Prepared Remarks of Matthew Holtz, Managing Director, Transmission
On Behalf of the Northern Indiana Public Service Company

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My name is Matthew Holtz, and I am the Managing Director Transmission at Northern Indiana Public Service Company (NIPSCO). I appreciate the opportunity to participate in the panel discussion on Regional Transmission Planning and Other Transmission Development Issues. NIPSCO is a member of the Midcontinent Independent System Operator (MISO), so the majority of my comments relate to the MISO regional process.

I. General Comments

My comments below regarding the MISO planning cycle starts at its inception from a generator interconnection through the last stages which include baseline reliability analyses, where the baseline reliability analyses are essentially the backstop to relieve system issues that are not addressed earlier in the planning processes. The overall theme to my discussion is to identify deficiencies that, if properly addressed earlier in the process, would unlock beneficial transmission projects in MISO. With respect to this issue, NIPSCO has reached the following conclusions about several components/categories of MISO's regional planning processes:

- **Generator Interconnection and Retirement** - MISO has stated in the past that its current interconnection process is set up to incent or lower the burden for new generators to connect to its system by minimizing the entrant's interconnection facility or system network upgrade requirements. Similarly, MISO allows requesting generators the ability to retire if no system impacts exists or if feasible alternative solutions can maintain near term reliability to prevent a System Support Resource (SSR) designation for the generator. The resulting congestion issues from these new or retiring resources are typically overlooked by these reliability based analyses. Instead, the risk of potential system issues are assumed to be handled in the near term by real time market or operational solutions and in the long term by MISO's MTEP planning process.
- **Baseline Reliability** – a de facto backstop for unresolved system issues. This is often years down the road from when system issues appeared (e.g. sustained congestion) and have already caused economic harm. Baseline reliability solutions are focused exclusively on solving the reliability problem rather than also optimizing the solution to relieve the reliability issue and add transmission capacity where needed to solve economic inefficiencies.
- **Multi Value Projects (MVP)** – a top down portfolio analyses focused on reliability, economic, and policy drivers. These projects are only studied periodically based on need with publicly policy drivers strongly influencing what is considered a need (e.g. state renewable portfolio standards). MISO's last MVP portfolio analyses were conducted in

2011. Given the number of policy, economic, and reliability issues addressed by MISO's current MVP portfolio, MVPs can also function as a backstop in solving chronic system issues. However, due to their periodicity and the public policy drivers, I will only briefly discuss the MVP process.

- **Market Efficiency** - The area with the highest potential of producing needed projects are Market Efficiency Projects (MEP). A properly functioning regional MEP process will identify system issues prior to the BRP stage when constraint points are only causing economic inefficiencies rather than exceeding reliability thresholds triggering a BRP. With roughly 11 years of market operation and many iterations of their Market Efficiency Project (MEP) planning, MISO has only approved three MEPs totaling $87.5M with $67.4M of that total tied to a recently-approved project. Overall these three projects represent a total of 0.5% of all transmission investment approved in the MISO Transmission Expansion Plan (MTEP) from 2008-2015. In this same timeframe, MISO experienced over $6 billion in real-time congestion. Thus, there clearly a need for more of this project type. The Market Efficiency Project process has lost focus on relieving current system issues and instead focused on widely differing and sometimes negating long term futures with hedging assumptions that can heavily discount any remaining benefits.
- **Interregional Planning** - NIPSCO appreciates recent progress on the MISO/PJM seam with the Commission's Order in EL13-88, NIPSCO's Seams Complaint against MISO and PJM filed in 2013. NIPSCO's concern is the general direction where some stakeholders, including MISO and PJM, want to phase out interregional planning and rely solely on the RTOs' separate and differing regional processes to identify system issues and vet solutions. This approach will fail to identify interregional issues and fail to produce solutions due to the significant differences in the RTOs' regional processes and the fact that each RTO will only study their own impact on interregional constraints, underestimating 50% of the equation to capture the other RTO's impact on those same facilities.

II. Generator Interconnection and Retirement Processes

MISO has taken an approach to structure their interconnection and retirement policies around minimizing the burden for entering or exiting generators. MISO attracts new generators to interconnect to their system by allowing lower interconnection requirements (lower costs) from results tied to MISO's regional generation interconnection criteria. Studies conducted under MISO's Generator Interconnection process use a limited set of criteria that use a contingency set of N-1 single facility contingencies and are not stressed to find potential overload conditions. System models used in the MISO process capture peak load and off peak scenarios with average area generation dispatch to determine more apparent issues local to the interconnecting generator. The only exception to this limited set of criteria is when the transmission owner has local planning criteria requirements that are more catered to the local system than those required by the MISO process. While administrative challenges around generator interconnection queue management exist, this process is generally successful in interconnecting new generation.

