A Renewed Focus on Traditional Reliability Standards

Chapter Recommendations
Insufficient Maintenance
1. Mandating minimum distance requirements between power lines and trees and other vegetation.
2. Establish vegetation management standards and benchmarks.
3. Require utilities to file a report each year outlining their plans for controlling vegetation.
4. Review and annually update industry-wide reliability standards.
5. Review utility company policies to ensure compliance with the new reliability standards.
6. Conduct annual reviews of the utility company compliance with the standards and link compliance to a financial incentive.
Insufficient Training
7. Develop service standards for the electric utilities.
8. Review utilities' performance annually in meeting service standards.
Insufficient Access to Information
9. Ensure compliance with North American Electric Reliability Council standards.
10. Ensure utilities use appropriate management and information technology support tools.
11. Create an oversight committee to monitor the coordination activities between Regional Transmission Organizations (PJM and MISO).
12. Investigate the feasibility of creating a statewide Independent Transmission Company (ITC).

After the 1965 Northeast blackout, President Lyndon Baines Johnson stated, "Today's failure is a dramatic reminder of the importance of the uninterrupted flow of power to the health, safety, well-being and defense of our citizens, and the defense of our country."[14] His words still ring true today, as life in the United States in the 21st Century is even more dependent on the electric grid.

Key Issues

Illinois' and the United States' economies depend on a reliable electric transmission and distribution system.

A recent study by the Electric Power Research Institute (EPRI) states that nationwide industrial and digital economy firms are losing approximately $45.7 billion a year from power outages.[15] The Anderson Economic Group estimates that the August, 2003 blackout reduced U.S. earnings by approximately $6.4 billion.[16] Neither of these figures takes into account the substantial losses attributed to power supply deficiencies.

Following the August, 2003 blackout, the U.S. and Canadian governments established the U.S.-Canada Power System Outage Task Force ("bi-national Outage Task Force"). The bi-national Outage Task Force released its final analysis of the August, 2003 blackout in April, 2004 (the "bi-national *Outage Task Force Report*"). The bi-national *Outage Task Force Report* found three primary factors that contribute to the loss of integrity of the electric grid:

- Insufficient maintenance
- Insufficient training
- Insufficient access to information

[14] Barry LeCerf, *It's Déjà vu, All Over Again,* Transmission & Distribution World, October 1, 2003
[15] Distributed energy industries include telecommunications, data storage and retrieval services (including collocation facilities or Internet hotels), biotechnology, electronics manufacturing, and the financial industry.
[16] Anderson Economic Group, *Northeast Blackout Likely to Reduce US Earnings by $6.4 Billion*, August 19, 2003

Many of the concerns discussed in the bi-national *Outage Task Force Report* are also relevant to Illinois. The Illinois Special Task Force finds that significant improvements in electric utility maintenance, training, and information technology policies and practices are needed in Illinois. An increased focus on traditional reliability concerns is necessary to prevent major blackouts in Illinois.

1. Insufficient Maintenance

The maintenance component of an electric system includes everything from vegetation management to protecting distribution poles from rot. The distribution system alone is comprised of thousands of pieces of equipment—poles, switches, transformers, and cables—that must be maintained or replaced as needed.

This infrastructure also requires related support resources including tools, testing instruments, vehicles and work equipment. Utility companies must ensure that the appropriate maintenance procedures are in place to reduce the chance of an equipment failure that could lead to a disruption in the system.

Electric utility companies face a dual challenge of cost control and an aging infrastructure. Other states established mechanisms to ensure the appropriate levels of maintenance to deliver a specific level of service. The experiences of other states serve as important lessons for Illinois.

A. Vegetation Management

Vegetation management activities—tree-trimming and vegetation control—are usually among the largest cost element in an electric utility's operating budget. Inadequate vegetation management can threaten electric transmission systems. Tree-trimming alone is a $7-$10 billion business in the United States.[17] In Illinois, the 2002 operating costs associated with tree-trimming were approximately $80.5 million.

The Illinois Commerce Commission (ICC) works with the electric utilities to improve their tree-trimming practices, and minimize service interruptions and the possibility of injury to employees and the general public. The ICC staff has agreements with the major utilities to implement a four-year tree-trimming cycle. The ICC completed a report in October, 2003 evaluating the status of Illinois utilities' tree-trimming programs.

