

# **NERC**

**NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION**

## **Planning for New Reactors, Necessary Transmission and Reliability Standards**

**March 16, 2010**

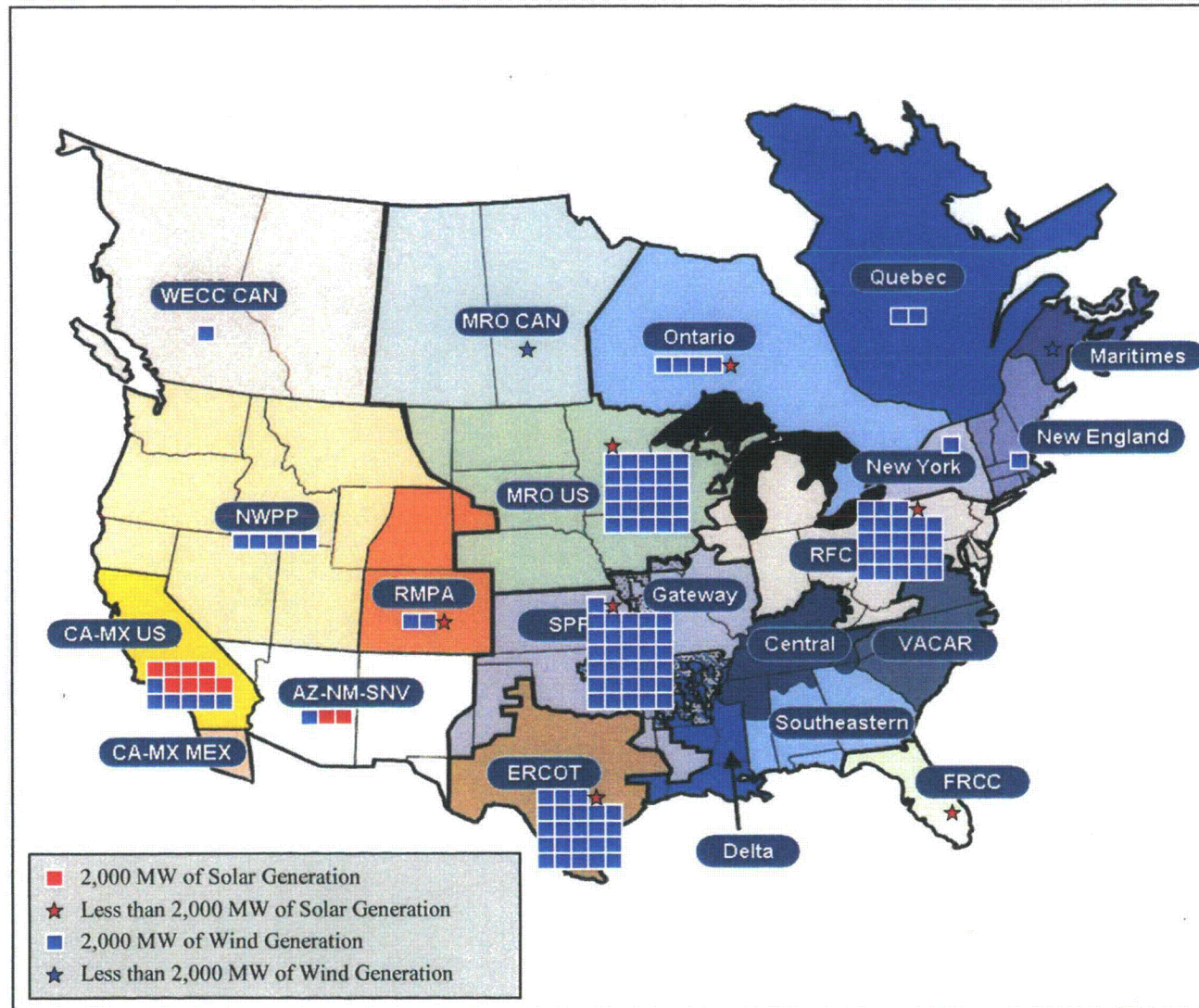
**David R. Nevius**

**Senior Vice President - NERC**

# **Long-Term Reliability Issues**

- **Decreased Demand, Higher Margins**
- **New Renewable Resources**
- **Natural Gas the Leading Fuel for New Capacity**
- **Transmission Siting and Construction**
- **Climate Legislation**
- **Cyber Security**

