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Power Administrations Seek Increased Role

Restrictions on the Bonneville Power Administration and the Western Area Power Administration have complicated transmission and integration procedures.

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For the U.S. to meet the goal of obtaining 20% of its electrical energy from wind generation by the year 2030, significant wind energy development must occur in areas identified as having the greatest renewable generation potential, such as the Pacific Northwest and the Upper Great Plains states of North Dakota, South Dakota, Wyoming and Montana.

However, myriad technical and financial issues (such as cost recovery), the need to construct transmission facilities linking remote areas and the lack of availability of ancillary services (such as regulation service and operating reserves from dispatchable generating resources) have hindered project development in these regions.

Further complicating this situation, these specific wind-rich regions largely fall within the reliability balancing areas operated by the Bonneville Power Administration (BPA) and the Western Area Power Administration (WAPA).

Due to federal statutes that limit their mandates – and the budgetary restrictions of federal law and the Congressional appropriations process – BPA and WAPA, as well as other federal power marketing administrations, face certain challenges to the development of new transmission and integration of wind resources. These challenges do not apply to other providers of transmission services and balancing authority ancillary services.

For example, as a general rule, power marketing administrations (PMAs) have limited ability to provide supplemental resources for wind integration from their existing base of federal hydroelectric resources. In addition, they do not own other dispatchable resources, and they must equitably allocate costs of the federal transmission system between federal and nonfederal users (effectively insulating the customers of federal hydroelectric power from the costs of transmission expansion and reserve/regulation acquisition needed to integrate wind).

To be clear, many of these limitations exist not by specific intent to foreclose the PMAs from conducting other activities, but simply because the PMAs were created to fulfill a specific purpose and, at the time of their creation, it was impossible to anticipate the current U.S. energy situation or the PMAs' future role in it.

Thus, given the potential for wind energy in these regions (including their prospective designation as renewable energy zones under proposed U.S. energy legislation), BPA and WAPA, along with Congressional renewable energy allies, are exploring ways to address these limitations and create a larger role for PMAs in the development process.

Federal proposal

In recognition that new transmission construction is required for the country to meet the goals set for both state and federal levels for renewable generation development, U.S. Senate Majority Leader Harry Reid, D-Nev., has introduced S.2076. This legislation would direct PMAs, under certain circumstances, to construct the transmission needed to support generation development in renewable energy zones if no other transmission developer steps forward.

With respect to the PMAs' role, Reid's bill would require the U.S. Department of Energy (DOE) to designate renewable energy zones – areas of great renewable energy potential – that do not have sufficient existing transmission facilities to support development of that potential.

Federal transmitting utilities owning or operating one or more electric transmission facilities (e.g., PMAs) would be required to identify specific additional high-voltage or other renewable electricity connection facilities necessary to substantially increase the generation of electricity from renewable energy in the designated renewable energy zones.

The PMAs would be directed to construct such facilities if no other (i.e., nonfederal) entity stepped forward to construct the facilities.

To ensure the construction and operation of high-voltage or other renewable electricity connection facilities, the proposed bill would authorize the federal transmitting utility to issue bonds not to exceed $10 billion at any one time.

The federal transmitting utilities would be permitted to recover their costs for such financed facilities over a period of 50 years, solely from the entities – presumably the renewable energy generating facility owners or offtake customers – that use those transmission facilities.

Can PMAs fully implement new federal renewable energy zone initiatives? The above-mentioned policy initiatives are certainly admirable. It is not entirely clear, however, whether PMAs could implement them without additional funding and statutory authority to undertake the regional planning of the transmission facilities and the acquisition or other coordination of supporting reserves and regulation services required to properly integrate wind into the grid.

This limitation has emerged, at least in part, because the legislation creating the PMAs did not contemplate the advances in energy sources now available.

An overview of the different statutory and regulatory structures of BPA and WAPA, and their recent efforts in support of wind integration, provides a useful starting point for assessing the future prospects of PMA implementation of new policy directives.

BPA's growing role

BPA may be in a better position than WAPA to implement this initiative in the absence of private transmission development. Since its founding in 1937 to market hydropower from federal dams on the Columbia River, BPA's role has expanded through federal statutory authorization to develop and operate the backbone transmission system through the portion of the Pacific Northwest bounded by the Columbia River drainage.

This system is used primarily to market federal hydropower and secondarily to interconnect area generation resources with neighboring transmission systems.

BPA's operation of one of the predominant electric control areas (now called a balancing area) in the Pacific Northwest is particularly important to renewable generation, due to the substantial wind development in Washington state.

BPA has adopted the Federal Energy Regulatory Commission's (FERC) pro forma Open Access Transmission Tariff (OATT) under Order No. 888 and is in the process of conforming it to Order No. 890. FERC approved BPA's OATT under the safe harbor procedure applicable to federal and public power utilities not directly subject to Order No. 888's authority.

BPA also has adopted the FERC's generator interconnection process under Order No. 2003, as well as the specific interconnection standards for wind facilities under Order Nos. 661 and 661-A. In recognition of the increased demand for interconnection to its grid by new wind developers, BPA recently obtained FERC approval for modification of the study provisions in the Large Generator Interconnection Procedures to permit cluster studies that should accelerate the process.

BPA commenced a process in 2007 to identify the resources and consequent costs required to permit the output of wind projects to be integrated into its transmission grid and to be delivered either to load within BPA's balancing area or to neighboring balancing areas as firm power. As the outcome of this process, in June, BPA issued its Final Record of Decision (ROD) in the 2009 Wind Integration Rate Case Final Proposal.

The ROD implements a settlement agreement among many, but not all, of the major stakeholders on the issue.