Tree-trimming is more than just removing branches from overgrown trees. Proper tree-trimming involves expertise in the areas of crew management, proper pruning practices, application of appropriate herbicides and tree growth regulators, knowledge of regulations and easement issues and communicating with governmental and community groups. All Illinois electric utilities, except Mt. Carmel Public Utility Company, have outsourced vegetation management to increase system reliability and control costs.

[17] *Asplundh Evolutionizes Vegetation Management,* Transmission & Distribution World, March 1, 2002

Illinois Commerce Commission Distribution Line Tree Trimming Program Effectiveness (Good, Fair, Questionable or Poor)

Utility	Effectiveness	Comments
AmerenCILCO	Fair	Significantly improved, but has areas with inadequate trimming.
AmerenCIPS	Questionable	Began a four-year catch-up agreement with ICC Staff in July, 2001. Appears behind schedule.
AmerenUE	Good	Scattered problems, but utility has achieved a reasonable level of trimming.
ComEd	Poor	Missed agreed deadline. Trees in many locations in poor condition. Some areas not trimmed.
Illinois Power	Good	Trees generally well-trimmed, but some problems in Jacksonville.
Interstate	Fair	Should shorten trimming cycle or do mid-cycle trimming.
MidAmerican	Good	Utility should verify that it trims adequately to allow for its three-year cycle length.
Mt. Carmel	Poor	Trees are greatest threat to service reliability for Mt. Carmel's customers.
South Beloit	Poor	Utility should either trim trees more aggressively or shorten its tree-trimming cycle.

Source: Illinois Commerce Commission, October, 2003

Recommendations 1-3: Vegetation Management

Vegetation management programs in Illinois need to improve. Therefore, the Illinois Special Task Force recommends:

1. Amend Illinois Public Act 92-0214—Non-emergency Vegetation Management Activities. Current law does not specify clearance distances between vegetation and transmission/distribution lines, and should be amended to ensure that Illinois transmission/distribution lines are not endangered by inadequate vegetation management. California's General Order 95, Rule 35, is model legislation, requiring utility companies to maintain specific clearances between vegetation and energized lines.
2. Establish model vegetation management practices and standards for Illinois utilities. The ICC should conduct a proceeding to identify the appropriate vegetation management practices for Illinois' electric utilities. "Best practices" need to be developed through the collaboration of contractors and utility companies, and must reflect the most accepted methods for providing reliability within a given region. CN Utility Consulting released a final report in March, 2004 identifying generic vegetation management best practices.[18] The Pennsylvania Public Utilities Commission recently issued an order that identified specific vegetation best practices.[19] Both studies should be considered when developing standards for Illinois.
3. All Illinois electric utilities should file a Vegetation Management Status Report annually with the ICC prior to the critical summer period. The reports would include plans for vegetation control around poles, sub-stations and other electric facilities, pre and post inspections of required work, and manual mechanical or chemical control of vegetation along right-of-ways. The ICC staff will review the vegetation management status reports each year to ensure that the utilities comply with their vegetation management objectives.

B. General System Maintenance

Utilities must ensure that their day-to-day maintenance programs respond to the growing needs of their systems.

During the Illinois Special Task Force hearings, union representatives for utility employees expressed concerns about the management practices of some Illinois utilities, a concern also expressed in several e-mails sent to the Blackout Solutions web site. In fact, 45 percent of the web site commentators expressed concern about the level of maintenance and caliber of staffing at the utility companies. The union representatives and employees allege that preventive maintenance cycles have been extended and emergency maintenance is becoming the norm.

[18] Joint U.S.-Canada Power System Outage Task Force, CN Utility Consulting, LLC, *Utility Vegetation Management Final Report*, March, 2004

[19] Pennsylvania Public Utilities Commission, Rulemaking Re: Amending Electric Service Reliability Regulations at 52 Pa. Code, Chapter 57, June 26, 2003

"…a week of extreme weather will shut down the system, and we don't have the manpower to face a problem like that" - excerpt of e-mail sent to the electronic suggestion box at BlackoutSolutions.org.

