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.12-03-014 (Filed March 22, 2012)

COMMENTS OF PACIFIC GAS AND ELECTRIC COMPANY (U 39 E) ON THE ENERGY DIVISION DRAFT SCENARIOS

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Pursuant to the schedule set forth in the May 17, 2012, *Scoping Memo And Ruling Of Assigned Commissioner And Administrative Law Judge*, as modified in the August 12, 2012, e-mail ruling of the Assigned Administrative Law Judge, Pacific Gas and Electric Company (PG&E) provides these comments on the draft scenarios circulated to the parties by the Energy Division on August 2, and discussed at the August 24, 2012, workshop. PG&E is also submitting a separate document which contains additional information responding to the six specific technical questions circulated to the parties by the Energy Division on August 29, 2012.

PG&E appreciates the opportunity to provide comments on the draft scenarios and the Energy Division's workshop which provided additional information. PG&E applauds the Energy Division on its efforts thus far to address system need in Track 2 of this 2012 Long-Term Planning Process (LTPP) proceeding. However, as described below, PG&E has some concerns about the scenarios and technical assumptions underlying the scenarios. PG&E's overarching concern is that the various scenarios currently do not provide for consideration of a sufficient

range of uncertainty, which is an important element of planning to ensure reliability and operability of the system.

I. FOUNDATIONAL COMMENTS

PG&E agrees with the Commission's characterization that an important purpose of these scenarios should be to determine what new infrastructure should be constructed to ensure adequate reliability.[1,2] In order to accomplish this, scenarios should utilize combinations of assumptions, representing plausible future states of the world, to arrive at a reasonably wide range of system need. Scenarios should be constructed in a manner that can pave the way for robust analyses that must consider the various operating attributes of different types of capacity in order to determine the operating attributes that are more effective in meeting the identified need. With resources having the right attributes, fewer megawatts (MW) should be required to meet the identified need.

Laying the proper analytical foundation through proper construction of these scenarios will be critical to a Track 2 decision that determines the incremental operational flexibility needs of a system with such a high level of renewable resources. Specifically, given the "33% RPS" mandate, it is critical that each of the scenarios developed reflect a 33% renewable portfolio. However, during the August 24 workshop the Energy Division indicated that not all of the scenarios reflected a 33% RPS mandate. PG&E is concerned that: 1) the RPS build-out does not change with the different load scenarios; and 2) the RPS portfolio remains constant from 2022 through 2034. Regarding the former, given that the outcome of this analysis is to inform a decision on the operational flexibility needs of the system given the challenge of integrating a

[1] Workshop Presentation "R.12-03-012: Energy Division Straw Proposal – Planning Scenarios" at slide 6.
[2] Scoping Memo and Ruling of Assigned Commissioner and Administrative Law Judge, May 17, 2012 at pp. 8-9.

33% renewables portfolio, the level of renewables in each scenario should be appropriately tied to each scenario's load forecast. While the 2010 LTPP showed that the mix of renewables might not be an important driver of need, the overall level of renewables that is expected to be on the system is relevant to ensure robust analyses.

Regarding the latter, an RPS portfolio that remains constant from 2022 through 2034 is similarly contradictory to the RPS requirement. For this planning exercise, PG&E recommends that the RPS target stay constant at 33% of bundled load throughout the planning horizon and across each scenario, rather than simply holding the capacity and energy values constant.

