

April 21, 2011
LEG 2011-0197

Via Electronic Mail to docket@energy.state.ca.us and via U.S. Mail

Ivin Rhyne
Al Alvarado
Angela Tanghetti
California Energy Commission
Dockets Office, MS-4
Re: Docket No. 11-IEP-1D
1516 Ninth Street
Sacramento, CA 95814-5512

DOCKET

11-IEP-1D

DATE	April 21 2011
RECD.	April 21 2011

Re: "Docket #11-IEP-1D Reliability" Renewable Net Short Estimation

Dear Mr. Rhyne, Mr. Alvarado, and Ms. Tanghetti:

Thank you for the opportunity to submit these comments regarding estimation of the amount of new renewables necessary to meet California's renewable policy targets, or "renewable net short" (RNS). The Sacramento Municipal Utility District (SMUD), the second largest publicly owned utility in the state, appreciates the work of the staff at the California Energy Commission (CEC) in developing a proposed method for calculating RNS, and holding a public workshop to receive input on that proposed method.

SMUD participated in the staff workshop, and we reiterate our verbal comments here, followed by brief answers to the questions that staff posed in their workshop presentations.

SMUD's General Comments

SMUD believes that a method for calculating the RNS should follow these criteria:

Use the latest load forecasts and similar data: The severe recession that is affecting our state and nation have led to lower forecasts of electricity load over the next ten years. The proposed method should use the 2011 Integrated Energy Policy Report (IEPR) forecast when available, even in preliminary form to reflect these lower electricity forecasts. Prior to the availability of the 2011 forecast, the RNS method should use an adjusted form of the 2009 IEPR forecast, modifying that historical forecast to reflect lower electricity demand expectations. Other assumptions should also be made most current or updated to reflect the latest information available.

Take care to avoid understating the RNS: Estimates of the RNS that end up being too low over time will lead to delayed development of the transmission necessary to

meet State renewable targets and bring new renewables to market. It will be difficult to 'catch up' to the need and meet targets if the necessary transmission is not started in time.

Reasonably narrow the range of RNS estimates: The staff should create a RNS estimation methodology that achieves a relative consensus on a reasonable range of RNS estimates, so that transmission planning and procurement can proceed with less uncertainty. Uncertainty in variables should be removed from or reduced in the analysis where possible. For example, there appears to be too large a variation in staff's uncertainty estimates for new combined heat and power, a range from zero TWh to nearly 20 TWh, largely resulting from not knowing how much new CHP will supply on-site load, and thereby reduce the RNS need, or provide electricity to the grid, leaving RNS needs unchanged. The analysis should project a reasonable approximation of this variable based on the best expert judgment of staff. In addition, staff's method of combining the various uncertainties in electricity load, policy-driven impacts on that load, and existing renewable generation in a simple 'sum' fashion leads to a broader range of uncertainty than may be intended. SMUD understands that the RNS methodology is not a standard statistical analysis using clearly defined random variables with standard deviations and variances, but an approximation of the statistical calculation of uncertainty when combining random variables may be appropriate.¹ Some illustrative calculations of combinations of random variables may show a typical or range of reduction(s) of overall uncertainty that can provide a factor to use to reduce the overall range of uncertainty in the RNS calculation.

Explicitly include Electric Transportation load growth in the RNS calculation:

Currently, staff includes an estimate of electric transportation load growth in the underlying demand forecast. However, staff also includes energy efficiency estimates and distributed generation estimates in the demand forecasts, *and* includes variables in the renewable net short calculation to reflect different policy goals for achieving additional efficiency and distributed generation in the future. This allows explicit attention to the impact these important state policy goals have on the RNS calculation as these policies are updated and a better understanding of the trend towards these goals is achieved. SMUD believes that electric transportation load should also be considered in the RNS calculation, so that any variation in or uncertainty about the projected trends for electric transportation loads can be included. Including electric transportation load as a separate impact allows stakeholders to consider the individual and aggregate impacts on the RNS from other State policies to reduce GHG.

