

# **Stakeholder Comments Template**

## **Subject: Integration of Renewables Report**

<b>Submitted by (Name and phone number)</b>	<b>Company or Entity</b>	<b>Date Submitted</b>
Gary Chen 626-302-7214	Southern California Edison	October 12, 2007

### **I. Executive Summary**

Southern California Edison Company (SCE) hereby submits its initial comments on the California Independent System Operator's (the CAISO) draft report on the Integration of Renewable Resources (the Draft Report).<sup>1</sup>

SCE appreciates the opportunity to comment on the Draft Report to identify issues and solutions for the integration of large amounts of renewable resources expected to be operational in the 2010 to 2013 timeframe and within the CAISO Control Area. However, as detailed below, SCE believes that the Draft Report may fall short of its objectives. Currently, the schedule provides for CAISO to consider a single round of comments and then provide a final Report on Nov 1, 2007. This brief schedule does not permit a thorough consideration of the data and issues, nor provide parties with anything approaching a meaningful opportunity to comment on a study of this complexity. Among other things, to provide comprehensive comments, SCE and other stakeholders need access to the technical data, assumptions, and subject matter experts used to assess the modeling of resources used in the Draft Report<sup>2</sup>. To have any value at all,

---

<sup>1</sup> This Draft Report focused on wind generation, and in particular Tehachapi wind, and assumed that there would be limited operational issues associated with the performance of other renewable resources. Given the Draft Report's exclusive focus on wind resources, the Draft Report's title should be changed to "Integration of Wind Resources."

<sup>2</sup> The CAISO should clarify to potential users of this Report, such as the Legislature and State Agencies, that GE participated in the development of the Draft Report. In that this report may ultimately have a financial impact on

deliberate and informed stakeholder review is essential. Timely access to all data used to complete the Draft Report should be given to commenting parties and adequate time should be provided to assess the data and provide informed comments. The CAISO should extend their current process timeline to allow for this detailed discussion prior to issuing a final report.

The Draft Report is not conclusive and fails to recognize key California policies which will have a significant impact on the CAISO's ability to reliably operate the grid. As the CAISO is aware, California is considering increasing the overall RPS goal from 20% to 33%. SCE understands that the Draft Report was not intended to analyze the implications of increasing the goal. However, it does not adequately recognize the potential for such a policy change or address, even qualitatively, the challenges a 33% requirement poses to the CAISO or even the challenges in securing and interconnecting sufficient renewables necessary to meet this goal<sup>3</sup>. Policy makers and others using the Draft Report are given no basis whatsoever for extrapolating the Report's findings for a RPS of 20% to 33%, and thus the Draft Report fails to adequately address the single most issue pending before policy makers, stakeholders, and the CAISO.

Further, the Draft Report does not address a second crucial topic – the impact on existing generation. The Draft Report simply assumes capabilities that do not exist. It also does not consider the potential retirement of much of the existing and aging generation currently required for grid reliability. With the additional integration of renewables, such existing generation will likely be even more crucial in maintaining grid reliability. The Draft Report does not give sufficient consideration to the important implications of the shut-down of existing units, nor the

---

GE Wind, it is important that the CAISO maintain transparency over this issue to avoid any appearance of impropriety or conflicts of interest.

<sup>3</sup> For example, at a presentation given to the CPUC on August 27, 2007 (which can be found at <http://www.cpuc.ca.gov/static/hottopics/1energy/caiso+renewables+and+demand+response.pdf>) on page 25 of that presentation the CAISO states “The amount of wind generation and solar generation will have to **more than double** to achieve the 33% goal.” (bold added)

stress placed on remaining units, and thus fails to provide policy makers and stakeholders with the information they need to understand the impact to the CAISO's ability to reliably operate the grid.

