

**ANNEXE 1**

**SERVICES D'ÉQUILIBRAGE DE BPA**



# BPA Wind Integration Services

Over the past two years, BPA has undertaken an extensive research and development effort to evaluate the costs and opportunities associated with integrating wind energy into the Federal Columbia River Hydroelectric System (FCRPS). This evaluation phase is now complete and we are pleased to announce two new services that will utilize the flexibility of the hydro system to integrate wind energy into our control area on behalf of electrical utilities in the Pacific Northwest. BPA has established a goal of providing up to 450 MW (nameplate) of wind integration services over the 2004-2011 time period. At least 200 MW of these services will be earmarked for public power customers.

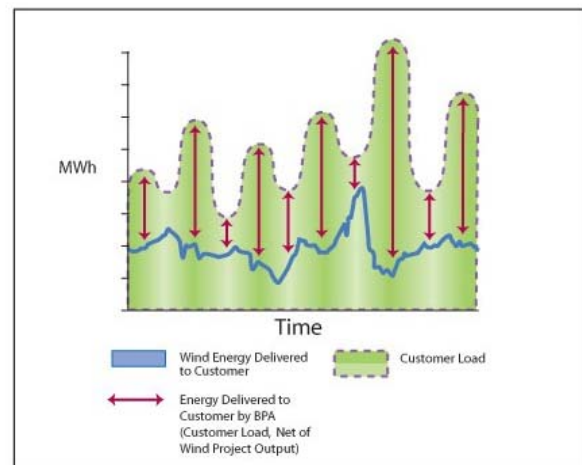
## Network Wind Integration Service

Network Wind Integration Service has been designed to serve the needs of public power customers with loads embedded in the BPA control area who elect to purchase all or a portion of their power from a new wind resource. Once the customer has (a) signed a bilateral power purchase agreement with a new wind resource, (b) procured firm transmission and (c) determined a scheduling agent for the power, the BPA Power Business Line will use its hydro system to integrate the scheduled output of the resource with the customer's load. The scheduled energy from the wind resource will offset an equal amount of HLH and LLH PF energy that BPA otherwise would have provided. BPA will continue to meet and follow the customer's load at all times, including during those periods when there is no output from the wind resource. The customer's PF demand billing determinant will not be reduced for the amount of wind generation scheduled to its load on the hour of the generation system peak. BPA PBL

cannot count on the generation being there and thus must hold sufficient generating capacity available to fully back up the resource. The PF Load Variance charge will continue to be based on the customer's Total Retail Load, so will not be reduced by the amount of wind generation.

The customer will be charged a fee of \$4.50/MWh for all scheduled energy that BPA integrates into its system. This fee may be subject to annual escalation depending on the length of the requested contract. For contracts that extend beyond the current rate period, the fee will be escalated at the rate associated with the Gross Domestic Product Implicit Price Deflator, which is the same index used to escalate the Federal Production Tax Credit for wind.

## Network Wind Integration Service

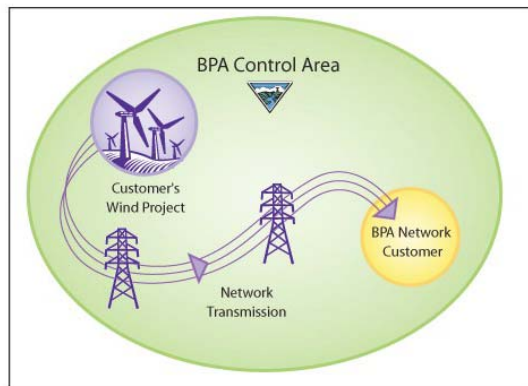


## Transmission

With respect to transmission, customers will be able to import power from new resources using their NT transmission rights. BPA will work with public power customers and wind project developers to identify regions of the BPA grid best suited for wind development with respect to the availability

of firm transmission. BPA plans to take an active role in developing a diversified portfolio of regional wind resources. This diversification will be a key factor in increasing the amount of wind energy selling into the BPA grid.

#### Network Wind Integration Service Transmission



One Transmission Wheel Using Customer's  
Network Transmission Rights

### Scheduling and Generation Imbalance

The customer (or its scheduling agent) will be responsible for transmission arrangements and for scheduling the wind output from the point where the generation is integrated into the BPA transmission system to a point of delivery where the customer's system interconnects with the BPA transmission system. Generally, the customer will need to request a new Point of Receipt under its NT transmission contract and there is no guarantee that firm transmission capacity will be available.

