



Comments of Pacific Gas & Electric Company FERC Order 764 Revised Straw Proposal

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I. Introduction

The Pacific Gas and Electric Company (PG&E) offers these comments on the California Independent System Operator's (CAISO) Revised Straw Proposal¹ regarding Federal Energy Regulatory Commission (FERC) Order 764 Compliance.

PG&E's comments emphasize the following views and positions:

- A. The CAISO should not reactivate virtual bidding at the interties as part of Order 764 and should instead separately commence a full scale reexamination of convergence bidding to resolve major issues.
- B. PG&E agrees that the CAISO should look at eliminating PIRP as a part of this stakeholder process.
- C. The CAISO should discuss the feasibility of implementing its proposed changes to current E-tagging protocols in its Draft Final Proposal.
- D. PG&E supports eliminating the Hourly Transmission Reservations from prior proposals are appropriate.
- E. Participating Load and Proxy Demand Response should be allowed to offer Economic Block Schedules.
- F. The CAISO should include a discussion of the Energy Imbalance Implementation and how it relates to FERC Order 764.
- G. Numerous settlement details need to be brought forth in the next proposal.

PG&E looks forward to continued work with the CAISO and stakeholder to hone the Order 764 design.

¹ Summarized at the end of these comments.

II. PG&E Comments on Market Design

PG&E supports market reforms aimed both at FERC Order 764 compliance and also at superior market efficiency and price-formation, e.g. optimizing intertie decisions closer to real-time and within the same market run in which internal supplies are optimized. However, as discussed below, PG&E has several comments regarding the CAISO's Revised Straw Proposal.

A. Reactivation of virtual bidding at the interties should only be implemented in conjunction with a full scale reexamination of convergence bidding internal to the CAISO market.

PG&E anticipates the implementation of a binding system-wide 15-minute market for energy and ancillary services will likely support better price convergence between day-ahead and day-of prices. While such an outcome may facilitate reinstatement of virtual bidding on interties, PG&E recommends that this initiative *exclude* reactivation of virtual bidding on the interties. Such an expansion of scope would be problematic for a variety of reasons.

As highlighted in the DMM's Q4 Report on Market Issues and Performance, convergence bidders appear to be increasing arbitraging congestion and price spikes in the CAISO, often resulting in uplift costs paid by load without increasing market efficiency. As the DMM discussed, entities are submitting an increasing number of internal virtual supply clearing the market paired with internal demand bids at different internal locations by the same market participant, profiting from internal congestion within the ISO. The virtual demand bids at internal locations were very profitable in the hours when real-time prices spike occurred caused by the system power balance constraint binding because of insufficient upward ramping capacity or with congestion.

This outcome might be acceptable if these convergence bidders were contributing to market efficiency, but the DMM found that "in practice, the impact of internal virtual demand on real-time price spikes appears to have been limited by the fact that any additional capacity available to convergence bidding may not be enough to resolve congestion or the short-term ramping limitations. This is further exacerbated by the hour-ahead market, which often does not reflect the same system conditions as in the real-time market and frequently reduces net imports, decreasing the benefits of additional capacity added in the day-ahead market". Given the lack of market benefits and the significant amount of uplift created costs created in terms of RTCO and RTIEO, the CAISO must reexamine the participation of virtual bidders internal to the market prior to simply reinstating virtual bidding at the interties.

Second, even with the proposed repairs to one of the major structural flaws of intertie virtual bidding², its reactivation still requires sufficient assessment and resolution of the dual-constraint problem.³ The effects of the CAISO's proposed dual-constraint solution need

² A market-wide energy and virtual bidding settlement every 15-minutes appears to resolve a key issue with intertie virtual bids under current designs, namely that intertie bids settle at HASP prices while internal bids settle at averages of the 5-minute prices.

³ PG&E notes that both of the potential ideas for resolving the dual-constraint problem face serious opposition from multiple stakeholders. Moreover, the general effect of modeling of interties requires consideration, particularly since the CAISO has incurred \$125 million dollars in Real-Time Congestion Offset uplift costs from July through October 2012 somewhat related to intertie modeling.

further review and mathematical assessment, particularly on the possible impacts on physical liquidity.⁴

Third, reactivation of intertie virtual bidding is not required as part of FERC Order 764. There are no barriers to creating a separate initiative on intertie virtual bidding. Such an approach simplifies the task of Order 764 compliance.