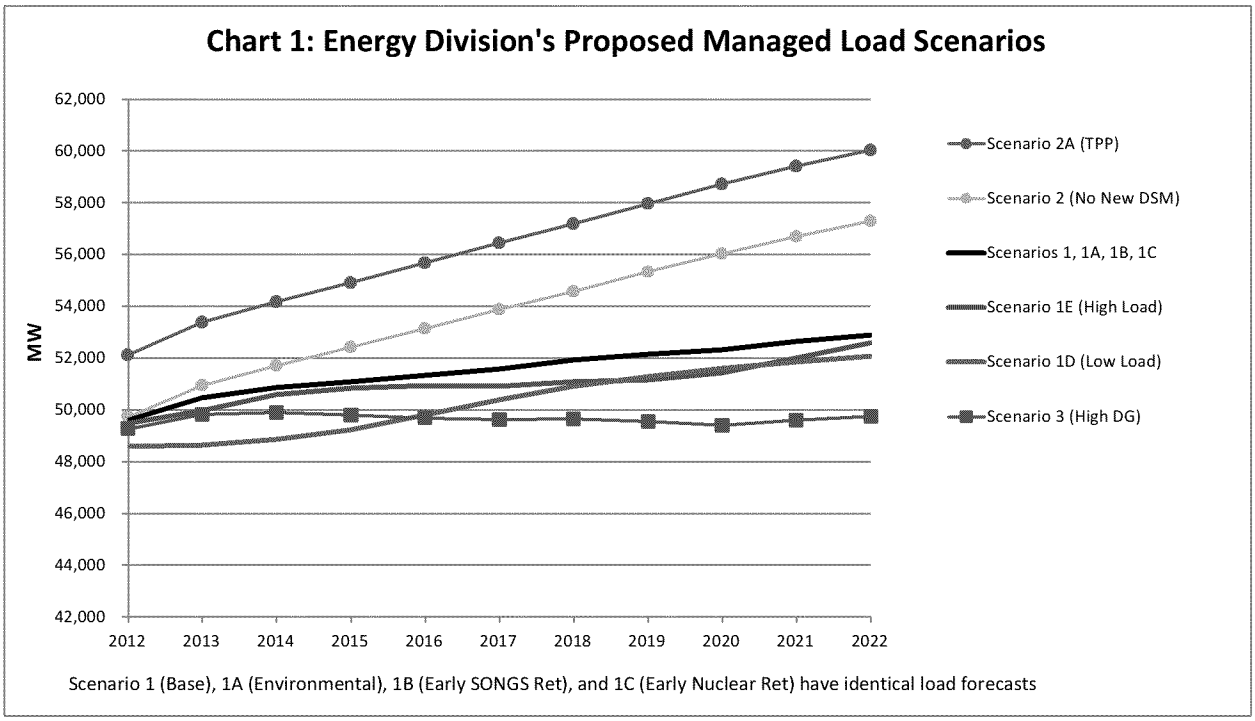
II. PROPOSED MODIFICATIONS TO DEMAND-SIDE ASSUMPTIONS

Demand Scenarios Must Demonstrate a Wide Range of Futures

Guiding Principle F states that infrastructure portfolios should be *substantially unique* from each other.[3] PG&E strongly supports this idea. It should be a fundamental principle used in developing the scenarios to be analyzed. It permits a broader, more robust evaluation of the various futures that may occur. To achieve this, the net effects of all the assumptions within a scenario must be meaningfully different when compared to other scenarios. Otherwise, it will not be possible to develop an informed range of likely future need.

As currently designed, the Energy Division's proposed scenarios and sensitivities do not exhibit this range. In particular, the Base, Environmental, High Load and Low Load scenarios and sensitivities all have managed[4] load forecasts that are within 800 MW of each other in 2022 (see solid black, red, and blue lines in Chart 1).

[3] Energy Division Proposed Scenarios for use in R. 12-03-014, August 2012, at p. 7.
[4] A managed load forecast refers to a forecast that has been adjusted to account for programs or expectations not embedded in the forecast. (P.4 of the Energy Division Proposed Scenarios for use in R.12-03-014, August 2012)



Further, the High managed load is lower than the Base case in all years and even lower than the low case for some years. This range of high and low managed load assumptions is too narrow for scenario planning purposes because:

1) it does not create a meaningfully broad range of what the future might be;

2) the High load is lower than the Base and Low loads; and

3) the range between the highest and lowest of the forecasted loads from 2013 through 2020 is actually greater than the range in 2022, implying that the uncertainty in the load forecast diminishes as time goes forward, which is counterintuitive.

