

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Integrate and
Refine Procurement Policies and Consider
Long-Term Procurement Plans

R.13-12-010
(Filed December 19, 2013)

**REPLY COMMENTS OF
PACIFIC GAS AND ELECTRIC COMPANY (U 39 E) ON THE ENERGY
DIVISION'S DECEMBER 18, 2013, WORKSHOP MATERIALS**

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Pursuant to the schedule identified by the December 19, 2013, e-mail ruling of the assigned Administrative Law Judge (ALJ), Pacific Gas and Electric Company (PG&E) provides these reply comments on the materials presented by the Energy Division at the December 18, 2013, workshop on planning assumptions and scenarios for use in the California Public Utilities Commission's (Commission) 2014 long-term procurement plan (LTPP) proceeding and the California Independent System Operator's (CAISO) 2014-2015 Transmission Planning Process (TPP), as well as related materials subsequently posted on the Commission's website.

I. THE TRAJECTORY AND HIGH LOAD SCENARIOS SHOULD RECEIVE THE HIGHEST PRIORITY

The first priority of this proceeding should be to determine whether or not there is any need for additional resources to maintain system reliability in 2024. Analyzing the trajectory and high load scenarios will provide the best information regarding the need for additional resources to maintain system reliability in 2024, based on current policies including, most importantly, a 33 percent level of generation from qualifying Renewable Portfolio Standard (RPS) resources. The trajectory scenario provides a reference point based on reasonably anticipated conditions in 2024.

PG&E agrees with the Office of Ratepayer Advocates (ORA) and San Diego Gas & Electric Company (SDG&E) that the trajectory scenario should be given high priority in this proceeding.^{1/} The high load scenario is also an important stress scenario, as noted by ORA, that should be considered in any resource planning study.^{2/} Load is one of the most important drivers of need. Thus, it is prudent to evaluate potential high load conditions, and the reliability risks that they place on the grid, when conducting long-term energy resource planning.

To the extent the Commission wishes to evaluate policy-driven alternatives in this proceeding relating to the reduction of greenhouse gas (GHG) emissions,^{3/} PG&E recommends

^{1/} ORA Comments, p. 1;SDG&E Comments, p. 4.

^{2/} ORA Comments, p. 1.

^{3/} The Order Instituting Rulemaking (OIR) for the 2014 LTPP proceeding states that the

(continued next page)

that the Commission define a robust analytical framework to evaluate those alternatives, and allow parties to submit additional analysis using that framework.

The analytical framework would provide the means to estimate the relative impacts of alternative policies with respect to customer cost, GHG emissions, and system operations and reliability. Without this framework, including the input assumptions necessary to make these calculations, the Commission will not receive the necessary information to evaluate alternatives. PG&E would welcome the opportunity to work with the Energy Division and other LTPP parties to develop an analytical framework and assumptions to be used in any evaluation of policy alternatives in this proceeding.

II. THE TRAJECTORY AND HIGH LOAD SCENARIOS SHOULD ANALYZE THE ADOPTED 33 PERCENT RENEWABLE PORTFOLIO STANDARD

PG&E is committed to working with the state of California on its clean energy and GHG reduction goals. Currently, PG&E is focusing on achieving the adopted 33 percent RPS in a manner that minimizes cost to PG&E's customers and ensures a safe and reliable electric system. The CAISO, the Commission, PG&E, and other parties to the LTPP are still developing their understanding of how the electric grid should be operated with qualifying RPS generation at the 33 percent annual generation level.

Therefore, PG&E recommends that the trajectory and high load scenarios for the 2014 LTPP reflect the current RPS target of 33 percent. These scenarios should not be modified to an increased amount of 40 percent as proposed by some parties.^{4/} A significant amount of analysis remains to be done to understand the costs and potential reliability issues associated with 33 percent RPS levels.

Commission, "will look to develop scenarios that explore a range of potential policy futures..." R.13-12-010, OIR, pp. 10-11.

^{4/} See, e.g., Vote Solar Initiative Comments, p. 3.

III. THE TRAJECTORY AND HIGH LOAD SCENARIOS SHOULD ASSUME THAT THE DIABLO CANYON POWER PLANT IS ONLINE

Some parties propose that the trajectory scenario assume that the Diablo Canyon power plant is retired.^{5/} PG&E reiterates its recommendation that the trajectory and high load scenarios assume that Diablo Canyon is online. Any sensitivity assuming Diablo Canyon offline should be run only if time and resources allow, after the trajectory and high load analyses assuming Diablo Canyon online have been completed.