Even without considering these crucial topics, the CAISO asserts that it can accommodate 20% renewables, yet requires wind curtailment in order to achieve the integration of 20% renewables and performs the analysis based on assumptions of 20% RPS in 2010. However, this date is inconsistent with the year Tehachapi Renewable Transmission Project (TRTP) is expected to be in service, i.e. 2013. This raises the question of what is the appropriate definition of "accommodation." If the CAISO's objective is to make realistic conclusions about their ability to successfully integrate 20% renewables, it appears inconsistent for the Draft Report to assume non-operational transmission and forced curtailments of those same renewables in order to conclude the resources can be accommodated. SCE recommends that the Draft Report's assumptions be updated to reflect conditions in 2013, the year TRTP is expected to be in service.

On a more technical level, the Draft Report may unnecessarily alter already established processes and approved studies. For example, the Draft Report draws certain conclusions regarding TRTP. The plan of service for TRTP has already been approved by the CAISO. Any modifications to the requirements of the plan of service for TRTP will adversely affect the operating dates for these transmission facilities, impairing the State's ability to achieve its Renewable Portfolio Standard Goals. Likewise, the Draft Report assumes that certain classes of wind generation technology will be added to the grid and then draws extensive conclusions based on these potentially invalid assumptions, without recognizing that the CAISO must first make the decision on who has the responsibility for making the decision on the Type of wind turbines that will be connected to the CAISO grid. This Draft Report should instead provide equipment

standards and not dictate or assume what equipment will actually be installed in the grid. Further, inasmuch as the stated purpose of the Draft Report is an assessment of technical feasibility, it need not and should not recommend policy-level solutions such as recommending changes to the current Resource Adequacy (RA) structure.

SCE is also concerned that the Draft Report does not adequately address issues related to market competitiveness, market power, the potential for a lack of liquidity in the markets, and most importantly, the potential costs to consumers that result for this situation. SCE is concerned that the study assumes full, vertically-integrated control of the electricity system, from transmission to generation operations, which is not feasible in either today or the future's electricity market in California. According to the Draft Report, demand in some ancillary services markets will increase by more than 140%. Combined with the fact that the CAISO has been ordered by FERC to develop "scarcity pricing" for these markets, prices will have the potential to rise to levels never previously experienced. In addition to the technical work in the study, the CAISO's Department of Market Monitoring (DMM) and/or the Market Surveillance Committee (MSC) should provide input concerning the potential market implications of the integration in the study.

In sum, because of the importance this report may play in guiding California policy, the CAISO should expand the process related to developing a thorough and well understood final report. While the final report should remain focused on technical conclusions, rather than policy recommendations, the report should address key issues such as market costs and impacts and identify and meaningfully comment on some of the key policy issues currently in front of the CAISO and stakeholders, including moving beyond a 20% RPS to 33% and various policies and scenarios that could result in the shutdown of significant amounts of existing generation.

Finally, the report should be perform for year 2013, rather than 2010, to reflect expected operational dates of key transmission.

Below SCE offers specific technical comments and questions. It is our hope that the issues can by addressed as part of an expanded process related to finalizing the report.

## **II. Transmission Planning Issues Associated with the Integration of Renewables**

1. In order to provide for the level of review that is warranted for a study of this complexity, CAISO should publish all the work papers and assumptions.<sup>4</sup> Without the benefit of the appropriate study material, it appears to that many of the assumptions used in the Draft Report may not be valid and/or may not reflect real-world conditions including the specific data corresponding to generation interconnection requests already in the interconnection process. For example:
2. Without the benefit of the appropriate study material, it appears that many of the assumptions used in the Draft Report may not be valid and/or may not reflect real-world conditions including the specific data corresponding to generation interconnection requests already in the interconnection process. For example,
  - a. The Draft Report assumed that all existing thermal plants remain on-line and concluded that additional units will be needed to meet regulation requirements. However, policy issues regarding “once through cooling” could result in decommissioning of many of the existing fleet of steam generators which are crucial for load following, ramping and regulation. Additionally, many of the

---

<sup>4</sup> If necessary, SCE is willing to sign a non-disclosure agreement to enable access to proprietary information.

