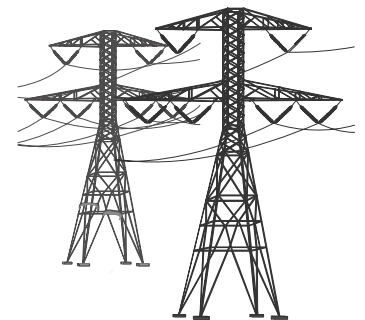


Proposed Alternative to the CAISO's April 18th IBAA Proposal

A Proposal from: SMUD-Western BA, TID BA,
TANC, and TANC Members

May 8, 2008



Agenda

- Objectives/Requirements of the CAISO and Parties
- Concerns with the CAISO's IBAA Proposal
- Presentation and Discussion of Proposed Alternative: Using the "Boundary" Approach
- Preliminary Results from the Alternative Approach
- Benefits of Using the Boundary Approach
- Summary
- Questions/Next Steps

CAISO's Stated Objectives

To obtain more information from the BAs in order to do the following:

- ensure feasible forward market schedules;
- allow more effective congestion management solutions that will reduce uplift costs and other market inefficiencies; and
- eliminate inappropriate scheduling incentives and pricing signals in the CAISO BA.

Parties' Requirements

SMUD-Western BA (includes: Reclamation, DOE-BSO, MID, and Redding), TID BA, TANC, and TANC Members' ("Parties") requirements:

- Must not create any uncompensated adverse operational, reliability, and/or financial impacts (e.g. losses, the devaluation of existing generation and transmission assets);
- Must not abrogate or violate any existing statutory, regulatory or contractual rights and obligations;
- Must be applied in a non-discriminatory manner, and be implemented on a bilateral and collaborative basis;
- Must be consistent with the rights, duties and obligations for those entities having a FERC-approved Open Access Transmission Tariff; and
- Must ensure that future modifications and changes to this proposed approach are discussed and changed by mutual consent of the Parties.

Concerns with the CAISO's IBAA Proposal

Concerns with the CAISO Proposal

The Parties have previously expressed its concerns with the CAISO's IBAA proposal(s) in writing including stakeholder comments submitted by the various parties on Jan 4, Jan 14, Feb 4, Feb 20, and Feb 29, 2008).

Other written concerns include, but are not necessarily limited to:

- October 30, 2007, separate joint CAISO-Western/SMUD/TID seams reports to FERC
- November 14, 2007, separate joint SMUD-Western BA letter to Mr. Charles King, the Vice-President of Market Development and Program Management
- January 4, 2008, joint SMUD-Western BA letter to Mr. Charles King, the Vice-President of Market Development and Program Management
- January 31, 2008, joint CAISO-Western/SMUD/TID seams reports to FERC
- March 6, 2008, presentation by TANC of a suggested alternative at CAISO Stakeholder Meeting on the implications of the CAISO's IBAA Proposal on the California-Oregon Transmission Project
- April 28, 2008, individual comments to the CAISO's April 18th IBAA Proposal from DOE-BSO, MID, SVP, TANC, TID, SMUD, and Western
- April 30, 2008, separate joint CAISO-Western/SMUD/TID seams reports to FERC

Concerns with the CAISO Proposal

A brief summary of the Parties' concerns include, but are not limited to:

- The CAISO's proposal is unilateral;
- The CAISO's proposal and approach has continued to change over time;
- The CAISO's proposal does not recognize Western's unique statutory duties and obligations as a Federal Power Marketing entity;
- The CAISO's proposal devalues investments made by entities in existing generation and transmission assets;
- The CAISO's proposal abrogates existing contractual obligations that the CAISO has with those of the Parties that have ownership rights on facilities outside of the CAISO BA;
- The CAISO's proposal charges COTP participants with load in the CAISO for parallel flows on CAISO's system, but the CAISO does not compensate COTP participants for the parallel flows on their systems from CAISO generation/schedules;

Concerns with the CAISO Proposal

A brief summary of Parties' concerns include, but are not limited to:

