

Meeting Notes FMWG Planning Task Force

January 19, 2009 | 1–6 p.m. CST
January 20, 2009 | 8 a.m.–4 p.m. CST
Marriott DFW Airport North
8440 Freeport Parkway
Irving, TX 75063
972-929-8800

1. Administration

- a. Introductions — Mr. Millard led introductions:

Bob Millard	Chifong Thomas	Scott Goodwin
Dana Showalter	Dennis Chastain	Steve Crutchfield
Tom Mielnik	John Odom	

- b. NERC Antitrust Guidelines — Mr. Crutchfield reviewed the anti-trust guidelines.

2. Discuss Planning tasks and then define Functional Model Entities

Mr. Millard led a discussion of planning tasks. The team developed a list and began to break down the list into major functions. Work will continue on this at our next meeting.

3. Review Work Plan and Schedule

The team reviewed the work plan and agreed that work should be completed by the end of March 2009.

4. Action Items

- Team to review documents and respond with their preference by COB Friday, January 23, 2009.
- Mr. Odom and Mr. Heidrich to work on Resource Planning tasks revisions.
- Mr. Millard and Mr. Chastain to work on potential revisions to the Reliability Assurer tasks.

5. Schedule Future Meetings and Work Plan

The next meeting will be a conference call on January 30 from 11 a.m.–noon EST

- a. Revise Planning Functions and Entities — January–March 2009
 - i. Develop all inclusive task list for Planning
 - ii. Develop Functional Model based on task list above
- b. FMWG review of revisions — April 2009

6. Full FMWG Schedule

- a. January 22, 2009 — 9 a.m.–4 p.m. EST
- b. March 5, 2009 — SC conference call (provide progress update)
- c. Conference Call March 26, 2009 — 2–4 p.m. EST
- d. April 22 — 1–5 p.m. and April 23 — 8 a.m.–noon meeting location TBD
- e. June 8 — 1–5 p.m. and June 9 — 8 a.m.–5 p.m. in Toronto (adjacent to NERC OC/PC/CIPC meetings)
- f. August 2009 — conference Call (TBD)
- g. September 15, 2009 — Version 5 Workshop (adjacent to OC/PC/CIPC meetings)
- h. October 7–8, 2009 — SC meeting for approval of v5 documents

7. Adjourn

Mr. Millard adjourned the meeting at 4 p.m.

Planning Tasks
January 19–20, 2009
FMWG Planning Task Force

- 1 Analysis of load and generating capacity
 - a. Gather load data / forecast Relationship with DP and LSE
 - i. Load power factor
 - ii. Load shape
 - iii. System Losses Relationship with Transmission arm of the planning function
 - b. Existing Generating capacity data Relationship with GO
 - c. Committed future Proposed-generation capacity data including D-curve (generator capability curve) Relationship with GO
 - i. Commercial operation date
 - ii. Retirement date
 - iii. Regulatory requirements (i.e. – renewable requirements, etc.)
 - d. Generation and load models Relationship with GO, LSE, DP
 - i. Development / validation and maintenance of models
 - e. Transaction data Relationship with TSP
 - i. purchases and sales
 - ii. firmness of transaction
 - f. Reserve requirements - criteria
 - g. Gather generation operating data Relationship with GO
 - i. Start-up time
 - ii. Minimum up/down time
 - iii. Ramp rates
 - iv. Maintenance schedules
 - v. Operating limitations
 - vi. Type of generation (wind, solar, fossil, etc.)
 - vii. Resource variability (i.e. wind availability, etc)
 - viii. Forced outage rates
 - ix. Market impacts on dispatch
 - x. Blackstart
 - xi. Environmental impacts / concerns
 - xii. Life of unit
 - xiii. Heat rates for units
 - xiv. Hydro forecast
 - h. Resource cost
 - i. Demand side resources – interruptible, load control, energy efficiency, etc.
 - j. “Must run” status – economic / reliability loading
 - k. Fuel supply considerations
 - l. Run a study with all of the above to develop resource plan
 - i. Uncertainty considerations
 - ii. Scenario analysis

- 2 Transmission Effects on resources

- a. Benefit of ties
- b. Deliverability
 - i. Consider Contingency Analysis
 - ii. Contracts for resource adequacy
 - iii. Demonstrated max gen capacity at peak
 - iv. Criteria for modeling deliverability
- c. Location of resources (where units connect to grid)
- d. Location of load
- e. Cost to install units at a particular location
- f. Dispatch impact on transmission
- g. Ancillary services (e.g. load following, etc.)
- h. Coordination with interconnected neighbors

3 Create ([develop](#)), maintain ([monitor implementation](#)), [evaluate](#) and share ([report/coordinate/document](#)) Resource Expansion Plan with site specificity.

