DOCKET
11-IEP-1G
DATE Oct. 05 2011
RECD. Oct. 11 2011

STATE OF CALIFORNIA
BEFORE THE CALIFORNIA ENERGY COMMISSION

In the matter of:	)	**Docket No. 11-IEP-1G**
	)	
Preparation of the	)	COMMITTEE WORKSHOP RE:
2011 Integrated Energy Policy Report	)	*Renewable Power In*
(2011 IEPR)	)	*California: Status and Issues*
	)	
	)	October 5, 2011

Comments of the Sacramento Municipal Utility District (SMUD) on "Renewable Power in California: Status and Issues"

SMUD appreciates the opportunity to comment on the *Draft Renewable Power in California: Status and Issues, Docket No. 11-IEP-1G.* SMUD commends the CEC staff on the development of this comprehensive and important "*Renewable Power in California: Status and Issues*" report (Renewable Report). The Renewable Report does an excellent job of laying out the history of renewable development in California, describing the current status of renewables in the state, discussing state policies aimed at renewable development, and examining the barriers that limit more rapid renewable development.

SMUD is committed to further development and procurement of renewable power in our service area and for our ratepayers. Our governing board adopted a 33% by 2020 target in 2008, long before passage of SBX1 2 this year, which placed that target in law for all electric utilities. SMUD is the only large utility that met the previous 20% by 2010 goal using resources that meet the eligibility requirements of the current CEC RPS Eligibility Guidebook.[1] SMUD is currently developing additional RPS-eligible wind resources in the Solano wind area, and has a contract for development of a new geothermal facility in Nevada that has just begun construction.

The Renewable Report can be improved by updating some data and assumptions, clarifying and focusing on cost-effective renewable policies, and fixing a few minor errors, as described below.

[1] Another 3.9% of SMUD's retail load participates in our green pricing program, outside of the RPS. Thus, the total amount of SMUD energy from renewable sources in 2010 is approximately 24%.

A. Distributed Generation Policies and Goals

One primary area where the Renewable Report needs additional thought and modification is in the consideration of policies to facilitate clean distributed generation. Part of Governor Brown's Clean Energy Jobs plan included a target for 12,000 MW of "localized energy" by the year 2020, defining that term as: "Localized energy is onsite or small energy systems located close to where energy is consumed that can be constructed quickly (without new transmission lines) and typically without any environmental impact."

The Renewable Report Should Consider the Magnitude of Change Being Considered in Distribution Services. SMUD supports the expansion of distributed generation, as mentioned in our previous comments on the topic. SMUD contends that integrating large amounts of distributed generation into the distribution grid presents a fundamentally different challenge than the state's other main policy goals of achieving additional energy efficiency savings, reducing GHG emissions, and accelerating renewable procurement to 33% of the state's electricity sales. These latter goals are not necessarily easy, but they can be achieved without fundamental changes to the existing electricity distribution system. There are some challenges concerning interconnecting increasing amounts of intermittent generation into the transmission system, but these challenges do not require significant transformation of the distribution system, as large amounts of distributed generation requires.

Developing widespread distributed generation involves a sea change in distribution system practices to accommodate a two-way flow of electricity and a significant expansion in the number and location of sources injecting power into the grid. Achieving substantial DG goals without system disruption, then, must be coordinated with the transformation of the distribution grid into a "smart grid". The state is moving forward on smart grid policies and implementation, and SMUD is a leader in this transformation. *SMUD is concerned, however, that an uncoordinated DG policy that pushes installations when the grid is not ready may lead to reliability, control and safety issues, and ratepayer investment that would not be otherwise required.*

The Renewable Report Needs More Clarity about What is Included as "Distributed Generation" or "Localized Energy". The Renewable Report does a good job of describing the state's current distributed generation installations and policies, but still lacks clarity about what is meant by distributed generation that will contribute to the goal.

On page 2, the Renewable Report states that "California has also made progress toward achieving the Governor's 12,000 MW renewable distributed generation goal …," and presents as evidence the approximately 3,300 MW of installed DG and the additional 5,400 MW that would be installed if current programs are successful as planned. It is not clear what is included in the historical 3,300 MW of installed systems,

but SMUD agrees that the 12,000 MW goal should include and build on the state's existing distributed generation resources. In other instances, however, the report talks about these goals with reference to "new" resources, and SMUD would encourage consistent reference to 12,000 MW without the word "new".

