

Generation and Transmission Modeling Work Group (GTMWG) Draft Work Plan

Work Group Scope: WGA has generally defined the scope of the GTMWG in terms of purposes, background, tasks, and timeline. These have been incorporated into the GTMWG work plan which has two primary tasks to accomplish:

1. Task 1 – Model Development: Provide guidance to LBNL to develop a flexible and user-friendly model that can be used by LSEs, regulators, public policymakers, and others to evaluate the delivered price of power delivered from various Renewable Energy Zones.
2. Task 2 – WECC Transmission Planning: Provide guidance to WREZ project staff to engage in the WECC transmission planning process, including sub-regional venues, to study transmission needed to move power from Renewable Energy Zones to load.

Work Group Composition: Members of the GTMWG represent a diverse spectrum of stakeholder interests and expertise. Additional outreach to add members with resource planning, modeling, and WECC transmission planning experience is underway.

Work Group Meetings: The GTMWG will meet on a regular basis facilitated by conference calls, webinars, and on-site meetings. The GTMWG co-chairs will coordinate on a weekly basis, with notification of meetings distributed to all GTMWG members. It is anticipated conference calls for all GTMWG members will be convened on a monthly basis, and that on-site and/or webcast meetings will occur at critical junctures possibly as often as every other month through the duration of the GTMWG's tenure. WGA and WREZ staff will participate in all meetings.

Interface with Other WREZ Work Groups: Since many of the model inputs will come from information compiled by the other WREZ Work Groups, the GTMWG will interface with those parties in the development of the WREZ model. The GTMWG will identify liaisons to the other work groups

- The Resource Zone Identification and Technical Analysis Work Group will provide model input for the REZs and the cost and performance assumptions of the renewable resources within each zone.
- Input to be provided by the Environment & Lands Work Group will be used to inform efforts of the sub-regional planning groups and WECC in the development of conceptual transmission projects needed to deliver energy from the priority REZs to load centers. It will also be used to help identify needed changes in the straight line model default line assumptions about the distance from the centroid of a REZ to the nearest transmission corridor.

Schedule: The schedule for Tasks 1 and 2 are shown in Figure 1 on the following page. This schedule is dependent upon timely input from within the GTMWG and the other WREZ Work Groups, and of course, the successful development and validation of the WREZ Model.

Figure 1: Tentative Schedule for Generation and Transmission Modeling Work Group Activities

	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09
<u>Task 1: Model Development</u>								
Existing Models Assessment								
Features for Model								
Model Development								
Validation of Model								
Application of Model								
Model Documentation & Training								
<u>Task 2: WECC Transmission Planning</u>								
Sub-Regional Venues								
WECC Transmission Planning								
<u>GTMWG Meeting Schedule</u>								
Co-Chair Coordination Calls	Weekly							
Conference Calls	Monthly and at Critical Junctures							
On-Site Meetings/Webcasts	Bi-Monthly and at Critical Junctures							

WREZ Model Development (Task 1): The WREZ Model would address incremental additions to the existing resource stack within the Western Interconnection, as opposed to a production modeling approach in which both existing and incremental additions are considered. To extent possible, the model would be suited to evaluate source-sink pairs that incorporate intermediate on-ramp/off-ramp points including the capability to evaluate multiple REZs to single and multiple sinks. The sequence of WREZ Model development activities is expected to be as follows:

1. Existing Models (May – June)

A number of incremental spreadsheet models are available in the public domain¹, LBNL and its consultant, Black & Veatch, will review the features of available models for consideration by the GTMWG. LBNL and B&V will write-up of the objectives of the modeling effort, desired model capabilities, a review of existing models and their capability to achieve the modeling objectives, and make recommendations to the GTMWG. The GTMWG will then determine if an existing model is suited for WREZ use, if modifications of an existing model should be developed, or if an entirely new model should be developed.

2. Model Features (July – September)

The GTMWG, in collaboration with the other WREZ work groups, will provide guidance as to the features that the WREZ Model should incorporate. These are likely to include (1) specific cost and operational (e.g., diurnal/seasonal metrics) inputs for select renewable resources, (2) cost and operational inputs for select conceptual transmission projects needed to deliver energy from REZs to load centers, (3) sensitivity analyses features that allow the assessment of factors such as transmission line distances, capital costs, tax subsidies, and carbon penalties, emissions, and natural gas prices associated with a load-based natural gas combined cycle plant, and (4) provision for inputting time-sensitive factors such as inflation and technology/performance/cost changes. Additionally, the model will be designed to enable users to evaluate a variety of scenarios (e.g., user-specified local versus regional renewable resources, different types of renewable resources, wind vs. gas, wind “firmed” with gas vs. gas, wind/solar vs. gas).

3. Model Development (August – October)

LBNL and its consultant, Black & Veatch will develop the WREZ Model based on the direction and input from the GTMWG and other WREZ Work Groups to accommodate the desired capabilities of the model. This activity is expected to occur simultaneous with items 2 and 4.

