



Comments of Pacific Gas & Electric Company FERC Order 764 December 18th Presentation

Submitted by		Company	Date Submitted
Bahaa Seireg	(415)-973-3731	PG&E	1/08/13
Paul Gribik	(415)-972-6274		

I. Introduction

The Pacific Gas and Electric Company (PG&E) offers these comments on the California Independent System Operator’s (CAISO) December 18th Presentation¹ and Stakeholder Call regarding Federal Energy Regulatory Commission (FERC) Order 764 Compliance.²

In this scoping phase of this initiative, PG&E continues to support the CAISO’s exploration of 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. Ultimately, such enhancements to transmission and energy scheduling will lower uplifts, mitigate other persistent market issues, and could eliminate the need for PIRP.

However, there remain several issues that deserve further discussion in order for market participants to evaluate the implications of alternative market structures. Accordingly, PG&E’s requests the CAISO include the following in its next Straw Proposal:

- A discussion, with examples, of alternative proposals regarding Transmission Reservations, including the possible elimination of using the Hour Ahead Scheduling Process (“HASP”) to produce binding Transmission Reservations altogether.³

¹ Summarized at the end of these comments

² http://www.caiso.com/Documents/Presentation-Agenda-FERCOrder764MarketChangesTechnicalWorkshopDec18_2012.pdf

³ This alternative was discussed in slide 12 of the CAISO’s December 18th Presentation.

- A detailed discussion, with examples, of how load and generator deviations will be settled in the 15-minute market as well as the 5-minute market. This should cover the principles underlying the approach as well as examples.
- E-tagging protocols, systems, and timelines. This is important because PG&E believes that is unlikely that Scheduling Coordinators (“SCs”) will be able to submit E-tags in two and a half minutes.

II. PG&E Comments

A. **Design efforts should examine the efficiency implications of the alternative proposals to FERC Order 764 compliance at the interties, including potential structures and requirements for a single optimization of inertia and internal energy and ancillary service schedules on a 15 minute basis with no hour-long, hour-ahead Transmission Reservations.**

1. CAISO’s Initial Transmission Reservation Proposal - The CAISO’s initial straw proposal highlighted one possible approach for FERC Order 764 compliance, an approach based on hourly Transmission Reservations allocated in HASP that are subsequently scheduled on a 15 minute basis in Real-time Pre-dispatch (“RTPD”). Given discussion and comments regarding the Transmission Reservation approach, the CAISO should detail key pros and cons with the method. Such a review will help stakeholders evaluate how this approach compares to other approaches.

Potential “pros” to be examined include:

- Provides increased price certainty related to congestion costs on the interties.
- Aligns reservation timelines with other areas of WECC.

Potential “cons” to be examined include:

- Uplifts may result from settling the congestion component of LMP in one market while settling the Energy component in another market.
 - Even if uplifts under the Transmission Reservation approach are lower than those of today’s HASP, the impacts and cost-allocation from uplifts should be considered.
 - Per the CAISO’s cost-allocation principles⁴, uplifts should be allocated based on cost-causation.
- The costs of stranded transmission, resulting from the allocation of transmission in HASP 45 minutes before the energy and ancillary service market (when market conditions face more uncertainty)

⁴ <http://www.caiso.com/Documents/DraftFinalProposal-CostAllocationGuidingPrinciples.pdf>

The CAISO should also explain its plan for allocating an “average” transmission reservation for the hour. Per page 7 of the December 18th Presentation, the CAISO proposes to allocate a transmission reservation equal to the average of each resource’s 15 minute energy schedules for the hour on the intertie. The CAISO should clarify how the HA multi-interval optimization could determine the optimal hourly transmission reservation and how an average transmission reservation award supports or conflicts with this optimization. As PG&E understands it, this can result in a Transmission Reservation that is less than the transmission needed to support the peak energy deliveries over the 15 minute periods in the hour. This would happen even if resources were willing to buy additional capacity over the whole hour to support its peak 15-minute need, which is an inefficient outcome. To PG&E, it seems that an “optimized” Transmission Reservation based on a multi-interval HA RTPD run would be more efficient than an average award. The hourly transmission award should be constrained to be greater than or equal to the advisory energy schedule for the resource for each 15 minute interval in the hour as determined in HASP.⁵