Develop two sets of RNS estimates with differential inclusion of renewable distributed generation (DG): The effect of staff's proposed methodology – subtracting estimates of new DG from load prior to multiplying by the 33% renewable target number -- is that RNS is reduced by an amount equal to 33% of the renewable

¹ Given two stochastic variables X and Y, the standard deviation for X+Y is not calculated as the standard deviation of (X) + the standard deviation of (Y), but rather calculated as the square root of the sum of squares of these standard deviations.

generation produced by DG. However, with the CPUC now opening up Tradable Renewable Energy Credit (TREC) markets for RPS compliance and with the increasing percentage of Power Purchase Agreement (PPA) models that in effect make PV on a home like "retail sales", staff should calculate a RNS variation where renewable DG is part of the 33% renewable requirement, with its generation fully counted toward that goal. This will be particularly illustrative and important with consideration of Governor Brown's 12,000 MW goal for renewable DG by 2020, a much more significant amount of localized renewable generation than in staff's base numbers in the draft report. The table below illustrates the differential impact of various treatments of renewable DG on the RNS calculation.

	With No DG	Standard Calculation	If Renewable DG Is "Retail Sales"	If Renewable DG Counts, but not as "Retail Sales"
Gross Retail Sales	300	300	300	300
Renewable DG		20	20	20
Net Retail Sales	300	280	300 (DG sales added back in)	280
33% RNS Amt.	99	92	79 (99-20)	72 (92-20)
Result ---		DG lowers RNS by 7 GWh (33% of DG energy)	RNS lowered by additional 13 GWh (100% of DG energy counts)	RNS lowered by 27 GWh (100% of DG energy counts, but sales not added back in)

In the table, the "Standard Calculation" column reflects the current treatment of renewable DG in the staff's proposed method. The last two columns illustrate two different projections that explicitly consider a future where renewable DG RECs can be purchased and used for RPS compliance. In both cases, the additional renewable generation considered acts to lower the RNS estimate, but in the last case, where the renewable generation is not added back into 'retail sales', the lowering of RNS is too high and amounts to a kind of 'double counting' of distributed renewable generation for this purpose. SMUD believes that this latter structure in effect exists today, with the opening up of the TREC markets, though it is unclear how many RECs from distributed generation will be used in the broader RPS marketplace.

Answers to CEC Staff questions

1. Given a range of incremental uncommitted energy efficiency estimates, how should the Commission choose among the high, mid, and low values?

SMUD agrees with CEC staff that there is a significant amount of uncertainty in uncommitted energy efficiency estimates. SMUD supports the staff proposal of using the Mid-range estimation of uncommitted efficiency estimates, as indicated on page 16 of staff's proposed method paper, as well as using Low, Mid, and High range estimates as staff has done in the Preliminary Ranges Table on page 30.

SMUD notes that an effort to update the efficiency estimates used for the RNS calculation may be in order. There is significant information available about POU efficiency expenditures and plans today, in comparison to a year or two ago, and POUs have generally been significantly increasing their expenditures on and targets for energy efficiency savings in response to SB 2021. Rather than simply extrapolate based on percentage of sales, staff may want to work with POUs to arrive at an estimate of POU 'uncommitted' EE savings that can be included in the analysis. In addition, SMUD believes that it would be reasonable to consider the impact of the significant ARRA funding directed at existing home and business energy efficiency in the past year.

2. Should the renewable net short estimate include small utilities (Less than 200 GWh) and non-RPS deliveries (CDWR, WAPA, MWD)?

SMUD believes that non-RPS deliveries should be subtracted from the total retail electricity sales number prior to calculating the RNS, as staff proposes, but suggests that small utilities not be subtracted, for two reasons. First, while the RES excludes these small utilities, new legislation, SB 2 (Simitian), does not. Second, even if the RES remains in place, the smaller utilities often have their own renewable generation, plans, and targets – as required by RPS legislation – and hence it is reasonable to include their retail sales in the RNS calculation.

3. How should the Commission select from a range of incremental CHP values given the slow historical development juxtaposed with the recent CHP settlement at the CPUC?

Again, SMUD agrees that there is significant uncertainty surrounding estimates of the amount of CHP that will be constructed in the future, the relative proportion of that CHP that serves on-site load and therefore acts to reduce the RNS estimates, and that portion that is sold to the grid and has no impact on RNS estimates. Nevertheless, SMUD reiterates its belief, expressed verbally at the March 8 workshop, that staff's current range of uncertainty for CHP effects is too large at nearly 20 TWh. In particular, SMUD believes that staff's Low estimate – 0 TWh for new CHP, is quite unlikely. With the amount of policy direction towards CHP development, and with new tariffs and CHP technologies being deployed, SMUD believes that it is unreasonable to assume that

there will be no new CHP that does not either simply supply power to the grid or replace existing CHP amounts. SMUD suggests that staff's mid-range assumption for new CHP is a more feasible 'lower-bound'. In addition, SMUD believes that the 19.8 TWh 'high end' estimate of the effect of new CHP is too high, given that it is very likely that even with stronger development of CHP, some of these installations will continue to simply offset on-site load. SMUD recommends that the CEC staff develop a range of about 6 TWh for the CHP variable, using 7 TWh as a low end, 10 TWh as a mid range, and 13 TWh as a high end estimate. With all other aspects of staff's methodology unchanged for illustration, this reduces the range of the RNS estimates by 20%, from about 25 TWh to about 20 TWh.