Since 2008 roughly $1.5 billion (8.4% of all transmission investment approved in the MTEP) has been invested in upgrading the system to interconnect new generation.

Much like the generation interconnection process, MISO has taken a similar approach to structure their generator retirement policies to allow a generator the flexibility to be placed in extended reserve shut down or permanently retire and exit the market within a limited and manageable time frame of 26 weeks if reliability impacts are not determined. When reliability impacts are expected through this process, they are managed by applying feasible alternatives to maintain reliability. MISO has stated the feasible alternatives considered could include planning and operating solutions such as: generation redispatch, system reconfiguration, transmission project acceleration, new transmission project, new generator resource installation, remedial action plans, or Demand Side Management (DSM). If reliability cannot be maintained without the generator, the generator may be asked to enter an agreement for continued operation under a System Support Resource (SSR) agreement if no other restrictions exist. Although there are improvements to be made in the retirement coordination between regions, generally this process satisfies reliability requirements and successfully allows generation the ability to be decommissioned and removed from the market.

By lowering the burden at the onset of new generation in the interconnection process, and the outset of retiring generation through the retirement process, MISO is moving potential system inefficiencies stemming from these resource changes into real-time market operations to manage these constraints and into the other planning processes or phases to identify and correct these issues. This approach to generator interconnects and retirements could be an effective way of managing the overall planning burden of generators as long as a robust and integrated overall planning process exists. However, as discussed below, MISO's Market Efficiency Project planning process needs reform to ensure that issues resulting from a more lenient interconnection/retirement process is mitigated prior to hitting the BRP or MVP threshold years down the road. It would also avoid pushing system issues into real-time operations to be managed, exposing customers to unneeded congestion costs. In addition, because the Generator Interconnection and Retirement Processes are focused merely on the reliability of the generation resources, more beneficial optimized or efficient solutions are not considered.

III. Baseline Reliability Project (BRP) Process

MISO's BRP process is performed annually and is grounded in the NERC-mandated Transmission Planning Standards. Projects identified through the BRP process are required to be built (ensured through the MISO Tariff) to safeguard the reliability of the Bulk Electric System. Most projects identified in the BRP process are limited to mitigating the reliability issue identified and do not consider optimization opportunities on the system to mitigate potential congestion issues causing market inefficiencies. Two factors limit MISO's ability to consider project optimization: 1) Timing – most MISO approved reliability projects are identified and mitigated in the 5 year study window and 2) Cost allocation – reliability projects are allocated locally to align with the reliability benefits that the projects provide to customers within the Transmission Owner's local area. Even if an impacted Transmission Owner or MISO wanted to expand a reliability solution to optimize the overall solution to include economic benefits, MISO currently does not have a method of allocating a portion of the costs of the optimized solutions to the beneficiaries under the BRP. However MISO does have that ability with their MVP process which is discussed below. Another solution to project optimization can occur in the Market Efficiency Project stage prior to the BRP stage if improvements are made to the Market Efficiency Project stage.

Since 2008 roughly $11.2 billion (62.2% of all transmission investment approved in the MTEP) has been targeted at Baseline Reliability Projects. This is an indication that MISO's planning processes are currently more reactionary under the shorter-outlook BRP process. NIPSCO contends this reactionary state can be more proactive through an improved Market Efficiency Process.

IV. Multi Value Project (MVP) Process

MVPs are the only project type currently in the MISO planning process that optimizes projects across multiple value drivers. The MVP process is a "top down," MISO-driven process that focuses on identifying a portfolio of projects that solve a combination of reliability, economic, and/or policy issues by conducting a study with a prescribed set of criteria. MISO last performed this analysis in 2011 as part of their MTEP 11 to address state renewable energy mandates and accompanying reliability and economic issues on the system that would prevent the delivery of energy from the targeted renewable resource zones. These projects are only studied periodically based on need with publicly policy drivers strongly influencing what is considered a need (e.g. state renewable portfolio standards). Based on the first iteration of the MVP process, it does appear to be an effective backstop to fix chronic system issues that exist on targeted portions of the system.

Since 2008 roughly $5.2 billion (28.9% of all transmission investment approved in the MTEP) has been targeted at MVPs.

