

Memorandum

To: ISO Board of Governors
From: Steve Greenleaf, Director, Regional Market Initiatives
Anjali Sheffrin, Chief Economist / Director of Market and Product Development
Date: May 13, 2008
Re: *Decision Regarding Integrated Balancing Authority Areas Proposal*

This memorandum requires Board action.

EXECUTIVE SUMMARY

Since early in the Market Redesign and Technology Upgrade (MRTU) process the ISO recognized the need to model in detail certain neighboring Balancing Authority Areas (BAAs).¹ The affected systems are those in which the power flows on these systems have a large impact on power flows within the ISO Controlled Grid. The ISO determined that in order to accurately and reliably manage congestion on the ISO Controlled Grid under MRTU, the ISO has to accurately model in its Full Network Model (FNM) the power flows or network effects on the ISO's control area arising from such integrated external areas as well as provide prices that do not provide the incentive to inappropriately schedule at the interties to and from the IBAA's.

Under the ISO's IBAA proposal, the ISO is proposing to establish:

- 1) the Sacramento Municipal Utility District (SMUD) BAA² and the Turlock Irrigation District (TID) BAA as an Integrated Balancing Authority Area (IBAA) effective as of the go live date for MRTU;
- 2) the specific method of modeling and pricing transactions to and from the SMUD and TID BAAs;
- 3) the measures necessary to address the impact on Congestion Revenue Rights (CRRs) in the event that future IBAA's are adopted during the term of released CRRs; and
- 4) the proposed process for creating new, or modifying approved, IBAA's.

¹ The ISO originally referred to these entities as Embedded Control Areas and Adjacent Control Areas, but now refers to them as Integrated Balancing Authority Areas or IBAA's.

² In addition to SMUD's transmission system, the SMUD Balancing Authority Area also includes the systems of the Western Area Power Administration (Western), the Modesto Irrigation District (MID), the City of Redding (Redding) and the City of Roseville (Roseville).

Specifically, the ISO proposes to model the IBAA systems in a manner that allows the ISO to determine as accurately as possible the effect of intertie transactions between the ISO and the IBAA in the ISO's MRTU Full Network Model (FNM). Such detailed modeling is necessary to manage congestion as accurately as possible on the ISO Controlled Grid. The ISO's IBAA modeling methodology is explained in Section 1 of the Discussion section of this memo.

With respect to pricing, the ISO proposes to establish a "single-hub" default pricing rule for pricing intertie transactions between the ISO and the SMUD and TID IBAA's. As further explained in Section 3 below, all imports to the ISO from the SMUD and TID IBAA's will be priced based on the Locational Marginal Price (LMP) calculated at the Captain Jack Sub-Hub or Proxy Bus, while all exports from the ISO to the SMUD and TID IBAA's will be priced at the LMP calculated at the SMUD Sub-Hub or proxy bus. The ISO proposes that alternative pricing options will be available if the ISO is provided more detailed information regarding the resources supporting a specific scheduled intertie transaction and there is a demonstrable benefit to the CAISO system of such an arrangement. While the ISO originally contemplated adoption of a more granular system resource-specific based pricing regime, the ISO has now concluded that such pricing can lead to infeasible schedules and be subject to significant gaming concerns, absent specific identification and verification of the resources supporting intertie transactions. Absent such a demonstration, the ISO is concerned that it would schedule and pay intertie transactions on a basis that does not reflect their value to the ISO and its customers for purposes of accurately and efficiently managing congestion on the ISO Controlled Grid. The Market Surveillance Committee's Opinion also addresses the IBAA pricing issue and is included as **Attachment A**.

With respect to CRRs, with the transition from the more granular approach contemplated previously to the single-hub approach and the default pricing rule (with separate prices for imports and exports), it will be appropriate for the ISO to view the CRRs that were released in the first annual CRR release process conducted during 2007 as "previously-released" CRRs and to apply the provisions outlined in Section 3, below regarding the reconfiguration of such CRRs to comport with the Single-Hub approach. The CAISO proposes that holders of "previously-released" CRRs be provided a one-time opportunity to elect to align the CRR source and sink definition of the CRRs obtained through the allocation process to align these with the market settlement under the adopted IBAA structure.

In conclusion, the ISO believes that the adoption of the SMUD and TID IBAA, the proposed modeling and pricing mechanisms and other associated IBAA changes will best support the following important objectives of MRTU:

- 1) feasible forward market schedules;
- 2) more effective congestion management solutions that will reduce uplift costs and other market inefficiencies; and
- 3) eliminate inappropriate scheduling incentives and pricing signals likely to result if the IBAA modeling and pricing mechanisms are not aligned.

For purposes of initial implementation, the ISO is clearly placing greater weight on objective (3) above. This is in large part due to the lack of detailed information regarding the location of the marginal resources supporting intertie transactions between the ISO and the proposed IBAA's. On an interim and long-term basis, once more information is provided to the ISO, further refinements can be made to the IBAA modeling and pricing methodology to further enhance the accuracy of the ISO's overall congestion management solutions. The ISO discusses those enhancements in Section 1, below. As the ISO moves forward with these enhancements, the ISO will adhere to the consultation, stakeholder and FERC process outlined in Section 4, below.

