



Indiana Energy Association (IEA)

2007 Energy Conference

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Discussion Outline

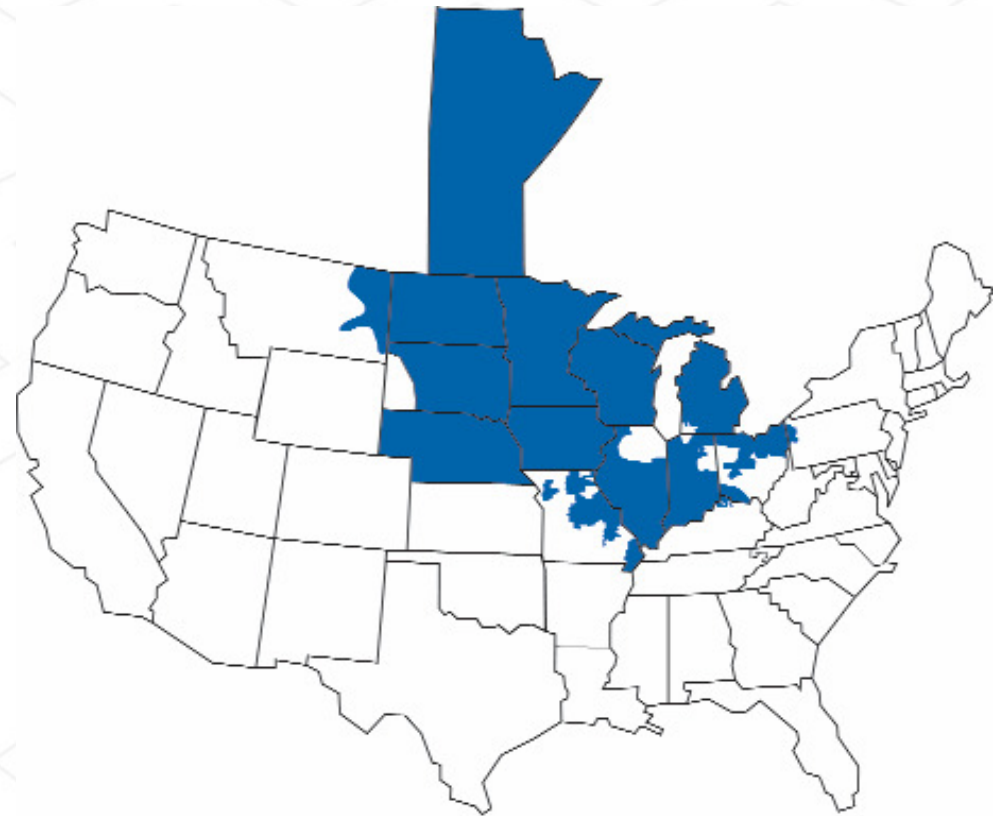


- Midwest ISO Overview
- Value of an ISO/RTO
- Ancillary Services Market (ASM) Update
- Demand Response
- Transmission Expansion

Midwest ISO Overview

Midwest ISO is an independent, non-profit reliability coordinator for the transmission of high voltage electricity via a security constrained economic dispatch across all or parts of 15 states and Manitoba

- ▶ Control centers in Carmel, Indiana and St. Paul, Minnesota
- ▶ Began Reliability Operations on December 15, 2001
- ▶ Began Tariff Administration and Scheduling Operations on February 1, 2002
- ▶ Market Operations since April 1, 2005
- ▶ Large footprint (~920,000 square miles)
- ▶ Multi-control area environment
- ▶ Over 300 Market Participants
- ▶ 5,200 generating units in footprint
- ▶ 93,600 miles of transmission lines
- ▶ Over \$2.4 billion settled per month (on average)

