Attachment D
to

Report of the California ISO, the RTO West Filing Utilities, and the WestConnect Applicants Concerning Activities of the Seams Steering Group - Western Interconnection

Congestion Management Alignment Work Group
Seams Issues Reference List Working Draft

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CMAWG SEAMS ISSUES REFERENCE LIST
WORKING DRAFT

The Congestion Management Alignment Work Group's highest priority task is to develop a consensus proposal concerning the "core elements" of a seamless Western electricity market. This effort will build off of the work previously done through the Western Electricity Coordinating Council (the "WECC") and will clarify which elements of the western market need only to be compatible and those that need to be standardized.

To accomplish its key task, the Congestion Management Alignment Work Group will need to perform the following high-priority technical assessments. The names are for reference only. The specific detailed issues identified in the matrix are related to these broader issues as suggested below.

In the matrix the specific issues are cross referenced to this list using the abbreviations "Fa" and "Fb" for the two categories of fundamental approach issues, "C" for consistent price issues, "M" for modeling issues and "O" for other issues.

1. Fundamental approach issues: Is a mixed model of physical and differing (options vs. obligation centered) financial rights, including their scheduling implications, manageable for both system operators and users, and does it allocate transmission efficiently?
    a. Financial/Hedging issues: I.a.1–8 (overlap)
    b. Scheduling issues: I.a.1-4 (overlap), I.b.6, I.b.9–12, I.b.15, I.b.21, I.d.1
2. Consistent price issues: To the extent redispatch is required or used to manage congestion, is it necessary to have a single set of congestion clearing prices across the seams so that no inter-RTO barriers to trade or arbitrage opportunities result and, if so, how can the RTOs assure it? Does this requirement extend to multiple products such as ancillary services, as well as redispatch for congestion clearing, and to both day-ahead and real-time markets?
    a. Issues: I.b.1, I.b.4, I.b.13-14, I.c.1, I.d.1-3, I.e.2
3. Modeling issues: Is there a way to allow differing granularity for the physical system model used by each RTO for its internal and its external calculations (internal to one is external to the others) or is a single equally detailed physical model required for each RTO?
    a. Issues: I.b.2–3, I.b.5, I.b.7–8
4. Other issues: Market design seams issues not directly related to physical vs. financial rights, consistent price issues or physical modeling issues.
    a. Issues: I.b.16-20, I.c.2, I.d.4-5, I.e.1, II.1, XI.1

Priorities and Timelines

The first three sets of issues can be thought of as ranging from most general to most specific. The first (fundamental approach) set is the highest priority, because it determines the overall success of the Western Market Vision enunciated by SSG-WI. The second set (consistent price) focuses on one particular aspect of achieving the Western Market Vision, the consistency or manageability of prices across the RTOs, to the extent redispatch is required or used to manage congestion or for other markets, such as ancillary services. The third set (modeling) focuses still deeper on the mechanics of achieving consistency or manageability of the prices. The last set (other) deals with issues that are not directly related to congestion models.

The CMAWG initially proposes to address the issues related to the first three priorities with two task groups. The first task group will focus on stepping through detailed examples of the process of scheduling a transaction between two RTOs, one example where the traditional contract path goes through the third RTO and one where the contract path would have been between adjacent RTOs, in each case with significant loop flow. The examination will go from acquiring transmission rights, if necessary, through real time operations and settlements. The hedging and scheduling aspects of transmission rights need to be considered together. This approach will highlight problems, suggest areas that need changes from one or more RTOs and clarify where different approaches may not actually create problems. The report of this group will detail the scheduling steps and the problems raised or determined to be manageable.

The second task group will focus on developing and using a simplified model to simulate markets of the three-RTO system. It will be used to examine specific implications of the three RTOs' congestion management approaches for price calculations for redispatch and for ancillary services and the effects of any ensuing price discrepancies in whatever markets require cross-boundary pricing, as well as potential solutions to any problems that are demonstrated. It should also be able to indicate initial answers to the model granularity issues in the third priority set of issues (modeling). This group's work will complement that of the first group.

Both task groups will bring information to bear on the Priority 1 and Priority 2 issues, and the second group will address the Priority 3 issues. The two task groups will proceed in parallel and interim work documents will be posted on the SSG-WI web site and be available as progress reports. In addition, interim reports will be made to SSG-WI at the end of the first and second quarters, 2003. Following review of the second interim report by the RTOs, a consensus proposal for the core elements of a seamless Western electricity market, including supporting material, will be developed, which will have a completion target of the third quarter, 2003.