MOTION

Moved, that the ISO Board of Governors approves the Integrated Balancing Authority Area (IBAA) proposal, as detailed in the memorandum, and related attachments, dated May 13, 2008, and

Moved, that the ISO Board of Governors authorizes Management to make all of the necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the IBAA proposal, and

Moved, that the ISO Board of Governors authorizes Management to enter into alternative settlement arrangements as appropriate for intertie transactions between the ISO and IBAA entities or other affected entities based on the provision of additional resource specific detailed data and a demonstrated benefit to CAISO customers, and

Moved, that the ISO Board of Governors authorizes Management to make all of the necessary and appropriate filings with the Federal Energy Regulatory Commission to implement such agreements, if any.

BACKGROUND

The ISO's need for enhanced modeling in neighboring Balancing Authority Areas was outlined and codified in ISO MRTU Tariff filings beginning early in 2006 and acknowledged in the *September 2006 Order*.³ In that order, FERC supported the ISO's commitment to include more information concerning what were then referred to as "adjacent and embedded control areas" (now IBAAAs) in the FNM as soon as possible.⁴ FERC agreed that the ISO should operate the ISO Controlled Grid using the most accurate model of internal and external areas that can be developed.⁵ In addition, FERC directed the ISO to work with external control areas to develop the model more fully in the future, but noted that the ISO can only model external areas to the extent it has the information to do so.⁶

Pursuant to FERC's direction that the ISO work with external Balancing Authority Areas (BAAs) to develop the model more fully in the future, and due to the physical characteristics of the SMUD and TID BAAs, the ISO focused its efforts to model the SMUD and TID BAAs as IBAAAs. In addition, consistent with FERC's direction, for the purposes of the initial release of

³ See the FERC's September 21, 2006 Order on that filing, *California Independent System Operator Corporation*, 116 FERC ¶ 61,274 (2006) ("September 2006 Order"). Further, the need to model the SMUD and TID BAAs was included in the February 9, 2006 MRTU Filing and in the subsequent development of the Business Practice Manual (BPM) for the FNM. For example, on July 31, 2006, the ISO published a draft BPM for the FNM indicating that the SMUD; Western Area Power Administration, United States Department of Energy ("Western" or "WAPA"); Modesto Irrigation District ("MID"); and TID are "Adjacent Control Areas that may be included in the FNM because they have transmission facilities that operate in parallel with the ISO Control Area and are highly interconnected to the ISO Control Area."

⁴ *September 2006 Order* at P 45.

⁵ *Id.*

⁶ *Id.* See also MRTU Tariff § 27.5.3.

CRRs, the ISO used a FNM that included the expanded detailed modeling of the SMUD and TID BAAs, which is the same modeling approach reflected in SMUD and TID IBAA proposal outlined herein.

Originally, in the 2006 timeframe, the ISO considered modeling IBAA's in a closed loop fashion. Modeling the IBAA's in a closed loop fashion would have required the ISO to obtain detailed load forecast and resource-specific scheduling information from the IBAA's. During the December 2006 FERC Technical Conference on seams, FERC Commissioners and staff expressed the desire that parties move towards the more collaborative data exchange process. Pursuant to this direction, the ISO took additional measures to continue discussions towards furthering this effort with what it had previously identified as the most integrated BAAs. Due to the opposition to moving towards modeling in a closed loop manner, the ISO decided to modify its proposal in the late winter and early spring of 2007 in a way that reduced the information/input requirements but still retained the modeling accuracy needed to support MRTU.

Beginning in the late spring and early summer 2007, the ISO again engaged the IBAA entities in discussions regarding the modeling approach and pricing of their systems. These discussions concluded in October/November 2007 when the ISO concluded that further bilateral discussions toward reaching agreement on the modeling and pricing methodology would not be effective. In December 2007, the ISO published discussion papers related to this matter and initiated broader stakeholder discussions. The ISO has been engaged in these broader stakeholder discussions over the last five months. Further detail regarding the stakeholder process is included in the *Stakeholder Process and Feedback* section of this memo and in **Attachment B**.

DISCUSSION

There are four primary elements to Management's IBAA proposal: 1) the adoption of the SMUD and TID IBAA based on the proposed IBAA modeling approach, 2) pricing of transactions to and from the IBAA(s), 3) a process for creating new, or modifying existing, IBAA's, and 4) the impact of the IBAA proposal on CRRs.⁷ In addition, the Management proposal includes a opportunity for alternative pricing arrangements provided the ISO is able to obtain additional data that can be used through its market processes and there are demonstrated benefits to the ISO customers of such alternative arrangements. Each of these elements is discussed below. Management also includes a discussion of the major areas of concern raised by stakeholders.

1. Proposed IBAA Modeling Methodology

The ISO's FNM is a detailed mathematical representation of the physical transmission system operated by the ISO, including the constraints and interfaces of the ISO Controlled Grid. The FNM incorporates a representation of the interconnections between the ISO and other BAAs both in California and in neighboring states that are not part of the ISO Controlled Grid. Intertie transactions (imports and exports) between the ISO BAA and these other BAAs can affect the flows and constraints on the ISO Controlled Grid. In order to manage congestion as accurately as possible on the ISO Controlled Grid it is important to accurately reflect the effect of intertie transactions in the FNM to the extent feasible.