- The CAISO proposal is inconsistent with the letter and spirit of the balanced and negotiated arrangements between COI owners allowing the continued coordinated operations of a major interstate transmission interface into the State of California;
- The use of a single pricing point at Captain Jack for injections into the CAISO is unduly discriminatory as it precludes settlements and schedules to be mapped back to individual intertie points;
- The use of a single pricing point at Captain Jack for injections into the CAISO may not provide sufficient incentives for generators in the Pacific Northwest to furnish energy to the CAISO and may result in the creation of phantom congestion on the Pacific AC Intertie;

Concerns with the CAISO Proposal

A brief summary of the Parties concerns include, but are not limited to:

- The use of a single pricing point at Captain Jack for injections also creates disincentives for entities with transmission rights to deliver energy to Tracy to import resources from the Pacific Northwest to serve their loads within the CAISO BA;
- The proposed use of one single point by the CAISO at Tracy to price withdrawals from the CAISO BA also lead to discriminatory treatment as this does not properly reflect the physical location and the contractual rights of the Parties which are currently located at the interchange points; and
- The CAISO has not yet clearly defined what it believes to be specific examples constituting “inappropriate scheduling”, i.e., gaming activities as contrasted with normal economic activities reflecting the value of an entities’ physical assets.

Proposed Alternative

Presentation and Discussion
of Proposed Alternative: Using the
“Boundary” Approach

Proposed Alternative

The Proposed Alternative addresses the following three elements – **ALL ELEMENTS MUST BE INCLUDED IN ORDER TO ACHIEVE THE PARTIES OBJECTIVES**

- Data exchange
 - Controlled data sharing on a reciprocal, after-the-fact basis to improve modeling accuracy and address marketing monitoring issues/concerns.
 - CAISO and Parties will develop a mutually agreed upon process/review committee to address market monitoring issues/concerns.
- Modeling
 - Allows CAISO to continue to use the existing Full Network Model, and not impact MRTU, by modeling interchange schedules/bids at boundary points between the CAISO and the Parties.
- Pricing
 - Settlements: Settle interchange schedules/bids using prices at boundary points between the CAISO and the Parties (i.e., boundary prices are applied to schedules/bids at each of these locations)

Proposed Alternative

Data Exchange:

Achieves CAISO's goals of improving congestion management by increasing modeling accuracy

Parties and the CAISO would provide WECC and NERC required real-time transmission data in each other's control for reliability purposes.

Parties will work collaboratively with the CAISO to develop a mutually agreeable and a reciprocal process for developing, securing and sharing historic generation data.

Parties/CAISO expect that all data subject to this data exchange agreement will not be physically removed from each other's site.

Parties/CAISO will work together on an equal footing to develop a process/review committee to address modeling accuracy.

Proposed Alternative

Data Exchange:

Achieves CAISO's primary goal to eliminate inappropriate scheduling and pricing behaviors (i.e., market monitoring issues)

The Parties/CAISO review committee will be established to collaboratively develop and implement processes regarding the market behaviors that are to be monitored. This could also include an ongoing interbalancing area operations committee with market surveillance oversight responsibilities.

The Parties/CAISO will provide data on a reciprocal, after-the-fact basis - data will not be allowed to be physically removed from each other's site.

Parties/CAISO will work together on an equal footing to develop a process/review committee to address market monitoring issues/concerns.

The after-the-fact market monitoring processes should have sufficient flexibility to distinguish between situational and periodic data sharing as well as the frequency/nature of the data to be shared.

Each Balancing Area will retain control over its own internal data.

Proposed Alternative

Modeling:

- The boundary modeling framework is consistent with the CAISO's MRTU market design as the Parties believe that it will not affect the CAISO's ability to rely on State Estimator solutions as a basis for Real-Time Market optimization and loop flow calculations.
- To improve CAISO's modeling accuracy, the CAISO could model non-CAISO injections/withdrawals at key locations using information available to CAISO also using historical after-the-fact generation and transmission data.
- CAISO would model injections/withdrawals into and out of the CAISO BA at all scheduling points (i.e., the boundaries or interconnection points) between the CAISO and SMUD-Western and TID BAs.

Proposed Alternative

Modeling:

- All scheduling and bidding would occur at the Parties' boundary scheduling points.
- Internal resources would continue to be modeled separately by each BA.

