

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Develop Additional
Methods to Implement the California Renewables
Portfolio Standard Program

Rulemaking 06-02-012
(Filed February 16, 2006)

Order Instituting Rulemaking to Continue
Implementation and Administration of California
Renewables Portfolio Standard Program

Rulemaking 08-08-009
(Filed August 21, 2008)

**POST-WORKSHOP REPLY COMMENTS OF THE
BONNEVILLE POWER ADMINISTRATION**

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Pursuant to the Administrative Law Judge's Ruling issued April 26, 2010 and Supplemental Ruling issued April 30, 2010, Bonneville Power Administration respectfully submits these post-workshop reply comments in Rulemaking (R.) 06-02-012 and R. 08-08-009. On May 4, Administrative Law Judge Simon granted an extension of time for filing and serving these comments no later than May 12, 2010.

I. Introduction

BPA is a Federal power marketing administration that markets at wholesale the electric power generated from 31 Federal dams, one non-Federal nuclear power plant and several small non-Federal power plants in the Pacific Northwest. BPA markets about one-third of the electric power used in the Pacific Northwest and BPA's 15,000 circuit miles of transmission lines provide about three-quarters of the high voltage transmission in the region.

BPA appreciates the efforts of California policymakers to address the important issues of climate change and energy independence. BPA also acknowledges the tremendous business challenges faced by utilities in California who must meet the ambitious targets associated with California's renewable portfolio standard. Moreover, BPA understands the sense of urgency of the private sector developers and independent power producers who are subject to considerable regulatory and operational risks in meeting their commercial objectives. However, BPA is concerned about potentially significant negative consequences for Northwest and California consumers if decisions about the use of unbundled RECs are made without full consideration of the infrastructure requirements associated with delivering a reliable, least-cost supply of renewable energy to California.

Like other balancing authorities outside of California, BPA has already been significantly impacted by California's renewable energy policies. The timing, magnitude and location of wind development within our balancing authority have been greatly influenced by the desire of wind developers to sell into California's market. Today, BPA has almost 2,800 MW of wind in our 10,500 MW balancing authority. During some light-load hours, wind generation has exceeded 50 percent of the load within the BPA balancing authority. By the end of the year, BPA estimates that 47 percent of the wind generation capacity connected to our system will be under contract to California utilities. BPA is preparing for the possibility of another doubling of installed wind generation in our balancing authority by 2013 and anticipates that demand from California will be the single largest driver of wind energy growth on our system in the coming years.

BPA has helped to enable this rapid growth with substantial investments in substations to interconnect new wind projects and developed a new Network Open Season process to subscribe, finance and construct new transmission lines on our network. BPA's existing rates for wind integration services are well below the prices that others charge for comparable service. BPA's Wind Integration Team is working actively with regional stakeholders on a variety of strategies to help increase the availability and cost-effectiveness of wind integration services such as improved wind forecasting, self-supply of generation imbalance services and intra-hour scheduling. BPA has accomplished a lot relative to its system size and capacity.

Notwithstanding BPA's commitment to facilitate the development of renewable resources in the Northwest, the sheer pace and concentration of wind development on our system has greatly exceeded our expectations. Almost all current and planned wind projects in the BPA balancing authority have concentrated in an area near the mid-Columbia area resulting in very

little resource diversity. When a large front or other wind regime moves through the Columbia River Gorge, we see very large simultaneous increases and decreases (ramps) in wind output, as much as 1,400 megawatts in one hour. This rapid and highly concentrated pattern of development has begun to create a series of market, operational and infrastructure challenges that have significant implications for Northwest and California consumers. Below, we describe these impacts, and proposals for further discussion regarding how BPA thinks the impacts could be managed.

II. BPA is Approaching the Margin of its Capacity to Provide Balancing Services

Based on BPA's reading of the comments in these dockets, there appears to be a widespread perception within California that there is an unlimited supply of low-cost integration capability in the BPA balancing authority. Unfortunately, this is simply not the case. In fact, BPA is rapidly being pushed to the operational and economic margin by the severe ramps of the large and geographically concentrated wind fleet on our system. Given that wind projects under contract to California will drive much of the incremental demand for balancing services in the BPA balancing authority for the next few years, it is essential that California understand the consequences of relying on other balancing authorities to integrate its renewable resources.

