GEOTHERMAL ENERGY ASSOCIATION

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COMMENTS OF THE GEOTHERMAL ENERGY ASSOCIATION ON THE CTPG PHASE 3 STUDY PLAN

April 28, 2010

The Geothermal Energy Association (GEA) offers these comments on the following April 13th documents:

- ***Draft 2010 CTPG Study Report: Phase 2*** ("Phase 2 Report"); and
- ***2010 CTPG Revised Draft Study Plan for 2020: Phase 3*** ("Phase 3 Plan").

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.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.

The Phase 2 Report is better written, with better explanations of the assumptions, than the Phase 1 study report. We appreciate the more open process of recent CTPG activities and the tremendous effort that led to this latest milestone, as well as the CTPG's solicitation of input for the Phase 3 Plan.

Our comments address the assumptions in these documents about geothermal development in California and Nevada, and specifically how power generated from Nevada geothermal resources might enter California and the CAISO system. These concerns about both the amount of geothermal development assumed and its import path into California, are summarized below and explained further in the balance of this document.

- ***Amount of geothermal development assumed:*** Geothermal development appears to be significantly under-represented, due to inconsistencies between the amount of geothermal development in:
  - The CTPG Generation Queue Development Interest portfolio and the CAISO interconnection queue; and

- The CTPG scenarios/sensitivity cases and the NV Energy interconnection queue upon which the relevant cases are based.

- ***Import path into California:*** The California-Oregon Intertie (COI) entry point for northern Nevada geothermal generation assumed in the CTPG scenarios is inconsistent with both the CAISO interconnection queue and RETI assumptions. Virtually all the Nevada North geothermal generation in the CAISO queue shows interconnection through the Control-Kramer corridor. The RETI analyses are consistent with this assumption, as is the resulting RETI-identified Control-Kramer corridor as a major transmission path.

  CTPG import-point assumptions that conflict with these other activities could: (1) strand generation in this promising geothermal area; and (2) lead to inconsistencies between CTPG transmission-development recommendations, CAISO transmission development to serve generation in its interconnection queue, and RETI transmission-planning efforts. Geothermal capacity is stable baseline generation with virtually zero operational integration costs; restricting its entry would raise the cost and effort needed to reach a 33% RPS.

- ***Transmission augmentation:*** The processes in surrounding states may need augmentation by California BAAs to ensure a clear transmission path into California. The CTPG Phase 3 analyses should consider some additional transmission needed for access to promising renewable areas, through the CAISO Location-Constrained Resource Interconnection Resource Interconnection Facility (LCRIF) or similar mechanism.

Amount of geothermal development in CTPG scenarios

- ***CTPG assumptions vs. CAISO interconnection queue:*** Any portfolio based on the interconnection queues of CTPG members cannot exclude the hundreds of MWs of geothermal generation in queue of its largest member, the CAISO.

  There are about 535 MW of active geothermal projects in the current CAISO interconnection queue (see attachment). The most recent of these Interconnection Requests (IRs) were submitted in May 2008 (i.e., they have been in the queue for quite a while).

  Virtually all of this generation (500 MW) will be located in the Nevada North CREZ. About 350 MW consists of either Serial Group projects with filed LGIAs or Transition Cluster projects that have already posted financial security. According to the Phase 2 Study Plan and Phase 2 Report, all of that generation capacity should be included in the CTPG queue-based portfolio.

  Thus, GEA simply cannot understand why the CTPG Phase 2 Study "Generation Queue Development Interest Portfolio" has exactly zero geothermal development in Nevada North. How is this portfolio representative of the CTPG members' interconnection queues when it explicitly ignores this major geothermal development information in the CAISO's own queue?

  The only Nevada North generation assumed in this portfolio at all is 487 MW of solar thermal generation. However, there is no Nevada North solar thermal generation in the CAISO interconnection queue, so it is not clear why this generation is included.

- ***CTPG scenarios vs. NV Energy interconnection queue:*** The only consideration of Nevada North geothermal generation in the Phase 2 Study is in the Northern Scenario – basically, a sensitivity case. Based on "projects located in northern Nevada Energy interconnection queue as of January 12, 2010," this scenario assumes 1,000 MW of Nevada North generation, including 400 MW of geothermal generation.

  However, there is actually over 800 MW of geothermal generation in the NV Energy interconnection queue. The Phase 2 Study Plan and Phase 2 Report do not explain the reason for considering only half of this generation in the Scenarios.

Import path into California

Virtually all of the geothermal generation in the CAISO interconnection queue will be located in the Nevada North CREZ and will interconnect to the CAISO grid along the Control-Kramer Substation path. Most of this generation shows a Point of Interconnection (POI) at Control Substation. Consistent with this assumption, the RETI effort has identified the Control-Kramer corridor as a major transmission path for renewable-generation development.

Moreover, the RETI analysis has developed the concept of a "gateway CREZ," i.e., potential transmission synergies between out-of-state and in-state CREZs. The Owens Valley CREZ is identified as a potential gateway CREZ for Nevada North generation, i.e., the incremental cost to construct transmission to accommodate Nevada North generation would be considerably reduced by significant Owens Valley development.

