

Zone Identification and Technical Analysis

Responses to Public Comments - February 2 to March 2, 2009

Comments received during the public comment period were reviewed during the month of March. All of the comments for this work group can be found on the Web at

<http://www.westgov.org/wga/initiatives/wrez/comments/comments-zita-rev.pdf>

Following is a short summary of the comments received.

Consideration of additional areas for REZ designation

Some of those commenting on the Qualified Resource Areas recommended that other lands be included before the final Renewable Energy Zones are identified and mapped. While many of these recommended lands may have potential for renewable energy development, they did not meet the following criteria established by the WREZ: identify those areas with the high quality, abundant resources and low environmental impacts to serve regional, extra high voltage (EHV) lines. The task of the ZITA work group was to focus on regional transmission needs and areas that can fill an EHV line within the Western Interconnection. Nevertheless, areas that fall outside a REZ but have development potential will be quantified and identified in the report as non-REZ resources.

The WREZ also recognizes that many states, provinces, tribes and municipalities have identified renewable energy zones that serve different purposes, such as meeting targets set under a Renewable Portfolio Standard. The recommendations developed through the WREZ process will not supersede or override any of these entities initiatives or policies.

Geographic diversity and inconsistencies with state criteria

Many comments addressed the need for geographic diversity to address intermittency and load balancing. The ZITA work group established criteria early on in the process for identifying at least one REZ in each state. This was done to create geographic diversity of resources across the WREZ study area and to recognize that states have varying criteria and requirements for Renewable Portfolio Standards.

The information ZITA provided to the Generation and Transmission Modeling work group -- generation profiles, cost assumptions and other attributes -- were used to create a composite profile. However, the modeling tool allows anyone with additional or different data to enter that data and create their own profile. Additionally, users of the GTM model can add their own custom resources to the dataset to address intermittency and load balancing concerns as they see fit.

Assessment of biomass, isolated geothermal and small hydro

There were concerns expressed that the boundaries for Qualified Resource Areas not only be based on solar, wind and geothermal potential, but also include biomass, small hydro and other

resources. The resources selected for mapping purposes represent the greatest concentrated energy potential across the Western Interconnection. In most cases, biomass, small hydro and isolated geothermal resources do not occur in dense enough distributions to justify a 500kV transmission line and were not used to qualify an area for consideration as a REZ. However, those resources that lie within a designated REZ will be quantified and assessed in the supply curve analysis and incorporated in the Generation and Transmission Model.

Technology cost assumptions

There were concerns that the technology cost assumptions were not representative of the market. The assumptions used were vetted and refined through the ZITA stakeholder process with discussion involving major project developers, research scientists, technology manufacturers and utilities. While projects can vary widely due to project size, location, labor type, fuel variations and air quality requirements, a representative sample of the various technologies was used to determine the cost of energy. The ‘proxy’ technologies selected will allow anyone using the modeling tool to compare areas and technologies relative to one another and to change the assumptions based on project-specific data.

Tribal involvement in the WREZ

Numerous tribes submitted comments supporting the efforts of the REZ and expressing strong interest in having tribal lands receive REZ designation, while maintaining tribal sovereignty and control over renewable energy development. It has been and will continue to be WGA’s intent to honor tribal sovereignty with respect to renewable energy development. The WREZ project does not supersede or negate any tribal renewable energy initiatives, but it will provide a foundation for interstate collaboration on commercial delivery of renewable energy. Only those areas with resources of high enough quality and occurring in high enough density to justify an extra-high voltage transmission line are suitable for REZ designation. Resources outside a REZ are encouraged for development, but do not meet the threshold to qualify for regional transmission.

Discounts based on potential for development

Questions were raised concerning development discounts, i.e., counting only 25 percent of the total wind potential in a technically qualified area, and only 3.5 percent of the total solar potential. The discounts serve a number of purposes that are particular to a broad regional analysis, as is the case with the WREZ initiative.

First, the discounts distill the raw technical potential into a practical estimate of the transmission investment likely to be needed, consistent with the goals of the WREZ. For example, if the technical analysis indicates that a tract of 30 square miles meets all the criteria for solar resource quality, the discount applied for developability adds the assumption that a field of solar collectors will cover one square mile of that area, not the entire 30 square miles.

Second, land use considerations, such as endangered species habitat and other environmental issues, are usually site-specific and impossible to capture definitively in a broad regional

analysis, as is the case with the WREZ. The discounts partially represent a general error factor that approximates limitations not otherwise taken into account. Continuing the previous example, the developability factor assumes that if half of a 30-square-mile area has cultural, scenic or unmapped wildlife considerations that would make development problematic, there would still be options for siting a square mile of solar collectors without causing undue harm.

Third, the discount imposes an assumption of competition among developers. Transmission capacity at a given substation will be finite; if it is less than the technical potential in the area, then the scarcity will tend to favor the best and least-cost projects. The discount increases the chance that a new transmission line would be fully utilized, and that the projects using it would be the most economically competitive.

The above assumptions were vetted through a stakeholder process and agreed upon as reasonable for a broad assessment. The 25 percent discount for wind comports with observed trends in Texas, California and other states where wind power development has occurred over the past two decades. Because concentrating solar power does not yet have a comparable history of commercial deployment, similar empirical observations were not possible. The solar factor was therefore obtained by assuming a parity between wind and solar with respect to development density over a large area. In other words, a 19-square-mile tract that was ideal for solar would contain the same amount of developable potential (in megawatts) as a 19-square-mile tract that was ideal for wind using the 25 percent discount. The solar factor mathematically worked out to 3.5 percent.