

Western Governors' Association

Western Renewable Energy Zones

Zone Identification and Technical Analysis (ZITA) Working Group

November 3, 2008

11:00 a.m. – 12:30 p.m. MDT

CALL SUMMARY

Next Steps

- **Please direct all comments on the criteria to transition from a CSA to a REZ to Josh Finn, Black & Veatch (FinnJS@bv.com or (925) 949-5982), with a cc: to Linda Davis, WGA (ldavis@westgov.org or (303) 623-9378).**
- **As a reminder, the ZITA WG is also taking comments on the technology assumptions presented on the 10/28/08 call. Comments can be also directed to Josh Finn, Black & Veatch with a cc: to Linda Davis, WGA.**

- The purpose of today's call is to discuss the proposed mechanism for narrowing down CSAs into proposed REZs. At the September ZITA Working Group (WG) meeting, participants suggested ways to narrow down the CSAs, which NREL and Black & Veatch used to develop a streamlined approach. Once final, this approach will be handed off to the Generation and Transmission Modeling Work Group (Modeling WG).
- Documents discussed on this call were distributed by Linda Davis to the ZITA WG on 11/4/08:
 - resource potential.ppt
 - CSA to REZ 11 03 2008.doc

Narrowing down CSAs to REZs Discussion

- Ryan Pletka presented the 'resource potential.ppt' slides. The state-by-state criteria thresholds and associated MW potential are similar to the technology slides presented on the 10/28/08 call ('WREZ ZITA Technology.ppt').
- Even though the CSAs represent a fraction of the overall energy potential, the CSAs for wind and solar represent multiple times the amount of potential than what is needed in the United States. The CSAs need to be refined into zones through a systematic approach and specific, consensus-based criteria. Those zones will inform the data sets that are presented to the Modeling WG.
- Ryan presented the CSA to REZ criteria document ('CSA to REZ 11 03 2008.doc') and discussed the four criteria for narrowing down CSAs to REZs. The overall objective is to narrow down CSAs into REZs, resulting in economic resources being brought to load zones.
- REZs will be broken up into grid sizes that allow the Modeling WG to quantify the quality of resources and adjust for cost. The grid is a quantitative tool to make resource assessments and quantify resource content, and will be overlaid on the CSAs. Each REZ could be composed of many grid areas. The grid is an analysis tool, but it does not make assumptions about broad resource areas. Focus will be on the most viable resources. The amount of each resource within the grid square will be quantified.
- As an example, in the CA RETI process, each grid square provided 200MW of solar thermal potential. This allowed for realistic parcel size for solar thermal development. For WREZ, the Modeling WG suggested using 500MW grid squares.

- If a portion of a grid includes national parks, the final boundary of a REZ will exclude the national park.
- **Q:** Why not define a larger resource area that would support transmission, and incorporate flexibility in the planning in terms of location of projects, feeder and collector systems? This would prevent the need to ensure that there are enough resources to support a line.
A: The process will not define specific coordinates. There are still broad areas, but they are specifically defined. There does need to be enough space around those areas that boundaries can be quantified.
- **Q:** Some economic analyses suggest that the scale of resource areas is based on different levels of transmission. What are the resources needed to mobilize a minimum level transmission? Is there a similar economic screen that could be used to think about the collector system?
A: BV is trying to determine how to set the minimum size and the maximum size of collector systems.
- **Q:** How will the criteria narrow down the vast areas of wind and solar resource potential based on transmission availability, cost routing and other factors?
A: Based on the raw resources, the Environment & Lands Work Group (E&L WG) and the Department of Defense will provide further criteria. Additional practical restraints need to be added to further narrow the areas. The supply curves would also reflect the resource profiles.
- **Comment:** Large areas of potential should be considered and later narrowed down. Wind and solar comprise very broad resource areas. It should be possible to specify which resources can be considered in each zone.
- **Comment:** A REZ should be at least as big as the biggest wind farm that is now being proposed (e.g. around 700 sq. miles). From a resource perspective, “donuting” REZs should be avoided.
- **Comment:** The vast amount of resource potential makes it difficult to manage and narrow down data, in order to develop a reasonable number of REZs. How can all of the data be pulled together to economically develop analyses for transmission purposes? States will have to develop ideas to connect their resources to those end points, to take advantage of the availability of local resources. Big grid areas are ok, but it’s important to get as close as possible to the analysis areas.
- **Comment:** Large areas can create opposition because resources cannot be differentiated. The group needs to figure out where the lines to the biggest resources are.
- **Comment:** The group needs to focus in on the larger transmission solutions that are needed, without alienating valuable constituencies. There will be a CSA in every state or province. Certain areas will need to be excluded, but as much as possible should be shown in a positive perspective for every state. While it is important to show all states represented in a REZ, not all stakeholders will be in a zone. Investments will be made based on logical decisions.
- Input will be received on military and tribal lands. Native American lands will not be categorically excluded, but will require a specific type of approval for usage, and any tribal land included in a REZ will have to undergo the normal environmental documentation process.
- **Q:** With regard criteria 4(a) on the document, do you mean multiple resources at the REZ level, or other resources that are below that threshold?
A: REZs will combine all resources. The minimum size has to be met in aggregate. Some resources have different aggregate cut offs and some have higher capacity factors.
- **Comment:** In regards to zone size, it is untenable to have large zones when modeling, but there should not be a perception of exclusion. Larger zones could be modeled, but only within certain classes of wind, for example.