However, CTPG analyses to date have persisted in assuming a COI entry point (Round Mountain and/or Olinda Substation) for any Nevada North generation assumed, despite repeated comments about the assumed entry path for Northern Nevada geothermal generation. This is true even in the CTPG scenario featuring 5,000 MW of Owens Valley solar development.

We simply do not understand how the CTPG can:

- ***Ignore POIs specified in CTPG-member interconnection queues in its "interconnection queue-based portfolio."*** This will undoubtedly lead to inconsistent transmission-needs assumptions between the CTPG effort and CAISO transmission planning to accommodate new-generation interconnections.

- ***Ignore RETI import-path assumptions in its RETI-based portfolio analyses.*** These RETI assumptions have been well-vetted through an extensive and open stakeholder process. The CTPG should include RETI transmission-routing assumptions in all RETI-based scenarios; otherwise, these inconsistencies will undoubtedly lead to inconsistent transmission-needs assumptions between the CTPG and RETI efforts.

Moreover, on its own merits, the COI import path for this generation is simply less feasible. There simply is no available firm transmission capacity on COI, so additional transmission must be built regardless. Additionally, the regional utilities in the northern Nevada area (e.g., NV Energy) have no concrete plans or commitments to build transmission to COI at this time.

In summary, Nevada North entry into California through Control Substation should be assumed in:

- ***The Generation Queue Development Interest Portfolio scenarios***, consistent with the CAISO queue;
- ***The Owens Valley scenario***, consistent with the RETI "gateway CREZ" concept and simple common sense; and
- ***The RETI-based portfolio scenarios***, consistent with the assumptions behind that portfolio in the RETI effort.

Transmission augmentation: Transmission planning efforts outside California have been uneven, with some jurisdictions reluctant to incur costs or development risks for transmission to service generation that will serve load in California. The best way to ensure that California has access to desirable out-of-state resources in some cases might be consideration in the ultimate plan of some limited transmission investments into and in surrounding BAAs.

This could be in the form of traditional transmission investment beyond the border or, as allowed by the CAISO Tariff, out-of-state LCRIFs. LCRIFs and other transmission investments should be especially cost-effective for geothermal generation, because of the expected high capacity factor/utilization of the facilities. The CTPG should think "outside the box" and use these and other available tools to enhance California's cost-effective access to these high-value supplies.

Sincerely,

John McCaull
Western States Representative
Geothermal Energy Association

CAISO INTERCONNECTION QUEUE – GEOTHERMAL PROJECTS (534.8 MW total)

QUEUE	DATE	STATUS	TYPE	FUEL	MW	DEL.	COUNTY	STATE	PTO	POINT OF INTERCONNECTION	COI	LGIA
58	2/22/2005	Active - Serial	ST	G	62		Mineral	NV	SCE	Control 115kV Substation	2/1/2012	Filed Unexecuted
184	3/5/2007	Active - Serial	ST	G	35		Sonoma	CA	PGE	Geysers #3 – Cloverdale 115 kV Line	4/1/2010	Executed
185	3/6/2007	Active - Serial	ST	G	150		Mineral	NV	SCE	Bishop, CA Control Sub	1/1/2011	
391	5/29/2008	Transition Cluster	ST	G	15	FC	Inyo	CA	SCE	Kramer Substation 230kV	1/11/2010	
392	5/29/2008	Transition Cluster	ST	G	15	FC	Inyo	CA	SCE	BLM Substation 230kV	1/11/2010	
393	5/29/2008	Transition Cluster	ST	G	15	FC	Inyo	CA	SCE	Inyokern Substation 115kV	1/11/2010	
394	5/29/2008	Transition Cluster	ST	G	60.7	FC	Churchill	NV	SCE	Control Substation 115kV bus	12/1/2015	
396	5/29/2008	Transition Cluster	ST	G	60.7	FC	Churchill	NV	SCE	Control Substation 115kV bus	6/1/2016	
398	5/29/2008	Transition Cluster	ST	G	60.7	FC	Churchill	NV	SCE	Control Substation 115kV bus	6/1/2012	
399	5/29/2008	Transition Cluster	ST	G	60.7	FC	Churchill	NV	SCE	Control Substation 115kV bus	6/1/2013	

CAISO INTERCONNECTION QUEUE – SOLAR PROJECTS IN NEVADA

QUEUE	DATE	STATUS	TYPE	FUEL	MW	DEL.	COUNTY	STATE	PTO	POINT OF INTERCONNECTION	COI
502	7/31/2009	Active - Cluster #1	PV	S	270	FC	Clark	NV	SCE	Eldorado-Ivanpah 230kV line	5/1/2016
503	7/31/2009	Active - Cluster #1	PV	S	500	FC	Clark	NV	SCE	Eldorado Substation 230kV bus	1/1/2016
488	7/31/2009	Active - Cluster #1	ST	S	92	FC	Clark	NV	SCE	Eldorado Substation 230kV	9/30/2012
500	7/31/2009	Active - Cluster #1	ST	S	960	FC	Lincoln	NV	SCE	Eldorado Substation 500kV	1/1/2014
205	4/20/2007	Transition Cluster	ST	S	300	EO	Clark	NV	SCE	El Dorado 220kV Switchyard	7/31/2010
467	6/2/2008	Transition	ST	S	230	FC	Clark	NV	SCE	Eldorado-Ivanpah 230kV line	10/1/2015

		Cluster									