

Comments of Pacific Gas and Electric Company
Commitment Cost Enhancements Phase 2 – Revised Straw Proposal

Submitted by	Company	Date Submitted
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Pacific Gas and Electric Company (PG&E) appreciates the opportunity to comment on the California Independent System Operator’s (CAISO) Commitment Cost Enhancements Phase 2 (CCE2) Straw Proposal.

PG&E’s chief comments are as follows:

1. Resource Adequacy (RA) hydroelectric resources should be exempt from generated bid rules, and RA regulatory must-take resources should be exempt from RUC obligations.
2. Generated bid and RUC exemptions for non-dispatchable RA resources should be in place prior to declassifying these resources as use-limited.
3. Resources should qualify as use-limited based on contractual limitations under certain conditions and, when reviewing use-limitation applications, CAISO should explicitly consider changing market conditions.
4. CAISO should confirm for what period of time SCs will be able to “test and fine tune” the opportunity cost calculations prior to the implementation of new must-offer obligations.
5. The working group meeting should provide an analysis of how the proposed calculations for opportunity costs compare to existing bid caps.
6. Scheduling coordinators (SCs) should have the opportunity to opt to develop their own opportunity costs, subject to CAISO review.
7. The proposed triggers for rerunning the opportunity cost calculation model are too specific; PG&E suggests using broader triggers.
8. Default major maintenance adder (MMA) values should not replace existing, approved MMA values. Additionally, CAISO should prioritize low-hanging improvements such as reflecting the difference between hot/warm/cold start-ups.
9. CAISO should establish two gas indices for the PG&E region to reflect different gas transmission costs faced by units on the gas transmission backbone versus units on the local gas transmission system.
10. CAISO should note that there is a fuel requirement for units transitioning into duct firing.

Generated Bid and RUC Exemptions

1. **Resource Adequacy (RA) hydroelectric resources should be exempt from generated bid rules to prevent infeasible dispatch, and RA regulatory must-take resources (RMT) should be exempt from RUC obligations.**

This initiative seeks to re-define use-limited resources and develop opportunity costs for use-limited resources so that the CAISO market optimization would economically dispatch resources instead of relying on static use-limited plans. As part of the CAISO's proposed redefinitions, certain categories of resources including variable resources and regulatory must-take resources would no longer be considered use-limited. PG&E previously expressed concerns that if these non-dispatchable resources are RA resources, CAISO would be inappropriately subject such non-dispatchable RA resources to bid insertion and RUC obligations. Such bid insertion rule and RUC obligations could result in infeasible dispatch instructions in real-time that do not reflect a unit's dispatch limitations.

In the CCE2 revised straw proposal, CAISO listed resource types that would be exempt from each generated bid rules (i.e., regulatory must-take, storage and variable) and RUC (hydro, pumping load, non-dispatchable use-limited, QF, and variable). The proposal states that these exemption changes were proposed by or as a part of the December 10, 2014 RSI working group. PG&E would like CAISO to clarify that while potential exemptions were discussed broadly in a presentation at the December 10 working group, no explicit proposal was presented or commented upon. PG&E submits the following comments on the exemptions listed in Section 6.1 of the CCE2 proposal although we understand that these exemptions will continue to be discussed and debated as part of the RSI initiative:

PG&E appreciates CAISO's efforts to exempt resources that are unable to respond in real-time from generated bid and RUC obligations. In addition to the resource types listed in Section 6.1 of the CCE2 proposal, CAISO should make the following additional exemptions:

First, hydroelectric resources should continue to be exempt from generated bid rules to prevent infeasible dispatch.¹ The water management of hydro facilities is highly complex and dynamic. Unlike gas-fired use-limited resources whose emission allowances or the price of emissions are known in advance, the limited resource that must be optimized for hydro resources is the supply of water, which is difficult to predict and can change in real-time based on a variety of factors.² Many hydro units are part of cascading systems so water availability for a given unit is dependent not only on precipitation but also on dispatch and non-energy requirements upstream. In addition to providing energy and ancillary services, hydro facilities must also comply with higher priority non-energy related mandates of safety, environmental, consumptive, irrigation, recreational and other licensing requirements.

