COMMENTS OF THE STAFF OF THE

CALIFORNIA PUBLIC UTILITIES COMMISSION

ON THE CALIFORNIA TRANSMISISON PLANNING GROUP'S DEVELOPMENT OF A 2011 STUDY PLAN

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Introduction

The Staff of the California Public Utilities Commission (CPUC Staff) appreciates this opportunity to comment on the California Transmission Planning Group's (CTPG) development of a 2011 study plan. First, we wish to congratulate the CTPG on completing an ambitious 2010 study program that projected reliability-related transmission needs under a diverse set of renewable generation scenarios. Regarding the CTPG's study plan for 2011, CPUC Staff provides comments regarding the selection of study cases and redispatch methodology, and regarding the importance of the assumed generation mix and its dispatch being clearly disclosed and readily comparable to corresponding assumptions in other prominent planning efforts, including those at the CAISO. Now that a number of complex infrastructure planning studies and activities are focused on a 33% RPS, it is essential that stakeholders be able to clearly understand the correspondence of assumptions across these different efforts.

CPUC's Long Term Procurement Plan (LTPP) 33% RPS Cases

A as step towards consistency and benchmarking among different 33% RPS infrastructure planning efforts in the state, we request that the four "base case load" 33% RPS scenarios from the CPUC's LTPP process be included among the cases studied by the CTPG in 2011. CPUC staff can work with the CTPG to identify and transfer these cases, but a general description of the scenarios and their CREZ-by-CREZ breakdown can be found in the results section of Attachment 2 to the LTPP's Scoping Memo, here: http://docs.cpuc.ca.gov/efile/RULINGS/130670.pdf.[1] Please note that the procurement plans

[1] These scenarios are also currently being assessed by the ISO in its study of the operational needs associated with a 33% RPS.

submitted by publicly-owned utilities to the Air Resources Board were a key input to the construction of the LTPP scenarios.

We expect the LTPP's "Environmentally-Constrained" scenario to be particularly important, as it contains over 9,000 MW of small-scale – 20 MW or less each – wholesale distribution generation projects. Interest in, and construction of, these types of projects are accelerating rapidly, and such a scenario provides an important and valuable contrast or bookend to other kinds of cases, for infrastructure planning purposes. The unique analytic challenges that these distributed renewables cases present can no longer be sufficient justification for not fully including such cases within the range of futures to be meaningfully assessed. Therefore, we recommend that the 2011 CTPG studies include a serious treatment of one or more high-distributed renewables cases, including clear identification of the analytic challenges and assumptions involved, in order to expedite understanding of such possible futures, and resolution of their analytic challenges.

CAISO's 33% RPS Cases

In the past year the CAISO and the CTPG have each analyzed a number of 33% RPS cases. The two efforts appear to have come to somewhat different conclusions regarding how much added renewable generation could be accommodated by comparable magnitudes of transmission additions. The reason is unclear, but could entail differences in certain key assumptions or study methodologies. For example the CTPG effort emphasized meeting reliability standards under a variety of load and resource contingencies across a large number of RPS cases, whereas the CAISO study considered fewer cases, but also conducted production simulation and deliverability assessments. In any event, to provide clearer comparison and benchmarking between the different studies, and to improve our understanding of forecasting and methodological issues as well as the range of uncertainty, it is essential that in 2011 the CAISO and CTPG study at least one but preferably two to four RPS cases that are common to both efforts (CAISO and CTPG). This should benefit everyone. Consistent with our first recommendation above, we would offer the CPUC's LTPP scenarios as a starting place for developing such "common cases."

Alternative Redispatch Methodologies

It has been recognized that how generation resources are assumed to be re-dispatched (apparently relative to an underlying WECC power flow case) to accommodate renewable additions for 33% RPS study cases can have a significant impact on transmission additions calculated to be needed to meet reliability standards. However, while the CTPG's recently assumed 70-30 redispatch split (70% of redispatch downward coming from in-state) is informative, it is hardly the final word, and alternative redispatch should be examined in 2011 to cover a wider range of possibilities and to provide more robust insight. We really don't know that the 70-30 split comes closest to the most likely outcome, especially when there are important uncertainties regarding: California renewable integration needs and how they will be met; non-California renewable generation goals, additions and integration needs; and likely future use of intra-hourly scheduling and dynamic transfers across the interties. More fundamentally, what matters is not "redispatch" (how assumed dispatch varies from an underlying WECC power flow case) but simply the absolute dispatch itself. The dispatch in the underlying WECC power flow cases may or may not be the best starting point for assuming how a very differently constituted electric system will operate by 2020.