Proposed Alternative

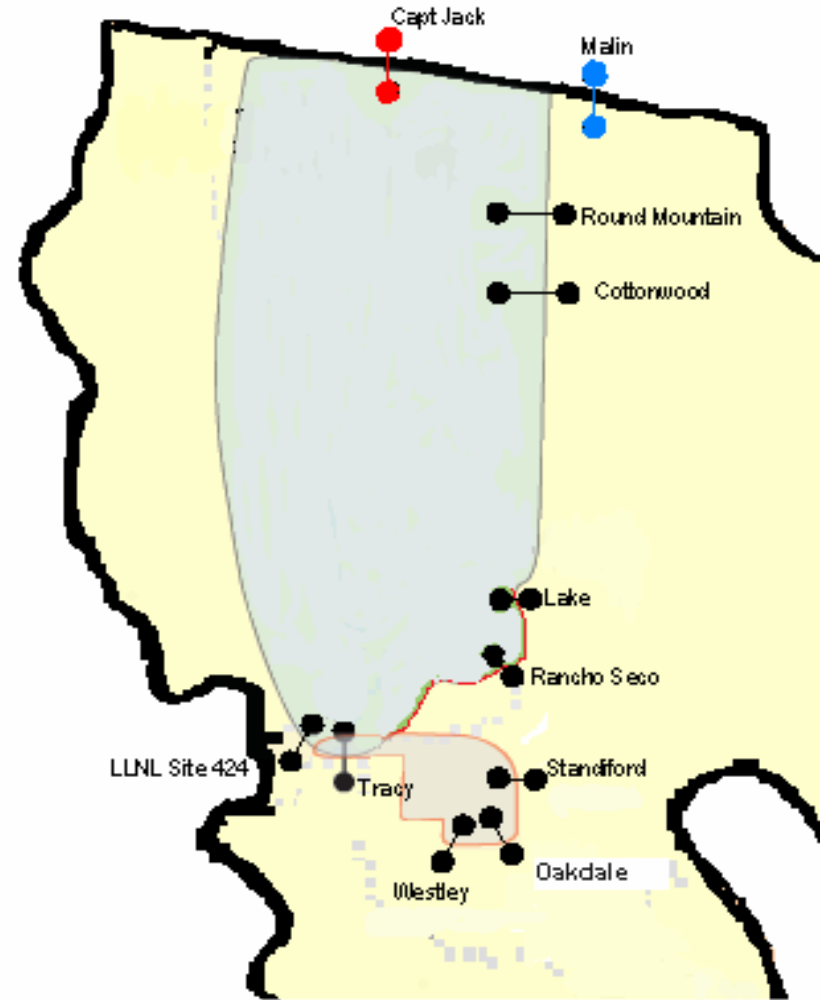
Pricing:

- Prices are established only at the Parties' interchange boundaries/scheduling points which are already defined in accordance with existing agreements. This would more accurately reflect the value of transacted power and ancillary services/products using the Parties' generation and transmission resources.
- Whenever pricing concerns related to potential inappropriate scheduling activities arise, the Parties and CAISO will work together collaboratively through the process/review committee to address them.

Proposed Alternative

Elements of Boundary Approach:

- Add injections and withdrawals at all interchange points
- Map all schedules at its injection and withdrawal points
- Allow the FNM (all transmission lines/devices) that is being used by the CAISO
- This is not the same approach as radial injection model. The proposed method allows loop flow to be computed in the CAISO's model and the CAISO's continued use of its FNM.



- Boundary Interfaces
- Between SMUD/CAISO
 - Between NW/SMUD
 - Between NW/CAISO

Proposed Alternative

Boundary modeling impact on other CAISO initiatives: no impacts to CRRs

- CRR sources (or sinks if applicable) remain at the interchange boundaries.
- CRR settlements use boundary prices.

Proposed Alternative

Boundary modeling impact on other CAISO initiatives: no impacts on losses:

- The loss component of the LMP will include only the transmission losses within CAISO's controlled system without charge for parallel flows resulting from schedules on neighboring Parties' facilities, including the COTP.
- Under the Parties' alternative proposal, there is no need for the CAISO to zero out the resistive component of the Parties' transmission lines.

