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Via email: [txprogram@wapa.gov](mailto:txprogram@wapa.gov)

April 3, 2009

**Re: Notice of Proposed Program and Request for Public Comments regarding the implementation of section 402 of the American Recovery and Reinvestment Act of 2009. 74 Fed. Reg. 9391—9393 (Mar. 4, 2009).**

Dear Sir or Madam:

On behalf of Horizon Wind Energy LLC (“Horizon”), I am pleased to submit comments on Western Area Power Administration (“Western”)’s proposed implementation of section 402 of the American Reinvestment and Recovery Act of 2009.

Horizon develops, constructs, owns and operates wind farms throughout North America. Based in Houston, Texas with over 25 offices across the United States, Horizon has developed more than 2,500 megawatts (MW) and operates over 2,200 MW of wind farms. Horizon is owned by EDP Renováveis S.A. (“EDPR”), a global leader in the renewable energy sector that designs, develops, manages and operates power plants that generate electricity using renewable energy sources. Energias de Portugal, S.A. (“EDP”), the parent company of EDPR, is a vertically-integrated utility company, headquartered in Lisbon, Portugal. Through its various constituent businesses, EDP holds significant electricity and gas operations in Europe, Brazil, and the United States.

As a major stakeholder in any policy regarding wind energy, Horizon is an active participant in the development of local, state, regional, and national policies across the U.S. Horizon is actively developing projects across the country and supports the creation of a robust, fully interconnected smart grid. Horizon appreciates the opportunity to comment on Western’s Transmission Infrastructure Program (the “Program”).

Horizon believes the Program can be a critical tool to develop transmission and integration products that cross utility and state boundaries to access renewable resources.

### **Program Principles**

We applaud Western for establishing a program with underlying principles that provide for an open process, support projects that are in the public interest, and facilitates the connection of renewable energy resources to the grid. However, we believe that the Program's success is equally dependent on Western using its new authority to lead the region in developing a robust, fully-interconnected transmission grid and in coordinating regional collaboration on innovative and pro-active integration solutions.

### **Program Development**

It is essential that Western create a participatory forum for stakeholder involvement. This scale of effort will require a broad level of regional participation and buy-in by multiple entities. Frequent stakeholder forums will allow for the sharing of information, insight and experience as well as lead to the creation of a broad-base of support for the Program.

We are concerned that while developing this critical Program, Western is at the same time soliciting "Requests for Interest" (RFI). At the public meeting on March 23, 2009, Western officials stated that the Program will be permanent. As such, care should be taken in developing the scope, guidelines and parameters of the Program from a regional perspective. Only after the broader intent and scope of the Program has been established can specific projects be evaluated as to how they do or do not support the Program's mission and the needs of the region.

Soliciting RFIs with the same deadline for submitting comments on the actual program guideline is premature and unnecessary. We suggest that Western first develop the Program in an open and participatory forum and then evaluate project proposals in a timely fashion. Simultaneously processing information on both the proposed program and potential will result in project proposals influencing the development of the program itself. Ultimately, a well-designed renewable energy transmission program in place will result in Western being able to quickly evaluate and approve projects in the future.

### **Interconnection-wide Transmission Planning**

Pro-active, long-term, interconnection-wide transmission planning is critical to support the emergence of a new green energy economy and will be a critical component of the Program. Location-constrained renewable resources require this sort of coordinated effort to develop

effective and efficient strategies to deliver green power to the growing markets which demand them to fulfill state Renewable Energy Standards and to address future carbon values.

