



# **Electric Transmission Seams: A Primer White Paper**

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# **Electric Transmission Seams: A Primer**

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## Executive Summary

**Seams** are the products of valuable interconnections to neighboring jurisdictions.<sup>1</sup> They are the interface between two wholesale electricity control areas, systems, and markets. **Seams issues** are trading barriers between adjoining wholesale electricity markets resulting from the use of different rules and procedures by the neighboring markets. Put another way, where there are seams, inefficiencies arise that prevent the economic transfer of capacity and energy between neighboring wholesale electricity markets largely as a result of incompatible market rules or designs. These trading barriers can obstruct the trading or sharing of electric capacity and energy between the two markets, affecting the reliability of each system and increasing the ultimate cost to the ratepayer.

This Primer offers an examination of seams issues that are relevant to the Eastern Interconnection in the United States. It examines seams issues through the lens of three current and contested regulatory matters before state and federal regulatory commissions. The proceedings concern interconnection-wide seams controversies and have been selected for focus in this Primer to help distil the myriad of potential seams issues - persistent since the formation of regional transmission organizations (RTOs) and independent system operators (ISOs) - into a manageable and usable reference tool for the benefit of the state regulatory community.

In increasingly interdependent markets, there is a need to assess how to maximize the efficiency of power flows over an interconnected system in order to meet increasingly stringent reliability standards and simultaneously deliver better economic value to consumers. Electric industry regulators are tasked with identifying and removing, or at least bridging, seams that prevent consumers from fully realizing the benefits of living in an interconnected world. As one report notes, the goal for electric regulators is to create “seamless” markets.

**Section I** of this primer introduces and defines seams and seams issues and notes historical concerns about seams issues during early 2000 RTO and ISO formation proceedings before the Federal Energy Regulatory Commission (FERC). **Section II** identifies and broadly discusses seams issues faced by state and federal regulators in the Eastern Interconnect. It introduces interregional procedures and forums such as joint operating agreements (JOAs) and inter-regional dialogues (e.g., PJM/MISO Joint and Common Market Initiative and New England ISO/PJM Inter-Area Planning Stakeholder Advisory Committee) as examples of collaborative efforts to resolve seams issues.

**Section III** explores current and recent conflicts among neighboring regional planning authorities and raises fundamental questions about the appropriateness and timing of regulatory oversight. Specifically, Section III examines the following contested matters:

- The Southwest Power Pool’s (SPP) Unexecuted Transmission Service Agreement with the Mid-Continent Independent System Operator (MISO) and Complaint filed at FERC under the consolidated docket nos. ER14-1174 and EL14-21 (January 2014) concerning the flow of unscheduled power onto SPP’s transmission system after the integration of

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<sup>1</sup> Interconnections are beneficial because they allow for the sharing of operating reserves, which allow generating units to be used at higher capacity levels since less capacity has to be held in reserve for contingencies.

Energy, Inc. into the MISO footprint. A related Missouri Public Service Commission docket, Docket No. EW-2014-0156, is also examined.

- A complaint filed at FERC in docket no. No. EL13-88-000 (September 2013) by the Northern Indiana Public Service Company (“NIPSCO”) requesting reforms to the PJM and MISO Joint Operating Agreement (JOA) to comply with FERC Order 1000<sup>2</sup> to address the dearth of interregional transmission projects approved pursuant to the JOA; and
- A contested hearing before FERC in docket no. ER11-1844 (October 2010) involving a cost allocation methodology proposed by MISO and the International Transmission Co. (ITC) to partially charge the New York ISO and PJM for the installation of a phase angle regulator (PAR) to resolve loop flow concerns in the Lake Erie region.

Finally, **Section IV** offers takeaways for the public utility regulatory community in the Eastern Interconnection. Rather than offering resolutions to existing seams issues, this Primer extracts fundamental questions raised by the controversies that all regulatory bodies may have to consider. Specifically:

- (1) When and in what manner is it appropriate for a regulatory body with enforcement authority to issue a mandate correcting a perceived harm and when, on the other hand, should the regulatory body enable adversarial parties to continue lengthy negotiations to reach agreed-upon resolutions?
- (2) Should planning reforms be enacted and tested before further and more aggressive reforms are proposed and considered?
- (3) Should aggrieved market participants adopt unilateral tariff provisions to resolve seams issues in their favor and force regulatory decisions or engage its neighbors in often-lengthy studies, and for how long?

These are difficult questions and this Primer does not offer “hard and fast” answers. Rather, it notes that contested seams issues will continue to place these difficult questions before regulators.

Notably, the Missouri Public Service Commission (PSC), which lies along the newly created SPP-MISO-South seam, offers a reasoned analysis of how to approach interregional disputes over seams issues. In summary, electric operating regions, including RTOs and ISOs should be open to re-negotiating JOAs in light of material industry changes within their regions, rather than adhering to strict reliance on outdated agreements entered into under stale circumstances. Regulatory bodies should seek to compel inter-regional agreements if and when such renegotiations do not result in fair and acceptable outcomes.

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<sup>2</sup> FERC Order No. 1000, 136 FERC ¶ 61,051, July 21, 2011.

## TABLE OF CONTENTS

<b>I.</b>	<b>Seams and Seams Issues</b> .....	1
	A. Seam and Seams Issue Definitions .....	1
	B. Origins of Seams Issues during Electric Market Formation .....	2
<b>II.</b>	<b>An Overview of Seams Issues in the Eastern Interconnect and Regional Efforts to Resolve Them</b> .....	4
	A. The PJM and MISO Joint Operating Agreement .....	4
	B. PJM-MISO Joint and Common Market Initiative.....	6
	C. Capacity Deliverability .....	7
	D. Interregional Cost Allocation Across Seams .....	8
	E. Inter-area Planning Stakeholder Advisory Committee as an Effective Interregional Forum .....	11
	F. Summary.....	12
<b>III.</b>	<b>An Examination of Current Contested Seams Issues in the Eastern Interconnect</b> .....	12
	A. Unilateral Transmission Service Agreements .....	13
	B. Interregional Transmission Lines and Cost Allocation.....	20
	C. Lake Erie Loop Flow Phase Angle Regulator Solution .....	23
<b>IV.</b>	<b>Conclusion and Key Takeaways</b> .....	27
	<b>Bibliography</b> .....	29

## **Electric Transmission Seams: A Primer**

### **I. Seams and Seams Issues**

Commodity trading across a wholesale electric market operating region is part of a market participant's risk management framework. A supplier of electric energy will engage in trading to hedge price risk for its generation and retail portfolios, and as a bonus, help improve electric system reliability and cost-effectiveness for the customer. Facilitating trade requires a constant review of the political and structural conditions that could place impediments before two trading jurisdictions (or transmission regions). Such impediments are seams issues.<sup>3</sup> Reductions in costs between markets through the resolutions of seams issues can increase the economic transfer of energy between markets and reduce the overall costs to consumers in both markets.<sup>4</sup>

Historically, regulators have appropriately focused attention on the fair cost allocation of infrastructure to ratepayers within single jurisdictions. Increasingly, however, interregional interdependence has required a re-focusing on the allocation of infrastructure and other market costs inter-regionally. To facilitate interregional trading, regulators are encouraged to strive for the creation of "seamless" markets, to the extent possible.<sup>5</sup>

#### **A. Seam and Seams Issue Definitions**

Seams are inefficiencies that prevent the economic transfer of capacity and energy between neighboring wholesale electricity markets or between control areas. Examples of seams issues can include system operating rules, transmission access scheduling, pricing models variety, and transmission tariff services resulting in rate pancaking, to name a few.<sup>6</sup> Rate pancaking occurs when multiple transmission providers seek full recovery of their fixed costs irrespective of the variable costs of a given transaction across a control system.<sup>7</sup>

According to the New England Independent System Operator (ISO-New England)

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<sup>3</sup> See "A Discussion Paper on Electricity Seams" Power Marketers' Council and the Transmission Council of the Canadian Electricity Association, June 2006. (CEA Discussion Paper), p. 5.

<sup>4</sup> See *id.*, p. 6.

<sup>5</sup> See *id.*

<sup>6</sup> See *id.*, p. 3. Rate pancaking occurs when a transmission customer is forced to pay separate rates for a transaction that crosses multiple transmission systems. While some forms of rate pancaking reflect efficient charges for the capital costs of the transmission network, pancaking can be inefficient if it results in total transmission prices that do not accurately reflect the actual cost associated with a particular transaction. Inefficient pancaking distorts competition both by increasing transmission prices and by tending to insulate nearby generation facilities from what might otherwise be more vigorous competition from more distant facilities. See *Statement of Doug Melamed*, U.S. Department of Justice, before the U.S. House of Representatives Committee on the Judiciary, July 28, 1999, <http://www.justice.gov/atr/public/testimony/2591.htm>.

<sup>7</sup> See CEA Discussion Paper, p. 3.

Seams are barriers and inefficiencies that inhibit the economic transaction of capacity and energy between neighboring wholesale electricity markets, or control areas, as a result of differences in market rules and designs, operating and scheduling protocols and other control area practices. Seams exist between most control areas because wholesale electricity markets have evolved using different sets of rules and procedures. For example, seams can result from different pricing models, inconsistent transaction submittal times, and variations in transmission tariff services.<sup>8</sup>

Seams can include operational and planning interfaces between two (or more) planning authorities, utility control areas, systems, and markets. Such interfaces can result in operational and planning inefficiencies (sometimes referred to as *Market Friction*) known as seams issues.<sup>9</sup> The inability to resolve seams issues has resulted in a highly-complex system that can often impede market liquidity for electricity trade and impact reliability.

The presence of seams negatively impacts investor confidence in developing incremental generating capacity to meet resource adequacy requirements of affected jurisdictions. While various larger U.S. power pools such as New York ISO, ISO New England, and PJM have taken steps to resolve these barriers through products/practices such as E-Tagging, regional reserve sharing and the elimination of rate pancaking, finding common recognition for market services such as energy, capacity and, increasingly, “green attributes,” will become a problematic seams issue unless markets move to resolve it quickly.<sup>10</sup>

## **B. Origins of Seams Issues during Electric Market Formation**

It is helpful to consider the concerns raised by stakeholders during the days of RTO market formation. On December 20, 1999, the Commission issued a Final Rule (Order No. 2000) to advance the formation of Regional Transmission Organizations (RTOs)<sup>11</sup>. FERC’s objective was to have all transmission-owning entities in the nation, including non-public utility

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<sup>8</sup> See ISO-New England Glossary, <http://www.iso-ne.com>.