Operating hydroelectric units in a way that complies with various mandates and reflects the varying availability of water is extremely challenging. Generating bids for hydro units may result in infeasible schedules because the schedules may conflict with non-energy mandates or other requirements. For example, it may not be possible to run a given unit despite water availability in order to, manage spill conditions for downstream units or to maintain reservoir levels for recreation at a given unit or a downstream unit or in order to comply with current or future water rights for irrigation. It is not clear

¹ The CAISO CCE2 describes exemptions to be determined under the RSI initiative. The CCE2 proposal lists hydro as exempt from RUC obligations but not generated bid rules (p. 15)

² CAISO previously recognized and respected the limitations of hydroelectric resources' generating capabilities in the FRACMOO initiative, adopting a 6 hour generation cap despite a 17-hour bidding requirement.

that it is possible to accurately and fully capture the complexity of the mandates on hydro facilities and the inter-dependence of units within a watershed system in an opportunity cost calculation.

Further, suggesting that SCs submit opportunity cost related outages for hydro units to prevent bid insertion would be both onerous and ineffective at preventing infeasible dispatch. It would introduce a significant burden on the SCs as well as a significant administrative burden on CAISO to review and assess claims of units whose nuances may be unfamiliar to the reviewer. Additionally, it may not be sufficiently expedient given review and approval times to reflect rapidly changing conditions.

Second, in addition to RA QFs, RA RMT resources such as nuclear and CHP resources should be exempt from RUC obligations to prevent infeasible dispatch. As PG&E commented previously, these RMT resources may be able to respond to day-ahead dispatch instructions but are often not be able to respond to real-time dispatch instructions due to either contractual limitations or physical inability to ramp. Assigning a RUC obligation to units unable to respond to real-time instructions could result in uninstructed imbalance changes for the resources if they are given real-time awards and would result in an under-procurement of RUC capacity for the market.

2. CAISO should clarify whether the generated bid and RUC exemptions for non-dispatchable RA resources will be in place prior to de-classifying these resources as use-limited

CAISO stated in this CCE2 revised straw proposal that it intends to coordinate the implementation of the CCE2 Phase 2 and RSI initiatives by phasing in the implementation of first the CCE2 opportunity cost adder and second the RSI expanded must-offer obligations. As explained in the proposal, this will allow scheduling coordinators (SCs) to fine tune the opportunity cost calculations. PG&E appreciates CAISO's intent in coordinating the two initiatives but notes that the RSI generated bid and RUC exemptions should be in place prior to the CCE2 implementation. The timing of the implementation of these exemptions is unclear in the proposal.

CAISO should confirm that the RSI generated bid and RUC exemptions will be in place prior to the CCE2 changes in the definition of use-limited resource. As PG&E noted in its previous comments, the use-limited flag serves as de facto protection from generated bid and RUC requirements for non-dispatchable RA resources including variable energy resources, regulatory must-take resources, and biomass resources. Declassifying these resources as use-limited in the CCE2 initiative would result in infeasible dispatch instructions. Using the must-offer flag to protect non-dispatchable and hydro RA resources from generated bid rules and RUC obligations as proposed as part of the RSI initiative is a feasible solution, but the must-offer protections must be in place prior to or coincident with the CCE2 use-limited declassifications.

Use-Limited Definition

3. CAISO should allow resources to qualify as use-limited based on contractual limitations under certain conditions and, when reviewing use-limitation applications, should explicitly consider changing market conditions.

PG&E appreciates the BPM change in the 12-31-14 BPM that states that SCs are required to submit use-limitation affidavit instead of the SC *and* generation owner. PG&E has three additional suggestions for approving units as use-limited:

First, PG&E recognizes that CAISO should not broadly allow any resource to qualify as use-limited based on contractual limitations alone. However, some contractual limitations under certain conditions should be accepted. Specifically, a contractual limitation should be accepted if the SC can demonstrate that the constraint reflects a regulatory or physical constraint. This concession is necessary and reasonable because some contracts are structured with start-up or run-time limitations that were calculated to reflect regulatory emission or other restrictions. These should be accepted by CAISO in the same way that an emissions permit is accepted so long as the SC can demonstrate that the contractual restrictions reflect regulatory or physical limitations.

