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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.

R. 09-11-014  
(November 20, 2009)

**OPENING COMMENTS OF THE NATURAL RESOURCES DEFENSE COUNCIL  
(NRDC) ON ADMINISTRATIVE LAW JUDGE'S RULING ON UPDATES AND  
ADJUSTMENTS TO ENERGY EFFICIENCY AVOIDED COST INPUTS  
AND METHODOLOGY**

October 27, 2011

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**I. Introduction**

Pursuant to Rules 1.9 and 1.10 of the California Public Utilities Commission's (CPUC or Commission) Rules of Practice and Procedure, the Natural Resources Defense Council (NRDC) respectfully submits these comments on the "Administrative Law Judge's Ruling on Updates and Adjustments to Energy Efficiency Avoided Cost Inputs and Methodology," (ALJ Ruling) including Energy Division's (ED) whitepaper in Attachment A, dated October 5, 2011. Per ALJ Farrar's October 13, 2011 email, opening comments were extended to October 27, 2011 with reply comments due on November 7, 2011.

NRDC is a non-profit membership organization, with more than 250,000 California members and activists with an interest in receiving affordable energy services and reducing the environmental impact of California's energy consumption. NRDC greatly appreciates the effort of the Commission to update the avoided cost assumptions. Ensuring that we accurately account for the benefits in addition to the costs of efficiency is critical to achieve all cost-effective energy efficiency. NRDC's comments are summarized as follow:

- NRDC supports maintaining consistent assumptions across demand side management programs when appropriate, but recommends that the Commission consider necessary differences to account for the uniqueness of each resource.
- NRDC supports updating the data inputs outlined in the ALJ Ruling Attachment A.
- NRDC agrees with addressing each component of avoided cost separately, provides recommendations, and requests further clarification on how certain proposed updates will

be applied. NRDC supports adjusting the discount rate to match the discount rate used for other procurement options (as measured by the PAC), but strongly recommends that the Commission apply a societal discount rate for the TRC test.

- NRDC believes that the proposed input adjustments will improve the accuracy of the costs avoided due to efficiency, and urges the Commission to also include the avoided cost of embedded energy due to energy efficiency efforts.

## II. Discussion

### **A. Q1: NRDC supports maintaining consistent assumptions across demand side management programs when appropriate, but recommends that the Commission consider necessary differences to account for the uniqueness of each resource.**

We agree that consistency for applicable assumptions across demand side management programs is reasonable and recommended. However, while we support the general concept of maintaining similar assumptions across energy efficiency (EE), renewable energy (RE), and demand response (DR) programs, we also note that each one of these resources is very different, and varying inputs to account for these differences is necessary. Therefore, we support making all assumptions consistent when appropriate, while also accounting for the unique attributes of each resource when needed.

### **B. Q2 & Q3: NRDC supports updating the data inputs outlined in the ALJ Ruling Attachment A.**

NRDC agrees that the straight forward data inputs should be updated.

### **C. Q4: NRDC agrees with addressing each component of avoided cost separately, provides recommendations, and requests further clarification on how certain proposed updates will be applied.**

NRDC agrees with the move towards a “component” based avoided cost (e.g., avoided cost of energy, capacity, renewable, etc.) from the previous “all-in” approach, as it will more accurately account for the avoided costs due to energy efficiency programs.

#### *Avoided Cost of Energy*

NRDC agrees with the Commission basing the long-run avoided cost of energy on a combined cycle gas turbine (CCGT) power plant, less its capacity value.

#### *Avoided Cost of Capacity Generation*

NRDC generally agrees with the Commission basing the long-run avoided capacity costs on a combustion turbine (CT) power plant, as it is the most commonly used peaker plant. We

also understand that the 15%-17% planning reserve margin (PRM) is incorporated in the calculation of avoided capacity generation, even though it is not referenced in ED's whitepaper.<sup>1</sup> We support this inclusion as energy efficiency not only avoids the need for capacity, but also avoids the additional 15%-17% of capacity needed to meet reliability requirements under the PRM.<sup>2</sup> Omitting the reserve requirements would greatly undervalue energy efficiency's actual impacts on avoided capacity generation. Therefore, we strongly support the inclusion of the 15%-17% PRM into the estimates of avoided capacity generation.

#### *Avoided cost of transmission and distribution capacity*

NRDC understands that the Commission is using the assumed avoided cost of transmission and distribution (T&D) as approved in PG&E's general rate case for PG&E, and average system values for SCE and SDG&E.<sup>3</sup> NRDC notes that values used for line losses in calculating avoided T&D costs appear to rely on the average line losses for an average year instead of marginal line losses at the time of peak. Using average line losses would not account for the full benefits of efficiency programs, which avoid T&D investments at the margin. Actual avoided T&D costs should be calculated using marginal line loss values at the time at peak, which are as high as 20% compared to average line losses of 7%.<sup>4</sup> Line losses grow exponentially with increased load, but this effect is often overlooked when assessing the full value of efficiency programs. Fully accounting for peak T&D savings will also improve program design and measure screening. NRDC therefore urges the Commission to update the T&D avoided cost to account for the marginal line losses at the time of peak, as opposed to the average value, to more accurately represent the actual benefits that efficiency provides on T&D systems.

#### *Avoided cost of ancillary services procurement*

NRDC agrees that the avoided cost of ancillary services should be included in the avoided cost assumptions for energy efficiency.

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<sup>1</sup> Email communication with E3, October 25, 2011.

<sup>2</sup> See Regulatory Assistance Project. "Valuing the Contribution of Energy Efficiency to Avoided Marginal Line Losses and Reserve Requirements," August 2011. p. 6.