Fourth, the timing of reactivation matters. Reactivation of intertie virtual bidding simultaneously with FERC Order 764 design implementation could mask market problems, delaying their discovery and increasing costs.

For all these reasons, PG&E maintains that reactivation of intertie convergence bidding be done separately from the Order 764 Design process in order to expedite Order 764 design's success and approval. Ultimately, reactivation decisions should be pursued cautiously, following assessments of market results under 764 and observations by DMM. Costs for uplifts associated with unproductive virtual bidding patterns have exceeded many millions of dollar.

It is important to note, finally, that Order 764's process *does* allow for an adjustment to settle *internal* virtuals at the new 15-minute RT market which should enhance the market benefits of these admittedly imperfect tools because the 15-minute market represents a system wide re-optimization not only of energy but also of Ancillary Services. It is thus a purer reflection of the DA solution and a more appropriate settlement period for virtuals, especially if virtuals are unable to resolve much of the ramping limitations in RT anyway.

B. Improved VER scheduling practices could be used to replace PIRP.

PG&E agrees with the CAISO that the PIRP program netting deviations within a month may not be necessary. Such changes might result in smaller uninstructed imbalance energy for VERs. Further, the elimination of PIRP could also provide better incentives for VERs to schedule accurately and to reduce their contributions to system-wide flexibility needs and to regional RUC procurement. For this reason and with the closer scheduling timelines proposed for FERC Order 764, PG&E supports the CAISO proposal to look at eliminating PIRP.

PG&E recommends that the grandfathering of existing PIRP resources should not be an issue that is discussed in this stakeholder process. This issue is separate from the market design elements as they relate to FERC 764.

⁴ In a stakeholder initiative run in parallel to the Real-Time Imbalance Energy Offset initiative, the CAISO has worked to resolve price inconsistency issues that are caused by enforcing the two intertie constraints implemented with convergence bidding. Under the current design, the CAISO enforces two constraints at scheduling points: (1) net physical schedules across each scheduling point, ignoring the accepted virtual schedules to ensure that the physical schedules are within the established scheduling limit for that scheduling point and (2) physical and virtual imports net of physical and virtual exports must also be within established scheduling limits.

C. Trade-offs between E-tagging timelines and between delaying market decisions until closer to real-time should be clearly defined and discussed.

PG&E reiterates its concern that 2.5 minutes may be insufficient under current methods for updating or completing e-tags required for energy flowing across an inertia, especially if this process is required up to four times an hour. CAISO should not move ahead of implementation capabilities of market participants and vendors. Specifically, the CAISO should provide insights on what are the actual changes needed support a 2.5-minute window and identify vendors that are developing such a feature.

The CAISO's Draft Final Proposal should specifically address these issues by detailing protocols, systems, and timelines for stakeholder discussion. Such details will be necessary for evaluation of any FERC Order 764 Compliance plan. Specifically, the CAISO should detail the following:

- If transmission profiles change, how onerous is the e-tag update?
- Could these systems be upgraded to allow for less lead-time on both tag formation and on submission?
- What WECC or NERC governance structures should be involved in discussion of a move to a shorter tagging timeline?
- Could a panel of power marketers discuss how to improve tagging protocols in order to facilitate FERC Order 764 compliance?

Accommodations to tagging time-lines are important, but so is the need to ensure accurate load and VER forecasting by allowing key input timelines. If the CAISO identifies time-saving measures in its pre-market runs or tagging timelines, it should use such time to delay market decisions while also considering tagging needs. Additional time should not, de facto, go to increase timelines for tagging given that uplifts and market inefficient.

D. PG&E supports a design with no explicit transmission reservation.

Removal of the previous proposal's Transmission Reservation concept improves the design by reducing complexity and the need to make and price decisions in advance of and somewhat disconnected from other binding optimization runs. Overall, this will improve efficiency.

