Highlights

• The 2020 Value Proposition study shows that MISO provides between $3.1 and $3.9 billion in annual net economic benefits to its region with over $30b to date.

• This value is provided through improved reliability, compliance, more efficient use of existing assets and reduced need for additional assets.

• MISO also provides qualitative benefits to the region that include price and information transparency, planning coordination and seams management.
The 2020 Value Proposition study shows that MISO provided between $3.1 and $3.9 billion in annual net economic benefits to its region.

This document details the annual value, background and calculation for each component of MISO’s Value Proposition.

What is the MISO Value Proposition?
The Value Proposition study is a quantification of value provided by MISO to the region, including the entire set of MISO market participants and their customers.

This value is provided through improved grid reliability and increased efficiencies in the use of generation resources enabled by MISO market operations.

Scope of the MISO Value Proposition
The Value Proposition study does not calculate savings received by individual market participants as a result of MISO membership.

The Value Proposition study does not calculate the value for any individual market sector or state. The study does not capture the complete value of MISO. For simplicity, all benefits with minimal value are excluded. Qualitative benefits, such as price and data transparency, planning coordination and seams management also are excluded as these are difficult to quantify.
**IMPROVED RELIABILITY**

**ANNUAL VALUE (in millions): $288 - $313**

MISO exceeds industry standards to improve reliability through:
- System Monitoring and Visualization
- Congestion Management
- Backup Capabilities
- Operator Training
- Performance Monitoring
- Procedure Updates

**COMPLIANCE**

**ANNUAL VALUE (in millions): $96 - $134**

MISO Compliance benefit covers:
- Standards Development
- NERC Compliance
- Tariff Compliance
- System Planning Compliance
- Operations Compliance

Operations ensures compliance per MISO’s multiple roles:
- Reliability Coordinator
- Balancing Authority
- Transmission Service Provider

To ensure compliance with these requirements, Operations manages the following activities:
- Internal and external audits, including self-certifications
- New and revised standard readiness
- Issues Assessments

Operations also fulfills attestation requests to support member needs to demonstrate compliance.
More Efficient Use of Existing Assets

DISPATCH OF ENERGY

MISO commits and dispatches generation more efficiently than a decentralized market.

ANNUAL VALUE (in millions): $329 - $363

REGULATION

The Ancillary Service Market reduces regulation requirements and improves commitment/dispatch efficiency.

ANNUAL VALUE (in millions): $128 - $142

HISTORICAL PERSPECTIVE

Before MISO, the region operated as a decentralized, bilateral market. Transmission operations and bilateral power transactions were characterized by physical transmission constraints managed with mechanisms that limited transmission utilization, had high transaction costs, low market transparency, pancked transmission rates, decentralized unit commitment and dispatch.

WHAT CHANGED WITH MISO?

MISO’s real-time and day-ahead energy markets use security constrained unit commitment and centralized economic dispatch to optimize the use of all resources within the region based on bids and offers provided by market participants.

The day-ahead market is a forward financial market for energy. Its clearing process produces a set of financially binding schedules according to which sellers are financially responsible to deliver, and purchasers are financially responsible to buy, energy at defined locations. The day-ahead market process is based upon a unit commitment model that minimizes total production costs over 24 hours. The primary purpose of the day-ahead market is to clear and schedule sufficient supply to satisfy cleared day-ahead demand, using the most economical generation resources. The real-time market dispatches generation resources to meet actual demand rather than bid demand. Real-time dispatch also is based on economics and dynamic congestion management.

HISTORICAL PERSPECTIVE

Prior to the launch of MISO’s Regulation Market, each Balancing Authority (BA) maintained regulation within its area. This often resulted in the BAs within MISO’s footprint working “against” each other – some regulating up while others were regulating down.

WHAT CHANGED WITH MISO?

With MISO’s Regulation Market, significantly less regulation is required within the MISO footprint. This is due to one centralized footprint regulation target rather than multiple non-coordinated targets across the footprint.