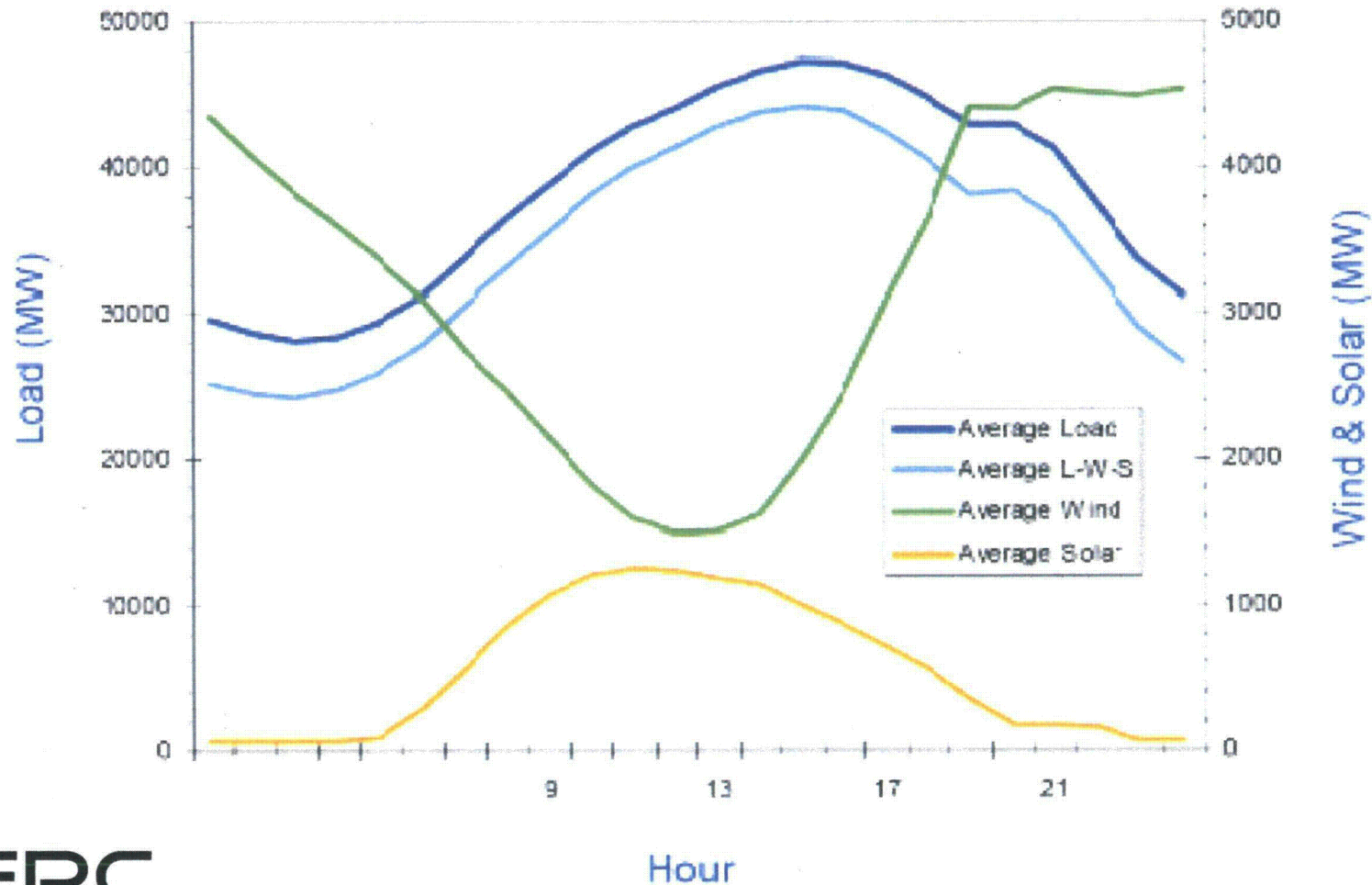
# Addition of Variable Resources



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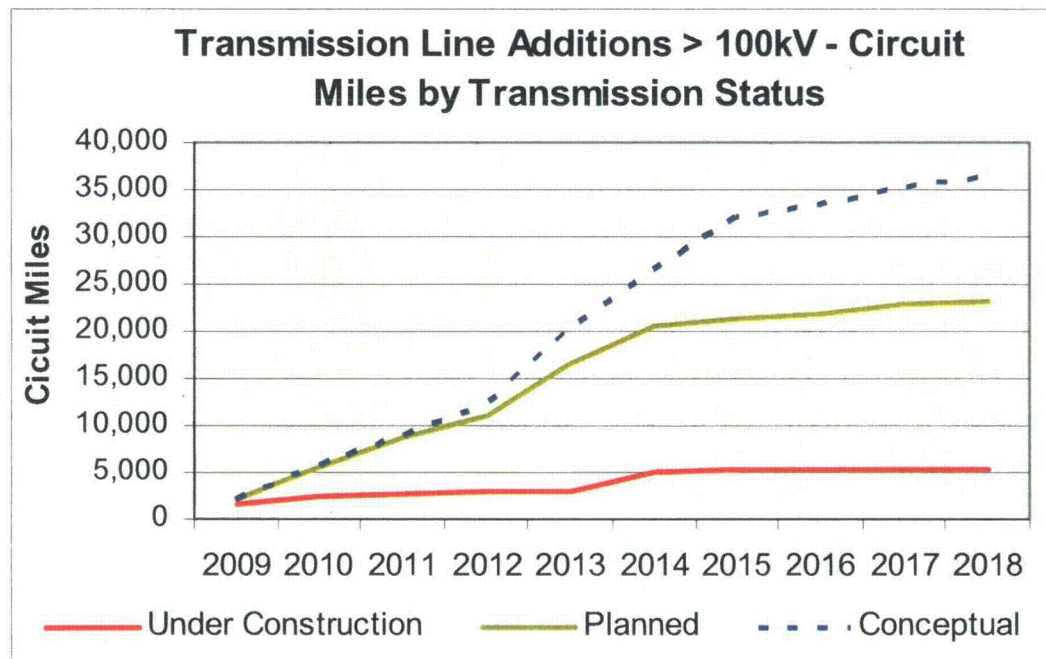
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# Variable Output Limited Dispatchability

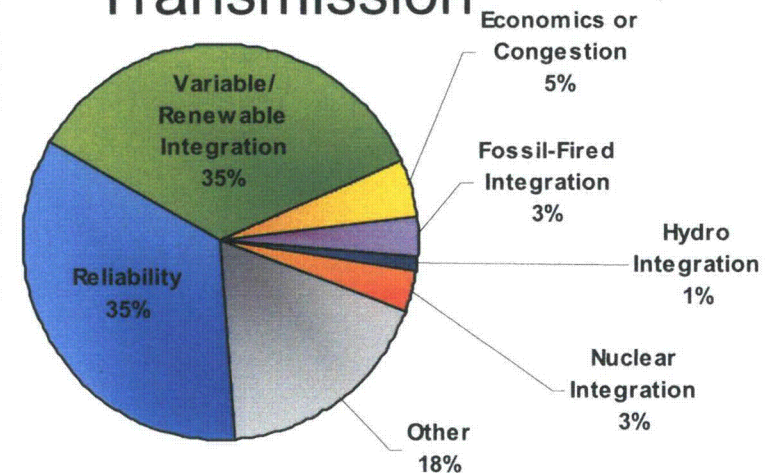




# Transmission Planning, Siting and Construction



- 24,000 miles of Planned Transmission
- An additional 12,000 miles of Conceptual Transmission





# **Update on Reliability Standards**

**March 16, 2010**

**Keith O'Neal - Director  
Division of Reliability Standards  
Office of Electric Reliability**

# **FERC's Role**

- **Reliability Standards are drafted / modified via an industry process facilitated by the Electric Reliability Organization\* (ERO)**
- **FERC does not draft Reliability Standards**
- \* **FERC certified the North American Electric Reliability Corporation (NERC) as the ERO**

