



Midwest ISO Year in Review

- 2006 Accomplishments

○ Reliability Accomplishments

- Spring storms
- Sustained summer heat
 - July 31 ramping at 6,000 Megawatts (MW) per hour
 - <1,000 MW headroom
 - 116,030 Megawatts peak load (market)
 - 136,520 Megawatts peak load (reliability)
 - Market instrumental in facilitating power and reliability supply needs

○ Generation Maintenance Spring 2006

■ With Midwest ISO

- Several large generation plants off-line in Michigan
 - Market committed generation needed to maintain adequate voltages and maintain flows within limits
 - Coordinated with local transmission operators daily to efficiently and reliably manage the situation

■ Before Midwest ISO

- Removing this many large units in Michigan was unprecedented

○ Transmission Maintenance Summer 2006

■ With Midwest ISO

- Required maintenance on Eau Claire-Arpin 345kV transmission line
 - Maintenance was performed in June/July due to gained confidence in the Midwest Market's security constrained economic dispatch
 - Maintenance resulted in better reliability on the entire electric transmission system

■ Before Midwest ISO

- This type of maintenance would have been scheduled during the spring or fall

○ Transmission Forced Outages Spring 2006

■ With Midwest ISO

- Dangerous spring storms in Missouri, Illinois and Indiana
 - 25 transmission facilities forced from service
 - Widespread power outages (70,000+ customers)
- Midwest ISO reliably managed the grid and monitored the transmission system in and around the affected areas with:
 - Wide area view
 - Study capabilities
 - Personnel
 - Advanced applications

○ Transmission Forced Outages Spring 2006

- Before Midwest ISO
 - No overall coordination
 - External restoration power would have to be identified by City Water Light & Power (Springfield, IL)
 - Restoration time extended to 18-24 hours

○ Reliability Accomplishments

- December ice storms in Nebraska, Upper Midwest
- 600+ miles of 345 kv transmission lines were off-line
- The Midwest ISO coordinated and communicated closely with Balancing Authorities and provided wholesale market for parties to purchase generation



Late December ice storms crippled this 345kV line near Axtell, Nebraska

○ Reliability Accomplishments

- Voltage Stability Analysis for key interfaces on FirstEnergy system
- State Estimator support

○ November North American Electric Reliability Council (NERC) Audits

■ Positive Reports

■ Readiness Audit

- “Midwest ISO has competent and experienced Real Time operations staff”
- Neighboring Reliability Coordinators, member companies expressed high degree of confidence in Midwest ISO’s Real Time Operations staff
- Potential for at least 5 North American Electric Reliability Council Examples of Excellence awards, including daily Operational Scorecard

○ November NERC Audits

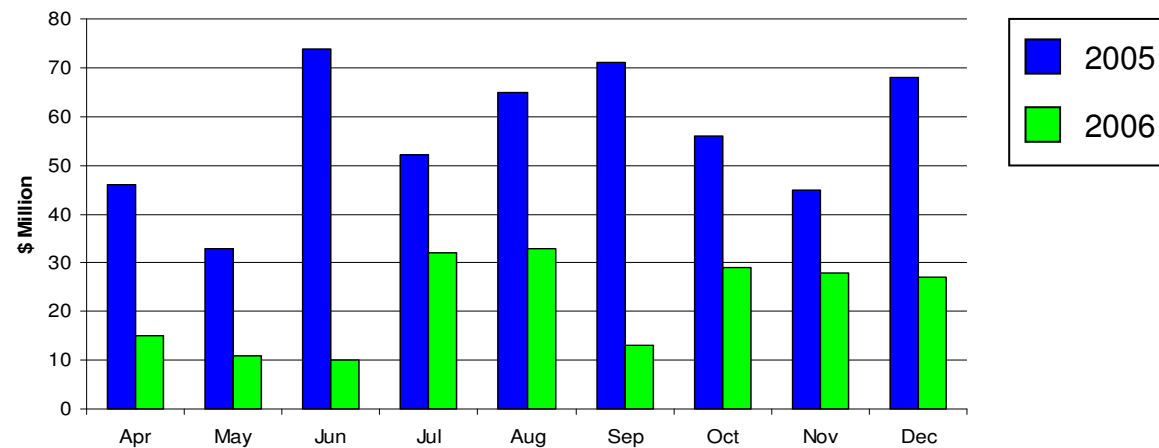
■ Compliance Audit

- Led by ReliabilityFirst¹plus auditors from Southeastern Electric Reliability Council (SERC) and Southwest Power Pool (SPP)
- Scrutinized Midwest ISO's compliance with specific regional reliability standards
- No compliance violations found

¹ Regional reliability organization that replaced East Central Area Reliability Council (ECAR)

Steady State Market Operations

- Significant reductions in Revenue Sufficiency Guarantee (RSG) charges



○ MAPPOR Contract Administration (St. Paul Office)

