

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

Reliability Technical Conference  
North American Electric Reliability  
Corporation

Docket No. AD12-1-000  
Docket No. RC11-6-000

Public Service Commission of South Carolina and the  
South Carolina Office of Regulatory Staff

Docket No. EL11-62-000

(Not Consolidated)

**COMMENTS OF THE  
MIDWEST INDEPENDENT TRANSMISSION  
SYSTEM OPERATOR, INC.**

In accordance with the Federal Energy Regulatory Commission's ("Commission") request for comments in the subject proceeding, the Midwest Independent Transmission System Operator, Inc. ("MISO") respectfully submits the following comments addressing potential reliability risks related to compliance with Environmental Protection Agency ("EPA") regulations, and the tools and processes available to address such reliability concerns.

**I. INTRODUCTION**

MISO is a regional transmission organization ("RTO") charged with the operation and administration of the wholesale electricity markets in thirteen Midwestern states and one Canadian province. In this role, MISO assures industry consumers of unbiased regional grid management and open access to the transmission facilities under its functional supervision.

On November 9, 2011, the Commission issued an Agenda for a Reliability Technical Conference to be conducted on November 29-30, 2011 at the Commission's offices. A representative of MISO, Mr. Clair J. Moeller, Vice President Transmission Asset Management,

was invited to participate as a panelist on “Panel IV: Discussion on multi-jurisdictional processes” on November 30, 2011.

MISO has been considering potential reliability impacts of proposed EPA regulations for many weeks and has engaged in numerous stakeholder discussions and studies to better understand such potential impacts. For example, on October 13, 2011, MISO conducted a full-day EPA Rule Impact Workshop in its Carmel, IN offices to discuss potential impacts from the EPA’s Cross-State Air Pollution Rule (“CSAPR”). All MISO stakeholders were invited, as well as representatives from the EPA, to attend this forum.

MISO expects generation station retirements to eliminate all generation capacity above minimum capacity requirements. In aggregate the cost of compliance will be on the order of \$30 billion. The MISO markets had approximately 116,000 MW of generation and demand resources participating as of the summer of 2011. 72,000 MW of that capacity is coal fired generation; 62,000 MW of this coal capacity will require retrofit investments or replacement. Ranges of retrofit costs vary depending on size, vintage and current air quality control equipment installed. It is expected that 28,000 MW will require fabric filters at an average cost of \$150,000/MW, approximately 20,000 MW will require additional scrubber type control equipment with an average cost of nearly \$450,000/MW, and with 13,000 MW expected to retire as the cost to retrofit these generation stations is the same or higher than the cost to replace them at nearly \$667,000/MW.

Reliability in the Midwest will be severely challenged throughout the implementation period of the proposed rules. The compliance time allowed by the proposed rule and the time required to accomplish the installation of new control equipment or capacity replacement is exactly the same, meaning owners of all these units must remove them from service

simultaneously leaving inadequate generation resources to sustain reliable electricity supply. Obviously, 62,000 MW of generation cannot be removed from service simultaneously without interrupting loads in the region. In order for MISO to meet its reliability obligations, generator outage requests will be denied in order to maintain adequate supplies. The generation owners will thus face a conflict between complying with FERC tariff and NERC reliability requirements or EPA air quality rules.

MISO has joined with other regional grid operators to ask the EPA for some flexibility to give the generators more time to comply with the rules to keep some key units available to help maintain power system reliability. The EPA's proposed mercury rule, in particular, would hit the MISO system the hardest because most of the work needed to comply with this rule would occur during the 2014/2015 timeframe. The timing for implementation of the EPA regulations is problematic, in part, because it takes three to four years to retrofit or to replace a power plant. As a result, 62,000 MW of coal units could potentially be unavailable for reliability purposes - all at the same time. Even though most of these units would not necessarily retire, they would still need to be shut down for many months to install environmental control equipment to comply with the EPA regulations. There is also concern that the sheer volume of generation impacted by the proposed regulations will result in supply chain shortages for the necessary control equipment.

Finally, any new gas generation resources will need a steady supply of fuel. MISO is studying whether there would be enough capacity on the existing interstate pipelines to fuel any new gas-fired plants. The gas pipeline system in the Midwest, for example, was built for winter heating use. MISO will likely need to work with stakeholders to try to expand the capacity of the gas pipelines if more gas is used to run an increased number of gas plants in the winter.

