

## Western Governors' Association

### Western Renewable Energy Zones Zone Identification and Technical Analysis (ZITA) Working Group August 8, 2008 10:00 – 11:30 MDT

## CALL SUMMARY

Decisions & Next Steps
<ul style="list-style-type: none"><li>• <b>The group decided on a 2020-2025 timeframe for implementation.</b></li><li>• <b>Steve Arenson will work with NREL and Black &amp; Veatch (Dave Hurlbut and Ryan Pletka) in mapping the military zones with an indicative color code.</b></li></ul>



Action Items
<ol style="list-style-type: none"><li>1. On a future call, ZITA WG to discuss the Resource Assessment of renewable resources outside of the REZs.</li><li>2. Black &amp; Veatch will document how they anticipate developing the resource assessments, including how far outside and in what detail of the REZ zones the assessment will go.</li></ol>



### Call Objective

- The purpose of this week's call is to provide a summary of Technical Committee activities, resource discussions, and upcoming meetings and webinars. This is intended to keep everyone abreast of the process, as well as continue to reach out to all stakeholders.

### Technical Committee Updates

- It was determined that the ZITA Working Group (WG) will consider only military and tribal land use criteria. The Environmental & Lands (E&L) WG will handle all other criteria, including species, wildlife, habitat and agriculture. Issues deferred to the E&L WG are combined for wind and solar. The E&L WG is defining what is undevelopable.
- Outreach: The ZITA WG members were asked to continually reach out to their appropriate contacts to keep them involved in the process. All WGs have an outreach component.
- It was reiterated that the WREZ process is tasked with assessing transmission to areas of renewable potential. Potential REZs will be analyzed for their resource potential and also for their "developability." All zones are vetted through concerns and criteria, and in this light, justification of criteria determinations is vital.
- Resource Assessment: The group discussed how to address the renewable resources that are outside of the REZs. Black & Veatch will develop a resource assessment to provide information on the resources that are not included and whether they are germane to siting transmission. **This will be put on a future agenda.**
  - The resource assessment will identify two types of resources: 1) resources in small concentration that can be easily integrated into projects and onto the grid, 2) small projects isolated from the grid.
  - The resource assessment will include small hydro, solar PV and biomass (flexible resources), and geothermal to a lesser degree (less flexible). Solar PV is being considered as close as possible to load centers, although it is more difficult to create zones around small hydro and biomass. Future ZITA calls will cover each resource.

- The assessment does not determine whether injection of those resources at those locations would impact the grid elsewhere.
- Black & Veatch will document how they anticipate developing the resource assessments, including how far outside, and in what detail, of the REZ zones the assessment will go.
- As it stands, there is no current benchmark/target to reach of capacity, load, production or emissions. The WREZ process is different from an RPS process in this respect, since there is no definable standard to achieve. The goal is to assess candidate areas.

### **Deliverables Timeline Discussion**

- The group discussed the need to identify a time horizon for reviewing technologies, and discussed a 10-20 year timeframe.
- Group members raised various considerations in determining this timeframe:
  - The timeframe is critical to developing cost curves, because they are developed in terms of development dollars.
  - If a timeframe is chosen with nearer technology horizons, this creates uncertainty, in that technologies can change within a time period. If a technology is modeled, the group should either ensure that it will be useful down the line, or make clear the assumptions that were made as part of the determination.
  - If the REZ objective is to have transmission projects ready in the next 10 years, existing technologies should be considered. Transmission planning needs to be concurrent with technology development, and costs and technology advancements can be adjusted later.
  - Forecasting technological change is the biggest challenge, so the process should focus on building transmission around areas of high potential, since the resources will be stable over the next 20 – 30 years.
  - Transmission planning is based on probabilities, building scenarios, roles of each technology, load growth planning and technology maturation. Low-medium-high timeline scenarios need to be modeled to account for these variations. Long-scale planning uses the assumption that technologies are mature today, and considers the lead time for transmission.
  - Transmission lead time is a big constraint. The WREZ process will take at least another year. Since modeling transmission can take upwards of 10 years, should the group consider at least a 2020 timeframe? Coming online between 2020-2025 is realistic, if planning begins now.
  - Most state RPSs go beyond 10 years. To secure public funding for green transmission, the timeline needs to go beyond 10 years. Many RPSs are using a 2025 timeframe. The furthest out Western state RPS should be used as an example.
  - The Western Climate Initiative focuses on a 30-years timeline with 2050 targets.
- CA is facing similar planning issues. Resource availability by location is identified, but technology assumptions need to be updated frequently to account for technology advancements. However, transmission from the best renewables is considered before the availability of specific technologies, and technology adjustments will be made as needed.
- The WREZ process will draw zones around resource concentrations, and then model the costs for each resource. Technologies will need to be fairly certain in order to develop correct cost estimates. To that end, proxy technologies will be used to base costs, with different timeframe scenarios.
- The group discussed potentially connecting to other programs in the region.
- **The group decided on a 2020-2025 timeframe.**