# **FERC's Role, Cont.**

## **FERC Reliability Standard actions:**

- **Approve as mandatory**
- **Remand back to the ERO**
- **Approve as mandatory, & direct modifications to the standard**



# **NUC-001-2 Update**

- **Nuclear Power Plants (NPPs) are important to bulk power system reliability**
- **FERC staff coordinated with NRC staff**
- **Coordination efforts successful & will continue**

# **NUC-001-2 Update, Cont.**

- **Commission approved NUC-001-1 w/directives 10/16/08 (Order 716)**
- **On 8/14/09, ERO filed a modified version of NUC-001**
  - clarifying references to coping times & off-site power restoration and**
  - specifying that integrated utilities document compliance procedures**

# **NUC-001-2 Update, Cont.**

- **Commission approved NUC-001-2 on 1/21/10 (RD09-10-000)**
- **Effective date of NUC-001-2 is 4/1/10**



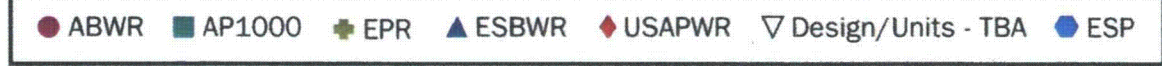
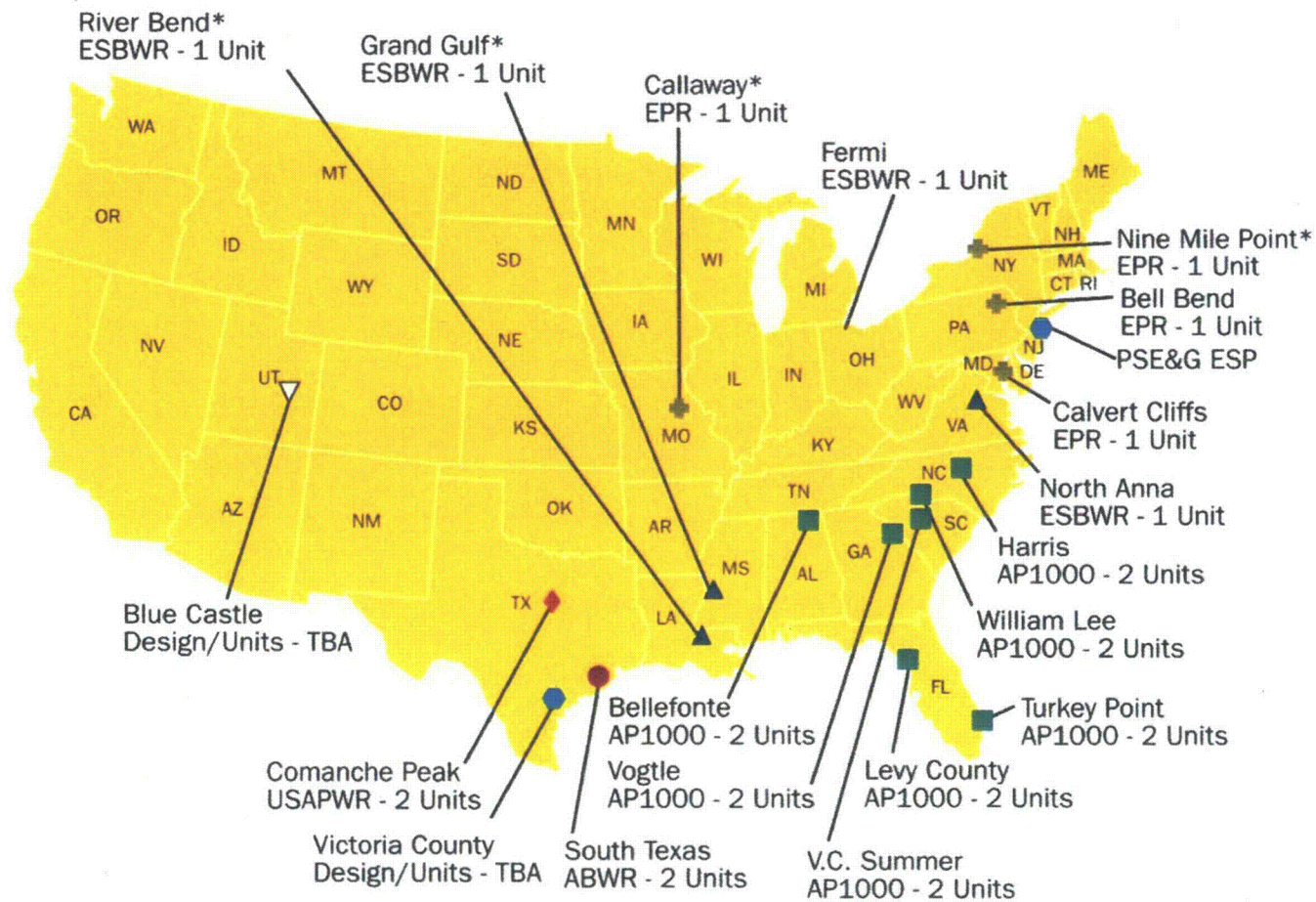
# **UPDATE ON PLANNING FOR NEW REACTORS**