Initial reports from the ICC staff also indicate that the maintenance of the various utility distribution systems may be insufficient. In 2002, for example, the ICC staff initiated a study of Ameren CILCO's transmission system outages and found improper maintenance of its transmission system relays.[20]

In another investigation, the ICC staff found that Illinois electric utilities grossly under-report their controllable electric service interruptions. By choosing to classify a smaller number of service interruptions as "controllable," utilities avoid compliance with the customer service reliability reporting requirements and targets. By under-reporting, utilities evade sections of the reliability code in the Illinois Public Utilities Act.[21]

In the fall of 2003, the ICC staff retained Liberty Consulting Group (Liberty) to perform a focused review of ComEd's transmission system examining:

- The frequency of ComEd's studies to determine changes to transmission relay settings as loads increase and transmission system configurations and use evolve.
- The adequacy of ComEd's planned maintenance schedules for transmission relays, circuit breakers and associated protection equipment.
- The degree to which ComEd actually tests, calibrates and maintains its transmission relays, circuit breakers and associated protection equipment on an adequate schedule.

Liberty concluded that ComEd's transmission protection system design, ratings and maintenance practices are adequate to prevent cascading blackout events. However, to better assure system stability, ComEd should improve:

- The methods it uses to rate its transmission protection devices, and
- The way it monitors and analyzes variation of its relay settings.

Liberty identified other ComEd methods and practices the company should consider to further reduce the risk to system reliability. Liberty found that ComEd should review the adequacy of some of its engineering methods and practices related to transmission system protection. Although the Liberty report only reviewed ComEd's practices, many of the lessons incorporated in the report also can apply to other Illinois electric utilities.

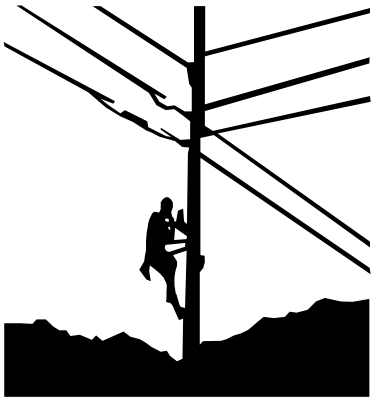
Issues of system reliability are not unique to Illinois. The New Jersey Board of Public Utilities (BPU) has appointed a "Special Reliability Master"[22] for Jersey Central Power & Light (JCP&L, a subsidiary of FirstEnergy) to investigate recent power outages and suggest steps for long-term reliability. The BPU has already penalized JCP&L by reducing its return on equity by 25 basis points, and may further reduce it if JCP&L's level of reliability does not improve.

Regulators in states including Ohio, Pennsylvania and Kentucky have recently examined the maintenance procedures of electric companies within their jurisdiction—specifically, FirstEnergy, Allegheny Power and American Electric Power. Some of them have concluded that utility spending cuts were contributing to more frequent and protracted outages.[23]

[20] Illinois Commerce Commission, *Staff Report to the Commission*, November 21, 2002
[21] Illinois Commerce Commission, *Staff Report to the Commission*, October 16, 2003
[22] Electric Utility Week, *NJ Cuts JCP&L Delivery $223-Million, Disallows $153-Million in Power Costs,* August 11, 2003
[23] Rebecca Smith and Lee Hawkins Jr., *Utility Cutbacks Worried States Before Blackout,* Wall Street Journal, August 29, 2003

Recommendations 4-6: General System Management
4. The ICC should initiate a rulemaking procedure to evaluate existing reliability standards and improve them as needed. If legislation is required to allow the commission to develop and implement the necessary reliability standards, it should be developed and adopted.
5. The ICC should initiate a baseline analysis of all Illinois electric companies' maintenance/reliability standards to ensure compliance with new reliability standards. The ICC must include as part of its Post-2006 Initiative evaluation of current maintenance practices of the electric utilities, establish best practices and assign benchmarks. This will help ensure that the utilities will enter the post-2006 environment with appropriate maintenance practices and standards in place. This analysis should incorporate the Liberty report findings.
6. The ICC should conduct an annual review of the companies' compliance with reliability standards prior to the critical summer period. Link compliance to a financial incentive such as Return on Equity (ROE) penalties or awards for achieving stated objectives. In a regulated energy market, state commissions set expected levels for return on equity ("profit") for the utilities. The commissions can penalize the utilities, by lowering the ROE, for bad performance.

