

**ORGANIZATION OF MIDWEST ISO STATES
RESPONSES TO GRAHAM EDWARDS' REQUEST
REGARDING MISO'S RESOURCE ADEQUACY REQUIREMENTS PLAN
PHASES I AND II**

Midwest ISO's Role Regarding Resource Adequacy

INTRODUCTION:

The following exercise reflects the OMS Resource Adequacy Working Group Staff members' discussion of issues raised by a series of questions sponsored by the Midwest ISO under CEO Graham Edwards' name. The Midwest ISO requests responses from Stakeholders to these questions by October 11, 2006.

It should be noted that many of the Midwest ISO's questions are unclear. In these instances, greater clarification by the Midwest ISO is recommended to aid the OMS in responding more appropriately. In other instances, OMS efforts with respect to an issue may not have progressed sufficiently to allow a response at this time.

1.0 Demand Resources

MISO asks:

Typically states have dictated the level of demand response for parties under its jurisdiction. RTOs are in agreement that even a small amount of demand response participation in its wholesale markets can significantly dampen price volatility and mitigate potential market power.

What role should the RTO along with the individual states in the Midwest ISO footprint play in promoting demand response?

1.0 - OMS Response:

Demand response is primarily the responsibility of the States. The Midwest ISO should facilitate a market that recognizes the value of demand response.

1.1 - MISO asks:

What studies and analyses should the Midwest ISO do to estimate the value of demand response in its markets?

1.1 - OMS Response:

It is critical that the Midwest ISO develop a standardized method of evaluating and quantifying the benefits of demand response resources in its markets. Indeed, the modeling and analysis required to estimate the value of demand response resources will be a difficult process. Accordingly, the OMS supports the Midwest ISO's efforts to address demand response issues through its Demand Response Task Force under the chairmanship of Iowa Utilities Board Chairman John Norris, as it provides an opportunity for both the Midwest ISO and its

stakeholders to both contribute to the process and develop a better understanding of the issues associated with demand response. The Midwest ISO should note that the OMS is considering the formation of an OMS Midwest Demand Response Initiative (MWDRI) to work either in conjunction, or in parallel, with the Midwest ISO Demand Response Task Force. Commissioner Robert Lieberman, Illinois Commerce Commission, has volunteered to serve as chair of this OMS initiative. The particulars of MWDRI currently are under development.

1.2 MISO asks:

How should the Midwest ISO incorporate demand response in its MTEP process?

1.2 - OMS Response:

Under the traditional planning process for transmission expansion, load forecasting can be affected by demand response and change the MTEP over time.

1.3. MISO asks:

How should the Midwest ISO estimate the reliability benefits of demand response?

1.3 - OMS Response:

Before the Midwest ISO can estimate the reliability benefits of demand response, it must (a.) first be able to determine the value (price) of demand response, (b.) develop a mechanism that is cognizant of demand response efforts, and (c.) follow through by assuring that demand response is deliverable to the market.

There are two ways to measure reliability benefits when using resource adequacy at a given level of planning reserves resulting from the calculation of Loss of Load Expectation (LOLE). The load side of the LOLE calculation, adjusted for the uncertainty primarily due to weather, is measured at the forecasted peak.

A. The first measurement will determine the amount of planning reserve required to reduce the probability of the Loss of Load (load not being served).

B. The second calculation adds demand response to the calculation of LOLE. This decreases the expected value for peak loads as loads are reduced by the reduction in demand with the corresponding reduction in amount of capacity required to serve load. This second measure would then allow the Midwest ISO to set a value for the level of demand response using the avoided cost of peaking capacity.

1.4. MISO asks:

What should be the Midwest ISO's role in meter data quality?

1.4 - OMS Response:

The OMS needs clarification of the Midwest ISO's view of the definition, scope, and intent of a "role" for the Midwest ISO in metering issues.

1.5. MISO asks:

Should MISO set standards regarding meter data quality?

1.5 - OMS Response:

American National Standards Institute (ANSI) has Codes that are generally used by utilities for electric meter installations and accuracies –which translates into meter data quality. Most state commissions use these national standards as a basis to develop rules on electric metering. Shouldn't MISO be using these standards and codes that have been industry standards for many years? If this is not what Midwest ISO intends to use, then Midwest ISO needs to clarify and explain this question so OMS can provide an appropriate response.

