



Comments of Pacific Gas and Electric Company

Renewable Integration Market Vision and Road Map

Submitted by	Company	Date Submitted
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Pacific Gas & Electric (PG&E) appreciates the opportunity to participate in the stakeholder process for the California Independent System Operator’s (CAISO) Renewable Integration Market Vision and Road Map (Road Map) and to submit comments regarding the October 11, 2011 Road Map.

PG&E generally supports the Road Map and its incremental approach to developing market functionality to better integrate renewable resources. PG&E recommends some changes to the Road Map, most notably with the two initiatives dealing with forward procurement of flexible capability. A summary of PG&E's recommendations is shown below.

- The mid-term initiative timelines should be revised to be more realistic, and the CAISO should stagger the starts of the initiatives.
- A second operating reserve management enhancement (hourly designation of contingent reserves) should be implemented in the Fall 2012.
- The CAISO should implement 72-Hour RUC in Spring 2012 and Regulation Energy Management in Fall 2012.
- The CAISO should produce cost-benefit analyses for Flexible Ramping Product and Forward Procurement Initiatives before starting the respective stakeholder process.
- The CAISO has not demonstrated a need for the interim forward procurement mechanism, and it is premature to start Phase 1 of the Forward Procurement Initiative.
- The CAISO needs to clearly define the need for flexibility and the larger procurement vision (i.e., clarify the role of the Forward Procurement relative to Resource Adequacy) before starting Phase 2 of the Forward Procurement Initiative.
- PG&E supports giving priority to (1) development of a Flexible Ramping Product and (2) modification of Intertie Pricing and Settlement.
- PG&E supports the CAISO filing for a one-year extension of FERC deadlines on Pay-for-Performance Regulation.

- PG&E recommends merging the Non-Generator Resource Model with the Pump Load Model as a Road Map initiative.
- The CAISO should not use working groups for the mid-term policy initiatives.
- The CAISO should continue the Road Map process to adequately develop a long-term vision to guide the mid-term stakeholder work.

1. Summary of CAISO Proposal

Comprehensive Road Map Approach with Incremental Implementation of Design Initiatives

The CAISO plans to present a comprehensive Road Map of Renewable Integration market design initiatives to its Board of Governors on October 27, 2011. The Road Map is scoped to encompass market changes from 2011-2020. From this Road Map individual initiatives will be incrementally considered in stakeholder processes and implemented. Most immediately, three new initiatives are scheduled to be initiated by year's end: 1) Flexible Ramping Product, 2) changes to Intertie Scheduling and Settlement, and 3) Forward Procurement of Flexible Capability, which has been accelerated from a long-term to a mid-term initiative in this version of the Road Map.

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

The Road Map identifies initiatives in two implementation phases: short-term (today to 2013), and the mid-term (2013 to 2015). Unlike the August 29, 2011 Revised Straw Proposal, the latest Road Map does not discuss any specific long-term (2015-2020) initiatives.

The short-term phase includes nine initiatives that have received CAISO Board approval or are already being considered in other stakeholder processes.

1. Flexible Ramping Constraint (implement December 2011)
2. PIRP Changes (implement Fall 2012)
3. REM (implement Spring 2012)
4. Changes to Energy Bid Floor and BCR Changes (Fall 2012)
5. 72-hour RUC (implement Spring 2012)
6. Dynamic Transfers (implement Spring 2013)
7. More Granular Modeling of VERs in RUC zones (implement December 2011)
8. Enhancements of start-up and shut-down profiles (implement Spring 2012)
9. Enhanced Contingent/Non-contingent Operating Reserve Management (implement Spring 2012)

The mid-term phase includes five initiatives which will be designed in stakeholder processes over the next several years.

