Joint and Common Market

M2M MARKET FLOW ENHANCEMENT

Overview

- In 2013, MISO, PJM and SPP discussed potential changes to improve calculations (IDC, Market Flow, and Firm Flow Entitlement) by introducing a consistency concept

- As an initial step, RTOs agreed to implement appropriate changes by June 1, 2014 to be consistent in their own calculation processes
  - Subject to FERC's approval

- RTOs also agreed to work on PJM proposal of "M2M Market Flow" enhancement as a long term plan
  - Under this proposal, M2M market flow would include gen-to-load impacts of markets (traditionally known as market flow) plus transaction (tag) impacts. Collectively, these components are referred to as "commercial flow"

MISO-PJM-SPP Discussions

Background

- During summer 2013, MISO and SPP discussions focused on how their respective RTOs were utilizing different methodologies for accounting Transaction impacts for FFE, Market Flow, and IDC calculations

- In October 2013, MISO, PJM and SPP had a 3 party meeting wherein RTOs agreed that they need to be consistent in accounting for Transaction impacts in their own calculation processes (FFE, Market Flows and IDC)
  - RTOs also determined that it is not necessary to use identical methodologies to capture Transaction impacts

Modeling of Transactions

RTO		FFE	Market Flows	IDC
SPP	Current	POR/POD	POR/POD	POR/POD
PJM	Current	Marginal Zones	Slice of System	Marginal Zones
	New	Marginal Zones	**Marginal Zones**	Marginal Zones
MISO	Current	POR/POD	Slice of System	Marginal Zones
	New	**Marginal Zones**	**Marginal Zones**	Marginal Zones

Key Dates for changes to achieve consistency

- File changes to the MISO-PJM and MISO-SPP JOAs by March 1st, 2014
- Implement software changes by June 1, 2014

PJM PROSPOSAL ON M2M MARKET FLOW ENHANCEMENT

Background

- Existing M2M market flow calculations currently do not align with calculations used in actual LMP settlements of each RTO
- M2M market flow calculations removes impact of transactions through mechanisms such as “Slice of system”, Marginal zone, or POR/POD
- In actual LMP settlements the commercial flow is utilized in which a nodal calculation accounts for all RTO market flow
  - Every MW that has a market flow impact is accounted for in congestion
  - Imports/Exports are settled at interface pricing locations and MWs are injected/withdrawn at the same interface pricing locations

Market Flow Enhancement

- M2M market flow calculation could include transaction impacts using interface definitions (similar to Market settlements in each RTO)
  - Utilize Commercial Flows
- M2M market flow and FFE calculations need to be aligned
- Alignment of M2M market flow with actual commercial market flow will ensure that net of M2M payment and balancing congestion will equal zero if FFE is honored in day-ahead market
  - Day-ahead market models all flowgates to expected Firm Flow Entitlement (FFE) values to ensure proper use of the system

Market Flow Comparison

M2M market flow calculation comparison for handling of Imports and Exports

	Existing Method	Proposed Method
Imports/Exports	Slice of system	Utilize actual LMP settlement locations for imports and exports
Description	All generation proportionally reduced for exports. All load proportionally reduced for imports	Imports and Exports mapped to Interface pricing locations and only generation or load will be adjusted that is part of the Interface
Advantages	Easy to apply	Market Flow better aligned with actual settled real-time commercial market flow
		Balancing congestion + M2M payments equal zero if FFE honored in day-ahead
Disadvantages	Improper alignment with actual settled real-time commercial market flow	Implementation may be more difficult
	Balancing congestion + M2M payments does not equal zero if FFE honored in day-ahead	

Market Flow Enhancement – Outstanding items

- Treatment of Market Tags in IDC to maintain consistency between IDC calculations, M2M Market Flow calculations and Firm Flow Entitlement calculations

- Evaluation of impacts to:
  - Real-Time SCED
  - Other Market processes
  - AFC Process/Transmission Service Evaluation

Market Flow Enhancement – Next Steps

- PJM, MISO, and SPP review PJM proposal document
  - Coordination meetings
  - Resolution of outstanding issues
  - Refine document
  - Joint language
- Regular updates to Joint and Common Market
- Implementation effective for 2015/2016 Planning period
  - JOA language changes should be filed with FERC by December 2014

Market Flow Enhancement - Milestones

#	Status	Activity	By
1		PJM, MISO, and SPP initial review of PJM proposed market flow document	January 2014
2		Finalize Market flow proposal document	April 2014
3		Develop preliminary JOA language changes	June 2014
4		Final JOA language changes presented to stakeholders	September 2014-November 2014
5		File JOA language changes to ensure approval before annual ARR/FTR process	December 1, 2014
6		Implementation	June 1, 2015

Appendix 1: Market Flow Impacts

Example Impacts of the Market Flow Calculation differences

Scenario	FFE	Day-ahead Market Flow	Real-Time commercial Market Flow	M2M Market Flow	Real-time Shadow Price	Balancing Congestion*	M2M Payment**	Total costs (Balancing Congestion + M2M Payments)
1	20	20	30	30	$3,500	$35,000	($35,000)	$0
2	20	20	10	10	$3,500	($35,000)	$35,000	$0
3	20	20	20	20	$3,500	$0	$0	$0
4	20	20	30	40	$3,500	$35,000	($70,000)	($35,000)
5	20	20	10	0	$3,500	($35,000)	$70,000	$35,000

*Balancing Congestion= (Real-Time Market Flow - Day-Ahead Market Flow) * Shadow Price of Constraint
**M2M Payment = (FFE - M2M Market Flow) * Shadow Price of Constraint

- The zero total costs for scenarios 1-3 is expected because the actual real-time commercial flow equals M2M market flow.
- The non-zero total costs for scenarios 4 or 5 is what typically happens because of the mismatch between actual real-time market flow and M2M market flow.