Western Governors' Association

Western Renewable Energy Zones
Zone Identification and Technical Analysis (ZITA) Working Group
September 17, 2008
10:00 – 11:30 MDT

CALL SUMMARY
GEOTHERMAL

Decisions & Next Steps
• **Ryan Pletka asked that call participants help the WREZ process identify data available for mid-term geothermal resources, or what data might become available in the near-term. Information can be sent to Linda Davis (WGA).** • **Karl Gawell will work to provide BLM geothermal PEIS maps to BV and NREL.** • **Claude Mindorff to send the geothermal study on the use of geothermal in marginal areas to Linda Davis, for her to send to BV and NREL.** • **GEA will provide edits on the definitions and the criteria documents by Friday, 9/19. Depending on the outcome, geothermal could be presented as a work in progress at the Sept. 22-23 meeting, in order to hear considerations but not make decisions.**

Geothermal Definitions and Criteria Discussion

- Ryan Pletka presented the proposed geothermal definitions and criteria that Black & Veatch (BV) and NREL developed. The first document is a general overview that defines the approach and characteristics of geothermal. The second document is a criteria table that condenses this approach into bullets.
- For the resource assessment, WREZ will use near-term projects and the most recent data (CDEAC, CA Energy Commission PIER Report, CA RETI [CA, OR, NV resources and screening level assessment on Baja and WA]) as well as data on active development work in UT and ID.
- Geothermal is different from other resources because its resource assessment costs are higher and the identification process is more involved. There is little historic geothermal resource data available, and the data lacks the degree of confidence that it is developable without performing field studies.
- Transmission planning requires relative certainty of the resource's location, in order to encourage investment in the resource. Since long-term certainty lacks for geothermal, available near-term resources data should be used to effectively map out transmission. There are many geothermal resources that exist, but their location, quality, quantity and time to market is unknown. Resources could be developed and brought online in the next 10 to 15 years.
- Ryan discussed that WREZ will need to address the potential for EGS and that there are geothermal resources characterized by near term potential. Those studies will be considered, but BV's concern is that EGS cannot currently be used for transmission planning. In addition, there are additional mid-term resources that could be developed, but for which data lacks. **Ryan Pletka asked that call participants help the WREZ process identify data available for mid-term geothermal resources, or what data might become available in the near-term.**

- WREZ's intent is to use commercially available technologies. Geothermal is limited to proven technologies. For example, proven and commercially available technologies (CSP and PV) are being considered for solar.
- The WREZ process goal is to map transmission by first identifying large zones of energy for wind, solar and geothermal; then applying environmental and wildlife screens; then linking the remaining zones to transmission. WREZ is identifying areas to study in more detail, and gathering information on geothermal resources.
- Dora Yen-Nakafuji indicated that like solar, wind, biomass and hydro resources, geothermal is resource-based. It was suggested that the geothermal criteria be more flexible to take into account diverse resources available. There are direct-use and industrial use applications that are missing from the document.
- BLM is working on a programmatic EIS with resource assessment maps. These maps have information that could be useful to WREZ. The geothermal industry will be asked for their resource assessments and for more information on particular areas. Karl Gawell will work to provide BLM geothermal PEIS maps to BV and NREL.

Geothermal Energy Association Comments

- John McCaull, the Western States representative for the Geothermal Energy Association (GEA), indicated that GEA has concerns about the geothermal resource assessment process, specifically how technologies are being treated in the WREZ process. John indicated that transmission planning efforts like WREZ will have to focus on realistic MW potential, since there is great MW potential for geothermal.
- Karl Gawell (GEA) also indicated concerns with the accuracy of the definitions and criteria documents. Concerns include that the documents are too CA-based; there is a lack of consideration of oil-field co-production; and that EGS should be considered as part of existing sites since it is not a stand-alone system (a Sandia Lab paper exists that considers this and the fact that capacity could increase in reengineered projects). There is a range of different items applicable to the West that should be considered in the documents.
- Karl indicated that the GEA would like to convene a group of geothermal technical experts (e.g. BLM, DOE, etc.) to provide constructive input into the WREZ process, consider the resource assessment, provide comments on the definitions and criteria documents, offer consensus views on technology modification techniques and provide insight on available data, all within WGA's timeframe. could help the WREZ process achieve the highest level of resource potential and quality data possible. Information could be presented to the WREZ Technical Committee. This Karl anticipates convening a conference call in the short-term, but also a group at GEA's "2009 Geothermal Issues and Outlook Workshop" (10/4, Reno, NV).
- There was no objection to this approach from industry representation on the call. Call participants agreed that GEA's input would add value to the geothermal resource assessment, and it's imperative for GEA to be comfortable with the process and the resource assessment.
- The group raised considerations to keep in mind for GEA when developing input, notably that the WREZ process objectives and tasks should be kept in mind, and that ongoing discussions should be held to scope GEA's input. WREZ is not a comprehensive resource development process, but rather, focuses on large transmission. Although there is great resource potential for geothermal, not all of it is relevant to WREZ. Additionally, clear timelines for input need to be communicated to WGA, so that GEA's work does not come too late. GEA should work with WGA and the ZITA WG to develop language that can be included in the report, so that reports are consistent with past information.
- Karl asked what the timeline limitations are for GEA input into the process, and expressed the desire to engage in the process and to provide feedback that is legitimate and justifiable. At a

minimum, Karl and John will provide feedback on the definitions and criteria document and develop ways to modify the technology.

- **GEA will provide their comments on the definitions and criteria documents by Friday**.

September 22-23 Joint Meeting with Environment and Lands Work Group

- It is hoped that the revised materials can be developed and that an additional geothermal layer can be developed in time for the meeting.
- BV and NREL will present at the meeting a series of geothermal maps for the purpose of identifying candidate study areas. The anticipated outcome of the meeting is to overlay the environmental and lands considerations with the potential zones.
- There are known development sites and additional layers with geothermal potential, but the group is uncertain as to how the document modifications will impact discussions at the meeting and if there will be enough information to explore study areas. Geothermal could be presented as a work in progress, in order to hear considerations but not make decisions. The documents that GEA edits will be used as a starting point for discussion.

Additional Discussion Items

- Claude asked whether the geothermal study about the use of geothermal in marginal areas that he sent to WGA was forwarded to BV and NREL. **Claude will forward the study to Linda, to forward to BV/NREL.**

Call Participants:

Steve Arenson	OSD Sustainability Office
Linda Davis	Western Governors' Association
Karl Gawell	Geothermal Energy Association
David Hurlbut	National Renewable Energy Lab
Jim Lovekin	GeothermEx
John McCaull	Geothermal Energy Association
Claude Mindorff	WindEau, Inc.
Christy Morris	State of Nevada, Division of Minerals
Amanda Ormond	Ormond Group LLC
Martin Piszczalski	Sextant Research
Ryan Pletka	Black & Veatch
Howard Schwartz	WA State CTED Energy Policy
Perry Thomson	USTAR Southern Utah TOIP
Mary Ann Wright	Utah Energy Advisor's Office
Dora Yen-Nakafuji	Lawrence Livermore National Laboratory

Facilitation:

Abby Arnold	Kearns & West (facilitator)
Morgan Poncelet	Kearns & West (recorder)