It is not widely known that only 400 MW of the 2,800 MW of wind on the BPA system serves the loads of preference customers located within the BPA balancing authority. As a major exporter of wind energy to other utilities, BPA is primarily responsible for managing the *within-hour* variability and forecast errors of the wind projects on the BPA system. BPA does this by providing three types of capacity services – regulation, following, and generation imbalance. The generation imbalance component, which is required primarily to manage forecast error, is by far the largest portion of this balancing requirement as it is the large deviations from scheduled

output that consume the largest quantities of balancing capacity. BPA charges wind generators by using a wind integration rate for the costs that BPA incurs in carrying these three types of balancing capacity. BPA revisits its rates for these services in rate cases every two years. BPA's rate case for power and transmission services for Fiscal Years 2012 and 2013 will begin later this year.

BPA is already carrying close to 2,000 MW of balancing capacity to manage variability and uncertainty on our system, most of it for the up and down ramps and forecast errors associated with the 2,800 MW of wind on its system. With another doubling of the wind on the BPA system, BPA will exceed the ability of its existing hydro assets to manage the total variability and uncertainty of the wind fleet. Moreover, the BPA balancing authority has a minimum load of 4,000 MW in the spring and early summer, placing an absolute operational limit on the amount of wind energy BPA can absorb within the hour. With a large enough wind fleet, it is conceivable that there will be within-hour ramps greater than the minimum load on the BPA system. In such circumstances, absent other buyers of the wind energy through mechanisms such as intra-hour scheduling, BPA will have no other option than to send dispatch signals to the wind fleet to reduce their generation in order to maintain system reliability.

BPA has already begun implementing periodic reductions in wind output and curtailments of wind generation schedules. In 2009, as a result of concerns about the ability to maintain reliability with so much additional wind coming on line, BPA instituted a new set of operational protocols known as Dispatcher Standing Order 216 (DSO 216). This new, mandatory interconnection requirement gives BPA the ability to require wind energy output reductions or to curtail transmission schedules to other balancing authorities when the amount of balancing reserve BPA has set aside to cover schedule deviations of the wind fleet is exhausted.

Recognizing the limitations on the balancing capability of the federal hydroelectric system and the financial and operational implications of DSO 216, BPA is actively supporting new approaches to providing balancing services for the BPA balancing authority and has begun to collaborate with the California Independent System Operator (CAISO) and other parties to increase the supply and efficiency of Western ancillary service markets. These are important long-term objectives. But there is no certainty that these solutions will be sufficient to keep pace with the rate of wind development on the BPA system that is being driven by California's RPS. If these other strategies do not bear fruit, BPA will be forced to curtail wind output with increasing frequency under the terms of DSO 216. Increasing curtailments of wind generation will degrade the operating economics of wind projects with resulting negative impacts on California consumers and the state's ability to meet its RPS targets.

Moreover, as BPA articulated in its recent comments to FERC in their Notice of Inquiry on Variable Energy Resources (Docket No. RM10-11-000), BPA believes that it is contrary to the interests of its preference customers, its statutory mission and the basic principles of cost causation and risk allocation for BPA to serve as a default supplier of balancing services for wind projects under contract to loads in other service territories. Going forward, BPA's strategy is to provide wind generators in its balancing authority with other options to procure balancing services rather than depending entirely on BPA. BPA stated its proposal to have balancing service plans be submitted with interconnection requests. However, if customers do elect to procure such services from BPA and forcing BPA to make market purchases of balancing capacity to meet the incremental demand, we will be requiring advance commitments from the parties using such capacity as well as significant stranded cost protections. Once BPA's incremental capacity obligations have been defined and delimited, BPA will implement DSO

216 output reductions and schedule curtailments during those instances when the net demand for balancing services exceeds BPA's forecast available supplies.

