



GEOHERMAL ENERGY ASSOCIATION

209 Pennsylvania Ave, SE ■ Washington, DC 20003 U.S.A.

Phone: (202) 454-5263 ■ Fax: (202) 454-5265 ■ E-Mail: gea@geo-energy.org

April 26 , 2010

Clare Laufenberg Gallardo
California Energy Commission
1516 Ninth Street, MS 17
Sacramento, CA 95814

RE: Geothermal Energy Association (GEA) Comments on Renewable Energy Transmission Initiative (RETI) Phase 2B Draft Report

Dear Ms. Laufenberg-Gallardo and Fellow RETI SSC Members:

The Geothermal Energy Association (GEA) offers these comments on the April 2010 ***Renewable Energy Transmission Initiative Phase 2B Draft Report*** ("Report"). As members of the RETI Stakeholder Steering Committee, we have been actively monitoring and participating in the drafting of this Report. We applaud this high-quality effort and appreciate the opportunity to comment.

The RETI Phase 2B Draft Report contains a wealth of updated information and thoughtful analyses about how California might best meet an ambitious 33% Renewable Portfolio Standard (RPS). The Report comes on the heels of RETI's 2009 release of a statewide conceptual transmission plan, and the recent formation of the California Transmission Planning Group (CTPG) by most of California's major utilities. Overall, the Phase 2B Report is helpful, supplemental information that reflects the latest data on multiple aspects of renewable energy generation development in the West.

In circulating the Draft Report with our member companies, GEA actually received quite a bit of detailed feedback on the Report's methodology and the use of the results. The feedback is contained in our comments below, and it necessarily also addresses the largely "process" issue of how RETI can continue to inform and guide RPS-related transmission planning in California. Our concerns are summarized below and explained further in the balance of this document.

I. Summary of Concerns

- **Report methodology**
 - **Integration requirements:** The Report's economic and environmental analyses do not appear to reflect likely grid-integration requirements for intermittent resources.
 - **"Firming and shaping" analysis:** This analysis does not reflect realistic assumptions about resources or costs to provide firming/shaping services.

➤ **Generation-capacity overbuild:** The Report’s analyses of the tradeoffs between generation and transmission capacity do not reflect the economic realities of generation financing and construction.

• **Coordination with CTPG/CAISO planning processes:**

The very beneficial RETI coordination with other statewide planning processes (such as CTPG) should go beyond the composition of the generation portfolio and include agreement on other key assumptions as well (e.g., designation of proposed transmission paths) to avoid inconsistencies and disconnects in eventual transmission planning and construction.

II. Report Methodology

• **Integration requirements:**

The Report’s economic and environmental analyses do not appear to reflect likely integration requirements for intermittent resources, in two key areas.

➤ **Integration costs generally:** The economic and environmental analyses in the Report do not appear to consider the likely costs to integrate intermittent resources into the California grid. For example, CAISO analyses to date have found that increased regulation and ramping services would be needed to manage even a 20% RPS (Integration of Renewable Resources Report, posted at <http://www.caiso.com/23bb/23bbc01d7bd0.html>).

It is reasonable to assume that additional integration services will be needed at higher RPS levels. Since these services must be provided by flexible resources, which are highly likely to be fossil-fueled, their cost and environmental impact should be included RETI’s analysis, and in the Phase 2B Report. This also is consistent with the request/practice of California utilities subject to CPUC jurisdiction who wish to include integration costs in their renewable-resource procurement activities.

➤ **“Firming and shaping” analysis:** The Report states that “firming and shaping” supplementation by flexible (largely non-renewable) resources could increase transmission utilization and capacity values of intermittent renewable resources. It contains a sensitivity case looking at British Columbia wind generation, with the firming/shaping provided by “small hydro or a mixture of small hydro, biomass and geothermal” (Section 7.4.4).

The resulting product would cost about \$56/MWh, compared to a “weighted average rank cost” of \$95-185/MWh in the main analysis results.¹

This scenario itself is unrealistic for several reasons, but more importantly it points to several methodological flaws in the sensitivity case development process.

■ **The resource mix is unrealistic.** Biomass and geothermal resources are generally considered to be baseload factor (80-90+%) resources and are not generally used for intermittent-resource management purposes. It is much more likely that such services would be provided by flexible fossil-fueled resources, with the attendant

¹ The final report should clarify whether the \$56 is also a weighted average rank cost, i.e., was determined using the same methodology as the primary results.

emissions impacts that would partly negate the positive benefits of the renewable generation.

- ***The cost is unrealistic.*** As noted in the Report, “it is likely that this product picks from the lowest cost renewable resources across all of BC.” Thus, while the analysis looks at the incremental benefits of the firming/shaping, it does not follow the standard methodology for such analyses of looking at incremental costs to provide those benefits. Moreover, because of the unrealistic resource-mix assumptions, it fails to include the much higher variable costs of the generation that would actually provide these services.

With more realistic cost estimates, the incremental benefits of firming and shaping intermittent resources could be partly or largely balanced by the incremental cost to provide those services. The Report sensitivity case should reflect those realities.

- **Generation-capacity overbuild:** The Report contains an “Optimizing Overbuild” section (pp.6-19-6-23) that theorizes that building more generating capacity than transmission, in areas that would be heavy with intermittent generation, would be economic overall, in part because it would increase transmission utilization. This would make sense to the point where the cost of the curtailed generation just equals the benefits of the additional transmission utilization. This approach is used to determine transmission utilization (and resulting costs) in the Wyoming/Utah/Southern Nevada and Baja areas.

