BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local Procurement Obligations	R.11-10-023 (Filed October 20, 2011)

INFORMAL COMMENTS OF PACIFIC GAS AND ELECTRIC COMPANY (U 39 E) ON THE ENERGY DIVISION'S NOVEMBER 25, 2013, DRAFT STAFF RECOMMENDATIONS, PART ONE ON PROBABILISTIC RELIABILITY MODELING INPUTS AND ASSUMPTIONS AND ACCOMPANYING WORKSHOP PRESENTATION MADE ON NOVEMBER 26, 2013

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Pursuant to the schedule identified by staff of the California Public Utilities Commission's (CPUC or Commission) Energy Division, Pacific Gas and Electric Company (PG&E) provides these informal comments on the November 25, 2013, Draft Staff Recommendations, Part One on Probabilistic Reliability Modeling Inputs and Assumptions (Draft Staff Recommendations) and accompanying workshop presentation made on November 26, 2013.[1/]

PG&E appreciates this opportunity to provide comments on the Draft Staff Recommendations following the November 26, 2013, Resource Adequacy (RA) proceeding workshop. PG&E continues to support the Energy Division's probabilistic reliability modeling efforts, including the use of an Effective Load Carrying Capability (ELCC) approach to determine the qualifying capacity (QC) of wind and solar resources. While the Energy Division's initial efforts to define the various probabilistic reliability modeling inputs and assumptions in a public process is a step in the right direction, additional work is needed to develop an *accepted* ELCC methodology and *reasonable* results to determine the QC for wind and solar resources. The recommendations provided by PG&E below are intended to help improve stakeholder understanding and acceptance of this new modeling approach.

I. PG&E ENCOURAGES THE ENERGY DIVISION TO NOT LOSE SIGHT OF THE PRIMARY OBJECTIVE OF THE STUDY, WHICH IS TO SUCCESSFULLY CALCULATE AND IMPLEMENT THE ELCC APPROACH FOR WIND AND SOLAR RESOURCES FOR THE 2015 RA COMPLIANCE YEAR

In reviewing the Draft Staff Recommendations and participating in the November 26 RA workshop, it becomes apparent that the Energy Division is taking a "deep dive" approach with regards to the modeling inputs and assumptions that will be used in the Strategic Energy Risk Valuation Model (SERVM) to assist staff in determining the ELCC of wind and solar resources.

1/ The Draft Staff Recommendations paper indicated a due date for informal comments of December 20, 2013 (*see* page 4). At the November 26 workshop, the Energy Division clarified that the due date was December 6, 2013. In an email dated December 3, 2013, the Energy Division revised the due date for informal comments to December 10, 2013.

The Energy Division is clearly focused on developing a robust and precise model. However, it is not clear that the Energy Division has struck the best balance with the other, sometimes competing yet important objectives, such as simplicity and transparency, which should be considered when developing a model that will impact many stakeholders and has implications on the reliability of the electric system. Given these concerns and in the interest of improving stakeholder understanding of the ELCC approach and its anticipated results and, hopefully, increasing the study's acceptance in this RA proceeding, PG&E makes the following recommendations:

1. **PG&E encourages the Energy Division to develop inputs based solely on publicly available data sources so that parties can validate the results and potentially run sensitivities.** Any lack of transparency of inputs can reduce the credibility of the results. This is compounded by the fact that many stakeholders are not familiar with this type of analysis and most stakeholders do not have experience with or access to the SERVM tool. Additionally, PG&E has concerns regarding the lack of transparency into the neural network model that develops the load inputs for SERVM. A more transparent method for simulating load shapes should be used. To the extent that public data sources are not used, justification should be provided and options for providing proxy information for validation purposes should be considered so that stakeholders can use the proxy data in place of the confidential data for the purpose of validating the modeling results.
2. **The Energy Division should not focus on detailed assumptions that are relatively unimportant in the final results, rather Energy Division should consider a more simplified approach**. It appears that for many generating unit characteristics, Energy Division has proposed starting with the most complex approach, which requires granular and confidential data, and then doing sensitivities to see whether this level of granularity is needed. Based on

experience, PG&E does not feel that unit-specific data is critical for ELCC calculations. Rather, generalized generation technology characteristic data is sufficient to capture the reliability contribution that ELCC is intended to measure. PG&E suggests starting with a simpler, less granular and more transparent approach such as using averages based on technology classes and age. Then future sensitivities can be used to determine whether the more granular confidential data is needed. Specifically, the Energy Division should consider adopting public data used in the Long-Term Procurement Plan (LTPP) proceeding for the purposes of maintaining consistency and transparency while also greatly simplifying data collection. This simplified approach would support improved stakeholder understanding of the model and increase the chances of stakeholder acceptance. More detailed modeling efforts could be considered in future phases of the RA proceeding if the benefits of the updates in methodology are determined to have greater value than the associated loss of transparency.

3. **The Energy Division must take into consideration how the loss of load expectation will be measured given the existing set of resources.** More specifically, the Energy Division must examine to what extent resources may need to be removed to achieve a meaningful result. It appears that the Energy Division is considering evaluating the ELCC of a specific unit or resource. PG&E is concerned that under this approach the Energy Division will not achieve meaningful results. Given the size of the California Independent System Operator (CAISO) system, removing an individual unit may not have a measureable impact on the loss of load expectation (LOLE). In this case, one must remove a significant amount of resources to measurably impact LOLE and thus to calculate a meaningful ELCC. If meaningful results can only be obtained by calculating the ELCC of a large amount of resources, for example an entire class of resources

(such as by technology type or sub-type and location), then the resulting ELCC would be applied generally to that class of resources.