Proposed Alternative

Boundary modeling impact to COTP

- Parties' proposal will preserve the value of COTP transmission by appropriately pricing injections into the CAISO BA at Tracy 500-kV rather than at Captain Jack.
- Proposal produces no impacts on CAISO BA.
- More accurate price signals are sent to the CAISO markets than the single hub approach.
- Parties' proposal honors existing contracts pertaining to the COTP.

Preliminary Results from the Alternative Proposal

Study Approach/Assumptions

Using a base case representation of the WECC system and the AC Power Flow Model (GE PSLF 16.1) Western compared simulated power flows

- 2007 Heavy Summer WECC Base Case with input from Sacramento Valley Study Group (approved by CAISO, PG&E, SMUD, MID, TID, Reclamation, Redding, Roseville, NCPA and Western)
- Represents a Full WECC case
- Simulated and compared power flows at the Parties' boundary points based on the CAISO's proposal and Parties' proposed "Boundary" Modeling Approach

Study Approach/Assumptions

- The approach initially focused on an illustrative Western operating scenario, but can be modified to include other cases
 - Assume a 250 MW load within CAISO BA
 - Assume internal CVP generation of 200 MW
 - Assume a 50 MW net purchase for delivery into the CAISO BA
- Three scenarios were developed/compared
 - A Base Case
 - Case 1: CAISO Approach
 - Case 2: Parties' Boundary Method

Modeling the Reference Case

Modeling Steps for Reference Operation

- Started with the solved WECC case.
- Scaled CAISO's load to increase by 250 MW (Stockton, Kern, Fresno, Stanislaus zones) to represent loads served by Western.
- Scaled CVP generation by 200 MW to represent the sources for the 200 MW interchange with CAISO.
- Increased generation in the Pacific NW for wheel-through to represent the 50 MW purchase for delivery into the CAISO BA.

Case 1: CAISO Approach

- **Modeling Steps to Simulate CAISO Approach**
 - Start with the same solved WECC base case.
 - Scale CAISO's load to increase by 250 MW (Stockton, Kern, Fresno, Stanislaus zones) to represent loads served by Western.
 - Single-Hub modeling
 - Add a generator at Captain Jack proxy bus.

Case 2: Boundary Method

- **Modeling Steps to Simulate Parties' Boundary Approach/Method**
 - Start with the same solved WECC base case.
 - Scale CAISO's load to increase by 250 MW (Stockton, Kern, Fresno, Stanislaus zones) to represent loads served by Western.
 - Add boundary injections at Tracy and Cottonwood.
 - Adjust the mix of injections at Tracy and Cottonwood to simulate interchange schedules in order to meet the 250 MW load requirement (in this case, 200 MW at Cottonwood and 50 MW at Tracy were assumed) to be consistent with the CAISO's previous examples. Actual flows at Tracy and Cottonwood vary by season and hydro conditions.

Summary of the Cases

	Reference Case (Base)	CAISO's IBAA Case	Parties' Boundary Case
CAISO Load	Increase by 250 MW	Increase by 250 MW	Increase by 250 MW
Captain Jack Injection		Increase by 250 MW	
Boundary Injections (Cottonwood and Tracy)			Cottonwood: 200 MW Tracy: 50 MW
CVP Generation	Increase by 200 MW		
BPA Generation	Increase by 50 MW		

What Was Done

Compared interface flows between
Western and the CAISO:

- Tracy interface
- Cottonwood interface

Compared COTP flows

Compared PACI flows at Malin

Study Parameters

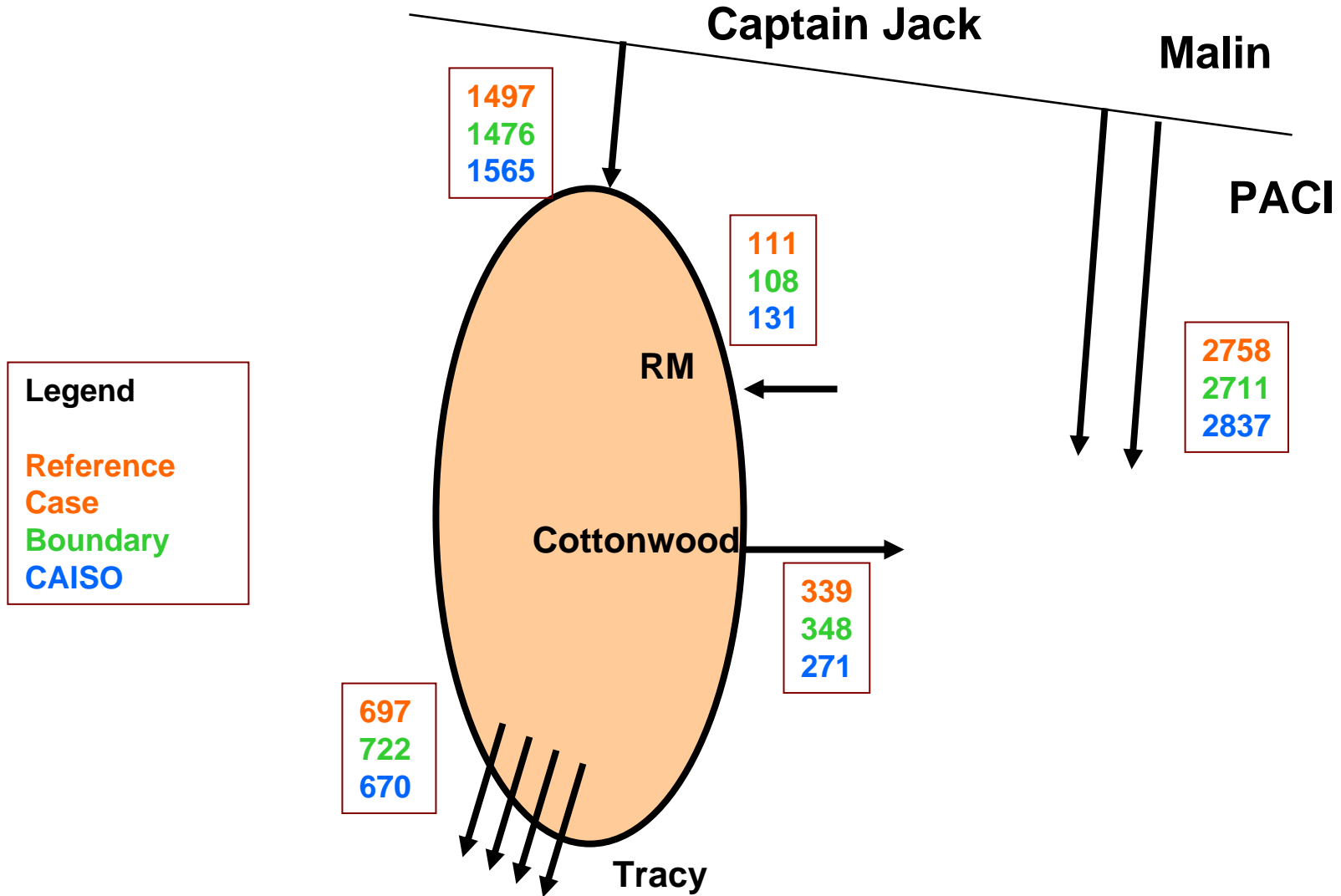
- Western's study is intended to represent an illustrative case approximating the CAISO's example.
- The 250 MW simulated load represents a "generic" Western load in the CAISO.
- The 250 MW internal/external resource distribution for meeting the illustrative Western CAISO load is feasible, given Western's existing resources and security constraints.