1. Create a flexi-ramp product (implement Spring 2013)
2. Modify the pricing and settlement of hour-ahead interchange schedules (implement Fall 2013)

3. Regulation pay-for-performance (implement date to be determined)
4. Allow PIRP resources to submit decremental bids to curtail (implement 2013)
5. Forward procurement of flexible capability (implement Phase 1 by January 2013 and implement Phase 2 by Spring 2014)

2. Comments on Overall Approach

Revise the Initiative Schedule to be More Realistic and Stagger the Starts of the Initiatives

In general PG&E supports the Road Map's incremental approach and the prioritization of initiatives, with some exceptions discussed below. However, PG&E is concerned the timelines are overly ambitious and strongly encourages the CAISO to revise the schedules to be more realistic.

The CAISO and its participants are better served by realistic schedules for these forthcoming complex and contentious stakeholder processes. As discussed in PG&E's previous comments, we recommend the CAISO include adequate time to survey how other markets address 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. Additionally, achievable timelines should also allow for the testing of software/system changes that are needed to integrate these initiatives with the market.

PG&E asks the CAISO to revise the schedules for the three initiatives it plans to initiate over the next several weeks. It is unrealistic to expect the stakeholder processes for the Flexible Ramping Product and the Intertie Pricing to be completed in about two and three months, respectively. As discussed below, work on the Forward Procurement of Flexible Capability is premature. Unrealistic timelines do not serve the interests of the CAISO or participants. These timelines should be revised so we do not repeat our experience with the Renewables Integration - Phase 1 initiative in which a planned six-month stakeholder process has taken 18 months to complete.

Finally, PG&E recommends that the start dates of the Flexible Ramping Product and the Intertie Pricing initiatives be staggered by several weeks to manage the flow of work for both the CAISO and participants. PG&E recommends eliminating Phase 1 of the Forward Procurement of Flexible Capability initiative. The CAISO receives lesser quality input when stakeholder comments on multiple initiatives are due at the same time.

3. Comments on Short-Term (Today to 2013) Initiatives

Support Initiatives Scoped for the Short-Term Phase

PG&E supports the nine market enhancements the CAISO has included in the short-term phase. We have two specific recommendations on the proposed short-term initiatives.

Recommend Implementing a Second Operating Reserve Management Enhancement in the Fall 2012

PG&E supports the Operating Reserve Enhancement to be implemented in Spring 2012. However, the planned enhancement would not provide scheduling coordinators the ability to designate Day-Ahead contingency reserves by hour. It is important to recognize that the hourly

designation will be especially useful in distinguishing between hours when resources are expected to be online and can offer non-contingent reserves, versus hours when they are not expected to be committed and can only offer contingent reserves.

PG&E recommends that the CAISO implement the designation-by-hour functionality as a second phase in the Fall of 2012. In the stakeholder call, the CAISO agreed that this enhancement would provide additional flexibility, but expressed concern that its inclusion would delay the planned implementation in Spring 2012. PG&E recognizes this time constraint and proposes that the designation-by-hour functionality be implemented in the Fall 2012.

Implement 72-Hour RUC in Spring 2012 and REM in Fall 2012

The CAISO has delayed implementation of the 72-hour RUC initiative from Spring 2012 to Fall 2012. The CAISO indicated the software vendor was resource constrained, and there was schedule risk in implementing both the 72-hour RUC and the Regulation Energy Management (REM) initiatives in the spring. The CAISO's solution to mitigate this risk was to delay the 72-hour RUC initiative.

PG&E recommends switching the implementing dates for these two initiatives and implementing 72-hour RUC in Spring 2012 and the REM functionality in Fall 2012. The 72-hour RUC enhancement will provide wider and more immediate benefits to the market by reducing the start-up costs due to uneconomic cycling, resulting in better commitment decisions for resources. REM, on the other hand, will only be used by a very limited number of participants.

