



# Comments of Pacific Gas and Electric Company

## Flexible Ramping Product – 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 Initiative and to submit comments regarding the CAISO’s April 9, 2012 Draft Final Proposal. PG&E recognizes the effort the CAISO has made in developing the proposal and to balance competing interests. We also applaud the CAISO efforts to address the issue of cost allocation of the new product.

### 2. Summary

The Draft Final Proposal presents complex rules that govern the interaction of the Flexible Ramping Product (FRP) in the Day-Ahead and Real-time markets. PG&E has concerns about the time provided to the CAISO staff and to stakeholders to consider and appropriately vet such a complex proposal. The sort of inter-market interaction and underlying complexity of the FRP proposal reminds PG&E of the types of interactions and complexity found in Bid Cost Recovery and Convergence Bidding at the Interties. For both of these market elements, market participants found ways to exploit short-comings of the designs. PG&E has a similar concern about the FRP design. Given the speed of the development of the FRP design and numerous other stakeholder initiatives competing for stakeholder attention, additional time should be taken to fully consider the implications of this complex proposal.

PG&E offers two different categories of comments. First, PG&E makes a recommendation that the stakeholder process slow down so stakeholders have time to develop and consider alternative design proposals. If the CAISO is willing to slow the stakeholder process, PG&E would take the time to develop alternatives for some aspects of the proposal. PG&E is concerned with the complex nature of the FRP proposal and hopes to develop design alternatives that would meet the identified needs with less complexity and cost.

**To accommodate additional work by stakeholders and the CAISO, PG&E recommends the initiative be considered in September by the CAISO instead of May.** Given the implementation of the Flexible Ramping Constraint, reliability will not be at risk as the CAISO

and stakeholder take additional time to further vet the proposal. PG&E's comments below provide some discussion where an alternative design might be considered.

Second, PG&E makes suggestions where the CAISO can provide additional clarification or analysis. Slowing down the stakeholder process would allow the CAISO to develop the clarification, examples and analysis requested by PG&E and other stakeholders. More information is requested in three areas:

1. Determination of Procurement Requirement
2. Conversion between Day-Ahead (DA) and Real-Time (RT)
3. Cost Allocation

### **3. Several Issues Deserve Further Discussion and Alternatives Examined**

The CAISO's proposed design incorporates complex rules regarding the establishment of procurement requirements in both DA and RT markets, bidding and incorporation of energy price in the optimization, and for cost allocation. PG&E strongly recommends that the CAISO provide more time for both the CAISO and stakeholders to work on the design. Indicative for this need for additional time were the fundamental questions posed by many stakeholders at the April 16<sup>th</sup> stakeholder meeting.

Specifically, PG&E recommends the CAISO move Board consideration from May to September to provide four additional months for all parties to do additional design work and analysis. If the timeline is extended, PG&E will work to develop some alternative approaches to key aspects of the design that can be considered by stakeholders. A possible adjusted schedule with Board consideration in September is provided at the end of these comments.

Three areas of concern are discussed below.

#### **a) Procurement Requirement - Confidence Level Thresholds**

The CAISO proposes to use the imbalance distribution to procure to a 60% confidence level in the Day-Ahead market. The remaining amount of FRP capacity will be committed in the RTPD to reach a 95% confidence level. Using a 95% confidence level as a target might be excessive. As SCE suggested in its previous comments, an 85% confidence level might save considerable costs with minimal risk.

Also, the 60% threshold seems arbitrary and does not have any analytical basis behind it. Perhaps 70%, 80% or 90% might be more appropriate. As the DMM s stated in its January 24<sup>th</sup>, 2012 comments:

*In real-time, the pool of units that can provide FRP will be much more constrained. Since the day-ahead market optimization seeks to commit only enough units to meet projected demand, the supply of additional on-line capacity may be limited in real-time. In RTPD, the only additional capacity that may be committed are short start units (or, in some cases, additional capacity from transitioning a combined cycle unit modeled as a MSG to a higher*

*configuration). This means that the potential for temporal market power in real-time in the FRP market is much higher.*

A possible alternative is coupling a confidence level threshold with a price level threshold. For example, an average FRP RTD capacity price could be calculated based on historical data. All Day Ahead FRP capacity bids lower than that price would receive an award up to the total requirement; potentially all of the total FRP requirement could be procured in the Day Ahead market. In the event that there are a small number of low priced bids in the Day-Ahead, the CAISO could defer to the confidence level threshold.

PG&E is not comfortable with the level of details provided by the CAISO on this issue, and alternative options should be considered.

#### **b) FRP Bidding Rules**

The CAISO proposes to require a resource to specify its real-time energy bid range in the Day-Ahead market.<sup>1</sup> This addresses a scenario in which a resource provides low energy bid in the Day-Ahead market to secure an FRP award and then subsequently raises its energy bid in the real-time market.

