

BLACKOUT SOLUTIONS

Report of the
Special Task Force on the Condition and Future of the Illinois Energy Infrastructure
OFFICE OF THE LIEUTENANT GOVERNOR PAT QUINN



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SUMMARY

After the worst blackout in North American history, Illinois Governor Rod Blagojevich convened the “Special Task Force on the Condition and Future of the Illinois Energy Infrastructure”. The Special Task Force, created on August 16, 2003 and chaired by Lieutenant Governor Pat Quinn, was charged with examining ways to improve system reliability, ensure safety of Illinois’ power plants and increase diversity of the state’s energy portfolio. The Special Task Force adopted 32 recommendations.

Temperatures in Northeast Ohio had been high all week, reaching 87 degrees on August 14, 2003. Air conditioning loads were straining the region’s generation capacities. At 2:31 p.m. (EDT), a FirstEnergy coal generation plant in Eastlake, Ohio “trips off”. At 3:06 p.m. (EDT), one of FirstEnergy’s transmission lines trips, adding strain to FirstEnergy’s “Hanna-Juniper” transmission line. The overheated wires sag into an overgrown tree, causing a rapid domino effect of outages.

A perfect storm of near-peak demand, computer errors, obsolete equipment, inadequate training and miscommunication resulted in cascading and hopscoching power outages that would eventually leave more than 50 million people in the dark in eight U.S. states and two Canadian provinces.

The worst blackout in North American history shut down 100 power plants, closed 12 airports and is estimated to have cost up to \$6 billion. At least 350,000 commuters were stuck in the New York City subway, including those aboard 19 trains in underwater tunnels. Traffic signals, cell phones and drinking water were all affected. The outage lasted two days, although rolling blackouts continued for a week in Ontario.

On August 16, 2003, Governor Rod Blagojevich created the “Special Task Force on the Condition and Future of the Illinois Energy Infrastructure” to protect the people and businesses of Illinois from disruptive and costly power outages.

Comprised of 10 Cabinet-level members and Chaired by Lieutenant Governor Pat Quinn, the Illinois Special Task Force was charged with analyzing the state’s existing power generation, transmission and distribution systems, examining nuclear power plant safety, and developing ways to promote energy efficiency and renewable energy. The Illinois Special Task Force also evaluated the likelihood of an outage in Illinois and the state’s ability to respond to an emergency situation.

Feedback from Illinois electric companies, ratepayers, small business owners, academics, environmentalists and anyone concerned about long-range solutions to the energy crisis was sought and incorporated into the report.

EXECUTIVE SUMMARY

AND

RECOMMENDATIONS

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KEY FACTS

- Illinois' 11 nuclear reactors provide 51% of the state's electricity
- Illinois per-capita spending on energy efficiency (33 cents) lags behind the national average (\$3.88)
- The electric grid is the most complicated machine ever devised by human beings.
- Illinois utilities spent \$80.5 million on vegetation management in 2002
- New Jersey and other states penalize utilities for not meeting performance standards
- Nationwide, utility employment has fallen from 478,803 in 1990 to 289,000 in 2001
- Illinois ranks 34th in spending on energy efficiency as a percentage of annual total revenues

The Illinois Special Task Force was asked to address a number of system infrastructure issues concerning reliability and safety.

▪ System reliability

- Is the Illinois energy infrastructure protected from catastrophic power failure?
- What are the testing procedures used by Illinois utilities to monitor and maintain reliability and safety of the energy infrastructure?
- What level of modernization is needed to protect consumers from a widespread outage?

▪ System safety and security

- Does Illinois have adequate backup generating capacity for emergency facilities in the event of a widespread power outage?
- Do Illinois nuclear power plants have sufficient safeguards for public health and safety in the event of a cascading power outage?

The Illinois Special Task Force was also asked to examine how new sources of energy and energy conservation should be incorporated into long-range energy planning.

Specifically, the Illinois Special Task Force was asked to address:

- Are Illinois electric utilities taking appropriate steps to reduce electric demand during warm weather?
- What can Illinois do to promote the use of energy efficiency and renewable energy to relieve pressure on the electric grid?

In addition, there is the fundamental question: *what are the ingredients of a safe, reliable and comprehensive energy plan for Illinois in the 21st century?*

To address these questions, the Illinois Special Task Force convened a series of public hearings focusing on specific concerns and issues. The Lieutenant Governor also organized several working group sessions and launched BlackoutSolutions.org, with an electronic suggestion box.

The Illinois Special Task Force had been charged with making policy recommendations to help ensure that Illinois does not experience a devastating power outage. The formulation of these recommendations must be done in the broader context of ensuring a viable energy future for Illinois. Illinois currently is in the middle of a legislatively-mandated rate freeze and restructuring until December 31, 2006.

This report needs to look into the future and lays the groundwork for a reliable, efficient and competitive electric utility environment.

While this report primarily addresses the immediate need of ensuring protection from power outages, the findings also stress the importance of developing a culture of reliability, efficiency and safety. As a result, many of the recommendations will carry Illinois into the post-2006 operating environment when the rate freeze and transition ends.

Ensuring reliability of electricity infrastructure requires a renewed focus on maintenance, training, communication and information. The August, 2003 Northeast Blackout was in part caused by inadequate vegetation management (a power line hit a tree). Illinois must strengthen its regulation of vegetation management. The Illinois Commerce Commission also should take a lead role in developing stronger reliability and service standards. These standards should be linked to specific financial rewards and penalties.

