

Summary of Modeling WG Webinar
Friday, June 8, 10 AM ET

Official/designated WG members in attendance: Erin Hogan (Chair), Allan Myers, Brenda Harris, Maryam Sharif, Michael Goggin, Paul McCurley, Rob Sinclair, Ryan Kind, Stan Hadley, Tyler Ruthven, and Diane Barney, Bob Pauley, Hisham Choueiki, Doug Gotham, Stuart Hansen, and Marya White (for EISPC), Ralph Luciani and Bruce Tsuchida (CRA); John Buechler, Flora Flygt, and David Whiteley (for EIPC).
Facilitator: Catherine Morris (Keystone).

****NOTE: To facilitate the rapid pace of the MWG meetings during June 2012, these summaries will focus on the action steps taken during the meeting and next steps resulting from the meeting. Details of modeling discussed will be captured in the matrix of inputs (see below) and the output framework drafts, to be updated regularly on the Phase II – MWG page online. Recordings of the webinars will also be posted.***

The purpose of the MWG's work in Phase II is 1) to decide the inputs to the production cost modeling (GE-MAPS) for the Scenario base cases; 2) to define the output reports from GE-MAPS; and 3) to make decisions about the 6 sensitivity production cost runs. The working deadline for the MWG to decide all the base case inputs and shape the output report for recommendation to the SSC is June 22nd, but that may be revised.

Erin Hogan led the discussion first through Load Characteristics and Fuel Prices, then through the Generation Characteristics category, which yielded the following points for further discussion:

1. Demand Resources at peak:
 - a. Is there a discrepancy in counting DR toward reserves requirements if it is not being counted in the commitment step of GE-MAPS modeling? CRA will work on this issue for the next MWG call. There were suggestions to apply a range of supply curves for DR to average out to the \$750/MWh price used in NEEM, to which CRA responded that it was possible to put in a step function for triggering of DR at different prices. Also, a question about DR being assigned to specific buses, which will be addressed at the next discussion of this issue.
2. Renewable Resources
 - a. Wind: CRA intends to stratify the original wind data (2006) to derive more load shapes for those NEEM regions with more than 1000 MW of wind capacity. The overall NEEM Region wind capacity factor would be the same as Exhibit 4 from Phase 1. There is some concern about how to roll up NREL wind data to capture geographic diversity within the MAPS regions. CRA will work on an example region (MISO-W) to break down the 20 wind blocks to 8760 hour-level curves, and get the WG's input before doing other regions.
 - b. Hydro: each hydro unit has a monthly energy target, with minimum generation and maximum generation. MAPS will use hydro capacity within that range, choosing hydro first to satisfy monthly energy targets, then wind. CRA explained that hydro also serves as spinning reserve which could improve integration of the variable wind generation. CRA will provide more information on the relationship between the dispatch of wind and hydro and also answer the question posed: if small hydro units are aggregated, what is the threshold for this?
 - c. Capacity Factors: Several MWG members expressed a desire to increase either the total capacity buildout amount or the capacity factor for lower class wind (e.g. 5% higher), to take

advantage of more granular information allowed in GE-MAPS. This includes the revision of 2030 wind output in NEEM which did not reflect the current capacity available in Canada. This could be done in the base case or as a sensitivity, and warrants further discussion.

At the conclusion of the meeting, David Whiteley clarified that the SSC webinar in mid-July will cover both TOTF results for Scenario 2 and MWG inputs and output report recommendations.

NOTE: All generation units can be found in a March TOTF document [Deactivation and New Capacity Consolidated Draft](#)

ACTION ITEMS:

- a. CRA: Revisit Exhibit 4 from Phase 1 for renewable resource capacity factors.
- b. CRA: break down wind load shapes in MISO-W as an example region.
- c. CRA: review DR commitment/dispatch steps
- d. Stan Hadley: DR price to be stratified into a schedule
- e. Next MWG call: **Monday, June 11, 1-2:30 PM EDT**

EIPC MWG GE-MAPS Data Review, Draft after June 8, 2012 meeting			
Input	Phase 1 Assumptions	Phase 2 Recommendations	Comments
Load Characteristics			
Hourly Load Profile	Load duration curve developed from 2006 Load Shape	Chronological hourly load based on 2006 Load Shape	
Peak Load	Each NEEM Region peak adjusted for coincidence factor	Peak load based on hourly load for MAPS area	NEEM adjustment necessary to capture variation in peak loads across time zones (Phase 1, excludes Phase 2)
Total Energy by Area	2030 Energy Aggregated by NEEM Region	2030 Energy Disaggregated proportionate to MAPS area	Follows similar methodology to exhibit phase 1
Generation Characteristics			
Generating Capacity			
Capacity ratings			
Full load heat rates			
Forced outage rates			
Planned outage rates			

Emission rates for existing units			
Post-retrofit emissions rates		NEEM	
Variable O&M costs		NEEM	
Nuclear capacity ratings		NEEM	
Nuclear forced outage rates		NEEM	
Hydro Existing			MAPS model: Monthly energy Target w/ Max Limit, Min Limit; Minimize Total Production Cost
Hydro, New			
Renewable Resource Plant Capacity		NEEM	
Renewable Resource Plant available energy		NEEM	
Wind generation capacity factors	Modeled Output: 8760 Curve Shape by NEEM Region <1000 MW [5 Shapes] >5000 MW < [20 Shapes]		Fixed Output 8760/unit; from NREL 2006 data (capacity factors)
Profile of hourly wind generation			
Demand Resource Variable Cost			DR acts during real-time dispatch
Demand Resources in peak			
Spinning Reserves			
Standby Reserves			
Transmission Characteristics			
Transmission			
DC tie with WECC		NEEM	
DC tie with ERCOT		NEEM	
Tie with HQ		NEEM	
Tie with Maritimes		NEEM	
Hurdle Rates			
Fuel Prices			
Seasonal natural gas price	Summer/winter Shoulder	NEEM	Delivered gas prices as Phase 1
Distillate oil price	Annual	NEEM	
Coal price	Output from NEEM	NEEM	Assumed 2010 Dollars
Emission Prices			
NOx price		NEEM	
SO2 price		NEEM	
CO2 price			