**March 16, 2010**

**David B. Matthews, Director  
Division of New Reactor Licensing  
Office of New Reactors**

# **Transmission and Grid Reliability**

- **Regulatory Requirements Regarding Transmission**
  - **10 CFR Part 50, Appendix A, General Design Criterion 17 (requirements for independent offsite power sources)**
- **Importance of Grid Reliability on Reactor Safety**
  - **Transmission line(s) serving as the offsite power source provide power to safely shut down the reactor**



\*Review Suspended by Applicant





# **SITUATIONAL AWARENESS AND EVENT ANALYSIS**

**March 16, 2010**

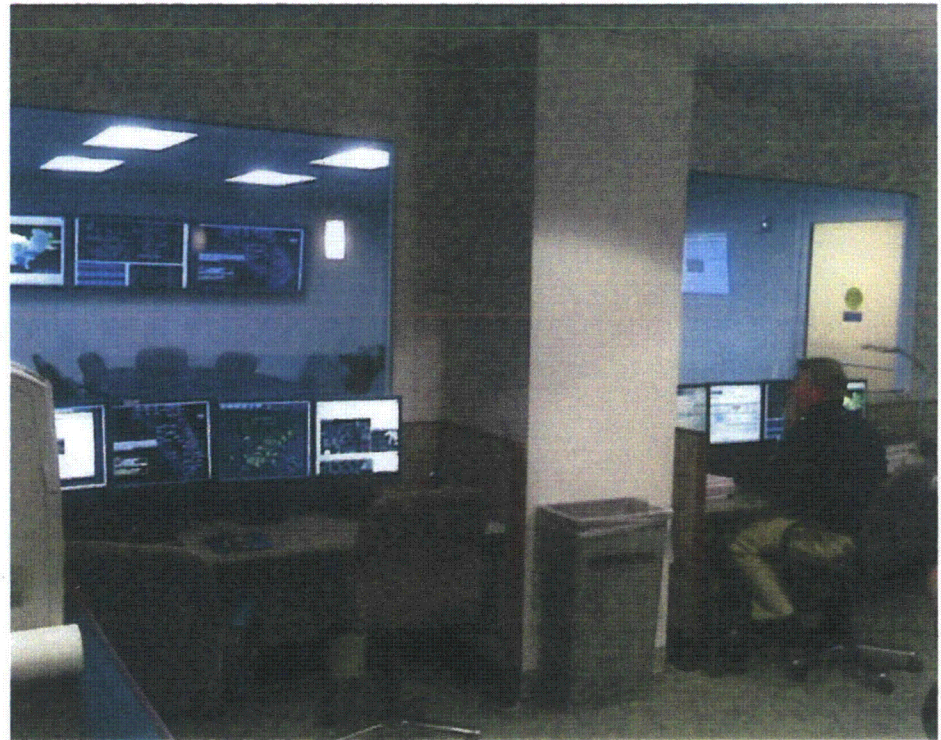
**David Andrejcak**

**Office of Electric Reliability**

# **Division of Bulk Power System Analysis**

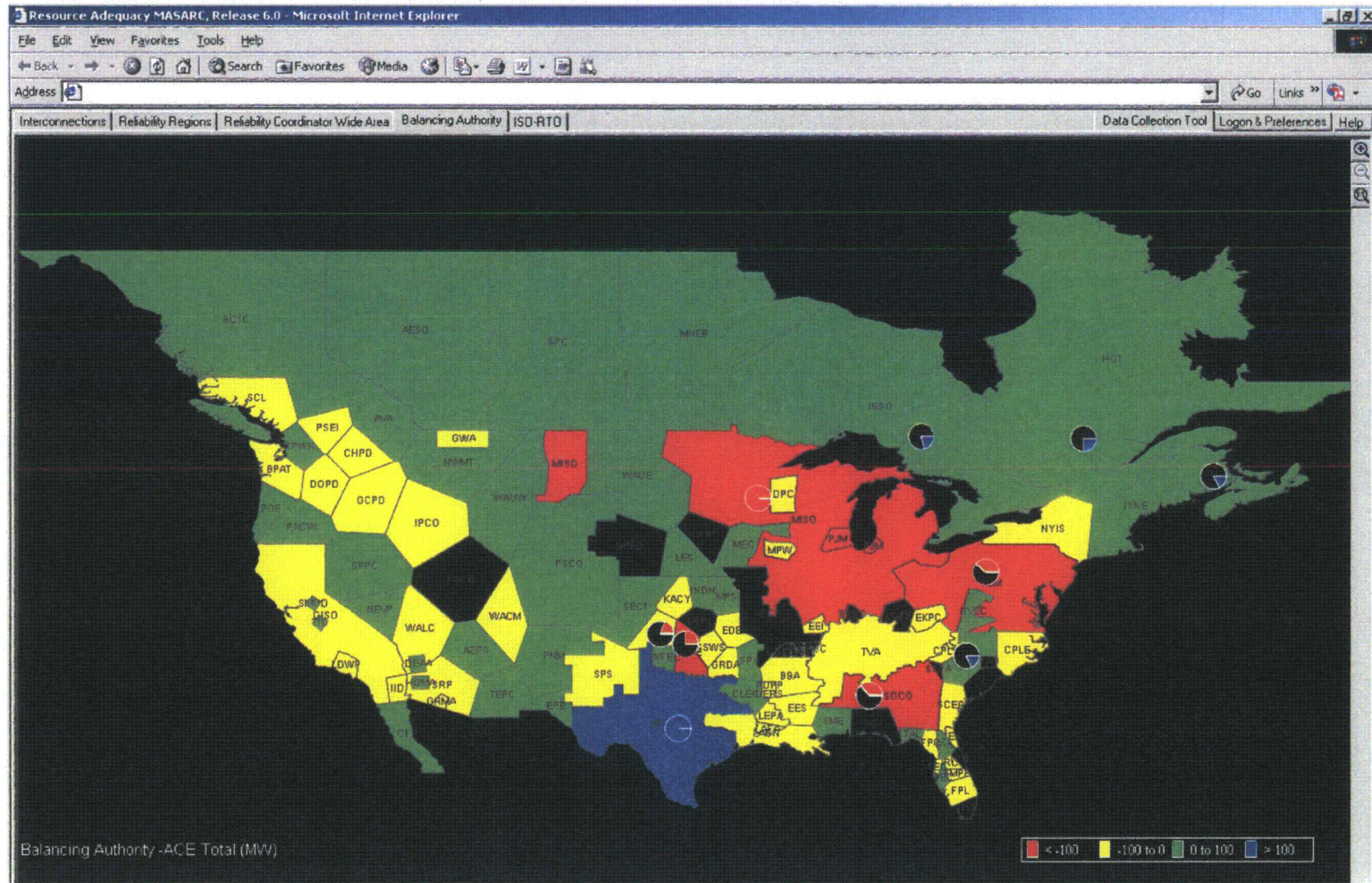
- **August 14<sup>th</sup>, 2003**
- **Reliability Authority to FERC  
through EPACT 05**
- **Office of Electric Reliability**
- **Situational awareness and event  
analysis**
- **Provide technical analysis of Bulk  
Power issues to the Commission**