IV. THE TRAJECTORY AND HIGH LOAD SCENARIOS SHOULD ASSUME THAT SOUTHERN CALIFORNIA EDISON COMPANY AND SAN DIEGO GAS & ELECTRIC COMPANY HAVE PROCURED THE RESOURCES THEY HAVE BEEN AUTHORIZED TO PROCURE TO MEET LOCAL CAPACITY REQUIREMENT NEEDS IN SOUTHERN CALIFORNIA

A. The Trajectory And High Load Scenarios Should Reflect Not Yet Existing Resources That Are Reasonably Anticipated To Be Online Without Further Authorization In This Proceeding

From PG&E's perspective, it generally makes sense to divide the resources included in the trajectory and high load scenarios into two categories: (1) those in existence and expected to be in existence during 2024; and (2) those not yet in existence, but reasonably expected to be in existence during 2024 independent of any authorization issued in the 2014 LTPP. Other potential resources that are less likely to materialize absent authorization in this proceeding should not be included in the analysis. Under this approach, the purpose of the 2014 LTPP analysis is to identify what additional, or incremental, resources, if any, should be authorized in the 2014 LTPP. PG&E recommends that existing and not-yet-existing resources be categorized in this manner, so that the analysis presented here is focused on what additional resources should be authorized in this proceeding.

As PG&E noted in its 2012 LTPP track 4 filings as well as in its initial comments here, this approach requires ongoing monitoring.^{6/} If not-yet-in-existence resources are assumed in the

^{5/} See, e.g., Union of Concerned Scientists/Sierra Club Comments, p. 15.

^{6/} PG&E Comments, p. 12; R.12-03-014, PG&E Track 4 Opening Brief, pp. 17-18 and PG&E Track 4 Reply Brief, pp. 13-14.

analysis, but do not materialize in due course, then system reliability may be put at risk. Therefore, as part of this approach, the Commission should monitor, on an ongoing basis, the status of the assumed resources that do not yet exist. Mid-course corrections should be made, as necessary.

B. The Trajectory And High Load Scenarios Should Assume That Southern California Edison Company Meets Its 2012 LTPP Track 1 And Track 4 Procurement Authorizations

Based on identified local capacity requirement (LCR) needs, in D.13-02-015 (issued in track 1 of the 2012 LTPP) the Commission authorized Southern California Edison Company (SCE) to procure up to 1,800 megawatts (MW) of additional resources in the Los Angeles basin local reliability area by 2021 and 215 to 290 MW of additional resources in the Moorpark sub-area of the Big Creek/Ventura local reliability area by 2021. All resources are to be located in the right places and possessing the right operational attributes to meet the identified LCR needs.^{7/}

Consistent with PG&E's recommended approach just discussed, these resources should be reflected in the trajectory and high load scenarios. This will allow the Commission to focus on what additional resources must be authorized in this proceeding, incremental to what has already been authorized. This is generally consistent with SCE's recommended approach, which is that 1,800 MW of resources due to the 2012 LTPP track 1 decision should be reflected in the analysis here.^{8/}

Similarly, the trajectory and high load scenarios should reflect any SCE procurement authorization adopted in track 4 of the 2012 LTPP. While that amount is not known at this time, one reasonable proxy, as discussed in PG&E's 2012 LTPP track 4 briefs, is to assume an incremental track 4 amount for SCE of approximately 1,500 MW.^{9/} Alternatively, the Commission could use the results of track 4 to set this assumption. The track 4 proposed

^{7/} D.13-02-015, pp. 130-132.

^{8/} SCE Comments, p. 3.