It appears from examination of Table 4 and from descriptions of the state's distributed generation programs that the 12,000 MW total:

- includes substantial amounts of generation that are less than 20 MW in size, but may not be "distributed" in the sense that the generation is not located near load (a portion of the biomass, small hydro, and wind totals in Table 4); and
- does not include the internal combustion, fuel cell, turbine, and CHP distributed generation systems using natural gas as fuel that have been installed pursuant to the Self-Generation Incentive Program (SGIP).

SMUD encourages inclusion, in both historical and expected future resources needed to meet the 12,000 MW goal, of the full set of clean, localized generation represented in the SGIP. Since there are non-renewable technologies in the SGIP, the 12,000 MW goal is not simply a "renewable" goal, and the Renewable Report should be modified to reflect only the renewable portion of the 12,000 MW goal.

Near Term Policy Focus and Accounting for Market Development. The Renewable Report indicates (at page 2) that due to declining solar costs: "…it may make sense to focus on developing the low hanging fruit and reforming permitting and interconnection processes in the early years to take advantage of cost reductions and improved regulatory structures in later years." *SMUD agrees with the strategic approach of lowering barriers such as permit procedures and interconnection issues, as opposed to attempting to develop new incentive programs on top of the current array of state efforts.*

In this light, SMUD points out that Senate Bill 1 was enacted with three goals in mind. The first and most quantifiable goal is to achieve 3,000 MW of new distributed PV by the end of 2016, as described in the Renewable Report. The other two goals are:

- to establish a self-sufficient solar industry in which solar energy systems are a viable mainstream option for both homes and businesses in 10 years; and
- to place solar energy systems on 50 percent of new homes in 13 years.

The state is clearly moving forward towards the 3,000 MW goal, as acknowledged in the Renewable Report, and SMUD believes that as PV costs are further reduced the second stated goal will also likely be achieved. With a self-sufficient solar industry and solar as a mainstream option, there will be additional market-driven solar installations after the SB 1 incentives end in 2016 (the law requires incentives to go to zero by the end of this year). *For these small size distributed systems on homes and businesses, a*

Feed-In Tariff or some other policy beyond the current SB 1 structure appears unnecessary at this time.

It is unclear from the Renewable Report whether these additional market-driven installations are accounted for in the expected totals. The Renewable Report describes staff's process of extrapolating from historical data in the GoSolar effort to estimate future MWs installed, but does not provide the actual data for this extrapolation nor indicate whether the extrapolation goes beyond the 3,000 MW goal of the program. *If the 3,000 MW goal is met by the target year 2016, subsequent market-driven installations in 2017- 2020 could fill the 3,500 MW "gap" identified in the Renewable Report. These additional PV installations will occur simply from market activity, without any additional state incentives or similar policies to achieve this development.*

Renewable Distributed Generation Should Be Included in Renewable Net Short Calculations. SMUD believes, as we contended in our comments on the Renewable Net Short (RNS) comments earlier this year, that it is time for renewable distributed generation to count towards the RPS and thereby affect the calculation of RNS. CEC Staff recognizes this in upcoming, proposed changes to the RPS Eligibility Guidebook, where staff proposes to change the policy that renewable distributed generation is not counted for the RPS. However, the RNS calculations presented in the Renewable Report still subtract expected distributed photovoltaic generation "off the top". SMUD contends that this practice will lead to slightly higher than necessary RNS estimates (as the full amount of distributed renewable generation is not counted for the calculation) as well as the potential for double-counting of distributed renewable generation through the sale of the RECs from the systems. *SMUD reiterates that the CEC should consider revising their treatment of distributed renewable generation in the RNS calculation to resolve these issues.*