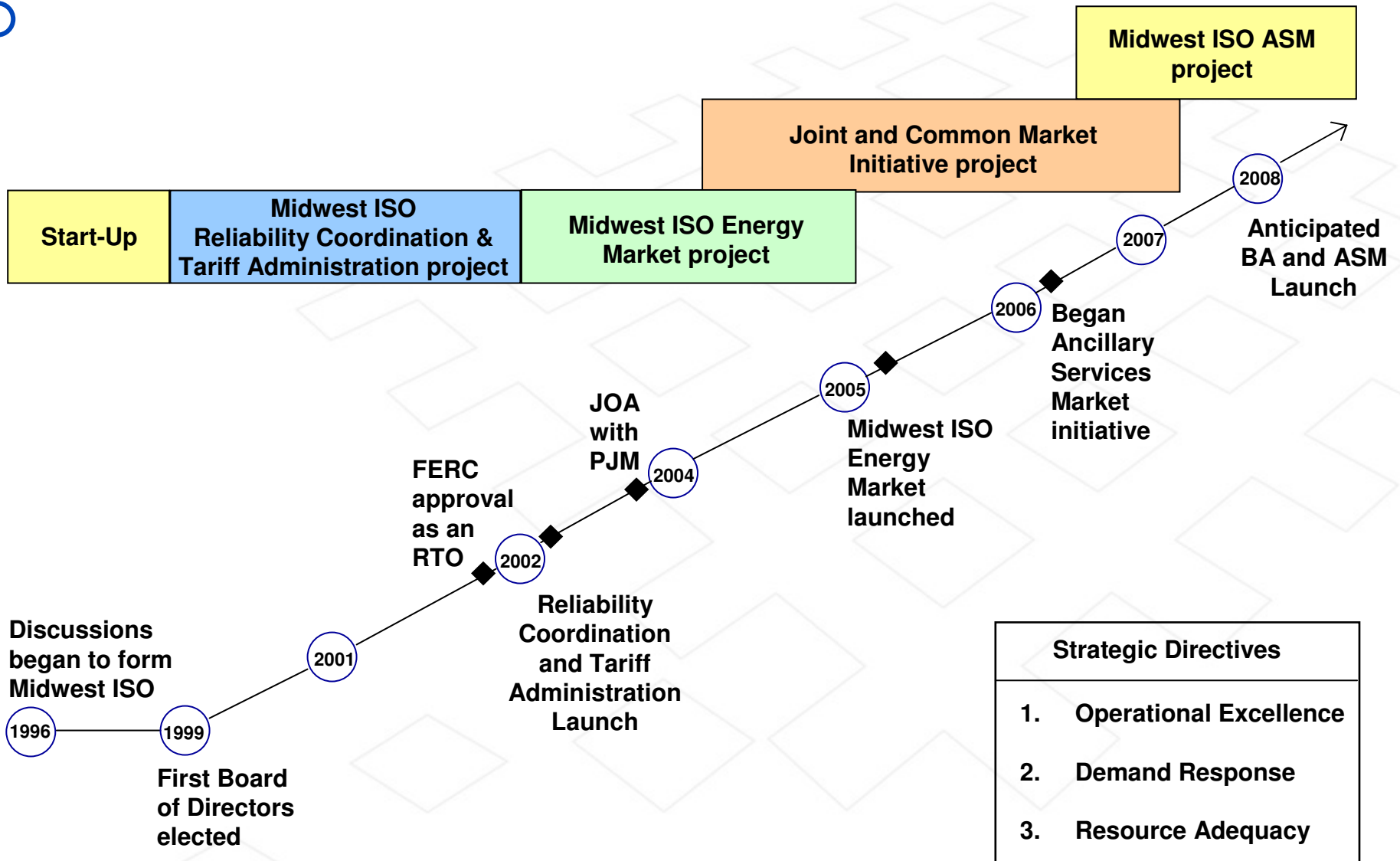


What We Do



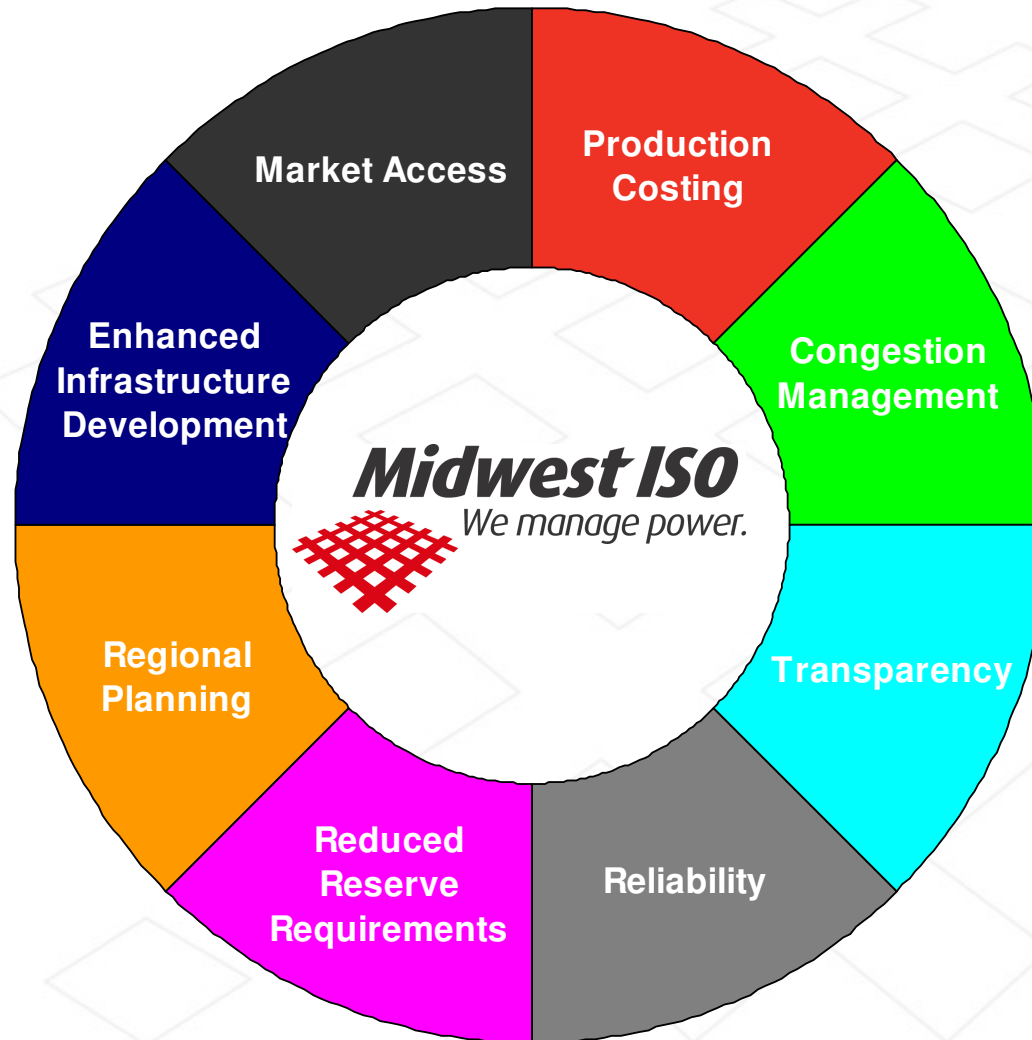
- **Provide Transmission Services and Tariff Administration**
- **Reliable Market and Systems Operations**
- **Regional Planning**

Midwest ISO Evolution



Strategic Directives	
1.	Operational Excellence
2.	Demand Response
3.	Resource Adequacy

Value of the Midwest ISO



Midwest ISO Aspirations



Fulfillment of these aspirations drove a new vision, mission and a series of strategic elements

Aspirations

- Deliver value to and be valued by our stakeholders
- Drive acceptance of market-based mechanisms to minimize congestion costs
- Enable an efficient wholesale platform
- Establish world class market operator credentials
- Provide requisite stewardship of underlying transmission assets
- Become essential to the optimization of infrastructure investments within the region
- Deliver accurate and timely information to enable improved market performance and investment
- Achieve recognition as the independent infrastructure planning authority
- Be integral to further development of the industry
- Establish a workplace characterized by continual employee development and professional growth

Vision and Mission

- Drive value creation through efficient reliability / market operations, planning and innovation
- Efficient Wholesale Power

Market Operations Highlights - 2007

- Market Enhancements
 - Available Ramp Capability (ARC) – dispatch operating reserves under appropriate situation
 - Refinement and enhancement of unit commitment procedures
 - Revised emergency operating procedures
 - Implemented daily market operations scorecard
- NERC Audit - Awarded 6 “Examples of Excellence” and 13 positive observations
 1. Dispatcher Training Simulator
 2. Voltage Stability Analysis and Real-Time Monitoring Tools
 3. State Estimator and Contingency Analysis Availability Tools
 4. Area Control Error (ACE) Tool
 5. Power System Restoration Simulation Exercise
 6. Operational Scorecard
- Contingency Reserve Sharing Group
 - Started 1/1/07
 - Has resulted in a 39% reduction in reserve obligation
 - Projected annual savings between \$59-118 million

