

## **WMIC RTO SEAMS WORKSHOP**

**Salt Lake City, Utah  
Embassy Suites Hotel  
June 20, 2000  
8:00 a.m. to 5:00 p.m.**

The Workshop is sponsored by the Western Market Interface Committee and will focus on a region-wide review and discussion of RTO seams issues. Presentations will be made by each proposed western RTO of their current thinking on pricing, congestion management and related practices. Breakout sessions will address problem definition, desired outcomes, and possible solution options to selected seams issues.

On the following day, Wednesday June 21, the NW RTO Seams Work Group will meet with representatives from the other NW RTO Work Groups at the same location. Individuals outside the NW are invited to attend and observe the NW RTO Seams Work Group meeting.

### **WORKSHOP AGENDA**

#### **1. Introduction**

**Frank Afranji, PGE, Co-Chair WMIC**

Objective of the Workshop  
WMIC Background

#### **2. FERC Introductory Remarks**

**Mike Coleman  
Director Tariffs and Rates, West Division**

#### **3. Informational Session:** Informational presentation of individual approaches proposed or under consideration for pricing and access fees, congestion management & FTRs, scheduling and operations, and experience with coordination of seams issues.

California ISO  
Northwest RTO  
Desert Star  
Mountain West  
Rocky Mountain  
Canada  
Seams Lessons from Elsewhere

Ziad Alaywan, California ISO  
Chuck Durick, Idaho Power  
Mike Raezer, Tucson Electric Power  
Carl Imperato, Tabor, Caramanis & Assoc.  
Jane Meyer, WAPA RMR  
Phil Park, Powerex  
Paul Barber, Citizens Power

#### **4. Introduction to Breakout Sessions - Issue Overview**

**Dean Perry**

#### **5. Lunch Break** – Box Lunches will be provided

#### **6. Breakout Sessions:**

**Workshop Participants**

Brainstorm identification of seams problems, key issues, desired outcomes, and possible solutions. 7 major seams issues have been selected for discussion by the Breakout Groups. These are (including name of the Discussion Leader):

Congestion Management	Carl Imparato
FTRs at the Seams	Carl Imparato
Loop Flow	Wally Gibson
Price Reciprocity	Larry Nordell
Outage Planning	Phil Park
Curtailments	Phil Park
Scheduling & Operations	Cary Deise

**Format:** It is planned to divide the Breakout Session into a Session I followed by a Session II. Each session will last approximately 1 ½ hours. Each session will consist of 2 individual Breakout Groups. 3 issues will be assigned to one Breakout Group; 4 issues will be assigned to the other Breakout Group. At the start of Session II, Workshop Participants will rotate between the two Breakout Groups. Between Sessions I and II, Workshop Participants will be able to participate in the discussion of all 7 major seams issues.

Session I - Breakout Group I – (Congestion Management, FTRs, Loop Flow)  
Breakout Group II – (Price Reciprocity, Outage Planning,  
Curtailments, Scheduling & Operations)

Session II - Breakout Group I – (Congestion Management, FTRs, Loop Flow)  
Breakout Group II – (Price Reciprocity, Outage Planning,  
Curtailments, Scheduling & Operations)

## 7. Q & A Session with FERC Representatives

**Mike Coleman**

Opportunity for Workshop Participants to Q & A FERC representatives about RTOs and RTO Seams related issues.

## 8. Summary and Wrap-up:

**Wally Gibson**

- Each Discussion Leader summarize the work of their sessions. In this Summary/Wrap-up session, emphasis will be on problem identification by the groups and possible solutions.
- Identify specific follow-up actions. - How should the work at this Workshop be followed up? (WMIC RTO Seams TF, individual RTO Subgroups, etc.)

## CONGESTION MANAGEMENT AND FIRM TRANSMISSION RIGHTS: SEAMS ISSUE PAPER FOR WORKSHOP BREAKOUT DISCUSSION

**ISSUE:** What are the seams issues associated with Congestion Management? What are the seams issues associated with Firm Transmission Rights? What are potential solutions?

