Comments of Pacific Gas and Electric Company
Commitment Cost Enhancements Phase 2 – Draft Final Proposal

Submitted by	Company	Date Submitted
Erica Brown	PG&E	March 2, 2014

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) Draft Final Proposal.

PG&E's chief comments are as follows:

1. CAISO should combine the generated bid and RUC exemptions from the Reliability Services Initiative (RSI) and the use-limited definition revision from the CCE2 initiative into the same FERC filing.
2. CAISO should accept existing start and run-hour limitations, and should develop a methodology for translating air emission limits into start and run-hour limitations in Commitment Cost Enhancements Phase 3.
3. The definition of use-limited resources should be revised to include operational limits on capacity "due to the actual design of the resource," consistent with example provided in the proposal.
4. CAISO should exempt all storage resources from generated bids instead of exempting only subsets of storage resources (i.e., NGR and pumped hydro).
5. CAISO should provide stakeholders with a detailed plan for implementing tariff changes expediently following a CPUC decision on the Natural Gas GHG proceeding.
6. PG&E supports CAISO's decision to delay developing an opportunity cost adder for use-limited resources and looks forward to participating in a working group to review and discuss the following:
    a. A comparison of the status quo and proposed calculations;
    b. An overview of the scope of the issue being addressed;
    c. The appropriate entity for developing opportunity costs; and
    d. Triggers for recalculating opportunity costs.
7. Improvements in the commitment cost formulas should be accompanied by reducing existing mitigation buffers to ensure that mitigation effectively prevents unnecessary uplift.

Initiative Coordination for FERC Filing

1. **CAISO should combine the generated bid and RUC exemptions component from the Reliability Services Initiative (RSI) and the use-limited definition revision from the CCE2 initiative into the same FERC filing. Exemptions for non-dispatchable RA resources must be in place prior to declassifying these resources as use-limited in order to prevent infeasible dispatch.**

CAISO should combine the bid insertion and RUC exemptions from the RSI proposal and the redefinition of use-limited resources from the CCE2 proposal into the same proposal because the potential negative market impacts of revising the definition without having the exemptions in place are large, as described below. One straightforward solution is to move the exemptions from RSI to the CCE2 initiative filing; this would not substantively alter either of the proposals but mitigates potential risks.

As PG&E noted previously in comments, the use-limited designation currently serves as de facto protection from bid insertion and RUC obligations for RA resources that are incapable of responding to real-time dispatch instructions (e.g., VERs, CHP resources, and regulatory must-take resources such as nuclear). PG&E is pleased that CAISO intends to address this issue by exempting all previously protected resources from bid insertion and RUC obligations. Specifically, in the RSI proceeding CAISO has stated that the intent is not to change the current policy and that CAISO would identify and exempt resources that currently are considered use-limited but will not be under the new definition. CAISO states that the exemptions in the RSI initiative would be concurrent with changes to the use-limited definition in the CCE2 initiative.[1]

While we appreciate CAISO's policy decision, separating these elements into two separate initiatives and filings to FERC would introduce risk if these CCE2 initiative changes are approved and the corresponding RSI are not. Filing these elements separately at FERC will unnecessarily complicate FERC's review process, as the impact of the definition change proposed in CCE2 is contingent on FERC's decision on the tariff changes proposed in RSI. PG&E is concerned that submitting separate but codependent filings could result in an outcome that is not consistent with the CAISO's policy objectives.

Additionally, the negative impact of FERC approving CCE2 without approving RSI is large. If the CCE2 initiative is approved but the RSI initiative is delayed or rejected, resources that are currently protected from bid insertion or RUC obligations could be subject to those obligations until the RSI exemptions are approved. CAISO may not be able to dictate the order in which FERC reviews and rules on these initiatives. As we observed with the CCE Phase 1 filing, FERC does not always act according to the requested timeline and may identify issues that delay implementation.

Use-Limited Definition Revision

2. **CAISO should accept existing contractual start and run-hour limitations. In Commitment Cost Enhancements Phase 3 (CCE3), CAISO and stakeholders should explore and develop a reasonable methodology for translating environmental or design restrictions into start and run-hour limitations for future contracts.**

[1] Reliability Services Initiative, Draft Final Proposal Stakeholder Call Presentation. Slide 12. Available here: http://www.caiso.com/Documents/AgendaPresentation-ReliabilityServices-DraftFinalProposal.pdf

CAISO has stated that it will only accept use limitations due to environmental (most commonly air) or design limitations, and will not accept contract-based restrictions. However, CAISO has not proposed a clear methodology for translating environmental or design restrictions into start or run-hour limitations nor has CAISO fully addressed potential reliability implications that could occur as a result of disallowing contractual start and run-hour limitations.