Second, CAISO's review process should explicitly consider changing market conditions. The current process for registering resources as use-limited requires the submission of an explanation of why the resources is subject to limitations, environmental restriction documentation, historical data showing attainable MWhs, and other data as requested (BPM for Reliability Requirements, 6.1.4.1). In the past, this has resulted in CAISO denying use-limited status for some resources subject to emissions restrictions because its starts and run times were historically low despite sharp increases in the units utilization due to local congestion, low hydro output, or other conditions not reflected in historic dispatch. The approval process should therefore explicitly take into consideration any changing market conditions that may increase the frequency of dispatch (e.g., nearby plant outages, transmission outages).

Finally, CAISO should establish an arbitration process for instances in which there is a disagreement between the SC and CAISO regarding whether a resource qualifies as use-limited.

Opportunity Cost Adder

- 4. CAISO should confirm for what period of time SCs will be able to "test and fine tune" the opportunity cost calculations prior to the implementation of new must-offer obligations.**

CAISO proposes to phase the implementation of first the CCE2 opportunity costs and second the RSI expanded must-offer obligations in order to allow market participants time to test and fine tune the opportunity cost calculation; however, the duration of the testing period is unclear. CAISO should confirm the length of time that SCs will be allowed to fine tune the CCE2 opportunity cost calculation and bidding with an opportunity cost adder prior to the implementation of the RSI expanded must-offer obligation. This length of time should be sufficient for SCs to be confident that the opportunity cost adder functions as intended.

The calculation relies on complex and difficult to model nodal price predictions, and the potential consequences are large. Miscalculating the opportunity cost could result in reliability issues if the opportunity cost is too low: for example, a resource with limited annual starts could be dispatched frequently in the spring leaving it without remaining starts in peak summer months. Or, if the opportunity cost in the default energy bid is too high and an SC bids conservatively, this could result in higher prices when the resource is dispatched and under-utilization of the unit.

As currently described in the CCE2 proposal, the RSI expanded must-offer obligations are scheduled for the 1st quarter of 2016. If the CCE2 opportunity cost adder is not in place until the fall of 2015, SCs would only be able to fine tune the opportunity cost calculations during the low load winter months. It is critical that SCs are comfortable that the opportunity cost adder appropriately dispatches a unit during the times when it is most needed, typically in higher load months. Therefore, it may be more appropriate to allow SCs to fine tune the calculation over peak usage months before the expanded must-offer obligation is in place.

5. At the CCE2 working group meeting, CAISO should provide some context of the magnitude of the problem this initiative is attempting to resolve and an analysis of how the proposed calculations for opportunity costs compare to existing bid caps.

On the January 6, 2015 stakeholder call, CAISO announced a CCE2 working group meeting to be scheduled in late January 2015, but did not provide details of the topics to be covered. PG&E commends CAISO for proposing the meeting and believes this will be an excellent opportunity for stakeholders to review sample results. At the working group it would be helpful for CAISO to provide an estimate of the number of existing units (and their capacity) that would be eligible for opportunity cost adders to better understand the magnitude of the issue that the initiative is attempting to address. Understanding the magnitude will be helpful in determining the appropriate level of effort and complexity of the solution as well as potential risks. For example, if only a few units would qualify, reliability risks of misestimating opportunity costs would be significantly lower than if a significant number of units were eligible.

It is difficult to comment on replacing agreed upon values with unknown values calculated by CAISO (e.g., default energy bids). This is especially difficult when comparing existing default energy bids with CAISO's proposed methodology for calculating default energy bids because the existing methodology for calculating DEBs is not transparent.

At the working group meeting, CAISO should provide a comparison of existing values and values calculated by the proposed model. For the minimum load and start-up costs, CAISO should also provide data showing how the proposed bid caps (proxy formula plus 25% plus adder) compare to existing bid caps (registered cost with 50% buffer). For default energy bids, CAISO should provide stakeholders with a comparison between proposed values using the opportunity cost adder and existing values. CAISO could obscure any market sensitive data by providing aggregations or percent differences.

6. Scheduling coordinators (SCs) should have the opportunity to opt to develop their own opportunity costs, subject to CAISO review, instead of using the CAISO-developed opportunity cost.

PG&E proposes the following process for developing opportunity cost adders which retains the CAISO opportunity cost calculation as a soft cap but provides a mechanism for SCs to develop their own opportunity cost values:

- 1.) CAISO's proposed calculation methodology will establish a default value that automatically updates quarterly,
- 2.) Resources are allowed to submit any value up to the CAISO calculated value, and
- 3.) To submit values that may be higher than the CAISO proposed cap or that update more frequently than the proposed quarterly update schedule, an SC may submit a methodology

for calculating the opportunity cost. CAISO would then review the methodology for reasonableness. Once methodology has been approved, SCs would be able to update bid adders monthly or as needed intra-month (see comment 7) with a shortened review process.

