



Comments of Pacific Gas and Electric Company

Renewable Integration Phase 2 - Revised Straw Proposal

Submitted by	Company	Date Submitted
Kurt Hansen (415) 973-2948 Ian Quirk (415) 973-9798	PG&E	September 22, 2011

Pacific Gas & Electric (PG&E) appreciates the opportunity to participate in the stakeholder process for the California Independent System Operator’s (CAISO) Renewable Integration Phase 2 Initiative and to submit comments regarding the August 29, 2011 Revised Straw Proposal.

PG&E generally supports the CAISO's revised and more incremental approach towards the Renewable Integration Phase 2 - Market Vision and Roadmap. PG&E's comments provide additional process and design recommendations, including:

- Support Development of Comprehensive Roadmap while Taking Incremental Approach to Implementation
- Support Three Proposed Implementation Timeframes
- Encourage CAISO to Develop Achievable Timelines
- Support Addition of Cost Allocation Based on Causation as a Guiding Principle
- Support Giving Priority to (1) Development of a Flexible Ramping Product and (2) Modification of Pricing and Settlement of HASP Schedules
- Support Waiting for FERC Guidance Before Pursuing Pay-for-Performance Regulation
- CAISO Should Survey Operational Practices of Other ISO/RTOs to Provide Flexible Ramping
- Potential Gaming Outcomes of the NYISO Approach Must be Assessed and Addressed
- Support Forward Procurement of Long-Term Flexibility

1. Summary of CAISO Proposal

Comprehensive Roadmap Approach with Incremental Implementation of Design Initiatives

The CAISO plans to present a comprehensive Roadmap of Renewable Integration market design initiatives to its Board of Governors in December 2011. The Roadmap is scoped to encompass

market changes from 2011-2020. From this Roadmap individual initiatives will be incrementally considered in stakeholder processes and implemented. Most immediately, two new initiatives are scheduled to be initiated by year's end: 1) Flexible Ramping Product and 2) Changes to Intertie Scheduling and Settlement to address RTIEO concerns.

Separation of Initiatives by Implementation Phase: Short, Mid, and Long-Term Priorities

The CAISO's incremental approach considers three implementation phases: Short-term (today to 2013), Mid-term (2013 to 2015) and Long-term (2015-2020).

The Short-term phase (today to 2013) consists of implementing initiatives that have received Board approval or are already being considered in other stakeholder processes. These initiatives include:

1. Eliminate CB at interties (implement 2011)
2. Flexible Ramping Constraint (implement 2011)
3. PIRP Changes (implement 2012)
4. REM (implement 2012)
5. Changes to Energy Bid Floor and BCR Changes (implement 2012)
6. 72-hour RUC (implement 2012)
7. Dynamic Transfers (implement 2013)
8. More Granular Modeling of VERs in RUC zones (implementation date not clear)
9. Enhancements of start-up and shut-down profiles (implementation date not clear)
10. Multiple-Stage Generator Enhancements (implementation date not clear)
11. Enhanced Contingent/Non-contingent Operating Reserve Management (implementation date not clear)

The Mid-term phase (2013 to 2015) includes the following initiatives:

1. Create a flexi-ramp product
2. Modify the pricing and settlement of hour-ahead interchange schedules
3. Regulation pay-for-performance
4. Provide variable energy resource forecast updates
5. Allow PIRP resources to submit decremental bids to curtail

As noted above the CAISO plans to initiate in December two separate stakeholder processes for the first two Mid-term initiatives. The Revised Straw Proposal discusses some possible design approaches for which PG&E provides feedback in sections seven and eight of our comments.

The Long-term phase (2015 to 2020) includes the following objectives:

1. Forward procurement of long-term flexibility
2. Work with western balancing area authorities to identify market needs and coordinate market operations
3. Additional refinements of short and mid-term changes

The Revised Straw Proposal provided only an introductory discussion of the first Long-term objective. The CAISO may also decide to make more fundamental changes to the hour-ahead and real-time markets in this later phase.

2. Comments on Overall Approach

Support Development of Comprehensive Roadmap while Taking Incremental Approach to Implementation

While there is value in thinking about market design changes in a comprehensive fashion, the CAISO's previous proposal to completely revamp both the Day-Ahead and Real-Time markets was far too ambitious to consider in a single initiative or implement together. PG&E therefore supports the CAISO's intention to create a conceptual roadmap of future market design changes and to stakeholder and implement these changes in a phased approach. This approach will help manage the changes into prioritized and manageable phases while making sure the pieces fit together coherently.