Historically transmission planning has been the focus of discrete balancing authorities regulated by state regulators. Their transmission needs are inward looking and has resulted in an incremental, isolated and and inefficient transmission system. Western must support transmission planning that:

- Is interconnection-wide and builds on the efforts of the Western Governors Association, TEPPC, Westconnect, NTTG, Columbia Grid and the Joint Initiative, Upper Midwest Transmission Development Initiative, and the Joint Coordinated System Plan (the SPP, PJM, MISO, TVA effort).
- Accommodates generation resources that are locationally constrained.
- Includes maximum renewable generation development scenarios assuming export from high wind and solar areas.
- Promotes financing approaches that solve the 'chicken and egg' problem.
- Promotes broad, regional cost-allocation approaches that do not unduly impact resource host ratepayer, but also shift cost to end users in rapidly growing load-centers.

A robustly-interconnected western-grid will not only provide delivery paths linking renewable generation to load and market centers, it will be more reliable and also allow for increased transfers between control areas allowing for the sharing of regulating resources, seasonal exchanges and supports the creation of flexibility services markets.

### **Control Area Coordination**

The Program must also contemplate the coordination of regional grid operations for reliability, efficiency and renewable energy objectives. Numerous studies indicate that integration costs are significantly reduced in large balancing areas. Larger balancing areas provide a larger pool of flexible resources that can be used to accommodate variations in generation and load. Given the large territory Western spans, it is in an excellent position to facilitate coordination activities among transmission operators resulting in virtual or actual control area consolidation. Western should:

- Encourage pooling and aggregation of variable energy resources over broad regional areas to reduce the total reserve obligation.
- Encourage regional participation in Area Control Error Diversity Exchange (ADI).
- Promote regional flexibility services markets.

- Explore the acquisition of third party supplied regulation from entities willing to provide such services, including variable generators.
- Eliminate pancaked transmission charges.

The Program should include initiatives to leverage the daily and seasonal differences among the regions utilities and allow access to a supply of low-cost flexibility, leverage geographic differences in resource diversity, ultimately allowing more systems to effectively and efficiently interconnect variable renewable resources.

### **Regional Renewable Integration Plan**

In order to achieve high levels of renewable generation interconnection, Western should create a stakeholder committee that would review Western’s present business and operating practices and develop recommendations and specific action items to address the various economic and technical aspects of integrating variable renewable resources. The development of a regional renewable integration plan should be a top priority of the Program and should take advantage of the large body of work that exists on these issues. Again, given the importance of the regional renewable resource integration plan, the plan should be subject to a robust and participatory public stakeholder process.

In addition to the regional transmission planning and control area activities described above, the Program should contemplate the following integration initiatives:

- The development of ‘smart’ transmission products such as:
  - Dynamic Line Rating
  - Conditional Firm and other transmission products suited to the delivery of renewable energy such as an energy transmission product
  - Intra-hour transmission scheduling business practice
- Intra-hour scheduling business practices.
- Regional wind forecast service.
- Development of storage technologies including pumped hydro and compressed air.
- Development of smart grid technologies that will enable load dispatch.
- Cost-efficiencies of using Western’s hydro resources for regulation rather than load service.

### **Near-Term Initiatives**

Unlike the construction of new transmission facilities that will require years to study, design, procure and construct, several integration initiatives could be implemented very quickly which would stimulate the construction of billions of dollars of new wind farms and other renewable energy sources. The Program should consider promoting the following products, services and

practices at the regional level in order to more quickly and cost-effectively integrate renewable resources at a lesser impact to the hosting control areas.

Dynamic Line Rating: Some of the most optimal wind resources in the U.S. are located within Western's transmission system area. Western can maximize its ability to move these abundant resources across its existing assets by increasing its ratings of transmission lines in real time. Western can accomplish dynamic line ratings by:

- Installing dynamic line rating devices (such as the CAT1) on congested lines.
- Increasing SCADA monitoring to allow operation closer to physical limits.
- Reconductoring congested lines with advanced conductors, including composite conductors and other technologies, to increase continuous and contingency ratings.
- Using FACTS devices for both real and reactive power control to increase stability and/or control flows to increase overall throughput and reduce congestion.