4. How should the Governor's DG goals be reflected in a renewable net short estimate?

SMUD believes that Governor Brown's distributed generation goals should be modeled in 'high-DG' scenarios, with renewable DG both counting and not counting as contributing to the amount of renewables needed to meet goals. It seems more likely that, in the case where the Governor's DG goals are achieved, the renewable energy coming from that increased DG will be counted towards renewable goals. First, the amount of renewable energy involved would be much more significant, making it more difficult to ignore. Second, the amount of renewable energy provided that is above the amount included in the State's AB 32 Scoping Plan would represent contributions toward the State's 2020 GHG goals that are feasibly interpreted as coming from the 33% RPS part of the Plan rather than the SB1 and other DG part of the Plan.

5. How should the Commission choose among existing renewables methodologies given the variation in renewable generation inherent in using actual generation?

SMUD believes that the Commission should use a method that is based on reasonable projections of capacity factors for each renewable generation type, rather than a method where existing renewable generation is based upon the last historical year. It is clear that wind, small hydro, and solar can vary from year to year with resource variations (an effect perhaps most clear with small hydro), so using the last historical year will necessarily base projections on low, high, or closer to average generation, depending on the year. Even non-intermittent renewables such as biomass and geothermal units can have generation in one year affected by conditions at a particular plant, such as major overhauls or significant forced outages, to make that year perhaps inappropriate to use for projecting future generation. Similarly to basing resource plan work on average hydro conditions, the Commission should consider RNS projections as primarily based on average conditions.

To the extent that the capacity factors being used seem inaccurate in comparison to historical generation the Commission should fine tune them using a multi-year record of historical generation data (not one year's worth of data). In addition, to the extent that

the Commission believes that planning to meet the renewable goals is similar to planning for resource adequacy, more conservative assumptions may be in order.

6. To what degree should renewable generation that is in some stage of construction be included in the renewable net short estimate?

SMUD believes that renewable generation projects that are under construction, with construction financing in place, should generally be modeled for projections as if the facilities in question are fully operational and generating based on the general capacity factors of the underlying resource. This generation should be included in the 'existing generation' category.

7. What is the best way to handle short term and out of state renewables contracts that are likely to be redirected to other state's renewable goals?

SMUD believes that the RNS estimates should reflect decreases in existing generation due to the end of existing contracts that are reasonably likely to be redirected to other states' renewable goals. It is standard practice for planning to meet one's renewable goals to model the declines in generation as a contract ends, assuming that the contract will not necessarily be renewed. On a statewide basis, however, a contract that is not renewed for one entity subject to the RPS may well be taken up by another, and still be counted as 'existing generation'. Only those contracts that may be redirected to out of state purposes should reduce estimates of existing generation for RNS purposes. However, out of state (or even in-state) contracts may still be redirected in-state at the end of the contract, so the Commission should not simply assume that this energy will not be available. It would be best to have a more sophisticated, almost case by case, analysis of the conditions and local renewable requirements facing each resource at contract end.

8. What developments are expected in the near future that may minimize the uncertainties associated with key renewable net short variables?

SMUD has no input on this question.

9. What types of proceedings or studies utilize a renewable net short estimate, and how should the Commission integrate these end uses into its choices of renewable net short methods?

To SMUD's knowledge, the most important use of RNS estimates is for mid to long range transmission planning to ensure that the necessary transmission is coordinated with new renewable resources needed to meet requirements. In addition, RNS estimates are useful inputs for analyses about the need to manage and integrate intermittent renewable resources. These studies can also guide procurement solicitations and more generally provide information about the overall costs and benefits of achieving the State's renewable targets.

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10. Should the method and assumptions for a renewable net short estimate be allowed to vary depending on the type of study?

SMUD sees no reason to vary the method and assumptions for a RNS estimate for the types of studies generally developed.

In closing, SMUD again expresses its appreciation of the hard work by CEC staff in the initial crafting of the proposed RNS methodology, and for the opportunity to submit these comments. We look forward to participating throughout the remainder of the IEPR proceeding on the RNS process and other energy policies.

Respectfully submitted,



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