Support Three Proposed Implementation Timeframes

The timing of the three implementation phases seems reasonable.

Encourage CAISO to Develop Achievable Timelines

Though PG&E supports the CAISO's plan to brief the Board of Governors in December 2011, PG&E does not expect the CAISO to have completed the Roadmap at that time. We expect more time will be needed to fully flesh out the Roadmap with adequate detail for all three implementation phases.

Further, we encourage the CAISO to set forth realistic timelines for the Roadmap and the market initiatives stemming from the roadmap. As demonstrated by our experience in the Renewable Integration Phase 1 Initiative, the market and its participants are better served by a realistic schedule for these forthcoming complex and contentious stakeholder processes. The CAISO had planned for a six-month stakeholder process for Phase 1; in actuality that process will likely take 18 months to complete. It is helpful to all parties if the CAISO is more realistic regarding the scheduling of its initiatives. As discussed in PG&E's previous comments, we recommend the CAISO include adequate time to survey how other markets are addressing these various challenges, for the CAISO and market participants to conduct analyses and modeling to help inform our decisions, and for stakeholders to provide thoughtful comments.

3. Comments on Guiding Principles

Support Addition of Cost Allocation Based on Causation as a Guiding Principle

PG&E supports the CAISO's addition of a principle to allocate costs based on cost causation. PG&E agrees with the CAISO that costs related to variability should be allocated to those participants which drive costs associated with providing increased flexibility. Sending accurate and transparent price signals to market participants should be a cornerstone of the CAISO's renewable integration efforts going forward, including the initiatives implemented in Phase 1.

4. Comments on Short-Term (Today to 2013) Objectives

Support Proposed Objectives, While Recognizing This is a Sizable Implementation Effort

PG&E supports the initiatives the CAISO has included in the Short-term phase. As listed above the CAISO has scheduled the implementation of at least eleven market enhancements related to providing more system flexibility in the short-term. PG&E notes this is an ambitious undertaking for both the CAISO and participants, and PG&E cautions the CAISO against adding additional new initiatives. We have three specific comments on the proposed Short-term initiatives below.

Recommend Addressing BCR Issues in a Larger BCR Stakeholder Process

As stated in our comments to the Renewable Integration Phase 1¹ Fourth Revised Straw Proposal, PG&E recommends that changes to Bid Cost Recovery be linked to lowering the bid floor, and that further discussion of BCR be taken up in a separate stakeholder process. PG&E and other participants noted in their latest Phase 1 comments outstanding BCR questions. Rather than trying to rush through these issues or delaying the entire Phase 1 proposal any further, PG&E suggests that the CAISO defer consideration of further BCR reforms to its forthcoming FERC-ordered BCR Stakeholder Process to be started by mid-December.²

Though the scope of the CAISO stakeholder process has not yet been defined, it seems that some of the fundamental issues from the Phase 1 BCR discussion such as the treatment of minimum load costs would be a natural fit. Consideration in this forum will give both the CAISO and stakeholders adequate time to fully consider all of the issues. This additional time should also help to minimize unintended consequences resulting from BCR changes.

Recommend Implementing Shut-Down Profiles at Resource Level

PG&E understands that the CAISO will implement start-up profiles at a resource level but will implement shut-down profiles at a system level. PG&E recommends exploring the benefits of implementing resource-level shut-down profiles too.

Recommend Development of a Day-Ahead Contingent Designation by Hour

PG&E recommends that the CAISO include as part of contingency reserves enhancements the ability to designate Day-Ahead contingency reserves by hour. The hourly designation will be especially useful in distinguishing between hours when resources are expected to be online, or even self scheduled, and can offer non-contingent reserves, versus hours when they are not expected to be committed by the market and should only offer contingent reserves.

5. Comments on Mid-Term (2013-2015) Objectives

Support Proposed Mid-Term Objectives

¹ PG&E Comments on Fourth Revised Straw Proposal Renewable Integration Phase 1. September 7, 2011. http://www.caiso.com/Documents/PGEComments_RenewableIntegrationMarketandProductReviewPhase1FourthRevisedStrawProposal.pdf

² On August 19th, FERC accepted the CAISO's second round of BCR tariff revisions. As part of this filing, the CAISO made a commitment to begin a BCR stakeholder process within 90 and 120 days of the FERC order.

PG&E supports pursuing the five mid-term initiatives listed in the CAISO proposal, and, at this time, has no recommended additions.

