



**Commitment Cost Enhancements Initiative
July 1, 2014**

Submitted by	Company	Date Submitted
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Pacific Gas and Electric Company (PG&E) offers the following comments in the stakeholder process on the California Independent System Operator's (CAISO) June 10, 2014 Commitment Cost Enhancements Issue Paper and Straw Proposal and June 17, 2014 conference call.

PG&E supports the CAISO's efforts to ensure its optimization does not produce anomalous and inefficient results due to gas price volatility. As a secondary priority, PG&E supports CAISO's efforts to establish start-up and minimum load costs that best reflect day-to-day gas price variation and unit-specific costs; however, PG&E cautions against changes that are too broad or too hasty.

Regarding the prevention of inefficient dispatch prior to winter 2014/2015, PG&E's comments are as follows:

1. PG&E supports CAISO's proposal to manually update the gas price input when there is a day-over-day increase of 25% or greater in gas prices, and proposes CAISO similarly manually update the gas price input on days when there is a day-over-day decrease of 25% or greater in gas prices.

Regarding the effort to enhance start-up and minimum load cost mitigation, PG&E's comments are as follows:

2. Before retiring the registered cost option, CAISO should confirm the impact on hydro and pumped storage resources and should address transparency and arbitration issues with the start-up and minimum load cost approval process.
3. The implementation of an opportunity cost adder is premature at this time, but could be considered on a trial basis.
4. PG&E believes that a 25% proxy cost buffer applied to all resources during all hours may not sufficiently protect against the exercise of market power.

5. PG&E has also included other comments related to the pending Bidding Rules Initiative:
 - a. PG&E has concerns about the validation of intra-day gas trades due to the lower volume of gas traded and the lack of transparency into the intra-day gas market.
 - b. PG&E supports a movement toward using an index based on the single timely ICE gas price input instead of an index based on two lagged gas price indices.
 - c. PG&E recommends that CAISO monitor prompt month versus December delivery Greenhouse Gas (GHG) allowance trading volumes to ensure that the CAISO GHG index appropriately reflects market costs.

1. PG&E supports manually updating the gas price input to the single InterContinental (ICE) gas price index when gas prices increase by 25% or greater day-over-day; similarly, the gas price input should be updated for significant decreases in day-over-day gas prices.

PG&E supports the proposal to update the gas price input when there is a 25% increase in gas prices day-over-day. However, this initiative should be balanced in providing protection to load against unnecessarily high uplift costs due to gas price volatility in the same way it proposes to protect generators against unrecoverable operating costs due to volatility. Failure to update these costs as prices drop can lead to unnecessarily high prices and inefficient market outcomes. PG&E understands that CAISO's start-up and minimum load calculations serve as a bid cap and that units are permitted to submit lower bids; however, it is currently not mandatory that all market participants lower their start-up and minimum load bids when there is a significant decrease in gas prices so failing to include a symmetrical adjustment does not provide sufficient mitigation to protect load from potentially inflated prices.

Therefore, CAISO should manually update the gas price input when there is a 25% decrease in gas prices day-over-day.

2. Before retiring the registered cost option for all units, CAISO should a.) Confirm that the retirement will not affect the use of Master File registered start-up and minimum load costs for non-gas fired units, and b.) Improve the transparency of and arbitration process for start-up and minimum load cost review by Potomac Economics, particularly for existing contracts that have been approved by the CPUC.

PG&E supports using the most accurate possible costs in dispatching generation and views the proxy cost option as superior to the registered cost option in its use of a variable gas price input. However PG&E cautions against retiring the registered cost option without considering and protecting against unintended consequences. Specifically, PG&E seeks to ensure that non-gas fired resources are not negatively impacted by the retirement of the registered cost option and that start-up and

minimum load costs in existing CPUC-approved contracts are included in the unit-specific proxy cost calculation (e.g., as a major maintenance adder).

a.) PG&E seeks to confirm its understanding that the retirement of the registered cost option will not alter the tariff language such that the start-up and minimum load charges currently submitted by hydro and pumped storage resources change. It is PG&E's understanding that the proposed retirement of the registered cost would not alter the CAISO Tariff Section 30.4.1.1.2, which allows a proxy cost calculation for non-natural gas-fired resources either a.) Based on a formula described therein or b.) Specified by the scheduling coordinators and pursuant to certain formatting and validation provisions. PG&E would appreciate confirmation from CAISO that the proposed retirement of registered cost would not affect the status quo for hydro and pumped storage resources.