existing plants are quite old and may need repairs at some point in the future. Because they are owned by multiple parties, there is no guarantee that those parties will find it economic to maintain the plants operational and the plants may simply be retired. The Draft Report does not indicate how the new resources would be constructed, by whom, and how the costs would be allocated to customers on the grid. This is especially troubling given the size and complexity of the CAISO queue and the 2010 date the CAISO assumed in the Draft Report. It is unrealistic to assume any meaningful amount of the new generation identified by the CAISO can be online by 2010. The CAISO also makes a significant and challengeable assumption that all existing generation will remain available during this time frame. This assumption is in direct conflict with the separate study initiative recently proposed by the CAISO on the “Mitigation of Reliance on Old Thermal Generation.”

- b. Further, SCE recommends that the Draft Report’s assumptions be updated to be consistent with the year Tehachapi is expected to be in service, e.g. 2013-2014. Throughout the Draft Report, the CAISO has used 2010 as the relevant date of the study assuming renewables will be at 20%. Due to the lack of transmission available for interconnecting numerous renewable projects, the IOUs have represented that it is unlikely to achieve meter spin of 20% renewables by 2010<sup>5</sup>.
- c. The underlying assumptions used in the power flow and stability studies are not clear. SCE would like the CAISO to provide a list of all generation and

---

<sup>5</sup> The CPUC has flexible compliance mechanisms which will allow compliance of RPS goals.

transmission assets and assumptions used for the studies including, but not limited to:

(1) Load – Study should utilize appropriate in-service date of the Tehachapi Renewable Transmission Project (2013-2014) and light load assumptions should be consistent with values expected during spring conditions during the times of high wind generation (super off-peak). This study should include those light load conditions where “must-take” generation is in excess of load.

(2) Wind Turbines – Study should assume generation mix corresponding to data submitted by wind developers pursuing interconnection of new generation projects. The study appears to assume two scenarios: a) GE turbines only and b) a turbine mix of 10% Type 1, 70% Type 3, and 20% Type 4. Based on the data provided for new wind generation projects through their corresponding interconnection request, the mix should represent 21% Type 1 (includes existing and some new), 24% Type 2, 35% Type 3, and 20% Type 4 as shown in the table below:

<b>Generator Type</b>	<b>Interconnection Requests</b>	<b>Requests plus Existing</b>	<b>CAISO Baseline</b>	<b>CAISO "Likely Mix"</b>
Type 1	4.3%	20.8%		10%
Type 2	28.5%	23.6%		
Type 3	42.5%	35.1%	100%	70%
Type 4	24.7%	20.4%		20%

(3) Transmission Topology – It is unclear if additional transmission was included to support renewable resources to be located in other areas beside Tehachapi. In addition, the study should include scenarios with and without the DPV2 and Sunrise projects.

3. The Draft Report should, but does not, point out that a policy decision is needed to provide clarity on who is the responsible party to determine the Type of wind turbine machine that will be procured and connected to the CAISO controlled grid. Currently SCE modeled as part of TRTP a mix of wind turbine Types that resembles the generation interconnection queue. From a planning perspective SCE believed that this is the only reasonable assumption that could have been used. If the generator is responsible for making the decision on turbine Types, and they decide on a heavier mix of Type 1 and 2 machines, then SCE may not have enough reactive compensation planned for TRTP. If the generators decide to install primarily Type 3 and 4 machines, then SCE may have too much reactive support planned. SCE assumed that the generators will be making this decision. SCE expects the CAISO to provide clarity on who is responsible for making the decision on the Type of wind turbines that will be connected to the CAISO grid.
4. The Draft Report does not appear to address a number of technical issues. These issues are critical to understanding how integrating intermittent resources affect SP15. Such issues include
  - a. Impacts of large amounts of wind resources on the Southern California Import Transmission (SCIT) nomogram since wind generation does not contribute significant amounts of inertia to the electric system.
  - b. Induction motor load composition (especially in the Tehachapi & SP-15 area) for the stability analysis in order to estimate the required mix of static and dynamic reactive requirements to meet CAISO/WECC Grid Planning criteria for the four types of wind machines modeled in the study. Sensitivity studies varying the load

composition are required to better understand what type of ancillary services (reactive) may be needed to successfully integrate 4200 MW of wind.