## Technology Assumptions - Update

- Summary of Wind Call: The wind call established preliminary criteria: 50m hub height data, 20% slope, and 1km x 1km area. NREL and Black & Veatch will develop data maps based on that information and return to the group with capacity factors and recommendations on the August 20<sup>th</sup> call. One concern is consistency of data across states – it is hoped that developers will provide confidential data about wind location for hub height data and other criteria.
- Summary of Solar Call: Black & Veatch came forward with criteria for discussion for CSP technologies. The group decided on the following criteria: 2% slope (a working assumption, but could be revisited in the future to potentially include 5%) and a resource load of 6kW/m<sup>2</sup>/day. Criteria for PV is a 5% slope and no installation screen. Urban and developed lands, forested lands, and exclusionary lands will not be considered. The ZITA WG is developing a protocol to review military and tribal lands. Carl Zichella is leading (and can share) the development of a matrix of environmentally-sensitive lands. The ZITA WG is also developing a process to determine which lands are undevelopable.
- Summary of Geothermal Call: The first geothermal call did not result in specific criteria, but allowed the group to discuss how to move forward and discuss technical assumptions and timeframes. The group decided that specific criteria will first be considered (geologic surveys, 790s and other standards) following by general information. Black & Veatch and GeothermEx will provide information and methodologies to determine geothermal criteria. One concern with geothermal technology is that it could be much different in 20 years, and is not as advanced as other technologies. Additionally, much of the geothermal information is outdated, although it is slowly being updated. There are compilation issues in the data collection, and the WGA is working to gather as much geothermal data as possible. Federal agencies were asked to provide information that they have available.
- The group discussed renewable information provided by Alberta, as Alberta is included in WREZ process. NREL will talk to Canadian representatives about procuring wind resource maps.

## Overview of Military Land Use Criteria

- Steve Arenson provided information on lands of military use with respect to renewable energy development and transmission. There is potential for renewable energy on military land. Steve indicated that the Department of Defense (DoD) supports renewable energy.
- There are two types of military land use for testing and training:
  - Areas that are owned by the military (e.g. shore facility behind the bench line, housing).
  - Large areas of lands that have been “withdrawn” from public purpose by Act of Congress (e.g. training range in central NV, or portion of China Lake). These lands are frequently owned by other federal agencies (typically the BLM), and renewed regularly. The DoD is discussing withdrawn lands for renewable development. Land development for renewable energy production may or may not be considered a military use under which the lands were withdrawn, and the DoD will have to determine how those lands are treated. They are not excluded, but might need cost factors applied to them to account for the difficulty related to reassigning use. DoD attorneys are evaluating the issue. It might take cooperation between federal agencies.
- Renewable energy activities (e.g. wind farms, solar chimneys, CSP) could affect military air space and operations within the air space. Air spaces have different floors and altitudes that can impact radar interference (e.g. high speed, low level 100ft floor route that is not compatible with wind development). Each of those factors will be considered. For example, 600-700 foot blade heights affect the minimum floors at which point air space utilization is a challenge and

mitigations become critical. Blade height assumptions will help determine the zones. Air space requirements can be determined with GIS maps.

- The DoD has already provided minimum boundary layers to NREL. Once NREL incorporates them into the GIS maps, Steve will discuss the areas of interest with DoD and begin to determine “no go” areas, along with explanations of why they are excluded. Affected parties will discuss mitigation options as the zones are developed. The decision deadline is mid-September.
- The DoD is considering expanding the CA concept of red, yellow and green areas related to map land use potential for renewables. It is in development in NV, and in preliminary mapping stages in AZ. The color coding is generally based upon floor of air space (depending on usage). Impact gradation is useful to demonstrate different levels of impact and potential mitigation.
- The DoD does not have detailed mapping information throughout the West to determine the areas of impact. One tool to determine land impacts is a long-range radar (on FAA website), used to plot project locations and determine whether they have the potential to encumber those areas.
- **Steve will work with NREL and Black & Veatch (Dave Hurlbut and Ryan Pletka) in mapping the military zones with an indicative color code.**

#### **Overview of Tribal Land Use Criteria**

- Linda asked that ZITA WG members with tribal contacts communicate them to her, to ensure that the proper groups are involved. Linda has already reached out to various tribes.
- Each tribe has different interests and a varied resource mix.
- It was suggested that Bob Gough, with the Intertribal COUP be involved, as he can inform the proper groups.
- WREZ should notify tribal groups now of the process to ensure that they are involved and preempt potential issues.

#### **Upcoming Discussions/Meetings**

- The ZITA WG will cover one technology on each call. This allows NREL and Black & Veatch to develop technical recommendations between each call.
- Upcoming call schedule:
  - August 15 – Hydro
  - August 22 – Biomass
  - August 29 – Wind
  - September 5 – CSP
  - September 12 – Geothermal
  - September 19 – Brainstorm zone criteria
  - Fall – Face to Face meeting in Denver to review overlay maps, tentatively set for September 22-23. Phone capabilities will be provided.

#### **Administrative Items**

- The ZITA WG leads will facilitate communication and information sharing between the ZITA and the E&L WGs.
- Linda indicated that all ZITA WG documents, including call summaries, are available online at the CentralDesktop website. 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**

Steve Arenson	OSD Sustainability Office
Jason Berry	Utah State Energy Program
James Campbell	PacifiCorp
Mike Crutchman	E.ON Climate & Renewables North America Inc.

Linda Davis	Western Governors' Association
Rich Halvey	Western Governors' Association
Ed Higginbottom	BC Transmission Corporation
Holli High	Exergy Development Group
David Hurlbut	National Renewable Energy Lab
Katie Kalinowski	Renewable Northwest Project
Julia Levin	National Audubon Society
John McCaull	Geothermal Energy Association
Claude Mindorff	WindEau, Inc.
Christy Morris	State of Nevada, Division of Minerals
Amanda Ormond	Ormond Group LLC
Cristian Penciu	Pulsar Energy Inc.
Ryan Pletka	Black & Veatch
Liza Szot	New Mexico RETA
Henry Tilghman	Vestas
LaVerne Kryiss	Western Area Power Administration
Dora Yen-Nakafuji	Lawrence Livermore National Laboratory
Carl Zichella	Sierra Club
Morgan Poncelet	Kearns & West (recorder)