2. Insufficient Training



Training and the aging of the utility company workforce are issues of concern. Both the bi-national *Outage Task Force Report* and Michigan Public Service *Report on August 14th Blackout* highlight the need for better staff training.

Utility companies will soon be significantly impacted by retirements and loss of institutional knowledge. The workforce is aging, expertise is dissipating and qualified replacements are increasingly difficult to recruit and train. The U.S. labor force will start to shrink in 2015 as the number of younger workers will be too small to fill vacancies caused by the retirement of baby boomers. A shortage of qualified and experienced workers looms as a major management challenge.

Significantly reduced staffing levels are also a concern. A study by the Energy Information Administration showed total nationwide utility industry employment falling from 478,803 in 1990 to 289,000 in 2001 (nearly a 40 percent decrease.) Part of the reduction is associated with the number of employees employed with assets that companies have sold off such as generating facilities. Other reductions result from mergers.

Testimony presented to the Illinois Special Task Force by union representatives highlighted the significant decrease in employee staffing and associated increase in overtime.

For example, a representative from the International Brotherhood of Electrical Workers (IBEW) stated that it is not uncommon to see from 600 to 1,500 of straight overtime hours per year per employee.[24] From the beginning of 2000 to July, 2003, the following overtime hours had been incurred[25]:

- Overhead Department—3,175,201 overtime hours
- Underground Department—1,004,489 overtime hours
- Substation Construction Department—985,426 overtime hours

Both the testimony and comments e-mailed to BlackoutSolutions.org expressed concerns of additional overtime hours if there were more staff reductions at ComEd. The comments also expressed concern regarding the mandatory overtime policy instituted by the company. The policy requires employees to work at least half of the overtime that is offered, or face discipline and possible termination.

[24] Brian Loomis, International Brotherhood of Electrical Workers Local 15
[25] *Id*.

Staffing Levels Reported by Illinois Utilities			
Company	1997	2002	% Change
AmerenCIPS	687	574	-16%
AmerenUE (IL)	115	84	-27%
AmerenCILCO	1,376	696	-49%
ComEd	6,914	6,767	-2%

Source: Illinois Commerce Commission

Some of the jobs are very physically demanding, and fatigue and stress can lead to mistakes that can undermine reliability of the electric transmission and distribution system.

Ensuring the appropriate caliber and level of staffing will continue to be a challenge for utility companies. As competition intensifies in the utility marketplace, it will become critical for companies to adopt more sophisticated tools to monitor the system. This requires additional training.

Recommendation 7-8: Insufficient Training

More emphasis must be placed on training, staffing levels and reasonable overtime requirements. The Illinois Special Task Force recommends that:

7. The ICC should develop service standards for the electric utilities. The ICC needs to initiate a proceeding to develop service standards for Illinois' electric utilities to ensure that customers receive the appropriate level of service.[26] The service standards need to clearly define specific quality measures, establish reporting mechanisms and set tough penalties for non-compliance.

Since staffing levels and development are concerns, these standards also need to consider the current workforce with respect to age, skill classification, resource requirements and the effectiveness of training/apprenticeship programs. Even at the lineman level, utilities need to take into consideration succession planning. If it takes four to five years to properly train a journeyman/lineman or a substation mechanic, then the plans need to be in place to ensure that those people are fully trained when needed to replace retiring individuals.

Other areas for specific analysis should include, but not be limited to:

a. Construction and operation personnel, including skill sets for troubleshooting, inspection and maintenance crews, and fault-finding.
b. Electric distribution operations, including personnel who perform switching operations, mapping and records management, service dispatching and computer operating system maintenance;
c. Associate engineers, who perform planning, technical and analytical tasks in electric distribution activities, and
d. Project management, including planning, design and workflow management.

This service standard assessment should be done in conjunction with the reliability assessment discussed in the previous recommendation. Having the adequate level of trained individuals goes hand-in-hand with ensuring the reliability of the company's operations. Also, since some work is outsourced to contractors, the staffing plan must also discuss how performance contracts will be developed with contractors, and how the company plans to manage and enforce those contracts.