A substantial cause of this too-narrow range is how the Energy Division has paired the High and Low unmanaged demand forecasts with the High and Low estimates for demand-side management (DSM) programs (e.g., Energy Efficiency (EE); demand-side Solar Photovoltaic (PV) and demand-side Combined Heat and Power (CHP) from the California Energy Commission's (CEC) report entitled *Energy Efficiency Adjustments for a Managed Forecast:*

Estimates of Incremental Uncommitted Energy Savings Relative to the California Energy Demand Forecast 2012-2022 (CEC Report)).

Energy Efficiency

The Energy Division proposes that the *low* incremental EE savings case in the forecast would correspond to the *low* unmanaged demand forecast, and the *high* savings case to the *high* unmanaged demand forecast. The Energy Division's current pairings of incremental EE with unmanaged load[5] for use in constructing load scenarios in the 2012 LTPP are contrary to the CEC's recommendation in the CEC Report. When constructing demand scenarios for use in the 2012 LTPP, the CEC's Incremental EE Forecast recommends:

- that the *high* incremental EE penetration case in the forecast would correspond to the *low* unmanaged demand scenario,
- the *low* savings case to the *high* unmanaged demand forecast, and
- the mid savings case to the mid unmanaged demand forecast.

PG&E supports the CEC's pairings of incremental EE assumptions with unmanaged demand. This will produce a range of managed load scenarios that is wide enough to capture the uncertainly in future demand.

The CEC has stated in its Report that in the unmanaged demand projections, low energy prices are associated with high demand and high prices with low demand.[6] Likewise, all else equal, high energy prices are associated with greater EE investment, and low energy prices are associated with lower EE investment because the economic value of EE investment is positively related to energy prices.

Demand-Side PV and CHP

[5] Energy Division Proposed Scenarios for use in R. 12-03-014, August 2012, at p. 15.
[6] California Energy Demand 2012-2022 Final Forecast, Publication Number CEC-200-2012- 001-CMF-VI, June 2012, p. 32, Table 1-17.

The CEC also provides insight into appropriate pairings of demand-side PV and CHP programs with its unmanaged demand forecasts. Similar to EE, the CEC has also paired high demand-side PV and CHP programs with their low unmanaged demand forecasts, and visa-versa when constructing its managed demand scenarios.[7] PG&E also supports these pairings for use in the 2012 LTPP.

PG&E recognizes that there are many assumptions that either foster or inhibit DSM program success. Since these opposing assumptions (e.g., high gas prices and low load growth) are present in the same scenario, the appropriate pairing should be set based on what will be most valuable for the intended analysis. Here, for the Track 2 analysis, providing a wide range of possible futures is of paramount importance in order to draw informed decisions. Therefore, the high unmanaged demand should be paired with the low DSM projects, and visa-versa.

PG&E's proposed pairing results in:

1) a meaningful range;

2) managed loads which are +/- 10% when compared to the base case by 2022; and

3) a range of uncertainty between high and low loads which increases over time.