The fourth priority issues are the "Other" issues, which can be addressed in parallel to the others, and or can be sequenced starting later in the process. They are largely independent of the other three issue groupings. The last issue (XI.1), however, involves major overlaps with a number of other substantive issues, but in the context of seams with non-RTO participants. Despite efforts by the RTOs to resolve seams issues prior to implementation to avoid redundant and unnecessary expenditures, issues may also arise in the future that are caused by sequential implementation of RTO market designs, and those issues, when identified, may fall in this category. This will need special attention and may involve the WECC MIC as well as SSG-WI. The CMAWG is proposing to focus its attention first on the inter-RTO issues. The same examples for stepping through the scheduling process can later be used to examine the issues raised between the RTOs and significant non-RTO participants.

Priorities are indicated in the matrix using this scheme.

	Seams Issues to be Addressed by CMA Work Group	Issue #	Issue Resolution Schedule
I. MARKET DESIGN			
I.a. Prior to Day Ahead			
Congestion Revenue Rights (CRRs) [Firm Transmission Rights (FTRs) in MD02, FTOs in RTO West] Financial or Physical	Are the differences in financial models really a seams problem? That is do they create a price discontinuity or are they simply acceptable differences in congestion hedging instruments? Are **all** transmission rights both physical and financial required to be identical to mitigate the seams problems?	I.a.1 (Fa/b) I.a.2 (Fa/b)	1 1
Option or Obligation	Must the offerings be identical? How can congestion management discontinuities be mitigated?	I.a.3 (Fa/b)	1 / 2
Revenue Stream/ or Offset CM Cost	Do different CM models create barriers to trade, and if so, how can these differences be mitigated?	I.a.4 (Fa/b)	1 / 2
Duration	Must the term of congestion offerings be identical? How can congestion management discontinuities be mitigated? To the extent that longer term transmission rights are needed for new construction, can agreement be reached to issue long term rights?	I.a.5 (Fa) I.a.6 (Fa)	2 2
Primary Release Mechanism	How will rights for loop flows (non-contract flows) in other RTOs be allocated/acquired?	I.a.7 (Fa)	2
Secondary Market	There seems to be agreement here that a secondary market would be outside the RTO. If the resulting secondary market is not westwide, will coordination be needed?	I.a.8 (Fa)	2
I.b. Day Ahead			
Energy Spot Market	To the extent that at a minimum congestion redispatch occurs in an RTO (i.e. a limited energy market), can a method be developed to produce consistent prices at the boundaries? If not, can price discontinuities be tolerated or managed?	I.b.1 (C)	2
Congestion Management Market Model spatial granularity	In order to achieve a uniform set of redispatch prices, if that is necessary, do the network models have to be identical, with the exact system? Each time each one is used does it have to be synchronized with the other RTOs or is a single process required? In addition do the programs that use the models have to be identical in order to get the uniform set of redispatch prices? If models with identical levels of detail for the West are not used by all three RTOs, do the various simplifications for areas outside any given RTO create problems in achieving a uniform set of redispatch prices?	I.b.2 (M) I.b.3 (M)	3 3

	Seams Issues to be Addressed by CMA Work Group	Issue #	Issue Resolution Schedule
	To what extent do RTOs need to see other RTOs' scheduling information?	I.b.4 (C)	2
Model objective function	To the extent that at a minimum congestion redispatch occurs in an RTO (i.e. a limited energy market), can a method be developed to produce consistent day ahead prices at the boundaries?	I.b.5 (M)	3
	Who coordinates the scheduling constraints (i.e., security constrained dispatch) on paths that cross RTO boundaries to ensure that inter-RTO schedules do not exceed reliability standards?	I.b.6 (Fb)	2
	What is the effect of linking energy and ancillary service markets in the optimizations on model coordination issues?	I.b.7 (M)	3
	Does the use of both AC and DC OPFs introduce compatibility problems?	I.b.8 (M)	3
Schedule Components	Do differences in the scheduling requirements (e.g., requirements for balanced schedules) between RTOs create seams problems for inter-RTO schedules? If so, can these problems be mitigated?	I.b.9 (Fb)	1/2
	Will different RTO congestion management systems enhance opportunities for gaming or affect generation dispatch efficiency?	I.b.10 (Fb)	2
Other Scheduling Requirements	Can tools be developed for scheduling submission that assist the user in meeting any differences in protocols between RTOs?	I.b.11 (Fb)	2
	Should the time intervals and submission times be synchronized to mitigate obstacles to inter-RTO trade?	I.b.12 (Fb)	2
Congestion Prices	To the extent that at a minimum congestion redispatch occurs in an RTO (i.e. a limited energy market), can a method be developed to produce consistent prices at the boundaries that send the same signal to the market? If not, can price discontinuities be tolerated or managed?	I.b.13 (C)	2
Ancillary Service Market Services	Can a "best practice" model for definition and acquisition of ancillary services products be developed to produce consistent prices at the RTO boundaries?	I.b.14 (C)	2
	How does bidding of ancillary services between or among RTOs affect the scheduling and dispatch obligations within the RTOs? Can this kind of trade between RTOs be accommodated? Does trade of these services between RTOs have implications for either the "exporting" or "importing" RTO's ability to meet reliability criteria?	I.b.15 (Fb)	2
	When ancillary services are provided from within one RTO for another RTO, does the providing RTO recognize them as obligations within the seller's RTO?	I.b.16 (O)	4
	How can AS bids be coordinated across three markets to avoid both double counting and inefficient limitations on bids?	I.b.17 (O)	4
	Does the RTO of the A/S seller recognize the transmission	I.b.18	4