V. Market Efficiency Project (MEP) Process

Since 2008, MISO has implemented an integrated MEP process to identify and mitigate both near-term and long-term system congestion issues with benefits at least 1.25 times greater than the cost of the proposed project. This process has only seen minor changes over the years, mainly in the method of calculating system benefits from the original 70% Adjusted Production Cost (APC) and 30% Net Load Payment (NLP) to the current 100% APC.

Since implementation in 2008, MISO has identified three Market Efficiency Projects totaling $87.5 million (0.5% of all transmission investment approved in the MTEP). Although two out of three of these projects (Breed – Wheatland 345kV and Duff – Rockport – Coleman 345kV) are tie lines with PJM, none of these projects were considered interregional projects with MISO's neighboring RTOs, nor were any other stand-alone projects identified over this time as interregional projects.

MISO describes their MEP process as bridging the gap between long range value-based planning and market operations. Although this process is not set up to optimize solutions across multiple value drivers (i.e., it focuses solely on APC savings), it does however in most cases foreshadow eventual reliability issues where higher base loading (reliability driver) leaves reduced system capacity to transfer economic power. This lack of ability to move economic power through the system is referred to as congestion. As described by the MISO Independent Market Monitor (IMM) in its 2015 State of the Market Report (emphasis added):

> *"MISO's markets manage flows over its network to avoid overloading transmission constraints by altering the dispatch of its resources and establish efficient, location-specific prices that represent the marginal costs of serving load at each location.* ***Transmission congestion arises when the lowest-cost resources cannot be fully dispatched because transmission capability is limited – so higher-cost units must be dispatched in place of lower-cost units to avoid overloading a transmission facility****. This generation redispatch or "out-of-merit" cost is reflected in the congestion component of MISO's locational prices. The congestion component of the LMPs can vary substantially across the system with LMPs higher in "congested" areas.*
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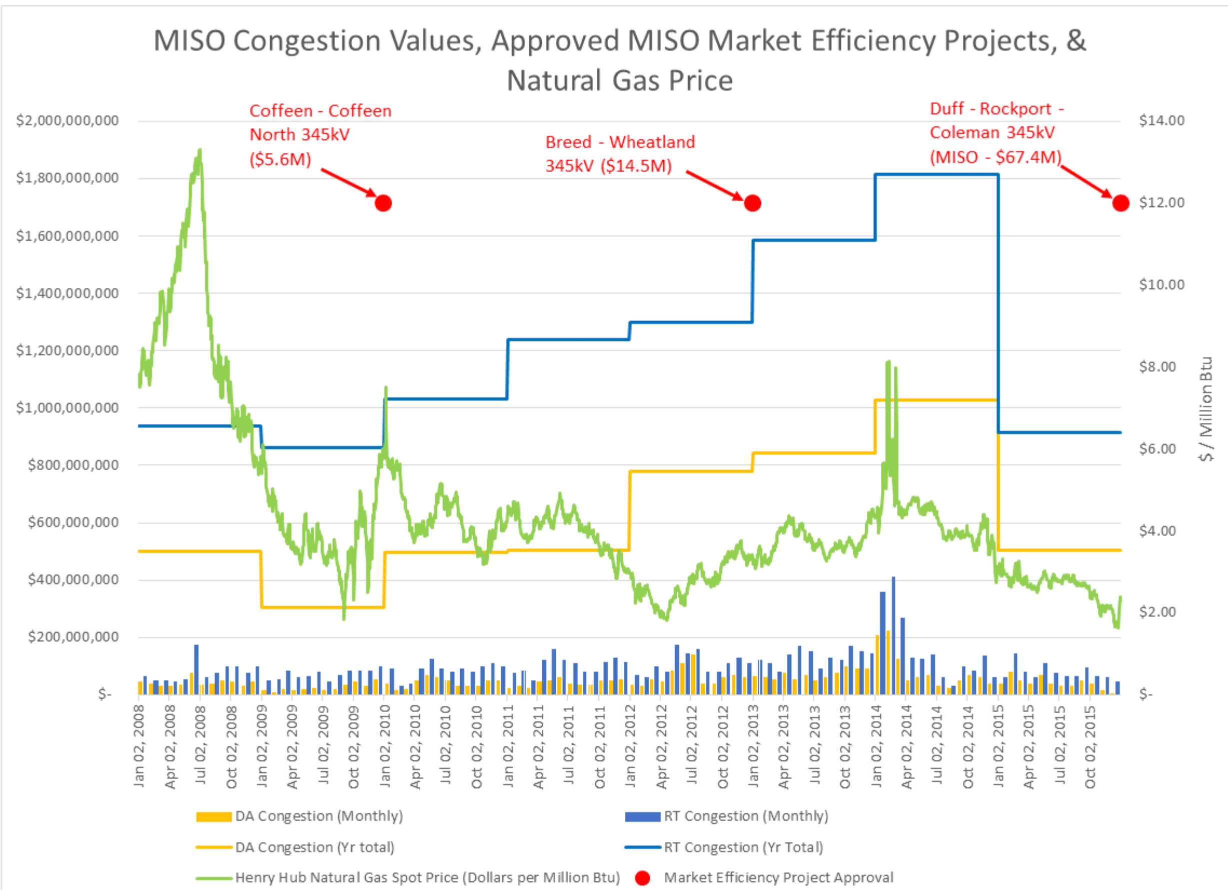
> ***These congestion-related price signals*** *are valuable not only because they induce generation resources to produce at levels that efficiently manage network congestion, but also because they* ***provide longer-term economic signals that facilitate efficient investment and maintenance of generation and transmission facilities****."*

