Supplemental Comments of Pacific Gas and Electric Company on Commitment Costs and Default Energy Bid Enhancements Revised Straw Proposal and 8/11 Stakeholder Meeting

Submitted by	Company	Date Submitted
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Pacific Gas and Electric Company (PG&E) appreciates the opportunity to comment on CAISO's Commitment Costs and Default Energy Bid Enhancements (CCDEBE) Revised Straw Proposal and August 11th Technical Working Group. PG&E offers a supplemental set of comments as an addition to its initial set of comments submitted August 16, 2017.

In general, PG&E believes there are several reasons to bifurcate the dynamic mitigation design from the rest of the CCDEBE proposal. There are many open design issues and questions remaining and PG&E believes CAISO should inform stakeholders of the design's feasibility and cost before even moving forward in concept. PG&E suggests CAISO conduct studies and simulations similar to the analysis used to evaluate the Contingency Modeling Enhancements Initiative[1]. This type of simulation and analysis provides stakeholders a sense of proposed designs being feasible and indicates what benefits the market could expect from implementing a proposed design. Additionally, as other CCDEBE design components will address stakeholder concerns about adequate cost recovery and reflection of costs in the market, PG&E wonders whether dynamic mitigation would be considered high priority as a standalone design enhancement given other CCDEBE enhancements.

Comments on dynamic commitment cost mitigation

Default Shadow Price Calculation

CAISO proposes to calculate default shadow prices for non-binding constraints based on the following formula. PG&E provided in its first set of Revised Straw Proposal Comments a concern that this calculation could result in significant over and under mitigation under different scenarios.

$$shadow\ price_{default} = SMEC * SR$$

Where
$$SR = \frac{\max(shadow\ price_{actual})}{SMEC}$$

PG&E has some additional questions/comments regarding the use of this calculation:
- PG&E requests CAISO clarify the following about the Default Shadow Price calculation:

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[1] http://www.caiso.com/Documents/TechnicalAnalysis-ContingencyModelingEnhancements.pdf

- o Significance and theory behind use of the variables and their interaction in the expected shadow price calculation
- o The SMEC term comes from the All Constraints run, while the SR calculation comes from actual market runs. There are two inconsistencies CAISO should consider:
  1) The SMEC and SR terms come from runs with different reference buses. Are there inconsistencies resulting from the melding of the two values?
  2) The All Constraints run is "pre-mitigation", while the actual market runs incorporate mitigation. It is likely that mitigation unwinds or creates new congestion patterns so the market conditions under which SMEC and SR are determined are often different.
- CAISO should clarify the following about Sensitivity Ratio (SR) calculation:
  - o How far back will CAISO look to pull a max shadow price?
  - o Will the variables be market-specific? (e.g. for the FMM, will only FMM shadow prices/SMEC be used in the calculation?)
  - o Will CAISO pull SMEC in the denominator from the corresponding market run the max shadow price was pulled from?
  - o Will CAISO adjust for different congestion patterns seasonally, monthly, intra-day?
  - o Will CAISO adjust for events such as temporary line outages that drive shadow prices on certain lines very high for short periods of time?
  - o Will CAISO include shadow prices set by penalty prices in this calculation?
  - o What happens if the SMEC terms are zero or negative? What happens when the two SMEC terms have different signs?

RSI calculation for non-binding constraints

CAISO proposes to add to the denominator of the RSI calculation an additional term to capture the lower of effective capacity from resources not dispatched in the AC run or unloaded capacity (Limit-Flow from AC run)[2]. This term is proposed to be added to the demand for counterflow in the denominator of the calculation. PG&E is not clear on the rationale for adding this capacity to the demand portion of the equation. PG&E also believes the addition of this term to the denominator penalizes increases in generator and transmission capacity which could create adverse incentives.

Carrying commitment cost mitigation through Min Run Time

CAISO should consider applying commitment cost mitigation through at least a resource's Min Run Time when mitigation is triggered and a resource is committed, rather than just the hour or balance of hour.

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[2] http://www.caiso.com/Documents/Agenda_Presentation_CommitmentCosts_DefaultEnergyBidEnhancements_Aug112017.pdf. Slide 15

Additional considerations

Hourly Min Load Cost Bidding – Lack of bid indicating unavailability
Under hourly Min Load Cost bidding, CAISO intends to allow non-RA resources to select hours to participate in the market. However, as discussed in meetings, STUC is capable of committing resources in an optimization window, even when a resource's Min Run Time exceeds the optimization horizon where bids may not be in place. CAISO should consider that a lack of bids under this framework indicates lack of availability or unwillingness to be scheduled in particular hours. PG&E requests CAISO look into adding rules in the market software that will honor a supplier's unwillingness to be scheduled when bids are not in place.