### **BACKGROUND:**

“Congestion management” is simply the mechanism that is used by the grid operator to allocate transmission access during its day-ahead and post-day-ahead scheduling processes.

- In the non-RTO environment, “congestion management” is achieved in most cases through a process in which: (i) grid users request transmission access from the grid operator on a first-come, first-served basis, (ii) the grid operator sells transmission rights to the grid user, and (iii) the grid user submits to the grid operator schedules that were consistent with those rights.
- In the California ISO environment, “congestion management” occurs primarily through a day-ahead transmission rights auctions and subsequent “hour-ahead” transmission rights auctions operated by the CAISO. In these auctions, the grid users’ bids establish each user’s willingness to pay for the rights to use commercially-significant “inter-zonal interfaces,” and the CAISO allocates the interface capacity to the highest bidders. The CAISO *also* accepts schedules from grid users who have purchased Firm Transmission Rights (FTRs) and schedules from grid users who have rights under pre-ISO contracts.
- In the MWISA and DSTAR environments, congestion management is achieved through a process in which the ISA/ISO define and auction FTRs and RTRs (Recallable Transmission Rights) for the use of inter-zonal interfaces to grid users, and grid users submit to the ISA/ISO schedules that are consistent with those rights. (Rights under pre-existing contracts are also honored.)
- In the NWRTO environment, it is likely that the RTO will define FTRs and RTRs for the use of commercially-significant transmission paths (known as “flowgates”). Under discussion is the question of whether the NWRTO would institute a scheduling process in which grid users would acquire these rights and submit to the ISA/ISO schedules that are consistent with those rights (as in DSTAR and MWISA), or institute an “accept all schedules” process (similar to the CAISO process).

The nature of the Firm Transmission Rights that each grid operator uses also varies from region to region. While all grid operators seem to be adopting most of the features that were laid out in the 1998 consensus proposal the WRTA-NRTA-SWRTA Firm Transmission Rights Working Group (FTRWG), there are some major differences, primarily in the areas of: (i) whether the FTRs provide the right to schedule from zone-to-zone or whether the rights are flow-based (and must be assembled by the grid user to construct a zone-to-zone right); (ii) the time at which the FTR, if not scheduled by the grid user, reverts back to the grid operator; and (iii) whether derivative rights (such as RTRs) exist.

The major seams issues associated with congestion management and with FTRs include (at least) the following:

1. Compatibility of the FTRs:

- a) Do the rights defined by the grid operators on different sides of the “seam” correspond to the use of the same facilities (the zonal rights vs. flowgate rights issue)?
- b) Do the rights survive long enough (before they revert to the grid operator) to avoid problems that might arise because different grid operators use different scheduling processes and different scheduling timelines?
- c) Other?

2. Compatibility of the “congestion management” processes:

- a) In the auction-based approach operated by the CAISO, and possibly by the NWRTO, are both entities auctioning the right to use the same interface?
- b) Does the timing of the auction-based approaches create scheduling conflicts, commercial problems or any type, or a “first-mover” advantage (in which one or the other grid operator can extract a disproportionate share of the scarcity value of the interface facilities)?
- c) Do the scheduling timelines adopted by the grid operators (in particular, the timelines for submittal of day-ahead schedules and the different post-day-ahead scheduling
- d) approaches (continuous processes in MWISA and DSTAR, one-shot process in CAISO) create conflicts (including conflicts with the schedules of parties such as the California Power Exchange)?
- e) Other?

If there are conflicts, are they “fundamental,” or are the problems easily-resolved through cooperation between grid operators and/or minor changes to protocols?

- 3. Are there any issues associated with how the grid operator manages “intra-zonal” congestion (for example, in a single WSCC-wide RTO, could resources in the DSW help alleviate problems in Southern California)?
- 4. Are there other seams associated with congestion management and/or FTRs?

[Note: issues associated with the curtailment of transmission rights (FTRs, RTRs or rights acquired through day-ahead auctions) are part of the “Curtailments” issue.]

