Comments of Pacific Gas and Electric Company on Commitment Costs and Default Energy Bid Enhancements Draft Final Proposal

Submitted by	Company	Date Submitted
Cristy Sanada *C8SW@pge.com; (415) 973-2718*	*Pacific Gas and Electric Company*	*September 12, 2017*

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to comment on CAISO's Commitment Costs and Default Energy Bid Enhancements (CCDEBE) Draft Final Proposal.

PG&E supports components of CAISO's Draft Final Proposal, but continues to have concerns about committing to move forward with a dynamic mitigation and market-based commitment cost offer design while questions remain regarding design details and feasibility. CAISO can pursue bid and reference design enhancements first and fully comply with FERC Order 831 without this design component. Additionally, PG&E believes potential market benefits and feasibility of introducing dynamic commitment cost mitigation have not been demonstrated and a subset of design changes proposed in CCDEBE will address the majority of stakeholder concerns that spurred the initiative. PG&E generally supports processes for developing negotiated proxy costs, ex ante reference adjustments, and enabling hourly Min Load Cost bidding but has clarifying questions on parts of the Draft Final Proposal related to these design components.

The following points/items are discussed in detail in the subsequent section:

1. **PG&E has concerns about maintaining dynamic commitment cost mitigation as part of the CCDEBE design package scheduled to go to the Board in November; PG&E encourages CAISO to phase dynamic commitment cost mitigation design and implementation allowing more time to study, test, and evaluate design options and better aligning this effort with forthcoming Real Time market changes.**
2. **PG&E does not support dynamic commitment cost mitigation as detailed in the Draft Final Proposal. In its current form, the design requires further explanation and clarification.**
3. **PG&E supports CAISO's proposed process for requesting ex ante reference cost updates, and ex post reference adjustment request reviews. However, PG&E requests additional detail and clarification on reasonableness thresholds and ex post review criteria.**
4. **Clarifying questions on Hourly Min Load Cost variation**
5. **Comments on RDRR bids**
6. **Comments on scaling penalty prices to conform with the $2,000/MWh offer cap**

Comments

1. **PG&E has concerns about maintaining dynamic commitment cost mitigation in the CCDEBE design package scheduled to go to the Board in November; PG&E encourages CAISO to phase dynamic commitment cost mitigation design and implementation allowing more time to study, test, and evaluate design options and better aligning this effort with forthcoming Real Time market changes.**

   Importance of Testing/Simulation:
   PG&E believes testing of the dynamic commitment cost mitigation design is needed before taking a design to the Board and FERC. Without any assessment of how the design will function in the market, it is very difficult for stakeholders to assess benefits or risks to stakeholder portfolios associated with CAISO's design. CAISO has not provided an indication of whether it expects its mitigation design will result in resources being mitigated more or less than the current bid cap structure, or the extent of constraints that may be tested and designated non-competitive under the new design. PG&E believes CAISO should at the very least, provide analysis of constraints that would have been marked as critical and subsequently which constraints would have been considered non-competitive based on historical Local Market Power Mitigation (LMPM) runs in the Integrated Forward Market (IFM) and fifteen-minute markets (FMM) under CAISO's proposed design.

   CAISO notes the following in its Revised Straw Proposal: *"…this straw proposal to pursue these enhancements is contingent upon completion of its evaluation of the feasibility and capital costs associated with enhancements relative to the benefits. CAISO will finalize this assessment and provide information in its draft final proposal. If cost benefit analysis indicates feasibility and stakeholder comments continue to support this direction, the CAISO would consider phasing the implementation of this initiative so that the mitigation enhancements are implemented either simultaneously with the planned Real-time Market Enhancements initiative or shortly after. This initiative will make changes to the functionality associated with each of the various market runs comprising the real-time market so it would not be efficient to introduce commitment cost market power mitigation into the real-time market until the CAISO makes those changes."*[1] Additionally, in the Draft Final Proposal CAISO notes that, *"The proposal to pursue market-based commitment cost offers is contingent on the CAISO finalizing a feasibility and costs assessment for dynamic market power mitigation that would have to accompany it."*[2] CAISO has not yet provided this assessment to stakeholders and indicated on the 8/30 Stakeholder Call that it does not intend to do so, assessing internally that the design is feasible. PG&E continues to encourage CAISO to provide this