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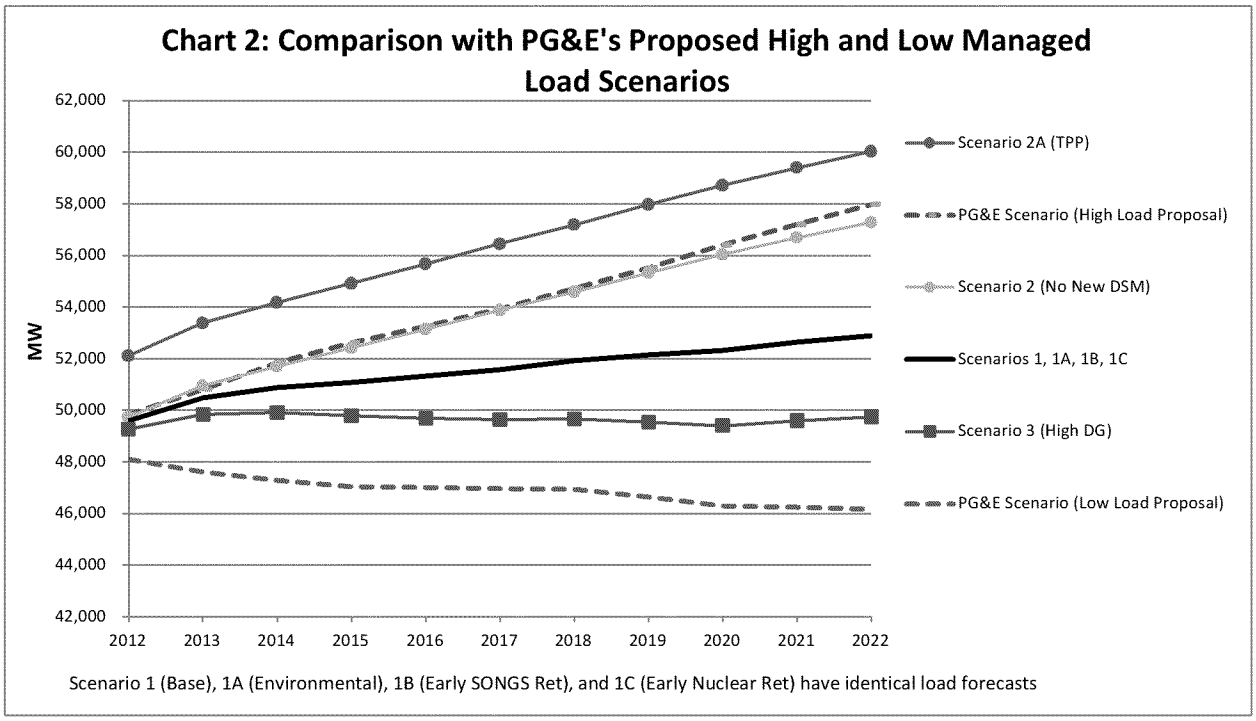
[7] Ibid.

Chart 2 shows how PG&E's suggested High and Low demand scenarios (dashed red and blue lines) compare to the Energy Division's other proposed demand scenarios.