<sup>9</sup> According to staff at the Indiana Utility Regulatory Commission, in some instances, seams issues manifest themselves as trade barriers that adversely affect short and / or long-term economic efficiency and reliability that are, ultimately, detrimental to customers and utilities. These inefficiencies among wholesale electricity markets may be the result of transmission constraints, differences in market structures, different market rules, definitional differences, incompatibility of systems, differences in software, differences in operational or planning procedures, or attitudinal differences. (See informally, *Glossary of Terms*, Pauley, Morgan, Indiana Utility Regulatory Commission).

<sup>10</sup> See CEA Discussion Paper, p. 3. In fact, the state implementation plans state will need to submit to comply with the U.S. EPA’s Clean Power Plan proposal issued under §111(d) of the Clean Air Act in June 2014 will require a comprehensive review of carbon reduction accounting for those states pursuing a regional compliance approach.

<sup>11</sup> Regional Transmission Organizations, Order No. 2000, 65 FR 809 (January 6, 2000), FERC Stats. & Regs. ¶ 31,089 (2000).

entities, place their transmission facilities under the control of appropriate RTOs in a timely manner.<sup>12</sup>

In Order 2000, FERC concluded that regional institutions could address the operational and reliability issues confronting the industry, and eliminate undue discrimination in transmission services that can occur when the operation of the transmission system remains in the control of a vertically integrated utility.<sup>13</sup> FERC cited the following benefits of RTO-formation:

- (1) Improvements to efficiencies in transmission grid management;
- (2) Improvements to grid reliability;
- (3) Removal of remaining opportunities for discriminatory transmission practices;
- (4) Improvements to market performance; and
- (5) Facilitation of lighter-handed regulation.<sup>14</sup>

FERC also stated that RTO formation can address existing impediments to efficient grid operation and competition, benefit consumers through lower electricity rates and a wider choice of services and service providers, and result in substantial cost savings.<sup>15</sup>

FERC did not mandate RTO formation but undertook subsequent actions to facilitate their voluntary development across the nation. FERC opened a docket in the year 2000 to investigate and receive comments on the issue of RTO interregional coordination. PJM submitted comments in that docket expressing concerns about the creation of seams issues in the absence of FERC adoption of standard market rules across all neighboring RTOs.<sup>16</sup>

First, PJM expressed concerns that certain fundamental policy matters required resolution before seams issues could be addressed. PJM noted, for example, that the competing RTO models that FERC had endorsed - (1) Markets v. no markets; (2) LMP v. flow gates<sup>17</sup>; and

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<sup>12</sup> See Order on Rehearing, FERC Order 2000-A, 90 FERC ¶ 61,201, February 25, 2000, p. 1.

<sup>13</sup> See *id.*

<sup>14</sup> See *id.*, p. 2.

<sup>15</sup> See *id.*

<sup>16</sup> See PJM Comments, FERC Docket No. PL01-5-000, July 2, 2001. PJM's comments are noteworthy because they indicate that market participants and the FERC were aware that the creation of RTOs and ISOs would necessarily result in seams issues in the absence of uniformity in market rules and operating protocols.

<sup>17</sup> Flowgates are boundaries between two parts of a transmission system across which there may be congestion i.e. a limitation in the amount of power allowed to flow across the boundary. The key characteristic of a flowgate is that it has a well-defined limit of the power that can flow across it. See "Flow gates," a discussion paper by PowerUK to the Harvard Electricity Policy Group, <http://www.hks.harvard.edu/hepg/flowgate/PowerUK%20Piece%20on%20Flowgates.pdf>.

(3) Financial rights v. physical rights - “will create incompatible regional markets with major obstacles to seamless trading.”<sup>18</sup>

Second, PJM noted that if FERC allowed fundamentally different models to continue in different regions, there could not be a single set of national standards covering all regions or neighboring regions.<sup>19</sup> Third, PJM stated that once FERC addressed the fundamental policy decisions, a single national standard-setting organization should design standard commercial practices.<sup>20</sup>

In expressing these concerns, PJM noted

“seams complicate and increase the costs of transactions that use multiple facilities managed by different operators, and thereby impede wholesale competition.”<sup>21</sup>

According to PJM, seams exist for the very reason that FERC accepted varying market designs. For example, an RTO with a spot market that manages congestion and imbalances and an RTO without a market require markedly different rules to run the grid and manage transactions on it.<sup>22</sup> Ultimately, PJM noted that the elimination of seams depended upon a standard market design, with regional enhancements and adjustments. Quoting one commenter in the docket, “Good coordination cannot overcome bad market design.”<sup>23</sup>

## **II. An Overview of Seams Issues in the Eastern Interconnect and Regional Efforts to Resolve Them**

### **A. The PJM and MISO Joint Operating Agreement**

A Joint Operating Agreement (JOA) is a Commission-approved rate schedule and jurisdictional contract. PJM and MISO’s JOA has been in effect since 2004 and its purpose has been to coordinate across the two regions to address seams.<sup>24</sup> According to a joint proposal

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<sup>18</sup> See PJM Comments, FERC Docket No. PL01-5-000, p. 2.

<sup>19</sup> See *id.*

<sup>20</sup> See *id.*

<sup>21</sup> See *id.*, p. 2.

<sup>22</sup> See *id.*, p. 4.

<sup>23</sup> See *id.*, p. 6. (quoting Presentation by Dr. William Hogan, p. 1). PJM noted that FERC can best contribute to the goal of seamless trading by ordering, in addition to other reforms, that each RTO have an associated regional energy market with locational pricing to resolve imbalances and transmission congestion. See *id.*, p. 9.

<sup>24</sup> See *Managing Congestion to Address Seams*, A Proposal for Congestion Management, Submitted by PJM and MISO, August 4, 2003. See also “Cross Border Coordination: PJM and MISO, a Presentation by William W. Hogan, Toulouse France, January 16-17, 2004, slide 7.

submitted by the two RTOs to address congestion in 2003, one of the primary seams issues that had to be resolved was how different congestion management methodologies (market-based and traditional) would interact to ensure that parallel flows and impacts are recognized and controlled in a manner that consistently ensured system reliability.<sup>25</sup>

The joint MISO/PJM report defined the nature of the seams problem as follows:

Energy flows are distinctly different from the manner in which the energy commodity is purchased, sold, and ultimately scheduled. In the current practice of “contract path” scheduling, schedules identify a source point for generation of energy, a series of wheeling agreements being utilized to transport that energy, and a specific sink point where that energy is being consumed by load. However, due to the electrical reality of the Eastern Interconnection, energy flows are much different than what is described within that schedule. This disconnect becomes of concern when there is a need to take actions on contract-path schedules to effect changes on the physical system.<sup>26</sup>

The joint proposal included, in part, the following conceptual solutions:

- Market-based operating entities will agree to observe limits on an extensive list of coordinated external flowgates;
- Like all control areas, market-based operating entities will have Network and Native Load (NNL) impacts upon those flowgates;
- Market-based operating entities will determine these NNL impacts using the published analysis process and constrain their operations to limit the flows on the Coordinated Flowgates to no more than the calculated NNL contribution established in the analysis;
- In real-time, market-based operating entities will calculate and monitor when the projected and actual flows exceed the NNL limits established in the day-ahead process; and
- The complete proposal would allow market-based operating entities to address the reliability aspects of congestion management seams issue between all parties whether the seams are between market to non-market operations or M2M operations.<sup>27</sup>

The proposal for congestion management coordination was an important early step between PJM and MISO and demonstrated interregional cooperation and dialogue to resolve

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<sup>25</sup> See *Managing Congestion to Address Seams*, *supra*. p. 4.

<sup>26</sup> See *id.*, p. 9.

<sup>27</sup> See *id.*

seams issues. As both RTOs have evolved, so have their efforts to resolve persistent seams issues, as discussed in the following section.

## **B. PJM-MISO Joint and Common Market Initiative**

FERC initiated a docket to address seams issues between PJM and MISO in June 2012.<sup>28</sup> The proceeding was initiated in response to concerns about whether existing rules on transfer capability<sup>29</sup> act as barriers to the delivery of generation capacity between the markets administered by the RTOs and, to the extent that such barriers exist, whether those rules should be modified to mitigate such barriers.<sup>30</sup> The docket was a mechanism for the FERC to compile comments concerning the deliverability of capacity across the MISO - PJM seam.<sup>31</sup>

However, PJM and MISO later submitted a joint informational filing to FERC describing a plan to address a number of joint and common market initiatives (JCM) (one of which would be capacity deliverability).<sup>32</sup> A PJM Supplemental Filing submitted in the docket suggested that issues pertaining to capacity deliverability modeling, capacity product definition, and transmission allocation for the purpose of cross-border capacity transactions ranked low on the list of stakeholder priorities. Rather, stakeholder priorities included

- (1) Inter-RTO data exchange and transparency
- (2) Transmission and generation outage coordination and
- (3) Day-ahead market coordination.<sup>33</sup>

The Supplemental Filing also described a number of initiatives intended to improve market operations. For example, the RTOs aimed to improve data exchange and transparency by continuing to publicly post information requested by stakeholders and provide market

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<sup>28</sup> See Notice of Request for Comments, FERC Docket AD12-16-000, June 11, 2012.

<sup>29</sup> Available Transfer Capability (ATC) is a measure of the transfer capability in the physical transmission network resulting from system conditions and that remains available for further commercial activity over and above already committed uses. ATC is defined technically as the Total Transfer Capability (TTC) less applicable operating Constraints due to system conditions and Outages (i.e., OTC), less the Transmission Reliability Margin (TRM), less the total of Existing Transmission Commitments (ETC), less the Capacity Benefit Margin (CBM). See California Independent System Operator (CAISO) Draft Tariff Language, Appendix L, Attachment C, Order 890 Compliance, [http://webcache.googleusercontent.com/search?q=cache:2MQwEUixb0QJ:www.caiso.com/Documents/DraftAppendixL\\_Att\\_C\\_Methodology-AssessAvailableTransferCapability.doc+&cd=3&hl=en&ct=clnk&gl=us](http://webcache.googleusercontent.com/search?q=cache:2MQwEUixb0QJ:www.caiso.com/Documents/DraftAppendixL_Att_C_Methodology-AssessAvailableTransferCapability.doc+&cd=3&hl=en&ct=clnk&gl=us)

<sup>30</sup> See PJM Comments, FERC Docket No. PL01-5-000, p. 6.