## **II. DISCUSSION OF MULTI-JURISDICTIONAL PROCESSES**

### **A. The role of the Commission or the Department of Energy (“DOE”) in studying replacement generation or other reliability solutions due to retirement.**

MISO, in its role as the Regional Transmission Operator, is concerned with the reliable and efficient dispatch of electric energy and capacity in the wholesale market. The current suite of EPA regulations will impact the availability of fossil-fueled generation units, as some operators shut down units to upgrade (or retire) their resources in order to remain compliant with the new regulations. This confluence of required outages to perform upgrades consistent with EPA regulations poses the greatest concern to MISO.

To address this issue, MISO participated with several other ISOs and RTOs in a formal request to the EPA,<sup>1</sup> and requested that the EPA consider including an extension process to safeguard reliability. This “safety valve” would allow units identified through the retirement analysis as necessary to maintain grid reliability to run under an exemption until the appropriate reliability solution is implemented. Given the independent non-profit structure and fiduciary responsibilities of RTOs to ensure the reliability of the grid, RTOs would provide the necessary analyses and certifications to accompany any application from a unit owner for an extension if an RTO deems the unit a “Reliability Critical Unit” through the RTOs’ public planning process. For RTO-certified RCUs, the Commission would not need to further certify unit eligibility for “safety valve” treatment.

For non-RTO regions, given the lack of an independent system operator, the Reliability Safety Value regulations would provide for the initial transmission reliability studies to come

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<sup>1</sup> Joint ISO/RTO Comments in EPA-HQ-OAR-2009-0234.

from the local Planning Coordinator but, in the case of transmission reliability impacts, subject to certification by the Commission and, in the case of resource adequacy reliability impacts, subject to analysis by the relevant entity responsible for implementing reserve margin/resource adequacy requirements, with certification by the relevant regulatory authority, such as the states, in accordance with their relevant statutes.

In addition, MISO supports alternative proposals to mitigate any potential for decreased reliability, such as the proposal by Mr. John Hanger, of the Clean Air Task Force, to allow a targeted “Reliability-Only Dispatch” approach.<sup>2</sup> “Under Reliability-Only Dispatch, units only run when no other resource is available to meet electricity needs.”<sup>3</sup> This targeted approach dually serves reliability goals under the Federal Power Act as well as near term pollution reduction goals under the Clean Air Act. As opposed to a broad multi-year delay, it is logical and reasonable to allow MISO and other RTOs to plan for measured retirements; this means not removing the threatened resources prior to construction of alternative resources or transmission upgrades, so as not to diminish grid reliability.<sup>4</sup>

Any additional review processes by the Commission and/or the DOE that might prolong an outage would have a compounding negative effect on grid reliability. Conversely, any review

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<sup>2</sup> John Hanger, *Reliability Only Dispatch: Protecting Lives & Human Health While Ensuring System Reliability*, Clean Air Task Force (available at: [http://www.catf.us/resources/publications/files/Reliability-Only\\_Dispatch.pdf](http://www.catf.us/resources/publications/files/Reliability-Only_Dispatch.pdf)).

<sup>3</sup> *Id.* at 18.

<sup>4</sup> As an example of workable solutions related to reliability concerns that arise from retiring generation, in 2009 Exelon was planning to retire two electric generating stations, Cromby and Eddystone, in part, because of increased environmental regulations. Transmission upgrades were required to mitigate the adverse reliability impacts. Through a settlement consent decree, the units were allowed to retire on a staggered schedule, and until retirement, the units were able to be dispatched for reliability purposes. The Cromby-Eddystone Reliability Must Run Agreement demonstrates that reliability issues related to retiring electricity generation facilities may be identified through an review process, and operation may be limited to meeting reliability needs. Hanger, *supra*, at 20-23.

or study that will enhance reliability, including but not limited to a safety-valve or regulation exemptions would have a net positive effect on grid reliability.