2007 Summer Performance

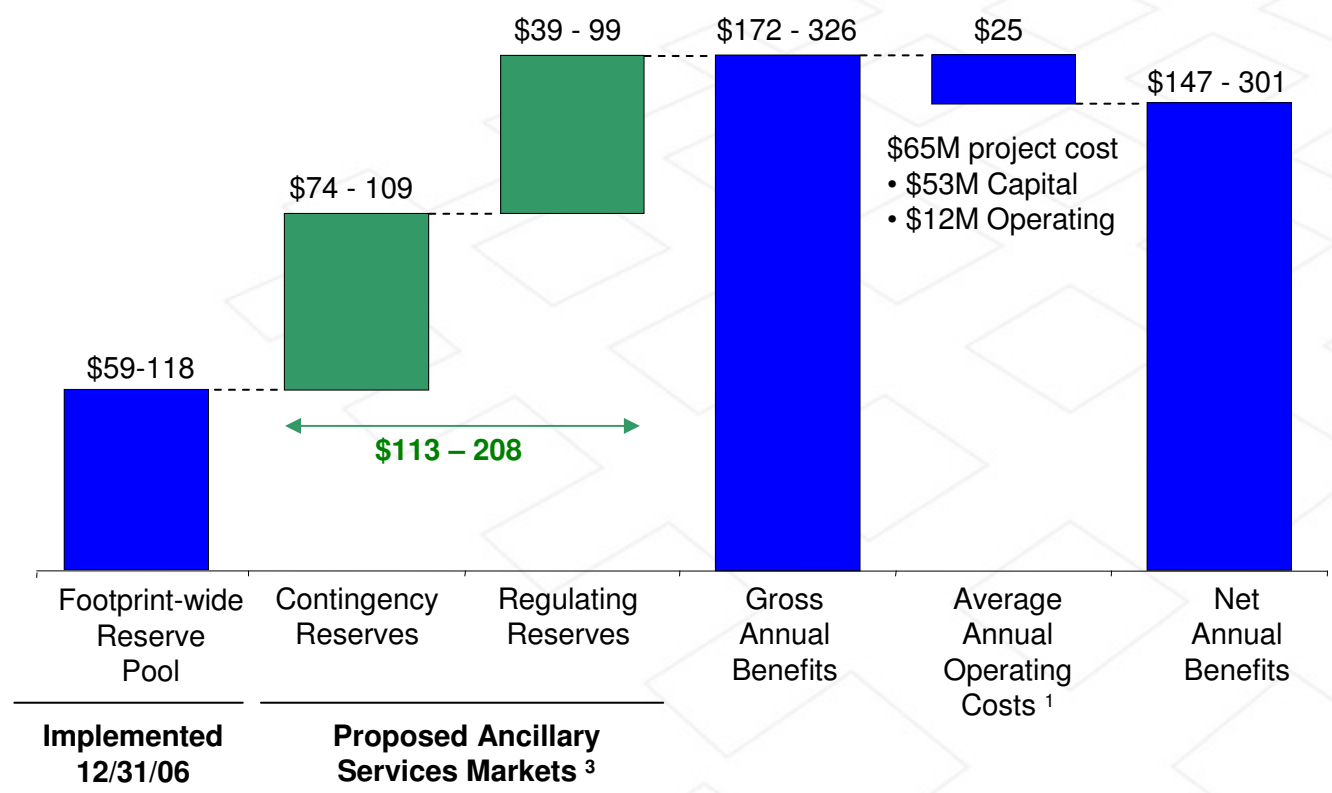
- Similar summer weather patterns in 2006 & 2007, but sustained heat not experienced across the entire Midwest (as in 2006)
 - 5 Indiana Balancing Authorities set new peak demand records (8/8/07)
 - 2007 Summer peak demand (as of 8/29) of 124,479 MW versus 129,647 MW in 2006 (excluding LG&E)
- Majority of Conservative Operations and Emergency Energy Alerts (EEA) were on Western portion of Midwest ISO reliability footprint
 - No EEA alerts greater than Level 1 called (transmission maintenance suspended and non-firm energy sales curtailed)
- Lessons learned from Summer of 2006 were effectively applied
 - Adequate Ramp Capability (ARC) procedure utilized 7 times
 - Generation/transmission emergency procedures improvements
 - Enhanced tools and data capture drove more efficient operations
- As done in 2006, the Midwest ISO will assess summer performance to ensure continuous improvement