Since wind projects serving California will constitute a substantial fraction of the demand for balancing service within the BPA balancing authority, they will have to pay a substantial share of the costs associated with the procurement of additional resources needed for BPA's balancing service, and BPA anticipates that these additional costs will be higher than the embedded costs of BPA's existing resources. As a result, it is very much in the interests of California consumers that the CAISO and its member utilities accelerate their plans for playing a larger role in supporting the integration needs of wind projects located in other balancing authorities. BPA is pleased with initial efforts of the CAISO to work with it on these issues and BPA believes such efforts should be accelerated and thoroughly resourced.

For example, the development of mandatory 30-minute interchange scheduling on the California Oregon Intertie (COI) is a strategy that can more rationally allocate the costs and physical requirements of managing the generation imbalances associated with NW wind projects serving California utilities. Such a mechanism will also help reduce pressure on future iterations of the BPA wind integration rate by lowering the amount of generation imbalance capacity that BPA will need to maintain to support California-bound renewable energy generation. Given the current lack of additional available dynamic transfer capacity, 30-minute interchange is likely a much more feasible alternative in the short-term and, by limiting the amount of capacity that BPA has to carry to manage forecast error, may enable BPA to provide a more enduring hydro-based supply of faster regulation and frequency response services that can be very expensive to procure from thermal generating facilities.

In addition, along with innovative demand-side technologies, the next generation of dispatchable capacity resources that California acquires to meet its peak load requirements (and provide energy during times that the wind is not blowing) should also be configured with additional ramping flexibility to manage renewable variability and uncertainty. Although this will almost certainly come at additional cost, given that California already has an increasing need for dispatchable capacity, with or without its renewable portfolio standard, the incremental costs of investing in flexible capacity resources may be well below the costs of incremental supply in other regions. We note that General Electric and other companies are actively developing new generations of natural gas plants to meet the additional needs for system flexibility. Furthermore, this additional flexibility within California will be able to take advantage of the much larger size of the CAISO balancing authority relative to the other balancing authorities in the west and can operate within the context of a fast intra-hour market.

One final issue that limits BPA's ability to provide balancing services stems from statutory requirements regarding endangered fish populations on the Columbia River. During the spring and early summer runoff period, BPA must provide precise amounts of hydro spill - enough to support fish passage, but not so much as to harm fish from supersaturation of nitrogen gas in the river. With the dramatic increase in wind generation in its balancing authority, and further increases anticipated in the future, BPA can expect more hours of the year in which unscheduled or over-scheduled wind generation may conflict with fish protection measures. BPA wants to be clear to all parties to this proceeding that it does not intend to pay wind generators to curtail when their output would otherwise conflict with legally binding environmental operating requirements. BPA will advocate in this forum and others that RECs not be credited to generators who do not curtail or follow other dispatch instructions when their

operations are in conflict with fish protection measures. BPA is interested in working with California parties to develop durable solutions to this problem of competing environmental objectives.

III. Encourage Transmission and Balancing Solutions

Renewable energy standards in the West are currently the drivers of new generating resource development. Renewable energy standards incentivize the production of kilowatt-hours as if all were created equal, without recognition of the seasonal or time of day variations in the value of energy. Most of the renewable resources responding to renewable energy credits are non-dispatchable. In small amounts this is not a challenge. But in the large amounts currently being developed this is an increasing issue and as we move toward a future more reliant on renewable resources we need to make sure our policies for resource development will provide incentives for assuring a reliable power system that limits the potential for having large excess electricity supply at one point in time followed by large deficits at another time. Such an outcome would certainly be considered a result of poor planning.

BPA suggests that in designing renewable portfolio standards, policymakers should give greater consideration to developing mechanisms and incentives to maximize the capacity value of renewable energy resources and increased utilization of existing new transmission lines. This could include greater deployment of energy storage and contract mechanisms that reward resources with higher correlations to peak load. West-wide power and transmission planning efforts such as the new WECC TEPPC effort offer natural forums for additional work on this issue.

The Pacific Northwest currently has a healthy reserve margin of energy, is dominated by gas and hydro, has a very inflexible coal stack, and the major transmission lines linking the

Northwest to California are fully subscribed on a long-term firm basis. Although BPA understands the appeal of unbundled RECs and the desire on the part of some for maximum flexibility in meeting RPS targets, the rapid addition of several thousand megawatts of additional variable wind generation without regard for when that power is needed in the Northwest places the region at substantial risk for reliability challenges and/or negative prices that can place environmental objectives such as salmon restoration at risk.

