GEOTHERMAL ENERGY ASSOCIATION

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October 7, 2010

RE: Geothermal Energy Association (GEA) Comments on California Transmission Planning Group (CTPG) Phase 4 Study Plan

The Geothermal Energy Association (GEA) hereby submits these comments and recommendations on the September 23rd ***Draft CTPG Phase 4 Study Plan*** (Plan). Since the inception of the CTPG process last year, GEA has closely monitored your work, and commented on previous phases of your 2010 planning effort.

The Geothermal Energy Association is a trade association composed of U.S. companies who support the expanded use of geothermal energy and are developing geothermal resources worldwide for electrical power generation and direct-heat uses. GEA represents all of the geothermal utility scale energy producers in California and Nevada. GEA advocates for public policies that will promote the development and utilization of geothermal resources, provides a forum for the industry to discuss issues and problems, encourages research and development to improve geothermal technologies, presents industry views to governmental organizations, provides assistance for the export of geothermal goods and services, compiles statistical data about the geothermal industry, and conducts education and outreach projects.

As in prior comments, GEA's remarks focus on the need for CTPG to fully consider and analyze in-state and out of state geothermal energy resources as part of your planning effort to ensure that California has the transmission infrastructure in place to meet the state's ambitious 33% by 2020 Renewable Electricity Standard (RES). GEA strongly supports the Phase 4 Study Plan's focus on assessing a broader range of potential transmission options to facilitate renewable energy generation imports from outside of California. It is clear that meeting a 33% RPS target at a reasonable overall cost will require significant renewable energy generation development both inside California and throughout the Western Interconnection.

Although GEA did not file comments on the Phase 3 Study Report, we were quite concerned that CTPG was continuing to pay insufficient attention to the commercial potential of a variety of in-state and out of state renewable energy resources for your 33% RES analysis. In particular, the CTPG methodology for verifying commercial interest for certain "competitive renewable energy zones" (CREZ's) established through California's Renewable Energy Transmission Initiative (RETI) did not include a broad enough range -- nor a sufficiently robust analysis --of other in-state CREZ's and out of state renewable energy resource areas. In many cases, this meant that economically competitive transmission projects to access geothermal energy resources were left out of your "high potential" equations.

GEA would like to acknowledge and support the comments filed on the Phase 4 Study Plan by Terra-Gen Power, a board level company of our Association. Many of the concerns and

suggestions contained in Terra-Gen's comment letter are shared by other geothermal companies, and GEA appreciates Terra-Gen's expertise and diligence in raising issues of concern to our entire industry. Wherever appropriate, we cite or reference Terra-Gen's comments.

GEA is certainly one of the stakeholders who have noted in our comments that "there are other viable high commercial interest CREZ's in-state and out-of-state which if appropriately considered, would provide for diversity in renewable resource locations and technology." We commend CTPG for acknowledging this study gap in your Phase 4 Study Plan. GEA will work closely with the CTPG during the Phase 4 process to provide all available information to answer the question of where additional power flow studies are necessary, and whether the current list of "high potential" and "medium potential" transmission projects should be revised based on showings of "additional high commercial interest" in California CREZs and other out of state renewable resource development areas.

As you recognize in the Phase 4 Study Plan, "measures of commercial interest used by CTPG to identify high ranking CREZs excluded renewable development plans by non-CPUC jurisdictional load serving entities and the potential for development of out-of-state resources." GEA is especially encouraged to see CTPG investigating the considerable generation potential under development in Nevada to meet the California RPS. As Terra-Gen points out, "Most of the nearly 7,700 MW of generation in the NV Energy queue is being developed for California markets." GEA has long urged the RETI process and CTPG to obtain and consider the commercial interest demonstrated in interconnection queues of other states such as Nevada in your planning efforts.

As Terra-Gen stated in their comment letter, "Additional consideration of Nevada and other out-of-state development offers an opportunity to meet the RPS in a more cost-effective and operationally superior manner, take advantage of synergies between high-potential out-of-state and California area development, and also address other grid-wide issues." GEA serves on the stakeholder steering committee of RETI, and serves as a member of the Scenario Planning Steering Group (SPSG) appointed by the Western Electricity Coordinating Council (WECC) in 2010. The more we participate in WECC-wide efforts such as the Regional Transmission Expansion Project, the more it becomes clear that California must not treat its 33% RES transmission planning needs in isolation from what is now happening throughout the western states.

