Comments of Pacific Gas and Electric Company

On Flexible Ramping Product Revised Draft Final Proposal

Submitted by	Company	Date Submitted
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1. Introduction

Pacific Gas & Electric ("PG&E") appreciates the opportunity to participate in the stakeholder process for the California Independent System Operator's ("CAISO") Flexible Ramping Product ("FRP") Initiative and to submit comments regarding the CAISO's August 10, 2012 Revised Draft Final Proposal ("RDFP").

PG&E recognizes and appreciates the effort the CAISO has made in developing the Flexible Ramping Product (FRP). We found the CAISO's historical analysis of its cost allocation proposal, as well as, the August 14th presentation to MSC, to be particularly helpful.[1]

Although PG&E is supportive of the CAISO developing tools to help manage the flexibility needs of the system, we are concerned that the CAISO is proceeding to develop a new tool (FRP) to integrate renewables, without finalizing and implementing the Phase 1 Renewable Integration Initiative.[2] PG&E is anxious to implement the Phase 1 changes, as well as changes to the PIRP program, that could help minimize the need for the FRP. PG&E asks the CAISO to prioritize completion and implementation of the Phase 1 integration work and reinitiate the PIRP stakeholder initiative.

Regarding the specific elements of the RDFP, PG&E:

- Requests analysis that shows that the benefits of the hybrid requirements determination is superior to the Explicit determination;

[1] The August 14th presentation provided details on how a demand curve would be used in a multi-interval optimization as well as the demand curve's interaction with the RTPD and RTD

[2] The Phase 1 Renewable Integration Initiative contemplates three marked changes intended to encourage more economic bids in real-time. First, are implementing revisions to PIRP. Second, is lowering the bid floor. Third, is altering procedures to allow for separate calculation of BCR in the DA and real-time markets.

- Requests information on how the upper and lower limits in interval Real-time Dispatch ("RTD") (t+5) are calculated[3];
- Recommends consideration of merging the Day-Ahead ("DA") and Residual Unit Commitment ("RUC") [4] markets in a separate stakeholder process after consideration in the CAISO's Roadmap process;
- Supports the CAISO's proposal to allow DEC bidding for PIRP resources;
- Recommends that Gross UIE, not UIE, be used to allocate cost to the supply category; and
- Seeks clarification on cost allocation to the fixed ramp category.

2. Summary of RDFP

The CAISO addresses six main issues in the RDFP: 1) FRP requirement and demand curve 2) FRP bidding rules, 3) merging DA market and RUC, 4) PIRP DEC bidding, 5) FRP no pay settlement, and 6) cost allocation of FRP procurement cost.

FRP Requirement and Demand Curve

- FRP will cover at a minimum the real ramp from RTD interval t to RTD interval t+5.
- More FRP capacity greater than the minimum and up to 95 confidence level ("CL") will be procured using an administratively determined demand curve.

FRP Bidding Rules

- Self-provision for flexible ramping will not be supported in the CAISO's market.
- The CAISO proposes to not factor energy bid into flexible ramping bid cost.

Merging DA Market and RUC

- The pool of FRP capacity will not be limited to the physical resources committed in the Day DA market but will also include the resources committed in RUC.
- Therefore, the IFM and RUC will be merged to produce a co-optimized solution.

PIRP DEC Bidding

- PIRP currently does not allow economic bids

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[3] The upper and lower limits will be referred to as the 95% confidence level in our comments

[4] RUC commits additional capacity when the DA market does not commit sufficient resources to meet the CAISO Demand Forecast. It is conducted after the close of the DA market and currently commits units on a 24-hour basis for the following day.

  - In order to receive the PIRP benefit of monthly settlement netting, the resource must submit a real-time self-schedule at the CAISO-provided hourly forecast level.
- Since a resource must have an energy bid to provide the FRP down product, the CAISO proposes to implement PIRP DEC bidding with the FRP.