# Reliability Monitoring Center





# Reliability Monitoring Center





# Event Analysis



# **Situational Awareness**

- **Daily Monitoring**
- **Coordination with ES-ISAC**
  - **Electricity Sector Information Sharing and Analysis Center**
  - **Monitoring of emergency notifications, conference calls and coordination**
  - **Bi-weekly event reviews**
- **Notification of senior staff**





# Reliability Standards and other Joint Activities Joint NRC/FERC Meeting

David L. Skeen, Acting Director  
Division of Engineering  
Office of Nuclear Reactor Regulation

March 16, 2010

# Overview

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- Progress since April 8, 2008 Joint Commission Meeting
- Reliability Standards Activities
- Joint Event Investigations
- Grid Assessment for Power Up-Rates and enforcement discretion actions
- Grid Condition Monitoring



# April 8, 2008 Follow-up

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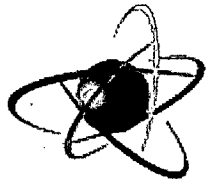
- NRC, FERC and NERC staff continue to meet quarterly
- NRC shared lessons learned with FERC on DHS's review of the nuclear sector
- NRC shared experience with FERC on enforcement
- NRC participated in Joint Grid Event Investigations.



## Reliability Standards Activities

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- Continued working closely with FERC/NERC in the Reliability Standards and other processes
- NRC Staff is participating in the NIST Smart Grid Interoperability Panel providing oversight of standards development for Smart Grid development.



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*Protecting People and the Environment*

# Joint Event Investigations

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- NRC staff participated with NERC and FERC staff in the investigation of the Florida Grid Event in Feb 2009
- NRC staff participated with NERC and FERC on the assessment effort for power restoration after 2008 hurricanes



## Grid Assessment in Support of Power Uprate Evaluations

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- NRC Staff uses grid assessments as part the evaluation of power uprate license amendments
- NRC Staff continues to utilize support (as needed) from NERC and FERC Staff for enforcement discretion cases at NPPs which involve consideration of grid reliability and its relationship to nuclear safety.





# Grid Monitoring

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- NRC continues to monitor grid status with support from FERC/NERC
- A Grid Status Report is prepared daily and posted on the internal NRC website by NRR/DE



# List of Acronyms

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- DHS – Department of Homeland Security
- FERC - Federal Energy Regulatory Commission
- NERC - North American Electric Reliability Corporation
- NIST – National Institute of Standards and Technology
- NRC – Nuclear Regulatory Commission

# **NERC**

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## **Cybersecurity Activities**

**March 16, 2010**

**Gerry W. Cauley**

**President & CEO - NERC**

# **Cybersecurity Topics**

- **Overall Vision**
- **Action Plan for Identification of Critical Cyber Assets**
- **Bulk Power System Critical Infrastructure Protection Policy**
- **Aurora Issue – Next Steps**
- **NRC-NERC MOU Implementation Plan**

# Overall Vision

- **Policy level goals for physical and cybersecurity protection**
- **Proactive mitigation of security risks**
- **“Bright Line” criteria for identifying critical bulk power system assets**
- **Availability of actionable information**
- **Incident reporting, analysis & feedback**
- **Communicate industry efforts to the government and public**

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# **Action Plan for Identification of Critical Cyber Assets**

- **July '09 survey results reported to FERC**
- **Revised draft standard on identification of critical/critical cyber assets posted**
- **Criteria for evaluating impact on critical functions as high, medium or low**
- **Apply to remaining CIP standards**
- **Risk driven monitoring in 2010**



# **Critical Infrastructure Protection Policy**

- **Initial policy developed for discussion**
- **Guidance on prevention/detection, resilience, response and restoration, and help set priorities**
- **Used in communicating expectations**
- **Sharp focus on definition/scope of CIP concerns and intelligence threats**
- **Recommend for NERC board approval following review of comments**