<sup>31</sup> See Notice of Request for Comments, FERC Docket AD12-16-000, *supra*, June 11, 2012.

<sup>32</sup> See PJM and MISO Information Filing, FERC Docket No. AD12-16-000, September 26, 2012. In December of 2013, FERC issued an Order directing its staff to participate in the PJM-MISO JCM Initiative.

<sup>33</sup> See Order on Initiatives to Address Seams Issues, FERC Cons. Docket Nos. AD12-16, AD14-3-000, December 19, 2013, p.2.

participants with information concerning the operation of the market-to-market (M2M) coordination process.<sup>34</sup>

Through the JCM initiative the RTOs planned to develop responses to the following issues:

- (1) The possibility and significance of any cost shifts between the RTOs;
- (2) The reliability impact of any revised deliverability schemes;
- (3) Whether further work on capacity deliverability is cost effective;
- (4) The incremental benefit to joint deliverability;
- (5) Whether any proposals can be cost-effectively and realistically implemented; and
- (6) The long-term rate impact on the RTOs' retail customers.<sup>35</sup>

The next two subsections briefly describe the seams issues of capacity deliverability and interregional cost allocation. While resolution of these matters is elusive, neighboring electric market regions have demonstrated common understandings of the importance of resolving these seams issues.

### **C. Capacity Deliverability**

The goal of capacity deliverability between PJM and MISO is to extend the network transmission service concept across a border between RTOs; i.e., rather than requiring resources to individually procure firm transmission service on each side of the seam in order to qualify as a capacity resource, the RTOs would determine prior to the execution of their capacity auctions the quantity of resources in the other RTO that could be committed in the auction, and the resources that economically clear would be awarded firm scheduling rights equivalent to the firm services currently reserved.<sup>36</sup>

PJM and MISO submitted a joint report noting that capacity deliverability offers the following benefits:

- Certainty for resources that offer into and clear in a capacity auction that firm scheduling rights will be awarded without the need to separately procure firm transmission service;
- Potential increased opportunity for the RTOs to procure the least-cost set of resources to meet resource adequacy requirements subject to the capability of the transmission system to transfer capacity; and

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<sup>34</sup> See id, p. 3.

<sup>35</sup> See Organization of PJM States, Inc. and Organization of MISO States, Joint Comments, Docket No. AD12-16-000, at 3 (June 13, 2013).

<sup>36</sup> See Draft Capacity Deliverability Fact-Finding Results, a Joint Presentation by PJM and MISO, slide 4.

- Opportunities for the RTO to trigger the most cost-effective set of transmission upgrades given the RTO to which resources may be committed for capacity.<sup>37</sup>

The state regulatory communities within the two RTOs also shared common concerns regarding the delivery of capacity between MISO and PJM. As represented respectively by the Organization of PJM States (OPSI) and the Organization of MISO States (OMS), issues concerning capacity deliverability that require resolution include:

- Determining the possibility and significance of cost shifts between MISO and PJM;
- Considering the impacts of any revised deliverability scheme on reliability;
- Considering whether further work on capacity deliverability is cost effective;
- Concluding whether there is an overall incremental joint deliverability benefit over what is currently occurring;
- Considering whether revisions can be realistically and cost-effectively implemented; and
- Determining the long-term rate impacts on each RTO's retail customers.<sup>38</sup>

The delivery of capacity resources across the PJM-MISO seams could save electric consumers money,<sup>39</sup> however the divergent structures of the wholesale electric markets within the two RTOs leaves many unanswered questions. The reconciliation of these divergent market structures is the task before these inter-regional forums.

#### **D. Interregional Cost Allocation Across Seams**

Regions have struggled to develop a general approach to seams cost allocation that would allow the use of a consistent set of principles and guidelines to assess the needs, benefits and cost allocation of transmission projects at each of its seams with its diverse set of neighbors.<sup>40</sup>

In a study to resolve these issues for SPP, the Brattle Group found that planning-related challenges often start with limited staff resources to evaluate and consider seams projects, which can be exacerbated by a lack of sufficiently-detailed and current multi-region planning data and models to conduct joint system analyses. Uncertainty as to how or when neighboring systems will evaluate and consider seams projects as part of their regular planning processes can cause

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<sup>37</sup> See id, slide 5.

<sup>38</sup> See id, slide 7.

<sup>39</sup> In the case that delivery of capacity across seams requires the construction of new transmission facilities, a cost-benefit analysis will be required to determine whether consumers actually save money.

<sup>40</sup> Pfeifenberger, Johannes P., and Delphine Hou, "Seams Cost Allocation: A Flexible Framework to Support Interregional Transmission Planning", The Brattle Group, April 2002.

significant delays in the development of a seams project. Also a “gap” between top-down and bottom-up planning studies can lead to an inability to identify beneficial seams projects.<sup>41</sup>

According to the Brattle Group study, qualification criteria for a seams project often differ between neighbors, and transmission benefits and metrics are not articulated with enough detail to allow for cost allocation based on identified benefits to each entity. Moreover, individual seams projects may offer a very different mix of benefits (e.g., reliability, market efficiency, and public policy) to each of the neighboring regions and its transmission owners, which complicates cost allocation efforts. Finally, the lack of sufficiently detailed, actionable but flexible cost allocation principles and guidelines creates yet another major barrier to the planning and cost allocation of seams projects.<sup>42</sup>

Brattle’s review strongly suggests that seams cost allocation needs to be designed as an integral part of the interregional planning process. Ultimately, Brattle identified seven “building blocks” needed to support interregional planning and cost allocation:

Under Block No. 1, while JOAs already require a commitment to regular interregional planning meetings of the seams entities as well as coordination with state, federal, and multi-state entities, Brattle recommends more direct participation of regulatory commission staff from states affected by the particular seam in the planning and cost allocation discussions.<sup>43</sup>

Building block No. 2 requires the timely exchange of planning data (also already provided for in the JOAs). In addition, to facilitate planning of seams projects, it recommends that seams neighbors develop jointly-validated and endorsed load-flow cases and planning models for the combined footprint and planning horizon. According to Brattle, this would allow each seams entity to accurately analyze the system of its neighbor to prepare credible initial cost-benefit evaluations of potential seams projects.

The third through sixth building blocks are most directly related to seams cost allocation. Building block No. 3 defines the parameters of a seams project and requires the specification of a process to propose and analyze seams projects. Building block No. 4 requires each seams entity to specify the evaluation criteria and benefit metrics that they will use for seams project evaluation. These criteria and metrics would not need to be identical across seams entities but would, at a minimum, need to include all the benefits and metrics each entity uses in its internal transmission planning process.<sup>44</sup>

Building block No. 5 consists of pre-specified seams cost allocation principles and guidelines. Rather than resolve seams cost allocation on a case-by-case approach, Brattle

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<sup>41</sup> See id, p. i.

<sup>42</sup> Id.

<sup>43</sup> See id, p. ii.

<sup>44</sup> See id, pp. iii-iv.

recommends the inclusion of agreed-upon principles and guidelines to serve as the overarching framework for developing transmission cost allocation for seams projects.<sup>45</sup>

Building block No. 6 specifies payment mechanisms that allow for the actual sharing of project costs across the seam. Given the different characteristics of seams projects and limitations that certain entities may have in paying for transmission upgrades they do not own, it proposes that seams agreements specify several options for payment mechanisms—such as shared ownership and financial transfers—that can be used to implement the agreed-upon cost allocations. It additionally recommends that physical or financial transmission rights are provided to each seams entity in exchange for their seams-related payments or investments.<sup>46</sup>

Building block No. 7 addresses the integration of the interregional planning and seams cost allocation with each entity's internal planning and cost allocation processes. Finally, Brattle recommended that an optional building block allow for the inclusion of pre-specified formulaic evaluation and cost allocation methodologies for specific project types.<sup>47</sup>

Brattle completed its report for SPP to be used in conjunction with SPP's process to achieve compliance with FERC Order 1000.<sup>48</sup> Many of SPP's recommendations echo the interregional planning principles outlined in FERC Order 1000.

FERC Order 1000 adopted the following interregional coordination principles:

- (1) A commitment to coordinate and share the results of respective regional transmission plans to identify possible interregional facilities that could address transmission needs more efficiently than separate intraregional facilities (Coordination);
- (2) An agreement to exchange at least annually planning data and information (Data Exchange);
- (3) A formal procedure to identify and jointly evaluate transmission facilities that are proposed to be located in both regions (Joint Evaluation);<sup>49</sup>
- (4) A commitment to maintain a website or e-mail list for the communication of information related to the coordinated transmission planning process (Transparency);
- (5) Such a submission would trigger a procedure established by the interregional transmission planning agreement, under which the transmission planning regions

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<sup>45</sup> See *id.*, p. iv.

<sup>46</sup> See *id.*

<sup>47</sup> See *id.*

<sup>48</sup> FERC Order No. 1000, 136 FERC ¶ 61,051, July 21, 2011.

<sup>49</sup> With respect to this element, the Commission proposed that the transmission developer of a transmission project that would be located in two neighboring transmission planning regions must first propose its transmission project in the transmission planning process of each of those transmission planning regions.

would coordinate their reviews of and jointly evaluate the proposed transmission project;<sup>50</sup> and

- (6) Inclusion of the interregional transmission project in each of the relevant regional transmission plans would be a prerequisite to application of an interregional cost allocation method that satisfies the cost allocation principles set forth in the Proposed Rule.<sup>51</sup>

Importantly, as opposed to FERC Order 1000's regional cost allocation requirements which required regional *planning*, only *coordination* is required across multiple regions. While the Brattle Group report offers additional principles that could help regions navigate interregional cost allocation issues, the lack of a tariffed interregional plan may result in unresolved and contested cost allocation disputes before regulatory bodies. However, the next subsection offers a brief synopsis of an interregional coordination process that has resulted, at times, in effective coordination.

### **E. Inter-Area Planning Stakeholder Advisory Committee as an Effective Interregional Forum**

The Inter-Area Planning Stakeholder Advisory Committee (IPSAC) is an open stakeholder group that provides input for the development of the Northeast Coordinated System Plan (NCSP) which outlines activities conducted jointly by ISO New England, New York ISO, and PJM. This collaboration among the three ISOs/RTOs in the area ensures that the electric system is planned on a wider interregional basis and is proactive and well-coordinated.<sup>52</sup>

The December 12, 2014 IPSAC meeting agenda included

- (1) Planning updates by the three RTOs/ISOs,
- (2) A presentation on queue interconnection studies of projects potentially affecting neighboring systems,
- (3) A presentation on an Eastern Interconnection-based Gas-Electric interface study, and
- (4) An update to an interregional production cost database<sup>53</sup>

The 2013 NCSP included a section describing the status of each RTO's compliance with FERC Order 1000 and a section describing each RTO's regional system plan. It also included a section describing the interregional studies and planning activities approved by the three RTOs as part of a joint planning protocol. This section discussed baseline reliability projects, the status

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<sup>50</sup> The Commission proposed that such coordination and joint evaluation must be conducted in the same general timeframe as, rather than subsequent to, each transmission planning region's individual consideration of the proposed transmission project.