1.6. MISO asks:

How would MISO enforce these standards?

1.6 - OMS Response:

See OMS response to 1.5 above

1.7. MISO asks:

What would be the role of the states commissions and OMS regarding meter data quality standards?

1.7 - OMS Response:

See OMS response to 1.5 above.

1.8. MISO asks:

Are revenue-quality meters required throughout the Midwest ISO footprint in order to implement demand-side management? If yes, what should be the approach for implementing this standard and assigning costs to customers?

1.8 - OMS Response:

This issue is much more complex than the quality of meters. One must ask how demand response can be audited and verified? How will the Midwest ISO interface with the load-serving entities? Finally, how will the load serving entities interact with the retail customers participating in demand response programs under State initiatives. More process information is needed before a response to these questions can be formulated.

2.0 Long-Term Financial Transmission Rights (FTR) & Energy Contracts

2.0. MISO asks:

LT energy contracts & LT FTR are important risk management tools that MPs can use to ensure against price volatility

What role should the RTO along with the states play in promoting these LT instruments?

2.0 - OMS Response:

The question of long-term FTRs has been addressed by the FERC and the Midwest ISO will be required to file a proposal that addresses the FERC rules on this issue. The OMS will be pleased to work with the Midwest ISO on the design of long-term FTRs and provide input, both through working group involvement in the MISO's Transmission Rights Task Force and through feedback from the OMS Board of Directors' review of any Midwest ISO long-term FTR proposals.

Long-term Contracts for transmission service may require new construction or upgrades to existing transmission facilities to accommodate changes in load growth. Long-term FTRs may be needed to hedge against congestion and the higher cost of redispatched power. When energy contracts are executed there is no guarantees of uncongested deliverability unless the parties are interested in paying the price of investment to relieve that congestion and improve deliverability.

3.0 Resource Adequacy Metrics & Midwest ISO Transmission Expansion Plan (MTEP)

3.0 MISO asks:

The Midwest ISO's "Energy Only Market" Resource Adequacy plan relies more on markets than centralized command to ensure resource adequacy

How should the Midwest ISO in its MTEP process measure resource adequacy?

3.0 - OMS Response:

The MTEP process needs to focus on deliverability issues and indentify in conjunction with the States those delivery areas where resources, based on the current generation fleet, are inadequate to meet forecast demand.

3.1 MISO asks:

How should the Midwest ISO proceed in developing metrics to measure whether the objectives of Phase II are being met?

3.1- OMS Response:

The OMS supports the Midwest ISO working with stakeholders to develop objective metrics to ensure the completeness and feasibility of the market design, ensure the readiness of the Midwest ISO and other relevant parties to implement the new market design, and track actual costs and benefits of Phase II. However, the OMS also believes that the individual elements of Phase II are intended to be elements of good market-based energy policy. Accordingly, the Midwest ISO should endeavor to complete the work necessary to implement the elements of Phase II in a timely manner.

4.0 Seams Issue Resolution**MISO asks:**

Continued coordination to resolve seams issues with neighboring RTOs and non-market regions is important to the success of the Midwest ISO's resource adequacy proposal

We are soliciting Stakeholder feedback on this important element of Phase II

4.0 - OMS Response:

The Midwest ISO should work with its neighbors to address seams issues, so as to maximize operational efficiencies, facilitate competition and provide Midwest ISO market participants with access to the broadest range of resources possible.

The OMS supports the language in FERC's NOPR on Order 888 reform that would require all transmission providers, including the RTOs, to engage in coordinated, open and transparent transmission planning. Accordingly, the OMS encourages the Midwest ISO to develop a transmission planning process that considers the impacts of the Midwest ISO transmission plan on both sides of the Midwest ISO border. In particular, the Midwest ISO should strive to work in a cooperative manner with its non-MISO neighbors, at the sub-regional level, where expansion plans typically originate.