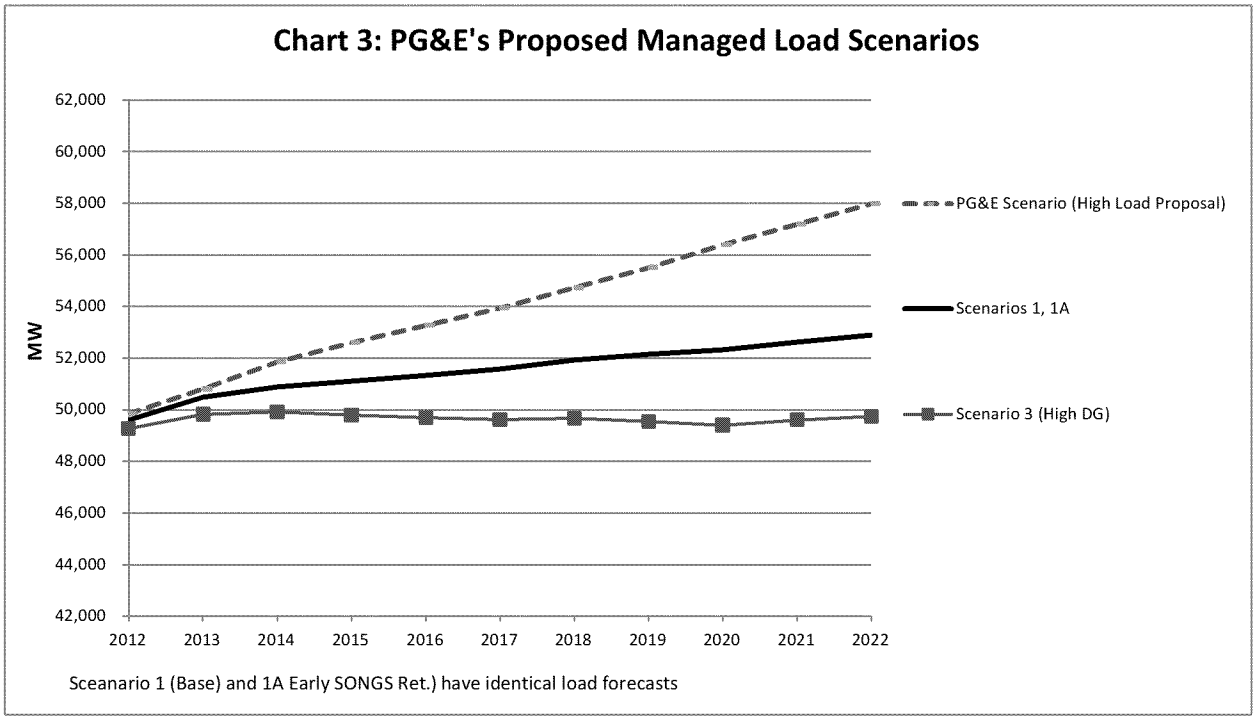


While clearly providing a wider range in demand, PG&E's high demand scenario is extremely close to the Energy Division's proposed Scenario 2 (No New DSM). On the surface, it may be easy to dismiss PG&E's high scenario as just the same as the No New DSM scenario and therefore suggest that the No New DSM scenario be a "high" scenario. However, the No New DSM scenario (and its associated TPP sensitivity), because it is constructed using a mid demand forecast with no incremental DSM, does not represent an appropriate way to characterize a "high" scenario.

Chart 2 also shows that PG&E's suggested Low demand scenario is lower than the Energy Division's High DG scenario. While PG&E would support a Commission decision to use such a load (since it does provide for a wide range), PG&E shares the Energy Division's concern that limiting the range of analyses to conform with resource constraints, while meeting

policy objectives for the current LTPP, is critical.[8] Therefore, PG&E proposes that the High DG scenario reflect a Low demand scenario.

Chart 3 summarizes PG&E overall proposal for the demand scenarios that should be used for this analysis.



III. PROPOSED MODIFICATIONS TO SUPPLY-SIDE ASSUMPTIONS

The "Low" Assumption For Imports Should Be Used For All Scenarios And Sensitivities

The selection of "Base" imports for all Scenarios and Sensitivities for use in long-term load and resource forecast should be changed to the lower "CEC" imports. The current selection of "Base" Imports using CAISO Maximum Import Capability (MIC) of 16,459 MW is inappropriate because: 1) it does not capture the level of simultaneous import limits into the

[8] Workshop Presentation "R.12-03-012: Energy Division Straw Proposal – Planning Scenarios" at slide 5.

CAISO system; and 2) it may overestimate the available supply of generation in neighboring regions that can reliably be counted on to meet California demand.

The CAISO in its work on renewable integration in the 2010 LTPP revised the import level it used to account for the simultaneous import limit.[9] This should be the cap of any assumption on imports used for the load and resource forecast. In addition, the expected decline of excess resources in neighboring regions for export to California increases the uncertainty about whether transmission lines will be able to be utilized up to their physical limits.

Of the three levels of assumptions presented in the ACR, the "low" assumption, developed by the CEC based on historical imports, best captures the amount of imports that should be considered for use in this year's long-term load and resource forecast.

IV. PRUDENT SCENARIO PLANNING

The environmental sensitivity scenario is not a critical case. The 2010 LTPP has demonstrated that changes in the *composition* of the RPS portfolio do not significantly change the results of the need analysis.

Additionally, given the current status of the SONGS plant, the need to limit the number of analyses in this LTPP, and fact that the other proposed nuclear retirement sensitivity (Scenario 1C) is not within the front 10 years of this LTPP's time horizon, PG&E suggests that the only nuclear retirement sensitivity which should be evaluated is a sensitivity that looks at the early retirement of SONGS (Scenario 1B).

