

**COMMENTS OF THE STAFF OF THE
CALIFORNIA PUBLIC UTILITIES COMMISSION
ON THE CALIFORNIA TRANSMISSION PLANNING GROUP'S TRANSMISSION PLANNING STUDIES
FOLLOWING THE FEBRUARY 2, 2010 STAKEHOLDER CALL**

February 8, 2010

Introduction

The Staff of the California Public Utilities Commission (CPUC Staff) appreciates this opportunity to comment on the California Transmission Planning Group's (CTPG's) transmission planning studies, after the February 2, 2010 stakeholder conference call and as the Phase 2 Study Plan is being finalized and the Phase 1 Study Report is being prepared. We fully support the CTPG's intention as stated in the draft Phase 2 Study Plan to consider a wider range of renewable generation development scenarios as well as alternative assumptions regarding system re-dispatch.

Our comments address the following topics.

1. **Alternative Renewable Generation Cases**
2. **Provide More Information on Generation and Other Assumptions Underlying Power Flow Cases**
3. **Need to Consider a Robust Range of Re-dispatch Assumptions**
4. **Need to Include a High-Level Assessment of Routing Considerations**

Topic 1. Alternative Renewable Generation Cases

CPUC staff appreciates the draft Phase 2 study plan's discussion of the need to study alternative renewable generation portfolios. As the plan explains, we are collaborating with a RETI subgroup to develop such portfolios, and we appreciate the time that CTPG members have taken to meet with us about the proposed portfolios, offer feedback, and provide information about CTPG's needs.

Developing these portfolios within the very tight schedule put forward by CTPG is a somewhat difficult task, given that we are attempting to get agreement from a relatively wide group of stakeholders – and the need for broader stakeholder buy-in was one of the main reasons that the CPUC and RETI encouraged CTPG to consider alternative scenarios, so it cannot be ignored. We hope to finish the scenarios very soon, but should they be too late for inclusion in Phase 2, we ask that CTPG make their study a priority in Phase 3.

Topic 2. Provide More Information on Generation and Other Assumptions Underlying Power Flow Cases

Providing more information will make the CTPG’s power flow studies less of a “black box” for stakeholders, and will improve understanding of the implications for, and relationship to, broader electricity planning priorities and issues. It will also make it easier for stakeholders to provide constructive feedback, and should make *everyone* better prepared for the ultimate move to more detailed planning and permitting of specific projects. Towards these ends, CPUC Staff asks several questions below, followed by recommendations regarding specific study information that should be provided to stakeholders, either within or appended to study reports. *For convenience, the requested information is intended to correspond closely to what we understand to be data structures in the WECC 2019 HS1A power flow case and CTPG’s modifications of that case. Furthermore, we hope and expect that the requested information can be provided in a form and level of aggregation that permits viewing by all stakeholders without needing to sign nondisclosure agreements.*

Specific questions to improve our understanding of the power flow studies are as follows.

1. Before adding renewable generation to reach the 33% RPS goal, which (if any) of the study cases correspond to the WECC 2019 HS1A “seed case” in terms of load and generation levels? How was that 2019 HS1A case modified to produce each of the study cases, in terms of load, generation and other changes?
2. Other than renewable generation added to produce 33% RPS cases, what new generation not currently operating is included in each of the five California “areas” represented in WECC power flow cases (PG&E, Southern California, SDG&E, Imperial, and LADWP), and what *currently operating* generation is either assumed to retire or given zero output under all cases? If specific generation additions and retirements are confidential, aggregated MW would be helpful.

3. Documentation accompanying WECC's 2019 HS1A case describes that case as representing high hydro conditions in California. Which of the CTPG-run cases represent high hydro generation for California, or parts of it? What hydro generation changes, if any, do these cases entail, relative to hydro generation levels in the HS1A case? Which study cases represent or will represent (in Phase 2 studies) average and low hydro conditions, and how were these hydro generation inputs derived?
4. Was the SCIT nomogram or other aggregate limit on imports to coastal Southern California explicitly enforced? Monitored? How? How and in what total MW amount did added Southern California renewable generation contribute to "imports," and to internal generation, for purposes of SCIT or other import limits? What, if any, is the estimated impact on SCIT or other southern California import limits, of the CTPG study's identified conceptual transmission additions, assumed renewable generation additions, and re-dispatch?

Information Regarding Flows on Major Ties. Tables 9, 10 and 21 in the January 13 Draft Report on the Phase 1 studies provide valuable information on flows over major ties. It would be helpful to know how flows in the original WECC 2019 HS1A case correspond to the flows depicted in such tables, by adding the HS1A flows to the tables. It would also be helpful to clarify which listed flows represent "actual" flows based on power flow simulation, and which represent scheduled flows developed as inputs or targets for the cases, and how the two kinds of flows correspond. Consistent with question 4. above, it would be helpful to add to the flow table the limit (under conditions simulated) and actual (simulated) flows into the coastal Southern California area for which the SCIT nomogram or other (please identify) import limits apply.

Information on Generation and Re-dispatch Assumptions. It is essential for stakeholder understanding, participation and acceptance to provide greater insight into the "black box" regarding generation assumptions. This provides needed context regarding resource and operational issues of broad concern, as well as for understanding re-dispatch issues.

