

Western Governors' Association

Western Renewable Energy Zones
Zone Identification and Technical Analysis (ZITA) Working Group
September 12, 2008
10:00 – 12:00 MDT

**TOPICS: HYDRO AND BIOMASS RESOURCES
CALL SUMMARY**

Decisions, Next Steps & Action Items

- **Biomass:**
 - The word “environmental” will be deleted from MSW’s justification for exclusion; Ryan Pletka and Dave Hurlbut will revise the justification to include a qualifier, and send to Linda for her to send to Jeff Hahn, before the Sept. 22-23 meeting.
 - Ryan Pletka will develop a paragraph to address the exclusion of manure and food processing waste, taking into consideration Ken Eklund’s comments, and send to Linda Davis for her to send to Ken Eklund for review.
 - Linda Davis asked that industry stakeholders contact her with their data to share, which she will forward to NREL.
 - Black & Veatch asked stakeholders to identify potential resources to supplement regional USDA data, or resources on the list that are under-characterized or over-characterized in the USDA data set. They can contact Linda with this information.
 - Linda will work with Ken Eklund to include a footnote indicating resources that are not included in the general biomass definition, but can be considered on a zone-by-zone basis.
 - Ryan Pletka and Dave Hurlbut will revise the forest residues, primary mill and urban wood waste language and send to Linda Davis, to send to Scott Higginson for review.
 - An off-line discussion will determine a number for the estimated available electricity from biomass with a range. This will be further discussed at the Sept. 22-23 meeting.
 - All changes made to the criteria and definitions will be incorporated and distributed to the ZITA WG for review.
- **Hydro:**
 - Josh Finn will revise the opening language in the “Proposed Environmental Criteria For Screening Hydroelectric Projects in WREZ” document to reflect that the E&L WG can use the database as they see fit, as a tool for their assessment.
 - Josh Finn will remove reference to CA initiatives in the hydro definitions.
 - Josh Finn will make edits to the definition and criteria documents based on the group discussion.
 - The group agreed that the U.S. and the Canadian definitions of hydro power are acceptable with the changes made on the call.

Call Objective

- Since the last calls, NREL and Black & Veatch developed a draft sequence of steps to develop maps and map overlays. Criteria charts and definitions for biomass and hydro were developed and will be reviewed on today’s call.

Biomass Definition and Criteria Discussion

- Ryan Pletka, Black & Veatch, discussed the criteria matrix. Scott Olsen (BV) is responsible for developing biomass resource criteria.
- The language at the top of the criteria chart describes the intent and context of the criteria within the WREZ process, and explains the rationale behind the criteria determination and how the resource is assessed. Biomass resources will be evaluated within identified zones, and the language discusses how to narrow down the resource potential and what would prevent a resource from being developed. There is a phased approach to develop resource criteria for each zone, beginning with standard exclusionary zones.
- Biomass and hydro will be considered on a smaller scale than wind, solar and geothermal resources. Grids will not be developed around biomass, but biomass will be considered to strengthen zones. Since the WREZ process will identify large-scale transmission lines, biomass will support larger transmission investment, since it does not require its own transmission.
- It was indicated that biomass is a local, flexible resource with unique and positive features, especially in terms of its flexibility in siting (biomass plants can be placed at the best available location on the transmission grid). Biomass plants can also operate 24/7 and are base-loaded facilities, which is an advantage compared to other resource-based power sources. These characteristics will be accounted for in the REZ definitions.
- The group discussed why MWS (municipal solid waste), in the definitions document, is not included as a biomass resource due to ‘environmental’ reasons. Many State RPS portfolios do not include or allow MSW in their definitions. It was indicated that legislative progress could change this, and that this should be mentioned in the definitions document. MWS is also at times excluded because of location and availability issues. It was requested that the justification be revised to reflect the actual cause for MSW exclusion. **The word “environmental” will be deleted from MSW’s justification for exclusion; Ryan and Dave will revise the justification to include a qualifier, send to Linda for her to send to Jeff Hahn, before the Sept. 22-23 meeting.**
- Ken Eklund indicated that the whole sale exclusion of manure and food processing waste is not acceptable to Idaho because of its proximity to cattle operations and the potential for additional MW to wind and geothermal resources. **Ryan will develop a paragraph to address the exclusion of manure and food processing waste, taking into consideration Ken’s comments, and send to Linda for her to send to Ken for review.**
- Ryan and Scott presented the Biomass Definitions document. These definitions are proposals for inclusion in the study. Two databases (one CA-based and one from NREL) have been used in the past to develop criteria. For the purpose of the Western-wide WREZ study, the NREL database is used and will largely set the definitions for resources consideration. NREL data is based on USDA data, and is assembled on a county-basis. Other databases will be considered for Canada.
 - Agricultural residues:
 - Includes 20 different products that NREL includes in their definition and that WREZ will consider (e.g. field and feed crops).
 - Orchard and vineyard residues are not widely included, but will be taken into account on a regional basis (e.g. CA, OR and WA). Pits and shells are included under orchard residues.
 - Using vegetable and crop residue and food processing waste is rarely economic due to resource size and/or moisture content (consistent with other analysis).
 - Industry stakeholders on the call indicated that industry has data and definitions, beyond the NREL data, that can be shared. Industry stakeholders were asked to indicate where biomass data or definitions should be modified. They indicated that the definitions are on-target, but defining specific zone-by-zone agricultural resources will be necessary once the zones are determined. **Linda asked that**

industry stakeholders contact her with their data to share, which she will forward to NREL.