<sup>51</sup> See Order 1000, ¶¶ 345-346.

<sup>52</sup> See *Inter-Area Planning Stakeholder Advisory Committee*, <http://www.iso-ne.com/committees/planning/ipsac>.

<sup>53</sup> See IPSAC Agenda and Administrative Items, Michael Henderson, December 12, 2014, [http://www.iso-ne.com/static-assets/documents/2014/12/ipsac\\_admin.pdf](http://www.iso-ne.com/static-assets/documents/2014/12/ipsac_admin.pdf).

of planned interconnections between the regions and queue projects with potential interregional impacts.<sup>54</sup> Finally, the report included sections on process enhancements going forward and emerging issues, respectively.<sup>55</sup>

According to the report, the NCSP demonstrates the collaborative effort undertaken by ISO New England, NYISO and PJM in their coordination and continued development of interregional planning efforts. Each of the ISO/RTOs involved develop individual system reliability plans, production cost studies, and interconnection studies mindful of significant interregional impacts.<sup>56</sup>

## **F. Summary**

While the development of Joint Operating Agreements, Joint & Common Market Initiatives, interregional cost allocation principles or Inter-Area Stakeholder Committees may not reach final resolutions of persistent seams issues, they can be important and meaningful forums to reach common understandings of joint interests among neighboring RTOs. However, such forums have a tendency to become isolated towers where select market participants commit to studying unresolved seams issues for years *ad infinitum*. When such studies linger, certain market participants or regional operators may feel compelled to force the hand of a regulator by unilaterally seeking recourse for an alleged harm. When should regulators step in to resolve long-standing seams disputes? Should market participants allow new planning rules to take effect before seeking recourse? Or should they unilaterally file tariff changes without obtaining interregional support in order to make their constituents whole? These questions are raised by the contested dockets examined below.

## **III. An Examination of Current Contested Seams Issues in the Eastern Interconnect**

This section offers an examination of current seams issues through the lens of investigations and contested proceedings before federal and state regulatory bodies. While this Primer does not offer opinions as to the correct course of action to resolve any of the seams issues discussed, it identifies and describes pertinent and current controversies in order to untangle their complexities and frame the issues they raise for the benefit of the state regulatory community.

The first case involves SPP's proposed unilateral service agreement with MISO to recover revenue for MISO's use of SPP's transmission assets in its delivery of electricity from northern MISO to the newly-created MISO-South region. SPP alleges violations of FERC Order 888 and 890 "unreserved use" protocols while MISO alleges that the power flows are inadvertent loop flows and allowable under the SPP-MISO JOA. The section concludes with an examination

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<sup>54</sup> See 2013 Northeast Coordinated System Plan, April 16, 2014, [http://www.iso-ne.com/static-assets/documents/committees/comm\\_wkgrps/othr/ipsac/mtrls/2014/mar282014/2013\\_ncsp.pdf](http://www.iso-ne.com/static-assets/documents/committees/comm_wkgrps/othr/ipsac/mtrls/2014/mar282014/2013_ncsp.pdf).

<sup>55</sup> See *id.*

<sup>56</sup> See *id.*, p. 30.

of a framework for resolving such controversies proposed by the Missouri Public Service Commission.

The second case involves NIPSCO's complaint to FERC alleging that the MISO-PJM interregional planning tariff provisions fall short of Order 1000 requirements and that its JOA requires further reforms in order to enable interregional transmission lines to be built. The section raises the question of whether interregional forums and processes are sufficient to resolve seams, cost allocation and other interregional concerns and when regulatory enforcements bodies should step in. FERC decided on the same day (December 18, 2014) to partially accept the MISO-PJM Order 1000 Compliance Filing and to schedule a technical conference to review the concerns raised in the NIPSCO complaint.

The third case involves MISO and ITC's filing before FERC charging PJM and New York ISO for installation of a Phase Angle Regulator (PAR) to help resolve loop flow concerns in the Lake Erie region. This docket also raises fundamental questions about what steps a market participant should take when it incurs expenses that benefit multiple interconnected transmission regions. While the FERC hearing examiner ruled against MISO and ITC, post-hearing motions continue to be filed.

The cases reveal a series of interconnected problems, and they each speak to fundamental causes of existing seams issues. In summary, contract paths cannot be enforced because electricity flows over power lines pursuant to the laws of physics. Since power flows in an electrical network cannot be completely controlled, issues emerge at the boundaries between RTOs and ISOs as flows intended to serve one region may end up flowing through an adjacent region with potentially adverse impacts. In some cases, the adjacent region seeks compensation for use of its transmission assets. In addition, activity in the adjacent region may cause a need for transmission system upgrades to alleviate the interregional congestion issues, and it is unclear who should pay for the needed upgrades.

This Primer does not attempt to answer the questions raised by these dockets. Rather, it attempts to draw out common questions that the existence of seams issues will continue to place before the regulatory community.

## **A. Unilateral Transmission Service Agreements**

*SPP's Complaint and Proposed Service Agreement with MISO  
(FERC Docket Nos. ER14-1174, EL11-34-002, EL14-21, EL14-30)*

### 1. Seams Issues Presented

On January 28<sup>th</sup>, 2014, SPP filed at FERC an Unexecuted Non-Firm Point-To-Point Transmission Service Agreement (hereinafter, "SPP Proposed Service Agreement") with MISO alleging that MISO's unauthorized use of SPP's transmission systems as a result of energy transfers between the MISO–Midwest and MISO–South regions resulted in lost compensation to the SPP system operators.<sup>57</sup>

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<sup>57</sup> See *Southwest Power Pool, Inc.*, Submission of Unexecuted Non-Firm Point-To-Point Transmission Service Agreement, FERC Docket No. ER14-1174, January 28, 2014. (SPP Proposed

SPP's alleged lost compensation was the direct result of Entergy's integration into MISO in late 2013. On December 19, 2013, Entergy formally integrated into MISO, as the newly constituted "MISO South" region and the former MISO market was renamed "MISO Midwest."<sup>58</sup> MISO holds a single interconnection path of 1000 MW that connects the MISO – Midwest and MISO-South regions. As alleged in SPP's corresponding complaint to FERC (hereinafter "SPP Complaint"), after the integration of Entergy into MISO, MISO began sending energy flows between MISO Midwest and MISO South in excess of the 1,000 MW direct physical connection that MISO has between those regions; and, as a result, significant incremental power flows have been crossing SPP's system without any corresponding reservation, service agreement, or compensation.<sup>59</sup>

SPP alleges that MISO is violating the JOA between SPP and MISO and SPP's Open Access Transmission Tariff (OATT), which requires MISO to compensate SPP for use of SPP's transmission system in accordance with SPP's OATT.<sup>60</sup> Thus, SPP filed the proposed Transmission Service Agreement with FERC to ensure compensation for MISO's use of SPP's transmission system when MISO places flows on SPP's transmission system as a result of its transfers of real-time energy between MISO Midwest and MISO South.<sup>61</sup>

The dispute between the two system operators hinges upon the correct interpretation of §5.2 of their JOA, which reads:

Sharing Contract Path Capacity. If the Parties have contract paths to the same entity, the combined contract path capacity will be made available for use by both Parties. This will not create new contract paths for either Party that did not previously exist. SPP will not be able to deal directly with companies with which it does not physically or contractually interconnect and the [MISO] will not be able to deal directly with companies with which it does not physically or contractually interconnect.<sup>62</sup>

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Service Agreement). The agreement is "unexecuted" because it has not been signed or agreed to by MISO.

<sup>58</sup> See *id.*, fn. 2.

<sup>59</sup> See *id.*, p. 2. See also, *Southwest Power Pool, Inc., Complaint and Request for Fast-Track Processing and Motion to Consolidate*, FERC Docket No. EL14-21, January 28, 2014 (SPP Complaint).

<sup>60</sup> See SPP Complaint, p. 1.

<sup>61</sup> See SPP Proposed Service Agreement, p. 4.

<sup>62</sup> *S.W. Power Pool, Inc. v. FERC*, 736 F.3d 994 at 999 (D.C. Cir. Dec. 3, 2013) (finding that "the Commission's complete failure to consider the evidence proffered renders its orders arbitrary and capricious").

MISO had requested, in a 2011 Petition for Declaratory Order to FERC, that the provision be interpreted as authorizing MISO to use SPP's transmission system to reach and serve the Entergy load as part of the MISO-Entergy integration. SPP countered that §5.2 was never envisioned to permit continual, daily use of the other party's transmission system to serve internal load, but was instead intended to provide shared use rights only to external, third-party entities.<sup>63</sup>

While FERC accepted MISO's interpretation of §5.2, the US Court of Appeals for the District of Columbia vacated FERC's Order and remanded the case back to FERC.<sup>64</sup> Thus, SPP alleges that MISO continues to abide by its own interpretation of §5.2 even though the legal justification for that interpretation has been vacated.

## 2. The Significance of Unreserved Use Penalties

SPP notes that under MISO's view of section 5.2,

the entirety of SPP's interconnection capacity between SPP and MISO South is available for use by MISO, free of charge, and without any requirement that MISO secure a reservation, schedule its flows, or execute a service agreement.<sup>65</sup>

FERC Order 888 and 890 speak broadly to concerns with unreserved use of transmission lines. According to FERC, unreserved use penalties are intended, in part, to give transmission customers an incentive to reserve and pay for the appropriate level of transmission service so that transmission service is allocated in an orderly fashion. A transmission customer that uses unreserved transmission service requires the transmission provider to take some action to accommodate the additional use of the system. Some penalty is warranted even in those instances when the transmission provider's accommodations are sufficient to avoid curtailment of transmission service to other transmission customers.<sup>66</sup>

Absent a penalty in all instances, transmission customers would have an increased incentive to under-reserve transmission service, which would lead to an increase in the likelihood that system reliability would be impaired. In addition, a transmission customer that uses more transmission service than it has reserved, even in periods when system reliability has not been impaired, has nonetheless disturbed the orderly allocation of transmission service.<sup>67</sup>

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<sup>63</sup> See SPP Complaint, p. 9.