	Seams Issues to be Addressed by CMA Work Group	Issue #	Issue Resolution Schedule
	capacity reservation required to enable the reserves to respond for outages in the RTO of the buyer?	(O)	
Acquisition Mechanism	All three propose auctions: Do the auctions have be identical? Is it possible to use price exchange (say as imputed bids) in connection with interactive calculation to minimize the spread between the A/S auctions?	I.b.19 (O)	4
Centralized Unit Commitment.	Does unit commitment need to be standardized? Is this an area where each RTO can have its own method, which matches its resource mix and system responsiveness? (Rapid response of hydro gen. versus lead time requirements for thermal gen.)	I.b.20 (O)	4
Release of Unused Transmission Capacity after Close of DA Markets	Does a recallable physical right conflict with a redispatch set in a day-ahead clearing process?	I.b.21 (Fb)	1
I.c. Hour Ahead			
Timing	How are boundary prices to be synchronized between RTO's if only one RTO has a hour ahead process? Is it necessary to align hour ahead markets?	I.c.1 (C)	2
Energy Market	How does hour-ahead market integrate with neighbors who do not have hour-ahead process?	I.c.2 (O)	4
Congestion Management Market	[Same as for energy market].		
Ancillary Services Market	[Same as for energy market].		
I.d. Real Time			
Model spatial granularity	[Same set of issues as Day Ahead]		
Model objective function	Is it necessary to align real time markets? If so, can a method be developed to produce consistent real-time prices at the boundaries? (avoid an price discontinuity due to separate calculation of prices with different information.)	I.d.1 (C)	1/2
Dispatch interval	How much would a common dispatch interval mitigate against price discontinuities at boundaries?	I.d.2 (C)	2
Imbalance Price	Can a method be developed to produce consistent real-time prices at the boundaries? (avoid an price discontinuity due to separate calculation of prices with different information.) If not, can discontinuities be tolerated or managed? [This may be more of a settlements issue than a consistency issue.]	I.d.3 (C)	2
Penalties	Do penalties need to be the same in each RTO? Will inconsistent imbalance penalty practices hamper non-dispatchable resource sales across RTO boundaries?	I.d.4 (O) I.d.5 (O)	4 4

	Seams Issues to be Addressed by CMA Work Group	Issue #	Issue Resolution Schedule
I.e. Post Real-Time			
Settlement Stages	Do settlement systems have to be common as long as price discontinuities at the boundaries are managed? How are inter-RTO settlements managed? (Includes the revenue adequacy issues related to achieving consistent prices.)	I.e.1 (O) I.e.2 (C)	4 2
II. DEMAND RESPONSE PARTICIPATION	How does bidding or demand-side response between or among RTOs affect the scheduling and dispatch of obligations within the RTOs? Can these kinds of trades between RTOs be accommodated? Does trade of these services between RTOs have implications for either the exporting" or "importing" RTO's ability to meet reliability criteria? (Title to power needs to be established.)	II.1 (O)	4
X. Resource Adequacy	Note: RTO West and WestConnect are not currently proposing a resource adequacy requirement independent of the requirement for balanced schedules.		
Resource Adequacy Assessment	If there is an RTO capacity requirement for all RTOs, how will double-counting across RTOs be avoided?	X.1 (O)	Delayed pending state discussions on adequacy
Resource Adequacy Resolution	If there is an RTO capacity requirement for all RTOs, do different resource adequacy approaches result in different penalty structures and if so, does this create problems, e.g., opportunities for arbitrage?		Delayed pending state discussions on adequacy
XI. Seams Between RTO Participants and Non-Participants	Many, but not all, of the above general seams issues related to scheduling, redispatch, etc are duplicated between RTO and adjacent non-participants to the extent the latter can and do operate under existing WECC practices.	XI.1 (O)	May be delayed to completion of inter-RTO issues