The table below illustrates PG&E's modifications to Energy Division's Scenario Matrix. The modifications discussed in these comments and illustrated in this table: 1) provide a more plausible set of future outcomes; 2) produce scenarios that offer a wider range of need; 3)

[9]During the August 24 Workshop, the CAISO addressed the import issue and stated that the 16,459 MW was too high.

appropriately limit the number of analyses to conform to resource constraints; and 4) meet all policy objectives for the 2012 LTPP. This matrix reflects both demand-side and supply-side modifications (indicated by red text) consistent with PG&E's positions as described above and as discussed in PG&E's responses to Question #4 of Energy Division's Technical Questions.

			Demand					Supply								
	Scenario		Load	Inc EE	Inc PV	Inc CHP		Existing	Additions	Retirements	Renewable & Hydro Retirements*	Nuclear Retirement	RPS	Imports	Inc CHP	Inc DR
1	Base		Mid	Mid	Mid	Low		Base	Base	Mid	Low	Low	Commercial	Low	Low	Mid
~~1A~~	~~Environmental~~		~~Same as Base~~					~~Same as Base~~					~~Enviro~~	~~Same as base~~		
1A	Early SONGS Retirement		Same as Base					Same as Base				**Modified High (2015)**	Same as base	Same as base		
~~1C~~	~~Early Nuclear Retirement~~		~~Same as Base~~					~~Same as Base~~				~~High (2015)~~	~~Same as base~~	~~Same as base~~		
~~1D~~	~~Low Load~~		~~Low~~	~~Low~~	~~Low~~	~~Low~~		~~Same as Base~~								~~High~~
2	High Load		Low	Low	Low	Low		Same as Base								**Low**
~~2~~	~~No New DSM~~		~~Mid~~	~~None~~	~~None~~	~~None~~		~~Same as Base~~							~~None~~	~~None~~
~~2A~~	~~Replicating TPP~~		~~Mid (1 in 5 Peak weather)~~	~~Same as No New DSM~~				~~Same as Base~~							~~None~~	~~Low~~
3	High Distributed Generation		Same as Base		High	High		Same as Base					High DG	Same as Base	High	High

* As discussed in PG&E's responses to Question #4 of Energy Division's Technical Questions, renewable technologies include Wind, Solar, Biomass & Geothermal

Prioritization of Proposed Scenarios

PG&E recommends reducing the number of scenarios and sensitivities to three scenarios and one sensitivity, with the prioritization below.

1. High Load Scenario (as PG&E has proposed above)
2. Base Scenario
3. Nuclear Sensitivity
4. High Distributed Generation Scenario

PG&E chose its proposed scenarios and sensitivity to capture a reasonably wide range of system and operational flexible needs. The combination of supply and demand assumptions that comprise these scenarios permits a broader, more robust evaluation of the various futures that may occur.

If the Commission decides not to change the scenarios consistent with PG&E's recommendations, and maintains the scenarios as originally proposed by the Energy Division, PG&E recommends the following prioritization:

1. No New DSM Scenario
2. Base Scenario
3. Nuclear Sensitivity
4. All others.

If PG&E's proposed "high" demand scenario is not adopted, then PG&E cautiously recommends that the No New DSM Scenario be prioritized first, solely because numerically it provides a wider range when compared to the base case. However, PG&E reiterates that practically this scenario is not likely and sends the wrong message about how prudent planning for the system's needs should be conducted.

The Base scenario and a Nuclear sensitivity would be the next to be prioritized. For the remaining scenarios and sensitivities, PG&E does not have a preference as to the order they are prioritized since each of these cases provides substantially less value as currently constructed.

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V. CONCLUSION

For this Track 2 analysis scenarios need to capture a wide range of possible futures. PG&E's suggested changes to the Energy Division's original scenario proposal more accurately capture the fact that 33% of power will be from renewables under each scenario, and better reflect the range of possible futures through the creation of a wider range of managed loads and use of more realistic import assumptions.

Respectfully Submitted,

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