b.) PG&E appreciates the review of submitted start-up and minimum load costs to mitigate potential over-recovery, but is concerned about that lack of transparency in the methodology used to review the reasonableness of those costs and the arbitration process for disputing allowable costs. Currently, if Potomac Economics (Potomac) deems the start-up and minimum load costs contained in the contract are too high, PG&E's only routes to contest that assessment are: a) escalating the dispute to FERC, or b) requesting further review by Potomac (however, Potomac's criteria for assessment of reasonableness is not clear to or shared with market participants).

In such cases where Potomac's cost estimate was not sufficient to cover valid costs, currently parties can work around any discrepancy using the registered cost buffer of 50% over proxy costs. With the retirement of the registered cost option, PG&E is concerned that there will be actual contractual start-up and minimum load costs that will not fit within the allowed buffer. PG&E notes that costs in its contracts are validated for reasonableness through a competitive process (solicitations), often further reviewed by outside engineering firms, and then reviewed and approved by the CPUC.

To address this potential problem, PG&E proposes that CAISO change its arbitration process for determining start-up and minimum load costs and provide greater clarity as to how the reasonableness of costs are determined. After appeal to Potomac for further review and before filing with FERC, PG&E believes an intermediate step should be added where CAISO, or another non-market participant entity that is qualified to review the reasonableness of costs, should participate in appeals process to ensure that the costs are assessed in a way that recognizes the fact that the costs in these contracts have been substantiated in that they resulted from competitive solicitation processes and have been reviewed and approved.

In addition, the criteria against which the contracts are being judged should be made clear so that market participants can respond appropriately or, if the data is unavailable, provide explanations for contractual costs. For example, differences could result from assumptions made during the contracting process about which cost bucket to allocate maintenance costs or assumptions regarding future start-up and run-times around which there may be a great deal of uncertainty for new units. Additionally, PG&E believes it is imperative that the analysis consider regional differences when benchmarking against a larger pool of contracts for similar resources as labor and environmental restrictions in California may increase costs. PG&E is also concerned that the methodology used to determine the reasonableness of costs does not adequately reflect technological aspects of a facility: for example, appropriately distinguishing between hot start, warm start, and cold start costs which can vary significantly.

Increased transparency as to how start-up and minimum load costs are being assessed will improve the process of negotiating contracts going forward. PG&E also proposes that the CAISO and Potomac share their criteria for assessing minimum load and start-up costs with the CPUC so that there is better alignment between the regulatory approval process and the CAISO's mitigation.

3. The implementation of an opportunity cost adder for gas-fired resources is premature at this time, but could be considered on a trial basis.

The use of an opportunity cost adder to more efficiently dispatch use limited gas-fired resources is interesting and worthwhile to consider, but PG&E would like to see improvement in the functionality of the model, sensitivity testing to determine the best model inputs, and improved dispute processes before the opportunity cost adder is made a requirement for use limited gas-fired resources. PG&E would support a roll out of the cost adder on a trial basis for gas-fired resource in the interim as improvements are made.

Prior to implementation, PG&E suggests additional development of the model including work on the following:

Model Limitations

- a. Run the model with 15-minute pricing as proposed in the Revised Straw Proposal. PG&E agrees with CAISO that using 15-minute pricing is appropriate since unit commitment and de-commitment decisions are made based on the 15-minute real-time price;
- b. Increase efficiency of model by co-optimizing run-time and start-up limitations for gas-fired units subject to both types of limitation;
- c. Produce annual results for gas-fired units facing annual limitations. PG&E agrees with CAISO that the model should be expanded to an annual

optimization. PG&E would not support an optimization that allocates annual hour or start limitations between months prior to calculating the adder;

Model Inputs and Sensitivity Testing

- d. Determine whether the model better predicts future prices using the prior year's implied heat rate, the average implied heat rate based on multiple years, or a weighted average of implied heat rates with the most recent years weighted more heavily;
- e. Use forward gas prices instead of average prior month gas prices similar to the way the registered cost option is currently calculated;

