

# NERC

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

## Functional Model – Version 4 Workshop

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FMWG

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to ensure  
the reliability of the  
bulk power system

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- Ben Li — Ben Li Associates, Inc.

# Reliability Functional Model

- The NERC Reliability Functional Model provides the framework for NERC's Reliability Standards.
- The Model describes a set of Functions that are performed to ensure the reliability of the bulk electric system. Each Function consists of a set of reliability Tasks.
- The Model assigns each Function to a Responsible Entity. The Model also describes the interrelationships between that Responsible Entity and other Responsible Entities (that perform other Functions).
- NERC's Standards Development Teams develop Reliability Standards that assign each reliability requirement within a standard to a Functional Entity (that is defined in the Model).
- The Model's Functions and Responsible Entities also provide for consistency and compatibility among different Reliability Standards.

# Reliability Functional Model

- Task definitions and interrelationships contained in the Model guide the development of Reliability Standards.
- The Model is independent of any particular organization or market structure.
- An organization may perform more than one Function and register as the corresponding Functional Entities.
- The Functional Model describes a Responsible Entity envisioned to ensure that all of the Tasks related to its Function are performed.

# Reliability Functional Model

- The Functional Model is maintained by the Functional Model Working Group (FMWG) under the direction of the NERC SC.
- The NERC OC, PC and CIPC have approval authority over the technical content of the Functional Model.
- The Functional Model Technical Document provides additional details on the Functions themselves, how organizations can “roll up” those Functions they wish to perform, and how organizations as “Responsible Entities” interrelate.

# Functional Model v4 Scope Highlights

- Revised Pages 1–12 addressing those directives listed from the Operating Committee and Standards Committee.
- Reviewed Pages 13–53 addressing those issues raised in comments.
- Revised Technical Document accordingly.
- Planning Coordinator entity is retained in version 4. All planning related functions and entities remain unchanged from v3.

- Regional Reliability Assurance / Regional Reliability Organization were changed to Reliability Assurance / Reliability Assurer.
- The changes reflect the view that reliability assurance could be performed on something other than a regional basis. Moreover, the Responsible Entity need not be a Regional Entity.

- Compliance Monitoring / Compliance Monitor were changed to Compliance Enforcement and Compliance Enforcement Authority.
- The changes are judged to better reflect the strong role of compliance in the ERO regime.

# Other Revisions

- The wording was changed in a number of instances to ensure that the Model's Tasks and relationships between Responsible Entities do not specify prescriptive requirements. Prescriptive requirements are specified in reliability standards and NERC processes, not in the Model.
  - For example, references in Version 2 that a Responsible Entity "must ensure" or "is required to ensure" are changed in Version 4 to simply "ensures".
  
- It was clarified that the Generator Owner and Transmission Owner *provide for the maintenance* of their respective assets.
  - This recognizes that the performance of the maintenance may be assigned by the owner to another party, for example, to a Generator Operator or Transmission Operator.

## Function and Entity Changes

- Remove Regional Reliability Assurance function
- Remove Regional Reliability Organizations entity

## Other Changes

- Delegation – Don't need to assign to single entity. The delegation agreements are related directly to the Standards, Compliance, and reliability assessments. Model should not delve into delegation, compliance, or certification requirements because those issues are handled in other NERC programs.
- The Model should be an *informational* filing with FERC
- RCs develop reliability plans

## Other Changes (cont'd)

- Remove “shall” and “must” statements.
- Remove “An organization identified as a Responsible Entity is accountable for...”
- Review other troublesome language:
- Review Guiding Principles; currently too prescriptive
- Don't include “boundary conditions”

## Changes

- Address RRO issue.
- Use of the terms 'defines' and 'must' could be read as requirements. Change language to 'describes'.
- Introduction and Purpose Sections contain statements that read as registration criterion, which should not be part of the FM
- Review other troublesome language such as in Introduction Section where appears to be talking about the standards defining the minimum level of detail for assets which is a policy decision and also a decision of each drafting team. Standards may provide more than the minimum level of detail.
- Review Guiding Principles to ensure FM is a guide
- Address FM approval procedure write up

## Load Serving Entity

Q: Does it need to own any facilities to register?

