

Market Solutions to Loop Flow

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Business Issues Committee

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Agenda

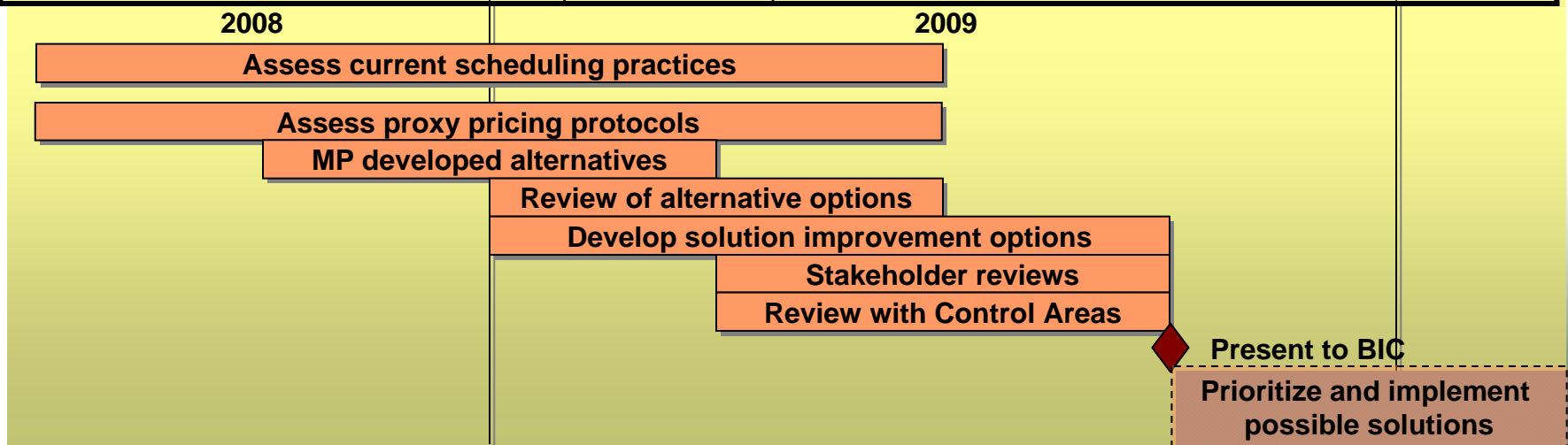
- ◆ Background
- ◆ Recommendation
- ◆ Next Steps
- ◆ Solution Concepts
- ◆ Schedule

Background

- ◆ At the September 25, 2008 Management Committee Meeting, as part of Motion #2 to approve tariff changes prohibiting the Scheduling of Circuitous Transactions around Lake Erie, Market Participants requested the development of a proposed schedule for developing market solutions.
 - *Specifically, motion #2 included:*
 - ‘In order to carry out FERC’s recommendation that “the long term solutions to the loop-flow problem should be worked out through a collaborative process where all such issues may be fully considered,” the Management Committee requests that the NYISO return to the October 22, 2008 Business Issues Committee meeting with a proposed schedule (including milestones) for identifying and developing long term market solutions. If long-term solutions are ultimately agreed upon, the Management Committee further requests that the NYISO develop and provide a schedule for expeditious implementation of those solutions.’
- ◆ In response, staff presented a schedule for the development of “Long Term Solutions to Loop Flow Concerns,” which included a milestone to present recommendations to BIC by Q3-2009.