4 Transmission Planning Data

- a. Equipment data
 - i. Ratings (discrete and dynamic)
 - ii. Impedances
 - iii. Age and condition of equipment
 - iv. Power Quality issues caused by equipment
 - v. Inventory issues / design specs (i.e. types of conductor, transformer, etc. available, lead times, double circuit towers, multi-terminal lines, common ROW lines)
 - vi. Right of way issues
 - vii. Overbuilt lines (i.e. Line is built for 345 kV but operated at 138kV)
- b. Current and forecast load data
 - i. MW, MVAR, power factor by bus
 - ii. Load Model (residential, commercial, industrial, motor load, etc.)
 - iii. Load shape
 - iv. Demand Response
 - v. Power factor
 - vi. Interruptible load
 - vii. Direct load control
 - viii. Power Quality Issues caused by load
- c. Resource plan
- d. Market flows
- e. Transmission models (steady state, stability, etc.)
 - i. Who develops?
 - ii. Who maintains?
- f. Generator models and operation data (D curve, exciter, governor, block diagrams, power system stabilizers, automatic voltage regulators, etc.)
 - i. Start-up time
 - ii. Minimum up/down time
 - iii. Ramp rates

- iv. Maintenance schedules
 - v. Operating limitations
 - vi. Type of generation (wind, solar, fossil, etc.)
 - vii. Resource variability (i.e. wind availability, etc)
 - viii. Forced outage rates
 - ix. Market impacts on dispatch
 - x. Blackstart
 - xi. Environmental impacts / concerns
 - xii. Life of unit
 - xiii. Hydro forecast
 - g. Verification of model data
 - h. Relay protection data including SPS's
 - i. Neighboring transmission system models/data
 - j. Transaction data
 - i. Projected transfer
 - ii. Firmness of transactions
 - k. Operating issues
 - l. One-line diagrams
 - m. Planning Criteria and applicable NERC Reliability Standards and Regional Criteria
 - n. Regulatory and/or environmental requirements and restrictions
 - o. Ancillary services contracts
 - p. Spare equipment availability
 - q. Known expansion / reinforcement plans
 - r. Outage / maintenance schedules
 - i. Generation
 - ii. Transmission
 - s. Flowgates / paths
- 5 Transmission Analysis/Simulations
- a. Run Generation, Transmission, End-use Facility Interconnection Studies
 - b. Run System Reliability studies
 - c. Run Steady State and Dynamic (voltage, small signal, transient, etc.) Studies
 - d. Analyze Transmission Service Requests
 - e. Run Deliverability Studies
 - f. Run Short Circuit studies
 - g. Run Transfer capability studies (FCITC, TTC, SOL, IROL, AFC, etc.)
 - h. Run Scenario and sensitivity analysis
- 6 Transmission Assessments
- a. System Reliability Assessments
 - b. Corrective action plans
 - i. New/Modified/Retired SPSs
 - ii. New/Modified/Retired Operating Guides
 - iii. New/Modified/Retired facilities

- c. Develop/Modify Underfrequency and Undervoltage load shed programs
- d. Develop/Modify Relay setting and design parameters
- e. Approve/Deny Transmission Service Requests
- f. Identify modifications to transmission system equipment
- g. Establish Transfer Capabilities (FCITC, TTC, AFC, etc.)
- h. Establish SOL and IROL
- i. Establish requirements for contracts for resources (based on Deliverability studies)
- j. Desirable location identification for resources (generation, Demand Response, etc.)
- k. Suggest revisions to maintenance schedules (generation or transmission)
- l. Review alternative plans and make selections
- m. Evaluation/recommendation of plans considering:
 - i. Reliability
 - ii. Environmental
 - iii. Regulatory
 - iv. Economics

- 7 Create, maintain and share (coordinate) transmission expansion plan.
- 8 Ensure that individual plans (resource and/or transmission) produce an overall reliable plan.