Regarding out-of-state areas, there should be reporting of aggregate west-wide (non-California) load and losses, as well as aggregate and disaggregated (see below) generation levels, including both Pmax and Pgen.¹ This should be done for the original HS1A case and for each study case, both before and after adding all renewables and re-dispatching. For disaggregated

¹ It would be even more informative, especially for understanding re-dispatch assumptions and implications, to break out "Northwest" and "Arizona" generation, but this is not being requested.

generation information, it is at a minimum important to break out coal, other fossil, and storage/dispatchable hydro (pumped storage separately), since these are potentially amenable to re-dispatch. Additionally, the Pmax and Pgen for the *added out-of-state renewables to meet California's 33% RPS* under different cases should be shown, by technology and state.

Finally, it would be valuable to separately report west-wide wind generation included in each case (aggregate Pmax and Pgen) *aside from* what the CTPG has added to represent California's 33% RPS goal. This is because we are likely to see deployment of large amounts of non-California wind generation to meet other states' RPS requirements, beyond what is included in the WECC 2019 HS1A case. For building on the CTPG-developed conceptual plan going forward, it will be helpful for all of us to consider the implications of such higher levels of west-wide wind generation.

To recap, the above requested information on out-of-state generation assumptions will help stakeholders understand and consider the implications of (1) modifications of the original HS1A case to produce the cases studied by the CTPG, and (2) further modifications to simulate re-dispatch to accommodate large renewable additions to meet a 33% RPS in California.

For *in-state* generation it would be valuable to have the same aggregated and disaggregated generator information summarized above for out-of-state generation, separately for each of each of 5 California areas identified in WECC power flow cases: PG&E, Southern California, SDG&E, Imperial ID, and LADWP. Additionally, distinguishing dispatchable and non-dispatchable fossil would contribute to understanding and discussing re-dispatch issues

Topic 3. Consider a Robust Range of Re-dispatch Alternatives

As mentioned above, CPUC staff is pleased to see that the CTPG is preparing to study a wider range of renewable generation deployment scenarios and also a wider range of re-dispatch assumptions. For developing a conceptual transmission plan, we recognize that what matters most regarding re-dispatch assumptions is their impact on transmission needs, which should be less important than the large amounts of added renewables and where they are located. However, to robustly assess the impact of re-dispatch assumptions, especially in the absence of explicit

treatment such as via production simulation, it is necessary to consider a credibly wide range of re-dispatch alternatives. Two issues in particular may lead to a wider range of re-dispatch scenarios, and should be considered for inclusion in the CTPG studies.

First, it is clear that renewable generation additions outside of California load centers will compete with energy imports for use of some transmission paths into these load centers. Heavier reliance on *out-of-state* re-dispatch, including re-dispatch of coal units, which may be consistent with energy policies by 2020, could reduce competition for certain transmission paths, and thus the amount of transmission needed to accommodate new renewable generation. Such a “congestion management” re-dispatch might go further in reducing congestion than CO₂ (and other) emission-reducing dispatch alone, as is apparently planned for Phase 2 studies. Some re-dispatch of storage hydro (shifting to other hours, not dumping energy) might be part of a “congestion management” re-dispatch. We recognize that at some point, re-dispatch issues would need to be examined via production simulation or other operationally dynamic studies.

Second, re-dispatching downward of in-state fossil generation to accommodate renewables could cause the amounts of on-line generation and/or on-line *flexible* generation (e.g., to provide regulation and load following) to approach or fall below prudent levels in some areas, such as coastal Southern California. If and how assumed re-dispatch brings us close to this point should be clarified.² If it does bring us close, then a “reliability” re-dispatch should be considered that is aimed at preserving greater local on-line capacity and/or on-line flexible capacity. Such a re-dispatch scenario may or may not look a lot like a “congestion management” re-dispatch scenario described above, and in any event would provide increased study robustness, in terms of identifying needed transmission additions

The above “congestion management” and “reliability” re-dispatches may or may not significantly alter estimated conceptual transmission needs for integrating large amounts of

² Documentation addressing WECC power flow cases (*WECC Data Preparation Manual for Power Flow Base Cases...*, August 2009) defines a “reserve factor” for each area (such as LADWP or SDG&E) as

$$100 * [(P_{max} - P_{max}(BL)) - (P_{gen} - P_{gen}(BL))] / [loads + losses] .$$

This effectively represents aggregate unused upward generation range (between P_{gen} and P_{max}) for all generators in an area, if excluding those generators identified as BL (base-loaded, and unable to provide mechanical response to low frequency) and apparently also excluding those generators whose P_{gen} is 0 (i.e., those that are off line, and in some cases not even operable). It appears likely that a somewhat different measure of operating reserves may be more appropriate for indicating the implications of re-dispatch for the system’s flexible response capability.

renewable generation. This remains to be demonstrated, either in this planning venue or elsewhere. The same may also be said for the potential of storage and demand side measures to help address local capacity, flexibility and/or transmission needs.

Topic 4. Need to Include a High-Level Assessment of Routing Considerations

We wish to reiterate our comments following the January 20 stakeholder meeting, requesting that CTPG provide some high-level assessment of the routing implications of their transmission plan. As stated previously, we recognize the desire to maintain a clean divide between electrical planning and routing, but this divide is somewhat artificial. Early drafts of RETI's conceptual plan benefited greatly from informal review by environmental groups, resulting in material changes to the plan's electrical configuration.

We thus recommend that in Phase 2, CTPG consult with the RETI Environmental Working Group, which has already assessed each of the transmission line segments included in the RETI Phase 2A Conceptual Plan. Where CTPG's Phase 2 studies identify substantial transmission segments not yet identified and assessed by RETI, we believe that the CTPG will find the Environmental Working Group ready and willing to provide feedback, if not "official" RETI scores, for those segments. We believe that such early feedback from knowledgeable stakeholders – even if very informal – is critical to the development of transmission projects that can be planned, permitted and built in a timely manner.

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