Study Results

Cottonwood Interface Flow		Reference Case	Boundary Case	CAISO IBAA Case	Boundary Case Variance	CAISO IBAA Case Variance
COTTONWDWAPA 230	COTTONWD F (PG&E)	339.10	348.20	271.20	-9.10	67.90
COTTONWDWAPA 230	Round MT	-111.40	-108.20	-130.60	-3.20	19.20
Total		227.70	240.00	140.60	-12.30	87.10
Tracy Interface Flow						
Tracy PMP 230	Tesla (C1 & C2)	214.40	215.60	213.20	-1.20	1.20
Tracy 500	Los Banos	-104.00	-103.70	-118.10	-0.30	14.10
Tracy 500	Tesla	586.80	610.60	575.50	-23.80	11.30
Total		697.20	722.50	670.60	-25.30	26.60
COTP Flow						
Captain Jack	Olinda	1,496.60	1,475.70	1,564.80	20.90	-68.20
PACI (Malin) Flow						
Malin 500	Rount MT C1	1,388.40	1,364.30	1,428.20	24.10	-39.80
Malin 500	Rount MT C2	1,370.00	1,346.30	1,409.20	23.70	-39.20

Numerical values are in MWs.

Graphical Representation



Summary of Results

Using the Parties' proposed Boundary Approach:

- Produced lower variances for the specific case studied when compared with the CAISO IBAA method
- Further study to improve modeling accuracy is warranted:
 - Both models represent a snapshot in time
 - Neither model captures seasonal variations
 - Both CAISO and the Parties need to agree on a common set of data, assumptions, and scenarios to develop a base case on which to run power flow simulations.

Benefits of Using the Boundary Approach

Meets the following CAISO 's objectives:

- Supports the CAISO's MRTU implementation efforts since it will not require changes to the CAISO's FNM model;
- Is consistent with the CAISO's tariff – no additional tariff modifications would be required;
- Uses a simple treatment for losses;
- Sends more accurate price signals for transmission and generation assets;
- Access to “after-the-fact” data results in more accurate and more useful data for the CAISO;
- Strikes an appropriate balance to reflect differences that exist between the CAISO's and the Parties' market structures; and
- Market monitoring element of the proposal addresses inappropriate scheduling incentives and pricing signals.
- The CAISO can use the Boundary Approach as a preferred template as the starting point for interfacing with other neighboring balancing areas.

Benefits of the Boundary Approach

Meets the Parties' requirements:

- Does not devalue existing investment in generation and transmission assets;
- Allows Western to meet its unique statutory and regulatory duties and obligations;
- Is non-discriminatory;
- Honors existing contractual agreements;
- Improves modeling accuracy using after-the-fact data;
- Addresses market monitoring issues/concerns raised by the Market Surveillance Committee/CAISO.
- Consistent with the operations and scheduling practices between neighboring balancing areas;
- Results in the simple treatment of losses
- Strikes an appropriate balance to reflect differences that exist between the CAISO's and the Parties' market structures; and
- Establishes an equal and comparable playing field between the Parties and the CAISO.

Summary

- There is more than one modeling approach between the CAISO and the Parties
- The Parties' alternative approach is capable of meeting both CAISO and the Parties' objectives
- Parties' approach is comprised of the following three elements
 - Data Exchange
 - Modeling
 - Pricing
- All three elements are part of a complete package which must be accepted in its entirety for the Parties' to go forward

Summary

- As an integral part of the data exchange process:
 - CAISO/Parties to establish process/review committee to collaboratively develop and implement processes regarding the market behaviors that are to be monitored.
 - Must ensure that future modifications and changes to this proposed approach are discussed and changed only by mutual consent of the CAISO and the Parties.
- The Parties' Boundary Modeling Approach does not require the CAISO to make significant changes in MRTU implementation processes – it is a compromise approach and consistent with Parties' desire to preserve internal operating flexibility and acknowledgement of the differences between the CAISO's and the Parties' market structures.
- The Parties/CAISO's review committee will be established to collaboratively develop and implement processes regarding the market behaviors that are to be monitored. This could also be expanded to include an ongoing interbalancing area operations committee with market surveillance oversight responsibilities.

Questions/Next Steps

Questions?

Next Steps

- If the CAISO determines that the proposed alternative approach merits further study:
 - The CAISO and Parties can work collaboratively to develop a mutual and reciprocal data sharing, modeling, and pricing process and framework/approach in order to work towards the development of a feasible solution which can be implemented.
 - After the process has been established and put into place, CAISO and the Parties can then refine and run other studies as needed to ensure we are all working from a common set of data, assumption, and operating scenarios