Illinois electric utilities should strengthen their training programs and management of human resources. Utility infrastructure maintenance is a skilled trade that comes after years of training. Too often, Illinois utilities are relying on mandatory overtime performed by their overworked employees.

- Industrial and digital economy firms lose over \$45 billion a year to power outages
- The impact of one tree hitting a power line is equal to three sticks of dynamite
- Renewable sources currently account for four-tenths of 1% of Illinois energy
- Illinois can produce 9,000 megawatts of energy from wind power
- There are approximately 1,000 solar energy projects in Illinois
- Over 59,000 new jobs can be created in Illinois by making businesses, homes, and industrial plants more energy efficient

Regional Transmission Organizations (RTOs) are voluntary associations of utilities that oversee reliability in their respective regions. Illinois utilities are members of two RTOs-- PJM (ComEd) and Midwest Independent System Operator (the remainder of the state). Because Illinois has two RTOs, increased oversight of the RTOs is especially warranted. The utilities are also encouraged to invest in enhanced technology to help ensure reliability. Finally, the State of Illinois should consider creating a corporation charged with owning and operating power lines.

Today, over 96% of Illinois' electricity comes from nuclear and coal sources. Yet, Illinois has tremendous potential for renewable energy sources such as wind, solar and biomass. Creating a diversified energy portfolio in Illinois can help relieve stress on the grid and ensure greater reliability. A mandatory renewables portfolio standard will facilitate the development of a stronger energy market.

Distributed generation describes generators that create small amounts of energy near the end user. Increased use of distributed generation can help meet local peak needs and displace the need to build new and costly power plants and

transmission/distribution lines. Further growth of distributed generation in Illinois is dependent on the state promulgating uniform interconnection standards specifying how small generators connect to the grid, and sell and buy power with utilities.

Although the State of Illinois offers many energy conservation programs, total spending on these programs ranks Illinois 34th of all states. Illinois has the potential to reduce energy use by one-third, create over 59,000 new jobs and reduce emissions of critical air pollutants by 30 percent.

This report recommends that spending on energy efficiency programs in Illinois be increased to at least the national average to bring Illinois in line with other states. Rates should be structured to encourage conservation at peak load times. This report also recommends that Illinois adopt stronger energy efficiency standards for homes and a variety of energy-using products.

Currently, Illinois depends on nuclear power for over 51% of the state's electricity, so the security of nuclear plants is of paramount concern. Nuclear plants must be subjected to the most heightened form of scrutiny including rigorous oversight of background check policies for utility

employees and contractors. There should be a strong focus on cyber security. Internet worms can severely harm electric systems. As a first step, utility companies are encouraged to remove unnecessary off-site access to their most critical operating systems.

Illinois needs to be prepared for outages. Therefore, the Illinois Special Task Force recommends that back-up supplies of power be increased, communications abilities strengthened and more information on emergency preparedness distributed to the public.

The Report of the Illinois Special Task Force is the culmination of months of public hearings and extensive input from utility companies, business leaders, consumer advocates and many others. This document may be deemed a 10-year blueprint to ensure safe and reliable electric power for Illinois consumers.

On the following page is a list of recommendations made by the Illinois Special Task Force.

The entire text of *Blackout Solutions: The Report of the Illinois Special Task Force* is available at www.BlackoutSolutions.org.

Summary of Recommendations of the Special Task Force on the Condition and Future of the Illinois Energy Infrastructure

Renewed Focus on Traditional Reliability

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.
7. Develop service standards for the electric utilities.
8. Review utilities' performance annually in meeting service standards.
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).

New Initiatives to Promote Reliability

13. Develop uniform standards governing connection of distributed generation to the grid.
14. Establish rates that recognize benefits associated with distributed generation.
15. Facilitate increased investment in environmentally sound energy sources by enacting a renewables portfolio standard.
16. Raise Illinois' investment in energy efficiency programs to at least the national average to help make homes, small businesses and small industrial plants more energy efficient.
17. Empower customers to make their own energy usage choices by giving them real-time pricing information.
18. Enact energy efficiency standards for all residential buildings.
19. Enact energy efficiency standards for each of the products contained in the Federal Energy Policy Act of 2003.
20. Develop a statewide master energy plan.

System Safety and Security

21. Apply relevant findings from the bi-national *Outage Task Force Report* to the operation of nuclear facilities in Illinois.
22. Work with the Nuclear Regulatory Commission and utilities to ensure that nuclear power plants have the policies, procedures and equipment in place to withstand a massive outage.
23. Implement the appropriate findings from the bi-national *Outage Task Force Report* and the NERC Critical Infrastructure Protection Advisory Group to ensure that safeguards are in place to protect the integrity of both the generation and distribution systems.
24. Review background check programs for utility employees and contractors to ensure the programs properly correspond to the risk involved for the designated positions.
25. Reconfigure utility computer operating systems to remove remote access and prevent malicious cyber attack.
26. Review the state's critical response plan and prepare plans for a worse case scenario.
27. Ensure 24 hours of backup power for all hospitals and nursing homes.
28. Ensure that all telecommunication systems have at least 24 hours of back-up power.
29. Enhance back-up power for 911 systems and evaluate their capacity to handle a substantial increase in calls during outages.
30. Implement the appropriate safety recommendations offered by parties affected by the August, 2003 blackout.
31. Disseminate information on how to respond to an emergency situation.
32. Develop the appropriate legislation to eliminate potential communication and information problems.