

# OETD Electric Connection

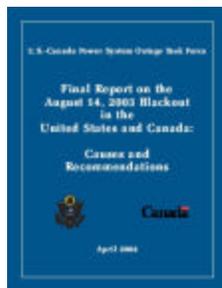
U.S. DEPARTMENT OF ENERGY OFFICE OF ELECTRIC TRANSMISSION AND DISTRIBUTION

<http://electricity.doe.gov/>

## Final Blackout Report Released

On April 5, the U.S.-Canada Power System Outage Task Force published the final report on the August 14 blackout. Jimmy Glotfelty, OETD Director, managed the Task Force's work on behalf of the U.S. Department of Energy.

The report identifies the causes of the blackout and includes 46 technical and policy recommendations for preventing future blackouts and reducing the impact of any that occur. The report states that "the single most important" recommendation is for the U.S. Congress to pass "the reliability provisions in H.R. 6 and S. 2095 to make compliance with reliability standards mandatory and enforceable." The recommendations are grouped into four categories: 1) Institutional Issues Related to Reliability, 2) Support and Strengthen the North American Electric Reliability Council's (NERC's) Actions of February 10, 2004, 3) Physical and Cyber Security of North American Bulk Power Systems, and 4) Canadian Nuclear Power Sector.



The final report contains findings beyond those included in the interim report, published on November 19, 2003. In preparation for the final report, the Task Force conducted further analyses and investigations. It found that the ability to supply reactive power within the area had been inadequate for several years, and that the regional reliability council had not previously identified this vulnerability. As a result of this analysis, the Task Force identified the following causes of the blackout:

- Inadequate system understanding
- Inadequate situational awareness
- Inadequate tree trimming
- Inadequate reliability coordinator diagnostic support

In addition, the Task Force considered input on the interim report received from three public meetings held in Cleveland, New York, and Toronto; two technical conferences held meetings held in Philadelphia and Toronto; and comments filed electronically.

To download the report, please visit <https://reports.energy.gov>.

## OETD Tasked to Coordinate U.S. Implementation of Blackout Report Recommendations

Following the release of the Final Blackout Report, OETD is leading the coordination effort to implement the recommendations directed towards the United States. OETD has begun to work with NERC, the Federal Energy Regulatory Commission (FERC), and other U.S. institutions, as well as its counterpart Ministries in Canada to ensure that all of the recommendations are acted upon.

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Some implementation activities are already underway. On May 14, 2004, the U.S. Department of Energy, Natural Resources Ministry of Canada, FERC, and NERC co-sponsored a public workshop on reliability standards and related issues in Washington, D.C. Additionally, NERC is adopting a plan to accelerate the development of clear and enforceable reliability standards and jointly undertaking, with FERC, reliability readiness audits on more than 75% of the installed capacity of the North American bulk power supply

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system by June 30, 2004. FERC is taking significant action as well, including the issuance of a policy statement on April 14 to enforce reliability standards the extent feasible under its existing authority, the formation of a task force to consider alternative funding mechanisms, the affirmation that no new Independent System Operators (ISOs) or Regional Transmission Organizations (RTOs) will be formed until reliability capabilities are functional, and the issuance of a request to transmission providers to describe in detail their vegetation management standards and practices.

OETD is in the process of developing a subsection of its website that will provide the status of each of the implementation activities. Please visit <http://electricity.doe.gov> soon for more information.

### [OETD Testifies on Blackout Prevention and Mitigation before Senate Committee](#)

OETD Director Jimmy Glotfelty testified before the Senate Energy and Natural Resources Committee on February 24 to discuss NERC's report on how to prevent and mitigate future blackouts. Mr. Glotfelty pointed out that the difficulty was not determining the problem and issuing recommendations to prevent future blackouts, but rather implementing the recommendations. He testified that the incidents that caused the August 14 blackout are not unlike those that caused past outages, and the key to decreasing the likelihood of reoccurrence is industry-wide mandatory reliability standards.

Mr. Glotfelty praised the industry for reliability improvements made since August 14. He credited actions taken by FERC, NERC, Midwest Independent System Operator and other ISOs, and the U.S.-Canada Joint Power System Outage Taskforce. He mentioned the 14 directives issued by NERC's Board of Directors, but noted that these recommendations alone are not enough to solve the broad range of problems that the nation's electric system faces. To read Mr. Glotfelty's written testimony, please visit <http://electricity.doe.gov>.