<sup>64</sup> *S.W. Power Pool, Inc.*, 736 F.3d at 999.

<sup>65</sup> SPP Complaint, p. 16.

<sup>66</sup> See FERC Order 890, pp. 838, 874. See also FERC Order 890-A, p. 447.

<sup>67</sup> See *id.*

### 3. The Significance of Loop Flows

MISO argues that irrespective of §5.2, any power transfers crossing SPP's system as a consequence of MISO's dispatch are unavoidable "loop flows," which it argues are generally not compensable under Commission policy. MISO maintains that its market flows over SPP do not jeopardize reliability or diminish SPP's ability to use its system in the most economical manner, so in any case, no compensation is appropriate.<sup>68</sup>

The MISO Independent Market Monitor (MISO IMM) states that any power that flows on the SPP system as a result of commitment and dispatch of the MISO system is the natural consequence of operating adjacent systems in an interconnected network.<sup>69</sup> The MISO IMM also states that these flows created by the dispatch of neighboring systems are referred to as loop flows or parallel flows and have long been recognized in the electric utility industry as an unavoidable consequence of interconnected utility operations, further explaining that the Commission has required JOAs among the RTOs and adjacent systems to address these seams issues and well-structured JOAs are the most reasonable means to coordinate flows over the interconnected electricity network created by the dispatch of adjacent RTOs.<sup>70</sup>

SPP counters that "loop flow" refers to power flow along an unintended path that loops away from the most direct geographic path or contract path," and that in this case, "we are not dealing with "unintended loop flows" and/or "unavoidable consequences of interconnected utility operations."<sup>71</sup> SPP further countered that MISO seeks to achieve approximately \$144 million of yearly benefits through its use of SPP's and others' transmission systems. This will leave SPP and other customers, who obtain none of these benefits, bear the full transmission investment and operating costs incurred to produce the benefits.<sup>72</sup>

MISO and Xcel Energy argued that if congestion occurred on an SPP flowgate, then MISO would reduce its flows' impact in accordance with an agreed-to Congestion Management Process, and if no congestion occurs, then the flows are acceptable as part of being interconnected under the MISO-SPP JOA.<sup>73</sup>

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<sup>68</sup> See FERC Order on Remand and Complaints, FERC Docket No. ER14-1174-000 (cons.) 146 FERC ¶ 61,231, March 28, 2014, ¶51.

<sup>69</sup> See *id.*, ¶53

<sup>70</sup> *Id.*

<sup>71</sup> See SPP Complaint, p. 25. Explaining further, SPP notes "if MISO were dispatching 500 MW between MISO Midwest and MISO South and 100 MW unintentionally flowed on SPP's facilities, then the flows could properly be considered "loop flows." See *id.*, pp. 25-26.

<sup>72</sup> See FERC Order on Remand and Complaints, ¶57.

<sup>73</sup> See *id.*, ¶49.

The third contested case examined in this Section involves the Lake Erie Loop Flow dispute and includes a general discussion of loop flows.<sup>74</sup> However, a threshold question presented here that is not at issue in the Lake Erie loop flow matter is whether the power flows at issue are properly characterized as loop flows or, rather, unreserved transmission use.

#### 4. Party alignment based upon parochial ratepayer interests

On February 18, 2014, in response to SPP's Proposed Service Agreement, the Louisiana Public Service Commission and the MISO Transmission Owners filed separate protests, (making similar arguments) supporting MISO's positions in the dispute. Specifically, both noted that §5.2 of the JOA does control the issue in MISO's favor and that SPP had not made any demonstration of harm as required under §206 of the Federal Power Act.<sup>75</sup> The Louisiana PSC also noted that Entergy Louisiana and Entergy Gulf States Louisiana, regulated by the Louisiana PSC at retail, received the requisite state authority to join MISO. They further argued that the proposed SPP service agreement would allow SPP to charge MISO for claimed use of its transmission system, and the costs associated with those proposed payments will ultimately be recovered from retail ratepayers thus substantially limiting the benefits of MISO membership anticipated by the Louisiana Commission when approving MISO membership.<sup>76</sup>

The SPP Transmission Owners filed Comments in support of SPP arguing that FERC open access policy requires that

point-to-point users of the SPP transmission system are entitled to use the SPP system to serve loads outside of SPP, provided that they (1) reserve their uses, so that system planning can reliably take such uses into account, and (2) pay a fair share of the costs for such uses. Consistent with this policy, the SPP Tariff is designed to recover a fair, pro rata share of the costs of the SPP system from SPP point-to-point transmission customers, so that their use of the SPP system is not subsidized by SPP load. Such subsidization is prohibited by Commission policy, well-established principles of cost causation (including the principle that cost responsibility

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<sup>74</sup> A small group of market participants were scheduling increasingly significant volumes of power primarily from New York to PJM via a circuitous or indirect path around Lake Erie, rather than scheduling the power directly from New York to PJM at the common border between the two control areas.

<sup>75</sup> See generally, Motion to Intervene, Motion to Dismiss and Answer in Support of Respondent of the MISO Transmission Owners, FERC Docket EL21-14-000, February 18, 2014.

<sup>76</sup> See Louisiana PSC Answer and Protest, FERC Docket Nos. EL14-21-000, ER14-1174, and EL11-34-001, February 18, 2014, p. 3. Effectively, the Louisiana Commission argues that its basis for approving Entergy's transition into MISO – namely savings to Louisiana ratepayers – would be upended if SPP's Proposed Service Agreement were adopted.

should roughly correspond to benefits received), and the Federal Power Act's ("FPA") prohibition on undue discrimination.<sup>77</sup>

MISO countered these arguments by filing a complaint on February 18 2014 requesting that FERC prohibit SPP from attempting to collect unreserved use penalties from MISO because it is not a customer under the SPP Tariff and flows of energy between MISO Midwest and the new MISO South do not constitute transmission service under the SPP Tariff. MISO further requested that FERC find that SPP is acting in violation of the MISO-SPP JOA, which MISO argues, permits the sharing of contract path capacity without compensation under the SPP Tariff.<sup>78</sup>

MISO also argued that SPP's proposal to invoice MISO millions of dollars for purported transmission service will have a chilling effect on the liquidity of cost efficient transactions in MISO's energy and operating reserve markets and negatively impact the entire Eastern Interconnect.<sup>79</sup> In addition, MISO noted that SPP's interpretation conflicts with the Commission's prohibition on undue discrimination because if §5.2 could only be used to provide service to third-party entities, that would mean that the RTOs would not charge each other for service to a third party, but would charge for service to their customers inside each balancing authority.<sup>80</sup>

MISO argued that RTOs' sharing of unused capacity to accommodate a transmission owner's RTO preference, without charge and on a reciprocal basis, is a just and reasonable trade-off for voluntary membership. MISO asserts that capacity sharing without compensation benefits all RTOs, promotes efficiency, and reduces ultimate energy costs to consumers.<sup>81</sup>

In FERC's March 28, 2014 Order, it adopted and suspended SPP's proposed service agreement, consolidated the dockets and established hearing and settlement judge procedures.<sup>82</sup> Settlement negotiations continue while MISO and SPP have filed separate motions continuing to oppose and support, respectively, SPP's Proposed Service Agreement.

#### 5. The Missouri Public Service Commission's Investigation into the Resolution of the SPP/MISO Seams Dispute

Importantly, the Missouri Public Service Commission (Missouri PSC) filed comments calling for a renegotiation of the JOA due to the integration of Entergy into MISO, which it refers to as a "material change." In its comments, Missouri PSC provided a reasoned analysis

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<sup>77</sup> See Comments and Supporting Evidence of the SPP Transmission Owners, FERC Docket No. ER14-1174 and EL14-21-000, February 18, 2014, p. 2.

<sup>78</sup> See FERC Order on Remand and Complaints, *supra*, ¶11.

<sup>79</sup> See *id.*, ¶12.

<sup>80</sup> See *id.*, ¶26.

<sup>81</sup> See *id.*, ¶40.

<sup>82</sup> See FERC Order on Remand and Complaints, Docket Nos. ER14-1174-000; EL11-34-002; EL14-21-000; and EL14-30-000 (Cons.) 146 FERC ¶61,231, March 28, 2014.

noting that absent a renegotiation, both SPP and MISO will likely exploit the provisions of the existing JOA in this new environment to ensure their members are not disadvantaged; and “even worse”, less-than-ideal long-term planning and operational decision-making will result from the uncertainty surrounding the current JOA.<sup>83</sup>

Missouri PSC opened its own docket to provide a forum for the renegotiation it recommended before FERC.<sup>84</sup> In its issuing Order, Missouri PSC indicated why resolution of the seams dispute between the two RTOs is necessary for the benefit of Missouri ratepayers. It observed:

- (1) The current state of affairs between MISO and SPP adds uncertainty to the integrated resource planning (IRP) within the state of Missouri;
- (2) A stable, predictable contractual relationship between the RTOs is necessary for the state of Missouri to assess its future resource options across the MISO-SPP seam;
- (3) Missouri utilities will not end up with the optimal, cost effective IRP that would result if SPP and MISO could agree to a new regulatory path forward with a renegotiated JOA, because the greater the uncertainty on the seam, the higher a premium will be put on intra-RTO resources within the IRP process.
- (4) Internal-only planning undermines the goals of Order 1000 and leads to less-efficient projects being planned and built, and necessarily excludes interregional projects that could be cost shared, and benefit ratepayers on both sides of the seam; and finally,
- (5) Under the current circumstances, neither SPP nor MISO is particularly inclined to plan and approve transmission projects near the seam the costs of which the other RTO will not pay; and as a result, Missouri utilities and ratepayers, being on the MISO-SPP seam, are not receiving a comparable share of RTO-membership benefits as ratepayers of utilities near the middle of either RTO.<sup>85</sup>

While the seams issues pertaining to Entergy’s integration into MISO are still hotly contested, it is clear, as the Missouri PSC noted, that uncertainty, parochial planning and unfair cost allocations will unduly harm ratepayers located along the seam. The Missouri PSC’s call for a renegotiated JOA between the two RTOs in light of the material change to circumstances from Entergy’s integration into MISO is a reasoned position. Where such a renegotiation does not yield satisfactory results, it will likely become the responsibility of state and or federal regulatory bodies to define and mandate a fair resolution.