## **LOOP FLOW SEAMS ISSUES**

WSCC has a mechanism (the Unscheduled Flow Mitigation Plan), negotiated in 1993-94 and recently updated and re-submitted to FERC for approval, to address major system loop flow problems in the interconnection. This discussion is about issues addressed by this mechanism rather than about other kinds of parallel flow issues that are more local in scope and effect.

The Plan is a workable mechanism to address loop flow problems in the interconnection. It is, however, limited in its appropriateness to a competitive market heavily (though not exclusively) populated by disaggregated and deregulated market participants as well as transmission service provided by RTOs. The source of the limitation is two-fold: 1) the Plan is rule-based and not price- or market-based in its curtailments and 2) the entities subject to the plan are transmission path operators rather than market participants (path operators are then to curtail schedules based on their own criteria).

The Plan provides for curtailments on paths contributing to the loop flow, after a certain amount of the loop-flow effect is absorbed by the schedules on the impacted path, based on a set of rules and required percentage curtailments. The curtailments do not address the relative value of the various transactions, as it might be expressed through some market process, such as bids to avoid curtailment or, more directly, flow-based rights with an active secondary market.

Moreover, the market participants whose schedules are affected are not the ones who directly participate in the Plan's mechanism. Rather, the Plan provides for actions by the path operators, who in turn are responsible for curtailing the appropriate amount of scheduled transactions to get the path within its OTC, based on criteria not included in the Plan.

In sum, the current mechanism, while workable, needs to be updated to make it better support the competitive power market.

## **PRICE RECIPROCITY SEAMS ISSUES**

Order 2000 says, "We will continue to encourage reciprocal waivers of access charges between RTOs as long as they are reasonable in terms of cost recovery, cost shifting, efficiency, and discrimination." FERC's interest in price reciprocity among RTOs in Order 2000 comes from the same source as its interest in eliminating pancaking within RTO boundaries, that is, expanding generation markets. Price reciprocity would help attain the goal of seamless boundaries between the RTOs, just as elimination of tariffs in a free trade area. Parties that had paid their access fees in one RTO would be allowed to buy and sell freely in other RTOs with reciprocity agreements.

The price reciprocity issues among RTOs are the same as those that exist within an RTO that is attempting to eliminate pancaked rates. There are two ways of looking at the issues, focusing on efficiency and focusing on cost shifting.

Efficiency. An important principle for economic efficiency in electricity markets is that the prices charged to transmit power should reflect the marginal costs of accommodating transactions, and not the underlying revenue requirements or capital costs of the transmission network. FERC talks simply about eliminating pancaked access charges to recover capital costs. We have gone further and suggested that capital costs be recovered through load-based fees, with transaction fees limited to recovering marginal congestion costs, losses and ancillary services. Some RTO pricing discussions, including the IndeGO proposal, envision load based access fees within the RTO but transaction based fees for wheeling out, wheeling in, or both. Reciprocity would allow the efficiency benefits of efficient pricing to extend to a much larger trade area. Reciprocity agreements could require no inter RTO payments, or they could accommodate inter RTO access fees to avoid significant cost shifts.

Cost shifting. Cost shifting is avoided within an RTO by setting access fees that closely match the historic net customer cost responsibility. Access prices in the IndeGO proposal, for example, were set by looking at a load area's historic transmission revenue requirements, less wheeling revenues, plus wheeling costs. The sum of these costs, divided by an appropriate measure of area loads, results in the annual load area transmission access fee. This process could be extended by calculating the historic revenues received from or paid to utilities in other RTOs and calculating a set of net annual payments among the RTOs that would leave historic net cost responsibility unchanged. Alternately, the RTOs could simply agree to permit access to each other's transactions without any annual payments. If historic transmission usage was more or less balanced this might not result in significant cost shifts.