Also, as currently proposed CAISO would set the price for transmission capacity on an intertie for the hour to the straight average of the 15-minute Intertie Scheduling Limit Constraint Shadow Price (“ITC”) shadow prices in HASP, which will likely result in payment anomalies if the nominal transmission awards in HASP could vary from one 15 minute period to another with the actual hourly award set to the average of the 15 minute awards. By requiring that the 15 minute awards be constant for the hour and greater than or equal to the advisory energy schedule in each 15 minute period in the hour, the anomalies arising from averaging the awards and prices over the hour would be eliminated. In addition, each resource would be able to buy additional rights that balance the cost of the rights and the value of its energy schedule in the peak period in the hour. This would also remove any pricing anomaly that could result from charging the average shadow price for ITC capacity over the hour.

Lastly, the definition of rights and obligations on page 8 of the December 18th Presentation results in treatment of transmission reservations in an asymmetric fashion. A Transmission Reservation consists of two awards. Transmission Reservation is awarded as a right in the direction that the party wants to purchase. If the resource does not schedule the flow, it does not receive the value that another party would pay to use the transmission. Transmission Reservation is awarded as an obligation in the opposite direction. If it is not scheduled, the party has to pay the ITC price in the market in that direction. This is an unnecessary asymmetry. The effect on market behavior from this approach should be considered in the stakeholder process.

⁵ (Let $TR(j, i)$ be the transmission right awarded to resource j in 15-minute period i). They could ensure that the $TR(j,1)=TR(j,2)=TR(j,3)=TR(j,4)$ for the each 15 minute period over the entire hour. Additionally, it could also ensure that the transmission right awarded in each period to resource j is at least as large as the advisory energy schedule for the resource in the period. That is $TR(j, i) \geq EN(j, i)$, $EN=$ HASP advisory schedule.

2. Alternative Treatments of Transmission Reservations - CAISO should consider alternate treatment of Transmission Reservations and consider the implications of different formulations of Transmission Reservations on participant behavior and market efficiency.

To provide a couple examples for consideration, the CAISO could:

- i. Treat all reservations as obligations.
 - If a resource does not schedule a flow on its Transmission Reservation, it receives the shadow price in the market.
 - It would be paid for transmission not used in the direction purchased, or pay if the constraint were congested in the opposite direction.
- ii. Modify the HASP so that every Transmission Reservation on an intertie is a right.
 - To do this, it would not rely on Transmission Reservation awarded in one direction to provide counterflow that would allow it to sell more in the opposite direction.
 - The party has the right to use the transmission in the direction it purchased. If it does not use it, it receives no payment and conversely it receives no charge.
- iii. Eliminate the HASP and the HA Transmission Reservation altogether. .
 - In its October 23rd Straw Proposal, the CAISO proposed HASP transmission capacity award will be priced at the HASP ITC. Pricing HASP transmission capacity award at the HASP ITC will result in market uplifts due to differences in congestion shadow price between the HASP, the RTPD and the Real-time Dispatch (“RTD”).
 - Allocating transmission in each RTPD run instead would result in a complete 15-minute market in which all binding price signals would be provided in one market run.
 - PG&E expects such a model to have benefits in lowering uplifts and in limiting potential market inefficiencies; however, it may result in potential seams issues with neighboring BAAs.

The CAISO should also request that if stakeholders have other potential solutions that they submit them in the form of more detailed “idea papers”.⁶ Understanding these concepts at a deeper level highlighting the potential pros and cons should aid in assessing the feasibility of possible approaches.

⁶ Per the December 18th call, Powerex may have one such idea which appears to amount to a modified Transmission Reservation approach with intra-hour cuts.

B. Perspectives from other Balancing Area Authorities (BAAs) and the status of WECC-wide collaboration should be discussed.

WECC-wide collaboration efforts will inform the feasibility of potential FERC Order 764 Compliance approaches, particularly those that involve changing the timelines in which e-tags are submitted or modified to schedule transmission reservations or energy flows. The CAISO should, to the extent possible, clarify the potential for certain FERC Order 764 Compliance approaches to be adopted throughout the WECC. Further, the CAISO should identify steps associated with moving forward with or without alignment of FERC Order 764 Compliance efforts by neighboring BAAs. The pros and cons of an activist role for CAISO stakeholders should also be discussed.

