DOE NASPI Update

NASPI Working Group Meeting

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Power System Reliability Analysis Gaps

- Lack of wide-area visibility
- Lack of situational awareness
- Need for time-synchronized data recorders

Phasor measurement technology is the solution



Emerging Roles and Responsibilities

DOE

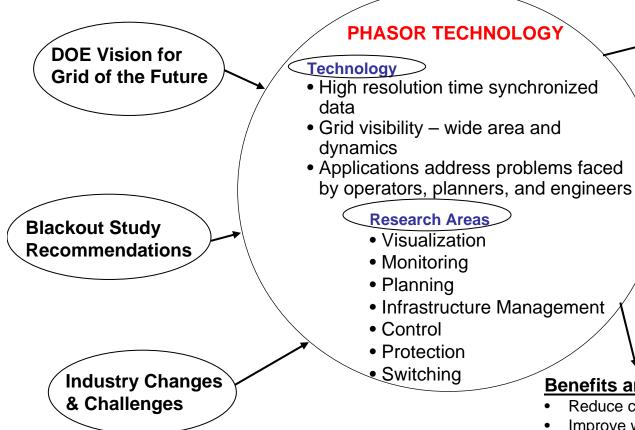
- Support longer range R&D that provides new metrics and advanced applications to exploit the full capability of this technology
- Coordinate utility research and demonstration activities
- Facilitate research towards establishing compliance monitoring guidelines and industry standards
- Collaboration with the 3
 Interconnections and ERO in the national interest of the electric grid

INDUSTRY

- Individually install hardware in the field
- Collectively install and maintain networking communications systems
- Engage vendor community in pilot demonstration activities for their advanced applications (e.g. stateestimation, dynamic line rating, dynamic security assessment)
- Work with vendors to incorporate newly defined functionalities and standards into their commercial offerings



Phasor Technology Vision and Roadmap -**Overview**



Research Outcomes

- System visibility and situational awareness across entire interconnection
- Wide area grid monitoring common data and visualization platform
- Interconnection wide state estimation
- State measurement based grid operations and security management
- Uniform standards and protocols for data collection. communications, and security
- Reliable and high quality phasor data to facilitate smart grid control and operations
- Dynamic system security assessment

Benefits and Values

- Reduce congestion
- Improve wide area visibility
- Monitor system dynamics for early detection of trends and corrective actions
- Improve existing asset utilization dynamic system
- Improve system models and state estimation

Advanced Applications Projects

Analytical Investigations

- Measurement-Based Stability Assessment
- Modal Analysis for Grid Operations
- New Characteristics Ellipsoidal Methods for Monitoring Power Systems Dynamics using PMU Data
- Demonstration of Adaptive Islanding in WECC
- Synchronized Sampling Uses for Real-Time Monitoring and Control

Planning, Testing and Technical Support

- Real-Time Grid Control Scoping Study
- Technical Support to WECC
- SynchroMetrology Laboratory
- Phasor Roadmap Extension
- Expansion of FNet Deployment



Summary

- DOE fully supports industry efforts to promote and enable widespread adoption of advanced monitoring technologies to ensure grid reliability
- 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
- DOE is committed to ensuring that gaps do not emerge as NASPI activities reach full maturity