Loop-Flow Solution Development

Description	Schedule	Status
Assess proxy pricing protocols	Q2-2009	MIWG reviews on 12-16-2008 and 02-06-2009 of historical and PJM methodologies.
Market Participant developed alternative proposals	Q1-2009	No additional proxy pricing proposals suggested. Requested to consider representing additional scheduling nodes.
<i>Review alternative proposals</i>	Q2-2009	Reviewed concepts with PJM.
Develop solution improvement options		
<i>Stakeholder reviews</i>	Q3-2009	Congestion Management Technical Conference (02-12-2009), Stakeholder Sector meetings (April, 2009)
<i>Review options with control areas</i>	Q3-2009	Issue review and remediation suggestions developed at 03-23-09 meeting with PJM, OH, MISO. Joint ISO Review of Broader Regional Market concepts.
Present recommendations to BIC	Q3-2009	Benefits presented Sept 2009



FERC's July 16, 2009 Lake Erie Report/Order

- ◆ Finds no evidence of market manipulation by market participants scheduling external transactions around Lake Erie
- ◆ Determines that there were no tariff violations by the NYISO or by market participants
- ◆ Determines that restitution isn't appropriate
- ◆ Orders the NYISO to “expeditiously develop long-term comprehensive solutions to the loop flow problem with its neighboring RTOs, including addressing interface pricing and congestion management.”
 - *NYISO must submit a report to FERC detailing its proposed solution, including necessary Tariff revisions, by mid-January 2010*

Current Practice

- ◆ Day-Ahead Modeling:
 - *The Lake Erie circulation value used in the Day Ahead Market (DAM) evaluation is updated weekly, based on the average hourly loop flows experienced in real-time over the past 30 days.*
 - *The circulation value used in the DAM evaluation for the week that begins with market day 9/2/09 will be set to 350 MW of clockwise circulation.*
- ◆ Real-Time Operation:
 - *Incorporate real-time experienced loop flows into the market solutions.*
 - *Transmission Loading Relief events initiated when:*
 - Lake Erie loop flow exceeds 400 MW
 - NYISO is addressing transmission constraints on defined flow gates

Concept Development

- ◆ MIWG: December 2008 – August 2009
 - *Review of pre-existing conditions and sources of loop flows.*
 - *Review of impacts of incorporating PJM proxy pricing protocols.*
 - *Review of implication of reducing the 75 minute bid lockout.*
 - *Review and concept development of Broader Regional Markets – Physical and Market solutions to Loop Flow.*
 - *Review of Benefits associated with Interregional Transaction Coordination.*
- ◆ Sector Meetings: April 2009
 - *Identified opportunities for financial recovery of congestion management costs.*
- ◆ MISO, PJM, IESO: March 2009 – August 2009
 - *Review and concept development of scheduling improvement opportunities, buy-through of congestions and congestion management.*

Recommendation

- ◆ Broader Regional Markets - Enhance the efficiency of external transaction scheduling outcomes to deliver improved regional price convergence and interface utilization.
 - *Market Solutions to Loop Flow*
 - Buy-Through of Congestion
 - Congestion Management
 - Interregional Transaction Coordination
 - *Physical Solutions to Loop Flow*
 - Installation and Operation of the Michigan/Ontario PARs to better conform actual power flows to scheduled power flows
- ◆ Objective:
 - *Replace the need for Transmission Loading Relief (TLR) events to address loop flow, improve the accuracy and consistency of transaction scheduling decisions and lower congestion costs to consumers.*

Next Steps

- ◆ **Provide recommendations to BIC on Sept 9, 2009**
- ◆ **Budget Development**
 - *Projects included in the 2010 Potential Project Candidates list*
- ◆ **Ongoing Solution and Schedule Development**
 - *MIWG: September – December , 2009*
 - *Joint ISOs: August – December, 2009*
 - *Joint Stakeholder Meetings: October/November, 2009*
 - *BIC: Concept Approval – December, 2009*
 - *FERC: Response – January 12, 2010*

Physical Solutions to Loop Flow

- ◆ Phase Angle Regulator Installation
 - *Installation of PARs on fourth Michigan/Ontario tie anticipated to be completed by November 2009.*
 - First transformer installation complete.
 - Second transformer installation began July 2009.
 - *Additional installation of protective relay equipment expected to be finished in first quarter 2010.*
- ◆ Expected operation to better confirm actual power flows to scheduled power flows, thereby reducing loop flow.