The bid range will also allow the CAISO to factor “extreme” energy bid into the costs of procuring FRP capacity. Specifically, upward FRP capacity with energy bids higher than \$300/MWh will have a greater expected energy dispatch cost in the amount of  $2.5\% * (\text{energy bid} - 300)$ . Similar treatment will apply to down FRP capacity with energy bids lower than \$0, which will have a higher expected energy cost in the amount of  $(-2.5\% * \text{energy bid})$ .

There are alternative solutions worth exploring. First, using a bid range of \$0 - \$300 provides too much room for a resource to game the market. For example, assume that in the Day-Ahead market, Resources A and B bid the same price for FRP Up capacity. Also assume that Resource A provides an energy bid range of \$1-\$10 and Resource B provides an energy bid of \$30 - \$299. Under the current proposal, CAISO’s might select Resource B to provide FRP capacity.<sup>2</sup>

In order to avoid this scenario from occurring, the CAISO’s Day-Ahead optimization could consider both FRP bids and energy bids (at all levels – not only those bids less than \$0 and greater than \$300). Also, rather than allowing resources to provide an energy bid range, bids in the Day-Ahead market could be locked in the Real-time. Generators have expressed reluctance to support the locking of bids because they assert that costs can change from Day-Ahead to the Real-time market. However, other than changes in gas prices (which can be addressed by

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<sup>1</sup> The resource specific bid cap will be used to calculate the composite upward flexible ramping cost, and resource specific bid floor will be used to calculate the composite downward flexible ramping cost in the DA market.

<sup>2</sup> In this case Resource B is free to provide a Real-time energy bid of \$299 without incurring the disadvantage of having an upward adjustment to its FRP Up capacity bid. Meanwhile Resource A, who would have bid at most \$10 in the RT market, is ignored by the CAISO’s optimization.

allowing a heat rate adjustment to the locked bids in RT), PG&E is not aware of other variables that can result in changes of costs during a 24 hour period of time.

### c) FRP Cost Allocation Methodology

PG&E supports the general cost allocation framework described by the CAISO.<sup>3</sup> However PG&E does not agree with monthly re-settlement of the cost allocation.<sup>4</sup> Calculating an “average monthly rate” allows a resource (or load) to pay a relatively small amount even if it deviated from its baseline during a settlement interval with a very high FRP capacity price. The CAISO states that monthly re-settlement is necessary because the FRP is procured based upon forecasted variability and uncertainties and that when a resource deviates in a specific settlement interval, it cannot be concluded that its actual deviation caused the FRP to be procured for that settlement interval.

PG&E does not support the monthly uplift resettlement and resulting the monthly rate smoothing. The CAISO does not provide for monthly rate smoothing for energy prices. It desires to have the granular temporal price signals sent to participants. The same should be true with price signal regarding costs related to flexibility.

Moreover, by smoothing out the cost and billing only in a single tier, participants have reduced transparency into potential uplift issues. The amount of uplift charged in a second tier provides useful feedback to participants. If the tier two billing is high it can point to fundamental problems with the market (e.g., the CAISO is procuring too much of a particular product).

PG&E is still examining this issue, but it seems to us a preferred approach would be to provide some tier one rate protection to participants with a rate cap and billing any excess uplift in a second tier.

## 4. Additional Information is Needed

Stakeholders at the April 16<sup>th</sup> meeting made numerous requests for additional information, examples, and analysis. PG&E asks the CAISO to provide additional information and analysis in three areas. We would like for the CAISO to provide this information in an addendum as a next step in the stakeholder process (see proposed revised stakeholder timeline below).

### a) More Details Required on How the Procurement Requirement will be Determined

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<sup>3</sup> The CAISO proposes to allocate the costs to three buckets: 1) Load, 2) VERs, Internal Generation, Intertie Operational Adjustments, and 3) Intertie Ramps. Profiles will be converted into ten minute intervals (internal generation already has a ten-minute profile) to calculate a baseline. The CAISO will measure the actual output (consumption for load) and compare it the baseline to determine deviations.

<sup>4</sup> The CAISO proposes that the total costs incurred during the month will be divided by the sum of positive (or negative) deviations across all resources. On a daily basis, scheduling coordinators will be allocated flexible ramping product costs as a share of their resources deviations. At the end of the month, these daily charges will be reversed, and the resource will be charge the monthly rate for each of its deviations.

The Draft Final Proposal lacks sufficient details on how the CAISO will determine the procurement requirements for the FRP. The level at which the CAISO sets the requirements will be a key driver of the Flexible Ramping cost and has only been addressed in a very general fashion. In the Draft Final Proposal, the CAISO states that it will perform statistical analysis on an imbalance distribution using historical data to determine the FRP requirements.

Stakeholders need more specific information to assess the CAISO's proposal including:

- What is the statistical methodology?
- How much historical data will the CAISO use to determine the imbalance distribution (one month, six-months, or a year)?
- How often will the CAISO review and revise the requirements?
- How will the CAISO know whether the requirements are too high?

