

# DOE Update

### **NASPI Working Group**

### March 6, 2008 New Orleans, Louisiana

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## **NASPI Network Architecture RFP**

- Competitive Solicitation through DOE's National Energy Technology Lab (NETL)
- DOE, NETL and the NASPI drafting team are committed to expediting the process along the critical path to assure award in shortest possible time
- Expected Award Summer 2008







## Summary of Research Goals and Milestones

Research Near-Term Areas (1-2 Years)	Mid-Term (2-5 Years) • Wide-area visibility with full coverage	Long-Term (5-10 Years)
<ul> <li>Monitoring</li> <li>Planning</li> <li>Infrastructure Management</li> <li>Control</li> <li>Protection</li> <li>Switching</li> <li>Wide-area visibility with common situational awareness screens</li> <li>Baseline normal operating conditions, limits and alarr for El</li> <li>Demonstrate improved state estimation with phasor measurements</li> <li>Model validation for better system understanding</li> <li>Identify human factors &amp; visualization needs for phate based operations tools</li> <li>Define procedures for enhanced grid "forensics"</li> <li>Design next generation data and communications infrastructure</li> <li>Define research and demonstration approach for real-time control</li> </ul>	<ul> <li>Approaching real-time state measurement for operators</li> <li>Dynamic system security assessment tools</li> <li>Common operator tools deployed</li> <li>Congestion management</li> <li>Dynamic ratings</li> <li>Improved LMP</li> <li>Work with industry to initiate major demonstration of real-time control for dynamic security</li> <li>Work with industry to demonstrate adaptive islanding protection concepts to improve protection fro wide-area blackouts</li> <li>Develop strategy for next-generation operational tool concepts and identify research needs for federal investment</li> </ul>	<ul> <li>Real-time protection</li> <li>Distributed closed loop control</li> <li>Automatic smart- switchable networks</li> </ul>
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## DOE Focus on Long-Term R&D Challenges

#### Analysis of Data

- Baseline for normal
- Anomaly detection
- Anomaly magnitude characterization
- Anomaly Footprint
- Pattern Detection

#### **New Applications**

- Wide area situational awareness
- System dynamics assessment
- Improved modeling
- State estimation/measurement
- Grid of the Future design, monitoring, control, protection, & automated network switching

### Industry Focus: Infrastructure

### DOE Focus: R&D







## North American SynchroPhasor Initiative

- Leadership and Task Team-directed research
- Real Time Dynamic Monitoring System (RTDMS)
- WAMS Outreach System Modeling and Validation
- Data Architecture RFP
- NIST SynchroMetrology Lab

Total FY08 funding: \$1,935,000







## Automatic Switchable Network

- CCET/TAMU Substation Information
- Modal Analysis for Grid Operations (MANGO)
- Characteristic Ellipsoid Method for Wide-Area Dynamic Monitoring
- Risk-Based Security Assessment
- Statistical Analysis of Abnormal Behavior
- Adaptive Islanding Demonstration
- Real-Time Control Demonstration Scoping
- Wide-Area Multidimensional Nomogram
- Measurement-Based Stability Assessment

Total FY08 funding: \$1,690,000









- DOE is committed to an expedited award and development of a SynchroPhasor Data and Network Management Specification
- In support of industry's leadership of NASPI, DOE will actively support needed R&D to ensure that the full value of a North American phasor network will be realized