Importance of simulating calculations of reasonableness thresholds
CAISO should run mock calculations of reasonableness thresholds and evaluate whether the reasonableness thresholds allow for more or less headroom on original and mitigated bids compared to today. Because CAISO will allow reference updates within a calculated tolerance band it's possible that a reference update within the reasonableness threshold plus buffer room above reference for mitigated bids (proposed 110% of references) could result in bid headroom or mitigated bids being much higher or lower than outcomes today. Ex: *(example uses Min Load Costs and ignores opportunity cost adders)*

1. **Today:** Resource can bid up to 125% of proxy cost:
   Proxy cost: $1,000/hr
   Max bid allowed before triggering mitigation (1.25*proxy): $1,250/hr
   A supplier can effectively bid up to $1,250/hr without facing mitigation.
2. **Tomorrow (example of higher):** Assume the reasonableness threshold allows a resource to update its reference up to **125%** of proxy cost
   Original proxy cost: $1,000/hr
   Max updated proxy cost (Original proxy*1.25): $1,250/hr
   Max bid allowed before triggering mitigation (Updated proxy*1.1): **$1,375/hr**
   With added room to update references, a resource can bid up to or be mitigated to levels greater than today's provisions allow.
3. **Tomorrow (example of lower):** Assume the reasonableness threshold allows a resource to update its reference up to **110%** of proxy cost
   Original proxy cost: $1,000/hr
   Max updated proxy cost (Original proxy*1.1): $1,100/hr
   Max bid allowed before triggering mitigation (Updated proxy*1.1): **$1,210/hr**
   Under this scenario, the resource can bid up to or be mitigated to levels lower than today's provisions allow

Ultimately, CAISO should examine its reasonableness threshold calculations and outcomes, and tune the 110% headroom on mitigated offers based on its expectation of what reasonableness thresholds might capture.

Market power outside of transmission congestion/constraints

Just as transmission constraints drive resource commitment, other system or local needs such as ancillary service and flex ramp requirements also drive resource commitments. When a resource is committed and holds reserve schedules, it is difficult to differentiate whether it was committed for congestion management, to provide AS, for other system needs, or a combination of these needs. Reserve and flexibility requirements at system and local levels introduce constraints in the market optimization just as transmission constraints do and PG&E believes the competitiveness of these constraints should be analyzed as part of a comprehensive effort to design effective commitment cost mitigation, before bid caps are universally lifted.

Overlap with other initiatives

The design of dynamic commitment cost mitigation should be comprehensive and cover market design changes to be implemented through concurrent market design initiatives. Two initiatives in particular include Contingency Modeling Enhancements (CME) and Commitment Cost Enhancements (CCE3). The Contingency Modeling Enhancements Initiative will require changes to Local Market Power Mitigation (LMPM) procedures[3] including changes to the DCPA and RSI calculations. A dynamic commitment cost mitigation design must consider what additional changes are needed on top of CME LMPM changes. CAISO should also consider overlap between CC3E and CCDEBE policies. As negotiated opportunity cost adder and negotiated proxy cost processes are proposed in each initiative, CAISO should aim to consolidate or streamline its various negotiated processes, reducing administrative efforts on behalf of stakeholders and CAISO staff. Additionally as CCE3 will enforce a minimum of two starts per day in Masterfile, when this rule coupled with hourly Min Load Cost bidding in CCDEBE, CAISO should consider additional bid validation rules that capture generators' requirement to enable at least two starts per day.

CAISO should address the majority of changes necessary to implement its designs in the policy phase rather than leaving important details to implementation phases

There are many details necessary to make complex market designs functional and complete before go-live. This includes everything from bid validation, to formulas used in the market optimization, to settlement rules. PG&E encourages CAISO to address as many details as possible in the policy phase rather than leaving important details to the BRS or BPM processes. Often smaller details currently considered "implementation" details can greatly impact policy or are necessary to make the policy effective. Addressing design components thoroughly before taking designs to the Board gives stakeholders assurance that implementation processes and tariff development will run smoothly and reduces the likelihood that issues will have to be reopened during or after implementation.

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[3] http://www.caiso.com/Documents/DraftFinalProposal-ContingencyModelingEnhancements.pdf. Page 61