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<sup>83</sup> See Comments of Missouri PSC, FERC Docket No. EL14-21-000, February 19, 2014, p. 2.

<sup>84</sup> Missouri PSC Docket No. EW-2014-0156, *In the Matter of an Investigation into the Possible Methods of Mitigating Identified Harmful Effects of Entergy Joining MISO on non-MISO Missouri Utilities and Their Ratepayers and Maximizing the Benefits for Missouri Utilities and Ratepayers Along RTO and Cooperative Seams*.

<sup>85</sup> See Issuing Order, pp. 4-5. Many of the participants in the Missouri docket have offered general comments, without offering specifics, due to the ongoing Settlement Negotiations taking place at FERC.

## **B. Interregional Transmission Lines and Cost Allocation**

*Northern Indiana Public Service Co Complaint. FERC Docket No. EL13-88-000*

### 1. Seams issues presented in docket

In September 2013, the Northern Indiana Public Service Company (NIPSCO) filed a complaint at FERC against MISO and PJM Interconnection, LLC (PJM) to remedy alleged flaws in the interregional planning process of the Joint Operating Agreement between MISO and PJM (“JOA”). NIPSCO’s main complaint was that to date,

- Not one single interregional transmission upgrade project has been approved under the PJM-MISO JOA interregional transmission planning provisions; and
- This failure of the transmission planning process under the JOA results in unnecessary congestion costs and unjust and unreasonable rates.<sup>86</sup>

According to NIPSCO, the current process is broken and the MISO and PJM Order 1000 compliance filings do not comply with Order No. 1000 and will not fix this broken process.<sup>87</sup>

NIPSCO proposed the following reforms to the PJM-MISO JOA:

- (1) The MISO/PJM cross border planning process should run concurrently with the Mid-Continent Transmission Expansion Plan (MTEP) and Regional Transmission Expansion Plan (RTEP) planning cycles and not consecutively;
- (2) There should be consistency between the PJM and MISO planning analysis. While the RTOs have regional differences, both entities should be consistent in their application of reliability criteria and modeling assumptions;
- (3) MISO and PJM should have one criteria for the approval of Cross-Border Market Efficiency Projects (CBMEPs). The current and proposed changes to the JOA do not streamline the process but instead add delays, complications, and further administrative hurdles;
- (4) The criteria for approval of a CBMEP should be amended to address all known benefits including, more specifically, avoidance of future Market to Market (M2M) payments made to reallocate short-term transmission capacity in the real-time operation of the system;
- (5) MISO and PJM should be required to have a process for joint planning and cost allocation of lower voltage and lower cost upgrades for cross-border projects; and

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<sup>86</sup> Complaint of Northern Indiana Public Service Company, FERC Docket No. EL13-88-000, September 13, 2013, pp.1-2.

<sup>87</sup> See *id.*, p. 3.

- (6) MISO and PJM must improve the processes within the JOA with respect to new generator interconnections and generation retirements.<sup>88</sup>

## 2. PJM and MISO Answers to NIPSCO Complaint Identify Stakeholder Forums to Resolve Seams Issues

MISO and PJM submitted answers to NIPSCO's Complaint. According to PJM's Answer, its JOA with MISO is part of a holistic agreement between the two RTOs that has been carefully constructed to provide for coordinated operations, reciprocity for control of flowgates and efficient expansion of the transmission grid on both sides of the PJM/MISO seam.<sup>89</sup> PJM also stated that the JOA provisions on planning, operation and market coordination all complement each other and work together to ensure efficient market outcomes, minimization of congestion costs and coordinated transmission planning and expansion.<sup>90</sup>

In response to NIPSCO's complaint, both PJM and MISO offer detailed descriptions of their joint RTO transmission planning processes, Inter-Area Planning Stakeholder Advisory Committee (IPSAC). For example, PJM states that a Joint Planning Study, which began in 2012, evaluates cross-border transmission issues and identifies opportunities for transmission expansion. Phase I of the Study gathered M2M historical congestion issues and supporting information to assess the applicability of transmission expansion solutions to the identified seams issues.<sup>91</sup>

Responding to NIPSCO's complaint that the MISO/PJM seam has created substantial congestion costs and operating issues, PJM notes that the Joint Planning Study, refreshed in 2013, indicated that congestion costs along the seam was expected to decrease by 52%.<sup>92</sup> PJM also noted that both the Organization of MISO States and the Organization of PJM States urged FERC to refrain from usurping the Joint Common Market (JCM) process underway.<sup>93</sup>

## 3. The Sufficiency of FERC Order 1000 to Foster Interregional Transmission Projects

In their FERC Order 1000 interregional compliance filings, MISO and the MISO Transmission Owners submitted tariff revisions providing that the cost of Baseline Reliability Projects (BRPs) would be entirely allocated within the pricing zone where each BRP was located.<sup>94</sup> NIPSCO stated that the MISO-PJM interregional planning process was unjust and unreasonable as evidenced by the absence of any cross-border project under the JOA and the

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<sup>88</sup> See id, pp. 6-11.

<sup>89</sup> See PJM Answer, FERC Docket No. EL13-88-000, January 29, 2013, p. 8.

<sup>90</sup> See id.

<sup>91</sup> See id, p. 10. According to PJM, M2M payments served as an indicator of potential transmission issues.

<sup>92</sup> See id, pp. 10-11.

<sup>93</sup> See id, p. 13.

<sup>94</sup> See MISO Answer, FERC Docket No. EL13-88-000, October 31, 2013, p. 9.

continuing difficulty of having any cross-border project planned and approved under the JOA process.<sup>95</sup> NIPSCO further asserted that these problems will not be solved by MISO's and PJM's Order 1000 interregional compliance filings pertaining to the JOA and that the RTOs compliance filings were not in fact compliant with Order 1000.<sup>96</sup>

NIPSCO's Complaint suggests that the seams solution, i.e., interregional transmission lines, will not transpire regardless of FERC Order 1000 interregional cost allocation principles or MISO/PJM's modified tariff provisions to comply with those principles. While both MISO and PJM agree with some of NIPSCO's reform suggestions, they assert that those reforms should be undertaken in the interregional stakeholder process. However, it appears that NIPSCO does not consider those forums to be just and reasonable or worthwhile to resolve the allegations in its Complaint.

#### 4. FERC Determinations

As recently as December 2014, FERC indicated that it closely considered the arguments of both sides and that those arguments should be considered further. In its most recent Order on Compliance Filings for interregional coordination and cost allocation between the MISO and PJM regions,<sup>97</sup> FERC partially accepted and partially rejected PJM's and MISO's JOA amendments to comply with FERC Order 1000.<sup>98</sup> On the same date, FERC directed its staff to convene a technical conference to explore issues raised in the NIPSCO Complaint related to the MISO-PJM JOA and the MISO-PJM seam.<sup>99</sup>

A fundamental question this docket raises is whether an aggrieved party should allow a new planning reform, in this case FERC Order 1000, to take effect or rely on a regulatory body to order further reforms in the short term. Both PJM and MISO advocate use of their interregional planning processes, forums and committees to study and develop agreed-upon interregional projects. Regulatory bodies are likely to continue to be placed in the position of deciding the appropriate course of action when stakeholders file complaints before them alleging the insufficiency of those processes, forums and committees.

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<sup>95</sup> See MISO Answer, p. 11.

<sup>96</sup> See *id.*

<sup>97</sup> See Order on Compliance Filings, FERC Docket Nos. Docket Nos. ER13-1944-000, ER13-1943-000, ER13-1924-000, ER13-1945-000, ER13-1955-000, ER13-1956-000, (not consolidated), December 18, 2014.

<sup>98</sup> See *id.*, ¶¶60-65. While the JOA provides that MISO and PJM will annually share transmission planning data and information including power flow and cost models and provides for the development of a Coordinated System Plan, it does not explain, *inter alia*, how stakeholders and transmission developers can propose interregional transmission facilities for joint evaluation.

<sup>99</sup> See Order on Complaint and Establishing Technical Conference, FERC Docket No. EL88-000, December 18, 2014. ("Upon consideration of the Complaint and responses thereto, we find that NIPSCO and other commenters raise a number of issues related to the MISO-PJM seam and the MISO-PJM JOA that warrant further examination. As discussed above, at least certain of those issues appear to be related to unusual characteristics of NIPSCO's location relative to the MISO-PJM seam." ¶35).

### **C. Lake Erie Loop Flow Phase Angle Regulator Solution**

#### *FERC Docket ER11-1844, Lake Erie Loop Flow*

On October 20, 2010, MISO and the International Transmission Company (ITC) proposed revisions to Midwest ISO's Open Access Transmission, Energy and Operating Reserve Markets Tariff (Tariff) to establish a methodology to allocate and recover the costs of ITC's Phase Angle Regulating Transformers (PAR) at Bunce Creek on the Michigan-Ontario border among Midwest ISO, New York Independent System Operator (NYISO), and PJM Interconnection, L.L.C. (PJM).<sup>100</sup>

MISO and ITC installed the PAR in order to resolve the issue of loop flow in the Lake Erie region. In discussing the issue of loop flow, FERC noted that power flows over the path of least resistance, and, as a result, it may not in all instances flow over the path for which it is scheduled by a transmission operator. This difference between scheduled and actual flow on a path or interface is called loop flow, and has historically been both common and extremely volatile in the Lake Erie region. This situation has been referred to generally as the Lake Erie loop flow issue.<sup>101</sup>

The New York ISO offered its own discussion of loop flow in a report to the FERC. It stated that electricity is bought and sold using scheduled delivery routes. However, the electricity itself follows routes ordained by the laws of physics, which are not necessarily identical to the paths set by the buyers, sellers or operators of the grid.<sup>102</sup> When the actual electricity path differs from the routes scheduled for it, the departure is known as "loop flow".<sup>103</sup>

According to New York ISO, loop flows on the bulk power system are complex and ordinarily occur as the result of a combination of factors including:

- Scheduling of energy transactions between the areas controlled by grid operators
- Scheduling electricity supply within each grid operator's system
- Demand for electricity within each grid operator's system
- Transmission outages; and
- Generation outages.<sup>104</sup>

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<sup>100</sup> See Order Accepting and Suspending Proposed Tariff Sheets and Establishing Hearing and Settlement Judge Procedures, FERC Docket ER11-1844, December 30, 2010.

<sup>101</sup> See *id.*, pp. 1-2.

<sup>102</sup> See "Lake Erie Loop Flow Mitigation," A Report from the New York Independent System Operator, November 2008, p. 2.