Transparency and Process

- f. Explain coordination and consistency with the current Potomac process of calculating opportunity cost adders for default energy bids for gas-fired resources. PG&E would like to know if CAISO is proposing to calculate all opportunity cost adders and to be able to assess what changes would occur, if any, to the current process;
- g. Develop a dispute process similar to that for default energy bids (explained further below);
- h. Develop a mechanism to allow for adjustment if a use-limited gas fired unit is being dispatch too frequently and clarify whether there would be a back-stop limitation in the optimization to prevent units from violating limits;
- i. Publish a magnitude of the adders. This could be done as a percentage adder to proxy costs and could be provided as a distribution to protect sensitive unit information;
- j. Due to the complexity of the calculation and the reliability and cost risks of inefficient dispatch (for example, using up too many of a dispatch allotment early in the summer), allow external review of the model, preferably by the DMM.

PG&E proposes that the CAISO develop a dispute process similar to the default energy bids in recognition of the fact that the formula used to calculate the opportunity cost adder for gas-fired use limited resources may not capture all types of use limitations or differences between different types of units. For example, the Delta dispatch limitation is fairly complex and it would be unreasonable to develop a model so complicated so as to capture this limitation, but a negotiated adder for this unit may be feasible. This dispute process could be modeled after the dispute process for calculating default energy bids.

4. PG&E believes that a 25% proxy cost buffer applied to all resources during all hours may not sufficiently protect against the exercise of market power.

PG&E favors establishing a lower buffer to captures minor day-to-day gas price variation and addressing unit-specific costs through improvements to the proxy cost formula (including improving the process of approving major maintenance adder costs). Improving unit-specific cost calculations instead of applying a higher buffer

for all units will prevent the over-recovery of costs for units that do not need a large buffer. PG&E is concerned that establishing generous buffer on proxy costs to accommodate units currently on registered cost could increase overall uplift costs by increasing the mitigation cap for those units already on the proxy cost option. The proposed gas price input update threshold of 25% and the potential addition of the opportunity cost adder for use limited resources further reduce the need for a permanent 25% buffer even for those units currently on the registered cost option.

A tighter mitigation buffer would be reasonable if the proxy cost calculations were improved as PG&E suggested above through better aligning approved contractual costs and the costs allowed in the CAISO optimization. Additionally, PG&E supports mitigation bands that vary depending on market conditions. For example, under conditions when market power may exist, the band could be lower. These include minimum online commitment constraints that may commit units at minimum load based on location or during increasingly frequent low net load conditions where thermal resources are kept at minimum in anticipation of a ramp.

5. PG&E has also included other comments related to the pending Bidding Rules Initiative:

- a. PG&E has concerns about the validation of intra-day gas trades due to the lower volume of gas traded and the lack of transparency into the intra-day gas market. A lower volume of gas is traded in the intra-day market meaning that these prices would be more susceptible to market manipulation if ex-post cost recovery were allowed. Additionally, there is currently no index of intra-day trades, and, while trades performed on ICE are stored on ICE, intra-day bilateral trades are not recorded.

If CAISO were to adopt an ex-post recovery mechanism for intra-day gas price variation, the mechanism should reflect increases and decreases in price. Further, it would be appropriate to adjust the proxy cost cap downward to prevent double recovery; implementing both a higher buffer and a separate cost recovery mechanism would be redundant.

- b. PG&E urges CAISO to explore ways to use only the ICE gas price index instead of two lagged gas price indices to develop the gas price input without affecting the day-ahead market schedule. PG&E does not have concerns about the robustness of this index given the volume of trades and believes that using the timeliest possible index as an input on a daily basis may alleviate some generator concerns about intra-day gas price variation and the weekend gas price blocks.
- c. Although PG&E believes the current Greenhouse Gas (GHG) index calculation is appropriate, PG&E recommends that CAISO monitor prompt month versus December delivery GHG allowance trading volumes in the future to ensure that the CAISO GHG index appropriately reflects market costs. PG&E understands that the CAISO index relies on trading volumes for allowance prices scheduled for December delivery because the market for those allowances has the highest

volumes of trades and, therefore, produces the most reliable price. If trading volumes for prompt month increase to the point where the market is considered as robust as the market for December delivery allowance and if there are systematic price divergences between prompt month and December delivery prices, it may be appropriate to revisit the way CAISO calculates its GHG index.