In trying to accurately reflect the effect of intertie transactions with other BAAs in the FNM, it is important to recognize that the ISO neither controls the dispatch, nor necessarily knows the location of the generation and loads located in the other BAA that are dispatched to implement intertie transactions. Stated differently, the ISO cannot ensure that an intertie transaction scheduled day-ahead at any particular Intertie Scheduling Point is consistent with the location of the generation

⁷ The ISO IBAA Modeling and Pricing is further detailed in the Draft Final Proposal and other Discussion Papers posted on the ISO website at <http://www.ISO.com/1f50/1f50ae5b32340.html>.

and loads actually dispatched to implement the intertie transaction in real time. One intended purpose of the IBAA modeling and pricing provisions is to ensure effective congestion management and that there will not be large differences between scheduled intertie transactions (and scheduled flows) with the IBAA and actual interchange transactions (and actual flows) with IBAA which would impact redispatch in real-time.

Ultimately, the ISO understands it is necessary to model each of its interconnections with other BAAs in a closed loop or highly integrated manner. A closed loop model would mean that the BAAs would share detailed information about the dispatch of resources (generation and loads) internal to each BAA with the other BAAs. Closed loop modeling requires the agreement of the other BAAs and currently there is a great deal of reluctance to support the level of data exchange that is needed to implement a closed loop model in the West. While the ultimate goal of closed loop modeling is not achievable in the near term, this should not deter the ISO from making improvements where sufficient data is available. The ISO's IBAA proposal means that at the start of the MRTU markets interchange transactions using the SMUD and TID BAAs would be modeled in a more detailed manner reflecting the greater amount of information and data the ISO has due to the fact that the SMUD and TID BAAs formerly were part of the ISO BAA.

The ISO summarizes below the salient details of IBAA modeling approach under both the previously recommended Multiple Hub or Sub-Hub based IBAA methodology as well as the now recommended Single-Hub based IBAA methodology. It is important to note that certain core aspects of the modeling methodology are common to both the Sub-Hub and Single-Hub IBAA methodologies. These core elements to the IBAA modeling methodology are discussed in the next section (Section 1.1, below).

1.1 Core Elements of the IBAA Modeling Methodology

The ISO's IBAA modeling methodology is intended to improve the FNM's accuracy in modeling the IBAA in order to improve the congestion management process on the ISO Controlled Grid. As noted above, improved modeling will lessen discrepancies between: (i) modeled flows and congestion in the Day-Ahead Market, and (ii) actual flows and congestion in real time on the ISO Controlled Grid. Improved modeling of external systems in the FNM and lessen the discrepancies between modeled and actual flows and increase the accuracy of the LMPs in reflecting system conditions and congestion. This will mean less redispatch in real-time for unanticipated congestion.

The proposed basic approach for modeling the SMUD and TID IBAA will not be either a closed loop or a radial format.⁸ Rather, the proposed modeling approach in the FNM builds upon existing available information and uses a simplified or reduced model of the actual SMUD BAA and the TID BAA.⁹ A closed loop model would reflect the flows between the IBAA and the ISO based on information regarding the actual location and physical operating characteristics of the generation and load within the interconnected BAA. In contrast, the proposed approach models the physical resources internal to the IBAA network using individual or aggregated System Resource injections at dominant transmission bus

⁸ See *Modeling & Pricing Discussion Paper* at 20-26 (Appendix 3 describing "Modeling Option 2" that is similar to modeling a BAA in a closed loop fashion).

⁹ The SMUD, Western, MID, and TID transmission systems were formerly part of the ISO BAA. Prior to the establishment of their own control area, the ISO had the modeling information for the SMUD and Western transmission systems that will be used in modeling the SMUD and TID IBAA. Additional data is available from WECC base case power flow models.

locations within the IBAA network.¹⁰ The individual or aggregate System Resources will be used to distribute and model import and export transactions between the ISO and the IBAA.¹¹

In summary, the proposed core modeling approach will improve the accuracy of modeling flows internal to the SMUD and TID IBAA and the accuracy of modeling flows between the IBAA and the ISO -- both for the purpose of capturing the effects of such power flows on the ISO Controlled Grid. The proposed approach also maintains the existing scheduling practices between BAAs and avoids the exchange of additional, more detailed data between the two BAAs and the ISO for the purpose of running the ISO markets.

1.2 IBAA Multiple Hub or Sub-Hub Modeling Methodology

Initially, at the start of the ISO's IBAA effort, the ISO advocated what it characterized as a "Sub Hub" IBAA modeling approach. The ISO's Sub-Hub IBAA Modeling approach would map submitted interchange schedules back to the identified supporting System Resource. Under the Sub-Hub approach, these would be the SMUD, Western, MID, Roseville, TID, and Captain Jack System Resources or Hubs. Once the schedules are mapped back, the ISO would model injections as coming from the identified System Resource. For aggregated System Resources, such as the SMUD and Western Hubs, the injections would be distributed to the locations/facilities that comprise the Aggregated System Resources pursuant to pre-determined Intertie Distribution Factors (IDFs). This process allows the ISO to model the actual flows that will result from the scheduled interchange for purposes of managing congestion on the ISO Controlled Grid. The degree of modeling accuracy with this approach is of course dependent on an accurate representation of the supporting System Resource (e.g., SMUD Hub, Western Hub, Captain Jack, etc.) by the scheduling entity. Based on concerns raised by the Department of Market Monitoring (DMM) and the Market Surveillance Committee (MSC) about relying on such representations, the ISO now recommends the Single Hub approach outlined in the next section. However, the ISO will retain the potentially more accurate Sub Hub based modeling functionality should an agreement be reached between the ISO and external BAAs to provide the ISO with specific and verifiable information regarding the resources supporting identified interchange transactions.