<sup>103</sup> See *id.*, Loop flows occur in all interconnected transmission systems as the flow of electricity follows physical laws across the continent.

<sup>104</sup> See *id.*, p. 6. For a detailed examination of the proposed solution to the Lake Erie Loop Flow problem, a Phase Angle Regulator (PAR) see, in particular, the Post-Hearing Reply Brief of PJM, LLC, October 31, 2012.

Determining that the scheduling of significant volumes of external transactions via circuitous paths around Lake Erie by certain market participants exacerbated the loop flows, New York ISO banned such transactions.<sup>105</sup>

### 1. Case History

Beginning in January 2008, exporters of power in the New York ISO intent on exporting power to PJM took advantage of a circuitous path around Lake Erie by which power flowed from the New York ISO into the Independent Electricity System Operator of Ontario (IESO), and then into MISO before sinking in PJM, the intended destination. This pathway enabled exporters to avoid the higher market prices at the New York ISO/PJM border by instead sending power west.<sup>106</sup>

New York ISO made a filing at FERC proposing more direct routing options, suggesting it incurs additional congestion costs when actual power flows include unscheduled power flows, such as when actual power flows move directly from NYISO to PJM.<sup>107</sup> New York ISO also noted that the unscheduled flows exacerbate west-to-east constraints in New York, thereby increasing congestion costs. NYISO also stated in that proceeding that its proposal would reduce unscheduled power flows, a temporary solution, until there are adequate operational controls in place, such as PARs, to ensure that actual and scheduled flows are closely aligned.<sup>108</sup>

### 2. MISO and ITC PAR Cost Allocation Proposal

MISO and ITC's filing proposed to establish a cost allocation methodology to assign the costs of the new ITC PARs among the three regions that cause the Lake Erie loop flow problem and benefit from its mitigation, Midwest ISO, PJM, and NYISO.<sup>109</sup> They stated that the proposed allocation percentages are based on each region's contribution to loop flows that would flow through the Michigan-Ontario interface at the five-year planning horizon if the new PARs were not controlling or regulating that loop flow, as determined using methods that have previously been approved by the Commission for similar cost allocation provisions.<sup>110</sup>

MISO and ITC also asserted that the cost allocation methodology proposed in this case is similar to the methodologies approved for other cross-border projects, asserting that the Commission, in previous Orders, recognized that the new PARs will help resolve the Lake Erie

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<sup>105</sup> See *id.*, p. 4.

<sup>106</sup> See *id.*, ¶3.

<sup>107</sup> See generally, *New York ISO* FERC Docket No. ER08-1281-000.

<sup>108</sup> See *id.*, ¶4.

<sup>109</sup> See MISO and ITC Tariff Filing Transmittal Letter, FERC Docket No. ER11-1844, October 20, 2010, p. 4. The Filing Parties explained that an initial transfer distribution factor (DFAX) analysis, based on 2015 data, supports allocating 49.6 percent of the PARs revenue requirements to Midwest ISO, 19.5 percent to PJM, and 30.9 percent to NYISO based on each region's contribution to the loop flows over the Michigan-Ontario interface that would occur if the PARs were not operational. *Id.*

<sup>110</sup> See *id.*, p. 15.

loop flow issues. They stated that Midwest ISO, NYISO, PJM, and IESO are in agreement that implementing an effective regional physical solution to control or mitigate the Lake Erie loop flows is a key component of any comprehensive solution to the problem and that, once activated, the new PARs will reduce unscheduled Lake Erie loop flows and will provide substantial benefits to the surrounding regions, including significant economic savings.<sup>111</sup>

MISO/ITC contended that the new PARs were expected to fully mitigate Lake Erie loop flows approximately 74 percent of the time and to reduce loop flows by approximately 600 MW the rest of the time, with remaining loop flows addressed through existing market solutions.<sup>112</sup> Finally, MISO/ITC argued that its proposed cost allocation method was consistent with Order 890 and the FERC's proposed 2010 transmission NOPR which ultimately became Order 1000.

The Michigan Public Service Commission filed comments indicating that it believed that the proposal is consistent with cost causation principles; and that further discussions may produce a consensus on allocation of the costs of the PARs and asks the Commission to establish settlement judge procedures.<sup>113</sup> Several protesters argued that the Filing Parties proposal was contrary to section 205 of the FPA because it imposed costs on entities that are neither taking jurisdictional service from the Filing Parties nor parties to an agreement authorizing cost sharing; and a number of protesters expressed concern that acceptance of the proposal could result in a flurry of filings by RTOs unilaterally imposing costs on other regions and could hamper interregional planning processes.<sup>114</sup>

Other comments indicated a concern with the failure to demonstrate that benefits would accrue to regions outside of MISO/ITC as well as suggestions that the PAR would address transmission issues within MISO while providing only ancillary relief of interregional loop flow concerns.<sup>115</sup>

The Commission scheduled settlement hearings in the matter and appointed a settlement judge to conduct proceedings. In December 2011, the settlement judge determined that parties were at an impasse and ordered the scheduling of contested hearings. In December 2012, after the conclusion of a contested hearing and briefs, the FERC trial judge issued an initial decision.<sup>116</sup> The trial judge reached the following conclusions based upon the record:

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<sup>111</sup> See *id.*

<sup>112</sup> See *id.*, pp. 5-6.

<sup>113</sup> See Notice of Intervention and Comments of the Michigan Public Service Commission in Support of Filing to Address Loop Flow Issues, FERC Docket No. ER11-1844, November 17, 2010, p. 4.

<sup>114</sup> See generally, *Protests of PJM, PJM Transmission Owners, ISO-NEW England, NESCOE, NECPUC and MISO Transmission Owners*, FERC Docket No. ER11-1844.

<sup>115</sup> Commission Order, ¶34.

<sup>116</sup> See Initial Decision, FERC Docket No. ER11-1844-002, December 18, 2012.

On the question of whether FERC could approve the MISO/ITC PAR cost allocation methodology, the hearing judge ruled:

- (1) There is no customer or contractual relationship between the Joint Applicants and PJM or NYISO that justifies the proposed cost allocation;
- (2) The Commission has rejected unilateral filings by a utility to impose loop flow costs on neighboring utilities, requiring instead consensual resolution, which is absent here; and
- (3) Order Nos. 1000 and 1000-A do not apply to this case, but the policy contained therein predates issuance of those Orders and precludes this filing.<sup>117</sup>

On the question of whether the existing MISO/PJM JOA precluded allocation of the PAR costs by MISO/ITC to PJM, the hearing judge ruled, in part:

- (1) The requirements of the cost allocation provisions of the JOA had not been satisfied;
- (2) There are no customer or contractual agreements outside of the JOA that provide for cross-border cost allocation; and
- (3) The requirements of the Mobile-Sierra doctrine have not been met.<sup>118</sup>

On the question of whether the allocation of costs and amount of cost allocated to PJM was just and reasonable and not unduly discriminatory, the hearing judge ruled,

- (1) The Joint Applicants' filing violates the FPA and Commission policy;
- (2) The proposed cost allocation violates postage stamp rate and sunken cost recovery policies;
- (3) The Joint Applicants have not met their burden of proving that the proposed rate treatment is just and reasonable; and
- (4) The Joint Applicants have not met their burden of proving that the proposed cost allocation is not unduly discriminatory or preferential.<sup>119</sup>

In summary, the hearing examiner ruled that FERC could not approve of MISO/ITC's PAR cost allocation methodology because it was not consistent with the JOA in existence between the various RTOs/ISOs. Further, the JOA was the controlling document in this case as

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<sup>117</sup> See *id.*, p. 160.

<sup>118</sup> See *id.*, p. 191. In general, the *Mobile-Sierra* Doctrine holds that a party to a contract cannot unilaterally change the terms of that contract unless it is demonstrably in the public interest. See *United Gas Pipeline Co. v. Mobile Gas Service Corp.*, 350 U.S. 332, 343-44 (1956); *Federal Power Commission v. Sierra Pacific Power Company*, 350 U.S. 348, 352-55 (1956).

<sup>119</sup> See *id.*, p. 258.

no other executed documents represented cost allocation agreements and MISO/ITC did not meet the relatively high burden required to enable FERC to amend the JOA in the public interest. Finally, the hearing examiner found that the MISO/ITC proposal did not meet current FERC-approved cost allocation principles and that the filers had not met their burden of demonstrating that their cost allocation proposal was superior to the existing framework.

While the Initial Decision went against the MISO/ITC filing, parties continued to file and respond to post-decision briefs and answers. Most recently, MISO/ITC made a motion to lodge two reports in the instant docket.<sup>120</sup> The reports purportedly confirm that the PARs installed on the Ontario-Michigan interface are effectively and consistently controlling and reducing Lake Erie loop flow, and are thus necessarily benefitting all the RTOs.<sup>121</sup>

#### **IV. Conclusion and Key Takeaways**

Seams can inhibit the economic transfer of capacity and energy between neighboring wholesale electricity markets, or control areas, as a result of differences in market rules and designs, operating and scheduling protocols and other control area practices. Where solutions can be implemented, savings could accrue to customers on both sides of the seam.

While this Primer does not offer resolutions to the issues raised in the contested dockets discussed above, it does identify fundamental questions about the role of the regulator in resolving seams issues: enforcing a top-down solution versus enabling market participant stakeholders to reach agreed-upon solutions.

More specifically, when is it appropriate for the FERC or a state regulator to intervene and order an interregional solution to an interregional dispute, and when and for how long is it appropriate for the regulator to remain in a facilitation or information-gathering role in the interest of a global and agreed-upon settlement when one party alleges discriminatory charges or unfair treatment?

A second fundamental question is when an affected market participant alleges that a new FERC rule, in the process of being implemented, (i.e. FERC Order 1000) is insufficient to address the concerns it set out to address, should it enable the new paradigm to take effect or seek further and more aggressive top-down reforms?

Finally, how long should an aggrieved party rely upon interregional stakeholder process to resolve an alleged harm, and when should that party take unilateral action to make its constituents whole, even in the absence of interregional agreement?

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<sup>120</sup> See Motion of the Joint Applicants to Lodge PARs Performance Evaluation Reports, FERC Docket No. ER11-1844-002, March 19, 2014.