The Regulation Market also changed the pricing mechanism for regulation by moving from Tariff pricing to market pricing. This pricing change is not included in the Value Proposition as it is not a true economic benefit. The impact of market pricing, however, is reported in MISO’s monthly Market Operations report.
SPINNING RESERVES

THE ANCILLARY SERVICE MARKET also reduces spinning reserve requirements and improves efficiency.

ANNUAL VALUE (in millions): $60 - $67

HISTORICAL PERSPECTIVE

Pre-Contingency Reserve Sharing Group (CRSG)
Each Balancing Authority (BA) determined its spinning reserve requirement based on its individual (or Reserve Sharing Group) standards.

Post-CRSG/Pre-Ancillary Services Market (ASM)
Each BA determined its spinning reserve requirement based on the CRSG standards.

Post-ASM
MISO determines its spinning reserve requirement based on CRSG requirements.

WHAT CHANGED WITH MISO?
Starting with the formation of the CRSG and continuing with the Spinning Reserve Market, the total spinning reserve requirement has been significantly reduced. Reduced requirement frees up low-cost capacity to meet energy market needs.

The Spinning Reserve Market also changed the pricing mechanism for spinning reserves by moving from Tariff pricing to market pricing. This pricing change is not included in the Value Proposition as it is not a true economic benefit. The impact of market pricing, however, is reported in MISO’s monthly Market Operations report.

Reduced Need for Additional Assets

WIND INTEGRATION

ANNUAL VALUE (in millions): $450 - $517

MISO’s regional planning allows more economical placement of wind resources in the North/Central region.¹

Local design of wind generation build-out

Combination design of wind generation build-out

LOCAL DESIGN - Renewable energy requirements and goals met with resources within the same state as the load

COMBINATION DESIGN - Renewable energy requirements and goals met with local resources combined with regional resources in high ranking renewable energy zones

¹ The wind integration benefit is based on work done for the Regional Generation Outlet Study II and includes the MISO North/Central footprint only.
FOOTPRINT DIVERSITY

MISO members are able to have lower planning reserve margins as the planning reserves are shared across the footprint.

LOAD DIVERSITYexplained

The high temperature map illustrates that the peak for each Load Serving Entity (LSE) does not occur at the same time.

Prior to MISO, individual LSEs maintained reserves based on their monthly peak-load forecasts. Due to MISO’s broad and diverse footprint, LSEs now maintain reserves based on their load at the time of the MISO system-wide peak. This creates significant savings.

DEFERRED CAPACITY

Due to the diversity of MISO’s large footprint, on a peak load of approximately 124,865 MW, about 15,212 MW of required capacity is deferred. This is 560 MW lower than last year.

DEMAND RESPONSE

Demand Response (DR) defers additional generation investment.

BACKGROUND

MISO’s transparent price information aids market participants in making investment decisions related to existing and new load-reducing resources.

MISO recognizes and compensates four types of demand response:

- Demand Response Resource Type I (Energy / Capacity)
- Demand Response Resource Type II (Energy / Capacity)
- Demand Response as a Load Modifying Resource (Capacity)
- Emergency Demand Response (Energy during Emergencies)
Cost Structure

MISO costs are a small fraction of total benefits.

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<tr>
<th>COST RECOVERY CATEGORY</th>
<th>2020 (in millions)</th>
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<tr>
<td>Schedule 10</td>
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<td>Schedule 17</td>
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<tr>
<td><strong>Total Operating Cost</strong></td>
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Qualitative Benefits

In addition to the quantitative benefits, MISO also demonstrates significant qualitative benefits that wholesale market participants receive from the operation of MISO, including:

- Price/Informational Transparency
- Planning Coordination
- Seams Management

For More Information

Please see the Value Proposition Presentation and also the Value Proposition Detailed Calculation Description posted to MISO’s website.