- Reliability Coordination Services - Performed these services for Mid Continent Area Power Pool (MAPP) Transmission Owners external to the Midwest ISO Tariff footprint
- Support MAPP Committee structure, including providing secretary services and study services
- MAPP Schedule F Tariff Administration Services, including systems administration

○ Midwest ISO-MAPP Regional Tariff Administration Software Systems

- Managed and implemented the rollout of OATi software to include the following:
 - Available Flowgate Capacity (AFC) Calculation
 - Transmission Service Request Evaluation
 - Implementation of Reciprocally Coordinated Flowgates with MAPP (Seams Coordination)
 - Implementation of Allocation Sharing/Transfer
 - Implement Tag validation to compare source/sink vs. Generation/Load Control Area
- Managed the migration of the MAPP Loss Repayment Procedure and its source data to a web-based system

○ **Midwest Reliability Organization (MRO) Contract Administration (St. Paul Office)**

- St. Paul provided Model Building Services to the MRO from reliability data submitted by MRO members
 - This service commenced in 2006 due to industry restructuring and supplanted some reliability study work historically provided under the MAPPCOR contract

○ Transmission Services

- St. Paul began Duke Tariff Administration services
 - November 1, 2006
 - Evaluation/approval of all transmission service requests
 - Total Transfer Capability, Available Transfer Capability calculations
 - Operation/administration of Duke Open Access Same Time Information System
 - Evaluation/processing all generation interconnection requests, performance of related studies
 - Coordination of transmission planning

○ Transmission Services

- Mid-Continent Area Power Pool (MAPP)
Open Access Same Time Information System
Revamped
 - Part of Midwest ISO-MAPPCOR Seams Operating Agreement
 - Flow-based analysis
 - Automates evaluation of firm redirects, adds web interfaces
 - More transparent Available Flowgate Capability / Available Transfer Capability calculations
 - Upgraded MAPP Schedule F billing system

Contingency Reserve Sharing

- Midwest ISO chosen to administer agreement
- Agreement implemented December 31, 2006
- ECAR (East Central Area Reliability Council), MAIN (Mid-America Interconnected Network), MAPP (Mid-Continent Area Power Pool) members signed agreement July 31, 2006
- 39% reduction in reserve obligation
- \$59-\$118 million estimated annual savings (gross)

Ancillary Services Market

- Proof of concept tested
- Regular, ongoing stakeholder meetings
 - Project Updates
 - Market Design
 - IT Infrastructure
- Draft business practices under discussion
- Federal Energy Regulatory Commission filing February 15, 2007
- Spring 2008 implementation planned

○ Regional Expansion & Criteria Benefits

- Developing permanent transmission pricing policy, per July 8, 2004, FERC order
- FERC affirms 80/20 cost-sharing methodology for baseline reliability projects (> 345 kV)
- 100 kV – 345 kV reliability projects
 - Costs allocated to customers within pricing zone

○ **Midwest Transmission Expansion Plan 06**

- First to include regional cost sharing for baseline reliability projects
- 409 projects
- \$3.9 billion investment through 2011
- Examines system expansions under development

○ Interregional Coordination

- Locational Marginal Pricing map updates every 5 minutes with pricing data for Midwest ISO and PJM
- Single market production cost study completed
- Four non-topology dependent updates added to Network/Commercial model
- OASIS outage report expanded
- Cross-border cost allocation effort continues

○ Power System Restoration Drills/Training

- Abnormal Operating Procedures, business continuity drills conducted with neighbors
- October Power System Restoration drills largest ever
 - 230 events simulated – from emergency response to restoration
 - Two days – conducted twice
 - 750 participants including Midwest ISO Balancing Authorities, PJM, Tennessee Valley Authority, Independent Electricity System Operator of Ontario, Canada
 - Dispatcher Training Simulator imitated real time environment

Corporate/Finance

- Millions saved in cost reductions through business process improvements, in-sourcing or contract renegotiation
- Result - \$10 million under budget for 2006
- Power remediation added flexibility, greater stability to critical systems
- Standard & Poor's Affirms A+ Credit Rating
- Clean opinion on 2006 SAS 70 audit
- Successful Sarbanes-Oxley audits

○ Corporate/Finance

- Build-to-suit lease for new Carmel building
- 643 full time employees
- Finance cleared \$3.1 billion in 2006, on time, every time
- Procurement saved company \$2.1 million

○ Energy Management System Upgrade

- Major hardware/software upgrade
- Front-end web servers
- Web-based user interface
- All discrete functionality retained, performs at previous levels or better
- \$400,000 under budget

○ Systems

■ Tier I Data Storage

- Adds scalability to critical systems
- Improved performance

■ Day Ahead Real Time Summer Release

- Improved unit dispatch 30% versus previous system results
- 90-second solution times, allowing more cases to be run if desired or required