The wind project operator or its scheduling agent will provide the Transmission Business Line with a Day-Ahead Generation Estimate followed by revisions up to 30 minutes before the start of the hour if changes are required. The project operator will be responsible for paying the BPA TBL Generation Imbalance charges for deviations between wind project actual generation and the Generation Estimate.

Whether the project operator directly assigns these generation imbalance costs to project participants or not will depend on the specific contractual agreements between those entities. Accurate wind forecasting will minimize these charges. If changes are made to the Generation Imbalance tariff in the future, these changes will be amended to the Network Wind Integration Service Contract.

### Storage and Shaping Service

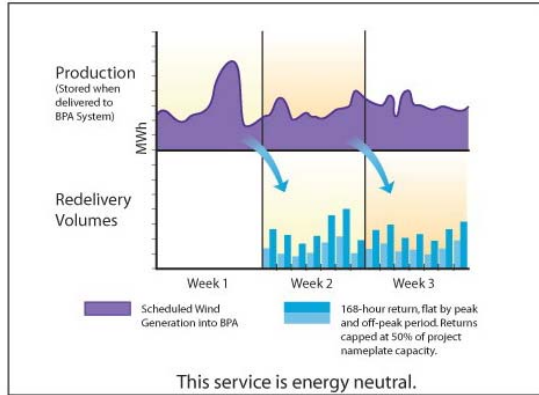
Storage and Shaping Service has been designed to serve the needs of utilities and other entities outside of the BPA Control Area who have chosen to purchase the output of a new wind resource but do not want to manage the hour-to-hour variability associated with the wind output. To facilitate such an arrangement, BPA's Power Business Line will take the hourly output of new wind projects physically located and/or scheduling directly into the BPA Control Area, integrate and store the energy in the Federal hydro system, and redeliver it a week later in flat peak and off-peak blocks to the power purchasing customer. In order to help reduce transmission costs, returns will be capped at 50 percent of the participant's share of project capacity. The base charge for storage and shaping service is \$6.00/MWh, escalated annually at the GDP Implicit Price Deflator.

#### Transmission

Storage and Shaping Service is for energy delivered *to* and *from* the BPA system. Thus, two transmission wheels are required to receive the service. Generators will be responsible for Generation Imbalance charges for generation scheduled into the BPA system. BPA expects that the transmission arrangements will vary from project to project, depending on (a) the

locations of the project and the end-use buyer, and (b) the availability of firm transmission along both transmission paths.

Storage & Shaping Service  
Power Redelivery



BPA is committed to working with potential customers to minimize the transmission costs associated with Storage and Shaping Service. So far, we have been able to limit the cost of the wheel out of our system by agreeing to cap returns at 50% of the nameplate rating of the participating project. During periods when generation exceeds the 50% threshold (i.e. greater than 50 MW on a 100 MW project), BPA will bank this excess energy in a storage account. When generation falls below the 50% threshold, BPA will draw from the Excess

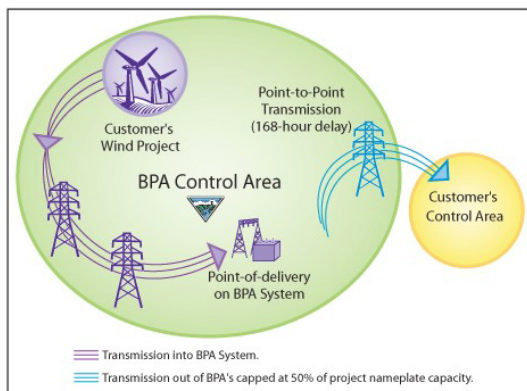
Energy account and redeliver additional quantities above and beyond the current redelivery obligation. This will reduce the amount of transmission required to move the stored energy out of the BPA system. We are also examining a number of potential cost-saving approaches to the transmission wheel into our system.

BPA plans to work closely with project developers, Investor Owned Utilizes and other entities with well-developed and active purchasing plans to help determine which projects can be most efficiently integrated into the BPA system. Siting projects in areas of the grid with minimal congestion and in a way that takes advantage of regional diversity in wind patterns is essential to the growth of cost-effective wind energy in the Pacific Northwest.

**For More Information**

To learn more about Network Wind Integration Service or Storage and Shaping Service, please contact your PBL or TBL Customer Account Executive or the BPA PBL Renewable Power Group at (503) 230-3530. We look forward to working with you on these exciting new services.

Storage & Shaping Service  
Transmission



Customer purchases point-to-point transmission out of BPA's Control Area into their own area.