This analysis is interesting and seems sensible in concept. However, it ignores the realities of generation financing and construction, and of transmission pricing as well, by effectively assuming that the curtailments, and the cost benefits from higher transmission utilization, would be spread evenly over the generation capacity in the affected area. The reality is different, in part because generation development in these areas would likely take place over a relatively long period of time (10-20 years).

Firm rights to use transmission out of a generation area can only be sold for the maximum carrying capacity of the transmission (less any expected local loads, which would be very low in these areas). Any additional generation would only be able to obtain interruptible rights, usable only when the firm service rights are not scheduled, effectively, imposing all the curtailment risk on the generation above the transmission capacity.

It may be that some of the additional generation could actually be produced, depending on the diversity of the generation-production profiles. However, the imposition of the lack of firm rights and the curtailment risk on the later plants in intermittent-resource areas would likely combine to make the additional generation uneconomic and/or make financing under current standards basically impossible.

Comment [MU1]: So what do we recommend?

III. Coordination with CTPG/CAISO Planning Processes

Coordination between RETI and the CAISO Renewable Energy Transmission Planning Process (RETTP) – in particular, the California Transmission Planning Group (CTPG) statewide conceptual transmission plan that constitutes RETTP Phase 1, has improved markedly.

In particular, we were very encouraged to see that RETI and the CTPG have cooperated in the construction of generation portfolios for the first two CTPG analysis phases. As you know,

GEA also advocated that RETI provide the CTPG with a “best CREZ” generation portfolio for the third CTPG analysis phase, with a 70%/30% in-state/out-of-state split.

We strongly support these coordination efforts and believe that they will help California develop a well-constructed and feasible approach to achieving a 33% RPS. However, we believe that RETI should be more proactive in assuring that other key elements of the CTPG analysis are consistent with RETI principles besides the composition of the generation portfolio from CREZ’s.

Specifically, the RETI and CTPG/RETPP analyses will be fundamentally inconsistent in their transmission-planning conclusions unless the generation in the RETI portfolios comes into California along the same transmission paths assumed in the Report, and described in the Phase 2A conceptual transmission plan. The RETI assumptions in this area have been better vetted, with a wider variety of stakeholders, and RETI should convey the benefits of this extensive and broad collaboration into the narrower and quicker CTPG process.

For example, with respect to northern Nevada geothermal generation, the import path assumptions of RETI need to be fully considered in CTPG.

IV. RETI’s Import Path Assumptions for Out of State Renewable Energy Need Further Emphasis in CTPG Planning

- ***Stakeholders have submitted comments several times into the RETI and CTPG process that this supply would likely enter California through Control Substation***, and then travel south to Lone Pine, Inyokern, and Kramer Substations. This assumption leads to identification of the Control-to-Kramer conceptual transmission path identified in the RETI analysis.

The CTPG has consistently refused to incorporate this assumption in its analyses to date, assuming instead that this generation would enter California through COI (Round Mountain or Olinda Substations). The Report notes that this path is also a possible transmission route “if some existing transmission can be utilized” (p.6-13); however:

- There simply is no available firm capacity on COI, so additional transmission must be built regardless; and
- The regional utilities in the northern Nevada area (e.g., NV Energy) have no concrete plans or commitments to build transmission to COI, and such a plan would be unlikely to win public support in Nevada.

Access to the renewable energy generation over Path 52 into Control Substation, as assumed in the RETI reports is a less-risky and more economical assumption for the northern Nevada generation. This needs to be included in the current CTPG scenarios that will move forward into Phase 3 analysis, and we need RETI’s assistance in assuring that this will happen.

- ***The CTPG analysis does not consider the very logical RETI concept of the “gateway CREZ”*** (Section 6.5.3), and the economic benefits that can result from synergies between CREZs.

For example, the CTPG analysis includes an explicit “Owens Valley” scenario, with 5,000 MW of generation coming into the Lone Pine/Inyokern transmission facilities and then traveling south to Kramer. As noted in the Report, the Owens Valley is a “gateway CREZ” for northern Nevada generation, i.e., the incremental cost to reinforce generation north of Lone Pine to accommodate northern Nevada generation would be greatly reduced with Owens Valley generation development. However, the rest of the CTPG analysis for this scenario ignores those economics and continues to assume a route into California through the COI.

V. Conclusion

There are undoubtedly other areas where RETI import-path assumptions do not match CTPG assumptions, even with the considerable efforts to reconcile generation-portfolio differences. Inconsistencies between RETI and CTPG/RETTP on transmission paths into California will lead to inconsistencies in resulting transmission-infrastructure recommendations. These inconsistencies could effectively lead to stranding generation in promising RETI-identified areas and must be rectified in the third and last phase of the CTPG analysis.

We realize that many of the issues we are raising with the Phase 2B Draft Report have actually “migrated” over to the CTPG forum. GEA will be increasing its participation in the CTPG, and working with our member companies to ensure that the concerns expressed in this letter are fully considered and addressed.

It has been a privilege to serve on the RETI Stakeholder Steering Committee, and we look forward to ensuring that RETI’s excellent work to date is honored and utilized in the next phase of transmission planning in California.

Sincerely,

John McCaull
Western States Representative
Geothermal Energy Association