C. It remains unclear as to how the CAISO's proposal will impact the way load is settled.

PG&E asks that CAISO include greater detail in how it will handle real time load settlement when load forecasts in the RTPD period differ in direction from actual dispatch in the RTD. Beyond the single spreadsheet example that was provided on Dec 18, a detailed discussion of the approach and underlying principles would aid in understanding the incentives that result and potential uplifts. We would also ask for details on how the real time inter-SC trade process would be priced.

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

PG&E hazards that 2.5 minutes may be insufficient 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. The steps needed to allow a transition from today's 40 minute e-tagging period to a much shorter timeline should be developed and discussed. In addition to discussions of the time needed to craft e-tags for submission, WECC-wide changes to allow tagging closer to the binding interval, e.g. at fifteen minutes rather than twenty, should also be considered.

The CAISO's next proposal should detail tagging protocols, systems, and timelines for stakeholder discussion. Such details will be necessary for evaluation of any FERC Order 764 Compliance plan and potential confusion around these practices may hinder discussions. Specifically, the CAISO should detail the following:

1. What pieces of information are needed on an e-tag?
2. If transmission profiles change, how onerous is the e-tag update?
3. If only energy profiles change, how onerous is the e-tag update?
4. What systems govern tagging check-outs across BAAs?
5. Could these systems be upgraded to allow for less lead-time on both tag formation and on submission?
6. What reasons lead to the 20-minute tagging submission deadline?

7. What WECC or NERC governance structures should be involved in discussion of a move to a shorter tagging timeline?
8. 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 inefficiencies often occur due to forecasting Real-Time conditions too far in advance of RT.

E. Rules should discourage resources from willfully deviating from dispatch/schedules.

PG&E echoes concerns raised by the DMM that incentives to deviate from dispatch/schedules may exist under the proposed Transmission Reservation approach.⁷ As part of the overall FERC Order 764 reforms, final designs should also reduce operational challenges by encouraging resources to honor fifteen minute energy schedules.

PG&E recommends the CAISO include proposals for such rules in upcoming straw proposals. A key goal of such rules is to limit using deviations from schedules/dispatch as implicit virtual bidding between the 15-minute and 5-minute settlement prices. Such rules should not, however, be punitive in situations where dispatch instructions were infeasible or in conflict with critical operating restrictions, e.g. hydro conditions necessitating certain operations. Accordingly, the use of dead-bands or certain flexibilities may be appropriate.

F. Reactivation of virtual bidding at the interties should only be discussed after the market design issues have been finalized.

PG&E agrees with the CAISO that the implementation of a binding 15-minute market in RTPD with energy and ancillary service prices used in settlements will likely support better price convergence between day-ahead and real-time prices, this initiative should *not* focus on reactivation of virtual bidding on the interties. Such an expansion of scope would be problematic for a variety of reasons. Even with the proposed repairs to one of the major structural flaws of intertie virtual bidding⁸, its reactivation still requires resolutions to two design challenges, the dual-constraint problem and self-funding and cost-allocation issues.⁹ Additionally, the potential for of virtuals or implicit virtuals to structure bids that attempt to

⁷ http://www.caiso.com/Documents/DMM-Comments-FERC_Order764MarketChangesStrawProposal.pdf

⁸ 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.

⁹ 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.

extract value via uplifts resulting from the composite Hour-Ahead congestion and RTPD
inertie price requires assessment and perhaps development of safeguards that limit such a
potential. Lastly, reactivation of inertie virtual bidding at the start of implementation of
FERC Order 764 Compliance designs could mask market problems, delaying their discovery,
reducing efficiency and increasing costs.

Appendix A

Summary of FERC Order 764 Initiative

The CAISO plans to make changes to its real-time 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 real-time 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. This structure may be beneficial because it:

- Complies with FERC Order 764 and allows for hourly schedules of intertie transactions to remain without price guarantees for the entire hour
- Likely reduces RTIEO issues that result from system condition changes between Hour-Ahead Scheduling Process (HASP) and Real-Time Dispatch (RTD) Optimizations.
- Addresses one of the core structural issues preventing reinstatement of Convergence Bidding at the interties.
- Allows Variable Energy Resources to provide more frequent energy schedules using forecast updates and therefore obviates the need for Participating Intermittent Resources Program (PIRP).