

Testimony of Pat Wood, III
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Before the Subcommittee on Oversight of Government Management,
the Federal Workforce, and the District of Columbia,
Committee on Governmental Affairs
United States Senate
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Mr. Chairman and Members of the Subcommittee:

Thank you for the opportunity to appear before you today to discuss the findings and recommendations of the interim report of the joint U.S.-Canada Task Force on the August 14, 2003 Northeast blackouts.

Watching and studying this blackout has been a sobering experience. The reliability of the North American electric system is normally so excellent that this year's notable service interruptions – from the August 14 blackout in the Northeast, blackouts in London, Italy, Argentina, Norway, and elsewhere, and recently from Hurricane Isabel – have forced us all to look afresh at all our old assumptions about the value of reliable electric service and what it takes to keep the lights on.

Here's what I have learned from the blackout investigation and this interim report, and from thinking about those other blackouts this year:

The blackouts in the Northeast, Italy, London and elsewhere have a common theme – something routine happens, like a tree contacting a powerline or a minor relay setting done wrong, and the time to react and keep the system stable suddenly shrinks beyond the capability of human control, when the machines take over. The grid is a tremendously complex system, and the interconnectedness that allows us to benefit from higher reliability and lower costs also causes the domino failures experienced in many countries in recent months. We cannot ever prevent blackouts, but we can and must learn to reduce their frequency, magnitude and impact.

The best way to manage blackouts is to prevent them, not to hope for heroic rescues when we're already in a jam. The secret to reliability lies in making sure that every transmission owner, control area operator, and reliability coordinator takes care of the basics – adequate tree trimming, adequate training for emergency as well as routine operations, effective communications within and across organizations, and having effective back-up facilities, procedures and tools. The investigation clearly shows that had FirstEnergy trimmed its trees, used a solid state estimator program after the trip of the Eastlake 5 unit and regularly throughout the afternoon of August 14, and trained its operators better to recognize and deal with emergencies, the blackout would not have happened.

The blackout study shows that current reliability standards were violated by FirstEnergy and the Midwest Independent System Operator. We need better compliance and tough, clear standards. The FERC will be working closely with NERC and the stakeholders to develop those standards and to implement the reliability provisions of the energy bill if Congress approves it.

We do need some major investments in new transmission facilities and new grid technologies, especially those that make it easier for us to manage the basics. But we need to make those investments wisely, for lines and equipment that expand the reliability parameters of the grid where it is needed – for instance, new sources of reactive power for the Cleveland-Akron area – appear to be long-overdue. Further analysis conducted by the blackout investigation teams will teach us much about how the cascade spread and why it stopped where it did, and that will help us design a system that over the longer term should perform more reliably and cascade more narrowly. The new energy bill offers new options to site long-needed transmission lines and to pay for reliability investments, and I am eager to put those measures in place.

We also need to invest in hardware and software that let operators manage the grid more effectively. Tools that improve system monitoring, evaluation, visibility, visualization and information sharing about grid conditions over a wide region will allow operators to manage the grid more reliably on a day-to-day basis as well as in emergencies. Our colleagues at the Department of Energy have done some excellent work in this area over the past few years and we will be looking to these technologies and others to raise the bar for grid management capabilities.

Transmission is regulated at the federal and state level. Clearly we need to regulate it better, to assure the reliability that Americans deserve. As the present energy bill recognizes, the days of voluntary reliability standards with no enforcement teeth must end. Federal regulators must work closely with our state colleagues to make sure that utility cost-cutting that allows 14 inch diameter trees to grow in transmission rights-of-way, or inadequate operator training, or the widespread use of inadequate software ineffectively used, must end. I pledge that my commission will work closely with our colleagues in Ohio and other states to deliver better regulation for better reliability.

Some claim that electric competition and higher energy flows caused under-investment in an over-worked grid and made this blackout inevitable. What they ignore is that the operator's primary charge is to work the system you've got, and that the operator has the power to cut back any transaction, tighten the operational limits on any line or power plant, and even cut customer load, if that's what it takes to keep the system safe and secure. Markets do not compromise reliability, but we must redouble our efforts to assure that all necessary reliability measures are taken.

Perhaps the saddest portion of the blackout report is Chapter 6, the comparison of the August 14 outage to other major outages in North America. The common factors are overwhelming:

- Conductor contact with trees due to inadequate vegetation management
- Insufficient reactive power
- Inability of system operators or coordinators to recognize and understand events across the broad regional system
- Failure to ensure that system operation was within safe limits
- Lack of coordination on system protection
- Failure to identify emergency conditions
- Ineffective communication
- Lack of “safety nets”, and
- Inadequate training of operations personnel.

The seven outages reviewed span from 1965 through 1999. Extensive analysis followed each outage, and blue ribbon panels developed good recommendations after each. Some of the recommendations that followed that outage have been implemented, but not many. It is my hope that with the adoption of the new reliability provisions of the energy bill, we can finally implement most of those recommendations and stop making the same mistakes over and over. The cost of those mistakes is too high, and our nation and our people deserve better.

The cost of major blackouts is immense, in human and financial costs. New transmission facilities and tools – AC and DC lines, substations, capacitors, sensors, state estimators, visualization programs, and others – are not cheap. Business practices that improve transmission reliability – like thorough tree-trimming, operator training, and development of procedures and plans for routine and emergency communications – are not cheap either, and will cost more on customers’ bills. But if you ask the New Yorkers who were stuck in the subway on August 14, or the Cleveland residents who had to boil their water for days, or the folks around Maryland and Virginia who sat without power for as long as a week after Hurricane Isabel, most will tell you that they’d rather pay a little more for electricity if it will reduce the number, length and impacts of such outages. The cost of reliability improvement is trivial in comparison to the costs and consequences of poor reliability, and we need to be less penny-wise and pound-foolish when we do this math.

Thank you. I will be pleased to answer any questions you may have.