



Seams Study Update: Joint Dispatch Study

Presented to:

OMS Annual Meeting

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October 24, 2019



Introduction

- The MISO IMM and SPP MMU, with support from MISO and SPP, are performing a number of studies at the request of the OMS and SPP RSC.
- This presentation summarizes the current status and initial results of the Tier One studies led by the MISO IMM:
 - ✓ M2M Enhancements; and
 - ✓ Joint Dispatch.
- We have also begun work on the following Tier Two items, but do not have results to present yet:
 - ✓ Coordinated transaction scheduling to optimize interchange between SPP and MISO; and
 - ✓ Interface pricing improvements to improve the efficiency of the prices at the border that facilitate participants' import/export transactions.



Joint Dispatch Study

- We've produced a draft report that presents initial estimates of savings from joint dispatch of resources between MISO and SPP.
 - ✓ The analysis was performed using a production cost model (PROMOD).
 - ✓ The model uses economic “hurdle” rates to simulate the effects of having separate balancing areas including separate dispatch and commitment areas.
- Three scenarios are presented including a:
 - ✓ Base Case which was developed from the PROMOD simulation used to support the MISO Value Proposition 2018 Base Case and MTEP;
 - ✓ Joint Dispatch scenario – where joint dispatch between MISO and SPP was simulated by setting the dispatch hurdle rate to zero and to allow fully efficient interchange.
 - ✓ Joint Dispatch and Commitment scenario - which was simulated by setting both the commitment and dispatch hurdle rates to zero to estimate the benefits of a fully integrated commitment and dispatch.

Joint Dispatch Study: Initial Results

- The following table shows the Base Case net imports and the changes caused by joint dispatch, as well as joint commitment and dispatch.
 - ✓ This shows that in both scenarios, a large amount of additional power transfers from SPP to MISO.
 - ✓ It also results in a small increase in net imports to the joint area.

	Base Case Net Imports	Change from Base Case	
		Joint Dispatch	Joint Dispatch and Commitment
Net Imports from SPP to MISO	1,512	8,214	16,058
Net Imports from Other Areas	7,579	413	497

- These increases in net imports into MISO from SPP are the result of allowing fully optimal interchange between the two areas.
- The increases are greater in the Joint Commitment and Dispatch case because the PROMOD model can commit units economically, which facilitate additional transfers.

Joint Dispatch Study: Initial Results

- The next table shows the production cost savings in the two cases.
 - ✓ This shows that in both scenarios, the production costs in SPP increase because it produced more power to support increased exports.
 - ✓ The production costs fall in MISO as output decreases.

	Production Cost Savings		
	Base Case	Joint Dispatch	Joint Dispatch and Commitment
SPP Production Costs (\$ Mill./Year)	\$3,649	-\$145	-\$307
MISO Production Costs(\$ Mill./Year)	\$11,966	\$170	\$345
Total Production Costs - Both RTOs	\$15,615	\$25	\$39
Adjusted Prod. Cost Savings (@ \$20/MWH)		\$17	\$29
<i>Adjusted Savings (% of total)</i>		<i>0.1%</i>	<i>0.2%</i>

- The adjusted savings accounts for the costs of the increased imports into the combined region from all other regions.
- The savings are 70 percent larger when commitment is optimized along with dispatch, but the total savings in both cases are very small.



Joint Dispatch Study: Discussion

- Although these are only initial results, we do not anticipate that the results will change substantially,
- The results presented are likely understated because:
 - ✓ Production cost models do not capture operational uncertainties, forecasting areas, and other factors that exist in reality;
 - ✓ Congestion and LMPs in the base case are much lower than in reality because the production cost model effectively assumes optimal congestion management coordination (even in the base case).
 - ✓ The model cannot capture the lumpiness and uncertainty related to outages and derates, or the limitations in adjusting interchange levels.
- However, these additional savings will be quantified in the Tier 2 analysis, including the analyses of:
 - ✓ M2M enhancements; and
 - ✓ Coordinated transaction scheduling.



M2M Update

- Market-to-market (M2M) coordination plays a key role in managing the network interactions between the SPP and MISO systems.
- The purpose of the study is to evaluate shortcomings and identify improvements to the M2M processes, including the:
 - ✓ Tools and automation to identify potential coordinated flowgates.
 - ✓ Process to transfer monitoring authority for constraints between RTOs.
 - ✓ Software that changes the requested relief from interval to interval.
 - ✓ Tests to identify the constraints to coordinate under the M2M processes.
- We worked with SPP to acquire the necessary data, accommodating confidentiality concerns regarding generator data.
 - ✓ However, we have not received all the necessary transmission data.
 - ✓ We plan to begin the analysis when we receive the balance of the data.
 - ✓ Per our original schedule, once we receive the data, we anticipate completing the study within two months.