SMUD Supports Cost-Effective Implementation of Feed-In Tariffs. SMUD understands the potential benefit of FIT policies to assist development of renewable distributed generation. The Renewable Report cites a 2010 KEMA study with recommendations for FIT policies, but also states: "However, not all of the recommendations would minimize ratepayer risk or costs." SMUD agrees that some of the recommendations in the KEMA study do not represent the best value or least risk for ratepayers. In particular, cost-based FITs risk ratepayer overpayment to achieve renewable distributed generation goals. It is difficult to administratively get costs and thus prices correct with such FITs, particularly with a technology such as solar PV in which costs are changing rapidly and a variety of technologies continue to vie for further and best cost-reductions. A structure where different costs of generation are taken into account, as recommended by the KEMA study and referenced in the Renewable Report, has the perverse potential to incentivize systems with higher cost – providing higher prices to installations where costs are higher rather than attempting to find the lowest cost resources. European experience with FITs has demonstrated these high costs and perverse incentives, leading to dramatic and troubling year-to-year changes in policy, hardly the stable, long-term structure needed for industry growth.

In contrast, SMUD's successful and award-winning FIT structure is value-based, not cost-based. This has three benefits: 1) it avoids procurement of renewable power at rates that cost ratepayers significantly more than the value provided; 2) it fosters cost-reduction and efficiency in renewable development, focusing that development where it is most cost-effective; and 3) it avoids problems with attempting to "set" the FIT rate at a level that reflects renewable costs when they are rapidly changing, such as with today's photovoltaic systems. *If CEC is considering recommending an additional FIT mechanism, SMUD believes that it should be value-based, not cost-based.*

Alternatively, the state could consider a mechanism such as the Renewable Auction Mechanism (RAM) currently being implemented by the IOUs. While this may provide less "up-front" certainty about pricing than a standard FIT, it also avoids the problem of administratively trying to set a price for power to cover unknown, installation-specific, and rapidly changing costs of generation from the targeted FIT systems. A RAM has the potential to provide renewable power at even lower cost to ratepayers as costs of eligible renewable systems are further reduced. *SMUD believes that the current RAM should be given time to be fully implemented and to determine the relative success of the structure prior to implementing a similar mechanism.*

B. Central Station Power Plant Renewable Policies and Goals

In the central station or grid-delivered renewable area, the Renewable Report provides a comprehensive and detailed description of the transmission, permitting, financing, and other issues in renewable development. There are a few additional areas that could be covered, relating to biomethane use, Northern California transmission congestion issues, and updating renewable potential estimates.

The Renewable Report Should Recognize the Strategic Value of Biomethane Use in California. Approximately 9% of SMUD's renewable resources are from biomethane that has been injected into the interstate pipeline system and designated for use at SMUD's highly efficient Consumnes Power Plant. SMUD believes that biomethane is a critical renewable resource, and plans to expand our use of biomethane. In the long-run, SMUD sees biomethane as a key component of our goal to reduce our GHG footprint to 10% of our 1990 levels, while maintaining sufficient local, dispatchable generation to provide reliable electrical service.

SMUD believes that the Renewable Report should explicitly discuss and acknowledge the many strategic benefits of biomethane use as a renewable resource. These include:

- Displacing the use of natural gas that would otherwise be imported into the state, reducing GHG emissions;
- Providing renewable integration services for intermittent wind and solar generation, thereby facilitating additional GHG reductions and further development of these renewable resources;

- Maintaining the value of ratepayer investment in existing power plants – extending their life by using them as a renewable resource;
- Making productive use of biogas in instances where such use is not feasible on-site due to economics, emission restrictions, or other site-specific issues;
- Reducing air pollution in the state by using biomethane in larger, more-efficient power plants where emissions are more easily controlled;
- Keeping ratepayer costs low as a cost-effective RPS option, providing room under RPS cost caps for additional renewable development;
- Creating local jobs by keeping local power plants operating and keeping electricity costs lower, which helps local businesses to prosper and add jobs; and
- Contributing a renewable source for local resource adequacy requirements and reducing demand on an already strained transmission system.

SMUD believes the Renewable Report should be modified to: 1) recognize the value of biomethane use as allowed under current RPS rules, and support continuation of those rules; and 2) recognize and reiterate the policies in the latest Bioenergy Action Plan that aim to expand biomethane use removing legal and regulatory barriers to injecting biomethane in state pipelines.