○ Study Enhancements

■ PROMOD[®] cost/benefit studies

- Production cost study
- Simulation analysis serves as metric for Midwest Markets
- Quarterly updates of the study provided to Stakeholders that showed significant net benefits from the Midwest ISO market

■ Model on Demand (MOD)

- Allows analysts to create various planning scenarios
- One-stop shop for planning-related model data
- Data inputs standardized across functions

Market Operation Enhancements

- Evaluation of Day Ahead losses modeling resulted in refined process to update loss assumptions resulting in better alignment of Day Ahead and Real Time markets
- Development of new tools to analyze:
 - Day Ahead virtual activity
 - Allows evaluation of inconsistencies between Day Ahead and Real Time transmission management
 - Improves market efficiency
 - FTR Funding
 - Allows evaluation of drives of FTR funding shortfall related to loop flow and assumed and actual transmission availability
 - Used to improve assumptions developed or FTR allocations and auctions
 - different marginal loss sensitivities

Market Enhancements

■ Ramp Reservation System

- Implemented May 2006
- Market Participants can now schedule ramp in advance of energy deals
- Provides greater assurance transmission service can be scheduled against physical delivery

Membership

- New Members
 - Michigan South Central Power Agency
 - Southern Minnesota Municipal Power Agency
- Number of Market Participants increased to 256 as of December 31, 2006 (+47)
- Minnesota Power, Southern Illinois Power Cooperative rescind letters of intent to withdraw
- Louisville Gas & Electric paid \$32 million exit fee
- \$10 million trimmed from operating budget to offset loss of LG&E load

○ Training – 2006 Milestones

- 1,495 Market Participants trained
- 9,700 NERC Continuing Education Hours (CEH) provided
- Learning Management System (LMS) Implemented and Operational on schedule
- Power System Operator Short Course – 80+ students participated in week-long course (most comprehensive curriculum)

Customer Service

- Targeted outreach plan executed
 - 50+ CEO/COO meetings
 - Coordination and outreach via Edison Electric Institute (EEI) Committees & EEI CEO
 - Meetings with all Advisory Committee Sectors
 - Outreach on Ancillary Services Market Initiative and 32 charge types to Organization of MISO States (OMS)
- Issues Management
 - Client Relations closed 2,898 inquiries
 - Market Quality resolved 11,906 disputes
 - Legal made more than 400 filings to the Federal Energy Regulatory Commission
 - IT Network Operations Center (NOC) processed 17,788 Remedy tickets

Customer Service Improvement in 2006

(based on comparison of Jan 2006 to Dec 2006 Customer Satisfaction Survey Results)

| <i>Scale is 1 to 7, 1 worst and 7 best (with 4 being average)</i> | | January-06 | December-06 | Difference |
|---|---|------------|-------------|------------|
| 1 | Communications | 4.2 | 4.5 | 0.34 |
| 2 | Midwest ISO Systems | 4.4 | 4.5 | 0.05 |
| | Settlements and Invoicing | | | |
| 3 | Timeliness | 5.6 | 5.4 | (0.19) |
| 4 | Completeness | 5.1 | 5.05 | (0.05) |
| 5a | Accuracy of Calculations | 5.0 | 5.1 | 0.08 |
| 5b | Accuracy of Input Data | 4.6 | 4.9 | 0.34 |
| | Disputes | | | |
| 6a | Timeliness | 3.0 | 4.5 | 1.49 |
| 6b | Content/Completeness | 3.1 | 4.2 | 1.06 |
| 6c | Accuracy | 3.5 | 4.3 | 0.83 |
| 7 | Network and Commercial Model | 3.2 | 4.1 | 0.86 |
| 8 | Client Relations & Customer Management | 4.3 | 4.6 | 0.28 |
| 9 | IT Customer Support | 4.4 | 5.0 | 0.55 |
| 10 | Government Relations | 4.5 | 4.8 | 0.33 |
| 11 | Reliability of Transmission | 4.4 | 4.7 | 0.32 |
| 12 | Training | 4.5 | 5.0 | 0.54 |
| 13 | Committee/Shareholder/Governance Process | 3.9 | 3.95 | 0.05 |
| | Tariff Administration | | | |
| 14 | LT Transmission Service Requests | 3.6 | 4.4 | 0.80 |
| 15 | LT Transmission Interconnection Requests | 3.4 | 4.4 | 1.03 |

Customer Service

- Second Annual Stakeholder Meeting held
 - Over 250 in attendance at three-day event
- Support of external Midwest ISO market initiatives
 - Seamlessly incorporated the results of the Illinois Competitive Supply Auction results of September 2006 into all existing Midwest ISO registration, network and commercial models (Credit and FTR issues managed, new Market Participants certified and registered)
- Instrumental in the reconfiguration of Ameren-Illinois and Ameren-Missouri NERC defined control areas
 - Coordinated several iterative model changes to support