[1] "Commitment Costs and Default Energy Bid Enhancements Straw Proposal." California ISO. June 30, 2017. P 14. http://www.caiso.com/Documents/StrawProposal_CommitmentCosts_DefaultEnergyBidEnhancements.pdf
[2] "Commitment Cost and Default Energy Bid Enhancements Draft Final Proposal." California ISO. August 23, 2017. P 43. http://www.caiso.com/Documents/DraftFinalProposal_CommitmentCosts_DefaultEnergyBidEnhancements.pdf

assessment to stakeholders to help them understand the decision to continue moving forward expeditiously with this design and to identify any potential implementation shortcomings.

PG&E believes stakeholders should be assured that the following items are considered and have been tested before this design is put into in the market:

- What is the impact of the mitigation on the solution times in both the day-ahead and real-time markets for the same solution quality as today? For future improvements in the solution quality?
- Mitigating commitment costs may change the commitment solution. How many commitment cost mitigation passes will CAISO run and what, if any, run time increases do tests show for the same solution quality as today?

Interaction of this design with forthcoming Real-Time market changes:
PG&E does not see the urgency to take this design to the Board in November given components of this design will likely change in accordance with changes CAISO is contemplating to its Real Time Market, and CAISO plans to implement this design at the same time or after RT market changes go into effect. PG&E believes it is prudent to develop this design in tandem with the forthcoming RT Market Enhancements Initiative as the design and implementation scope must be reevaluated pending any changes to frequency of commitment decisions or optimization horizons.

2. <u>PG&E does not support dynamic commitment cost mitigation as detailed in the Draft Final Proposal. In its current form, the design requires further explanation and clarification.</u>

CAISO's dynamic mitigation proposal is a concept for which design details have been changing over the past two months. CAISO proposed its "net effects" approach in its 6/30 Revised Straw Proposal, changed its design to a "Default Shadow Price" approach in an 8/11 Web Conference, then reverted back to the "net effects" approach in the Draft Final Proposal. The decision to revert to the Straw Proposal Design was made because, *"CAISO has determined that the default shadow price proposal is inferior to the proposal to treat each constraint in the test set…at unity."* However, in the 8/3 Technical Working Group, stakeholders expressed concerns with the net effects approach. For example, a resource may have market power with respect to a local constraint, but the "net effect" on congestion system wide could mask that supplier's impact on the local constraint and never catch the fact that it has market power.

PG&E encourages CAISO not to rush this design effort. Currently, it has only considered two design options, both of which have identified shortfalls and are not fully developed. PG&E believes that with additional time devoted to evaluating a dynamic commitment cost mitigation design, stakeholders can be given the opportunity to decide first whether dynamic mitigation is still desirable based on cost and feasibility studies and if still desired, contemplate other options which may prove more effective than the two options presented so far.

There are additional questions/issues PG&E has regarding the dynamic commitment cost mitigation design as outlined in the Draft Final Proposal:

- PG&E believes the "net effects" mitigation design may fail to capture certain instances where a resource has local market power. As described above, a resource may have market power with respect to a localized constraint, but the "net effect" on congestion system wide could mask that supplier's impact on the local constraint. Unless CAISO provides simulation results to ensure its proposal is robust and will capture scenarios like described above, PG&E cannot determine that the net effects proposal is effective to capture commitment cost market power
- The current proposal treats shadow prices on all lines as uniform for all constraints deemed uncompetitive. CAISO states that commitment costs do not directly impact price and therefore, criteria that evaluates the ability to impact price based on shadow price is not needed for commitment cost mitigation.
    - PG&E notes the lack of impact of commitments on price is due to the nonconvex nature of the commitment problem; the congestion on one line is not necessarily equal to the same impact on another line, even if both are congested. For example, Path 26 being congested may have a large impact on the system, while a small line being congested may not.
    - If CAISO wants to examine congestion impact across the system, it is possible to evaluate prices from a convex hull formulation or from linear relaxation; further study should be conducted to find an appropriate way to do this, but this type of approach may provide another option for testing "critical" constraints
    - Due to the "lumpy" nature of the commitment problem, resources can have commitment market power due to transmission constraints yet not congest a line, or even congest a line to 85% of its capacity. A convex hull pricing scheme in the mitigation pass may be a way to reveal when a resource has market power in these situations, especially to evaluate almost binding, "critical" constraints which today do not exhibit shadow prices
- CAISO should provide formulations for how Contingency Modeling Enhancements (CME) constraints will be treated under CAISO's dynamic mitigation proposal.
- CAISO notes that some implementation details on incorporating intertemporal constraints in the RSI calculation are still being evaluated for feasibility and will be evaluated in the implementation phase[3]. PG&E encourages CAISO not to make this assessment in implementation phase. If determined to be infeasible, not including some intertemporal constraints in the RSI calculation can result in unnecessary under and over mitigation.
- Some formulations in the proposal are not clear. PG&E believes formulations should be consistent with policy language and subscripts/equation terms clarified before a policy

[3] "Commitment Cost and Default Energy Bid Enhancements Draft Final Proposal." California ISO. August 32, 2017. P 77. http://www.caiso.com/Documents/DraftFinalProposal_CommitmentCosts_DefaultEnergyBidEnhancements.pdf

document can be considered finalized. PG&E is including a list of these in the **Appendix** of these comments.

- On page 75 of the Draft Final Proposal, CAISO writes "CAISO proposes that if any resource fails based on the results from the commitment cost mitigation test that produces a non-competitive congestion component greater than $0/MWh that only the market-based commitment cost offers would be mitigated to the commitment cost reference level for each commitment cost component (starts, transitions, and minimum load)." Can CAISO confirm that this section no longer applies to the proposal?
- CAISO should provide assurance to stakeholders that if bid caps are lifted and Min Load Costs can vary hourly, that settlement and mitigation rules are sufficient to prevent suppliers from artificially inflating Bid Cost Recovery (BCR) payments. Some scenarios of concern:
    - A resource is kept on due to a Min Down Time constraint – A resource with a long Min Down Time may be kept on to meet morning and evening peaks within a market day, or to meet evening and morning peaks across two market days.
    - A resource is sent Out of Market instructions in Real Time to stay on for an extended period of time
    - Resources coming out of self-schedule periods, or making offers look very economic in early hours to increase likelihood of commitment, or "force" commitment so that commitment costs can be inflated in subsequent hours

3. **PG&E supports CAISO's proposed process and timeline for requesting ex ante reference cost updates, and ex post reference adjustment request reviews. However PG&E requests additional detail and clarification on reasonableness thresholds and ex post reviews:**
    a) **PG&E requests CAISO provide mock calculations, or at the very least, exact formulas to support its ex ante reasonableness threshold calculations.** PG&E believes it is beneficial for CAISO to provide sample calculations based on historical data, so Scheduling Coordinators (SCs) can have an expectation of how much headroom will be available to adjust references. CAISO describes calculating "seasonally statistical expectations" of deltas between observed gas trades. PG&E requests CAISO provide exact formulations to calculate statistical expectations and parameters around these calculations such as how seasons will be defined and how outliers will be identified so the proposal can be fully evaluated.
    b) **CAISO should outline a process to revise or update reasonableness thresholds.** This includes how often CAISO will update calculations or what conditions might trigger CAISO to update or revise calculations.
    c) **PG&E requests more detail on the use of the "feedback loop" term** (p 97) which CAISO proposes will be used to capture costs in reasonableness thresholds that have been verified in the ex post verification processes. How frequently will this term be updated? What length of ex post cost verification is required before incorporating this term in the

thresholds calculations? Does this only apply to fuel costs or are other costs also eligible to be included in the feedback loop?