When CAISO is evaluating any methodology proposed under option 3 listed above, it should take into consideration potential market power concerns. This would include considerations of the entity submitting the request. Specifically, CAISO should consider whether an entity both provides generation and serves load and, therefore, lacks an incentive to exercise market power, or whether that entity solely sells generation to the market.

7. The proposed triggers for rerunning the opportunity cost calculation model are too specific; PG&E recommends broad triggers that do not require anticipating all potential contingencies.

PG&E does not support defining specific incidents that trigger a rerun of the opportunity cost calculation model between quarters because it is not possible to anticipate all possible circumstances that would warrant a re-run. Instead, CAISO should investigate re-runs or allow SCs to request re-runs based on less specific triggers so that unforeseen circumstances are accommodated. These should include the following:

- 1.) Actual nodal prices that are significantly higher than the predicted nodal prices used in running the model. This would capture not only large line outages and gas price increases but other unforeseen circumstances (e.g., nearby generator outages, continued drought, significant congestion due to coincident smaller line outages or changes in electricity usage patterns).
- 2.) Significantly more frequent unit dispatch than expected based on allowed and historic dispatch; or
- 3.) Changes to the unit constraints or operating characteristics.

Default Major Maintenance Adder Values

8. Default major maintenance adder (MMA) values may be a useful way to reduce the administrative burden on CAISO and stakeholders, but these values should not replace existing, approved MMA values. Additionally, CAISO should prioritize low-hanging improvements to proxy cost calculations such as reflecting the difference between hot/warm/cold start-ups.

PG&E appreciates the work CAISO has done to improve the transparency of the MMA process and the work DMM has done in resolving outstanding MMA approvals. Any third party work done to establish default values to be used in lieu of contract-based MMA values should not impact existing MMA values that have already been reviewed and approved.

So long as those values do not replace existing, approved values, PG&E does not oppose developing default values in principle. CAISO should provide additional detail on the methodology for developing default MMA values. For example, values should reflect variation in costs depending on resource type, generator model, and unit age.

CAISO should also consider addressing low-hanging fruit that would improve the proxy cost calculation. Specifically, CAISO should reflect the difference in cost between hot/warm/cold starts. One way to accomplish this would be to accept the cold start cost and allow SCs to bid lower. In its annual report, DMM could assess units with hot/warm/cold start cost variations to determine whether bids are being adjusted based on whether the unit is still hot or warm. This would ensure generator cost recovery.

Gas Index

9. CAISO should establish a two gas indices for the PG&E region to reflect different gas transmission costs faced by units on the gas transmission backbone versus units on the local gas transmission system.

CAISO should develop multiple gas indices for the PG&E region (similar to currently practice in Southern California). These indices should reflect the sometimes large difference in gas transportation costs faced by units on the gas pipeline backbone versus units on the local transmission system. Currently, units on the backbone pay a gas transmission rate of \$0.19/MMBtu versus \$0.54/MMBtu for units on the local transmission system.³

Creating two different gas price indices would improve the proxy cost calculation by better reflecting the costs faced by generation, resulting in more efficient dispatch decisions and ensuring adequate cost recovery.

Transition Costs

10. PG&E continues to support CAISO's proposed changes to modeling transition costs for multi-stage generation units; however, CAISO should note that there is a fuel requirement for units transitioning into duct firing.

The assumption in the proposal (p.38-39) is incorrect. Units with duct firing (DF) configurations require transition fuel to go into the DF configuration. CAISO should define the proxy start-up fuel (e.g., the fuel required to bring the unit from offline to the start of the duct firing range, the fuel required to initiate duct firing when the unit has already reached the level required to start duct firing, etc.). As discussed on the January 6, 2014 stakeholder call, SCs can provide the transition fuel quantity in the master file.

³ The PG&E GTNS filing with CPUC proposes lower transmission rates for units on the backbone (\$0.12/MMBtu) and higher rates for units on the local transmission system (\$1.00/MMBtu) than currently changed. These rates were proposed for 2015, but the proceeding at the CPUC is ongoing.