Specifically, GEA recommends that the CTPG consider the following in the Phase 4 Study process:

- ***Detailed updates of Nevada North geothermal and other out-of-state import assumptions***, including an analysis of commercially viable generation in neighboring "balancing authority areas" (BAA) interconnection queues;

- ***Potential synergies between out-of-state and in-state transmission development*** that could improve transmission economics between WECC BAA's;

- ***The relative economic, operational, and scheduling features of different renewable-energy technologies***; and

- ***A more thorough examination of regional transmission issues in northern California and northern Nevada***

RECOMMENDATION DETAILS

Detailed updates of Nevada North geothermal and other out-of-state import assumptions
CTPG should follow through with an investigation of the NV Energy generation interconnection queue and perform similar investigations of other neighboring-BAA queues. GEA has been concerned that an over-reliance on data just from interconnection queue's will likely severely under-estimate and/or miss a large amount of generation under development for delivery to California. CTPG should work with surrounding out-of-state BAA's to identify the most viable projects. GEA supports Terra-Gen's recommendation those that CTPG should look to Transmission Service Requests with identified export points under consideration and/or are advanced in siting and permitting activities as measures of commercial interest and viability.

Potential synergies between out-of-state and in-state development
Rather than look at the various "high-potential" CREZs identified in Phase 3 in isolation, the Phase 4 Plan should consider the possible joint economies of developing related out-of-state and California CREZ's. As Terra-Gen points out, "Giving higher priority to transmission upgrades that could serve generation in multiple CREZs would also lower the risk that any such upgrades would be "stranded" and/or underutilized."

One example is the relationship between the considerable solar and wind resources identified in the Owens Valley CREZ and the geothermal generation under development in northern Nevada. If transmission development for both areas is considered together, the incremental cost for transmission to accommodate Nevada geothermal generation would be likely be considerably reduced by significant Owens Valley development, and vice versa. Another example of the synergy opportunity is linking the economic and environmental benefits of in-state transmission system upgrades to access California's Imperial Valley CREZ's with interstate transmission proposals such as the North Gila-Imperial Valley #2 Line.

There are many other examples of transmission planning synergies between different renewable energy resources areas in California and adjacent states and regions. Prompted by the work of RETI, CTPG and now WECC, GEA is in the process of developing our own analysis of what we need to do to incorporate thousands of new megawatts of geothermal energy into the Western Interconnection by 2020. As part of this, GEA is studying a range of transmission expansion and upgrade proposals that recognize the resource value of significantly expanding geothermal development in the Western Interconnection.

Comparing the relative economic, operational, and scheduling features of different renewable-energy technologies
There are many factors impacting the relative economics and comparison of integration aspects for different types of renewable energy generation. Much of the analysis that is needed to really understand how we should best integrate a large amount (i.e. 33% or more) of new renewable energy into the different BAA's is just getting now getting underway. Again, the Department of Energy funding to initiate the WECC Regional Transmission Expansion Project is really the first time the operational and reliability criteria for the grid are being tested with renewable energy development scenarios and study cases.

A lot of time and thought has gone into studying how to successfully integrate variable or intermittent renewable energy resources such as wind and solar power into the grid. GEA agrees with Terra-Gen that the CTPG needs to first look at the ***integration benefits of expanding access to baseload power resources such as geothermal.*** Key economic and system reliability benefits that CTPG needs to consider include: calculating the economic benefit to transmission financing from accessing high load factor technologies that provide lower per-MWh transmission costs; lessened integration requirements for baseload resources; and avoided costs for scheduling issues across BAA's by including up-front, renewable baseload resources to help manage variability, create static scheduling practices and assist in future dynamic transfer scheduling systems.

Regional transmission issues in northern California and northern Nevada

The proposed Phase 4 Study Plan recognizes the importance of including a more thorough analysis of transmission options for Northern California and Northern Nevada. A good example of the transmission planning options that CTPG needs to consider were presented at the October 7 RETI Stakeholder Steering Committee by the Sierra Subregional Planning Group.

The scenario that assumes California will meet its 33% RES through a preponderance of renewable energy development in Southern California needs to be complemented with other scenarios that include potential system benefits from transmission proposals such as those proposed by Terra-Gen tying Owens Valley and Nevada generation into the Fresno area, and the Nevada-California DC line proposal of Great Basin Energy Development, LLC ("Great Basin").

Conclusion

GEA appreciates the open process that CTPG has adopted for review of your study plans and reports. We encourage you to reach out to our Association for more information as you move forward in the Phase 4 process. For transmission issues, please contact GEA's Western States Representative at 530/979-7586 or john@geo-energy.org.

Sincerely,

John McCaull
Western States Representative
Geothermal Energy Association