d) **Scalars on Min Load and Start-up proxy cost calculations.** On page 74 of the Draft Final Proposal CAISO states "Under the proposed policy, the commitment cost reference levels will be enhanced to include the 110% scalar representing incidental costs above the fuel cost proxy." However, on pages 87-90 of the Draft Final Proposal, CAISO details how Min Load, Start Up and Transition proxy costs will be calculated – these calculations reference a 1.25 scalar. CAISO should revise the policy document to reflect scalars of 1.10.

e) **CAISO should ensure there is no double-counting of uncertainty headroom across default reference calculations and reasonableness thresholds.** CAISO proposes to multiply base proxy costs by a 110% scalar, while use of the ex ante and ex post reference adjustment processes are justified by changes in index prices of 110% or more. To the extent that a 110% uncertainty scalar is also accounted for in the calculation of reasonableness thresholds, PG&E believes the multiplication of a base proxy cost with a 110% scalar and a reasonableness threshold accounting for this same uncertainty (described on slide 49 of the of the 8/30 Stakeholder Web Conference presentation) is duplicative in accounting for cost uncertainty.

f) **PG&E questions the application of a 110% scalar to the Major Maintenance Adder (MMA) component of proxy cost calculations.** On pages 87-90 of the Draft Final Proposal, CAISO details how Min Load, Start Up and Transition proxy costs will be calculated – CAISO proposes that MMA components of proxy cost calculations will also be multiplied by a scalar. PG&E does not believe additional headroom should be calculated on top of negotiated MMA adders.

PG&E asks for further clarification on some items related to the reference update process:

g) **Documentation supporting reference adjustments** –PG&E has the following clarifying questions regarding documentation:

- Could the 2-3 quote requirement for ex ante reference adjustments be met by a single supply curve from a single counterparty at a point in time? Or is the requirement intended to capture different quotes from the same counterparty at different times of the day for the same volume? Also, without a minimum counterparty requirement, these two examples may not reflect suppliers seeking the most economic fuel.
- Regarding the "fuel market or transport availability conditions" documentation, will CAISO monitor and retain line pack level information or work with California Gas Transmission or SoCalGas to obtain this documentation? Or is it expected that the SC would provide this information?
- In the Draft Final Proposal, CAISO relaxed the off-ICE quote requirement to support ex ante reference adjustments to 2-3 quotes minimum instead of 5-10. However, under the documentation requirements for ex post validations on pages 94-95,

CAISO will require 5-10 Off-ICE quotes minimum. Can CAISO confirm that the 5-10 quote requirement for ex post documentation still stands, or will it relax this requirement too? PG&E believes the ex post documentation requirement should mirror the ex ante documentation requirement (2-3). Additionally on page 93, CAISO describes a requirement of 3-5 quotes for ex ante adjustments – should this be 2-3?

h) **LMPs set under misuse of the reference adjustment functionality should be explicitly excluded from LMP reference calculations:** If CAISO or DMM determines a supplier improperly used the ex ante reference adjustment tool, then LMPs set under during those intervals should be considered unjustified and ineligible for inclusion in LMP-based reference calculations. Adding a provision like this would require a tariff change to Section 39.7.1.2.

i) **Clarifying questions on DEB adjustment requests:** For ex ante DEB adjustments, will SCs have to submit an adjustment that represents all steps of the bid curve? Will the reasonableness threshold evaluate each segment of a submitted reference adjustment bid curve? Will the DEB adjustment request be required to mirror the number of segments in the default reference curve?