*A: No. However, an LSE still needs to register as it performs other reliability tasks.*

Q: What exactly is its role in relation to Distribution Providers?

*A: The LSE is the energy provider for the end-use customer. The DP is the facilities provider.*

Q: Does the LSE direct load shedding?

*A: The directive to shed load comes from the RC, TOP or BA.*

## Distribution Provider

Q: What is it?

*A: The Distribution Provider delivers electrical energy to the End-use Customer and the transmission system.*

Q: Do we need to include it in the Model if it doesn't perform anything that affects the interconnection?

*A: It should be included in the model as the DP is responsible for performing load shedding at the direction of the RC, TOP or BA.*

Q: Is a TO directly connected to an end-use customer load also a DP?

*A: For those End-use Customers who are served at transmission voltages, the Transmission Owner may also serve as the Distribution Provider.*

## Interchange Authority

Q: Has the IA been fully vetted?

*A: It has been fully vetted by the FMWG.*

Q: Is there a need for this functional entity or should we simply eliminate it and move that task to the BA?

*A: The FMWG feels that there is a reliability need for the IA.*

Q: If not, should we require the sink BA to perform this task?

*A: No. Interchange is not included in the BA tasks.*

Q: Can it be a machine?

*A: No. There must be an entity responsible for interchange.*

Q: Should we change the name to IC?

*A: We can discuss this in v5.*

## **Planning Coordinator**

Q: Should we eliminate it?

*A: Based on stakeholder input, we have decided to retain the PC in v4.*

Q: If so, what are the implications to TPs and the concern over layering and overlapping?

*A: We will fully vet the planning functions / entities in v5.*

## **Role of Regional Entities**

Q: It doesn't own, operate and use the BPS facilities, does it have a role in reliability?

*A: The reliability role of the RE is oversight and compliance rather than owning, operating or using the facilities.*

## **Planned Resource Sharing Group, Reserve Sharing Group and Demand Side Aggregator**

Q: Do we need to define this as a functional entity in the Model?

*A: No. These entities support functions that already exist and these entities are business arrangements rather than new functions.*

## **TOP vs. TSP**

Q: Who is responsible for which tasks as they pertain to transmission services?

*A: The TSP is responsible for administering the TO's tariff while the TO determines the operating limits for its facilities.*

## **Load Shedding**

Q: Who has authority to shed load vs. who actually implements load shedding

*A: The RC, TOP and BA have the authority to direct load shedding for the reliability of the interconnection. The DP and the TOP are responsible for implementing the directives. The DP can direct load shedding for safety or equipment protection.*

## **Operational Planning**

Q: Should we create an Operational Planner?

*A: Functions already exist to handle these requirements.*

## **Guideline (not prescription) for Registration**

Q: Expectation of the industry – what the Model is and is not.

- Should we change/beef up the model to provide a linkage?
- If so, how?

## **Guideline (not prescription) for Registration**

Q: Expectation of the industry – what the Model is and is not.

*A: The model is a description of the functions necessary for reliability.*

Q: Should we change/beef up the model to provide a linkage?

*A: No. The model deals with functions and entities necessary for reliability. Registration is an ERO process based on the reliability standards.*

# Planning and Interchange – Version 5

- To be developed and vetted during the development of version 5 of the Functional Model.
  - Planning Reliability / Coordinator
  - Transmission Planning / Planner
  - Resource Planning / Planner
- Initial research has already begun on the planning functions and entities.
- Interchange Authority vs. Interchange Coordinator

- August 19 — WebEx and Conference Call on FMv4.
- September 9 — Workshop on FMv4 in Seattle.
- September 10–11 — NERC OC, PC and CIPC meetings — request approval of technical content of v4 of the Functional Model and the Functional Model Technical Document.
- September 22 — NERC Standards Committee — assuming OC/PC/CIPC approval, request SC approval to post FM as a reference document.
- Remainder of 2008 and first quarter 2009 — vet planning functions / entities, address IA vs. IC and develop FMv5.

# Questions

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