CALIFORNIA TRANSMISSION PLANNING GROUP

Response of the California Transmission Planning Group
Technical Steering Committee Study Team

California Public Utilities Commission Energy Division Comments
Re January 2010 Stakeholder Meeting

Comment Received:

Please provide the "embedded file" RETI_Net_Short_09-09-23.xls identified on page 18 of the November 22 Draft Study Plan.

CTPG Study Team Response:

A PDF version of RETI_Net_Short_09-09-23.xls can be downloaded via this link:

http://www.ctpg.us/public/images/stories/RETI_Net_Short_09-09-23.pdf

Comment Received:

It would be instructive and desirable to analyze transmission implications of a renewables deployment scenario reflecting higher levels of distributed renewables that reduce the need to develop central station renewables largely distant from load centers, although it is recognized that detailed electrical and low-voltage network implications of these distributed renewables would ultimately require further assessment.

CTPG Study Team Response:

For purposes of its Phase 2 work, CTPG will work with RETI to define updated net short estimates based on alternative assumptions that may include different levels of (a) distributed generation added on both sides of the meter, (b) uncommitted energy efficiency projections, and (c) miscellaneous renewable resource additions. The estimates of distributed generation estimates and miscellaneous renewable resource additions can be designed to reflect higher levels of distributed renewable resources than CTPG assumed in its Phase 1 analysis.

Comment Received:

Please indicate for each renewables location (region/CREZ) identified on pages 24 and 25 of the Draft Phase 1 Study Report, how much of the listed "installed capacity" either has a signed interconnection agreement, or else meets all three of the following conditions:

1. The resource whose capacity is included is in the California ISO's serial group or transition cluster (or, for interconnection outside of the California ISO area, has progressed beyond the first stage of interconnection studies); and,
2. The resource whose capacity is included has begun environmental permitting (filed for Application for Certification (AFC) with the California Energy Commission, Conditional Use Permit with city/county or, only if neither of the previous permits apply, has an ongoing Right-of-Way (ROW) application with federal land agency); and,
3. The resource whose capacity is included has a Power Purchase Agreement (PPA) approved or pending approval by the California Public Utilities Commission (in the case of investor-owned utilities) or by a Publicly-Owned Utility; or a similar level of contractual certainty in the case of utility-owned generation.

CTPG Study Team Response:

This information is not readily available but the CTPG Study Team will canvass the CTPG members supplying renewable portfolio information for CTPG's Phase 1 studies in an effort to provide the detail requested above.

Comment Received:

So that the Commission may understand what actual generation portfolios are represented in the CTPG power flow cases, including additions, retirements, initial (base case) levels of operation, and assumed changes in operation (re-dispatch) when adding renewable generation, the Commission Staff would like to explore receiving more aggregated and accessible information, such as (for example) aggregate CT and (separately) CCCT operating levels in the California ISO and non-ISO portions of the Los Angeles Basin, initially and after re-dispatch.

CTPG Study Team Response:

CTPG is willing to explore with the Commission staff the possibility of providing the referenced information in a more aggregated format than is currently available.

Comment Received:

Going forward, the CTPG studies should definitely examine alternative possibilities regarding redispatch of non-renewable generation, limited renewables curtailment, and use of demand response where these would alleviate potential congestion and reduce the need for transmission additions. Key questions involve how often such measures would be needed, what would be their economic tradeoffs, and how they would impact energy delivery from renewable generation. Unfortunately, power flow studies alone cannot answer these questions, although generation and load assumptions in such studies could be varied to shed some light, which Commission Staff recommends (for example, specifically examining the ability of strategic re-dispatch and DR to reduce congestion, transmission additions, or renewable generation curtailment.

CTPG Study Team Response:

CTPG's Phase 2 studies will decrement ("redispatch") existing fossil-fired generation using two methods:

1. A reduction priority based on merit order variable operating costs (the "Heat Rate" method); and,
2. A reduction priority based on technologies where the technologies with the highest carbon footprint (i.e., coal) are reduced before technologies with lower carbon footprints (e.g., old gas turbines). Within a technology, the reduction priority will be based on merit order variable operating costs. (This is the "Fuel Type & Technology" scenario.)

CTPG will not perform analyses of alternatives, such as limited cross-tripping or curtailment of renewable generation, other operating measures, generation re-dispatch, expanded demand side management programs, strategically located generation additions, and/or added reactive support, that may mitigate identified reliability criteria violations. The analysis of these alternatives will be completed by the respective planning entity, such as the California ISO under its Renewable Energy Transmission Planning Process or the utility sponsoring a transmission infrastructure addition utilizing that entity's economic analysis, assumptions, and mitigation policies and practices. CTPG will provide wires-oriented recommendations only.