5. The conclusions reached in the Draft Report may be inaccurate because the outputs are directly linked to the inputs. The study inputs relative to turbine type appear to be optimistic. SCE would like to request that the specific recommendations made in the draft report be reevaluated with consideration of most current information and assumptions available. Specifically,
  - a. Conclusion #9 (page 7) stating that “the proposed SVCs were not necessary to achieve acceptable transient stability performance with a likely mix of wind turbine generator technologies” will likely change to be consistent with the previously published CAISO’s South Regional Transmission Plan (CS RTP)-2006 when the specific data for the turbine generators requesting interconnection are used.
  - b. Conclusion #11 (page 7) stating that Tehachapi area may be highly compensated will also likely change when the new wind projects properly reflect the data provided by the wind developers seeking interconnection.
6. The recommendations made in the Draft Report may be inaccurate once the study is reevaluated with the consideration of most current information and assumptions available. Specifically,
  - a. The recommendation (#2 page 8) for wind developers to only utilize Type 3 and Type 4 generators may not be consistent with FERC Order 661A. FERC Order

661-A requires that all new wind plants meet specified under-voltage ride-through requirements; however, Order 661-A does not require a specific turbine type. Additionally, FERC Order 661-A requires the utility to prove that power factor correction (metered at the point of interconnection) is required but does not specify whether such power factor correction should be switched or dynamic in nature. The key is for the CAISO to specify windpark requirements or criteria and not specific turbine requirements..

- b. The recommendation (#3 page 8) for re-evaluation of the optimal location and size for the dynamic reactive support (i.e., SVC) proposed as part of the TRTP project may not be necessary once corresponding study assumptions and technical data used to represent queued wind generation projects are updated.
  - c. The recommendation (#4 page 8) to analyze the best solution for improving the nose point of the Q-V analysis may not be necessary once the corresponding study assumptions and technical data used to represent queued wind generation projects are updated..
7. The Draft Report discusses additional studies to optimize the voltage support. There is no time line specified to complete these studies. If CAISO needs additional time to perform further studies as mentioned on pages 24 and 25 (i.e. items 7, 8, 11 and 4) it is not clear how this equipment can be installed to meet the 2010 operating date.
8. The study also assumes the operation of Helms pumps. The Draft Report identifies that the three pumps were operated for less than 3% of the time. It is not clear for what percentage of time these three pumps need to be operated to integrate the wind resources.

Is there a correlation between wind generation and Helms pumps operation? The Draft Report claims that PG&E has proposed a transmission upgrade plan for this area that would enable the operation of these pumps for additional hours. It is our understanding that this project has a proposed operating date in late 2012 and the plans have not yet been reviewed and approved by the CAISO. It is premature to assume that the Helms pump operation can mitigate the problem until this proposed plan of service is built and energized.

9. There appears to be a discrepancy, which needs to be corrected, in the amount of wind resources that can be supported in the Tehachapi area. Under the Conclusion section on page 6, it is stated “The proposed Tehachapi Transmission Project can support up to 4,200 MW of wind generation in the Tehachapi area, ...” while under the Summary section on page 11 it is stated “The planned \$1.8 billion of transmission upgrades for the Tehachapi area are sufficient to support up to 5,000 MW of new renewable resources.”
10. It seems that the changes proposed, on page 39, related to Generation Interconnection Standards is misplaced in this Draft Report. It is not clear how the suggestions identified under this section relate to wind integration.