^{9/} R.12-03-014, PG&E Track 4 Reply Brief, p. 12.

decision is scheduled to be issued in the first quarter of 2014.^{10/}

C. The Trajectory And High Load Scenarios Should Assume That San Diego Gas & Electric Company Meets Its D.13-03-029 And 2012 LTPP Track 4 Procurement Authorizations

Based on identified LCR needs, in D.13-03-029 the Commission authorized SDG&E to procure approximately 300 MW of additional resources in southern California beginning in 2018, located at the right places and possessing the right operational attributes to meet identified LCR needs.^{11/} Consistent with PG&E’s general recommendation, these resources should be reflected in the trajectory and high load scenarios. This is consistent with SDG&E’s recommendations to include the 45 MW repowered Wellhead Escondido project, as well as the approximately 300 MW Pio Pico project, in the 2014 LTPP resource assumptions.^{12/}

Similarly, the trajectory and high load scenarios should reflect any SDG&E procurement authorization adopted in track 4 of the 2012 LTPP. While that amount is not known at this time, one reasonable proxy, as discussed in PG&E’s 2012 LTPP track 4 briefs, is to assume an incremental track 4 amount for SDG&E of 1,470 MW.^{13/} Alternatively, the Commission could use the results of track 4 to set this assumption.

V. THE PLANNING ASSUMPTIONS SHOULD REFLECT ALL LOAD ON THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR GRID, INCLUDING LOAD SERVED BY COMMUNITY CHOICE AGGREGATORS

In its opening comments, Marin Clean Energy (MCE) raises the question of “what is the degree to which departing load associated with [community choice aggregation (CCA)] should be reflected in the planning assumptions?”^{14/} While MCE makes no specific recommendation with respect to any of the proposed scenarios in its comments, MCE indicates that in “subsequent

^{10/} R.12-03-014, September 16, 2013, Assigned Commissioner and Administrative Law Judge’s Ruling Regarding Track 2 and Track 4 Schedules, p. 6.

^{11/} D.13-03-029, Ordering Paragraph 3, p. 27.

^{12/} SDG&E Comments, pp. 5-6.

^{13/} R.12-03-014, PG&E Track 4 Reply Brief, p. 12.

^{14/} MCE Comments, p. 2.

pleadings in this proceeding, MCE will provide factual and legal support for specific exclusions of CCA departing load.”^{15/}

PG&E will respond to MCE’s arguments regarding “specific exclusions of CCA departing load” if and when MCE makes them. One preliminary observation PG&E has regarding MCE’s assertions in its comments is that MCE appears to be continuing, as it did in track 4 of the 2012 LTPP,^{16/} to confuse (a) the investor-owned utilities’ bundled procurement obligations with (b) the Commission’s long-term planning analysis of the reliability of the CAISO grid, and the Commission’s determination of whether additional resources are needed to address system or local reliability needs. The two are, in fact, distinct.

With respect to the planning assumptions and scenarios to be adopted here and any subsequent modeling based on those assumptions and scenarios to evaluate the reliability of the CAISO grid, no change should be made to remove all or a portion of CCA load (or any other CAISO grid load (e.g., investor-owned utility load or direct access load)) from the analysis. In order to analyze the reliability of the CAISO grid it is necessary to evaluate the grid in its full complexity, including all of the resources and loads connected to it.

VI. THE ASSUMED LEVEL OF COMBINED HEAT AND POWER GENERATION IN THE TRAJECTORY CASE SHOULD NOT BE INCREASED

The Cogeneration Association of California and the Energy Users and Producers Coalition (CAC/EPUC) recommend a substantial increase in the number of MW of combined heat and power (CHP) generation that should be assumed in the base case.^{17/} CAC/EPUC’s recommendation should be rejected.

If deployed and operated in an inefficient way, additional conventional fossil fueled topping-cycle CHP generating facilities—unlike renewable generation or bottoming cycle

^{15/} MCE Comments, p. 2.

^{16/} See, R.12-03-014, PG&E Track 4 Reply Brief, pp. 18-19.

^{17/} CAC/EPUC Comments, p.3.

CHP—have the potential to increase GHG emissions.^{18/} The grid of the future will be significantly less GHG emitting than the grid today. In that context, additional CHP may not reduce GHG emissions. For example, a recent Lawrence Berkeley National Labs study commissioned by the California Air Resources Board to consider post-2020 GHG reduction targets found that retiring the existing CHP fleet could *reduce* statewide GHG emissions by 0.45 million metric tons of carbon dioxide (CO₂) in 2020 and 1.45 million metric tons of CO₂ in 2030.^{19/}

Additionally, given the expected increase in intermittent renewables, the grid of the future will need to be more responsive and flexible than it is today. Additions of large amounts of new inflexible generation, like traditional baseload CHP, may exacerbate grid reliability challenges associated with integrating intermittent resources. PG&E agrees with many of the concerns brought up by the Union of Concerned Scientists (UCS) regarding higher assumptions for CHP in the expanded preferred resources scenario.^{20/}