4. PG&E provides some considerations for Hourly Min Load Cost variation

PG&E supports the concept to allow hourly Min Load Cost variation as long as settlement and mitigation rules effectively mitigate potential BCR gaming issues described in Item 2 if dynamic mitigation moves forward in tandem with this design change. PG&E also offers the following suggestions:

- Given non-RA resources will be able to select hours to participate in the market, CAISO should evaluate whether it needs to enforce new bid validation logic to ensure that suppliers submit bids that support physical operating parameters (e.g., if a suppler has a 5 hour Min Run Time, bids should be in place for at least 5 contiguous hours).
- If Min Load Cost is mitigated, and mitigation carries through Min Run Time, CAISO should consider developing hourly Min Load proxy costs that mirror the need to shape hourly MLC costs. If a daily proxy cost is used and a resource's MLC bids are mitigated, the mitigated offers may no longer reflect shaped costs

5. Comments on RDRR bids

PG&E believes that RDRR, at least on a real-time basis, should continue to serve only as an emergency resource. Therefore, offers should go into the bid stack only once the CAISO has called a "contingency". Due to recent market integration as of May 1, 2017 for RDRR, there isn't enough experience with this resource "in the market" [1] to warrant changes at this point in time. However,

[1] The May 3, 2017 deployment of RDRR was out of market.

PG&E cautions that having a bid cap differential between RDDR and other resources may have implications on frequency of dispatch of RDRR resources.

In the Draft Final Proposal, CAISO proposes that RDRR can use the ex ante reference adjustment tool to bid above $1,000/MWh. However, RDRR resources are not subject to mitigation and therefore do not have references. PG&E believes any "reference" adjustment would have to be made to the actual validation logic placed on RDRR bid entry that constrains RDRR bids between $950-$1,000/MWh. Can CAISO confirm an adjustment to the bid validation is the necessary adjustment? Additionally, will reasonableness thresholds for RDRR and other use-limited resources incorporate opportunity costs?

6. **Comments on scaling penalty prices to conform with the $2,000/MWh offer cap**

PG&E looks forward to CAISO releasing its proposed penalty prices to scale with the revised offer cap. The scheduling run IFM, RUC, and RTM transmission constraint penalty prices are written in the tariff ($5,000/MWh, $1,250/MWh, and $1,500/MWh respectively) in section 27.4.3.1. PG&E believes the proposed scaling of penalty prices may warrant additional stakeholder discussion. For example, does CAISO believe relaxation of the power balance constraint should warrant $2,000/MWh prices if there are no offers that exceed $1,000/MWh on any given day? Given CAISO considers $2,000/MWh to be the "cost-based offer cap", is a $2,000/MWh power balance constraint relaxation penalty price the right price to set if there are no cost-based offers to support that price or fall near the "cost-based offer cap"?

Appendix

To assist in the evaluation of proposal formulations, PG&E requests CAISO define all terms ahead of where they are used. PG&E would also like to see the definitions of each item separated out for real-time and day-ahead markets, where needed (this includes ENGYMIN, ENGYMAX, and OR). The comments below capture details and clarification needed in the technical appendix.

- Page 100:
  - Is $ENGYMIN_i^{CCM}$ used for the IFM, HASP, and STUC?
  - If the resource is at its PMin and can't turn off within 15 minutes, should its $ENGYMIN_i^{CCM}$ actually be equal to 0, or should it be equal to PMIN?
  - If a resource has a regulation up award in interval *i* and a non-zero PMIN, then shouldn't the $ENGYMIN_i^{CCM}$ be at least equal to PMIN as it has to be on at PMIN to provide the regulation up?
  - For $ENGYMIN_i$, clarify the formulation should read "Self-scheduled energy"
  - Why does $ENGYMAX_i$ only consider $MAXECON_i - OR_i$? Shouldn't it also subtract off regulation up, like it does for $MAXCAP_i$?