Transmission congestion is an impediment to the efficient dispatch of system resources to meet the customer demands of a wide region (MISO region and regions interconnected to MISO). As the IMM has identified, congestion is an effective longer-term economic price signal for transmission investment. Although MISO uses congestion as a means of identifying targeted facilities to study, little consideration is given to counting the reduction of congestion as a benefit. This seems counterintuitive. In fact the MISO MEP process loses site of constraints experienced in actual system operation and, rather, relies on widely-varying futures that tend to discount existing system issues, and the futures can even negate each other where beneficial solutions in one future may be of little benefit or even harmful in another future.

Some, including MISO, defend the status quo in both the regional and interregional spaces saying the current process works and that there are other drivers to why upgrades are not identified and approved. Some of these presumed drivers are further improvements in optimization of the markets, financial protections through hedging mechanisms, MVPs have mitigated future congestion, and recently the lower natural gas prices that the industry has experienced. Although these drivers could all be reasons for some level of protection against transmission congestion exposure, NIPSCO contends that the main reason is the MEP process needs improvement. The models, using lower than average demand growth rates, aggressive resource replacement, and expansion and siting practices (based on widely varying futures) tend to discount real system issues and the metrics fail to capture all system benefits. The following graph supports NIPSCO's contention that there is a significant need to mitigate transmission congestion, as from 2008 – 2014 there has been a steady increase in overall system congestion across MISO while natural gas prices were falling. Again, MISO has experienced over $6 billion in real-time congestion from 2008 – 2015. In 2015 there was a change in system congestion which some attribute to lower natural gas prices. NIPSCO would suggest that correlation does not equal causation especially for one year as similar natural gas prices were experienced throughout this period. In fact the last time that MISO experienced similar system congestion values as to those experienced in 2015 was in the 2008 – 2009 timeframe when natural gas ranged from $4 - $13 per Million Btu.



Note: Congestion values exclude MISO South. Congestion value source – MISO Independent Market Monitor. Gas price source – U.S. Energy Information Administration

One major oversight negatively impacting the effectiveness of MISO's regional MEP process—which NIPSCO is more sensitive to then other MISO members–is the lack of a functioning interregional process that is integrated with the regional process to ensure issues are identified and optimized across the RTOs. MISO and its neighbors continue to realize congestion along shared transmission paths along the seam. This leads to Market-to-Market payments as an unhedgeable congestion exposure from one RTO to the other. The RTOs often do not have the same outlook on future interregional constraint congestion due to modeling and criteria differences. These interregional constraints often fall through the cracks of each region's process or solutions are not optimized across both RTOs and congestion is not fully addressed. Interregional economic transmission solutions are needed to reduce the areas of exposure discussed among other drivers. Additional discussion on this topic can be found below.

The greatest opportunity to release the log jam of transmission projects within the RTOs that will open up development opportunities lies in the Market Efficiency space. Since 2008 there have been three MEP projects within MISO amounting to $87.5 million or 0.5% of the total transmission investment approved through their MTEP. This was all during a time in MISO with increasing year-over-year congestion with falling natural gas prices, yet, even under these circumstances, the MEP process could not identify any projects on the MISO system that could be justified to reduce that congestion. NIPSCO suggests that the Commission should focus its efforts on future improvements within the RTOs' planning processes 1) on models that reflect the actual system needs now and into the known future 2) with metrics that recognize system benefits both regional and interregional 3) ensure solutions are properly identified and optimized across the impacted RTOs.