When the biomethane is injected into the pipeline system at the source and sent in combination with conventional natural gas to California it allows regulators to know that the biomethane is safe, that it displaces natural gas, and that it provides GHG benefits. Under the current structure, the entity that purchases and injects biomethane into the pipeline, and designates where that biomethane is "used", receives credit for its use. SMUD contends that this is the only way to recognize and provide an incentive for the development of out-of-state biomethane and achieve the benefits listed above. *The Renewable Report should also recognize that the existing natural gas pipeline system is, in most cases, the only viable method for delivering biomethane and associated renewable benefits for California use.*

The Renewable Report Should Examine Potential Issues Surrounding Transmission Congestion in Northern California. There is still some concern that the northern part of the state (SMUD, PG&E) will be facing significant congestion issues unless a broader regional approach to renewable procurement is pursued. This congestion is likely to be exacerbated by the Tehachapi wind development and other renewable development focused on the significant solar and other resources in the southern part of the state absent greater consideration of a diverse renewable transmission policy. *The Renewable Report should include further discussion of renewable development and potential transmission needs in northern part of the state (and in other states and provinces bordering the north state).*

The Renewable Report Should Include Analysis of Additional Recent Transmission Issues. FERC has been more active on transmission planning, siting, and financing issues recently than the Renewable Report describes. SMUD believes that FERC's involvement is in some cases a complication to the state's renewable goals. For example, FERC administers a transmission incentive policy that grants

bonus incentives to transmission developers. SMUD believes that the use of "Return on Equity" (ROE) adders or the "bonus" transmission incentives policy promulgated in FERC Order 679 may be justified in some cases, but that it is not in the public interest to require consumers to pay more than is necessary to induce the construction of new transmission facilities. Unnecessary use of ROE adders represents a competing ratepayer cost to investments in non-transmission alternatives for reaching renewable goals, such as investments in smart grid infrastructure, energy storage, and distributed generation. SMUD notes that these rate "adders" are having a significant impact on transmission costs. The CAISO's Transmission Access Charge (TAC) has increased by over 300% in the last 10 years, from $1.77/MWh in 2001 to $6.47/MWH in 2011.

In addition, FERC's recent Order 1000 will add another wrinkle to transmission planning and procurement in California. This order spreads the costs of transmission to interconnect remote renewables in a way that could require consumers that do not benefit from the transmission to pay a portion of the cost. California consumers are already looking at significant costs for renewable-oriented transmission. The Order 1000 process raises the prospect that California consumers will pay even more to cover costs of transmission interconnection that are not necessary for California's renewable goals. *SMUD believes that the Renewable Report should provide some description and analysis of the effects of FERC Order 1000 and other FERC policies on California ratepayers and on our renewable goals.*

The Renewable Report Should Include or Recommend an Update of the Renewable Potential Estimates Used for Renewable Planning. The renewable potential estimates in the Renewable Report are relatively old, and should be updated. Energy potential estimates are expected to be updated every 3 years or so, and renewable estimates should also benefit from the latest information about technologies, resources, and costs. Additional work on offshore wind and other offshore resources would be useful to add or include in the estimates. Potential for low-speed wind resources should be updated to reflect new technologies and opportunities. Finally, some analysis of emerging renewable technologies such as fresh/salt water osmosis power should be included in the potential analysis.

C. Additional Comments On Renewable Report

Page 2 – The Renewable Report indicates on page 2 (and on pages 30 and 43) that "…nearly 16% of statewide retail sales …" came from renewable generation in 2010. This number seems slightly low, and should be rechecked. Four of the five largest utilities in the state achieved higher percentages of retail sales with renewable generation in 2010, with three of those near or above 20% (the latter percentage for SMUD). It seems unlikely that the remainder of the small remainder of state retail sales would bring the total number down to less than 16% on average. If possible, the Renewable Report should include a detailed description in an Appendix as to the status of each of the utilities and other retail sellers in the state.

Page 3 – The Renewable Report is inconsistent in its description of regional distributed generation targets, as the table on page 3 of the report does not match the amounts described in Appendix E (see page E-9). Appendix E appears to provide results from an updated methodology, and SMUD believes that these results should be included in the table on page 3. In addition, Appendix E would benefit from additional detail, by providing more of a breakdown of what went into the regional targets as developed and a description of the regions.