### **III. Grid Operations Issues**

11. SCE would like the CAISO to perform a scenario with maximum wind generation on-line, with minimum imports, and minimum thermal generation on-line, to determine how the system will perform if the wind speed drops down to a minimum value where all the wind output is shut-off in a 10 minute window. This might require keeping more units on automatic generation control (AGC) to pick up the lost generation. It is not even clear

whether thermal units can pick up all the lost generation, before a potential voltage instability problem drops the load

12. In general, the study results that identify additional regulation, ramping and load following capability should be clarified to specify the existing capability and the additional capability required for renewable resources integration. For example, if an additional 170 MW to 250 MW of “Up Regulation” and 100 MW to 500 MW of “Down Regulation” is identified, it will be helpful to specify how much regulation capability currently exists on the system.
13. Over-generation – The Draft Report should give a clearer description of the over-generation protocol to be implemented in MRTU. In the absence of the ability to curtail wind resources, the CAISO should estimate the cost. The Draft Report should also estimate the amount of additional schedulable off-peak load that would be required to mitigate the increase in over-generation conditions caused by wind resources. Will the transmission upgrade at Helms provide enough off-peak load capability to cover that requirement?
14. Regulation – The Draft Report should discuss the locational attributes, if any, of the additional regulation requirements.
15. On August 27, 2007, the CAISO made a presentation to the CPUC on the topic of: “Renewable Integration Work Plan.” In the presentation (slide #16), the CAISO estimates \$30 million annually for procuring 170 MW to 500 MW of regulation reserves to ensure reliability of the system. SCE would like to request that the CAISO explain the differences that effected the changes from (170 MW to 500 MW) to (600 MW to 800

MW in the Draft Report). SCE would also like to request that the CAISO update the cost estimate based on the most recent integration study.

16. Load Following – While the Draft Report indicates that additional ramping capability is required, a more detailed description of consequences of inadequate ramping should be given.
17. The section identifies (pages 47 and 48) twelve (12) recommendations and it is not clear whether all these or only a part of these recommendations are needed to achieve 20%. This section also does not identify what is the likelihood of implementing these recommendations before 2010. Some of these recommendations have contractual and policy implications and these issues need to be addressed about the feasibility of implementing.
18. The Draft Report recommends that additional regulation, load following and ramping capability should be procured via modifications to the Resource Adequacy (RA) rules. This is a policy-making recommendation that should not be included in the Draft Report. The study content and conclusions should focus on engineering analysis and conclusions only.
19. The Draft Report may not be sufficiently comprehensive with respect to addressing reliability concerns. It is not clear whether this study has considered the worst case scenario: minimum load conditions during early spring or late winter months, hydro run-off conditions, “Must take” generation (i.e. QF contracts), maximum nuclear generation, and local area generation to meet reliability requirements based on contracts. The Draft

Report did not address in detail how the low load time periods reliability can be maintained with high wind generation.

20. On page 9, item 3 the Draft Report states "...this increase in regulation requirements is ten times larger than in previous studies due to a new and improved model...". Do we know why and do we agree? If this is true then how will this equate to higher levels of renewables. And lastly how much will operating costs and system marginal prices change with this type of analysis?
21. The Draft Report continually notes that there will be minimum load issues on the grid and that the grid can only absorb a maximum of 2912 MW of new wind by 2010. (page 73 line 2). To solve these minimum load problems the Draft Report notes that wind will need to be curtailed. Without a good program for such curtailment, communication and turning off generators, the system will have significant operating problems. Another issue regarding operating problems is the need for more ramping and ancillary services. The Draft Report notes that these services are now provided by hydro and thermal resources. However, there will most likely be a push for retirement of existing larger older thermal plants. Therefore this study needs to be redone with more assumptions about retirements and new replacement thermal generation.
22. The effects of cycling operations on most of the older and other existing plants have not been analyzed. Not only is this a cost issue but this may be a serious operating issue. It is difficult to determine from the data presented just how many over-generation hours might occur in the near future but it might easily be hundreds of hours with the amount of wind penetration suggested in this Draft Report for 20% renewable penetration. If this

were increased to 33% renewables and the wind were to double then the minimum load effects might increase exponentially to over a thousand hours. This seems to indicate that until appropriate off peak load can be built and/or more storage devices can be developed the increase of renewables must proceed with only on-peak types of resources as building more off peak generation will just exacerbate this problem. As stated by the Draft Report (page 14, item 1.1.4), moving from 20% to 33% renewables could more than double the integration problems and costs.