Without understanding how CAISO intends to translate environmental and design limitations, it is impossible for stakeholders to determine what impact this policy change will have on its portfolio. Further, if the accepted limitations are lower than contractual limitations, PG&E is concerned that this could result in more restrictive bidding of the units, potentially inflated demand for RA, and risk of inefficient use of the resources' limited starts and run-hours.

In the absence of a clear methodology to translate these impacts, CAISO should accept existing contractual use-limitations.

a.) *Translating Environmental or Design Restrictions into Use-limitations*. Air permits restrict a unit's emissions, but generally do not proscribe start or run-hour limitations. Developing these restrictions is complicated in that assumptions about one parameter affect the other (e.g., a unit with 365 starts will be able to run for a longer time after each start than a unit with twice as many starts, and vice versa).

Additionally, the operating assumptions made at the time a unit is permitted by an air board may not – and may be unlikely to – hold true in subsequent years. For example, air emission studies supporting an air permit are prepared based on start and run-hour limitations. These assumptions are based on a projection of how a unit will be run and may be based on best available knowledge of similar units or local pricing patterns.

However, in PG&E's experience, a unit's dispatch may vary widely from those assumptions due to changing conditions. These include but are not limited to the following:

1. Local congestion due to transmission work,
2. Drought in an area that typically is supplied by a substantial amount of hydro generation, or
3. Balancing the increasingly high penetration of intermittent and difficult to accurately forecast renewable generation.

For example, a unit that was anticipated to dispatch primarily during peak evening hours may be increasingly dispatched during the morning ramp as well if ongoing transmission work constrains the area. Or, a unit that is able to quickly start and ramp may be increasingly dispatched outside of the evening ramp, when it was projected to be dispatched, if renewable generation is over-forecasted. Notably, while transmission work and drought may be recurring but temporary conditions, renewable penetration will continue to increase.

To date, CAISO has proposed no methodology to translate restrictions into use-limitations. Currently, scheduling coordinators and/or counterparties have performed these assessments, with some buffers built in to ensure flexibility if a unit is operated in a way different than intended. These use-limitations are included in the units' contracts.

b.) *Potential Reliability Impacts*. Even if CAISO does not recognize a unit's contractual use-limitation, a scheduling coordinator cannot compel that unit to generate beyond its contractual limitations. Market participants will have two options:

1. Not show these resources as RA, or
2. Show these resources as RA, but without a use-limited exemption from bid insertion and RUC obligations. SCs will then potentially run through the unit's start or run hour limit prematurely and, subsequently, not be able to use the unit at all.

If a participant opts not to show these resources as RA (option 1), the units will continue to be bid in a static way based on forecasts rather than actual price signals. Additionally, this would require an unnecessary increase in RA costs as LSEs would procure RA from another unit. This is unnecessary as participants currently are able to show these units without causing significant reliability concerns.

If a participant opts to show the resource and the unit is subject to bid insertion and RUC obligations (Option 2), the SC risks prematurely using up a unit's limited starts and run-hours. This is especially likely to create a problem if conditions such as high local congestion due to transmission work or drought impacts cause a unit to be dispatched at increased frequency, as has been observed in the past year. This could render a unit un-usable at precisely the time and in precisely the location that a unit is most needed – the very intent of establishing opportunity costs. This may also result in an increase of out-of-market actions, such as exceptional dispatch or capacity procurement mechanism.

While PG&E understands the market power concerns associated with accepting all contractual limitations going forward, particularly in the event that these units are granted opportunity cost adders, we believe it unnecessary to disallow all existing contractual limitations. These contracts were signed under regulatory oversight through a competitive solicitation process, pre-date any opportunity cost adder or use-limited registered cost option carve out, and were not designed to exercise market power.

PG&E would support considering the appropriate methodology to translate environmental or design restrictions into start and run-hour limitations for future contracts in CCE3.

3. **The definition of use-limited resources should be revised to include operational limits on capacity "due to the actual design of the resource," consistent with examples provided in the proposal.**

The CCE2 proposal would change the definition of use-limited resources to include a smaller subset of resources that are subject to limitations that cannot be captured by the CAISO optimization. As currently written in Table 3 of the Draft Final Proposal, the revised definition of use-limited resources does not reflect operational limitations. This omission conflicts with statements elsewhere in the proposal that operational limitations are an acceptable use-limitation. Specifically, the proposed definition accounts for only "restrictions on its operation established by statute, regulation, ordinance, or court order" whereas elsewhere in the proposal (Table 4) limitations "due to the actual design of the resource…largely applicable to hydro, pumped storage, participating load, and combined heat and power"[2] are explicitly outlined as acceptable use limitations.