5.0 ERO 'Requirements' and Energy Only Market Approach**MISO asks:**

The Midwest ISO has stated that long-term reliability is the responsibility of the individual states in the Midwest ISO footprint

5.0 How does the Midwest ISO integrate ongoing efforts made by the ERO or its subsidiaries to force planning reserve requirements on MPs with its market-based ERO EOM approach?

5.0 - OMS Response:

Both MRO and RF have adopted a one-day-in-ten-year LOLE standard for planning reserve sharing groups within their regions. The question of how reserve requirements fit with MISO's EOM approach is determined by how the reserve sharing groups are willing to treat demand response resources in their calculation of reserve margins. In the past, any interruptible loads were treated as reductions to forecasted peak demands for which the utility was required to plan for generation supply to meet its reserve requirement. Thus, a 100 MW reduction in peak demand from interruptible load resulted in a reduction in 115 MW of generation capacity at a reserve requirement of 15 percent.

With interruptible load varying with the price of supply (energy and contingency reserves), the question will arise as to whether or not the reserve sharing groups will allow a perfect substitution of demand response for generation capacity, irrespective of the price level that is required in order for the demand response resources to be available. It is also likely to raise the question regarding the dependability of demand response resources and how the utility verifies that it has valid demand response resources available at various price levels.

If LSEs decide that generation is the most cost effective resource alternative, then there will be very few occurrences of shortage pricing. On the other hand, if a large number of LSEs decide that demand response is a more cost effective means for meeting reserve margin standards, then there will be much more frequent occurrences of shortage pricing.

There is nothing in the adoption of a planning reserve requirement such as the one day in ten years LOLE that prevents the Midwest ISO from having an energy only market.

6.0 Phase I Success

6.0. MISO asks:

The Midwest ISO Phase I portion of its Resource Adequacy plan intends to simultaneously co-optimize Ancillary Services with its Energy Markets

How should the Midwest ISO proceed in developing metrics to measure whether the objectives of the Phase I design are being met?

6.0 - OMS Response:

- Use the savings estimated in the April 3, 2006 filing to FERC as one standard to gauge the post Ancillary Services Market (ASM) savings.
- Metric suggestions:
 - Efficient dispatch results in reduced costs to utilities or balancing authorities

- Value of reductions in total costs of providing Phase I services exceeds total cost (MISO and other relevant parties' costs) of implementing Phase I and providing the associated services.
 - Fewer manual (or non-automated) disruptions to automated dispatch and other market operations (assuming such operations are optimal).
- Metrics should be transparent and sufficiently granular for control area or state by state analysis.
- The MISO Board will review the Proof of Concepts in November prior to voting whether to launch the ancillary services market. Only if the results are positive and the MISO Board approves the ASM, will the tariff changes be filed at FERC.
- Can MISO's Proof of Concepts lend itself to the creation of an objective set of Phase I implementation readiness metrics, so that MISO and stakeholders can use the Proof to assess MISO's readiness to implement Phase I? Assuming that the MISO board approves going forward with the ASM, it is suggested that MISO share the results of the Proof of Concepts with stakeholders and then file the results of the comprehensive and objective Proof of Concepts results at FERC.
- In considering metrics, it is currently unknown how many different sub-regions, and zones, will be needed in developing the Ancillary Services Market as the deliverability test results are not yet final. The ultimate design of the MISO Ancillary Service Market must recognize the multi-dimensional electric reliability and operational issues of the broad footprint. The MISO footprint may have many tiers of sub-regions and zones, depending on the functional purpose and timeframe of planning, implementation of the ancillary services market and real time operations.
- Finally, the use of metrics to evaluate the objectives of Phase I design can, in certain instances, be a useful endeavor.

6.1. MISO asks:

With Phase I's new co-optimized ancillary services and energy dispatch being critical for a secure operation of the grid, what metrics can MISO develop that will reflect the reliability of the grid during real-time operations (e.g. Loss of Load Probability [LOLP])?

6.1 - OMS Response:

- ASM should be quickly dispatched by MISO—just as responsive as or better than the local balancing authorities' provision of ancillary services.
- Phase I should provide the same level of reliability with lower total costs and less unnecessarily duplicative dependence on reserves.