The CAISO proposes to use the imbalance distribution to procure to a 60% confidence level in the Day-Ahead market. The remaining amount of FRP capacity will be committed in the RTPD to reach a 95% confidence level.<sup>5</sup> In the RTD run, the optimization will determine whether to hold on to (procure) the FRP capacity or to release it for energy.<sup>6</sup> As PG&E understands it, the CAISO will use the same distribution to determine the total FRP requirement. But it is unclear as to how this can be the case when the procurement in DA market is based on an hourly FRP requirement and commitment in the RTPD is based on a 15-minute FRP requirement. Stakeholders and the proposal would benefit from additional explanation, including numerical examples that use actual data to determine imbalance distributions and how it translates into a procurement requirement in the DA and commitment requirement in the RTPD.

**b) The Rules for Conversion between the Day-Ahead Market and RTPD are unclear**

The CAISO's methodology for converting FRP to non-contingent spinning reserves (and vice versa) in the RTPD needs more explanation and detail. It was apparent from the April 16<sup>th</sup> stakeholder meeting that market participants were unclear as to how conversion would work under various scenarios because of how spinning reserves are treated in the Day-Ahead and RTPD.

As PG&E understands it, when the CAISO procures incremental spinning reserves in RTPD, the spinning reserves is contingent-only.<sup>7</sup> Also, if the resource providing the incremental spinning reserves in RTPD was also awarded spinning reserves in Day-Ahead, the total quantity of spinning reserves from the resource is considered contingent-only even if the Day-Ahead award

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<sup>5</sup> Imbalance distribution will measure the RTD net load deviation from RTPD load.

<sup>6</sup> FRP procured in the DA market and released for energy in the RTD will be paid a DA FRP capacity payment as well as and RTD energy payment. FRP capacity committed in the RTPD and released for energy in the RTD will only receive an RTD energy payment. FRP committed in the RTPD and procured in the RTD (not released for energy in the RTD) will only receive an RTD FRP capacity payment.

<sup>7</sup> Non-contingent spinning reserves cannot be procured in RTPD and can only be procured in the DA market.

was previously identified as non-contingent. These rules make it difficult to determine how the CAISO's conversion process would work. Thus, the CAISO should develop detail numerical examples reflecting the spinning reserves rules described above.

**c) Actual Historic Data should be used to Test the CAISO's Cost Allocation Methodology**

PG&E appreciates and strongly supports the CAISO's effort to develop a cost allocation methodology based on cost causation. Variable Energy Resources ("VER") are partly responsible for the need to develop a FRP, and, therefore, it is just and reasonable to allocate a portion of the costs to these resources.

However, the CAISO should use historical data to test its proposed methodology before it goes to the Board for approval. This is a prudent step before finalizing the design and committing resources to implementation. PG&E recommends that the CAISO simulate 30 days of cost allocation based on historical data and share the details with stakeholders.

The CAISO has all the data it needs to perform this analysis (other than the profile for VERs<sup>8</sup>). For VER profiles, the CAISO can use a proxy for the profiles used the actual 15-minute dispatch an hour before the RTPD interval (the assumption is the SC could use as a default for the profile the actual 15-minute dispatch from the previous hour).

## **5. PG&E's Proposed Stakeholder Schedule**

Below is PG&E's proposed revised schedule for the FRP stakeholder process. The additional time will allow stakeholder to propose and consider alternative approaches. It will also provide time for the CAISO to provide the additional information and analyses requested by participants.

- **May 23** The CAISO posts an addendum addressing information and analysis requests by stakeholders, including:
  - How the actual data will be used to determine an imbalance distribution showing how it would translate into a procurement requirement in the Day-Ahead and commitment requirement in the RTPD.
  - Details about the conversion of FRP to non-contingent spinning reserves (and vice versa) between the Day-Ahead and RTPD. The CAISO should develop details numerical examples reflecting the spinning reserves rules.

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<sup>8</sup> VERs will be required to submit the 15 minute profile (which the CAISO will convert to a ten minute profile) 37.5 minutes prior to the start of "binding" RTPD interval where units are committed to provide the flexible ramping product. The scheduling coordinator will provide a two hour profile of expected output; however, only the first 15 minute interval will set the baseline for measuring deviations subject to the flexible ramping cost allocation and be "binding" for determining the flexible ramping product cost allocation.

- Results of the proposed allocation methodology using 30 days of historical data
- **June 6** The CAISO holds a stakeholder meeting to discuss its addendum.
- **June 20** Stakeholder comments due on addendum, including design alternatives provided by stakeholders.
- **July 11** CAISO posts Revised Straw Proposal.
- **July 25** Stakeholder comments due on Revised Straw Proposal.
- **August 15** CAISO posts Draft Final Proposal.
- **August 29** Stakeholder comments due on Final Draft Proposal.
- **August 22** The CAISO posts its Final Proposal.
- **Sept 13** Board of Governors considered FRP Proposal.