4. Comments on Mid-Term (2013-2015) Initiatives

Support Mid-Term Priorities Except the Forward Procurement of Flexible Capability

PG&E supports the mid-term priorities listed in the Road Map except the Forward Procurement of Flexible Capability. As discussed below, PG&E recommends eliminating Phase 1 of the Forward Procurement initiative. Further, PG&E cannot support working on Phase 2 of the Forward Procurement initiative until the CAISO clearly defines the need for flexibility and articulates an integrated vision of California Public Utilities Commission (CPUC) and CAISO procurement of resource adequacy and flexible capability. This work needs to be done before starting a stakeholder process to determine procurement mechanism details.

Recommend Cost-Benefit Analyses for Flexible Ramping Product and Forward Procurement Initiatives before Starting Stakeholder Processes

Although we support the mid-term priorities, PG&E requests the CAISO produce a cost-benefit analysis before starting the stakeholder processes. PG&E recommends that this be done for the new Flexi-Ramp Product and the Forward Procurement initiatives. Before the CAISO and participants expend costs and valuable resources on developing additional products or markets, the CAISO needs to clearly demonstrate the benefits of such major initiatives. PG&E is not asking for a cost-benefit analysis for the HASP enhancement initiative since this is addressing problems that the CAISO has already demonstrated a high cost. Similarly, PG&E does not seek an analysis for the Pay-for-Performance Regulation initiative since this has been mandated by Federal Energy Regulatory Commission (FERC).

CAISO has not Demonstrated a Need for the Interim Forward Procurement Mechanism - This Initiative Should Not Start

It is PG&E's understanding the interim forward procurement mechanism the CAISO wishes to develop in Phase 1 would allow it to enter into multi-year backstop capacity contracts several years out in the future. It can be viewed as an expansion of the recently-enacted CPM backstop authority for "Capacity at risk of retirement needed for reliability."¹ PG&E does not support this expanded authority. The CAISO has not demonstrated that its existing CPM authority, which allows the CAISO to enter into one-year contracts up to a year in the future, is insufficient. Nor has the CAISO demonstrated that an extended forward mechanism is needed. In fact, the CAISO is seeking expanded authority when it has never exercised its current year-at-a-time backstop powers.

Finally, it should be noted that, at the CAISO's request, the CPUC is currently considering changes to the resource adequacy program for 2013 and 2014 to better ensure that flexibility needs are met. Between the current CPM authority to backstop a year at a time and the changes being considered by the CPUC, PG&E does not see a need for an expansion of the CAISO's backstop. If the CAISO wishes to pursue this authority, it should be further discussed as part of the Road Map process, and the CAISO should clearly present a case for the need for this authority based on engineering and market analysis.

Need to Clearly Define the Need and Procurement Vision Before Starting Phase 2 of the Forward Procurement Initiative

The objective of the second phase of the Forward Procurement initiative is to establish a permanent, market-based solution to procure flexible capability. Before initiating this initiative, the CAISO needs to do two things. First, it needs to clearly define the need. This includes defining the needed flexibility characteristics (e.g., is the need for 5-minute regulation or 15-minute net load following) and the quantities needed of each of these characteristics. PG&E expects some of this information will be developed as part of the CPUC's Long-Term Procurement Plan Track 1 Study. The CAISO is seeking to expend costs and valuable resources on developing additional product markets without first clearly demonstrating the benefits of such additional product markets.

Second, the CAISO needs to work with CPUC and market participants to develop a vision on how resource adequacy and flexibility capability will be procured by CPUC and CAISO processes. If not well coordinated, the CAISO and CPUC processes may overlap and be duplicative, resulting in costly and inefficient procurement of flexible capability.² Defining the

¹ CAISO tariff 43.2.6.

² A possible area of procurement overlap is the Non-Generic Capacity proposal that the CPUC will consider as part of its RA program in its recently initiated proceeding. The Non-Generic Capacity proposal addresses many of the concerns described in the Roadmap and states that the:

Characteristics of the resource adequacy fleet available to the ISO during the compliance period may or may not meet the required operational flexibility dictated by system conditions, load variability, and more and more generation variability presented by the increased presence of variable energy resources such as wind and solar resources.

need for flexibility and developing a clear procurement vision is the hard work that we need to do before starting any work to develop detail rules for flexibility procurement.