Support Giving Priority to (1) Development of a Flexible Ramping Product and (2) Modification of Pricing and Settlement of HASP Schedules

PG&E supports the CAISO's plan to give priority to the development of a flexible ramping product and modification of the pricing and settlement of HASP schedules. These issues will be addressed in two stand-alone initiatives to be started by year's end. PG&E agrees with the direction provided by the Board of Governors at their August meeting to give priority to pursuing more permanent solutions to the flexible ramping need and RTIEO uplift issues. PG&E notes that the Board also requested an update in February 2012 on the CAISO's progress on these two fronts.

Support Waiting for FERC Guidance Before Pursuing Pay-for-Performance Regulation

One of the initiatives listed as a mid-term objective by the CAISO is to develop a mechanism to pay regulation service on a performance basis. However, the CAISO correctly pointed out in its September 12 presentation³ that pending FERC decisions could significantly impact this market design change. PG&E supports the CAISO's decision to wait for further FERC guidance before beginning a stakeholder process to develop pay-for-performance regulation.

6. Comments on Long-Term (2015-2020) Objectives

Support Forward Procurement of Long-Term Flexibility

Although the Revised Straw Proposal notes three possible objectives, it only begins to flesh out at a high level the details of one: forward procurement of long-term flexibility. PG&E is supportive of this long-term objective and the linking of a forward procurement of flexible capability to the spot market. One important design element PG&E supports is that capability from flexible resources should have the ability to satisfy both flexibility and resource adequacy requirements simultaneously.

High-Level Vision should be Adequately Developed to Guide the Mid-term Stakeholder Processes

As part of the Roadmap process, PG&E recommends that the CAISO flesh out enough of the long-term vision to help guide the stakeholder work for the mid-term initiatives. Little long-term guidance may be needed for some of the mid-term work, like the Flexible Ramping Product. While other initiatives may be more reliant on the long-term vision, such as changes to the HASP. PG&E does not recommend working through all of the details of the long-term vision. This would be difficult since implementation of the long-term elements is at least four years away, and the details will be impacted by changes implemented in earlier phases and some events outside the control of the CAISO (e.g., the outcomes of FERC NOPRs). However, it will be helpful to have the outlines of the long-term vision, where needed, to guide the development of the nearer term work.

³ CAISO presentation for Renewable Integration Phase 2. September 12, 2011. http://www.caiso.com/Documents/Presentation-RenewablesIntegrationMarket-ProductReviewPhase2StakeholderMeeting_Sep_12_2011.pdf

7. Specific Comments on Flexible Ramping Product Initiative

CAISO Should Survey Operational Practices of Other ISO/RTOs

Before the stakeholder process begins, PG&E recommends that the CAISO conduct a survey of operational practices of other ISO/RTOs in regards to meeting ramping requirements. When this suggestion was made at the stakeholder meeting, the CAISO agreed to the importance of such a survey. This upfront homework may allow the CAISO to leverage the experiences of other markets as to what works and what doesn't and will support the CAISO's "Cost-effective and Implementable" Guiding Principle.

The Flexible Ramping Product Should Include Key Design Characteristics

First, the revenues earned by a resource offering the Flexible Ramping product must be included in its BCR calculations, as is currently done for both Energy and Ancillary Services. Failure to do so will result in the over-compensation of generators and unfairly increasing the BCR uplift paid for by load.⁴

Second, the Flexible Ramping product should operate under similar provisions as the other ancillary services, including a rescission of a payment provision for resources that receive a Flexibility Ramping payment for capacity that is unavailable, undispachable, or undelivered during the relevant market interval. This is consistent with the other ancillary service products. Not making this change could result in an unjust charge to load to pay for capacity that was not available. The CAISO recognizes this and proposes to enforce performance obligations on resources that are awarded flexi-ramp payments.⁵ As with the BCR change we expect the inclusion of this design element to be straight-forward.

Finally, the need for flexible ramping capacity is driven by load forecast error, generation variability (e.g., variable output from renewable resources), and intertie changes. Increasingly, this need is driven not by increase in load error but by generation variability. As such, the allocation of the cost for Flexible Ramping should flow to market participants based on causation. The CAISO recognizes this in its Revised Straw Proposal and proposes that costs be allocated to all market participants based on their uninstructed deviations.

Including Opportunity Cost of Energy Dispatch May not be Reasonable

While the Flexible Ramping product is similar to ancillary services in many respects, there are important differences to consider. Resources providing ancillary services are eligible to earn

⁴ Generators that do not receive enough revenues in CAISO market to recover their start up and minimum load costs are made whole via an uplift payment referred to as BCR. If there is no mechanism to reflect Flexible Ramping revenue in BCR, then the profits that generators receive for offering the Flexible Ramping product will not be netted against their start-up and minimum load costs.