FRP No Pay Settlement

- Flexible ramping no-pay rules are similar to ancillary service no-pay rules. There are four major categories:
  - Undispatchable capability;
  - Undelivered capability;
  - Unavailable capability; and
  - Unsynchronized capability.

Cost Allocation

- Basis - Allocation of costs (to load and supply) for the flexible ramping product based upon RT deviations.
  - For the load category, allocate costs based upon uninstructed imbalance energy;
  - For internal resources, allocate costs based upon changes in uninstructed energy that is outside a 3% threshold based upon the resource's instruction; and
  - For interties resources, allocate costs based upon the net SC movement.

3. PG&E Comments on RDFP

A. FRP Requirement and Demand Curve

PG&E asks the CAISO for analysis that shows the benefits of the hybrid requirement determination is superior to the Explicit determination.

The requirement determination combines the explicit approach with the implicit approach. At a minimum the CAISO will procure enough FRP capacity (after considering purchases in day-ahead) to meet the expected ramp for RTD (t) to RTD (t+5). If the CAISO receives relatively low priced bids, more FRP capacity up to the 95% CL could be procured using a demand curve. The demand curve would be constructed through the use of a distribution of power balance violations and administratively determined penalty prices. The new method has the benefit of guaranteeing that the CAISO will procure enough ramping capacity to at least meet its forecast and while purportedly managing costs. The demand curve will act as a price collar to ensure that more than the minimum amount of FRP capacity will only be procured if it is cost effective.

PG&E appreciates the thought the CAISO has given this hybrid requirement determination design. The design is complex and relies on the development of violation distributions and administratively-set penalty prices. PG&E has a continuing concern about the complexity of the FRP and the requirement determination. Complexity comes at a cost. There is the additional cost to implement and monitor, the cost of reduced transparency to stakeholders, and the cost of potential gaming that comes with complexity. The CAISO has not presented any analysis that this method would result in more efficient outcomes than the simpler Explicit approach. PG&E is open to the consideration of such a complex requirement determination but believes the CAISO should first show that the benefits of such an approach are substantially greater than its costs.

PG&E requests that the CAISO explain data used to determine the 95% CL in Interval RTD (t+5).

PG&E appreciates the graph on page 13 of the RDFP that uses actual market data from January to March of 2012 to show how much FRP up and FRP down capacity during those months was needed to satisfy the 95% CL threshold. However, PG&E requests the CAISO provide an example that explains the data and how it was used to calculate the 95% CL.

B. FRP Bidding Rules

PG&E opposes the CAISO's proposal to not factor energy bids into FRP bid cost.

The CAISO has offered no justification in RDFP for withdrawing its prior proposal to consider energy bid costs when procuring FRP capacity. Not considering energy bid costs will result in higher procurement costs. For example, assume that in the real-time market, Resources A and B bid the same price for FRP Up capacity. Also assume that Resource A provides an energy bid of $10 and Resource B provides an energy bid of $300. Under this proposal, the CAISO's might select Resource B to provide FRP Up capacity. In order to avoid this scenario from occurring, the CAISO's optimization should consider both FRP bids and energy bids.

C. Merging DA Market and RUC

Merging of DA and RUC market should be explored in a separate stakeholder process after consideration in the CAISO's Roadmap process.

While PG&E is open to exploring the benefits of merging the DA and RUC markets, this is a large undertaking and not feasible under the current timeline[5]. This endeavor deserves its own stakeholder process with one or more technical conferences. <u>Moreover, before the CAISO considers this undertaking, this initiative should be evaluated with all other possible initiatives in</u>

[5] The CAISO plans to request Board Approval of the FRP Initiative at the November meeting.

<u>the CAISO's Roadmap process.</u>[6] <u>Not using the Roadmap process can result in the proliferation of stakeholder initiatives which has the effect of preventing CAISO and stakeholders from having the sufficient time to evaluate the consequences of making major changes to the market.</u>

D. PIRP DEC Bidding

PG&E supports PIRP DEC Bidding and believes that it is good design feature that will benefit the market.