4. Validation (October – December)

The GTMWG will periodically review the results of model runs for generic scenarios in order to validate and perfect the model. This will include vetting with GTMWG members that represent the ultimate users for the model: utility resource planners, regulators, and public policymakers.

¹ These include models used in the Frontier Line (FEAST) and by NTAC, E3, CREZ, and RETI

5. Application (November – January 2009)

Once Western REZs have been identified and characterized, the modeling of renewable resource scenarios and associated scenario analysis will be conducted for a wide number of situations and geographic locations – selected on the basis of input from LSE resource planners, the Technical Committee, the Coordination Group, and the other WREZ Work Groups. Such evaluations will be the basis for identifying priority REZ transmission plans to be submitted to WECC in Task 2 of the process. It is anticipated that the results will be documented in a slide deck and possibly an overview report that would be prepared by LBNL with the oversight and direction of the GTMWG.

6. Model Documentation and Training (February – June)

LBNL will be responsible for providing documentation and training for the model for use by independent parties with the oversight and direction of the GTMWG.

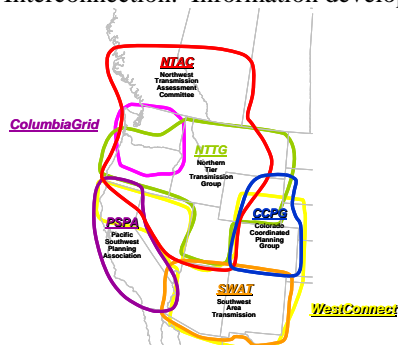
WECC Transmission Planning (Task 2): The GTMWG, via the WREZ project staff, is charged with ensuring that the results of its efforts are ultimately considered in the two primary WECC transmission planning venues. The facilitation of this effort will be simplified by participation of members of these venues in GTMWG's activities.

1. WECC Transmission Expansion Planning Policy Committee (TEPPC) - January 31, 2009 deadline)

TEPPC and its Transmission Advisory Sub-Committee (TAS) annually consider stakeholder requests for the modeling of regional transmission projects. Such requests need to be submitted by January 31 of each year for evaluation during that particular annual WECC planning cycle. The GTMWG will submit a TC/SC approved case for TEPPC consideration by January 31 regardless whether or not the final report is completed. Details of such a study case can be worked out with TEPPC in the following months. WECC, TEPPC and TAS committee members are represented in the GTMWG.

2. Sub-Regional Transmission Planning Venues²

² The map below shows the sub-regional planning processes and Western Electricity Coordinating Council interconnection-wide transmission planning process that are incorporated into FERC Order 890 compliance filings made by western transmission owners and operators on December 7, 2007. These open, transparent planning process will be used to develop conceptual transmission plans to move generation from REZs. In addition, there are an unprecedented number of significant transmission expansion proposals in the Western Interconnection. Information developed for these projects will be useful in evaluating transmission needs.



Transmission projects under consideration within various sub-regions within WECC are reviewed within each of the sub-regional transmission planning venues (Figure 2). These stakeholder venues generally meet three or four times per year and are facilitated by designated parties. GTMWG will seek representation of members for each of these venues in its membership.

Figure 2: WECC Sub-Regional Transmission Planning Venues

GTM WG Outreach

The GTMWG has three distinct outreach objectives. During the development of the model for LSEs, regulators, and others, the key outreach audience includes (1) LSE resource planners and regulators who need to define the outputs they desire from the model and (2) experts who can contribute to the design of the model and provide technical inputs to the model. This will be accomplished by:

- Regular webinars during development the model; and
- The formation of three technical sub-groups on model development, transmission distances from REZs to loads for input to the model, and transmission costs for input to the model.

The second outreach objective is to engage all LSE resource planners and PUCs in the interconnection to (1) provide them training on the use of the model and (2) solicit their identification of REZs of greatest interest which will become input into transmission planning work. This will be accomplished by:

- Outreach to all LSE resource planners and PUCs through direct communication and in collaboration with other organizations such as WECC and the Committee on Regional Electric Power Cooperation (CREPC);
- Web-based and in-person training on the use of the model; and
- A request to LSE resource planners to identify REZs that are potentially of interest to them, and to provide that information to the WREZ project and regional transmission planning processes.

The third outreach objective is to engage the Western Electricity Coordinating Council transmission expansion planners and sub-regional transmission planning groups in the detailed evaluation of transmission needed to allow LSEs to access generation from REZs of greatest interest. This will be accomplished by:

- Regular briefings of WECC's Transmission Expansion Planning Policy Committee and all sub-regional planning groups (SWAT, CCPG, SWPG, Sierra, Columbia Grid, NTAC, NTTG) on the WREZ project and soliciting suggestions on how the output of the WREZ project can complement on-going transmission expansion planning efforts and the schedule for such planning; and

- A formal request from the WREZ Steering Committee to WECC to study, as part of the WECC's 2009 study plan, optimized transmission needs associated with the preferred REZs identified by LSEs.