Buy-Through of Congestion

- ◆ Benefits
 - *Buy-Through of Congestion provides for the recovery of congestion management costs incurred in managing loop flow impacts.*
 - Provides an alternative to market and operational interruptions caused by Transmission Loading Relief (TLR) actions.
 - More efficient utilization of the transmission network.
 - More accurate transaction scheduling decisions.

Buy-Through of Congestion

- ◆ Concept
 - *Parties scheduling transactions with any of the other ISO/RTOs surrounding Lake Erie, but not with the NYISO, would be billed for the real-time congestion costs incurred by NY to support the loop flow created by the transaction.*
 - *Congestion costs captured by NYISO's OH and PJM prices.*
 - Exposure to NY congestion costs can be managed with existing Day-Ahead transmission scheduling processes.
 - Charges in proportion to the contract's NY impacts.
 - NY continuing review of external bus pricing logic.

Buy-Through of Congestion

- ◆ A collective ISO/RTO solution:
 - *Will facilitate sharing of transaction schedule and scheduling entity billing data.*
 - *Improve identification of sources of loop flow.*
- ◆ A mandatory program is necessary to address firm transmission capacity and free-riders.

Congestion Management

- ◆ Benefits
 - *Congestion Management achieves a more cost effective utilization of the region's collective assets to address constraints across multiple systems, resulting in lower congestion costs to consumers.*
 - *Provide a more consistent pricing profile across markets.*

Congestion Management

- ◆ Concept
 - *Allow for the dispatch of generator assets within a neighboring control area to address transmission constraints within own control area when more cost effective than operation of in-area generation.*
 - *Pre-determination of collective transmission constraints to jointly solve and real-time coordination of constraint solution costs.*
 - *Provides financial settlement to neighboring control area for off-cost operation.*
 - *Establish market flow calculation tools.*

Congestion Management

- ◆ Status of NY-PJM Discussions
 - *Reconciliation of market flow calculation process*
 - Historical recalculation of data not feasible.
 - *Definition of historical data needed to resolve entitlements discussion*
 - PJM settlement process based upon actual flows at time of event relative to historical usage. NY desires dynamic baseline process.
 - Reviewing option of a bandwidth solution which addresses concerns of both areas.

Interregional Transaction Coordination

◆ Benefits

- *Dynamic scheduling lower total system operating costs through improved consistency of transaction schedules with market-to-market price patterns.*
- *Expand pool of flexible assets to balance intermittent power resources output.*
- *Improve price consistency and transmission utilization across markets.*
- *Address uncertainty in forward looking scheduling horizons.*

Interregional Transaction Coordination

- ◆ Concept
 - *Allow Market Participants to provide flexible energy, reserve and regulation transaction bids, where the real-time dispatch tools will evaluate these flexible transactions on an intra-hour basis.*
 - *Phase 1 – Adjust HQ energy interchange on a 5-minute frequency based upon NY economic evaluation of flexible bids.*
 - Pre-coordination of flexible bids and automated coordination of energy schedules necessary to support frequency of interchange adjustments.

Interregional Transaction Coordination

- ◆ Future Steps
 - *Phase 2 – Establish market and coordination processes to support purchase and sale of reserve and regulation between markets.*
 - *Phase 3 – Define process to apply dynamic scheduling between two market systems.*

Market Solutions to Loop Flows

- ◆ Buy-through of Congestion 2011*
- ◆ Congestion Management
 - *Market Flow Calculator* 2010*
 - *PJM NYISO Full Implementation* 2011*
 - *Extend to Additional Regions* 2013*
- ◆ Interregional Transaction Coordination
 - *Energy Scheduling with NY/HQ* 2010*
 - *Buying Reserves and Regulation* 2011*
 - *ITC with NY/NE* 2011*
 - *ITC with other regions* 2013*

**Prospective timeline pending review with Market Participants, neighboring Control Areas and the Commission.*

The New York Independent System Operator (NYISO) is a not-for-profit corporation that began operations in 1999. The NYISO operates New York's bulk electricity grid, administers the state's wholesale electricity markets, and provides comprehensive reliability planning for the state's bulk electricity system.

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