- **Black & Veatch indicated that all data sources possible will be included in the sequence of steps to reinforce candidate study areas. The NREL study is the only West-aligned study currently available and contains the most current data. However, BV is willing to include more data as needed, and is aware of the efforts underway in other states that might be more detailed than the NREL assessment. Black & Veatch asked stakeholders to identify potential resources to supplement regional USDA data, or resources on the list that are under-characterized or over-characterized in the USDA data set. They can contact Linda with this information.**
- **Linda will work with Ken Eklund to include a footnote indicating resources that are not included in the general biomass definition, but can be considered on a zone-by-zone basis.**
- Forest residues:
 - The first paragraph of forest residues is from NREL data, and drives the data sets used for WREZ.
 - Scott Higginson suggested language revisions over email to further refine the resources. He indicated that Green Waste Sites (GWS) are generally on USDA land and are not municipal or urban waste sites. GWS material (that residents bring as safe defense for their home; only non-man affected resources are contributed) is different from material that is being diverted from a landfill, and is not MSW. Therefore, Scott suggested calling out GWS data. **Ryan and Dave will revise the forest residues language and send to Linda, to send to Scott Higginson for review.**
- Primary mills residues:
 - This includes mill materials, bark, and scrap and sawdust from industry from refined pieces of wood. NREL data is very comprehensive in including any potential material that falls under this resource.
 - **Scott Higginson asked whether pulp screening includes paper pulp. He asked that Black & Veatch verify this.**
- Urban wood waste:
 - Urban wood waste is mostly specific to urban areas.
 - Scott suggested including clean construction debris into the first section. **Black & Veatch will consider this edit when revising the definitions.**
- Ryan discussed estimated available electricity as it relates to biomass. Based on discussions with stakeholders and NREL, on technical potential, on other uses and on data of materials currently available, one third is usually acceptable. Transportation and heat are other uses that compete with renewable fuels. One-third of biomass is currently used for power, so Black & Veatch suggests keeping that number.
- Scott Higginson acknowledged that although one-third is based on available data and historical trends, if the WREZ process is to encourage the implementation of renewable energy, the number is low. Scott mentioned a biomass plant in N. Arizona utilizing 50-60% of incoming biomass for power. Scott suggests 50-60%.
- One concern is that modeling could be difficult with a percentage range. It was suggested that the criteria indicate, that based on historical data, no less than 30% should be expected, but up to 50-60% could be expected. **An off-line discussion will determine a number for the estimated available electricity from biomass with a range. This will be further discussed at the Sept. 22-23 meeting.**
- **All changes made to the criteria and definitions will be incorporated and distributed to the ZITA WG for review.**

Hydro Definition and Criteria Discussion

- Dave Hurlbut presented the draft hydro maps in a GIS portal that shows geospatial information for the REZ process. (Log in information shared on the call, but also distributed to the ZITA WG over email from Linda Davis on 9/4.) The map represents three resources: Dams that already have a powerhouse and where incremental capacity can be installed; new power at existing non-powered facilities; and irrigation power or agricultural diversions (e.g. canals). The points on the map correspond to existing dams and irrigation sites that were included in the INL study, including MW potential and INL's assessment of various impacts and issues (e.g. fish habitat). An additional layer will be added for Canadian projects (data to come from BC).
- Josh Finn (BV) discussed the hydro criteria matrix and the changes made since the last call. **Hydro will be treated in the same manner as biomass, in that it is small and distributed; and will add value, rather than define zones.**
- The group discussed how CA's efforts impact the WREZ process. **In the hydro definitions, the reference to CA initiatives will be removed.**
- Howard Schwartz indicated that although incremental hydro will support other renewable resources rather than define a zone, hydro can still be integrated to a grid to support nearby zones even if it is not in a zone. BV indicated that it would be easier if the hydro resource was located in a REZ. Once REZ boundaries are defined, the group will consider the resources it contains.
- Land exclusions have different applications to different resources. For example, biomass projects can be moved, therefore environmental exclusions are not as applicable. Hydro project data can be applied on a site-specific basis, and although there are areas in which hydropower development is prohibited, other areas may have separate regulations.
- The group discussed the "Proposed Environmental Criteria For Screening Hydroelectric Projects in WREZ" document. INL prepared a resource assessment database that includes information on all potential hydro projects. The group expressed concerns on whether the document is too broad to be useful. The ZITA WG will not evaluate the database's usefulness, but rather pass it on to the Environment & Lands WG (E&L WG) for use at their discretion when considering environmental values in their review of the candidate study areas, along with other databases and information available to them. **Josh will revise the opening language in the document to reflect that the E&L WG can use the database as a tool for their assessment.**
- In the criteria matrix, it was indicated that Canada does not have states, but provinces. Also, hydro resources for the WREZ will no longer be qualified as 'small-hydro,' but just 'hydro.'
- **Josh will make edits to the definition and criteria documents based on the group discussion. The group agreed that the U.S. and the Canadian definitions of hydro power are acceptable with the changes made on the call.**

Call Participants:

Linda Davis	Western Governors' Association
Ken Eklund	Idaho Office of Energy Resources
Josh Finn	Black & Veatch
Jeff Hahn	Covanta Energy
Ed Higginbottom	BC Transmission Corporation
Scott Higginson	Renegy Holdings, Inc.
Dave Hurlbut	NREL
Julie Keil	Portland General Electric (hydro)
Claude Mindorff	WindEau, Inc.
Scott Olsen	Black & Veatch
Amanda Ormond	Ormond Group LLC
Ryan Pletka	Black & Veatch
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