1.3 IBAA Single-Hub Modeling Methodology – Management Proposal

The Single-Hub IBAA methodology utilizes the core modeling approach outlined above in Section 1.3 and is similar in application to the Multiple Hub based modeling approach described in Section 1.2, except that whereas the Multiple Hub would allow an entity to specify the underlying System Resource (initially based on the six System Resources discussed above), the Single Hub would map all scheduled *imports* from the IBAA to the ISO to a common location (such as the Captain Jack System Resource or an aggregation of supply resources), and all scheduled *exports* from the ISO to the IBAA to a different location (such as the SMUD Hub System Resource or an aggregation of demand resources). The ISO believes that the Single-Hub approach maintains modeling accuracy and mitigates arbitrage concerns and maintains consistency between scheduling and pricing.

1.4 Future Enhancements to IBAA Modeling

¹⁰ The ISO notes that the term it is using for modeling IBAA's is an "aggregated System Resource," and in this defined term, the word "resource" is broader than generating resources. As noted however, the use of System Resources in modeling of an IBAA will include other facilities (e.g., substations and dominant transmission buses) that are not literally generating resources.

¹¹ Initially, the ISO contemplated using a model that approximated a closed loop model and a detailed exchange of information. After discussion with the BAAs and further consideration by the ISO, the ISO developed the proposed approach and determined that its use can achieve accurate congestion management outcomes.

The ISO recognizes that both the Multiple or Sub-Hub and Single- Hub based IBAA modeling approaches can have some limitations with respect to modeling accuracy. Both approaches ignore the potential effects of unscheduled loops flows from both within the IBAA systems (base load schedules of internal IBAA generation on-line to serve native load) as well as from regional schedules/transactions. This includes the impact of schedules on the large non-ISO Controlled Grid portion of the California Oregon Transmission Project (COTP). The COTP Schedules are schedules that the ISO does not see (for purposes of running the ISO's markets) today but that we know have an impact on not only the COTP itself, but the balance of the California Oregon Intertie (COI), a large portion of which is part of the ISO Controlled Grid. The ISO proposes to implement future enhancements to the IBAA methodology that would include a certain level/representation of IBAA internal schedules in the ISO's market models so that the ISO can capture the impact of internal IBAA flows on the ISO Controlled Grid.

2. Proposed IBAA Pricing Methodology

2.1 Choice of Sub-Hub Based IBAA Pricing over Multiple-Hub Based Pricing

The ISO originally proposed to establish discrete prices for each of six initially identified System Resources or Aggregated System Resources anticipated to support intertie transactions between the ISO and SMUD and TID IBAA's. This was referred to as "sub-system hub" pricing and would have established prices for the following Sub-Hubs: SMUD, Western, MID, Roseville, TID and Captain Jack. Both the CAISO MSC and the CAISO's outside expert consultant expressed concern that the Multiple or Sub-Hub based pricing methodology was subject to gaming concerns. Since the Multiple-Hub methodology was based on Market Participants identifying the resources supporting a given intertie transaction or set of transactions, both the MSC, DMM and the CAISO's consultant, Scott Harvey, stated that it would create strong incentives and rationale for market participants to specify schedules that would maximize their market revenues, i.e., buy low, sell high, and not reveal the true nature and location of the specific resources supporting the intertie transaction (information that is critical to the CAISO obtaining a reasonable approximation of the impact of such transactions on the CAISO Controlled Grid). Scott Harvey provided to stakeholders the experience of Eastern ISO's with gaming arising from multiple hubs. The MSC recommended that the ISO minimize or further confine the pricing options available to entities scheduling intertie transactions between the ISO and the proposed IBAA's.

Based on that feedback and in the absence of better information regarding the nature and location of the marginal resources supporting intertie transactions, the CAISO developed and is now proposing a single-hub IBAA pricing methodology. As outlined below, the Single-Hub methodology establishes a Default Pricing Rule that prices all imports to the CAISO from the IBAA's based on the price at the Captain Jack substation and all exports from the CAISO to the IBAA based on the price at the SMUD hub. The ISO believes that the proposed IBAA pricing methodology reflects an appropriate balance of accuracy (i.e., aligning prices with schedules and dispatch) and the need to mitigate opportunities for inappropriate market arbitrage between pricing points when such price differences do not reflect the true value of the resources supporting the scheduled intertie transactions for purposes of managing congestion on the ISO's system.

2.2 Single Hub IBAA Pricing Methodology – Management Proposal

The proposed Single Hub – as well as the earlier Multiple-Hub - IBAA pricing mechanism relies on "proxy bus" pricing of the individual interconnections with the IBAA's. The Single-Hub methodology immediately addresses the concerns raised by the MSC, DMM and external experts because it establishes a Default Pricing Rule that prices all imports to the CAISO from the IBAA's based on the price at the Captain Jack substation and all exports from the CAISO to the IBAA based on

the price at the SMUD hub. The proposed Single Hub default pricing rule would apply in the absence of an alternative arrangement, which would enable that the ISO obtain more detailed information regarding the resources supporting the scheduled intertie transactions and there is a demonstrative benefit to the ISO Market of such an arrangement.