- Could the definition of $ENGYMAX_i$ be simplified to min(SelfScheduledEnergy$_i$, Pmax$_i$ – Derate$_i$, max ED, max econ bid) – OR_i – RU_i?

- Page 101:
  - What is OR_i defined as in the day-ahead market? Is it spin plus nonspin awards?
- Page 102:
  - RR_i is defined twice. Which definition will be used by CAISO?
  - CAISO states that "…the CAISO may identify constraints that are likely to be needed to resolve a constraint…". Should this be **resources** that are likely needed to resolve the constraint?
  - Subscript B is not used in any subsequent equations. Perhaps it can be removed from the appendix as subscript *j* on page 104 is defined to mean suppliers by scheduling coordinator ID adjusted for tolling agreements.
- Page 103:
  - The CAISO mentions that the Five-minute market will include energy and commitment cost mitigation. Is this in anticipation of the upcoming five-minute market enhancements?
- Page 105:
  - In the IFM Formulation of $WC_{l,j}^{CCM}$, what is the *r* in $SF_{l,r}$?
  - In the formulations of $WC_{l,j}^{CCM}$, it would be useful to define a new parameter, perhaps $n(j)_{,SF<0}$ to clarify that the sum is not for all resources but only those who are in supplier *j*'s portfolio who have shift factors <0.
  - $SVCF_{l,j,i}$ is not defined prior to when it is used in $WC_{l,j}^{CCM}$.
  - It is unclear if in the IFM formulation of $WC_{l,j}^{CCM}$ that $SF_{l,r}$*$ENGYMAX_i$ and $SVCF_{l,j,i}$ are being summed over the same resources or not, as there is only one summation. If they are, then then the IFM formulation of $WC_{l,j}^{CCM}$ reads as the sum of ($SF_{l,r}$*ENGYMAX+$SF_{l,i}$*DOP_i), which appears to double-count capacity.
    - We think that SVCF in the IFM formulation refers to supply of virtual counter flow, but SVCF is not defined elsewhere in the proposal other than on page 107. If this is the case, then there should be separate summations for $SF_{l,r}$*ENGYMAX that specifies it is for non-virtual resources and that SVCF is summed over virtual resources.
  - In the RTUC formulation of the withheld capacity, should the second part of the equation actually be put to 0 if the unit takes more than fifteen minutes to go from its current level to off?
  - There is reference to supplier J AND potentially pivotal supplier portfolio capital J. However, there is no capital J subscript defined in Table 10. We believe the references should be "…withheld capacity (WC) from supplier **i** to testable constraint l…" and "calculated for resources **i** in potentially pivotal supplier portfolio **j**"

- There is a reference to "B's resources" in the paragraph above the STUC formulation which is not then used in any equations, and with the definition of *j*, it seems that B is unneeded.

- Page 107:
  - For SCF_l^{PPSCCM}, it appears that there will be the same number of resources and suppliers. PG&E suggests clarifying the two *n*'s between the resource and supplier and also to make clear that one is summing only over the potentially pivotal suppliers with a shift factor less than 0.
  - For SCF, please clarify the sums appropriately as discussed in the previous comments. Otherwise, this appears to count double-count the capacity ($SF_{l,i}$*($ENGYMAX_i$+DOP_i)) and make it look like there are the same number of suppliers and resources per supplier, and that one is summing over all of them rather than only when $SF_{l,i}$ <0.
  - CAISO defines DOP_i as Dispatch operating point for physical or virtual supply resource i for the all constraints run results for the test interval per page 102. On Page 107, CAISO defines $SVCF_{l,j,i} = SF_{l,i} * DOP_i$. This implies that SVCF for resource i in portfolio j on constraint l is the product of the resource i shift factor to constraint l and the DOP of resource i. CAISO should clarify that DOPi is DOP for **virtual** resource i **in portfolio j**.