By offering numerous flags and structures for inertia bids⁵, the CAISO's design reduces seams and liquidity issues. Some of these structures should help with the transition to full

⁵ Seven flavors of bids will be accepted for the inertias: 1) Self-scheduled hourly block 2. Self-scheduled variable energy resource forecast 3. Economic bid hourly block 4. Economic bid hourly block with single intra-hour curtailment 5. Economic bid with participation in 15-minute market 6. Economic bid with participation in 15-minute market only if cleared in hourly process for block schedules 7. Dynamic Transfers

15-minute functionality on the interties. The goal of 15-minute functionality on the interties should remain a priority, even with presumed transition issues.

E. Participating Load and Proxy Demand Response Should be Allowed to offer Economic Block Schedules.

In its Revised Straw Proposal, the CAISO proposes to provide Intertie resources with hourly block bidding and scheduling options including economic bid hourly block and economic bid hourly block with single intra-hour curtailment. PG&E also believes that these options should be made available to Participating Load (PL) and Proxy Demand Response (PDR) resources operating internal to the CAISO market as well as intertie resources. PG&E appreciates the efforts of the CAISO to encourage through market design the maximum participation (i.e. dispatchability) by all types of resources in both the 15-minute and 5-minute markets; however PDR and PL resources can share similar dispatch limitations with imports and exports. While program and capabilities for PDR and PL may evolve and expand over time (in response to greater need and market value of flexibility), PDR and PL resources can have current contractual or operational limitations that preclude most if not all intra-hour dispatchability.

Providing PL and PDR resources the same bidding options proposed for interties may increase bid participation and CAISO flexibility from these resources that would otherwise continue to be self-scheduled due to these dispatch limitations. The hourly block options should be made available to PL and PDR resources.

Consistent with resources on the interties that are not dispatchable on a 15 minute basis, such demand-side resources offering economic block scheduling internally should not be given uplift payments to the degree that the 15 minute prices are inconsistent with their economic bids.

F. The CAISO Should Include a Discussion of the Energy Imbalance Implementation and How it Relates to FERC Order 764.

In the Draft Final Proposal, the CAISO should provide the details of the Energy Imbalance Market (EIM) implementation with PacifiCorp and lay out how the EIM design and 764 would work in tandem with CAISO's market. The CAISO should also lay out an implementation timeline for the EIM and FERC Order 764 jointly so stakeholders can fully understand the implications of each proposal.

G. Numerous settlement issues need assessment and consideration in the next proposal.

Before finalizing the design, the CAISO should review several settlement details. Resolution of these details is possible but should be clarified through the stakeholder's process in order to allow appropriate assessment in advance of making tariff and BPM changes.

- 1. The pricing of RT Load deviations should be re-examined to provide better transparency into RT market issues.** Currently all differences between load quantities scheduled in the day-ahead market and the final metered load position (i.e. RT load deviation) are settled at the 5-minute RT price corresponding to the load's scheduling

LAP. Under the current FERC Order 764 proposal the ISO would instead price these deviations using a weighted average price based on the LAP-specific 15-minute and 5-minute LMPs and their corresponding dispatch volumes.

PG&E is concerned that this change in pricing will reduce transparency to inefficiencies in and/or exploitations of the CAISO market process while doing little to minimize the risk and exposure to such issues. The current single market pricing process has allowed participants to use RT uplift allocation amounts to isolate intervals where there may be financial abnormalities and identify possible causes for detailed investigation. PG&E feels that this is a valuable process that offers clear visibility into market anomalies and that the new pricing proposal dilutes that visibility.

PG&E requests that the CAISO continue to explore other mechanisms for pricing real-time Load deviations in order to maintain the current levels of pricing transparency while reflecting cost causation. Any such mechanism should attempt to include greater detail and visibility into how the proposed weighted average pricing and market uplifts will function when load forecasts in the RTPD period differ in direction from actual dispatch in the RTD and/or when congestion modeled in the RTPD process does not materialize in the RTD as expected.

While the CAISO has provided the single spreadsheet example detailing a simple, single-load scenario, PG&E feels that a detailed discussion of the approach and underlying principles would aid in understanding the incentives that result and potential uplifts.

- 2. RT Inter-SC Trade validation and pricing processes need to be re-examined and properly detailed.** In its presentation slides, the CAISO proposed that all RT Inter-SC trades would be submitted as a single hourly value. Physical trades would then be validated against the binding 15-minute schedules and all trades would then settle at the corresponding 15-minute LMP.