## **OUTAGE PLANNING SEAMS ISSUE**

**ISSUE:** What are the seams issues associated with RTO outage planning? What are potential solutions?

### **BACKGROUND:**

The NW uses the NWPP Coordinated Outages System for coordinating outages between transmission owners and taking transmission user input to mitigate impacts of planned outages on the market. Outages are scheduled at times that minimize impacts on the market. CAISO participates in this process for outage scheduling on the COI.

Paths such as COI, PDCI, and NW – Canada are often significantly impacted by outage restrictions, creating outage period congestion on these paths.

Differences exist between the level of participation and outage planning horizons of various parties in the NW. Also, it is not clear how outage durations are optimized against market impacts. Some suggest that maintenance practices are designed to minimize transmission O&M costs and availability can be improved at relatively modest costs.

What can/should NWRTO do to address outage planning at the Seams? Should additional maintenance costs to reduce outage costs be passed on directly to users or “socialized”? If the latter, how should the tariff recover the costs?

## **CURTAILMENTS SEAMS ISSUE**

**ISSUE: What are the seams issues associated with RTO curtailment procedures? What are potential solutions?**

### **BACKGROUND:**

Present operating practices and limitations for curtailments result in numerous market concerns that curtailments are not done in an equitable way. Curtailment practices are a subset of the congestion management process and related to loop flow practices, in that curtailments occur when forced outages result in congestion on the path or loop flows cause excessive actual flows on a path.

The present practice for curtailments is that during the “emergency period”, security takes precedence and schedules are curtailed according to what is doable. This results in large schedules and entities that can respond most quickly often taking a larger than prorata share of curtailments. After the emergency period, curtailments are adjusted according to scheduling rights. Economic efficiency suggests that the lowest value schedules should be curtailed first, possibly using the same stacking as used for congestion management.

The Unscheduled Flow Mitigation Plan requires path to accommodate unscheduled flow by curtailing schedules if necessary. An alternative loop flow mitigation plan may mitigate the need for curtailments.

Numerous issues arise within the curtailment procedures. At interfaces, double cutting occurs because the entities on the two sides of the interface may have different cutting orders. For example, physical rights will be curtailed based on reservation priority while financial rights will be curtailed based on bid value.

Some cutplane limits are poorly defined as a result of practices that predate open access. Some control area operators use interconnection flows to measure system stress although the limiting cutplane is internal to their network. This can lead to inequitable curtailments when generation is connected between the monitored interconnection and the limiting cutplane.

The NWRTO has three challenges to address with respect to curtailments:

1. Coordinate its curtailments practices with internal congestion management and loop flow practices;
2. Address inequities due to traditional operating practices;
3. Address seams related seams issues with other regions.

## **OPERATIONS AND SCHEDULING SEAMS ISSUES:**

### **◆ Market Clearing Times and Submission of Schedules**

#### **Matching at the border**

Currently in the WSCC, no overall coordination or standardized deadlines and procedures for Schedule submission exist. To maximize efficiency in the commercial scheduling and settlement arenas, consistency is needed across the Northwest and the West.

At the present time, many entities have a fixed deadline to submit pre-schedules (such as 2 PM for NW-NW schedules for BPA), and after that time, schedule changes must be done on real time. Depending on the product and the transaction path, the deadlines change. Other entities have different scheduling deadlines and procedures, as well. For NW schedules heading south, one CA party utilizes a scheduling approval process without a fixed approval time. Parties wishing to do business in this arena must wait for this process to finish before they can finish their own final schedules and checkout. The inconsistencies in these different scheduling processes increase risk and slow the checkout process for market participants. Other issues that impact the scheduling and settlement process include:

1. 5 day vs 7 day Pre-scheduling – not all parties current have 24 hr/day pre-schedule and real-time staff
2. Staff having to stay late to accommodate late schedules
3. Special scheduling days – recognized by some, not all, creates problems
4. ETags – not all parties are using the electronic format, problems with interface of these systems
5. Scheduling Coordinators – difficult to match SW schedules w/NW parties