Page 6 – The Renewable Report should use the term "zero-carbon" rather than the term "renewable" at the bottom of page 6. Not all of the generation required to achieve the 2050 carbon reduction goals in this back of the envelope calculation need be renewable power, to the extent that other zero-carbon resources can be developed or some degree of carbon capture and storage can be achieved.

Page 23 – The Renewable Report misstates the AB 32 GHG emissions goal at the bottom of page 23. The goal is to achieve 1990 levels of GHG emissions by 2020, not 25% below those levels.

Page 48 – The Renewable Report indicates that the programs listed on the page, including SB 1, FIT programs, utility PV programs at the IOUs, and the RAM, have collectively achieved 543.77 MW installed capacity as of June 2011. However, the GoSolar website indicates that California has installed nearly 1,000 MW of distributed solar capacity. This latter number includes some capacity installed prior to the SB 1 program listed, but these numbers are relatively low, and SMUD believes that these historical installations should count toward DG goals.

Page 49 – The Renewable Report on page 49 contains the statement that the ARB implementation of Cap and Trade assumes that the electricity sector will need to surrender 108.6 million carbon compliance instruments in 2020. Of course, the actual surrender requirement for the electricity sector will depend upon actual load growth and changes in resource mix from now to 2020, and may end up being higher or lower than this number. The next line of the report states: "Additional emissions would be allowed only to the extent that offsets can be purchased from other energy sectors of the economy in lieu of real reductions by electric generators." This statement is incorrect in several ways. First, additional emissions are allowed, and not constrained simply by offsets. If additional emissions occur, compliance instruments of any kind must be held and surrendered to cover the obligation. Second, to the extent that offsets were purchased to cover the obligation, they would not have to come from "…other energy sectors…," but in fact can come from a variety of energy related or non-energy related sources. Third, and perhaps most importantly, it is incorrect to use the term "… in lieu of **real** reductions…," as it implies that the purchased reductions from offsets are perhaps not real. In fact, offset protocols require that the emissions are "real", and the Renewable Report should not imply that offset related emissions are not real.

Page 50 – The Renewable Report contains a typo on page 50, substituting the word "exam" for the intended word "examine". Also, this paragraph contains the statement:

"… to determine whether additional thermal generation must operate, possibly beyond allowable carbon emission restrictions if sequestration technologies are not economically feasible." This statement is not technically correct. There are no carbon emission restrictions for thermal generation (though there are criteria emission restrictions). Rather, if thermal generation must operate more than expected, additional carbon compliance instruments must be held and surrendered to cover the additional carbon emissions, and these additional instruments must be purchased from other sectors of the economy in the cap and trade structure or from alternative compliance instruments such as offsets.

Page 51 – On page 51 the Renewable Report suggests that storage technologies must be considered to potentially displace the need for fossil fired generation to back up intermittent renewable generation. This statement should be generalized beyond the concept of "storage". Additional strategies for backing up and/or integrating intermittent renewable technologies include demand response; better intermittent renewable forecasting techniques, reducing the need for back-up resources, and use of biomethane in thermal generation facilities, thereby providing such backup with renewable fuel.

Planning, Permitting, and Environmental Issues Chapter – The planning and permitting issues chapter of the Renewable Report is missing one significant segment of these issues – those related to planning and permitting offshore renewable resources. While none of these resources have been developed in California at present, significant work has been done about their potential, permits have been granted in other states, and there is of course extensive offshore development in European waters. These resources have unique permit agency jurisdictions and environmental issues, and these should be described in this section of the report. In the long run, through 2050 and beyond, these resources may play a more prominent part in California renewable development. Even in the short-run, through 2020, there is likely to be increased attention toward beginning to develop offshore wind and other offshore renewable resources.

Distributed Generation Permitting Issues – The planning and permitting issues chapter should also include additional detail regarding permitting issues for distributed generation renewable projects. While the chapter has a section on these projects, there is experience to draw on now with FIT implementation and IOU solar PV implementation activities that indicate what some of the unique issues for these smaller projects are, and the report does not adequately include this experience. For example, since these projects are typically sited closer to urban and residential land uses, they often are required to have setbacks, fencing, and landscaping that may not be an issue for larger projects.

