

Western Governors' Association

Western Renewable Energy Zones

Zone Identification and Technical Analysis (ZITA) Working Group

September 5, 2008

10:00 – 12:00 MDT

CALL SUMMARY

Decisions & Next Steps

- **Revise Slope Criteria to 5%.**
- **Insulation screen of 6kW/m²/day. Comments expected to lower this to 5kW/m²/day.**
- **Exclusion of wetlands/water bodies, surface mines, urban areas and airports was agreed to by the group. Forested Lands was questioned and Ryan, B&V, will come back to the group with definition and map.**
- **Would use Solar Thermal as general screen for all solar, since solar PV would create a Candidate Study Area of the entire western US. Will evaluate the various solar technologies, PV and Thermal, after Candidate Study Areas are identified and begin the economic analysis portion of the project.**

Action Items

1. Revise GIS maps to reflect decisions made – Black & Veatch.
2. Revise the Solar Criteria document to capture decisions made. Send this out to the workgroup by Tuesday for comments by Friday, September 12th.
3. Draft set of assumptions surrounding what will become Candidate Study Area. This 'definition' will be included in each resource criteria summary.

Call Objective

- The purpose of this week's call is to develop consensus on Solar criteria that will identify the greatest resource density.

Discussion on Solar Criteria Table

- Initial agreement was made that an insulation factor of 6kW/m²/day was acceptable. Peter Brehm then suggested 5kW/m²/day, indicating Infinia has a demonstration project in Kennewick, Washington that is operating at this insulation level. The issue was tabled for later comments.
- The next criteria discussed was slope. Bob Linden and Arthur Haubenstock indicated that some technologies can operate effectively on slope of 3 – 5% and would like to see the criteria increased to 5% slope. Agreement was reached to change the slope criteria to 5%. As the working group begins reviewing the technology assumptions, it is understood that different technologies will be applied to diverse slopes; which will factor into the economic assumptions. This will be reviewed at a later date.
- The density assumption is more appropriately discussed under technology assumptions and thus was moved and tabled for later discussion.
- A question was raised as to what is DNI – Direct Normal Insulation.

- For exclusions, wetlands/water bodies, mines (surface), urban areas and airports were agreed upon. Forested Lands, as an exclusion, was questioned. Madeleine West stated that the E&L group will review forested lands from the perspective of regulatory and statutory requirements, but will not evaluate forested lands from a technical perspective. The question was raised as to what constitutes forested lands - how dense are the trees? How big are the trees, etc. Ryan will look into GIS information available and come back to the group with a definition and map – the group will then be able to determine how forested lands impact the solar resource.

Review of Maps

- Dave Hurlbutt noted that the maps were based on a national collection of satellite data developed by a Professor at UNY. The information shows annual averages over a typical met year, annual solar direct radiation. The maps demonstrate how much direct solar radiation is converted to energy based on kW hours per meter squared on a typical day.
- The first map shows Solar PV with a 5% slope. This is the only screening criteria applied to Solar PV. Because PV can be applied virtually anywhere, there was no insulation screen identified. The entire Western United States would be considered a Candidate Study Area IF this screen was applied. Agreed that for purposes of this initiative, would assume that were an area is identified using Solar Thermal screening, Solar PV would also apply.
- The second map shows 2% slope with 6kWh/m²/day with federal land exclusions.
- Steve Arenson raised the issue of military lands. Military lands will be reviewed separately and applied to all renewable resources.

Deliverables Timeline Discussion

- Solar Criteria Table to working group by Tuesday, September 9th. Comments due back from work group by Tuesday, September 12th.
- Review maps, comments and criteria table at meeting September 22nd-23rd in Denver.

The meeting will commence at 12:00 with a working lunch and will end at 4:00, September 23rd

Hotel logistics:

Renaissance Denver Hotel (www.renaissancedenver.com)

3801 Quebec Street

Denver, CO 80207

Tel: 303-399-7500

Fax: 303-321-1966

Reservations can be made by calling (303) 399-7500 or 1-888-238-6762. Please reference "WREZ Western Renewable" room block in order to receive the contracted rate of \$140.00/night. Rooms will be held in the block until September 8.

Administrative Items

- Public website for WREZ project objectives, work group activities, upcoming meetings, approved documents.
- Linda indicated that all ZITA WG documents, including call summaries, are available online at the CentralDesktop website. These documents have not yet been approved by the Technical Committee but are available to the work group for comment. All ZITA WG members should have received an email invitation to the site. Please contact Linda with any questions on how to access the site.

Call Participants

M Aldrige	
Steve Arenson	OSD Sustainability Office
Craig Bleu	
Peter Brehm	Infinia
James Campbell	PacifiCorp
Linda Davis	Western Governors' Association
D. Glen	Iberdrola
T. Gregory	
Rich Halvey	Western Governors' Association
Jeff Hein	Colorado PUC
Arthur Haubensstock	BrightSource Energy
David Hurlbut	National Renewable Energy Lab
Eric John	Sky Fuel
Bob Liden	Stirling Energy Systems
Christy Morris	Ram-Power Inc.
Amanda Ormond	Ormond Group LLC
Martin Piszczalski	Sextant Research
Ryan Pletka	Black & Veatch
Hank Price	Abengoa Solar
Liza Szot	New Mexico RETA
Dora Yen-Nakafuji	Lawrence Livermore National Laboratory
Madeleine West	Western Governors' Association
Cameron Yourkowski	Renewable Northwest Project
Abby Arnold	Kearns & West (Facilitator)