**B. The role the retail regulator plays in forming bulk power system reliability plans.**

The state retail regulators have an important role to play today in preserving the reliability of the electrical grid. MISO currently coordinates many processes, including the annual resource adequacy assessment that verifies the aggregate result of the individual state integrated resource planning. This assessment has historically only looked for sufficient quantities of generation under normal planned and normal emergency outage conditions. It is MISO's intent to engage the states we serve to ensure that this unusual resource adequacy risk is well understood as the majority of our states carry a state statutory obligation to resource adequacy. This, potentially, may be another source of conflict for generation owners as they experience conflicting obligations to their states and the EPA. The safety valve proposal (described above) would provide regional solutions to a specific reliability constraint, but the magnitude of the relief required should not be overlooked. Relief from the application of the rules to maintain resource adequacy begs a host of new and complicated questions around how to judge which generators are allowed outages and in what order.

**C. Whether MISO supports the exemption process changes identified in comments to the Environmental Protection Agency ("EPA").**

MISO supports any effort to relieve the potential risk of substantial generation resources being removed from service simultaneously, including, but not limited to the Reliability Safety Valve proposal described below.

**D. The role the Commission may play in evaluating individual requests under a safety-valve approach.**

MISO believes that the Reliability Safety Valve approach enables the Commission to have a regulatory role in ensuring that any exemptions to EPA regulations are approved for reliability reasons only.

**III. NERC RELIABILITY STANDARDS**

Compliance with the array of EPA regulations is an “all-hands-on-deck” moment for both the electric utility industry and regulators. As Gerry Cauley, CEO of NERC, said, the “EPA, FERC, the U.S. Department of Energy (DOE) and state utility regulators, both together and separately, should employ the array of tools at their disposal to moderate reliability impacts, including, granting extensions to install emission controls where warranted.”<sup>5</sup> Regulatory compliance deadlines and the stringency of those regulations were specifically identified as primary concerns in NERC’s *2010 Special Reliability Scenario Assessment: Resource Adequacy Impacts of Potential U.S. Environmental Regulations*.<sup>6</sup>

Existing NERC reliability standards, however, appear to provide adequate tools for the assessment of reliability issues that could arise from the EPA rules. The reliability issues do not arise from EPA regulations due to any lack of analysis tools. Rather, the EPA instigated

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<sup>5</sup> U.S. House of Representatives Committee on Energy and Commerce, Subcommittee on Energy and Power, *The American Energy Initiative: Impacts of the Environmental Protection Agency’s New and Proposed Power Sector Regulations on Electric Reliability*, 112th Cong. (Sep. 14, 2011) (NERC Statement for the Record available at: <http://www.nerc.com/fileUploads/File/News/Statement%20for%20the%20Record%20-%20Committee%20on%20Energy%20and%20Commerce%20091411.pdf>) (hearing record available at: <http://energycommerce.house.gov/hearings/hearingdetail.aspx?NewsID=8896>)

<sup>6</sup> “Coordinating an industry-wide environmental control retrofit effort creates considerable operational challenges to manage the maintenance schedules of what may be hundreds of retrofits in a short period of time.” *Id.* (discussing concerns in the Statement for the Record) (referenced report available at: [http://www.nerc.com/files/EPA\\_Scenario\\_Final\\_v2.pdf](http://www.nerc.com/files/EPA_Scenario_Final_v2.pdf)).

reliability issues arise from concerns with the effectiveness and timeliness of communication of plans between generators and transmission providers, and the time required to address impacts of simultaneous shut-downs. NERC reliability standards are sufficient to enable adequate reliability, provided that: (1) the tariff provisions of transmission providers provide for notification of definitive generator change of status plans with sufficient lead time to assess and implement solutions; (2) “safety valve” provisions are available to handle exceptional cases that reduce the ability to provide adequate notification time; and (3) RTOs are allowed to request relief when there appears to be insufficient resource to maintain aggregate resource adequacy. NERC reliability standards do not appear to be insufficient, alone, to ensure reliability where compliance with EPA regulations may force generation into unplanned retirement.

The broad net cast by an inquiry into the adequacy of NERC standards does not catch the concern that a potentially large number of resources may have to come out of service either for upgrades to environmental control systems, or to mothball, or to decommission because of the inability to economically meet new environmental regulations. As proposed in the September 14, 2011 Congressional testimony, an additional tool is needed to exempt specific resources that are needed for reliability purposes from new environmental regulations, if the closing of those resources would harm reliability.

#### **IV. FINANCIAL CONSIDERATIONS**

Currently, MISO does not know the exact number of plants that will choose to mothball rather than to comply with new environmental regulations. This uncertainty, when combined with a dearth of new dispatchable generation coming on-line in the near term, causes concern.

