

## Western Governors' Association

### Western Renewable Energy Zones Zone Identification and Technical Analysis (ZITA) Working Group July 10, 2008 9:30 – 11:30 a.m. MDT

#### CALL SUMMARY

##### Decisions & Next Steps

- **CRITERIA:** The group will consider the following criteria for determination of wind capacity in potential study areas:
  - Initial 50m hub height data that has been validated
  - Class 3 wind as a starting point
  - Slopes lower than 20%
- Information used for growth and resource potential needs to be consistent. Each state has different resolutions, which the WREZ process can compile in order to have consistent data sets that validate the model.
- If there is a decision that a zone is exclusionary, the Environment and Lands Working Group should be notified as soon as possible.
- There will be an Appendix in the final report that specifies what information the group started with (NREL data, WWSIS, etc.) and what was considered in the decision making. The group needs to accurately document how each zone was identified and with what information, as well as the assumptions and errors in developing baseline information, to inform a common process across the entire interconnect.
- When the Environment and Lands, and the ZITA Working Groups meet, they will discuss development on pre-disturbed lands and the wildlife consequences.

##### Action Items

1. Madeleine to distribute the NREL memo describing standard exclusions that NREL applies to wind resource mapping, as applied to the WWSIS data set.
2. Linda to ask the Governors for state-wide information, questions and data sets for project mapping.
3. Lisa to ensure that representatives from Baja CA and the 3 Canadian provinces participate on the calls.
4. David to send Linda a POC for the GIS/Mapping data while he is away.
5. NREL and Black & Veatch to begin documenting the rationale behind criteria selections.
6. Kearns & West to develop language that describes the assumptions of the ZITA Working Group.
7. Linda and Dora to develop a description of the baseline data.
8. David to send Linda a summary of the WWSIS, the study's timeline and what data is involved.
9. Linda to determine if potential zones are undisturbed or brownfields, and/or determine criteria for measuring this.

## Review of NREL Information and Criteria

- David Hurlbut emailed to the Working Group a set of selection criteria that NREL applied to wind sites for the Western Wind and Solar Integration Study (WWSIS), a parallel study to the WREZ process. The WWSIS studies costs and potential mitigation of operational issues that will take place once high penetration of wind and solar come on. Those issues will come into play after the WREZ process, presuming that there are transmission upgrades that facilitate resource procurement. The timetable for the WWSIS is parallel to the WREZ schedule, which means that the WWSIS results won't feed into the WREZ process. The WWSIS considers new, high resolution wind and solar data, also at 100 power height for wind (what wind installations are currently going in at).
- David sent a series of map files to the Working Group that could be considered as initial screening points for the WREZ process. David also sent a link to a Google Earth data set to look at potential study areas. David indicated that the initial data modeling set had 1.2 million data points, which covers the entire West, but is quite large for an in-depth analysis (it is challenging to calculate that many data sites within two minute intervals of each other). NREL therefore narrowed the study area to 30,000 data points. GE Energy will look at modeling optimal wind, proximity to transmission, regulation and reliability issues.
- The main issue of relevance for the Working Group is the metascale NREL data.
- An analysis was also conducted to look at each wind point's diurnal profile and how it correlates with the load profile for the WestConnect area. Each point was measured for load following capability. **The group should decide whether to consider that data in the initial study area, as that information is available.**
- The standard exclusions that NREL applies to wind resource mapping (including national parks, slopes greater than 20%, federally-designated wildlife areas) are already applied to this data set. The exclusions are in a memo that might have been distributed, but will be if not.