Zone size should be a continued discussion item.

- The group discussed applying a ‘safety factor’ to account for the fact that not all of each grid square will be or can be developed.
- **Comment:** Only a certain percentage of lands are actually developable. When public lands are factored in, this will become a reality, as some lands will not be completely available. That

should be taken into account early on, so that a reasonable safety factor is built in to account for the assumption of land use restrictions.

- **Comment:** For CSP in Colorado, there are two solar zones that occupy 2% of the proposed land area, with 98% of exclusionary zones. This still yielded a high resource potential. A number in that vicinity ensures competition between entities developing in zones. Since project development is in the future, a safety factor ensures competition. The field of technical potential is usually larger than what was likely to be developed.
- **Comment:** Although 98% seems high. 2% is a large swath of land. Another safety factor scenario would be a low and high scenario (which Utah has done). In California, no safety factor was in place. Instead, the economically best sites were chosen for development. This accounted for about 20% of the land originally identified. In Texas, CREZ capacity was measured to about 25% of initial areas that were technically feasible. Many areas are consistent with the five to one ratio.

Safety factors should be a continued discussion item.

- **Comment:** There should be a tool to test the viability of different REZs. If projects are sequenced early on, with a broad definition of CSAs, that analysis should narrow the scope with pre-determined criteria, which results in an analysis of the real economic cost of resources.
- Robust REZs will be built into areas of multiple generation sites. Economic criteria, resource density and geographic diversity factors will be analyzed for REZ determination. Public information could inform other criteria.
- The group discussed the \$10/MW system cost proposal. There was no strong opposition to this proposal, but it was noted that this estimate does not factor in the cost of bringing energy to load centers, which could add another \$20-30/hr. That would be the upper limit.
- The group will be transparent in how each step is reached and why, in distinguishing areas of potential based on economic analyses. This is a public and unprecedented project that affects the entire Western Interconnect.
- **Linda Davis asked that the group consult with their colleagues and industry contacts, and submit all comments to Josh Finn with a cc: to Linda. These comments will be compiled into a revised strategy.**

Administrative Items

- The next call is scheduled for Tuesday, November 11, to review technology assumptions and related comments. The call date might be rescheduled in account of Veteran's Day, in which case the ZITA WG will be notified.

Call Participants

Jason Berry	Utah State Energy Program
Peter Brehm	Infinia
Rebecca Coffman	Southern Ute Alternative Energy Committee
Linda Davis	WGA
Steve Ellenbecker	Wyoming Governor's Office
Josh Finn	Black & Veatch
Todd Fisher	NARP
Rich Halvey	WGA
Ed Higginbottom	BC Transmission Corporation
Dave Hurlbut	NREL
Tom Kaiserski	Montana Department of Commerce
Julie Keil	Representing the National Hydropower Association
Doug Larson	WGA
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Facilitation

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NM RETA
Xcel Energy
Vestas
WGA
BC Hydro
Renewable Northwest Project
Sierra Club

Kearns & West (recorder)