### **◆ Implementing Congestion Management in Scheduling and Operations**

#### **Compatibility with neighboring RTO's**

Currently, congestion management procedures are the responsibility of the owner/operator on a particular path. There is little coordination now between regions for congestion management. This causes inefficiencies between parties and regions and affects other areas such as scheduling. Without coordinated planning and operations, the problems we are experiencing will continue. Additional seams issues include:

1. Economic impacts – increased risk and/or cost to market participants
2. Communication – notifications of cuts or changes to all affected parties in chain
3. Scheduling deadlines – NERC Etag timelines must be met
4. Mitigation , Flow gate, contract path, needs to be standardized at the borders

Currently, common procedures used to alleviate congestion on affected paths include restricting schedules on pre-schedule and real-time basis, cutting schedules in real-time, and contractual solutions.

#### ◆ Implementing Line Loading Relief in Real time

##### **Adjusting schedules within 10 minutes. Implementation of re-dispatch protocols in real time.**

Currently, line loading relief procedures are the responsibility of the owner/operator on a particular path. Many of the major transmission paths in the WSCC have multiple ownership arrangements and frequently during peak periods or inclement weather conditions, affected paths can run up against safe loading conditions. Unplanned contingencies i.e., loss of a line can cause a path to exceed its safe operating limit. Coordination is lacking among Intra-regional as well as inter-regional entities. Currently, the issues include:

1. Reliability concerns – the path operator has responsibility today. Further separation of control and authority may create more communication and reliability problems.
2. Systems and staff – systems and staff stressed due lack of standardization of business practices, tools, and communication protocols.
3. Methodology needs to be standardized at the borders
4. Financial implications—Who pays for line loading relief?
5. Generation and load impacts must be planned for and properly communicated

#### ◆ Infrastructure and Administration

##### **The need for new tools to facilitate the scheduling process between RTO's**

Currently, WSCC parties use a variety of different systems and procedures for scheduling process, including power accounting, and after-the-fact checkout. NERC has mandated the use of Electronic tags for scheduling, and a number of software companies have responded by developing scheduling packages – all different from one another. The West has implemented the Etag on pre-schedule, however, we are seeing problems with the different scheduling systems “talking” to one another – requiring that Tags be faxed. The Tag isn't the Schedule yet – therefore, verbal checkout is still occurring. Problems have also occurred in the after-the-fact arena, these problems will not go away after the development of an RTO, and may increase, without coordinated planning and standards. Business practices also differ between entities, creating disagreements. Other issues are:

1. Scheduling systems – interfaces don't always work, creates increased work load
2. Communication – still a lot of “pick up the phone” verifications; voice mail issues
3. ETags – not on real-time yet, double work because the tag is not the schedule
4. After the fact accounting – new systems, curtailments, schedule changes, create imbalances which are now manually investigated and can take weeks and months to resolve
5. Re-dispatch – additional work load on staff and systems with current tools
6. Congestion management – must be documented clearly, or will lead to disputes

## ◆ Flexibility

### **Adapting to changing market conditions through new products and services**

The marketplace today requires that participants, the products they offer, and systems they use be more flexible and able to adapt to increased demands. Information sharing is not forthcoming and this is creating inefficiencies. Business practices today are also evolving; disputes have arisen regarding issues like control area status for scheduling purposes, firm transmission requirements for reserves, etc. Control areas are under increased scrutiny and are being asked to increase the products and services that they offer. Accountability currently rests on the control areas. Utilities are selling their generation assets to independent power producers and unregulated Marketers, and relying on the market to provide. Issues that will need to be resolved:

1. Accountability for all market participants – this is the root of many problems today
2. Ancillary services – regional differences exist in supply and availability of these products, How will NW generators participate in NW ancillary services markets across control area boundaries?
3. 10 minute dispatch – OASIS, scheduling, and accounting systems will need to accommodate these
4. Dynamic scheduling - OASIS, scheduling, and accounting systems will need to accommodate these
5. Business rules – need to be standardized as much as possible, but flexible to adapt to changing markets needs.
6. Who will coordinate and drive business standards and standard implementation tools to achieve market objectives?