23. It is not clear from the Draft Report, whether achieving the 20% renewable resources goal requires the addition of storage technologies. Given the current status of development of these technologies, it may be too optimistic to assume that these technologies will be commercially available, even leaving the cost aside, to meet the 2010 operating date. CAISO needs to identify the use of these storage technologies by year, at what cost, and what is the market mechanism for the merchant storage facility to bid into the CAISO market?

#### **IV. Forecasting/Market Impact Issues**

24. The integration of significant amounts of intermittent resources has the potential to dramatically impact the operations of and competitiveness of the CAISO's energy, congestion, and ancillary services markets. According to the Draft Report, the CAISO's need for real-time energy bids, Regulation Up, Regulation Down and overall ramping capability will increase significantly – in some cases by more than 140% of current demands. Given that these same markets have a history of problems in liquidity and competitiveness, such increases in demand post a considerable risk of having dramatic

price impacts in these markets. As the CAISO has been ordered by FERC to develop “scarcity pricing” for these markets, prices will likely have the potential to rise to levels heretofore unseen.

25. How was wind forecast in the day-ahead market (that is, did the model assume current PIPR rules that require wind to schedule in the HASP or was forecasted wind included in the day-ahead process)?
26. If wind was included in day-ahead, how did the CAISO model wind-forecast errors in determining their actual real-time generation requirements?
27. How did the CAISO model their Ancillary Service needs in the day-ahead market? That is, did they purchase extra Spin and Regulation in hours where wind was most uncertain? What were the resulting prices? What did the study do if the markets did not clear?
28. Has the DMM and/or the MSC reviewed the results of the study? If so, have they raised any concerns over the resulting ability for parties to exercise market power either the day-ahead or real-time energy or ancillary services markets? Has the DMM or the MSC performed any studies related to market costs of energy and ancillary service as part of the integration study?
29. Market impacts on energy prices: Given that hydro resources will play a much more important role in ramping and load following, and less of a role in providing energy, has the CAISO, DMM or MSC looked at the impact to energy price and the resulting increase in cost to the market as a result of diminished or constrained participation of hydro in the energy markets?

30. Market impacts for load following: The CAISO claims that they will require between 700-800 MW of additional real-time generation for upward dispatch and 500-900MW of downward dispatch in the real-time market. (Page 47, item 5). However, according to Figures 2.39 and Figure 2.41 of the CAISO's "Annual Report Market Issues and Performance 2006", the real-time market exceeded the CAISO Residual Supply Index (their benchmark for competitiveness) for both INCs and DEC in about 10% of the total hours. This increase demand for real-time bids raises concerns over the resulting competitiveness of the CAISO's real-time energy market. Has the CAISO/DMM/MSC done any analysis to see what the impacts are on prices and the ability to exercise market power?
31. If, in fact real-time energy prices are inflated due to market power, has the CAISO/DMM/MSC attempted to calculate the impact this will have on day-ahead energy prices, particularly in the presence of Virtual Bidding, and the cost this may have to the market?
32. Market impacts for Regulation: The CAISO claims that by 2010 they will have to increase their current 350MW regulation purchase - "up regulation" purchases will increase by 170-250MW (totaling 520-600 MW) per hour, and their "down regulation" by 100-500MW (totaling 350-850 MW). (Executive summary, page 8).
- a. Concerning Reg Down, Figure 4.19 of the CAISO's "Annual Report Market Issues and Performance 2006" show that in some months during 2005-06, average bids were below 600MW – indicating that the market may not clear under the study assumptions. In many months, bids were well below 1,000MW indicating that sellers may have the ability to

exercise market power. Has the CAISO/DMM/MSM looked at the study to see what the impact on Reg Up prices and competitiveness, and finally total costs to customers, will be?

b. Concerning Reg Up, Figure 4.20 of the CAISO's "Annual Report Market Issues and Performance 2006" show that in about half of the months in 2005-06, average bids were below 850MW – indicating that the market may not clear using the study assumptions. In no months did bids exceed 1,500MW indicating that sellers may have the ability to exercise market power in many hours. Has the DMM looked at the study to see what the impact on Reg Up prices and competitiveness, and finally total costs to customers, will be?