### [New OETD Initiatives Highlighted in Fiscal Year 2005 Budget Proposal](#)

On February 2, President George W. Bush released his budget proposal for the 2005 fiscal year. OETD received a 12.5% budget increase request totaling \$90.88 million. More than \$75 million of the request is intended for research and development in areas such as high temperature superconductivity, transmission reliability, electric distribution, energy storage, and electricity restructuring.

Two new initiatives were formally introduced in the President's budget request: GridWorks and GridWise. GridWorks provides the framework in which all other technologies will fit to form one cohesive and modernized grid. By bridging the gap between laboratory prototypes and industry applications, it accelerates the development and deployment of technologies capable of expanding and modernizing the national electric system. In contrast to GridWorks, which focuses on advanced equipment applications, the GridWise Program focuses on grid intelligence—ensuring that the new technologies achieve full

benefit through real-time monitoring, demand response, and distributed sensors and intelligence—acting much like the nervous system of the national transmission backbone. To view the Fiscal Year 2005 Budget Presentation, please visit [http://electricity.doe.gov/documents/glotfelty\\_05\\_roll\\_out\\_4\\_02\\_02\\_04.pdf](http://electricity.doe.gov/documents/glotfelty_05_roll_out_4_02_02_04.pdf).

### [OETD Discusses Blackout Investigation at NARUC Winter Meeting](#)

On March 8, during the National Association of Regulatory Utility Commissioners' (NARUC) Winter Meetings in Washington, D.C., Jimmy Glotfelty, OETD Director, spoke about the August 2003 Blackout Investigation and its implications for reliability that state electric regulators need to address. While he noted that reliability is better since August due to steps taken by industry, states, and the federal government, he stated that additional steps will be needed to avoid blackouts in the future. His panel focused on transmission reliability and included Commissioner Nora Brownell, FERC. At the same meeting, Deputy Director William Parks addressed the Energy Resources and Environment Committee on advanced transmission technologies and briefed the committee on OETD's mission and objectives. To view Mr. Parks' presentation, please visit <http://electricity.doe.gov>.

### [OETD Addresses CECA Transmission Infrastructure Forum Meeting](#)

On March 23, the Consumer Energy Council of America (CECA) held the inaugural meeting of its Transmission Infrastructure Forum. Jimmy Glotfelty, OETD Director and Co-Chairman of the Forum, gave the luncheon keynote address on the blackout Task Force, transmission reliability challenges, OETD's research and development initiatives, and legislative issues.

The purpose of the Forum is to develop recommendations for cost-effective measures for upgrading the nation's transmission system and providing secure, high quality, and reliable electricity. Members of the Forum will address the benefits to consumers of upgrading the transmission system, examine the needs of the transmission system, explore the costs and benefits to consumers of options for financing improvements to it, and make recommendations to policymakers to resolve barriers and develop and implement regional solutions. For more information please visit [www.cecarnf.org/pressreleases/transforumpressrelease.html](http://www.cecarnf.org/pressreleases/transforumpressrelease.html).

### [OETD Receives President's Award for Participation in CFC](#)

This Fall OETD staff donated to the Combined Federal Campaign (CFC), and won the 2003 President's Award for extraordinary support of volunteerism through the National Capital Area. The Combined Federal Campaign is the annual fund-raising drive conducted by federal employees in their workplace each Fall that raises millions of dollars for thousands of non-profit charities.



The mission of the program is “to promote and support philanthropy through a program that is employee focused, cost-efficient, and effective in providing all federal employees the opportunity to improve the quality of life for all.”

For more information on the CFC program, please visit [www.opm.gov/cfc](http://www.opm.gov/cfc).

## DOE Industry Partners Set High Temperature Superconductor Performance Records

SuperPower, Inc. and American Superconductor Corp. recently announced separate performance records for second-generation high temperature superconductors. The two companies are working closely with OETD and National Laboratories to develop commercial-scale production of high temperature superconducting technologies by 2005. On March 4, SuperPower stated that it produced a 57-meter-long wire that is 60% better than the previous record. On March 9, American Superconductor announced that it had achieved record performance that represents a current carrying capacity that is 50% higher than the company’s own previously stated results; double that of any other industrial wire in the world.

Second-generation high temperature superconducting wires were invented at National Laboratories, and industry partners such as SuperPower and American Superconductor are developing technology that is significantly ahead of other countries. The labs have focused on perfecting processing methods for grain alignment while industry has concentrated on developing cost-effective methods for applying superconducting coatings. Second-generation wires represent an order of magnitude of improvement in performance over the superconducting wires that are presently commercially available and with a cost/performance ratio two- to five-times better than first generation conductors.

Sources: Inside Energy, March 15, 2004;  
OETD High Temperature  
Superconductivity Program.