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[2] Commitment Cost Enhancements Draft Final Proposal, Table 4. Pg. 9-10.

To be consistent with the policy objectives outlined elsewhere in the paper PG&E suggests the following revisions to the revised use-limited definition (proposed changes underlined and in blue):

> "Capacity with limitations or restrictions on its operation established by statute, regulation, ordinance, or court order or due to the design of the resource that cannot be optimized by the appropriate ISO commitment process without allowance for opportunity costs."

Bid Insertion Exemptions

4. **CAISO should exempt all storage resources from generated bids instead of exempting only subsets of storage resources (i.e., NGR and pumped hydro).**

PG&E supports CAISO's proposal to exempt non-generator resources (NGRs) and pumped hydro resources from bid insertion rules[3]; however, CAISO should extend these exemptions broadly to all RA storage resources instead of to a subset of storage resources. Not all storage resources are pumped hydro or NGR.[4] For example, compressed air energy storage (CAES) resources is not classified within either of these groups. Because the concerns about inserting bids for storage resources are common to all storage types, it is unnecessary to distinguish by technology.

PG&E understands that CAISO does not monitor the state of charge (SOC) for storage resources, other than 15-minute regulation energy management (REM) only resources. If the optimization does not account for the SOC of the resource, generated bids may be infeasible if the resource has exhausted its storage capacity. For this reason it is inappropriate for CAISO to insert bids for storage resources at this time.

Coordination with CPUC Natural Gas GHG Proceeding

5. **CAISO has deferred making a decision on how resources that are not covered entities under CARB C&T will be able to bid in indirect GHG costs until after CPUC makes a determination in the ongoing Natural Gas GHG Phase 2 proceeding. In the interim, CAISO should provide stakeholders with a detailed plan for implementing tariff changes expediently following a CPUC decision.**

Currently, CAISO allows units that are covered entities under the California Air Resources Board (CARB) cap-and-trade (C&T) program to reflect compliance costs in their bids. Covered entities include units that emit over 25,000 MTCO2e per year and units under the threshold that opt into the C&T program.

Starting on January 1, 2015, the CARB C&T program was extended to include fuel suppliers, including natural gas suppliers. The implication of this is that units that are not covered entities under C&T may

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[3] Reliability Services Initiative, Draft Final Proposal Stakeholder Call Presentation. Slide 11. Available here: http://www.caiso.com/Documents/AgendaPresentation-ReliabilityServices-DraftFinalProposal.pdf

[4] CAISO defines non-generating resources (NGRs) as resources that have the capability to serve as both generation and load and can be dispatched to any operating level within their capacity range (CAISO Tariff, Appendix A), such as flywheels, lithium ion batteries, and electric vehicles. However, per CPUC regulations, potential storage resources that will be connecting to the grid include a broad range of technologies that may not be classified as NGR.

face indirect compliance costs through the purchase of fuel. However, although the C&T compliance obligation on gas suppliers exists today, units purchasing natural gas will not face the C&T compliance costs incurred their natural gas suppliers until the CPUC makes a decision in its ongoing Natural Gas GHG Phase 2 Proceeding.

In the CCE2 Draft Final Proposal, CAISO deferred a decision on how a natural gas fired resource that is not a covered entity will be able to bid its GHG costs until there is direction from the CPUC. Assuming these costs are not included in the gas index price, CAISO proposes allowing all natural gas-fired resources to reflect C&T compliance costs. The schedule for implementing such as change is unclear.

Waiting for CPUC approval before acting creates a very tight timeline for the completion of a CAISO stakeholder process, tariff waiver submission to FERC, FERC review and approval of the submission, and implementation of the necessary IT changes and upgrades for CAISO and stakeholders. As currently proposed, the CPUC will issue a proposed decision in June 2015 with a final decision in July 2015.[5] The decision will include the natural gas utilities' revenue requirement for complying with C&T as well as the cost allocation methodology and customer rate design. Following the CPUC decision, PG&E estimates a minimum 6 to 8 month lag before these rates are rolled out to customers.