## WWSIS Question & Answer

- **Q:** Does the wind study consider distributed solar energy?  
**A:** Yes, that is still being determined. They are looking at different levels of penetration for different technologies, and the idea is to consider the reliability of each.
- **Q:** What is the study's footprint?  
**A:** The study is in partnership with WestConnect, so the management area focuses on the WestConnect footprint and some of the MidWest ISO footprint: mostly NV, AZ, NM, CO, WY; some of TX, CA, KS. The WWSIS process does not cover Canada.
- **Q:** Why did you state that power density could be used as a proxy, and would it be easier to consider net capacity factor?  
**A:** There are limitations in computing annual capacity factors of so many data points. Power density calculations are easier.
- **Q:** Will Canadian wind information be in the study?  
**A:** Yes, but we're not at the point where we can take data that we have for the WWSIS and use it for Canadian data. This will eventually be possible when more maps are available. There is continuity in Canadian areas close to North American borders, which might be enough for the initial study areas.
- **Q:** How do you deal with wind resources assessment in areas where there are questions of consistency with similar sites in different states? My concern is that the process will identify areas that are not in reality a good resource.  
**A:** Lisa is involved in a stakeholder process to look factors that are not considered in the lab. Developers, meteorologists and other involved parties are providing input.
- **Q:** What does 'filter data' mean?

- A:** This includes the various filters that are used for screening information (military, park service, wildlife areas). Other filters that are not identified include military air space, which is information that is not consistent across states.
- **Q:** In the initial study area, will you show areas that are statutorily or legislatively non-development areas? Is the military air space at all negotiable or is the Department of Defense excluding large areas of potential land?
- A:** For now, federal criteria govern what is a non-development or partially-development area. The state exclusionary criteria are not consistent. Military air space is a constraint to be considered in the second stage of analysis. Consultation with DoD is acceptable based on current military activity, and based on the best available information. The Environment and Lands Working Group is also discussing the issue of military air space and making non-development criteria consistent across states. The purview of both Working Groups will have to be clear.

### **Determination of Criteria for Initial Study Area Discussion and Review of Criteria Matrix**

- The group discussed whether the information currently available to the Working Group is sufficient to suitably designate initial study areas. Primary criteria and basis data layers will be examined in the first stage of analysis, and then the Working Group will consider how to move forward. Many of the criteria discussed today will not come into play until later. The exclusionary zones need to be identified, and then the mitigation zones.
- It was indicated that the summary of State Technology Attributes and Assumptions did not include all state. Dora indicated that different states had different metrics and target projections, and that information for all states was included. It includes resource information and basic assumptions for those resources. Since there is no consistency across states, the group will begin making criteria assumptions across states.
- At the Kick-off Meeting, the Governors expressed that each state should provide their specific state information, data sets and resolutions, based on different wind resources. Linda will follow up on this information.
- There is a difference between resource assessment and REZ identification. For the purposes of this effort, the criteria set forth are consistent baselines to measure WREZs, not overall resources.
  - ➔ **Information used for growth and resource potential needs to be consistent. Each state has different resolutions, which the WREZ process can compile in order to have consistent data sets that validate the model.**
  - ➔ **If there is a decision that a zone is exclusionary, the Environment and Lands Working Group should be notified as soon as possible.**
  - ➔ **There will be an Appendix in the final report that specifies what information the group started with (NREL data, WWSIS, etc.) and what was considered in the decision making. The group needs to accurately document how each zone was identified and with what information, as well as the assumptions and errors in developing baseline information, to inform a common process across the entire interconnect.**
- The main task for today's call is to develop criteria to define the initial study areas that will be further analyzed in the subsequent stages. The proposed matrix is an efficient way to consider what criteria should be included in the study. Previous planning process informed the matrix content.
- It was clarified that NREL narrowed down the data points for the WWSIS with different assumptions than the WREZ process might.