# **Aurora Issue**

## **Next Steps**

- **June 2007 Advisory on Aurora issue lacked details and mitigation suggestions**
- **Technical team worked with federal partners with emphasis on protection and control**
- **DRAFT Overview, Alert, FAQs, Utility Checklist, and technical references posted for industry review and comment**
- **Assess ability of registered entities to apply information to enhance existing mitigations**
- **Plan for future Alerts based on responses**

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# **NRC-NERC MOU Implementation Plan**

- **MOU effective December 30, 2009**
- **January 19 response to FERC order on plans and schedule for plant owners/operators to come into compliance with CIP standards**
- **Bright Line Survey document for use in determining which Systems, Structures and Components fall under NERC CIP standards**
- **Plan for four industry workshops**
- **Finalize entity Bright Line documents**



# **Cyber Security**

**March 16, 2010**

**Regis F. Binder**

**FERC**

**Director, Logistics &  
Security**

**Office of Electric Reliability**

# **Technical Feasibility Exceptions (TFE)**

- **Enables more demanding requirements**
- **Conceptually authorized in Order No. 706 in January 2008**
- **Requires compensating measures and/or mitigating measures**

## **TFE's Cont.**

- **Proposed plan for terminating the Exception**
- **Approval during audit process**

# **TFE's Cont.**

- **Order issued Jan. 21, 2010**
- **Approved new Rules of Procedure but required compliance filing regarding:**
  - **Class-Type TFEs**
  - **Consistency in administering TFE process**
  - **Role of Regional Entities in TFE process**
  - **Reports by Regional Entities & ERO on TFEs**

# **Critical Assets**

- **Current risk-based approach**
  - **Critical Assets – control center, generators, etc.**
  - **Critical Cyber Assets – essential to operation of Critical Assets**



# **Critical Assets cont.**

- **New Approach being considered**
  - **Categorize Assets – High, Medium or Low impact**
  - **Categorize cyber systems with potential to adversely impact reliable operations**

# **Addressing Cyber Security Standards in Nuclear Power Plants**

- **Raised at April 8, 2008 joint  
FERC/NRC meeting**
- **Order 706-B issued in March 2009**
  - **“Balance of plant” is subject to  
ERO & FERC**
  - **Exceptions can be obtained for  
equipment subject to NRC cyber  
security regulations**

# **FERC's Request for Additional Authority**

- **Seeking to solve current shortcomings:**
  - **Time to develop standard**
  - **Public aspect of process**
  - **Uncertain outcome**
- **Context of emergency action**



United States Nuclear Regulatory Commission

*Protecting People and the Environment*

# **Cyber Security Activities**

**Scott Morris**

Deputy Director for Reactor Security

Division of Security Policy

Office of Nuclear Security & Incident Response

## Discussion Topics

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- New Regulations
- Regulatory Guidance
- Site-specific Plans
- Implementation Schedules
- Oversight Program
- NERC Memorandum of Understanding
- Other Activities

## New Regulations

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- New cyber security requirements issued March 2009 (10 CFR 73.54)
  - Protect against Design Basis Threat
  - Safety, Security and Emergency Response functions
  - Defense-in-Depth mandate

# Regulatory Guidance

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- Comprehensive implementing guidance issued Jan. 2010 (Reg. Guide 5.71)
  - Adapts security controls in National Institute of Science & Technology standards
  - Includes generic cyber security plan template

## **Site-Specific Plans**

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- All operating reactors have submitted plans
- Staff to complete reviews by Oct. 2010
- Plans will be operating license conditions (i.e., enforceable)



# Implementation Schedules

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- Each site submitted a proposed “full implementation” date
- Dates vary (influenced by multiple factors)
- Final date will be an operating license condition

## Oversight Program

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- Early stage of development
- Broad stakeholder input will be obtained
- “Pilot” inspections likely
- Coordination with NERC audits planned

## **NERC / NRC MOU**

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- Published in Federal Register (Jan. 2010)
- Support for multiple industry workshops
- Review of exception requests
- Coordination inspections / audits

## Other Activities

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- Actively monitoring cyber threat
- Participating in intergovernmental activities
- Established Cyber Assessment Team