For these reasons, the amount of CHP assumed in the trajectory scenario should not be increased. Additionally, the Commission should adopt the recommendation PG&E made in its opening comments for lower additional CHP amounts in the expanded preferred resources scenario.^{21/}

^{18/} For example, the “CPUC Self-Generation Incentive Program: Tenth-Year Impact Evaluation Final Report” that Itron Inc. submitted to PG&E and The Self-Generation Incentive Program (SGIP) Working Group found that the net effect of all non-renewable SGIP CHP in 2010 was a 50,107 ton *increase* in CO₂ emissions. *See* p. 4-25. Materials located at: http://www.cpuc.ca.gov/NR/rdonlyres/CF952F3B-0C3C-481D-968A-420F92FC2901/0/SGIP_2010_Impact_Eval_Report.pdf

^{19/} “Estimating Policy-Driven Greenhouse Gas Emissions Trajectories in California: The California Greenhouse Gas Inventory Spreadsheet (GHGIS) Model.” Jeffery Greenblatt, LBNL-6451E, November 2013. Materials located at: <http://eetd.lbl.gov/sites/all/files/lbnl-6451e.pdf>

^{20/} UCS Comments On Additional CHP, generally.

^{21/} PG&E Comments, pp. 9-10.

VII. AS SMALL PHOTOVOLTAIC GENERATION BEHIND THE METER IS ANALYZED, IT IS IMPORTANT TO RECOGNIZE THE ADDITIONAL VARIABILITY THAT SOLAR GENERATION ADDS TO THE GRID

SCE recommends that in performing system flexibility studies, the intermittency (variability and forecast uncertainty) of small photovoltaic (PV) generation installed behind the meter should be modeled as a stochastic variable.^{22/} PG&E supports SCE's recommendation.

In "PLEXOS" deterministic simulations, small PV's intermittency is accounted for when calculating regulation and load following requirements, which are input to PLEXOS. In stochastic simulations that were discussed in the 2012 LTPP by Energy + Environmental Economics (E3) and SCE, PV generation is modeled stochastically to account for its intermittency.

VIII. PARTIES SHOULD BE ALLOWED TO EVALUATE ADDITIONAL SCENARIOS

In addition to the scenarios adopted by the Commission as a part of this proceeding, parties should be authorized to provide information and analysis on additional scenarios, as recommended by SCE.^{23/} As PG&E noted in its opening comments,^{24/} this will ensure that the Commission can consider the entire range of information that parties to the proceeding believe is important in determining the resources necessary to maintain the reliability of the CAISO grid.

IX. FOR POWER FLOW STUDIES CONDUCTED FOR USE IN THE LONG-TERM PROCUREMENT PLAN PROCEEDING AND THE TRANSMISSION PLANNING PROCESS, THE PLANNING ASSUMPTIONS SHOULD MAKE REASONED ASSUMPTIONS REGARDING THE LOCATION OF RESOURCES

For power flow studies underlying LTPP LCR analysis and TPP analysis, the size, location, and operating attributes of resources are all important variables that can have a significant effect on the outcome of the studies. Therefore, the planning assumptions should not blindly assume that all resources will be located in the right places, and have the right operating

^{22/} SCE Comments, Attachment A, answer to Q. 8.

^{23/} SCE Comments, p.5.

^{24/} PG&E Comments, p. 15.

attributes, to be 100 percent in meeting the requirements identified by power flow studies. Instead, reasoned assumptions should be made regarding the location and operating attributes of the resources, so that the power flow studies do not overstate the contribution that they can be expected to make toward maintaining grid reliability.

X. ADDITIONAL WORK WOULD BE NECESSARY BEFORE THE RENEWABLE PORTFOLIO STANDARD CALCULATOR COULD BE USED TO COMPARE THE RELATIVE MERITS OF ALTERNATE RENEWABLES PORTFOLIOS

Currently, the RPS Calculator cannot be used to compare the relative merits of alternative RPS portfolios. In that regard, PG&E shares SDG&E's concerns regarding the high distributed generation (DG) scenario. PG&E agrees with SDG&E's statement that

It has not been demonstrated that this scenario [high DG] presents a realistic and cost-effective way to meet the State's need, consistent with the Guiding Principles outlined in the Staff Proposal.^{25/}

In particular, one concern that PG&E has with the output of the RPS Calculator for the high DG scenario is the disproportionate amount of DG shown in the PG&E service area. Further, additional work would be needed to demonstrate that these higher levels of supply-side DG are practical and cost-effective.