8. Illinois Commerce Commission should initiate an annual review of the service standards. In conjunction with the reliability reports previously discussed, utilities will also need to provide annual/quarterly updates on compliance with the ICC service standards. This will enable the ICC to see the total picture of the operations of the company, and ascertain potential problems. The level of adherence to the plans should result in financial awards/penalties.

[26] The ICC currently has service quality standards for the telecom industry (Administrative Code Parts 730 and 732).

3. Insufficient Access to Information

With the increasing complexity of electric markets, utilities are forced to both rely more heavily on technology and on cooperation with each other. The Illinois Special Task Force identified two concerns regarding insufficient access to information:

- **Appropriate Level of Technology Support:** Ensure that utility companies and the Regional Transmission Organizations have the appropriate diagnostic software and hardware to adequately perform their jobs.
- **Regional Transmission Organization Issues:** Ensure that the MISO (Midwest Independent System Operator) has adequately responded to the critique from the bi-national *Outage Task Force Report* and implemented the required changes. With ComEd now a member of PJM, there are two Regional Transmission Organizations (RTOs) in Illinois. Although Illinois electric utilities are members of two different RTOs, they still need to cooperate with each other. The utilities, RTOs and the ICC need to carefully monitor any problems that develop. The RTOs should report to the ICC annually on their efforts to promote cooperation and oversight of member utility reliability standards.

A. Appropriate Level of Technology Support

The adoption of new information technologies has increased rapidly and broadly in the electric utility industry. Recent adverse events in the industry--e.g. California energy crisis, Enron and the August, 2003 outage--only heighten the need for fast and accurate data. We have already seen significant developments in:

- Integrated planning, design, work management and customer contact systems, including the increasing use of laptop computers in the field;
- The use of computer-equipped vehicles to access mapping information for electric troubleshooting and restoration activities;
- Automated data collection by facility inspectors;
- Web-enabled access to outage data;
- Updated Geographic Information Systems (GIS) platforms for system facility and operating maps, used both in the field and for switch center safety operations, and
- Increased electronic mapping of facilities and the recording of more attributes about those facilities.

In addition to the above systems, it is also critical that companies have the appropriate energy management and support tools in place. Operators identify potential system problems by using *contingency analysis,* driven by *state estimators* that are fed by data collected by the *SCADA* (Supervisory Control and Data Acquisition) systems.

- **SCADA:** Supervisory Control and Data Acquisition systems acquire power system data and control power system equipment through field remote terminal sites (RTUs) installed at generation plants and substations. In many power stations, the master stations are fully integrated into the control room, serving as the direct interface to the energy management system, receiving incoming data from the field RTUs and relaying control operations commands to the field devices for execution.

- **State estimators:** Transmission system operators have visibility (condition information) over their own transmission facilities. The state estimator computer control systems provide information on what facilities are in service, real-time system condition data used to estimate voltage at locations and to estimate real and reactive power flow quantities on each line or through each transformer.
- **Contingency analysis:** A system operator or planner uses contingency analysis to analyze the impact of specific outages (lines, generators or other equipment) or higher load, flow or generation levels on the security of the system. The contingency analysis identifies problems such as line overloads or voltage violations that will occur if a new event happens on the system. This tool is typically used to assess the reliability of system operation.

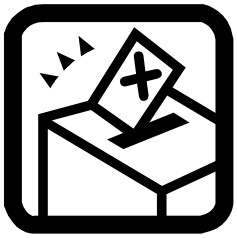
Problems with these systems (missing data, remote consoles failing, problems with the emergency management system, and failure to perform a contingency analysis) led to the breakdown in communications and ultimate failure of the system on August 14, 2003.

Problems within the FirstEnergy control area were not appropriately communicated to the MISO, contributing to the degradation of the transmission system. It is critical that the importance of these systems is fully understood and that resources (human and financial) be allocated to ensure that they are operating to their fullest potential.

The ability to collect and analyze new levels of data is fundamental to the proper management of the electric distribution and transmission network. Having correct systems in place is not enough; these systems also require the appropriate level of training, support and maintenance.