Specifically, the agreement tasks BPA with chartering a cross-agency Wind Integration Team to "develop processes and procedures for managing the BPA Balancing Authority's requirements for generation inputs for reserves, identify new sources of such generation inputs, reduce the demand on the existing capacity of the Federal Columbia River Power System to provide such generation inputs, and acquire cost-effective capacity resources to meet BPA's firm power obligations and its need for generation inputs to provide reserves."

The team also will address areas such as wind forecasting and reserves allocation, third-party supply of generation inputs to the BPA Balancing Authority for BPA's reserve needs, dynamic scheduling and Area Control Error diversity. BPA also will assess the capacity of the federal system to meet all of its present and future capacity obligations.

Perhaps as importantly, the ROD establishes a wind integration-within-hour balancing service charge of $0.68 per kWh per month of nameplate capacity for each wind turbine as an ancillary service and control area service rate under its OATT. BPA will develop a more refined methodology to develop the successor charge as part of its 2010-2011 regional transmission rate case.

The ROD specifically noted, however, that the wind integration costs were to be charged exclusively to nonfederal loads in order to preserve the statutory insulation/separation for federal power purchasers from the costs of such activities.

BPA uses both the available portion of its hydroelectric resources not dedicated to or paid by its federal power customers, as well as regulation and reserve resources obtained from third parties to provide wind integration resources.

As its investigation proceeds into the wind integration issues identified in the settlement agreement, all parties must recognize the statutory limitation on BPA to ensure that neither it nor its federal hydropower customers bear any of the costs of wind integration – whether ancillary services or new transmission facilities.

WAPA

WAPA's Upper Great Plains Region (UGPR) operates the balancing area in the Dakotas and Montana with per-

haps the greatest wind resources. Unlike BPA, which was established as a stand-alone entity, WAPA was created as a federal agency within the DOE to administer the marketing of hydropower from federal dams on several large river systems throughout the western U.S. under different federal statutory regimes.

WAPA's UGPR markets federal hydropower from dams on the Missouri River over a transmission system constructed in the Dakotas and Montana, as well as certain neighboring states. WAPA operates a substantial balancing area in the Eastern Interconnection and a much more limited balancing area in the Western Interconnection.

The lack of an organized energy market, as well as the sparse nature of transmission facilities in the Dakotas, has stymied the development of the enormous wind resource that has been identified within WAPA's UGPR balancing areas.

Furthermore, unlike BPA, WAPA has no statutory responsibility to coordinate planning for the region through its own administrative processes.

Additionally, unlike the Western Interconnection – where the only independent system operator or regional transmission organization (RTO) exists in California – the area of the Eastern Interconnection extending from the far eastern edge of WAPA's balancing area to the Atlantic Ocean is dominated by RTOs with organized electric energy/ancillary services markets.

WAPA is hemmed in by the Midwest Independent System Operator Inc. (MISO), an RTO, to the east and the Southwest Power Pool RTO to the south.

WAPA did adopt a version of the Order 888 OATT, with some modifications to accommodate the different transmission circumstances of each of its marketing areas, such as UGPR. WAPA obtained FERC acceptance of its OATT under the same safe harbor procedure used by BPA.

WAPA also adopted the interconnection provisions of FERC Order No. 2003 and the specific wind provisions of Order Nos. 661 and 661-A. WAPA has not, however, undertaken the procedures necessary to incorporate the changes to the pro forma OATT required by FERC Order No. 890, including the establishment of procedures for regional transmission planning.

Further, Section 3 of WAPA's OATT contains a significant limitation on its ability to provide the type of reserves or other ancillary services required for successful wind integration.

It, too, must assess wind facilities with all charges incurred by WAPA to obtain ancillary services, primarily regulation and reserve services to integrate wind facilities. WAPA's federal hydropower customers may not absorb any of that cost.

Settlement terms

WAPA has proven its intent to enforce this limitation in a case filed with FERC. In that case, the developer of a wind farm that straddled the North Dakota-South Dakota border issued a complaint because neither MISO, nor Montana-Dakota Utilities (MDU) nor WAPA would provide the balancing authority services required to complete its interconnection agreement with MISO and MDU.

The wind farm was to be interconnected with a MDU transmission line in WAPA's balancing area, but the output was to be dedicated to the MISO energy market outside the WAPA balancing area.

In its March 23, 2007, answer, WAPA admitted that even though the interconnection was within its balancing area, it refused to provide the required ancillary services, because the cost would not benefit any entity in its balancing area.

The case was ultimately settled by approval of an agreement under which WAPA would meter the output of the project to the balancing area of Northern States Power Co. (NSP), and NSP – later to be succeeded by MISO – would provide the necessary ancillary services for wind integration.

Equally as important for integration of new wind facilities is the fact that WAPA has not constructed significant new transmission facilities in the Dakotas for at least two decades. It does not have the staff to support the interconnection studies and other integration activities required on a timely basis.

Moreover, without a region to share ancillary service costs, WAPA's current policy requiring direct assignment of all procured ancillary services to each individual project – as well as the assumption that the construction costs of a new transmission line will not be shared with its other federal power customers – may create a substantial financial hurdle to wind development and limit the appeal of the additional authority in Sen. Reid's proposed bill.

We highlight these regulatory realities neither to criticize BPA and WAPA nor to cast doubt on the concept that PMAs can play a significant role in the development of new renewable infrastructure.

On the contrary, we are optimistic that policy-makers and renewable energy developers can work together to address the PMAs' limitations and establish an effective future framework that makes the promise of abundant U.S. wind energy a reality. **WP**

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