<sup>3</sup> ALJ Ruling, p. 2 ("Pacific Gas and Electric Company's T&D avoided costs have been updated by climate zone and are taken from its 2011 General Rate Case Phase II, January 7, 2011. Southern California Edison Company and a San Diego Gas & Electric Company use system level values which are the same as those used in the Demand Response and Distributed Generation proceedings.")

<sup>4</sup> Regulatory Assistance Project. "Valuing the Contribution of Energy Efficiency to Avoided Marginal Line Losses and Reserve Requirements," August 2011. p.1

### *Avoided cost of renewable procurement*

NRDC agrees with using an input for the avoided renewable energy since energy efficiency avoids the overall need for energy – conventional and renewable. Energy efficiency has the potential to not only help California comply with the Renewable Portfolio Standards (RPS) at lower cost by reducing the amount of renewable energy needed to meet the RPS, but to allow renewable energy to affordably meet an even higher proportion of our electricity mix than 33%. However, it is unclear from the description in the ALJ Ruling how this assumption will be applied.

One approach would be for the RPS requirement to be applied step-wise at the end of each compliance period in the renewable portfolio standard: 20% by 2013, 25% by 2016, and 33% by 2020, per SB2X. For example, in 2014, the time at which the updated cost-effectiveness methodology applies, 20% of the energy avoided would be assumed to be displacing renewables. We recommend instead that the avoided cost use the prospective target, 25%, not the retrospective already-achieved target of 20%. Energy efficiency reduces overall load throughout the compliance period, not just at the end date of the compliance period.

Furthermore, the costs to build renewables are incurred *before* the compliance date. Since the costs for renewable energy are mostly capital (as opposed to operating/fuel costs) the comparison should be based on the investment rather than operation of the plant, which occurs before the end of the compliance period. In order to accurately represent how efficiency avoids the need for more costly investments and ensure that the avoided cost calculation is relevant to the choice of supply, we urge the Commission to apply the avoided cost of meeting the RPS requirement at the start of each compliance period (2013, 2016, and 2020), not simply after the final compliance date.

**D. Q5: NRDC supports adjusting the discount rate to match the discount rate used for other procurement options (as measured by the PAC), but strongly recommends that the Commission apply a societal discount rate for the TRC test.**

NRDC agrees that using the post-tax weighted average cost of capital (WACC) is appropriate to ensure that the same discount rate is applied to energy efficiency when it is compared to other procurement options using the Program Administrator Cost (PAC) test. However, we strongly recommend that the social discount rate (3% real) be used for the Total Resource Cost (TRC) test, as the TRC measures the full societal costs and benefits of efficiency programs.

When assessing the full societal costs and benefits of energy efficiency, the value of investing in efficiency today to avoid energy use later, is incredibly high especially when considering the need to meet our aggressive climate goals and the ever increasing costs of providing energy to customers. In addition, the move to social discount rate for the TRC would be consistent with how the California Energy Commission (CEC) assesses the value of energy savings due to efficiency codes and standards.<sup>5</sup> NRDC has consistently recommended a discount rate not only to value the reduced risk of efficiency, but also to address the societal perspective of greatly valuing the well-being of future generations.<sup>6</sup>

Energy savings achieved through efficiency programs should also recognize this long term perspective. Therefore while we support using the post-tax WACC for comparing procurement options (i.e., for the PAC), we recommend using a lower discount rate (3% real) to accurately account for the societal benefit of efficiency (i.e., for the TRC) as well as to be consistent with how the CEC values efficiency savings.

**E. Q6: NRDC believes that the proposed input adjustments will improve the accuracy of the costs avoided due to efficiency, and urges the Commission to also include the avoided cost of embedded energy due to energy efficiency efforts.**

NRDC agrees that the items identified within ED's whitepaper should be updated. In addition to those items outlined in the whitepaper, NRDC suggests that the Commission include the avoided cost of pumping and treating water (i.e., the embedded energy in water movement and processing) when more efficient appliances also results in reduced water use (e.g., hot water heaters, dishwashers, and clothes washers). In addition, the value of risk mitigation should also be considered when valuing the avoided cost of procuring conventional energy.

Furthermore, while NRDC recognizes that this ruling only addresses the avoided cost assumptions, we urge the Commission to also address the components of the cost-effectiveness methodology that currently undervalue the benefits of efficiency. These issues include (but are not limited to) accounting for the additional non energy benefits (NEBs) from energy efficiency (both quantifiable and non-quantifiable), as well as the inclusion of benefits from free drivers and the effects of spillover.

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<sup>5</sup> Architectural Energy Corporation, *2013 California Building Energy Efficiency Standards*. Consultant Report. Prepared for the California Energy Commission, (January 14, 2011). p.3 Available at: [http://www.energy.ca.gov/title24/2013standards/prerulemaking/documents/general\\_cec\\_documents/2011-01-14\\_LCC\\_Methodology\\_2013.pdf](http://www.energy.ca.gov/title24/2013standards/prerulemaking/documents/general_cec_documents/2011-01-14_LCC_Methodology_2013.pdf)

<sup>6</sup> "Comments of the Natural Resources Defense Council (NRDC) on the Draft Interim opinion on Updated Policy Rules an Threshold EM&V Issues," April 5, 2005 p.4-5 and "Pre-Workshop Comments of the Natural Resources Defense Council (NRDC) on Draft Policy Rules for Power-2005 Energy Efficiency Programs," February 1, 2005. p.13.

### III. Conclusion

NRDC appreciates the opportunity to comment on ED's proposal for updating the avoided cost inputs to assess the benefits of energy efficiency. We look forward to working with the Commission, staff, and stakeholders to ensure that the avoided costs, as well as the overall cost-effectiveness methodology, accurately accounts for the full benefits of efficiency.

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Respectfully submitted,



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