⁵ Specifically, the CAISO proposes that if a resource's response to dispatch instructions is outside a tolerance range, the resource might: 1) forfeit the capacity payment for providing flexi-ramp similar to no-pay; 2) possibly have an additional penalty applied; 3) after several incidents of non-performance, the resource would no longer be certified to provide flexi-ramp.

energy opportunity cost payments when withholding their capacity prevents them from selling energy.⁶ This is because spinning and non-reserves procured by the CAISO will only be dispatched for energy when there are system emergencies.

On the other hand, capacity reserved for flexi-ramp has a high probability of being dispatched for energy and therefore would not be prevented from capturing revenues in the CAISO's energy market. Thus, it might not be appropriate to include the opportunity costs of not providing energy when compensating resources that provide flexi-ramp. This concern has been raised by both the MSC and the DMM.⁷ PG&E requests that the CAISO fully explore this issue in the upcoming stakeholder process.

More Information is needed to Understand Flexible Ramping Product's Interactions with RUC

The CAISO's Revised Straw Proposal mentions that procurement of Flexible Ramping product in the day-ahead market will involve coordination between the RUC procurement and the IFM. The description provided at the stakeholder meeting of how this would work is unclear. PG&E requests that the CAISO provide additional written clarification with simple illustrative examples explaining how the Flexible Ramping product will interact with RUC.

More Details are Needed Regarding the Probability of Dispatch

In the CAISO's Revised Straw Proposal, it recommends using the probability that a unit will be dispatched for energy to determine which resource will be chosen to provide Flexible Ramping. While PG&E is willing to explore this option, more information is needed. For example, how would the CAISO determine the probability of dispatch among units? The need to include a sophisticated optimization must be balanced with the general objective of keeping the design as simple as possible.

8. Specific Comments on Intertie Scheduling and Settlement Initiative

Potential Gaming Outcomes of the NYISO Approach Must be Assessed and Addressed

One potential solution discussed in the Revised Straw Proposal was the NYISO intertie settlement option. In its comments to the CAISO's RTIEO Draft Final Proposal, the DMM pointed out the potential for gaming behavior under the NYISO approach⁸. Specifically, the DMM pointed out that providing physical imports a bid-cost guarantee if the HASP price exceeds the RTD price would create an opportunity for balanced HASP export and import schedules to profit from the RTD LMP settling below an entity's cleared HASP import bid price.

⁶ The Ancillary Services Marginal Price (ASMP) is a result of the Energy and Ancillary Service co-optimization, which includes the opportunity cost of not providing Energy

⁷ See page 13 of the MSC's Opinion on Flexible Ramping Constraint and page 3 of the DMM's comments on the Flexible Ramping Constraint:
<http://www.aiso.com/Documents/110825DecisiononFlexibleRampingConstraintCompensation-MSCOpinion.pdf> as
http://www.aiso.com/Documents/DMM_Comments_FlexibleRampingDraftFinalProposal.pdf

⁸ Comments of CAISO Department of Market Monitoring, Draft Final Proposal of RTIEO Initiative, August 5, 2011. http://www.aiso.com/Documents/DMM_Comments_Real-TimeImbalanceEnergyOffsetDraftFinalProposal.pdf

The DMM noted these gaming opportunities associated with the NYISO option can be assessed and addressed through targeted settlement rules. Specifically, NYISO has a rule that non-delivered HASP schedules are penalized and not guaranteed their bid price if the RTD price is less advantageous.

Other Solutions Should be Considered in the Intertie Scheduling and Settlement Initiative

PG&E supported two additional elements dealing with the RTIEO that were included as part of the June 10, 2011 Revised Straw Proposal on the Impact of Convergence Bidding on Interties⁹. The first extended cost allocation of the RTIEO uplift to day-ahead schedules that were reduced in HASP. The second was a settlement rule for schedules cleared in HASP which fail to deliver in real-time. Both of these measures should be considered as potential enhancements in the upcoming stakeholder initiative. The Market Surveillance Committee also suggested consideration of an additional rule addressing HASP schedules that do not perform in real-time.¹⁰

⁹ Revised Straw Proposal. Impact of Convergence Bidding on Interties. June 10, 2011.

<http://www.caiso.com/Documents/RevisedStrawProposalImpactofConvergenceBiddingonInterties.pdf>

¹⁰ MSC Final Opinion. RTIEO Initiative. August 16, 2011.

http://www.caiso.com/Documents/FinalOpinion_IntertieConvergenceBidding_ImbalanceEnergyOffset.pdf