


ISO NEW YORK INDEPENDENT SYSTEM OPERATOR
 Building the Energy Markets of Tomorrow ... Today






Dealing with Seams Issues

A Report from the Northeast

Charles A. King
 Vice President NYISO Market Services

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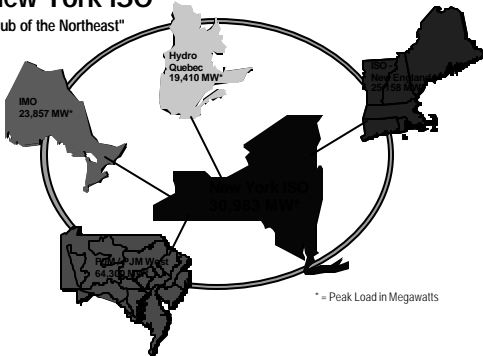
Where are the Seams?

- ✓ Spatial 
- ✓ Temporal 
- ✓ Administrative 

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New York ISO


"Hub of the Northeast"



* = Peak Load in Megawatts

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Spatial Seams

- ✓ Visibility of System Operations & Modeling
- ✓ Transmission Capacity (TTC/ATC) 
- ✓ Hourly Schedule Ramp Limits
- ✓ Schedule Thresholds (1 MW)
- ✓ External Control Area System Models (Proxy)

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What are the Seams?

✓ **Definition :**

- *Seams Issues are barriers and inefficiencies resulting from equipment limitations and differences in market rules and designs, operating and scheduling protocols, and other control area practices which inhibit or preclude the ability to transact capacity and energy across control area boundaries.*

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Temporal Seams

- ✓ Control Area Scheduling Frequency
- ✓ Market Closing / Posting Times
- ✓ Auction Frequency 

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Administrative Seams

- ✓ Reservation Scheduling Rules
- ✓ Bidding Rules & Protocols
- ✓ Operations Procedures & Policies
- ✓ Interconnection Protocols
- ✓ Resource Deliverability Requirements (ICAP, A.Services)



Technology Limitations Exist

- ✓ Network Solutions (size, speed)
- ✓ Metering / Telemetry
- ✓ Data Handling



Seams can have an Adverse Impact on ...

- ✓ **Efficiency (Market Liquidity)**
 - Transaction Flexibility
 - Price Certainty
 - Ability to Manage Risk
 - Market Confidence
- ✓ **Effectiveness (Market Optimization)**
 - Inappropriate Price Signals
 - Gaming Opportunities
 - Counterintuitive Transactions



For now, we must learn to live with our Seams

- ✓ Look for opportunities to...
 - Adopt similar market rule sets,
 - Remove barriers to market entry,
 - Improve data / information handling
 - Enhance transaction management,
 - Improve operations coordination and visibility,
 - Develop improved user-interfaces.



Seams are a Necessary Feature in the Transition to Open Markets

- ✓ Historical Development of the Grid Cannot be ignored
- ✓ Political/International Boundaries Exist
- ✓ Cannot Secure the Entire Eastern Interconnection with a Single Solution



Major Seams Resolution Initiatives

- ✓ Removal of Export Charges between control areas (Rate Pan-caking Elimination)
- ✓ Improve real-time use of transmission interfaces – Regional Dispatch Coordination
- ✓ Develop a common product definition and rules for Capacity Trading – Resource Adequacy Model (RAM) process

Status of Seams Projects

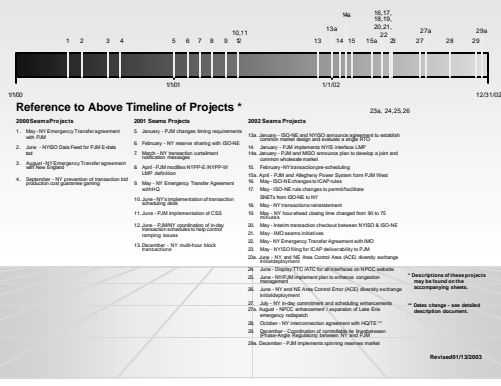
Early 2003 Deliverables

Project	Due Date	Status
1. Controllable Line Scheduling	January 28 th Complete	SCUC changes implemented to optimize scheduling of controllable lines with IMO to better reflect available real-time control actions
2. Open Scheduling System (OSS)	Oracle 9i - March 9 th Complete OSS - Week of April 7 th	OSS Delivery dependent on Oracle 9i deployment and subsequent testing of OSS application with the new version
3. ISO-NE - SMD 1.0	March 1 st Complete	SMD markets operational as of March 1 st
4. ISO-NE - ICAP Market	March deployment	ICAP auctions to be initiated for an effective date of April 1 st

