

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

**Eagle Crest Energy Company Comments
Re CTPG's draft Phase 2 Study Plan**

Comment Received:

These comments focus on the importance of considering transmission access to non-renewable generation in the CTPG conceptual plan, and particularly resources (such as the ECE project) that would help the state integrate large amounts of renewable resources, in addition to accessing the renewable resources themselves. The CTPG should include these resources in its planning effort, because the California ISO and other balancing authorities will need flexible resources to manage the increasing amount of renewables on the system.

CTPG need not duplicate studies currently ongoing at the California ISO and elsewhere on the amount and type of resources needed to integrate renewable resources. However, past California ISO studies have shown, and simple common sense would dictate, that the California ISO will need considerable additional flexible resources on its system to manage the large volume of expected renewable intermittent capacity expected in the future, including Resource Adequacy and Ancillary Services capacity.

Moreover, pumped-storage resources provide that grid-management capability with minimal greenhouse-gas (GHG) emissions during operations. The CTPG should consider this feature because the 33-percent Renewable Portfolio Standard could (in the absence of legislation) be enacted through the GHG statutory requirements and California Air Resources Board rules, and GHG minimization will likely be an important objective in any case.

Accommodating new, flexible resources is especially critical in light of the significant additional operational challenges likely to be presented by the impairment or removal of service of Once-Through Cooling (OTC) fossil-fuel resources, which provide much of the flexible generation on the California ISO system today. The Eagle Crest project on-line date correlates well with the proposed timeline for shutting down a large amount of OTC generating capacity, and it would constitute one of the California ISO's most flexible grid-management tools on its system.

However, the Eagle Crest project, other pumped-storage resources, and other flexible resources will not be available for California ISO use at that time unless transmission is planned to accommodate them today.

CTPG Study Team Response:

The extent to which new resources, such as hydroelectric-based pump/storage/generation, battery-based charge/storage/discharge facilities and similar technologies are "needed to integrate renewables into the grid", under a 33-percent renewable portfolio standard has not yet been established.¹ The California ISO is currently

¹ The California ISO's January 6, 2010, draft final proposal for the "Renewable Energy Transmission Planning Process (RETPP)" references the California ISO's November 2007 study of "integration requirements associated with a 20% RPS achieved through wind resource development..." The January 6, 2010, RETPP proposal notes that "production simulation was subsequently used to

conducting a renewable integration study focused on the 33-percent renewable target. The results of this study, along with other planning evaluations, should provide some indication of whether existing dispatchable resources (including continued operation or repowering of those fossil-fired generators identified to be retired as a result of the initiative to retire coastal units using once-through-cooling, storage hydroelectric facilities, and pumped storage hydroelectric facilities) will be adequate to meet California's 33-percent renewable resource goals reliably and efficiently.

CTPG agrees that, if studies show that the fleet of dispatchable generation likely to be available to accommodate the intermittency of a large amount of new renewable generation is not adequate, additional dispatchable generation sources are likely to be added. Dispatchable generation that produces a minimum amount of greenhouse gas emissions during operations has obvious advantages, however, where access to such dispatchable generation requires storage (e.g., pump/storage/generation applications) or charging (e.g., battery applications), it will also be necessary to consider the greenhouse gas emissions that are produced during the pumping/charging cycle.

During some low-load periods, it is possible that all fossil-fired generation has been dispatched to the lowest possible level consistent with reliable operations and that renewable generation would then be on the margin. During these periods, the pumping/charge cycle would not produce greenhouse-gas emissions. During most periods, the pumping/charge cycle will produce greenhouse-gas emissions because fossil-fired generation will be on the margin and increased output from these resources will be used to pump water into reservoirs and charge batteries. The amount of such fossil-fired generation will depend on the pump/storage/generation and charge/discharge cycle efficiencies.

Depending on the amounts and locations of this new dispatchable generation, network transmission upgrades, or perhaps other alternatives such as new operating procedures could be required to mitigate reliability criteria violations that may be associated with the operation of these new dispatchable generation sources. CTPG believes the most sensible course of action at this point is to wait until the California ISO's 33-percent renewable integration report is released to determine whether, and if so, how much, new dispatchable generation is likely to be added.