Information has moved from file cabinets to on-line databases. If a system is unavailable or running slow, productivity is lost, leading to potential operational and safety concerns.

The majority of the electric distribution and transmission systems can be categorized as being “business critical” or “operational critical” requiring constant availability. Systems provide functionality such as real-time monitoring of operational data (SCADA); outage management; storm damage assessment; inspection and maintenance regulatory compliance. SCADA systems also assist with power system simulation/utilities modeling; distribution planning and scheduling; general project management; and various mobile field units hardware support and installed software applications.



Any comments are welcome at the Electronic Suggestion Box at:

BlackoutSolutions.org

Recommendations 9-10: Technology Support

The Illinois Special Task Force makes the following recommendations to improve the use of planning and management technology:

9. Ensure compliance with North American Electric Reliability Council (NERC) operating and planning standards. These standards are the backbone of an efficient and reliable transmission grid. The ICC should investigate transmission operations of the utilities within the state to ensure compliance with NERC operating and planning standards. Specifically, the utilities are required to:
    a. Balance power generation and demand continuously;
    b. Balance reactive power supply and demand to maintain scheduled voltages. Reactive power sources must be adjusted during the day to maintain voltages within a secure range pertaining to all system electrical equipment (stations, transmission lines and customer equipment);
    c. Monitor flows over transmission lines and other facilities to ensure that thermal (heating) limits are not exceeded. Flow on overhead lines must be limited to ensure that the line does not sag into obstructions below, such as trees or telephone lines;
    d. Keep the system in a stable condition;
    e. Operate the system so it remains in a reliable condition even if a contingency occurs, such as the loss of a key generator or transmission facility;
    f. Plan, design and maintain the system to operate reliably, and
    g. Prepare for emergencies. There must be procedures and capabilities to use "black start" generators (capable of starting with no external power source) and coordinate operations to restore the system quickly to a normal and reliable condition.

    Specifically, the ICC staff should:
    a. Verify that Illinois electric utilities have adequate load shedding procedures (reducing power demand) that can be called upon when necessary to head off the threat of cascading transmission line outages, voltage collapse or both.
    b. Verify that Illinois electric utilities have adequate procedures to assure the correct setting of the protective relays used to protect the transmission system.
    c. Investigate the feasibility of developing and implementing new software tools for transmission system operators to better identify in real-time the risk of cascading line outages, voltage collapse or both.
    d. Investigate the feasibility of developing a communication system alerting customers to pending system problems to enable customers to voluntarily reduce their electrical usage, therefore reducing the likelihood of a blackout.
    e. Ensure appropriateness of energy management and decision support tools. The ICC should audit each Illinois electric utility and Regional Transmission Organization to ensure that it has appropriate energy management and support tools in place.
10. In light of the experiences of FirstEnergy, the Illinois Special Task Force recommends the following specific verifications be completed for Illinois utilities and the RTOs serving Illinois:
    a. The resilience of transmission control center information should be verified to protect Illinois' electric utilities from the kind of failures that plagued the FirstEnergy information systems.
    b. The adequacy of state estimation and contingency tools used by Illinois' electric utilities and RTOs should be verified to ensure they provide sufficient advance warning of insecure operations such that transmission system operators can act in time to return the system to a secure operating state.
    c. The adequacy of training for system operators should be verified to ensure that emergencies are handled effectively when available information on the state of the system may be incomplete due to information system or communication problems.
    d. The adequacy of communication with neighboring utility systems and RTOs should be verified to ensure efficient information exchange to permit an accurate understanding of the operating state of the transmission system.

B. Regional Transmission Organization Issues

The Midwest Independent System Operator (MISO) began operation in December, 2001. The MISO monitors electric reliability throughout the Midwest, an area encompassing more than 110,000 miles of interconnected high voltage transmission lines in 15 states and the province of Manitoba, Canada. The MISO includes 35 control areas and 23 transmission owners.[27]

The bi-national *Outage Task Force Report* identified problems with the MISO operations:

- The MISO did not notify other reliability coordinators of potential problems.
- The MISO did not have adequate monitoring capability.
- The flowgate monitoring tool did not have real-time line information to detect growing overloads.
- The state estimator was missing data on line outages and did not reset after an employee disabled it.
  - The operators could not easily link breaker status to line status to understand changing conditions.
  - Neither PJM nor MISO had effective procedures in place to coordinate crisis management along their common boundaries (the "seam").