In the CAISO's Transmission Planning Process (TPP), dispatch patterns assumed for power flow/reliability studies were informed by hourly dispatch results in production simulations for the corresponding RPS cases. Furthermore, the CAISO's studies of integration requirements under different 20% RPS and 33% RPS scenarios also used production simulations, and these simulations modeled not only the hourly dispatch to accommodate expected renewable energy, but also the additional impact on system operation of having to commit flexible generation sufficient to manage the variability of substantial wind and solar generation. The above kinds of production simulations provide valuable information for establishing system dispatch assumptions for power flow/reliability studies, including those that the CTPG may run in 2011. Furthermore, closer linkage of reliability and production simulation studies promotes greater consistency and transparency among different 33% RPS infrastructure planning efforts.

More Transparent and Accessible Disclosure of System Resource Mix and Dispatch

We are faced with a growing wealth, but also a growing confusion, of renewable generation-related planning studies. It is essential that reporting for these studies include sufficient consistency and structure to help us compare and interrelate the different studies and their methods, and even to help interrelate the different components *within* individual studies. There is a strong need for a useful and transparent summary of the generation mix and its dispatch, as assumed and/or modeled for individual studies and cases, in order to efficiently understand, compare and discuss the different kinds of futures being depicted. For example, this would help stakeholders understand and assess how system dispatch (or "re-dispatch") varies across different power flow cases and studies, how this compares with production simulation results (hourly and annually), and what might be the implications for interpreting study results. Thus, if different studies (e.g., CTPG and CAISO) started from the same RPS portfolios, what differences might we see in assumed dispatch, and how would this explain any differences in results?

Simply reporting California-wide and WECC-wide annual generation and/or MW injection level (for power flow cases), by generation types such as wind, solar, storage hydro, gas combined cycle etc. is almost certainly not granular enough. Greater within-California discrimination by area would be more valuable. On the other hand, providing generator by generator inputs or results is clearly way too much detail. However, something in-between should be workable, and would provide valuable context and insights for comparing different CTPG study cases and especially for comparing CTPG cases with other studies. This would also provide a helpful aid for assessing the generator re-dispatch issue discussed above, by providing an efficient basis for comparing dispatch (or "re-dispatch") across different cases and studies. CPUC Staff commented on reporting of generation mix and dispatch (power flow injection) for last year' CTPG studies, and would like to pursue it farther this year.

Identifying How Much, and Which, Renewable Generation Would be Supported by an Identified Set of High Priority Transmission Additions

The final statewide transmission plan released by the CTPG last month identified high-potential transmission upgrades or "needs" and also high-potential transmission corridors. These

are described as resulting from a two-phase process that was implemented when identification of a "least regrets" plan (valuable across all or most scenarios) was determined to be infeasible at this time, apparently due to the diversity of scenarios. Given these lessons learned from 2010, it will be helpful to discuss with stakeholders what sort of criteria and objectives should be the basis for identifying transmission needs in 2011 studies. The "least regrets" concept still appears to be valuable. In any event, for any set of high priority transmission additions ultimately identified, not only should the magnitude (e.g., GWh) of renewable generation enabled by that set of transmission additions be clearly identified, but also the breakdown of renewable resources by type and location should also be identified. It is possible that alternative resource breakdowns, i.e., multiple cases, would be enabled by a particular set of identified transmission needs, in which case these multiple breakdowns (cases) should be identified. While last month's CTPG reports on a statewide plan and (draft) phase 4 studies stated that renewables to meet a 22-24% RPS would be supported by the identified high priority transmission additions, the basis of this calculation, and exactly which renewables (e.g., CREZs and technologies) would be supported, was unclear, and should be clarified.

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