CAISO should provide stakeholders with a detailed plan, including a timeline of CAISO action, for implementing the necessary tariff changes to allow these indirectly covered units to bid their costs. The plan should demonstrate the feasibility of implementing a change between the date of a CPUC decision and the date rates are rolled out to customers and should assume that that period is no longer than six months.

Commitment Cost Enhancements Phase 3

6. **PG&E supports CAISO's decision to delay developing an opportunity cost adder for use-limited resources and looks forward to participating in a working group to discuss outstanding issues.**

In the Final Draft Proposal for the CCE2 initiative, CAISO deferred a decision on calculating opportunity costs for use-limited resources until a newly announced Commitment Cost Enhancements Phase 3 initiative. As PG&E previously stated in comments, opportunity cost calculations are complex, and the impact of miscalculating an opportunity cost can be large. PG&E supports CAISO's decision to take additional time to allow stakeholders to work through outstanding issues.

Some of the issues that PG&E anticipates needing further discussion include the following:

a. Analysis comparing the status quo (e.g., registered cost, default energy bids) and proposed calculations;
b. An explanation of why CAISO believes this issue needs to be addressed and, specifically, what types of problematic bidding behavior CAISO has observed that the proposal would prevent;

[5] This schedule was outlined in the CPUC Natural Gas GHG OIR (R.14-03-003) Phase 2 Scoping Memo and Ruling and assumes no hearings. Formal hearings would delay the schedule. There were no formal hearings for Phase 1 of the proceeding.

c. An overview of the magnitude of the issue, including existing use-limited capacity, time intervals in which this capacity is unavailable due to use-plan constraints, and who manages this resources (LSEs, IPPs, etc.);
d. The appropriate entity for developing opportunity costs and mitigation options if scheduling coordinators develop those costs instead of CAISO; and
e. Triggers for recalculating opportunity costs.

7. **In both CCE3 and the Bidding Rules Initiative, improvements in the commitment cost formulas should be accompanied by reducing existing mitigation buffers to ensure that mitigation effectively prevents unnecessary uplift.**

As CAISO indicated to FERC in its Deficiency Response for the CCE1 filing[6], the Bidding Rules Initiative stakeholder process will explore changes to the proxy cost formula to better reflect non-gas related variable costs that are currently captured in the 25% proxy cost buffer. PG&E believes it is also important to couple discussions of improvements in the mitigation formulas in CCE3 with discussions of appropriate buffers as effective improvements to the commitment cost mitigation formulas should ensure cost recovery with lower buffers.

For example, a number of additional improvements to the mitigation formulas in CCE3, that will improve the ability of the formula to reflect unit-specific costs. These include the opportunity cost adder, reflecting different costs between units on the gas transmission backbone and units on local gas transmission systems in the gas indices, and improving in the start-up calculations to reflect hot, warm or cold starts.[7] It is important that these and other improvements are accompanied by reductions in the existing 25% buffer on the proxy cost calculations afforded to all units and the elimination of the registered cost option.

Similarly, it is important that CAISO revisit those changes made in CCE1 that allow CAISO to manually update the gas price index on days when there is a 25% or greater day-over-day increase in gas prices. Specifically, CAISO should revisit updating the gas price index when there is a 25% decrease in gas prices from one day to the next day as well. This issue was also highlighted by FERC in its Deficiency Response to the CCE1 filing to be addressed in the Bidding Rules Initiative and described in an August 1, 2015 status update to FERC. If the Bidding Rules Initiative is not scheduled to start by August 1, it may be appropriate to address this issue in the CCE3 initiative as well.

PG&E appreciates that in mitigating commitment costs, CAISO must balance multiple, sometimes competing factors: ensuring adequate cost recovery, maintaining tight mitigation protections, and managing administrative burdens on CAISO's staff. However, CAISO has already demonstrated some success in identifying improvements to the formula that are achievable, better reflect unit-specific costs, and are widely supported: transition costs for multi-stage generating units in CCE2. PG&E urges CAISO to

[6] FERC Order Accepting Propose Tariff Revisions and Directing Informational Filing. December 30, 2014. ER15-15-000 and ER15-15-001.

[7] PG&E's comments on the Revised Straw Proposal outline the need for establishing different costs for hot/warm/cold starts and different indices for units on the backbone versus on the local gas transmission system. These comments are available here:
http://www.caiso.com/Documents/PGEComments_CommitmentCostEnhancementsPhase2-RevisedStrawProposal.pdf

continue identifying similar opportunities to improve commitment cost mitigation calculations *and* to accompany those improvements with reduced buffers.