Conditional Firm Transmission Service: Western should develop and encourage regional use of a conditional firm transmission product. This product would allow renewable energy developers to better utilize existing capacity on existing transmission systems. This would allow the immediate addition of several hundred new MW of renewable energy, if not more, onto the system. BPA has developed a very good Conditional Firm Transmission Product which we would suggest Western emulate. It includes several key elements including: a cap on curtailment hours which allows developers to manage and model risk, roll-over rights, firmed on a monthly basis if monthly short term firm is available, etc.

New Transmission Products: Western should develop and encourage the use of an energy-based transmission product for wind energy similar to network transmission service. Wind is an energy resource and using a transmission product based on energy delivered rather than capacity would be much more efficient. Western should actively support products that allow for the full and efficient use of the transmission grid.

Regional Wind Forecasting: Central forecasts for the entire wind fleet are more accurate and more useful to the power system operator than multiple forecasts for individual wind projects. The integration of accurate rapid-update wind generation forecasts into system operating procedures can assist in developing more accurate wind generation schedules, reducing reserve obligations. NYISO has developed a wind forecasting system that we would suggest Western emulate at a regional level. Forecasting program components should include:

- Forecast wind events as well as hourly energy.
- Provide an incentive mechanism for generators to provide data from plants.
- Contract neutral third party (such as Windlogics, 3 Tier, etc.) to collect data to avoid conflict of interest.

Intra-hour scheduling: Western should adopt business practices that would allow variable generators to adjust their schedules within the hour on a five or ten minute basis. Intra-

hour scheduling dramatically reduces the cost of integrating wind. Wind output tends to be fairly constant over these shorter intervals - greatly reducing the need to hold regulating reserves. The Joint Initiative in the Northwest is currently developing boiler plate business practices for both intra-hour generation scheduling and intra-hour transmission scheduling.

### **Project Evaluation Criteria**

As Western evaluates the specific Transmission Project Proposals it receives in response to its RFI, whether they are evaluated at this time or at a later date after the program has been fully developed as we suggest, Western should be careful in the criteria it uses to evaluate the effectiveness of projects in specifically encouraging the development of renewable resources. We applaud Western for developing criteria for evaluating proposals to ensure that they facilitate the delivery of renewable energy, are in the public interest, promote system reliability, and are likely to meet repayment obligations. 74 Fed. Reg. at 9393.

We encourage Western to consider supporting projects that will also have the additional benefits of 1) creating access between transmission constrained high renewable resource areas and markets, and 2) increasing the connectivity of the western interconnection. For example high density wind areas in Wyoming and Montana need to be provided with export capacity to the growing markets in the southwest and northwest. If Western were to fund a second circuit on PacifiCorp's Energy Gateway project, export capacity from these resource-rich areas would be made available at market points (Borah, NEO, Mona and COB) beyond what PacifiCorp requires to serve their own load.

### **Conclusion**

We are at a critical juncture in America in terms of energy policy. Congress and the current administration have made it a priority to develop and deliver our country's vast supply of clean, renewable energy resources in order to rebuild our manufacturing base and high-tech economy, gain energy independence and address climate change concerns. Western can play a pivotal leadership role in this exciting transformation by leveraging its existing transmission assets and customer base in the Western Interconnection and the Upper Midwest with the new Transmission Infrastructure Program.

We support the Program's proposed principles and project evaluation criteria, but we believe that in order for the Program to achieve maximum success, Western must actively lead the region in developing a fully-interconnected grid, promoting regional planning, and adopting innovative renewable resource integration policies. Further, Western should take steps in the

near-term to implement dynamic line rating, establish a conditional firm service product, forecast wind regionally, and allow intra-hour scheduling.

We also encourage Western to extend the deadline for RFIs until the Program specifics can be finalized.

We appreciate the opportunity to comment on this new program and we look forward to working with Western to incorporating our concerns and major principles in order to develop a workable program with full stakeholder participation and buy-in.

Sincerely,

Denise Hill  
National Transmission Director  
Horizon Wind Energy LLC