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

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 Hour Ahead Scheduling Process (HASP) schedules. These issues will be addressed in two stand-alone initiatives to be started in October/November 2011. 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 the increase in the Real-Time Imbalance Energy Offset.

We recognize that the CAISO wants to demonstrate progress to the Board on these issues.³ However, as discussed above, the proposed timelines for these initiatives are unrealistic. PG&E asks the CAISO to revise the schedules for the two initiatives and stagger the start dates by several weeks to better manage the work load.

Support Filing for a One-Year Extension of FERC Deadlines on Pay-for-Performance Regulation

One of the mid-term initiatives is to develop a Pay-for-Performance Regulation. While we support its inclusion as a mid-term initiative, it is not a high priority initiative relative to the other initiatives included in the mid-term window. As such, we support starting the stakeholder work on this functionality later in 2012.

PG&E notes that Federal Energy Regulatory Commission (FERC) recently issued a final rule mandating the development of pay-for-performance regulation.⁴ PG&E understands that the rule requires the CAISO to file tariff changes within 120 days (February 2012), and to implement the changes 180 days after that (August 2012). These deadlines do not seem achievable given the other priorities, and PG&E would support the CAISO requesting FERC to grant a one-year extension of the deadlines.

Recommend Merging the NGR Model with the Pump Load Model as a Road Map Initiative

PG&E suggests that enhanced Participating Load modeling, with the eventual aim of merging the Non Generation Resource (NGR) model and the pumped storage model, be pursued by the CAISO as a mid-term or long-term initiative in the Road Map. This initiative will allow better modeling in the markets of dispatchable load that has minimum and maximum load reduction levels.⁵

³ The Board requested an update in February 2012 on the CAISO's progress on these two issues.

⁴ See link to FERC's October 20th Order: <http://www.ferc.gov/whats-new/comm-meet/2011/102011/E-28.pdf>.

⁵ Currently, the pump model only recognizes one discrete level in which a unit can pump while the NGR model recognizes the entire operating range of the resource (e.g. battery storage via REM). Merging the NGR model with the pump storage model would allow Participating Load (e.g. pump storage or any other resource capable of load reduction) to bid various quantities of energy into the market, not just one quantity, as is currently the case.

Do Not Support Using Working Groups for Mid-Term Policy Initiatives

During the stakeholder call, the CAISO introduced the idea of using a working-group approach for some of the mid-term policy initiatives. The proposal coming out of the working group would then be vetted through the traditional stakeholder process. The CAISO indicated its intention to use a working group for the Intertie Pricing and Settlement Initiative.

PG&E does not support the working group structure for policy-type stakeholder processes. A working group is better suited to analytical studies where participants can be assigned specific tasks such as performing quantitative studies. This is not the case for policy initiatives where it will be difficult to make specific assignments. Moreover, it does not seem appropriate to develop policy with a subset of the stakeholders for an initiative that has broad interest among many stakeholders. Finally, from a practical point of view, this seems unworkable, since it is likely most of the stakeholders will apply to be working group members because the cost of working group membership is low (i.e., getting a work assignment is unlikely).

5. Comments on Long-Term (2015-2020) Initiatives**Long-Term Vision should be Adequately Developed in the Road Map to Guide the Mid-term Stakeholder Work**

As part of the Road Map 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. Some mid-term work may require little long-term guidance, like the Flexible Ramping Product. However, other mid-term initiatives may be more reliant on the long-term vision, such as changes to the Hour Ahead Scheduling Process.

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 influenced by changes implemented in earlier phases and 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. A good example of this is the definition of need and development of a clear procurement vision to guide the Flexibility Procurement Initiative.