- ASM should use the most efficient, cost effective generation for economic dispatch to provide each ASM product and the Energy Market the same reliability level or better with reduced costs.
- At the minimum, MISO should measure reliability using ERO standards.

6.2 MISO asks:

Are there any interim adjustments before Phase I and/or between Phases I & II that the Midwest ISO should consider?

6.2 - OMS Response:

- Phases I and II should first be clearly defined by business rules, tariff provisions, and other necessary supporting documentation.
- Phase I assessment using above metrics and ERO standards is needed after ASM start up..
- Assess lessons learned; identify changes needed; begin implementation or scheduling changes.
- Success of ASM is the foundation for long-term Resource Adequacy success.
- A robust ASM will help facilitate long term Resource Adequacy.
- The OMS supports the Midwest ISO working with stakeholders to develop objective metrics to ensure the completeness and feasibility of the market design, ensure the readiness of the Midwest ISO and other relevant parties to implement the new market design, and track actual costs and benefits of Phase I. The OMS also believes that the Midwest ISO should endeavor to complete the work necessary to implement the elements of Phase I in a timely manner.

6.3 MISO asks:

Scarcity pricing is a market design element that provides the appropriate price signal to support reliable dispatch and encourages MPs to make their resources available for dispatch and supports long-run reliability

How should the Midwest ISO in its energy only market approach measure the success of its scarcity pricing design element?

6.3. - OMS Response:

Measuring effects of the ASM scarcity pricing element separate and apart from effects of other resource adequacy policies and programs would be very difficult, if not impossible. The

Midwest ISO should measure the overall success of resource adequacy policies and programs by measuring investment in supply- and demand-side resources. The adequacy of such investment could be measured by the frequency and duration of involuntary load curtailments. The lesser the frequency and duration of involuntary load curtailments, the more success.

The level, frequency and duration of scarcity prices would not be a good measure of success, because those measures would be functions of several factors, including regulators' and utilities' risk preferences and real-time grid conditions. That is, stakeholders could rationally prefer and, by their own actions, create different levels of exposure to scarcity prices.

It is important to emphasize that if an LSE decides that generation is the most cost effective resource alternative, then very few occurrences of shortage pricing will occur. On the other hand, if many LSEs decide that demand response is a more cost effective means for meeting reserve margin standards, then shortage pricing will occur more frequently.

Finally, the discussion of scarcity pricing may cause an initial reaction of public alarm. Although the question above asks for measures of success of the design of scarcity pricing, the OMS has the following initial reactions to ASM scarcity pricing:

- Proper scarcity pricing is a vital component of a robust and vibrant RTO energy market.
- Market participant exposure to true energy prices during scarcity conditions should not occur until market participants have available the necessary methods and tools to manage or mitigate the risk of exposure to scarcity prices.
- Scarcity pricing should reflect actual (or accurately projected) local supply and demand conditions.
- Scarcity pricing should only be charged to a utility if it did not participate in the day-ahead market. Scarcity pricing should be called upon subsequent to all demand response measures in the ancillary services market.
- Scarcity prices should rise in increments that accurately reflect local supply and demand conditions.
- Concerns exist regarding potential inflexible generation bidding into the ancillary services market. Therefore, design the ancillary services scarcity market to encourage generator flexibility, thereby reducing unproductive or inefficient bidding strategies.
- The Value of Lost Load (VOLL) is a proposed component of the equation to derive scarcity prices. To date, little information has been provided how VOLL will be derived from a practical and real world perspective. Although it has been suggested that state commissions could be responsible to derive VOLL, the state commissions need considerable information to better understand this economic theory before any consideration of this important responsibility. Absent a clear and practical understanding, better understood methods such as LOLE should also be considered.
- Measurable increases in the number and variety of strategies and tools that can be used by market participants to manage and mitigate customer exposure to scarcity prices.

- MISO should not implement any scarcity pricing mechanisms without careful consultation with the Independent Market Monitor, stakeholders, and FERC. Effective market power mitigation should be a prerequisite to the implementation of an energy only market and the ASM.
- Scarcity pricing should not be implemented until MISO demonstrates it can dispatch demand response in a non-discriminatory manner and until adequate planning reserves have been made.

As approved by the OMS Board of Directors
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