Proxy buses are used by the eastern regional transmission organizations (RTOs) and independent system operators (ISOs) to price intertie transactions.¹² Proxy bus pricing collapses some or all of the individual interconnection points with other BAAs into a single, combined bus with a weighted-average price. The use of proxy buses allows RTO/ISOs that have LMP based systems to manage a number of possible effects including the fact that entities can schedule intertie transactions at points that may be inconsistent with, or not accurately reflect, the actual dispatch and location of the resources used to implement the intertie transactions.

Based on the MSC's feedback, and as supported by the "proxy bus" experience of the Eastern RTOs/ISOs, the ISO is now proposing to consolidate the pricing points for intertie transactions between the ISO and the proposed IBAA's. In the absence of detailed information regarding the resources supporting scheduled intertie transactions, the ISO proposes to establish a new default Single Hub IBAA rule. Under this rule, all transactions between the ISO and the proposed IBAA's would be priced as a single hub, combining the SMUD, Western, MID, Roseville, TID, and Captain Jack subsystems, as follows:

- 1) All imports to the ISO from the proposed IBAA's would be priced based on the LMP at the Captain Jack proxy bus; and
- 2) All exports from the ISO to the proposed IBAA's would be prices based on the LMP at the SMUD hub.

The proposed default pricing rule is designed to minimize uncertainties for ISO Market Participants, i.e., those participants who would pay the costs should the ISO establish an IBAA pricing methodology that established inappropriate pricing incentives and resulted in uplift (redispatch) costs.

Management proposes that under this Single Hub pricing approach, the ISO may also agree to alternative settlement arrangements provided that the ISO is provided sufficient detailed information that either supports identification and verification of the marginal external resources supporting the applicable scheduled intertie transaction or otherwise supports ISO efforts to increase the accuracy of its congestion management solutions and a reasonable determination and cost-causation based allocation of ISO costs.¹³ The ISO would enter into specific agreements to implement such alternative arrangements with IBAA's entities or other effected entities.

2.3 Impact of IBAA Proposal on Non-ISO Controlled Grid Facilities

¹² The PJM, NYISO, ISO-NE and MISO RTOs all use similar methods to model and price net interchange (imports and exports) with some or all adjacent dispatch regions.

¹³ The ISO has developed an illustrative list of the type of information that may be provided to the ISO by the participants to support alternative settlement arrangements. Examples include: Scheduled flows by participant on COTP into SMUD/TID IBAA and associated e-tags; Scheduled flows between various sub-areas (hubs) within the SMUD/TID IBAA and associated e-tags if applicable; Disclosure of quantities of load served and generation resources controlled by Scheduling Coordinators scheduling imports/exports by location; Identifying the generators that provide the import to the ISO, which claim more granular pricing treatment; Identifying the loads that are the sinks for the export from the ISO, which claim more granular pricing treatment; Reporting of bilateral transactions including both sales and purchases (including options) using FERC EQR protocols; Providing other data available by SCs upon ISO request pursuant to ISO Market Monitoring authority; Integrated quantity of the schedule-deviation portion of the ACE (Area Control Error) of the SMUD control area (covering all its entities) over appropriate time intervals consistent with ISO markets.

It is important to note here that regardless of the pricing option, in no case is the ISO establishing prices for points outside of the ISO system. Rather, for deliveries (imports and exports) *scheduled* at the existing and *retained* ISO-IBAA Intertie Scheduling Points, the ISO is determining the price (value to the ISO for purposes of managing congestion and losses *on* the ISO Controlled Grid) for those scheduled transactions based on the price of the resources identified as supporting the transaction. While the identified resources may reside outside of the ISO Controlled Grid (e.g., are System Resources, as defined under the ISO Tariff), the price or value of that System Resource will be determined by a combination of its associated bid price and its location on the larger ISO-IBAA network (i.e., where it is injecting power) for purposes of managing congestion and calculating losses *only* on the ISO Controlled Grid. While certain stakeholders have raised concerns that under the IBAA pricing proposal the ISO would establish prices on facilities outside of ISO control, the ISO's proposal in fact is not proposing to price any facilities outside the ISO control. Just as it does today, the ISO would continue to price transactions at its interties, by establishing the rates, terms, and conditions of service over *only* the ISO Controlled Grid. External entities that operate under the traditional "contract path"¹⁴ paradigm have raised concerns regarding the ISO's need to determine the point of injection (source) of a transaction – especially when that point is outside of the ISO Controlled Grid - for purposes of assessing the congestion impact of such an injection on the ISO Controlled Grid. However, the ISO has demonstrated that it is not pricing the external system under the IBAA proposal the ISO is only proposing to model the transactions at its IBAA ties such that price at its interties reflects the true cost of using its system for flows to and from such closely integrated systems.

3. Impact of the IBAA Proposal on CRRs – Management Proposal

In addition to using the FNM for scheduling power flows and determining locational energy prices in the core MRTU market systems, the ISO uses the FNM in the allocation and auction of CRRs. The CRR FNM includes the modeling of Existing Transmission Contracts (ETCs), which provide a "perfect hedge" against congestion costs associated with usage of ETC rights between the locations of the ETCs' sources and sinks, including sources and sinks in an IBAA. For other schedules, the allocation of CRRs provides an opportunity for Load Serving Entities (LSEs) and Out of Balancing Authority Area Load Serving Entities (OBAALSEs) to obtain CRRs to manage their congestion costs between locations within the ISO Controlled Grid from sources or to sinks in an IBAA. Accuracy of the FNM in the CRR process is critical to the ISO's ability to balance the competing objectives of releasing as many CRRs as possible to market participants, while minimizing the risk of CRR revenue shortfall that could occur if the ISO collects insufficient congestion revenues from the Day-Ahead Market to cover CRR settlements fully on a monthly basis.

