

# NERC

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

## Integrating Variable Generation Task Force (IVGTF) Work Plan and Time Line

March 2008

## **Integrating Variable Generation Task Force (IVGTF) Work Plan and Time Line**

### **Charter**

#### *Purpose and Deliverables*

The Task Force will prepare 1) a concepts document that includes the philosophical and technical considerations for integrating variable resources into the Interconnection, and 2) specific recommendations for practices and requirements, including reliability standards, that cover the planning, operations planning, and real-time operating timeframes. The document will include:

1. Planning timeframe issues, such as contribution to reserve margins and modeling requirements to test system reliability,
2. Operational Planning and Real-time operating timeframe issues, including Interconnection frequency, and primary and secondary generation control
3. Gaps in NERC Standards, and
4. Conclusions and recommendations.

#### *Approach and Milestones*

The Task Force will work with the Planning Committee's Resources Issues and Transmission Issues Subcommittees, and the Operating Committee's Resources Subcommittee. The TF will provide updates and discuss philosophical and technical issues with the Planning Committee and Operating Committee at the Committee's March and June 2008 meetings, with final approval of the paper slated for December 2008.

#### *Background*

As variable resources are expected to grow substantially throughout North America (in some locations targeted over 30% of overall capacity), understanding how to reliably integrate them into the bulk power system and their influence on reliability becomes increasingly important.

Transmission systems that connect to significant amounts of variable resources must be designed for reliable delivery of energy while supporting a multitude of generation patterns. Traditional peak period analysis of transmission requirements does not represent the variable generation patterns. Hourly simulations of generation variations within the transmission systems are required to ensure transmission systems are designed to deliver the variable resources when they are available. Indeed, the transmission owners and operators and balancing authorities may need new planning and operating "tools" and reliability guides that focus on delivering energy. Energy margins and expected unserved energy are important ways to determine system adequacy.

### *Goal*

- Raise industry awareness/understanding of characteristics of variable generation
- Raise industry awareness/understanding of the challenges associated with large scale integration of variable generation
- Investigate impacts on traditional approaches used by system planners and operators to plan, design and operate the power system.
- Scan NERC Standards and business practices and identify possible gaps and future work.

### *Guiding Principles*

1. Bulk power system reliability must be maintained, regardless of the variable and traditional generation mix
2. All generation must contribute to overall bulk power system reliability
3. Standards and criteria established must be fair, transparent and performance-based
4. Planners and operators must have a complete understanding of the challenges presented by large scale integration of wind and other variable generation into existing bulk power systems
5. Wind and other variable generation must effectively integrate into planning and operations practices to ensure reliability of the bulk power system
6. Additional technology developments should be described in terms of overall bulk power system reliability performance requirements

### **Outline of Draft White Paper**

- Characteristics of Variable Generation (including Diversity)
  - Challenges with large scale integration of variable generation
- Planning and Technical Impacts
  - Method(s) to determine system capacity to ensure adequate supply during all periods
  - Technical/Interconnection Requirements for variable power facilities
  - Off-peak and ramping simulations
  - Dynamic and Static Modeling
- System Operations (Current & future resources & tools)
  - Restoration after emergencies
  - Forecasting
  - Dispatchable Generation
  - Ancillary services
  - Variable Power Management
  - Demand Side Resources
  - Dispatchable Inertias
- Other and Future Considerations

- Diversity
- Storage technologies
- NERC Standard Review –
  - Review standards, business practices and identify possible gaps and future work.
  - For example, NERC’s minimum threshold for Generator Verification Project standards includes plants that are comprised of multiple small generating units with an aggregated capacity of 75 MVA at the point of bulk power system interconnection.
- Conclusions & Recommendations
- Glossary

### Work Plan and Time Line

Item	Goal	Lead	2008 Milestones
Conference Call	Review Report outline and make assignments	Lauby	February
OC/PC	Status Report	Frost & Lauby	March
Meeting	Review assignments first drafts	Task Force	March
Conference Call	Leadership Conference Call	Frost & Lauby	March
Updated Outline	Sub-group final Outlines	Sub-group Leaders	April 7 <sup>th</sup>
Conference Call	Leadership Conference Call	Frost & Lauby	April 25 <sup>th</sup>
1 <sup>st</sup> Draft of Report	Send to Lauby who will compile and send to Task Force	Sub-group Leaders	May 2 <sup>nd</sup>
Comments Back on 1 <sup>st</sup> Draft	Lauby creates Synopsis of Comments & Draft Agenda	Task Force	May 9 <sup>th</sup>
Meeting	Review comments and work on second drafts	Task Force	May 12 <sup>th</sup> (½ day) May 13 <sup>th</sup> (full day)
OC/PC	Status Report & preliminary finding	Frost & Lauby	June
Meeting	Review Final Draft Report	Lauby	August
OC/PC	Present Final Draft Report	Frost & Lauby	September
Meeting	Review OC/PC Comments	Task	November

	and develop Final Report	Force	
OC/PC	Present Final Report and recommendations	Frost & Lauby	December
Meeting/Workshop	Open Meeting to Present results to the public	Task Force	January, 2009

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