Page 57 – The Renewable Report states on page 57 that "Solar PV and solar thermal technologies generally cause greater habitat loss than wind farms and solar thermal heliostat and power tower projects since the sites for such solar projects often need to be leveled due to their linear design… ." Since the statement appears to be drawing a

distinction in part between types of solar thermal technologies, the words “parabolic trough and similar systems” should be substituted for the term “solar thermal” in the statement. In addition, the statement implies that a linear design is as important for PV projects as for a parabolic trough project, but this is not the case.

Page 66 – The Renewable Report contains the statement: “Small hydroelectric projects cause fewer and less severe impacts than large hydroelectric projects.” SMUD does not believe that this blanket statement is entirely accurate. Small hydroelectric projects can have greater or fewer impacts, depending on the project, as can larger projects. A more appropriate tack here would be to remove the sentence and suggest case by case examination of the environmental impacts of hydro facilities, as with other renewable development, and consider evaluation structures such as the Low-Impact Hydro Institute.

Page 84 – The Renewable Report appears to have a subheading in the wrong place on page 84. The subheading reading “*Better Use of the Grid and Strategic Upgrades*” appears to belong one paragraph later than it is currently placed.

Page 134 – The Renewable Report incorrectly asserts on page 134 that SMUD procures substantial out-of-state wind resources using the California ISO’s Participating Intermittent Resource Program (PIRP). In fact, while SMUD procures wind resources from both in-state and out-of-state sources, only the in-state wind facilities participate in the PIRP. In addition, the paragraph where this statement occurs implies that SMUD is pursuing procurement of baseload renewable resources as a strategy to integrate renewable generation. While our baseload procurement will not have the integration issues that intermittent resources do, SMUD is not pursuing these baseload resources as a renewable integration strategy, but rather for purposes of procuring diverse resources for our renewable portfolio.

Page 141 – The Renewable Report states on page 141 that: “The CPUC’s Rule 2 currently sets the standard for voltage and the limits of variations and allowable exceptions.” This statement should be revised to make clear that Rule 2 only applies to IOU service areas.

Page 175 – The Renewable Report contains information on page 175 about how tax incentives can help finance renewable development. The section should be updated to include the problem that POU access to such tax incentives is limited, and developing comparable benefits for POUs would further encourage renewable development.

Page 194 – The Renewable Report refers to a Lawrence Berkeley Laboratory report about the installed costs of PV, and references a December 2010 version of this report. A newer version of the LBL solar cost report was recently released, and the Renewable Report should include information from and reference the latest report available.

Pages 224-225 – The research and development chapter of the Renewable Report includes a general section on storage technologies, including mainstream storage

technologies such as pumped hydro storage and compressed air storage. These technologies, and pumped hydro in particular, are not really “research” technologies, and perhaps much of this section should be moved to Chapter 5 and covered under grid integration issues.

Page 225 – The Renewable Report incorrectly reports in Table 24 on page 225 that SMUD has received a permit for the Iowa Hill pumped storage facility. In fact, SMUD has not received relicensing approval for the Upper American River Project, the hydro system that would include Iowa Hill. While SMUD has proposed consideration of the Iowa Hill pumped storage in the relicensing process, permitting and other steps remain on the project.

D. Conclusion

In conclusion, SMUD appreciates the hard work of CEC staff in preparing the comprehensive Renewable Report, and urges consideration of the issues raised in these comments. SMUD looks forward to further interaction on renewable issues as the Renewable Strategic Plan is crafted in the remainder of the year.

/s/

_____
WILLIAM W. WESTERFIELD, III
Senior Attorney
Sacramento Municipal Utility District
P.O. Box 15830, M.S., B406, Sacramento, CA 95852-1830

/s/

_____
TIMOTHY TUTT
Government Affairs Representative
Sacramento Municipal Utility District
P.O. Box 15830, M.S. B404, Sacramento, CA 95852-1830

cc: Corporate Files