 2, 2010, at San Francisco, California.

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/s/ LILLIAN LI  
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