During the stakeholder process on the IBAA modeling and pricing approaches, participants raised three primary issues regarding how the adoption of IBAA may affect the release and settlement of CRRs. Each of those issues is discussed further below.

3.1 *Impact of an IBAA change (either the creation of a new IBAA or the modification of an existing IBAA) on the future release of CRRs*

In general, the ISO expects that IBAA changes will undergo extensive study and analysis before they are implemented in the FNM. The ISO will strive to synchronize future IBAA changes with the annual CRR release process. That is, the ISO intends to schedule new IBAA changes to take effect on January 1 of a new year (i.e., in the Day-Ahead Market that is run

¹⁴ A "contract path" methodology assumes that power flows over designated transmission facilities between one point (point of receipt) and another (point of delivery) on a transmission system. The ISO's approved MRTU LMP based system does not assume that power flows over a pre-designated or identified path, but rather determines the impact of power flows over the entire network from injections at one point (source) and withdrawals at another (sink).

on December 31), and to provide to market participants all the IBAA modeling and pricing details as part of the FNM information package that is made available for CRR purposes prior to the conduct of the annual CRR release process for that year. As a result, all CRRs released – including one-year Seasonal CRRs as well as Long Term CRRs – would be released using the same basic FNM that will be used in the Day-Ahead and Real-Time markets when those CRRs become effective. In some instances there may be a need to implement an IBAA change mid-year because of a need for improved accuracy in the Day-Ahead and Real-Time Market congestion management processes. In such a case the ISO would incorporate the IBAA change into the FNM for the first monthly CRR process in which the IBAA change will take effect, and will follow the proposed provisions described below for assessing and mitigating impacts on the previously-released Seasonal CRRs for the remainder of that year.

3.2 Impact of an IBAA change on the settlement of previously-released CRRs

The term “previously-released CRRs” refers to those CRRs that were released based on a CRR FNM that did not include the IBAA change in question and that will continue to be in effect – either as active financial instruments or as allocated CRRs eligible for renewal nomination in the Priority Nomination Process (PNP) – when the IBAA change is implemented in the ISO spot markets. If the IBAA change is implemented to coincide with the beginning of a calendar year and is coordinated with the annual CRR release process for that year, as described in the previous sub-section, then the provisions discussed here would apply to previously-released LT-CRRs plus those previously-allocated Seasonal CRRs eligible for PNP nomination. Alternatively, if the IBAA change is implemented in the spot markets in mid year, then these provisions would apply also to any previously-released Seasonal CRRs still in effect, for the remainder of their term. One concern that several stakeholders expressed relates to the potential for an IBAA change to create a discrepancy between the source or sink location of a previously-released CRR and the new source or sink that is adopted based on incorporating the IBAA transmission and pricing provisions into the FNM.

Based on feedback from stakeholders and the ISO’s careful consideration, the ISO proposes an approach that would allow the holder of a previously-released CRR whose source or sink is affected by the IBAA change to make a one-time election either to (a) modify the settlement of the CRR to be congruent to the revised IFM pricing associated with the IBAA change, or (b) retain the original source or sink specification of the CRR., subject to the requirement that affected CRR Holders make their elections prior to the start of the ISO’s process to release any new CRRs for the period when the IBAA change will be in effect. The ISO believes this approach is balanced, enables CRR Holders to maintain their intended hedge against potential congestion costs for purposes of serving load, yet allows those CRR Holders that procured a CRR for purely financial purposes to keep their original financial instruments.

The annual CRR allocation and auction process conducted in 2007 for the release of 2008 CRRs used the multiple-hub IBAA model described in section 1.2. Implementation of the single-hub model described in section 1.3 would entail a departure from the CRR FNM assumptions under which 2008 CRRs were released having sources or sinks within the IBAA. Thus under the Management proposal a holder of such affected CRRs would be given an opportunity to make a one-time election, for each affected CRR they hold, either to retain the IBAA source and sink specification as originally awarded, or to reconfigure the affected CRR source or sink to match the revised pricing locations of the single-hub IBAA approach. These provisions would apply to (a) Seasonal CRRs that are in effect during the months of 2008 for which the MRTU markets are operating, (b) previously-allocated Seasonal CRRs that are eligible for PNP nomination, and (c) previously-released Long Term CRRs.

3.3 Impact of an IBAA change on the revenue adequacy of previously-released CRRs

One consequence of modifying the sources or sinks of previously-released CRRs to match the new pricing locations associated with the IBAA change is that the entire set of previously-released CRRs may no longer be simultaneously feasible. Such a departure from simultaneous feasibility could increase the risk of – but would by no means definitively cause – a shortfall in the ISO’s collection of the IFM congestion revenues used to settle with CRR Holders. Because the MRTU Tariff requires that all CRRs be fully funded, any revenue shortfall that results from IBAA-related changes to CRR sources and sinks would have to be funded somehow to prevent any direct impacts to the CRR Holders. The ISO proposes to use the CRR Balancing Account – which has already been approved by FERC as the means to ensure full funding of CRRs – to cover any IBAA-related shortfall that occurs in a given month. It is important to recognize that revenue inadequacy is not a problem if the IBAA change is incorporated consistently into the CRR network model that is used in the release of CRRs applicable to all time periods.