PG&E is concerned by the lack of consideration given to the RT Inter-SC trade process in the Revised Straw Proposal and asks that the CAISO clarify the entire trade process in its subsequent proposal. Specifically PG&E asks that the CAISO clarify the methodologies they have outlined for the physical clearing process and consider how the pricing of these trades would be balanced against the buyer's physical positions, especially if the buyer is using these trades to offset unscheduled RT load:

- 3. Clearing of Physical Trades:** PG&E believes that adjusting agreed upon trade quantities after the submission deadline would impact the burdens and benefits between parties, as well as the financial settlement of energy under those contracts. The CAISO should consider these impacts in its next proposal.

As was seen by market participants after the RT optimization modifications done by the CAISO on June 4th, 2012, additional conversions after the trade submission and clearing process deadline introduce considerable contract complexities. Typically, physical Inter-SC trades support energy deliveries from generators under bilateral contracts. Accordingly, parties may have allocated the associated costs of converted physical trades

between each other for known scenarios, many times basing allocation on cost causation principles. Incorporating and additional intra-hour settlement into this Inter-SC functionality requires discussion.

- 4. Pricing Issues for trades used to mitigate real-time risk:** The current RT market uses a single 5-minute LMP set to settle all RT positions for internal resources. Because load does not have the ability to schedule outside of the day-ahead market this single price process makes it possible for an LSE to use a RT Inter-SC Trade to offset the price risk for a fixed amount of RT load deviations. The revenues credited to the buyer for receiving the RT trade MWs will currently offset the cost for a corresponding quantity of RT load and insulate the buyer from any price volatility in the corresponding intervals. With the proposed change to RT load deviation pricing, this mechanism would be lost unless some additional mechanism is introduced to true-up the settlement items. PG&E requests that the CAISO consider how to create such a mechanism.

PG&E believes that the proposed treatment of RT Inter-SC Trades represents a considerable change to the market and requests that the CAISO provide further explanation in the Draft Final Proposal.

Appendix A

Summary of FERC Order 764 Initiative

The CAISO plans to make changes to its RT market to maximize the use of existing market functionality without creating seams issues with other balancing authorities. The proposal will introduce a 15-minute financially binding settlement within the RT market that will apply to both intertie and internal resources as well as load.

The proposal would also implement real-time market (RTM) changes that were not possible before the order, including full 15-minute energy scheduling.

- CAISO proposes to replace its Hour Ahead Scheduling Process (HASP) with a 15-minute RTM for the interties and internal resources.
- The 15-minute real-time market would provide binding prices for Energy/AS/Flexible Ramping
 - This would mean energy prices for three markets:
 1. Hourly day-ahead market (DAM)
 2. Real-time pre-dispatch 15-minute market (RTPD)
 3. Real-time dispatch 5-minute (RTD) market
 - Seven flavors of bids will be accepted for the interties
 1. Self-scheduled hourly block
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 - 2. Self-scheduled variable energy resource forecast
 - 3. Economic bid hourly block
 - Hourly block schedules for economic hourly block bids would be set prior to the 15 minute markets for the hour in an indicative run.
 - The resulting schedules would be price takers in the subsequent 15 minute markets. Economic hourly block offers that were scheduled would not receive make-whole payments if the subsequent 15 minute prices did not cover the bid price.
 - 4. Economic bid hourly block with single intra-hour curtailment
 - Treated similarly to hourly block economic bids.
 - Can be curtailed once if the runs of subsequent 15 minute markets indicate that bid cost may not be covered.
 - 5. Economic bid with participation in 15-minute market
 - 6. Economic bid with participation in 15-minute market only if cleared in hourly process for block schedules
 - 7. Dynamic Transfer
- Convergence bids will be liquidated at RTPD energy market prices mitigating the convergence bidding gaming concern
 - Convergence bidding on the interties would begin immediately after the implementation of FERC Order 764
 - The CAISO has proposed to enforce position limits on the interties

Intermittent resources will have greater scheduling flexibility and could update their self-schedules every 15-minutes, resulting in the current PIRP settlement subsidy being eliminated