A number of witnesses who testified at the Illinois Special Task Force hearings expressed concerns about having two RTOs operating within Illinois. They were concerned about the reliability of the transmission system especially in light of the initial findings from the bi-national *Outage Task Force Report.*

Concerns were expressed with regard to pancake pricing (rates that include charges from two RTOs), reliability (ability to quickly and effectively communicate developments on the respective systems), and market economics (dispatching of generation units within one RTO may have a negative impact on the economics of the other RTO system).

ComEd conditionally joined PJM on May 1, 2004.[28] As part of the monitoring process, a Joint Operating Agreement (JOA) was developed between PJM and MISO and tentatively approved by the FERC pending completion of the entire review process.

The agreement seeks to resolve the market/non-market seams issue and rate pancaking issues, coordinates system congestion management, facilitates system planning, establishes complementary system processes and implements a mutual data and communication exchange. The JOA is expected to improve coordination of interregional congestion management, operational data exchange, real-time communications, emergency protocols, system planning and market monitoring.[29]

In mid-December, 2003, PJM announced a new state estimator program. The program provides PJM system operators with a model of current conditions from Minnesota to the Atlantic Ocean and from Tennessee to New England. It has been designed to monitor PJM's current area, transmission systems slated to become part of PJM and neighboring systems.

[27] www.midwestiso.org (visited April 6, 2004)
[28] PJM Interconnection, L.L.C., 107 FERC 61,087 (Federal Energy Regulatory Commission, April 27, 2004)
[29] Transmission & Distribution World, *Midwest ISO and PJM Execute and File Joint Operating Agreement with the FERC,* January 2, 2004

The Midwest Independent System Operator has also announced the completion of the installation of its new state estimator program. The state estimator, which became operational December 31, 2003, will provide the MISO with information on the transmission grid that stretches from Pennsylvania to Nebraska and from Tennessee to the Canadian province of Manitoba.

Recommendations 11-12: Regional Transmission Issues

RTO coordination issues are of paramount importance to Illinois. Even with a Joint Operating Agreement, safeguards need to be in place to ensure the safety of the system. The Illinois Special Task Force recommends:

11. Create an Oversight Committee to monitor the coordination activities between PJM and MISO. The Oversight Committee would assume responsibility for ensuring the seamless operation of the MISO/PJM RTOs. The Committee should be comprised of representatives from Illinois utility companies (both investor-owned utilities and cooperatives), the Illinois Commerce Commission and consumer advocacy groups (including industrial and residential customers.) The Oversight Committee would provide:
    a. Verification that each RTO is receiving sufficient real-time, or near real-time data, to adequately determine the operational state of the transmission system through its state estimation system.
    b. Verification that each RTO is incorporating the necessary real-time, or near real-time, data into its state estimation system to ensure the system will reliably provide the operational state of the transmission system to the RTO.
    c. Verification that each RTO has sufficient authority to direct the actions by electric utilities necessary to correct an unsecured operational state on the transmission system.
    d. Verification that the existence of multiple RTOs within Illinois does not create coordination problems that present inefficiencies that challenge the reliability of the transmission system and cannot be fully mitigated through joint procedures, data sharing and adequate communication between the RTOs.
    e. Verification that the joint procedures, data sharing and communication between the RTOs planning to serve Illinois are adequate to support a level of reliability comparable to that which would be provided by having a single RTO within Illinois.
12. Investigate the feasibility of creating a statewide Independent Transmission Company (ITC). Since there are a number of unknowns associated with the future reliable operation of the transmission grid, the Illinois Special Task Force recommends the ICC undertake a study to evaluate the feasibility of creating a statewide ITC. Such a company would assume ownership and management responsibility for transmission lines in Illinois. The creation of a statewide ITC should be viewed as an option of last resort. But if PJM and MISO are not able to adequately eliminate the seams issue, it may be necessary to move all of the transmission assets into an ITC, under the jurisdiction of one RTO. The Illinois Special Task Force recommends that the ICC undertake a comprehensive investigation of the pros and cons of a statewide ITC.