In the case of the proposed SMUD and TID IBAA, the multiple-hub IBAA approach was incorporated into the CRR FNM for the annual CRR release processes (allocation and auction) that were conducted during 2007. Under the single-hub approach now proposed, the CRR reconfiguration policy discussed in the previous sub-section would now apply.

In cases where IBAA changes are implemented after some Seasonal and Long-Term CRRs have been released based on different FNM assumptions, the ISO would be able to test for any potential failure of simultaneous feasibility and, if it exists, to estimate its magnitude.

As noted above, the ISO proposes to use the CRR Balancing Account to cover any shortfall that occurs in any given month. There are several reasons why the ISO believes it is appropriate to use the CRR Balancing Account to manage this risk. First, the Tariff requires that all CRRs be fully funded, and FERC has approved the use of the CRR Balancing Account and associated allocation of any resulting shortfall to measured demand for ensuring full funding of CRRs. Second, because any given IBAA change will occur in a limited area of the grid, it can be expected to affect a relatively small share of the total released CRRs, and hence any impact on revenue adequacy should be small relative to the total volume of congestion revenues and CRR settlements. Third, although any particular IBAA change will typically occur in a specific area of the grid, the benefits of the IBAA change in terms of improved accuracy of congestion management and pricing will benefit users of the entire ISO BAA. Fourth, it will not be possible to specifically assign any net CRR revenue shortfall at the end of each month to the IBAA change in any reliable, non-arbitrary manner.

4. Process for establishing New, or Modifying Existing, IBAA – Management Proposal

Finally, in response to stakeholder concerns, the ISO is also proposing a process for the adoption and implementation of additional IBAA in the future (or a modification of then existing IBAA). The proposed process requires the ISO to seek collaboration and conduct a consultative process with the affected BAAs and ISO stakeholders.¹⁵ Specifically, the ISO is proposing to include in its Tariff provisions that, except under exigent circumstances, would require that the ISO follow a consultative process with the affected BAA and its stakeholders. As part of this process, the ISO will engage in direct discussions with the affected BAA and seek to develop modeling specifications that most accurately reflect the affected BAA. In addition, the ISO will be required to stakeholder the modeling and pricing of the new or changed IBAA and would also be required to seek ISO Board of Governors approval to the extent that implementation of the new or changed IBAA requires changes to the IBAA provisions already reflected in the Tariff and BPPMs. Finally, the ISO would be required to make a FERC filing to modify its tariff to actually add a new IBAA or change any of the elements regarding the existing IBAA reflected in its Tariff. The ISO believes this consultative process with the appropriate ISO Board of Governors and

¹⁵ The ISO proposes to include this process requirement in its tariff and provide further details of the actual procedures in the Business Practice Manuals for the Full Network Model.

FERC approvals provide market participants sufficient reassurance of process should any new IBAA be adopted or existing ones change.

STAKEHOLDER PROCESS AND FEEDBACK

The ISO's IBAA proposal and related tariff changes are a result of a stakeholder process that included both consultation with the affected BAAs as well as a broader stakeholder discussion on the details and merits of the ISO proposal.

Attachment B summarizes the salient aspects of the ISO's IBAA Stakeholder process and stakeholder comments submitted on April 28, 2008, on the major elements of the ISO's proposal. Management summarizes below the major issues raised by stakeholders with respect to each of the major elements of ISO's IBAA proposal and Management's response.

Stakeholder Comments on Process

Stakeholders have expressed significant concerns and frustrations over the ISO's process. The affected IBAA entities (SMUD, Western, MID, TID, City of Redding, Department of Energy National Labs, the Transmission Agency of Northern California, and the Transmission Agency Northern California) do not believe that the ISO afforded sufficient time to the ISO's bilateral discussions (consultation) with those entities and inappropriately stopped those discussions in the fall 2007. IBAA entities generally represent that the ISO should not implement the IBAA proposal unilaterally but should instead enter into mutually acceptable agreements with affected IBAA entities. IBAA entities also state that the ISO has not responded to, or modified the ISO's proposal as a result of, stakeholder comments.

Management engaged in a consultation with the IBAA entities from approximately June 2007 through October 2007. At that time, based on IBAA entity opposition to the ISO's then-proposed IBAA proposal and because of the then-impending February 1, 2008, MRTU start date, Management determined that it was appropriate and prudent to initiate a broader stakeholder discussion and finalize the proposal prior to MRTU start up.

With respect to stakeholder comments that the ISO has not modified its proposal in response to stakeholder comments, Management notes that the ISO: 1) has deferred action (ISO Board of Governors approval and/or FERC filing) on the IBAA proposal three times in response to stakeholder concerns; 2) has agreed to file the pricing and other elements of the IBAA proposal at FERC; 3) developed and committed to a going-forward IBAA process (consultation, stakeholder, and FERC filing); 4) assessed and developed a proposal in response to stakeholder concerns regarding the impact of the IBAA proposal on CRRs; and 5) developed an alternative settlement treatment mechanism to address circumstances where the ISO is able to obtain more detailed information from IBAA entities.