E. FRP No Pay Settlement

PG&E supports implementing no-pay rules for flexible ramping products consistent with Ancillary Services no-pay rules.

ADS dispatch for flexible ramping product must be explicit and visible to market participants for the purpose of settlement validation. This would be consistent with the current no pay settlement for Spin and Non-Spin where the associated ADS dispatch is explicitly available.

In addition, the proposal currently allows for DA non-contingent Spin to be converted to upward FRP in real time. The Spinning to upward flex ramp conversion, if allowed, must be in one direction to be consistent with the no pay priority currently proposed, i.e., no pay will apply to FRP first before it is applied to Spin and Non-Spin.

F. Cost Allocation

As stated in prior comments, Gross UIE, not Changes in UIE, should be used to allocate cost to the supply category as well as to allocate cost within the supply category. We request that the CAISO address this issue.

In the Supplemental paper and in the Revised Draft Final proposal, the CAISO proposes to allocate FRP capacity costs to supply category based on 10 minute changes in uninstructed deviations, and seeks stakeholder comments on the advantage of using changes in Uninstructed Imbalance Energy ("UIE") versus gross UIE, where changes in UIE is the measured as the difference of subsequent two 10-minute UIE.

PG&E does not support using changes in UIE as the initial pie slice to allocate cost to supply category. In order to evaluate whether changes in UIE or gross UIE is an appropriate measure for cost allocation based on cost causation, a fundamental question to answer is whether a constant deviation by a resource causes constant FRP procurement cost to the system. For example, suppose a resource (resource A) negatively deviates 10 MW in each of the five-minute intervals for the entire hour, and another resource (resource B) is dispatched 10 MW from its

[6] The propose of the Roadmap process is to assign a ranking of stakeholder initiatives based upon which initiative will provide the most benefit to the CAISO market and stakeholders.

FRP up capacity in the first five-minute to make up for the shortfall. In the second five-minute interval, the operator still needs to dispatch another 10 MW from a resource that provides the least cost FRP up capacity given all system constraints, in this case, it could be resource C. That is to say in each 5-minute RTD interval over the entire hour, the operator needs to procure 10 MW FRP up capacity based on the least cost solution of the system, and highly likely from different resources. As such, cost allocation based gross UIE should better align with the FRP capacity procurement causation when compared with an allocation based on changes in UIE.

In addition, using changes in UIE as a cost allocation metric tolerates persistent deviations from dispatch instruction and is inconsistent with the "Incentive Behavior" of the guiding principle. PG&E believes that gross UIE is an appropriate metric to create incentive for resources to improve dispatch performance.

If the CAISO chooses to use changes UIE, then at the very least, the CISO should monitor the correlation between FRP procurement and changes in UIE versus gross UIE to further evaluate the appropriate cost allocation metric and make appropriate adjustments if necessary.

Clarification Requested on Cost Allocation to Fixed Ramp Category

The CAISO proposes to procure flex ramp capacity to cover static hourly schedule changes for imports and exports as well as hourly schedule changes for internal self-schedules. Both changes in static hourly inter-tie schedules and changes in hourly internal self-schedule require the CAISO to manage dispatchable resources to honor the twenty minute ramp. The cost allocation will be based on the scheduling coordinators' net portfolio movement including both static intertie and internal self-schedules between hours. PG&E supports including internal self-schedule in the fixed ramp category but requested the CAISO to clarify and address two issues.

1) Internal self-schedule should reflect a resource's final real time self-schedule position including both day-ahead self-schedule (DASE) and any adjustments either above or below DASE in real time.

2) Cost allocation to fixed ramp category should align with <u>the entire 20 minute ramp.</u> The example posted to the CAISO website on 8/9/2012 allocates costs to the first 10-minute within the hour only, which does not align with the twenty-minute ramp period. PG&E asks the CAISO to clarify and address this issue.