Comment Received:

The failure to consider non-renewable resources in the statewide conceptual plan could significantly impact the transmission available for renewable energy, and thus jeopardize attainment of a 33-percent RPS. The CTPG draft Study Plan states that it will consider only planned renewable generation, because (as further explained on the February 2nd call) "this is a study of how to plan for 33-percent renewables, not for non-renewable generation." However, this is a short-sighted perspective with respect to transmission planning. Once transmission is constructed, it is available for use by any generation on the system under the California ISO open-access rules. Failure to plan for upgrades needed to accommodate non-renewable generation now could result in increased congestion wherever non-renewable generation might compete for transmission capacity with renewable generation.

verify the capabilities of the generation fleet to provide" the "expected needs for Regulation and load following capacity as well as generic ramp requirements." (See pages 20 and 21.)

CTPG Study Team Response:

CTPG's studies are considering non-renewable resources in the development of the statewide transmission plan. For example, CTPG is studying the implications of shutting down coastal fossil-fired generators using once-through-cooling. Given California's renewable resource goals, however, CTPG does not, at this time, envision the addition of large amounts of new non-renewable generation, especially in areas of the grid that would require major new network upgrades. As noted above, CTPG recognizes that the California ISO's 33-percent renewable integration report could suggest that new dispatchable generation would be needed when the amount of intermittent renewable generation reaches certain levels. Again, CTPG will review the California ISO's renewable integration report to determine whether, and if so how much, new dispatchable generation is likely to be added.

During some hours of the year it is possible that the desired simultaneous output of non-renewable and renewable generation would violate applicable grid limits, i.e., that there would be congestion that would either require the redispatch of fossil-fired generation (with attendant cost consequences for renewable generation which continues to operate) or the expansion of the grid. Whether it is more economical to expand the grid in order to reduce or eliminate congestion that would otherwise exist, or to accept the costs associated with redispatching fossil-fired generation and avoid the costs of expanding the grid, requires economic studies that are beyond the scope of CTPG's near term work.

Comment Received:

The current CTPG assumptions are inconsistent with the California ISO RETPP proposal. The California ISO RETPP proposal incorporates the need to access integration-related resources in several areas, including criteria for planning, sizing, and approving transmission projects, and it cites pumped-storage resources specifically as an example of these kinds of resources.

Consistency between the CTPG Conceptual Plan and the California ISO RETPP is critical, since the CTPG plan will comprise Phase 1 of the RETPP. If key assumptions are not consistent between the two, the California ISO will have to make significant modifications to the CTPG analyses and plan, causing unnecessary work and rendering the CTPG a less-relevant planning tool overall.

At the very least, the Eagle Crest project should be included in sensitivity cases, because of its size (possibly the largest project in the California ISO queue, and possibly the largest planned supply resource of any kind in the state) and location in the key East Riverside CREZ. Significant transmission upgrades may be needed to give the California ISO full access to and use of this project; its inclusion in CTPG planning will lay the groundwork for the later California ISO RETPP Phase 2 analyses and avoid unnecessary re-work during that critical effort.

CTPG Study Team Response:

The California ISO's January 6, 2010, draft final proposal for the "Renewable Energy Transmission Planning Process (RETPP)" states that:

"RETPP transmission planning will consider all transmission needs to support access to, and integration of, renewable resources. Such planning



will thus potentially include location and/or sizing of transmission lines to facilitate access to needed integration resources (such as pumped storage). (See page 20.)

“[T]he RETPP will first conduct a comprehensive planning process motivated by renewable generation interconnection along with consideration of renewable integration.” (See page 21.)

CTPG anticipates that the California ISO will first determine whether new integration resources are in fact “needed,” and if so, the transmission lines that would facilitate access to those integration resources. CTPG believes it would be prudent to review the results of the CAISO’s 33-percent renewable integration study before undertaking any independent efforts to determine whether new integration resources are needed. Depending on what stakeholders may suggest in terms of the specific operational issues that still need to be evaluated following issuance of the CAISO’s 33-percent renewable integration study, CTPG may decide to conduct additional analyses, in Phase 3 or thereafter, that could point to the need for new integration resources.