Stakeholder Comments on IBAA Modeling

Stakeholders appear to support the ISO's objectives to increase the accuracy of the ISO's models and congestion management solutions. In large part because the ISO does not currently have access to certain information, certain stakeholders question whether the ISO's IBAA proposal will in fact result in improved congestion management solutions and less need to redispatch in real-time.

Management agrees that information on specific resource operation is the best way to improve the ISO's congestion management solutions, particularly with respect to the managing congestion on the ISO Controlled Grid arising from transactions with IBAA entities, would increase with additional and better information from the IBAA entities. Management's proposal

allows for alternative settlement treatments if the IBAA's are able to provide more detailed information regarding the resources supporting certain intertie transactions with the CAISO. Notwithstanding the ISO's desire for more detailed information, Management believes the ISO's proposed IBAA modeling methodology is a reasonable and "best available" approach that will further increase the accuracy of the ISO's congestion management solutions.

Stakeholder Comments on IBAA Pricing

IBAA entities do not believe the ISO has justified its pricing proposal and that application of the IBAA pricing methodology to just SMUD/Western and TID – as opposed to all interconnected BAAs or none at all – is discriminatory. The affected IBAA entities also have raised concerns regarding potential adverse impacts on their own facilities. IBAA entities assert that the ISO's proposal will de-value their investments in their own systems. Specifically, TANC members represent that the ISO's proposal will de-value their investment in the COTP and upsets the balance of burdens and benefits negotiated as part of the Owners Coordinated Operating Agreement that governs coordinated operation of the COTP and the Pacific Ac Intertie.

Management believes that the proposed IBAA default pricing rule is appropriate and reasonably minimizes risks to ISO customers. Specifically, in the absence of additional information that identifies and validates the resources supporting specified intertie transactions and enables the ISO to increase the accuracy of its congestion management solutions, the proposed default pricing rule appropriately minimizes exposure to uplift costs likely to result from inaccurate pricing of IBAA transactions with the ISO. With respect to TANC member's concerns regarding the potential adverse impact of the IBAA pricing proposal on their investments, Management has demonstrated that the proposal does not price or value any external systems. Nonetheless, the Management has expressed a willingness to work with the TANC members to justify an alternative arrangement as described above in Section 2.2 that could provide the TANC members with a settlement treatment that could in their view better reflect and maintain the value in their investment.

Stakeholder Comments on CRRs

IBAA entities represent that the ISO did not adequately discuss or detail the proposed IBAA pricing structure and never informed the IBAA entities or any stakeholder of the IBAA pricing methodology prior to the start of ISO's initial MRTU CRR allocation and auction exercises in summer 2007. The IBAA entities assert that had they known the IBAA pricing approach was reflected in the ISO's CRR model, they may have requested a different set of CRRs.

Management believes that it has addressed stakeholder concerns regarding the impact of the IBAA proposal on the CRRs allocated and auctioned under last year's CRR process. As noted above, the ISO's proposal includes a process for making, if requested; appropriate adjustments to the configuration of CRRs allocated prior implementation of both the current and any future IBAA proposal. While the set of allocated CRRs impacted by the IBAA proposal is limited (as a result of the ISO's decision to defer the start date for MRTU to the Fall of 2008, the CRRs allocated and auctioned in 2007 will now only be effective for a 2-3 month period), the ISO nonetheless proposes that CRR holders have the option of making one-time adjustments to their CRRs to conform to the new IBAA pricing proposal.

MANAGEMENT RECOMMENDATION

Management recommends that, as described more fully above, the ISO Board of Governors approve: 1) the proposed adoption of the SMUD and TID IBAs to commence at the start of MRTU; 2) the proposed Single-Hub IBA pricing methodology; 3) the proposal for addressing CRR issues related to the IBA proposal by enabling parties to opt for reconfiguration of previously released CRRs; and 4) the process for creating new, or modifying existing, IBAs. Management also recommends that the ISO Board of Governors authorize Management to make a filing at FERC to implement the ISO's proposals, effective upon the start-up of MRTU. In addition, Management recommends that the ISO Board of Governors approve that the ISO enter into alternative settlement arrangements with IBA entities or other affected entities on a case-by-case basis where additional data is provided by the affected IBA entity and there is a demonstrated benefit to the CAISO system for such alternative pricing arrangements. Finally, Management recommends that the ISO Board of Governors authorize Management to make any necessary filings at FERC to implement such alternative pricing arrangements.

The IBA proposal is fully consistent and aligned with the overarching goals of the MRTU program. Specifically, the IBA proposal is necessary to increase the accuracy of the ISO's congestion management processes. Improved modeling of the IBAs will minimize potential discrepancies between: 1) modeled flows and congestion in the Day-Ahead Market, versus 2) actual flows and congestion in the Real-Time Market. These modeling improvements and the resulting reduction in Day-Ahead to Real-Time discrepancies will increase the accuracy and reliability of LMPs in reflecting actual system conditions, managing congestion, and generally promoting consistency between the spot markets and the operating needs of the grid. More importantly, the proposed pricing mechanisms will eliminate inappropriate arbitrage between pricing points. The ISO's proposal will also permit entities to obtain alternative pricing treatment, should they provide the ISO with more detailed information regarding the resources supporting identified interchange transactions.