Primary Objectives of ASM Initiative

- Increase the efficiency of the existing Midwest ISO Day-Ahead and Real-Time Markets while minimizing total costs
- Reduce fuel and O&M costs associated with the provision of regulating and contingency reserves
- Facilitate the transfer of certain Balancing Authority functions to the Midwest ISO
- Provide for efficient acquisition and pricing of Regulating Reserves and Contingency Reserves (collectively, “Operating Reserves”)
- Provide a platform for incorporating Demand Responsive Resources into the efficient and reliable supply of wholesale power

ASM Initiative: Cost & Benefits

Estimated Annual Benefits (\$ Millions)



Source: Midwest ISO April 3, 2006, FERC Compliance Filing

¹ Recovery through existing Midwest ISO Schedule 17; includes operating expenses, depreciation and interest expense.

² NPV calculated over 10 years using 5% discount rate

³ The ICF International study studied the potential benefits associated with *Post-Midwest ISO ASM* indicating approximately \$189 million in gross benefits over a ten-month period, which annualize to approximately \$227 million

Status of ASM Project

- FERC rejected *without prejudice* Midwest ISO ASM tariff revisions and amendments on June 22, 2007
- FERC Order Summary and Midwest ISO Actions
 - Requested Market Power Study, Reversion Plan and Readiness Metrics
 - Affirmed ASM major design elements
 - Conclude negotiations with Balancing Authorities
- Re-filed ASM design on September 14th and anticipate a FERC Order by year end
- The project anticipates to come in under budget by \$4.4mm by year end 2007
- Scheduled launch date of June 1, 2007

Midwest ISO Demand Response Focus

The Midwest ISO will ensure the development of market mechanisms for full demand participation:

1. Design and adopt market mechanisms, policies and procedures in coordination with the OMS/States, RRO's, NERC and consistent with national energy policy direction
2. Integrate demand response across all offered products, services and operational practices, including, for example, energy and related markets, resource and transmission planning and emergency operating procedures
3. Develop market mechanisms to more fully incorporate demand response with explicit consideration of dispatchable load, distributed generation (and other behind-the-meter resources), and renewables
4. Establish appropriate metrics and value/benefit measurements

Demand Response Initiatives

- The Midwest ISO and the Organization of Midwest ISO States (OMS) have increased their focus on demand response following the Summer 2006 peak demand
- Midwest ISO Demand Response Working Group (DRWG)
 - Focusing on the wholesale market impacts
 - ASM Initiative has demand response bid components incorporated
 - Midwest ISO emergency protocols – changes required
 - Success requires a stronger connection and alignment between wholesale and retail markets
- Midwest Demand Response Initiative (MWDRI)
 - On October 17, 2006 the OMS established a task force that is focusing on working with the Midwest ISO and state commissions
 - Building a knowledge base among Midwestern regulators Utilizing the work already done via New England and Mid-Atlantic demand response initiatives

Demand Response Activity Underway

- Removing key issues and barriers
 - Market design issues and disincentives
 - Providing accurate price signals
 - Technical limits on ability to dispatch demand consistent with physical characteristics
 - Regulatory/contract terms of existing demand response may limit participation in regional wholesale market
 - Lack of incentives for demand response where those making consumption decisions do not recognize (or pay) value of energy consumed

Midwest ISO Transmission Expansion Plan

■ Planning Principles

- Make benefits of a competitive energy market available to customers by providing access to the lowest possible electric energy costs
- Provide transmission infrastructure that safeguards local and regional reliability
- Support state and federal renewable energy objectives by planning for access to all such resources (e.g. wind, biomass, demand side management)
- Create mechanism to ensure implementation occurs in a timely manner
- Develop transmission system scenario model and make it available to state & federal energy policy makers to provide context and inform the choices they face