<sup>121</sup> See *id.*

These questions will continue to appear before state and federal regulators while seams issues persist. The Missouri PSC, in its docket to resolve seams issues between SPP and MISO, offered astute observations regarding the necessity of resolving seams issues. In summary:

- (1) Conflicts between regions add uncertainty to the integrated resource planning (IRP) within the state;
- (2) A stable, predictable contractual relationship between the RTOs is necessary for the state to assess its future resource options across the seam;
- (3) State utilities will not end up with the optimal, cost effective IRP that would result if regions could agree to a new regulatory path forward with a renegotiated JOA, because the greater the uncertainty on the seam, the higher a premium will be put on intra-RTO resources within the IRP process.
- (4) Internal-only planning undermines the goals of Order 1000 and leads to less-efficient projects being planned and built, and necessarily excludes interregional projects that could be cost shared, and benefit ratepayers on both sides of the seam; and finally,
- (5) When in conflict, neither region is particularly inclined to plan and approve transmission projects near the seam the costs of which the other RTO will not pay; and as a result, utilities and ratepayers along the seam do not receive a comparable share of RTO-membership benefits as ratepayers of utilities near the middle of either RTO.<sup>122</sup>

These well-reasoned observations suggest that regions should strive to renegotiate old agreements when presented with material changes in circumstances, and when such renegotiations do not yield equitable results, it is the responsibility of the regulatory authority to compel or mandate an approach that reaches an equitable solution.

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<sup>122</sup> See Missouri PSC Issuing Order, *supra*, Docket No. EW-2014-0156, pp. 4-5.

## **Bibliography**

### **FERC Orders**

*Initial Decision of FERC Hearing Examiner*, FERC Docket No. ER11-1844-002, December 18, 2012

*Initiatives to Address Seams Issues*, FERC Docket No. AD12-16-000(December 2013

*Michigan Public Service Commission Filing*, FERC Docket No. ER11-1844

*MISO and ITC Tariff Filing Transmittal Letter*, FERC Docket No. ER11-1844, October 20, 2010

*New York ISO*, FERC Docket No. ER08-1281-000

*Northern Indiana Public Service Company Complaint*, FERC Docket EL13-88-000, September 11, 2013

*Notice of Complaint*, FERC Consolidated Dockets Nos. ER14-1174, EL11-34-002, EL14-21, EL14-30

*Notice of Intervention and Comments of the Michigan Public Service Commission in Support of Filing to Address Loop Flow Issues*, FERC Docket No. ER11-1844, November 17, 2010

*Notice of Request for Comments*, FERC Docket AD12-16-000, June 11, 2012

*Order Accepting and Suspending Proposed Tariff Sheets and Establishing Hearing and Settlement Judge Procedures*, FERC Docket ER11-1844, December 30, 2010

*Order on Complaint and Establishing Technical Conference*, FERC Docket No. EL88-000, December 18, 2014

*Order on Compliance Filings*, FERC Docket Nos. ER13-1944-000, ER13-1943-000, ER13-1924-000, ER13-1945-000, ER13-1955-000, ER13-1956-000, (not consolidated), December 18, 2014.

*Order on Rehearing*, FERC Order 2000-A, 90 FERC ¶ 61,201, February 25, 2000

*Order on Remand and Complaints*, FERC Docket No. ER14-1174-000 (cons.), Southwest Power Pool, 146 FERC ¶ 61,231, March 28, 2014

*Order Opening a Case to Investigate Methods of Eliminating or Mitigating the Negative Effects of the MISO/SPP Seam*, Missouri Public Service Commission, File No. EW-2014-0516, November 26, 2013

*Preventing Undue Discrimination and Preference in Transmission Service*, “FERC Order 890”, February 16, 2007.



*Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities*, “FERC Order 888”, 75 FERC 61,080, April 24, 1996.

*Regional Transmission Organizations*, “FERC Order 2000”, 89 FERC ¶ 61,285, December 20, 1999.

*Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities*, “FERC Order No. 1000,” 136 FERC ¶ 61,051, July 21, 2011.

### **FERC Pleadings**

*Comments and Supporting Evidence of the SPP Transmission Owners*, FERC Docket No. ER14-1174 and EL14-21-000, February 18, 2014

*Comments of Missouri PSC*, FERC Docket No. EL14-21-000, February 19, 2014

*Comments of PJM, Conference on RTO Interregional Coordination*, FERC Docket No. PL01-5 (2001)

*Complaint of Northern Indiana Public Service Company*, FERC Docket No. EL13-88-000, September 13, 2013

*Louisiana PSC Answer and Protest*, FERC Docket Nos. EL14-21-000, ER14-1174, and EL11-34-001, February 18, 2014

*MISO Answer*, FERC Docket No. EL13-88-000

*Motion of the Joint Applicants to Lodge PARs Performance Evaluation Reports*, FERC Docket No. ER11-1844-002, March 19, 2014

*Motion to Intervene, Motion to Dismiss and Answer in Support of Respondent of the MISO Transmission Owners*, FERC Docket EL21-14-000, February 18, 2014.

*Organization of PJM States, Inc. and Organization of MISO States, Joint Comments*, Docket No. AD12-16-000, at 3 (June 13, 2013)

*PJM and MISO Information Filing*, FERC Docket No. AD12-16-000, September 26, 2012

*PJM Answer*, FERC Docket No. EL13-88-000

*Southwest Power Pool, Inc., Complaint and Request for Fast-Track Processing and Motion to Consolidate*, FERC Docket No. EL14-21, January 28, 2014

*Southwest Power Pool, Inc., Submission of Unexecuted Non-Firm Point-To-Point Transmission Service Agreement*, FERC Docket No. ER14-1174, January 28, 2014

## **Court Orders**

*Federal Power Commission v. Sierra Pacific Power Company*, 350 U.S. 348 (1956)

*S.W. Power Pool, Inc. v. FERC*, 736 F.3d 994 (D.C. Cir. Dec. 3, 2013)

*United Gas Pipeline Co. v. Mobile Gas Service Corp.*, 350 U.S. 332 (1956)

## **State Regulatory Orders**

*Issuing Order, In the Matter of an Investigation into the Possible Methods of Mitigating Identified Harmful Effects of Entergy Joining MISO on non-MISO Missouri Utilities and Their Ratepayers and Maximizing the Benefits for Missouri Utilities and Ratepayers along RTO and Cooperative Seams*, Missouri PSC Docket No. EW-2014-0156

## **Reports**

*2013 Northeast Coordinated System Plan*, April 16, 2014, [http://www.iso-ne.com/static-assets/documents/committees/comm\\_wkgrps/otr/ipsac/mtrls/2014/mar282014/2013\\_ncs\\_p.pdf](http://www.iso-ne.com/static-assets/documents/committees/comm_wkgrps/otr/ipsac/mtrls/2014/mar282014/2013_ncs_p.pdf)

*A Discussion Paper on Electricity Seams*, Power Marketer's Council & Canadian Electricity Association, June 2006

*Cross Border Coordination: PJM and MISO*, Dr. Bill Hogan, Harvard Electricity Policy Group (January, 2004)

*Draft Capacity Deliverability Fact-Finding Results*, a Joint Presentation by PJM and MISO

*Flow Gates*, a discussion paper by PowerUK to the Harvard Electricity Policy Group, <http://www.hks.harvard.edu/hepg/flowgate/PowerUK%20Piece%20on%20Flowgates.pdf>

*Lake Eerie Loop Flow Mitigation*, Report of the New York Independent System Operator, November 2008, [http://www.nyiso.com/public/webdocs/markets\\_operations/documents/ARCHIVE/white\\_papers/ARCHIVE/lerie\\_loopflow\\_report\\_11182008.pdf](http://www.nyiso.com/public/webdocs/markets_operations/documents/ARCHIVE/white_papers/ARCHIVE/lerie_loopflow_report_11182008.pdf)

*Managing Congestion to Address Seams: A Proposal for Congestion Management Coordination*, PJM Interconnection and the Midwest Independent System Operator (August 4, 2003)

*MISO 2014 Quarterly Seams Report* (Updated September 23, 2014) <https://www.misoenergy.org/Library/Repository/Report/Quarterly%20Seams%20Reports/2014/2014%20Q3%20Quarterly%20Seams%20Report.pdf>

*MISO Capacity Deliverability White Paper*, June 2012, <http://www.pjm.com/~media/committees-groups/stakeholder-meetings/pjm-miso-joint-common/20120716/20120716-miso-capacity-deliverability-whitepaper.ashx>

*National Electric Transmission Congestion Study – Draft for Public Comment*, US Department of Energy, August 2014,  
<http://energy.gov/sites/prod/files/2014/08/f18/NationalElectricTransmissionCongestionStudy-DraftForPublicComment-August-2014.pdf>

*Seams Cost Allocation: A Flexible Framework to Support Interregional Transmission Planning*, a Brattle Group Report for the Southwest Power Pool, Pfeifenberger, Johannes P. and Delphine Hou, (April 2012)

*PJM Capacity Deliverability Fact Finding Report*, <http://www.pjm.com/~media/committees-groups/stakeholder-meetings/pjm-miso-joint-common/20140414/20140414-draft-capacity-deliverability-fact-finding-results-presentation.ashx>

### **Additional Sources**

*Available Transfer Capability*, California Independent System Operator (CAISO) Draft Tariff Language, Appendix L, Attachment C, Order 890 Compliance,  
[http://webcache.googleusercontent.com/search?q=cache:2MQwEUIxb0QJ:www.caiso.com/Documents/DraftAppendixL\\_Att\\_C\\_Methodology-AssessAvailableTransferCapability.doc+&cd=3&hl=en&ct=clnk&gl=us](http://webcache.googleusercontent.com/search?q=cache:2MQwEUIxb0QJ:www.caiso.com/Documents/DraftAppendixL_Att_C_Methodology-AssessAvailableTransferCapability.doc+&cd=3&hl=en&ct=clnk&gl=us)

*Glossary and Acronyms*, ISO New England, <http://www.iso-ne.com/participate/support/glossary-acronyms>

*Glossary of Terms (informal)* Pauley, Morgan, Indiana Utility Regulatory Commission

*Inter-Area Planning Stakeholder Advisory Committee*, <http://www.iso-ne.com/committees/planning/ipsac>

*IPSAC Agenda and Administrative Items*, Michael Henderson, December 12, 2014,  
[http://www.iso-ne.com/static-assets/documents/2014/12/ipsac\\_admin.pdf](http://www.iso-ne.com/static-assets/documents/2014/12/ipsac_admin.pdf)

*Statement of Doug Melamed*, U.S. Department of Justice, before the U.S. House of Representatives Committee on the Judiciary, July 28, 1999,  
<http://www.justice.gov/atr/public/testimony/2591.htm>