CTPG notes that CTPG will work with RETI to define updated net short estimates based on alternative assumptions that may include different levels of projected in-front-of the meter and/or behind-the-meter distributed generation estimates, the possible inclusion of uncommitted energy efficiency projections, and a revised estimate of miscellaneous renewable resource additions. These updated net short estimates may have an effect on potential congestion and the need for transmission additions.

Comment Received:

BAMx commented that the CTPG study "should involve many scenarios of resource development ... based upon meeting normal Category A (all facilities in service) cases ... for each scenario and then develop expected project cost estimates for each scenario based upon per-unit costs .... for only Case C [average year conditions] at this time...and provide insights as a first step before running any multiple contingency/Post-Transient Voltage stability analyses." The Commission Staff believes that these recommendations deserve consideration, especially when combined with more refined and transparent redispatch assumptions that are actually designed to reduce congestion and accommodate renewable generation. Renewables deployment in- and out-of-state, fossil generation turnover and system operational flexibilities all strongly influence what transmission additions would be needed for reliability and also for economic and renewables delivery purposes. These factors should be meaningfully addressed before focusing deeply on contingencies and transient response, recognizing that the latter *are* ultimately important for planning transmission projects.

CTPG Study Team Response:

In Phase 2 (and in the forthcoming Phase 3), CTPG expanded its evaluation of alternative scenarios. With respect to in-state renewable deployment, in Phase 2 CTPG is evaluating both a large generation interconnection queue-based portfolio of renewable resources as well as a "heavy in-state scenario" proposed by RETI. With respect to out-of-state renewable deployment, CTPG is addressing additional sensitivities in Phase 2 regarding higher levels of renewable imports or specific new renewable configurations coming from out of state. CTPG will be responsive to the California Public Utilities Commission, RETI and other stakeholder interests in continuing to develop scenarios that reflect potential commercial and regulatory priorities. The methodology used by CTPG when evaluating these scenarios, however, has not yet changed to reflect the Commission Staff's requests. As noted by the Commission Staff, the CTPG studies must address NERC and WECC reliability standards requiring transmission planners to identify mitigation strategies for all identified reliability criteria violations and these requirements will require the CTPG to focus its attention on the identification of those strategies.

As noted in the CTPG Study Team's response to an earlier comment, CTPG will not be performing analyses of alternatives including the redispatch of generation. CTPG notes that generation redispatch, while potentially a more economic alternative than adding transmission infrastructure, does not "reduce congestion" but is rather a response to congestion. Whenever generation redispatch is employed, it necessarily means that less efficient generation is being operated in order to maintain flows across an interface at levels that do not exceed established ratings. The cost of that redispatch over time is then measured against the cost of transmission expansion to evaluate the benefits of the expansion option.

With respect to "fossil generation turnover and system operational flexibility," CTPG has determined that it cannot conduct a comprehensive operational analysis, but will seek inputs from other studies, as available, to inform transmission planning.

In Phase 3, CTPG will engage with the CPUC and the relevant planning entities to examine how its scenario results can be further evaluated in timely fashion.

Comment Received:

The Commission Staff submitted the following questions related to production simulations:

- How realistic and effective is the assumed redispatch?
- What would be the effectiveness in reducing transmission investment of a redispatch (or the utilization of demand response) more explicitly optimized to relieve congestion and allow delivery of renewable generation?
- For a given combination of renewable generation and transmission expansion, how often would reliability violations occur, and is it credible that redispatch, controlled generation dropping or demand response could address this?
- What would be the 8760-hour deliverability of renewable generation under any particular generation and transmission buildout? If renewable generation were to be curtailed under

certain conditions to reduce needed transmission upgrades, what is the tradeoff between avoided transmission versus lost renewable energy?

These and other questions cannot be addressed by power flow studies alone, raising the question of whether the study plan should include strategically selected production simulations. Commission Staff believes that such production simulations either should complement the CTPG study itself or else should be conducted shortly after the CTPG study product is handed off to other planning venues for refinement. However, even without production simulations, it should be possible to run appropriate power flow studies (with selected generation and load inputs) combined with appropriate complementary analyses (such as regarding renewable generation output profiles and minimum amounts of flexible generation needed online) in order to clarify some of the questions raised above.

CTPG Study Team Response:

At this time CTPG has no plans in Phase 2 to conduct production simulations or other simulations that could answer the questions raised by the CPUC. These are methodological limitations that, as discussed above, can either be remedied in Phase 3 or by the respective planning entities in California in their own planning processes.

Comment Received:
The final Phase 2 study report, and later iterations, should include high-level assessments of the routing implications of any transmission plan. To this end, the Commission Staff recommends that CTPG consult with the RETI Environmental Working Group, which already has assessments of each of the transmission line segments included in the RETI Phase 2A Conceptual Plan. Where the CTPG has identified substantial transmission segments not yet identified and assessed by RETI, the Staff believes CTPG will find the Environmental Working Group ready and willing to provide feedback, if not "official" RETI scores, for those segments.

CTPG Study Team Response:

CTPG is evaluating this recommendation.