33. The CAISO recommends that Resource Adequacy standards should be change to require more quick start, faster ramps, and more durable ramps. This issue is currently under discussion at both the CPUC and CAISO as part of CPUC docket D.05-12-013. Other alternatives may be preferable, such as the CAISO enhancing their current Ancillary Services, developing new products, or simply providing additional information to the market, to get the necessary resources. In any event, this issue is complex and should be addressed in the CPUC process, not as part of an interconnection/integration study.

34. The CAISO has been ordered by FERC to implement Blackstart and Reactive Power markets. Given the CAISO has concluded that Reactive Power infrastructure is "inadequate", what role will markets play in attracting more reactive power?

35. The CAISO has been ordered by FERC, and is in the process of introducing administratively-set high prices (i.e. "scarcity pricing") in the event they are unable to

satisfy ancillary service or energy needs in either the day-ahead or real-time markets. Per FERC's mandate, these rules must be in place within 1-year after the start of MRTU, and thus they will be active during the study period. Given the serious concerns of market performance raised above, has the CAISO/DMM/MSM considered the cost impact to customers resulting from possible "scarcity pricing"?

## **V. Implementation Issues**

36. The CAISO identified curtailing wind generation as a mitigation option under certain conditions. LSEs have been signing the contracts with the developers and these needs to be modified to allow the curtailments as proposed by CAISO. The question that needs to be answered is who has the responsibility, is it CAISO or the counterparty to the contract? Can the wind developers obtain financing if there are curtailment provisions of wind energy? What is the cost of curtailing this wind generation?

## **VI. Other Issues**

37. SCE urges the CAISO to perform its study at the 33% renewable resource level. It is expected that the results at the 33% renewable resource level will not be linear so it is important for the CAISO and stakeholders to understand the implications of grid integration at the 33% level in order to make informed policy decisions. For example, at a presentation given to the CPUC on August 27, 2007 (which can be found at <http://www.cpuc.ca.gov/static/hottopics/1energy/caiso+renewables+and+demand+response.pdf>) on page 25 of that presentation the CAISO states "The amount of wind generation and solar generation will have to more than double to achieve the 33% goal." The CAISO should

be clear in the study that significant additional challenges that will arise if the grid progresses towards a 33% RPS goal.

38. Although the focus of the Draft Report should be on technical issues, the Draft Report should also address the additional cost of integrating these resources based on the proposed operational changes to maintain system reliability. At least the following issues should be considered: sub-optimal operation of resources, pro-rata generation reduction from wind resources, addition of quick start capability units, and other factors.
39. On pages 91-96, CAISO proposes future work by Task. The question under Task1, as pointed by CAISO, has major implication in meeting NERC/WECC Reliability Performance Standards. SCE believes that this issue needs to be addressed with highest priority. If SCE/CAISO can not meet the new Reliability Performance Standards, due to lack of the proposed tools and systems, then there are monetary penalties of the order of \$1 million per day per event.
40. While the Report's discussion on issues related to wind integration at national and international level may help inform discussion, it is SCE's opinion that the challenges that California will face will be unique due to the market structure, type and mix of generation (current and future), and location of renewable resources relative to the location of major load centers, percentage of RPS targets, etc.

## **VII. Conclusion**

Given the impact the final report will have on shaping future California energy policy, a more extensive review and comment process is needed. Too many key issues were unaddressed in this iteration. After taking into consideration this initial round of comments, the CAISO should release the data and assumptions requested above. Then, after a sufficient review period, stakeholders should be allowed a second round of comments before the CAISO releases a final report. With more developed and informed feedback, the stakeholders can then fully assist the CAISO in its goal of identifying issues and solutions for the integration of renewable resources.