## Oklahoma Students Win Award for Superconduct-U Project

A team of high school students from the Oklahoma School of Science and Math Enid Regional Center recently won the Internet Science and Technology Fair’s Highest Honor from the U.S. Department of Commerce’s National Medal of Technology Program for their Superconduct-U project. The students, with technical advice from Dr. Dean Peterson, Director of the Los Alamos National Laboratory’s Superconductivity Technology Center, completed a project on high temperature superconducting materials, theorizing an electric power grid with the use of superconductors in the generators, cables, fault current limiters, and transformers.

The Internet Science and Technology Fair challenges students to apply science and technology to real-world problems. Competing teams prepare reports on the history of their chosen technology to solve a national problem—for this project, the August 14 blackout. The teams identify two companies and one

product produced by each company that directly relate to the technology (the Superconduct-U team chose General Electric and Southwire), and provide a forecast of what the workforce demand would be over a five-year period to produce and market the team's technical application or process, including the impact such production would have on the marketplace.

The goal of the Internet Science and Technology Fair is to increase student interest in pursuing degrees in engineering and technology. The program strives to do this by encouraging students to use information technology tools to discover and explore the future of science and engineering, providing teachers with a means to integrate technology and research methods into their curricula, and involving scientists and engineers at private companies, government agencies, and research institutions through their roles as online technical advisors, or “digital mentors.”

For more information about Internet Science and Technology Fair winners, please visit [http://istf.ucf.edu/Winners/Hall\\_of\\_Fame/2003-2004/](http://istf.ucf.edu/Winners/Hall_of_Fame/2003-2004/). For more information about the Superconduct-U project, please visit <http://ossm.autrytech.com/03768/index800x600.html>. For general information about the Internet Science and Technology Fair, please visit <http://istf.ucf.edu>.

## DOE Signs MOU with the GridWise Alliance

On March 25, OETD Director Jimmy Glotfelty signed a Memorandum of Understanding (MOU) with the seven founding organizations constituting the GridWise Alliance: Battelle, PJM, Alstom, IBM, Sempra Energy, RockPort Capital Partners, and Utility Automation Integrators to provide a framework for collaborative public/private development of new energy and information technologies for a more reliable and efficient electric system. In attendance were representatives from utilities, industry manufacturers, Capitol Hill staff, and OETD program managers. During the event the Alliance also welcomed the newest members including E2I, Bonneville Power Administration, Nxege, Inc., Schnieder Electric, and AIG.

OETD’s GridWise Program works to develop and integrate sensing, communication, information, and control systems into the electric grid. The goal of the GridWise Program is to enable intelligent grid operations by allowing intelligent use of real-time information, allowing improved electric system reliability and efficiency. The program conducts research into distributed intelligent agents and other communications and



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control systems, coordinates the development of system architecture and associated standards to enable cooperative, real-time system optimization, and develops education and training programs to allow grid operators to perform their jobs more effectively in the face of growing electric system complexity.

The mission of the GridWise Alliance is to identify key operational, technical, and market issues; educate stakeholders; and promote solutions in communications, controls, and information technologies for enhancing functionality and facilitating new value creation within America's electricity system and electric markets. The Alliance believes this will enable a transformed power system that serves as a fundamental driver for inexpensive, clean, and reliable energy.

Sources: GridWise Alliance Bylaws, OETD News:  
<http://electricity.doe.gov>.

### [Eastern Interconnection Phasor Project Working Group Reports on Activities](#)

The Eastern Interconnection Phasor Project Working Group met on March 29-30 to review progress toward the development of a wide area measurement system for the Eastern Interconnection. Five task teams under this working group delivered reports addressing off-line and on-line software applications, business management, standards, and project implementation issues. The meeting featured interactive exhibits by eight hardware and software vendors for real-time measurement technologies and databases. The 45 attendees included representatives from utilities, RTOs, and ISOs who operate transmission systems in the eastern interconnection, vendors, NERC and DOE/Consortium for Electric Reliability Technology Solutions. The working group, led by DOE, is on track to meet its Phase I goal of deploying 30 measurement devices at four locations in the Eastern Interconnection by December 2004.

OETD's Transmission Reliability Program focuses on real-time grid reliability management, including Synchronized Phasor Measurement Tools, which take data snapshots many times per second and display them visually, allowing grid operators to examine more accurate pictures and verify that their systems are operating within safe margins. This information is critical to supporting reliable regional and inter-regional electricity transfers, particularly in the Eastern Interconnection.

The Eastern Interconnection Phasor Project Working Group's mission is to create a robust, widely available, and secure synchronized data measurement infrastructure over the Eastern Interconnection with associated analysis and monitoring tools for better planning and operation, and improved reliability.