Also, it is not clear that a reasonable approach has been developed for assigning such a high number of generic MW of incremental distributed solar PV to individual locations for use in the LTPP LCR studies or TPP reliability studies. The study results are likely to be significantly affected by how the MW are assigned to specific locations, but there is no reasoned way to make that assignment at this time.

Additionally, PG&E is concerned that the 40 percent RPS portfolio constructed by the RPS Calculator may not present a realistic portrayal of the resources that would be included in such a portfolio. PG&E understands that the Energy Division is updating the RPS Calculator in 2014.^{26/} PG&E supports that effort. However, this update will not be available in time for the

^{25/} SDG&E Comments, p. 5 (footnote omitted).

^{26/} "Attachment – Planning Assumptions and Scenarios for use in the CPUC 2014 Long-Term

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2014 LTPP. Energy Division notes that the updated RPS Calculator “would be especially important if considering potential RPS goals exceeding 33%.”^{27/}

XI. IF THE COMMISSION CHOOSES TO CONSIDER BROAD CLEAN ENERGY POLICY ISSUES IN THIS PROCEEDING, THEN EXAMINING THE QUALIFYING FACILITY/COMBINED HEAT AND POWER GENERATION GREENHOUSE GAS TARGETS SHOULD RECEIVE HIGH PRIORITY

PG&E recommends that the top priority in the 2014 LTPP be to determine whether additional resources are needed to ensure grid reliability with implementation of the 33 percent RPS.

However, if the Commission chooses to also consider broad clean energy policy issues, revisiting the qualifying facility (QF)/CHP Settlement GHG targets should be given high priority. This is one of the issues preliminarily identified within scope of the 2014 LTPP.^{28/}

In adopting the QF/CHP Settlement in D.10-12-035, the Commission designated the LTPP as the appropriate forum for future discussion of these targets.^{29/} In fact, the QF/CHP Settlement directly identifies the investor-owned utilities’ CHP GHG emissions targets as “subject to review and revision in the LTPP process.”^{30/} The Settlement specifies that the investor-owned utilities can justify not meeting the GHG targets if “[a] lack of need exists” for new CHP capacity.^{31/}

As discussed in section VI of these reply comments, in the future greater amounts of CHP may increase, rather than decrease, GHG emissions. Therefore, the question of whether the adopted QF/CHP emissions targets will serve their intended purpose, GHG emission reductions,

^{27/} Procurement Plan Proceeding and CAISO 2014-15 Transmission Planning Process,” pp. 15-16.
“Attachment – Planning Assumptions and Scenarios for use in the CPUC 2014 Long-Term Procurement Plan Proceeding and CAISO 2014-15 Transmission Planning Process,” p. 16.

^{28/} See, R.13-12-010, p. 5.

^{29/} D.10-12-035, pp. 18, 24-25.

^{30/} D.10-12-035, Appendix A, Attachment A, CHP Program Settlement Agreement Termsheet, Section 6.6. p. 33.

^{31/} D.10-12-035, Appendix A, Attachment A, CHP Program Settlement Agreement Termsheet, Section 6.9.3, p. 34.

or work against that target, is an important one that should be examined if any broad clean energy policies are to be examined in this proceeding.

XII. THE MAXIMUM IMPORT CAPABILITY SHOULD NOT BE INCREASED

UCS/Sierra Club may be proposing that the maximum import capability assumed in the planning assumptions should be increased, at least in some scenarios.^{32/} It should not.

Regional coordination is captured within the analytical process in that the production simulation models that have been used recently model the entire Western Electricity Coordinating Council area. Power is free to flow from one area to another. But regional coordination does not increase the maximum amount of MW available from one area to contribute to another area. For this reason, the maximum import capability should not be increased to capture increased regional coordination.

To the extent the Commission chooses to look at a policy scenario to investigate additional regional coordination, modeling should concentrate on reducing the cost of moving power from one area to another. If economic, this would allow additional power to flow between balancing areas.

Respectfully Submitted,

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^{32/} See, UCS/Sierra Club Comments, p. 14.