- The group discussed the criteria matrix and decided which items could be decided on today's call and which items were larger discussions for future calls. The first criteria evaluation state is a rough look at potential zones.
- Granularity:
  - The group discussed how different states would have different information in terms of granularity. Supply curves are more accurate with a high level of granularity - are states with less granularity disadvantaged? Each zone will have its own level of information available and the final result should indicate what zones were identified based on what information.
- Data points:
  - David indicated that the 30,000 selected data points have been validated, but not all of the 1.2 million data points have been.
- Hub height:
  - Options are is to use partially validated 100m wind height data from WWSIS to select an initial study area, or use validated 50m hub height data. The difference between 50m and 100m data and their validation is that the mesoscale modeling data points come out of a large regional model that models wind characteristics at various points. It compares what was modeled with measured wind speed data at specific sites in the study area to make sure that the model results are possible.
  - The 50m data is from the Wind Powering America website. The group could decide to switch from 50m to 100m information at a later date. Once the initial study areas are outlined, the group should ask if there are historical concerns for each geographic area, or for 100m data.
  - The group will **use initial 50m hub height data that has been validated**, and plan for more precise studies in the future.
- Consistency with Canada:
  - A separate formula for continuing the study northward to Canada could be developed. Canada WEA has information available, which might be consistent for power density, as the NREL criteria is based on power density. In this way, the group can translate Canadian information so that it's valid for the US.
- Wind class:
  - It was suggested to use Class 4 wind, with a 10-20 mile buffer zone around the area, to maximize the loading on a high voltage regional transmission line. The buffer zone will stretch the boundary so that there is a bigger study area to start with.
  - However, it was indicated that the resource assessment should identify everything that is viable, and narrow down areas when considering large interstate transmission projects. Wind that can be developed for one load is different than wind that can be developed regionally, and weaker areas can still be in-state resources. For example, Arizona has limited Class 4 resources, so it's important to have a broad range of resources. Within the WREZ timeframe, Class 3 could be viable for export. If the group looks at Class 3 and above, then the buffers would not need to be as large.
  - **Class 3 wind will be used as a starting point.** Areas will be narrowed down once each variable is evaluated. Wind class will be treated as a proxy for capacity and density, as they are highly correlated.
- Slope:
  - **Anything higher than a 20% slope is excluded.**

#### Further Discussion Points

- The group needs to agree on its assumptions: **Is the group developing REZ for a large area of development that is supported by high voltage regional transmission?**

- Will developers be allowed to provide state data that they have so that it can be utilized in the process? If so, there should be a mechanism in place to protect confidential and proprietary information. NREL is a good repository for confidential information, as opposed to states. **This will be a question for the Technical Committee at a later date.**
- The group discussed how to measure interested developers. It was stated that at the end of the ERCOT REZ process, developers were asked to pay in, in order to be a part of the process. This indicated their interest. This happened at the end of the process.
- The group discussed if potential zones are undisturbed or brownfields, which Linda will look into further. **When the Environment and Lands, and the ZITA Working Groups meet, they will discuss development on pre-disturbed lands and the wildlife consequences.**
- During the initial stage, no outreach needs to be conducted. However, once data is determined and study areas are outlined, additional layers of consideration can be solicited by stakeholders.

**Next Call: Thursday, July 17; 9:30 a.m. (MDT)**

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### **Call Participants**

Steve Arenson	OSD Sustainability Office
Charles Benjamin	Western Resource Advocates
Jason Berry	Utah State Energy Program
Cory Blair	E.ON Climate & Renewables North America Inc.
Traci Bone	California Public Utilities Commission
Linda Davis	Western Governors' Association
Steve Ellenbecker	Wyoming Governor's Office
Rich Halvey	Western Governors' Association
Jeff Hein	CO PUC
Holli High	Exergy Development Group
David Hurlbut	National Renewable Energy Lab
Bart Jones	TransCanada
Joe Kiesecker	The Nature Conservancy
Mark Lausten	DOE Solar Program, SENTECH
Christy Morris	State of Nevada, Division of Minerals
Amanda Ormond	Ormond Group LLC
Martin Piszczalski	Sextant Research
Bill Pratt	USTAR Southern Utah TOIP
Howard Schwartz	WA State CTED Energy Policy
Elaine Sison-Lebrilla	Sacramento Municipal Utility District
Monique Stevenson	Sea Breeze Power Corp.
Liza Szot	New Mexico RETA
Perry Thomson	USTAR Southern Utah TOIP
Henry Tilghman	Vestas
Dora Yen-Nakafuji	Lawrence Livermore National Laboratory
Cameron Yourkowski	Renewable Northwest Project

### **Facilitation**

Abby Arnold	Kearns & West (Facilitator)
Morgan Poncelet	Kearns & West (Recorder)