Uncertainty is a business risk, and the current suite of environmental regulations have increased uncertainty.

This uncertainty includes the risk that new generation may not come online in sufficient time to fill the void left when affected generation resources are shut down. The overall economic growth in the MISO Region has not diminished the concerns of reliability during peak periods. This is why the timing of when resources may be out of service for potential upgrades is of critical importance.

The retirement of a significant amount of the existing coal fleet will put pressure on meeting the future demand and energy growth. Currently, the MISO system enjoys surplus capacity. However, MISO expects that the result of compliance with these rules will be the elimination of the current surplus. A sudden removal of surplus capacity from the system coupled with near-term load growth is worrisome as risk of resource adequacy will increase. Supply-side resources will most likely require a minimum 3-year lead time to develop. Such an estimate is naturally dependent upon the type of technology implemented to meet the demand and energy needs. Demand-side resources may be capable of faster implementation, but all new resources require more lead time than the current EPA regulatory schedule suggests.

There are also administrative barriers between RTOs that prevent customers from accessing compliant resources, either Demand Side Management resources or traditional generation capacity in an adjoining region. The commission should direct RTOs to eliminate these barriers so that the lowest cost of compliance can be achieved for end use customers.

## V. RELIABILITY CONSIDERATIONS

Many of the coal generation facilities that will be impacted by the subject EPA regulations are baseload facilities (*i.e.*, units that generally participate in the energy market during both peak and non-peak conditions) that normally are dispatched by MISO to meet system load conditions. If such resources retire or operate under reduced conditions due to environmental constraints, MISO will be required to dispatch peaking units (*i.e.*, units that primarily operate during peak load conditions) more frequently than it has in the past. Although such dispatch changes will present some operational issues, the larger impact to MISO will be the likelihood that energy prices will be higher to reflect the typically higher operating costs for peaking units than for baseload units.

The implementation of proposed EPA regulations would not fundamentally change how the operators dispatch their units. The regulations may limit available capacity or increase start-up time based on the changes made to the unit characteristics;<sup>7</sup> however, any changes to the operations of the unit would be reflected in the unit offer and parameters. MISO's Day Ahead Market process, reliability assessment and unit commitment processes, and unit dispatch system process would respect the new unit offers and parameters. Increase in start-up times may require decisions to be made well before the time the unit is needed. This may have an impact on efficiency due to the fact that several things may change after the commitment and prior to the unit coming on line; some of these variables are changes in load forecast, scheduled interchange and wind forecast.

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<sup>7</sup> There are several variables that impact ramping capability and MISO continues to monitor and evaluate our ramping capability. This could impact and change our limits for managing import and exports. It could also require increased commitments to manage ramp requirements.

MISO is evaluating potential impacts to blackstart facilities (*i.e.*, facilities that can independently produce electricity after a system load shedding event) if facilities that provide such services will be adversely impacted by the subject EPA regulations. The biggest blackstart effort likely will be by the Transmission Operators to modify their restoration plans to address impacts on: (1) increasing time it takes to restore after a blackout occurs, since they will have fewer blackstart islands to build in parallel; and (2) their ability to meet nuclear plant requirements if it requires offsite sources from farther away. MISO does not impose requirements on Transmission Operators to have blackstart capability since they can obtain cranking power from neighbors. As for coordination, once the restoration plan is revised and shared with MISO, it will review the blackstart plans for inconsistencies with MISO's strategy or conflicts with the details of other plans. By 2013, MISO will be required to approve such plans based on specified criteria; however, such review will be very general (*e.g.*, clear descriptions of the cranking paths, equipment, synch points, etc.).

If a blackstart unit intends to retire, because of the potentially negative effects upon reliability, the MISO Tariff System Support Resources procedures include a requirement that any Market Participant planning to decommission, place into extended reserve shutdown, or disconnect any Generation Resource must notify MISO of such events by submitting an Attachment Y, documenting the proposed plans, a minimum of twenty-six (26) weeks prior to taking action. MISO reviews such requests and evaluates the reliability impacts of changed status, including the potential impacts to blackstart planning. The Transmission Owner associated with a blackstart unit must address any contracts, between the unit and itself, prior to the unit retiring. Blackstart units in MISO that are under contracts or agreements with the associated Transmission Operator for such services will need to address contract provisions prior

to retiring. Any changes to the Transmission Operator restoration plans would be coordinated between the Transmission Operator and MISO.