To learn more about the Working Group, please visit [http://phasors.pnl.gov/EIPP\\_About.html](http://phasors.pnl.gov/EIPP_About.html).

### [DOE and NYSEDA Announce Energy Storage Request for Proposals](#)

The U.S. Department of Energy and the New York State Energy Research and Development Authority, through a joint energy storage initiative, released a request for proposals for energy storage demonstration, development, and feasibility studies. Three million five hundred dollars in funding is

available and proposals are due June 16, 2004, 3:00 p.m. Eastern Daylight Time. The New York State Energy Research and Development Authority anticipates making multiple awards.

To view the entire Program Opportunity Notice (PON No. 846) please visit [www.nyserda.org/846pon.html](http://www.nyserda.org/846pon.html).

### [WIEB CREPC Meets to Discuss Recommendations for Western United States](#)

On March 24-26, the Western Interstate Energy Board's (WIEB) Committee on Regional Electric Power Cooperation (CREPC) met to discuss proposed recommendations stemming from papers produced by five working groups on reliability, market monitoring, resource adequacy, transmission planning and expansion, and transmission permitting. Meeting attendees, including western state regulatory commissioners and their staff, considered the proposed recommendations as a basis for forming a Multi-State Entity in the West. Several of the papers were prepared by DOE contractors Lawrence Berkeley National Laboratory and the Regulatory Assistance Project as part of a DOE grant to the Western Governors Association to encourage formal regional electricity planning and coordination in the West. Should the work of CREPC and the Western Interstate Energy Board continue to progress on regional planning, governors at future meetings of the Western Governors Association may consider the forming of a Multi-State Entity in the West.

The concept of a regional planning and coordination body known as a Multi-State Entity was developed by the National Governors Association under a separate DOE grant. While there is much ad-hoc electric planning and coordination occurring in the West, it remains to be seen if regional differences can be sufficiently addressed to create a formal regional Multi-State Entity. Unlike the new Organization of MISO States, which formed last year as the nation's first Multi-State Entity and the regional state body complementing the MISO RTO, there is yet no regional transmission operator in the west, making creation of a western MSE more challenging in some respects.

### [DOE Helps New England Region Increase Role of Alternative Energy in Electric Markets](#)

DOE technical assistance to New England on state and regional demand response and energy efficiency policy design continues to pay off. FERC, encouraged by the New England Demand Response Initiative (NEDRI)—a DOE-funded policy dialogue—recently approved the formation of a New England RTO. In the order, FERC agreed to have the new RTO establish an "Alternate Resources" sector that will allow explicit participation in RTO governance (i.e., with voting rights) from renewable and distributed resources, including demand response providers. The region's electric bulk power system and wholesale power market, ISO New England, has won FERC approval to transform itself into a full-fledged Regional Transmission Operator.

In addition, in April 2004, the ISO New England announced the results of a Request for Proposals for local resources in southwest Connecticut, a region with a notorious transmission bottleneck. The award includes the ISO's commitment to purchase 125 megawatts of efficiency, demand response, and distributed generation resources starting June 1 in southwest Connecticut (ramping to 255 megawatts in five years). This initiative builds on ISO New England's commitment to develop a region-wide demand response program that provides incentives for customers to reduce their electricity use or switch to backup generation during high demand periods.



NEDRI was established to develop a comprehensive, coordinated set of demand response programs and policies for power markets and systems throughout the New England region. Its members work to develop demand response programs and policies appropriate for the region's wholesale market structures and retail structures evolving in each of the region's six states. To learn more about NEDRI or to download its final report and recommendations, please visit <http://nedri.raabassociates.org/>.

### Energy Supply Association of Australia Invites DOE to Present on Blackout

The Energy Supply Association of Australia recently invited the U.S. Department of Energy to present information on the Final Blackout Report at its Third Annual Critical Infrastructure Program Seminar in Sydney. Jeffery Dagle, Pacific Northwest National Laboratory, represented OETD at the seminar and presented on two separate occasions. On April 19 he discussed "Lessons Learned from the August 14, 2003, North American Blackout," and on April 20 he presented to a smaller group of member utilities "The August 14, 2003, North American Blackout: Sequence of Events, Root Causes, and the Investigation Process."

After the seminar adjourned, Mr. Dagle attended U.S.-Australia Bilateral Discussions on Critical Infrastructure Protection in Canberra. During the discussions with this group, he presented "Lessons Learned from the August 14, 2003, North American Blackout" once again. He was accompanied by a DOE delegation that included representatives from the Office of Energy Assurance and Sandia National Laboratories.