4. **Rough estimates of results should be provided by the next workshop, or as soon as possible, to help inform parties about expected results, get feedback on the impact of the results, and provide a benchmark for further refining the study results.** Stakeholders need sufficient time to compare the results of the current 70 percent exceedance methodology to the ELCC approach and determine what the impacts may be to changes in the value in which wind and solar resources contribute to RA requirements. Additionally, this will help the Energy Division with implementation of the methodology and identification of key input drivers. This recommendation is addressed in more detail in Section III below on next steps.

5. **The Energy Division should address the critical implementation issues raised in the Appendix to these comments as soon as possible, preferably by the next workshop on this topic.** This recommendation is addressed in more detail in Section III below on next steps.

II. PG&E OFFERS SOME RECOMMENDATIONS REGARDING SPECIFIC MODELING INPUTS AND ASSUMPTIONS

PG&E offers the following specific modeling inputs and assumptions recommendations based on the Draft Staff Recommendations presented at the November 26 workshop:

1. **Unit Characteristics** – PG&E does not feel that confidential data from the CAISO MasterFile is necessary for an ELCC analysis.[2/] PG&E agrees that CAISO class average outage statistics should be used in the initial modeling while efforts to improve granularity are under way. A similar approach should be used for other unit characteristics.

2/ Draft Staff Recommendations, p. 15.

2. **Load Shapes** –PG&E encourages the Energy Division to consider in this or later iterations of the ELCC analysis adjustments to historical loads to account for potential future changes in the load shape which may be driven by various factors including:

    a. Energy efficiency;

    b. Distributed generation (including solar photovoltaic); and

    c. Electric vehicles.

    In the interest of maintaining simplicity in the initial modeling efforts, this recommendation could be deferred until later years when further refinements to the model are made. These potential impacts will become increasingly important to consider as penetration of solar photovoltaic and electric vehicles rises.

3. **Demand Response** – The trigger price used in the modeling of the investor-owned utilities' (IOUs) demand response resources should reflect the heat rate triggers used in the IOUs' price-responsive demand response programs. In these programs, PG&E typically uses a heat rate of 15,000 MMBtu as a proxy trigger price for dispatching demand response programs on a day-ahead basis.

PG&E recognizes that future workshops will address additional modeling inputs and assumptions. PG&E looks forward to addressing these issues in future comments.

III. PG&E RECOMMENDS THAT THE ENERGY DIVISION ADDRESS IMPLEMENTATION ISSUES AT THE NEXT RA WORKSHOP TO INCREASE STAKEHOLDER UNDERSTANDING OF THE ELCC APPROACH AND ITS EXPECTED IMPACTS

PG&E recommends that the Energy Division provide information to stakeholders sooner, rather than later, regarding important implementation issues and expected results. As discussed in PG&E's prior informal comments on ELLC modeling,[3/] stakeholders must have sufficient

3/ *See* "Informal Comments of Pacific Gas and Electric Company (U 39 E) On the Energy Division's September 13, 2013, Draft Staff Proposal on Qualifying Capacity and Effective Flexible Capacity Calculation Methodologies For Energy Storage and Supply-Side Demand Response Resources." October 22, 2013.

time (i.e., several months) to review and vet the ELCC results prior to adoption of the ELCC methodology for wind and solar. It is PG&E's understanding that a second workshop on this issue will occur in mid to late December. In the interest of facilitating stakeholder understanding and acceptance of ELCC results, PG&E recommends that the Energy Division address the following issues at the next RA workshop on probabilistic reliability modeling inputs and assumptions:

1. Implementation Issues Raised In The Appendix Of These Comments. Most of these implementation issues were raised by PG&E in its October 22 comments.
2. Baseline Expected ELCC Results For Wind And Solar Resources. A range could be provided based on a simplified set of inputs and assumptions, such as those recommended by PG&E in these comments. These results can help inform the Energy Division on whether or not more granular or precise data sources or assumptions need to be used and are worth the additional effort to further refine the study results.

Respectfully Submitted,

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APPENDIX

Remaining Implementation Issues Regarding Use Of ELCC To Calculate QC For Wind And Solar Resources

- What impacts to the QC for wind and solar resources are expected if the ELCC approach is adopted for the 2015 RA compliance year?

- What is the standard used to measure loss of load expectation? Will the planning reserve margin be revisited?

- How will the loss of load probability be measured given the existing set of resources? To what extent, if any, will resources need to be removed to achieve a meaningful result?

- Is it possible to complete the ELCC analysis solely based on public information?

- Should average or incremental ELCC values be used to determine the QC of a resource type and does this vary for existing versus new resources?[1/]

- How should diversity benefits, if any, be allocated among resources?

    - To the extent that certain resources (e.g., wind and solar) are complimentary, the ELCC value of the combined resources, and therefore the QC that would be calculated for the combined resources, will be higher than the sum of the QC that would be calculated for the individual resources. This is the "diversity benefit."

- How often should the ELCC and, consequently, the QC be calculated?

    - PG&E recommends an approach in which the ELCC is calculated through 2017 based on assumed penetration of each resource type through that year. In 2016, further analysis can be used to develop a 2020 case that assumes the penetration of each resource type through that year. This is a reasonable plan given the potential for major shifts in the recent portfolio expected in those timeframes due to expected new resources coming online and scheduled once-through cooling plant retirements.

- Should there be "changed generation mix" or "changed load" triggers to recalculate the QC using the ELCC approach?

    - A significant change in the overall resource mix, or a significant change in load, can have a significant effect on the ELCC value calculated for a resource type.

- How will monthly ELCC values be calculated?

1/ This relates to the issues brought up by the CAISO in slide 3 of their presentation titled "Using ELCC to Calculate Net Qualifying Capacity and Effective Flexible Capacity for DR and Storage Resources." Presented by Karl Meeusen, Ph.D., at the October 15, 2013 RA workshop.