## **VI. PLANNING CONSIDERATIONS**

MISO annually updates its system models to reflect known changed conditions. When MISO is able to ascertain the likely impacts of the EPA regulations on the resources available to serve load during peak and off-peak seasons, MISO will input such changes and create updated network planning models. These new models will consider, among other factors, the need to modify existing ramping procedures to increase or decrease system resources to respond to rapid load changes.

MISO believes that existing planning policies that are enumerated in Order 1000 (and which are currently being implemented by MISO) will remain relevant and appropriate after the subject EPA regulations are implemented. These planning protocols, which are predominantly found in Attachment FF of the MISO Tariff, are sufficiently robust, open, and flexible to take into account planned resource retirements and changes to the dispatch of the MISO system.

Although MISO currently obtains large quantities of planning data from applicable stakeholders as part of the planning procedures, the subject EPA regulations will likely require MISO to obtain additional information and data to ensure that it can properly plan for potential resource retirements, etc. MISO has already begun a study, for example, to determine the near-term impacts of compliance with the final CSAPR regulations and potential impacts of a final MATS regulation. As part of this process, MISO circulated a survey to stakeholders to obtain additional relevant data and information and requested responses by November 29, 2011.

MISO does not have all of the required data to be able understand the process that generation resources will use in deciding whether to retire a particular facility. MISO believes, however, that a key element of such a decision is the timing and capabilities of transmission facilities that are able to transmit power to markets. To the extent that such generation owners have more advanced notice of decisions to invest in new transmission, MISO believe that such entities will be able to make better and more informed facility retirement decisions.

The Commission's Standards of Conduct establish some legal obstacles to the ability of generation facility owners to coordinate their decision-making more closely. In addition, federal and state antitrust laws and regulations can impact the ability of generators to discuss future energy and capacity prices and to coordinate activities. MISO believes that it would be more efficient to avoid potential market manipulation by encouraging RTO coordination of regional planning decisions (as is currently done), rather than to amend the Commission's Standards of Conduct or to create reliability exemptions from the antitrust laws. MISO currently maintains a large amount of Confidential Information from generation resources to enable it to conduct system planning without creating potential market manipulation concerns by parties exchanging such data directly. MISO also works closely with Load Serving Entities to develop forecasts of future load conditions in order to reliably have sufficient generation resources in the right locations to meet future demands.

The retirement of a significant amount of the existing coal fleet also will put pressure on meeting the future demand and energy growth. Currently, there is a surplus of capacity on the system, in general, that would allow for time to meet future growth with existing and new resources on the system. However, if the current surplus is removed from the system, then timing is an issue for future resource needs especially if growth occurs within the next few years.

Lead time for supply-side resources will most likely require a minimum of 3 years, depending on the technology implemented to meet the demand and energy needs. Demand-side resources may be implementable sooner, but it will still take some time. Reduced operation of units may thus affect near-term resource adequacy. For example, retirement of 13 GW of coal-fired generation would cause MISO's current projected reserve margin for 2016 to plunge to 8.3 percent; this would be 9.1 percent short of MISO's current required 17.4 percent reserve margin.

MISO and several other RTOs are concerned that given the tight timeframe for compliance, unit retirements may adversely affect reliability before an appropriate solution can be implemented. The pending EPA regulations and potential impact on generator operations highlights the need for coordinated planning between generator owners and market transmission providers. Tariff provisions generally do not address means for this coordination to occur except under rigidly-defined interconnection procedures, or in some cases retirement procedures such as the MISO System Support Resources ("SSR") procedures. Close coordination of analyses to understand the reliability impacts of generator decisions is further inhibited by legitimate confidentiality concerns for market sensitive information and open access limitations of information exchange. MISO agrees with the concept that given such limitations, coordination of transmission and generation plans will necessarily be suboptimal in certain circumstances and give cause for ensuring that there are "safety valve" provisions available to maintain reliability in these cases.

## VI. CONCLUSION

MISO respectfully submits these comments on the subject reliability issues to assist the Commission in understanding the potential reliability risks associated with proposed EPA regulations.

Respectfully submitted,

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