VI. Interregional Planning Implications

Understanding that this panel's focus is on Regional Planning, I will keep comments here concise. NIPSCO appreciates recent progress on the MISO/PJM seam with the Commission's Order in EL13-88, NIPSCO's Seams Complaint against MISO and PJM filed in 2013. NIPSCO's concern is the general direction where some stakeholders, including MISO and PJM, want to phase out interregional planning and rely solely on the RTOs' separate regional processes to identify system issues and vet solutions. This approach will fail to identify interregional issues and fail to produce solutions due to the significant differences in the RTOs' regional processes and the fact that each RTO will only study their own impact on interregional constraints, underestimating 50% of the equation to capture the other RTO's impact on those same facilities.

NIPSCO asks that FERC reject the RTO's proposed approach to solely rely on their separate and differing regional planning processes (further discussed below) to somehow now perform interregional planning. NIPSCO suggests that the Commission maintain their approach in the Order for EL13-88 when the Order is read as a whole, the process for the MISO-PJM interregional MEP analyses are to occur based on a specified timeline (see PP 54, 57), using a joint Coordinated System Plan (CSP) model (see P 90), identifying projects 100 kV and greater with no cost threshold (see P 131), and with benefits calculated from the studied joint CSP model by each RTO using their MTEP or RTEP regional benefits metrics for purposes of interregional cost allocation (see PP 132, 133).

Differing Regional Processes

In October of 2014, as part of the last joint economic study performed by the RTOs, MISO and PJM presented background material on their separate regional processes and performed a comparison between the two processes. MISO and PJM emphasized how different their individual planning processes were and how they would unlikely produce the same results. One summary item shared by MISO and PJM – "Differences in regional planning can cause significant cost shifts between regions". For reference the slide decks describing the regional differences between MISO and PJM can be found at:

- http://www.pjm.com/~/media/committees-groups/stakeholder-meetings/ipsac/20141024-midwest/20141024-overview-of-miso-and-pjm-baseline-planning-process.ashx
- http://pjm.com/~/media/committees-groups/stakeholder-meetings/ipsac/20141002/20141002-miso-pjm-joa-ipsac-series-on-metrics-and-process-review-of-pjm-planning-process.ashx
- http://pjm.com/~/media/committees-groups/stakeholder-meetings/ipsac/20141002/20141002-miso-regional-planning-overview.ashx

MISO and its neighbors continue to realize congestion along shared transmission paths along the seam. This leads to Market-to-Market payments as an unhedgeable congestion exposure from one RTO to the other. The RTOs often do not have the same outlook on future interregional constraint congestion due to modeling and criteria differences. These interregional constraints often fall through the cracks of each region's process or solutions are not optimized across both RTOs and congestion is not fully addressed. Issues exist in the regional processes with using proper metrics in the planning process to identify and justify needed projects. Issues include, but not limited to, how congestion is priced into the metrics and what hedging assumptions should be considered. Differences exist on fundamental items like study timeline alignment, targeted constraint selection criteria, project eligibility, and modeling differences, all of which lead to disconnects between the RTOs and missed opportunities to improve the system along the seams.

One example that NIPSCO provided in EL13-88 was a fundamental modeling disconnect observed between MISO's and PJM's regional models. In this example there was a difference of 22,179 MW of modeled generation capacity between the two RTOs' models for roughly the same time period (2024 & 2025). This large of a difference can lead to different powerflow and congestion patterns obscuring the parts of the system where MISO and PJM should be focused on finding interregional solutions.

Regional to Regional Comparison				
		MISO MTEP15 Business As Usual 2024	PJM RTEP14 Base Case 2025	MW Difference (MTEP15-RTEP14)
PJM (Capacity Modeled [MW])	Total Wind	42,229	17,724	24,505
	Total CC	35,800	46,375	(10,575)
	Total CT	36,046	33,940	2,106
MISO (Capacity Modeled [MW])	Total Wind	18,822	19,718	(896)
	Total CC	34,347	27,190	7,157
	Total CT	33,002	33,120	(118)
Total Capacity Modeled [MW]		200,246	178,067	22,179

VII. Conclusion

NIPSCO suggests that the Commission should focus its efforts on future improvements on Market Efficiency project types within the RTOs' planning processes and ensure that 1) models reflect the actual system needs now and into the known future 2) metrics recognize system benefits both regional and interregional 3) solutions are properly identified and optimized across the impacted RTOs. Additionally NIPSCO asks the Commission to reject MISO and PJM's proposal to rely solely on their differing regional planning processes to somehow take the place of joint interregional planning.