Examples of Seams Progress

- ✓ Item 32: Real-Time Scheduling/SMD2
 - NYISO - on track for Q1-2004 completion
 - NYISO coordinating rule changes with neighboring ISOs
- ✓ NYISO-PJM Congestion Redispatch Pilot Activation
 - Used 6 times during November
 - Demonstrates successful regional collaboration

Completed Northeast ISOs "Seams" Projects (2000 - 2002)



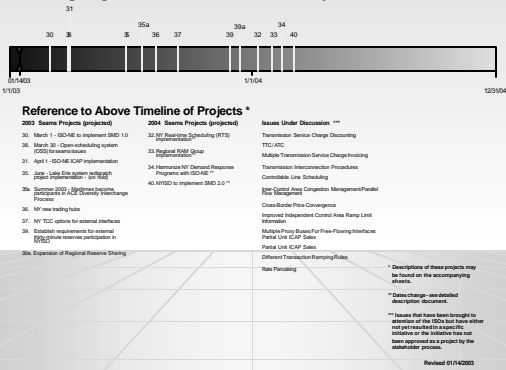
Status PJM-MISO Reliability Seams Issues

Concerns with Market-to-Non-Market flows and with Parallel Flows

Parallel Flows – Congestion Mgt	Proposal
Parallel Flows – AFC Coordination	System Ready – pulling data from MISO
Contract Tie Capacity	Tied to Congestion Mgt Solution
Different Definitions & Procedures	Initial Drills Completed and Issues Identified
Operating Procedures for Voltage Collapse	Agreed Upon Procedure
Outage Maintenance Coordination	Agreed Upon Procedure
Access & Expansion Planning	Issues Identified

Solutions to be included in PJM and MISO Reliability Coordinator "Reliability Plans" which will receive Stakeholder review and will require NERC approval

Ongoing Northeast ISOs "Seams" Projects (2003 - 2004)

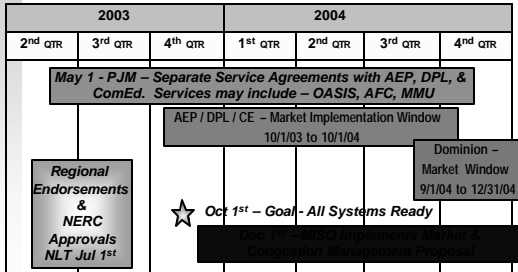


MISO – PJM Congestion Management Proposal Elements

- Determining List of Coordinated Flowgates
- Determining Economic Dispatch Flows
- Determining Total Market Flows
- Determining NNL Flows
- Tagging Granularity – Uploading Marginal Units

In a nutshell, RTO's will: model external flowgates, determine historic NNL impacts (former control area gen-to-load) on flowgates, calculate real-time and projected centralized economic dispatch impacts, provide IDC with marginal unit impacts on constrained flowgates, and limit impacts on constrained flowgates to no more than historic NNL impacts.

MISO & PJM - Long Term - Timeline



Look for next version of White Paper on Congestion Management at www.miso-pjm-spp.com on April 16th

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ISO Coordination Of Rule Changes

- ✓ Staff Level – Continuous collaboration
 - *Examples include:*
 - ✎ ISO-NE and PJM participation in NYISO's Real Time Scheduling (RTS) development process
 - ✎ PJM/NYISO development of congestion management procedures
 - ✎ Coordination of external nodes for trading between NYISO and NE
 - ✎ Resource Adequacy Model (RAM) Group
 - ✎ Operating level meetings between NYISO and IMO to refine scheduling protocols
- ✓ Market Participant - Joint working groups
 - *Working group formed on an issue specific basis*
 - *RAM Group demonstrated success of this approach*
 - *In the process of forming a joint working group on Controllable Line Scheduling*

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ISO Coordination of Rule Changes



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Estimated Value of Seams Improvements for 2001-2002

- ✓ The NYISO Market Advisor has evaluated efficiency improvements for 2001 and 2002 relative to a year 2000 base
- ✓ The cumulative efficiency savings on a regional basis each year, relative to 2000 are:
 - 2001, \$21 million
 - 2002, \$56 million
- ✓ The cumulative savings above represents production cost savings in the northeast...
 - *Through displacement of high cost generation in one area with low cost generation in an adjacent area*
 - *And represents approximately 1/2 of the savings that could be achieved through perfect arbitrage*

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ISO Coordination Of Rule Changes

- ✓ CEOs – Direct communication as needed
- ✓ VPs - Periodic joint meetings
 - *Exchange of information regarding market developments*
 - *Review emerging issues and outline a plan of action*
 - *Coordination of ongoing seams related initiatives*
- ✓ Stakeholder Involvement
 - *Joint ISO meetings including stakeholder representatives*
 - *Last meeting 1st Quarter 03 (March 28)*

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QUESTIONS ????

Charles A. King
 NYISO: cking@nyiso.com
 518-356-6209

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