Function: Load and Capacity Analysis Planner (encompasses items 1-3 above)

- 1 LCAP is responsible for analyzing, or having analyzed, capacity requirements to meet current load plus reserves as well as to plan for future load and reserve requirements (reliability requirement).
- 2 This function can not have any gaps across the US and Canada. All load must be accounted for and LCAPs may overlap.
- 3 IPP or Demand resource Operator (future?) may also run analysis to determine market needs (not a reliability requirement).

Version 4: Function – Resource Planning

Definition

Develops a plan (generally one year and beyond) ~~within its portion of a Planning Coordinator Area~~ for the resource adequacy of ~~its~~-specific loads (End-use Customer demand and energy requirements) ~~within a reliability area~~.

Tasks

1. Consider generation capacity from existing and future committed resources both within and outside of the Planning Coordinator Area.^[sc1]
- ~~2. Monitor and report, as appropriate, on its resource plan implementation.~~
2. Maintain resource (demand and capacity) models to evaluate resource adequacy.
3. Collect or develop information required for resource adequacy purposes, including:
 - a. demand and energy forecasts, capacity resources, and demand response programs,
 - b. generator unit performance characteristics and capabilities, and
 - c. long-term capacity purchases and sales.
4. Evaluate, develop, document, and report on a resource adequacy plan for its portion of the Planning Coordinator Area.
5. Monitor and report, as appropriate, on its resource plan implementation.

Planning Coordinator Area guideline - It should be equal to or larger than that of an ISO/RTO (ERCOT, PJM, MISO, NYISO, ISO NE, CA ISO, etc.), Reliability Coordinator (TVA, VACAR South, Southern, etc.), Regional Entity (WECC, FRCC, SPP, etc.), regional planning entity (e.g. MAPP, etc.) or state-wide/province-wide transmission company (ATC, Manitoba Hydro, etc.).

Options for FM v5 Planning Functions:

- 1 Leave as is, clean up RP
 - a. Pros: No revisions to standards or registration;
 - b. Cons: still have sections of the grid where the PC is not meeting the intent of the PC oversight function
- 2 #1 and attempt to put size limits on it (see guideline above), clean up RP
 - a. Pros: No revisions to standards or registration; addresses part of con in 1b.
 - b. Cons: still have smaller sections of the grid where the PC is not meeting the intent of the PC oversight function; could size limit leave gap in PC functions?
- 3 Eliminate PC, clean up RP and TP {Explain rationale for why there will not be any holes if we eliminate PC (FERC Order 890); Does this work for Canada?}
 - a. Pros: Eliminate simultaneous PC/TP registration; Eliminate redundancy in functions between PC/TP; Simplifies standards;

- b. Cons: Create holes in oversight functions in parts of the grid where TPs may back off from regional planning; Some TPs would have to show compliance by pointing to previous PC entities that performs the tasks for them
- 4 Morph Reliability Assurer (RE?) into oversight role of old PC, clean up RP and TP {Could have parallel Operations and Planning functions under the RA (e.g. RC vs. PC, TOP vs. TP, BA vs. RP)}
 - a. Pros: clarify intent of RA vs. planning roles; eliminate duplication of PC/TP role in the same small entity;
 - b. Cons: May require extensive standards revisions

List of current and filed standards that are applicable to the PC:

- FAC-002 Coordinate plans for new facilities
- FAC-010 SOL methodology for planning
- FAC-012 filed
- FAC-013 Establish / communicate TC
- FAC-014 Establish / communicate SOL
- MOD-016 Document data reporting req. (Demand, energy DSM)
- MOD-017 Aggregated demands / energy
- MOD-018 Treatment of non-member demand and load forecast uncertainty
- MOD-019 Interruptibles
- MOD-024 filed
- MOD-025 filed
- TPL-001 Studies / assessments
- TPL-002 Studies / assessments
- TPL-003 Studies / assessments
- TPL-004 Studies / assessments
- NUC-001 filed
- PRC-020 filed
- PRC-023 filed (Loadability)