During his stay in Australia, a suspected terrorist was accused of intending to disrupt the power grid in Sydney. The suspect tried to obtain power grid maps from the Energy Supply Association of Australia; thus, the association and the government agencies involved in the bilateral discussions were also involved in the investigation. For more information on this news story, please visit [www.news.com.au](http://www.news.com.au) and type "Sydney power grid terrorist" into the search field.



For more information on the Energy Supply Association of Australia and its Third Annual Critical Infrastructure Program Seminar, please visit [www.esaa.com.au](http://www.esaa.com.au) or [www.esaa.com.au/images/CIP042004.pdf](http://www.esaa.com.au/images/CIP042004.pdf).

### April Blackouts at the Los Angeles International Airport and Bellagio Casino in Las Vegas

- 100 flights affected at LAX
- LAX radar, radios, telephones off for 60 seconds to 3 hours
- 3,005 rooms at Bellagio lost power
- Bellagio business losses likely exceeded \$3M



Sources: *Las Vegas Sun*, 4/12; *USA Today*, 4/12; *CBS News*, 4/12.

### Please tell us what you think...

Please take a moment to give us your feedback on the May 2004 issue of *OETD Electric Connection*.

Were the articles you read useful?    Yes    No

Which one(s)? \_\_\_\_\_

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What are you interested in learning more about? \_\_\_\_\_

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What can we do to improve future newsletters? \_\_\_\_\_

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Other comments: \_\_\_\_\_

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Please fax to Tara Nielson, (202) 479-0154 or email to [OETDnews@energetics.com](mailto:OETDnews@energetics.com).

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**Calendar of Events**

Date	Event	Location	Contact Information
June 3	Conference on Energy Infrastructure in the Northeast	New York, NY	<a href="http://www.ferc.gov">www.ferc.gov</a> ; <a href="mailto:carol.connors@ferc.gov">carol.connors@ferc.gov</a>
June 6-9	Edison Electric Institute 2004 Annual Convention/Expo	Orlando, FL	<a href="http://www.eei.org/meetings/index.htm">www.eei.org/meetings/index.htm</a>
June 10-11	Second Annual Forum on New York Power Supply	New York, NY	<a href="http://www.cbinet.com/events/PB437/cbi.asp">www.cbinet.com/events/PB437/cbi.asp</a>
June 13-16	National Association of State Utility Consumer Advocates Mid Year Meeting	Austin, TX	<a href="http://www.nasuca.org/cal">www.nasuca.org/cal</a>
June 13-16	Mid-America Regulatory Conference 2004 Annual Conference	Madison, WI	<a href="http://psc.wi.gov/a_marc04/htmlPages/index-new.htm">http://psc.wi.gov/a_marc04/htmlPages/index-new.htm</a>
June 13-16	Southeastern Association of Regulatory Utility Commissioners Annual Meeting	Charleston, SC	<a href="http://www.state.va.us/scc/searuc">www.state.va.us/scc/searuc</a>
June 13-16	2004 Western Conference of Public Service Commissioners	Anchorage, AK	<a href="http://www.state.ak.us/rca/psc_conference/wcpsc.htm">www.state.ak.us/rca/psc_conference/wcpsc.htm</a>
June 19-23	American Public Power Association National Conference	Seattle, WA	<a href="http://www.appanet.org/meetings/calendar.cfm">www.appanet.org/meetings/calendar.cfm</a>
June 27-30	Mid-Atlantic Conference of Regulatory Utilities Commissioners	White Sulphur Springs, WV	<a href="http://macruc.narucmeetings.org">http://macruc.narucmeetings.org</a>
July 11-14	National Association of Regulatory and Utility Commissioners Summer Committee Meeting	Salt Lake City, UT	<a href="http://summer.narucmeetings.org">http://summer.narucmeetings.org</a>
August 2-3	3rd Annual T&D Asset Management	TBA	<a href="http://www.cbinet.com/events/PB427/index.html">www.cbinet.com/events/PB427/index.html</a>
August 8-11	Energy 2004	Rochester, NY	<a href="http://www.energy2004.ee.doe.gov">www.energy2004.ee.doe.gov</a>
October 10-13	EEI Fall Transmission, Distribution, and Metering Conference	Minneapolis, MN	<a href="http://www.eei.org/meetings/index.htm">www.eei.org/meetings/index.htm</a>

**If you would like to have your organization's upcoming event included in OETD's calendar of events, please send your submission to [OETDNews@energetics.com](mailto:OETDNews@energetics.com).**