BPA believes that it is essential that responsible parties need to actively explore planning for expanding transmission capacity between the Northwest and California. Advocates of the large-scale use of unbundled RECs argue that new transmission is costly and it may make sense to pay the costs of congestion (by selling at lower prices) instead of building new transmission. However, given what has occurred in Texas and other areas with severe supply/demand imbalances, it is likely that persistent low or negative prices will create a strong price signal for new transmission capacity within the relatively near future. It is essential that California and Northwest transmission planners work together to develop a plan of service and a commercially viable subscription process to create a real option on transmission expansion and to identify the conditions that would warrant such expansion.

There is some emerging work underway on these efforts, but it requires greater visibility and support on both sides of the border. On May 14, the Western Area Power Administration (WAPA) and BPA are hosting a meeting in Portland to explore pragmatic ways to maximize the utilization of the transfer capability of the existing interties to California and to examine possible ways to increase existing transfer capability between the regions. BPA has also begun working with California parties, including the CAISO, the Transmission Agency of Northern California, major public and investor-owned utilities, and WAPA to scope out an Intertie Open Season

process that could help subscribe new transmission capacity to serve California loads. Both of these are nascent efforts that require formal commitments of time and staff resources, coordination with existing transmission planning efforts within California, and regular progress reporting to senior policymakers on both sides of the border. BPA notes, however, with some trepidation, that the process of building new transmission across the Northwest to serve California will not be easy. It will be essential that the stakeholders along the path of a new line see direct benefits from the new construction, or are at least kept economically neutral.

At this time, and until more assured solutions are developed to address potential reliability and pricing issues BPA supports a limit on the use of unbundled RECs. BPA believes it is possible that exceptions to these limits could be created when the resource the REC is derived from makes a positive contribution to addressing the challenges identified in this filing. BPA also believes the CPUC should set the bar high for deliverability into California by requiring incremental renewable generation to be delivered into California and verified through e-tags within a relatively short time after it has been generated.

With respect to the use of storage and shaping transactions, which allow energy deliveries to California to match the REC that was generated within a certain window of time, BPA recommends limiting the redelivery intervals of such transactions to short periods of time. For example, traditional exchange agreements between California and the Northwest have focused on weekly or seasonal transactions. This has allowed for optimization of existing inertia capacity as well as the ability to manage legitimate transfer limitations during periods of high transmission utilization such as the spring runoff. BPA would support bundled REC treatment for wind projects that can clearly demonstrate that they have procured long-term firm transmission capacity that allows renewable electricity to be delivered into California in as close

to real time as possible. Defining terms for time of delivery will help prevent significant distortions of Northwest markets. BPA's objective for such terms is that BPA's customers should be no worse off and potentially see some benefit from resources here serving load somewhere else. BPA is willing to work on options for a deliverability standard that supports that objective.

Keeping the bar high for incremental deliverability of renewable energy to California will strengthen incentives for efficient utilization of existing intertie capacity and get developers and utility buyers aligned with transmission planners to develop real options for transmission expansion as the economics play out over the next 1-2 years.

IV. Conclusion

Meeting California's renewable resource objectives requires a clear and well-crafted strategy for both the short and longer-term time horizons. BPA believes such a strategy should start with considering how a renewable portfolio standard can incent the development of a combination of supply and demand side options that recognizes the variations in the value of electricity depending upon its time of use. California's policymakers, regulators, utilities and other interested parties should proceed thoughtfully and collaboratively to help the state meet its environmental objectives at the lowest possible cost, while respecting and seeking to mitigate the potential externalities faced by other regions. BPA offers the following recommendations in the spirit of our earlier comments in this proceeding that we believe there should be a dialogue that addresses issues in California and the Pacific Northwest raised by the use of RECs:

1. Limit use of unbundled RECs with exceptions for resources that are addressing the challenges placed on host balancing authorities;

2. Place limits on the time lag between the point of generation and delivery of incremental renewable energy to California;
3. Place a requirement that generating resources only qualify for RECs if they have filed a plan with the host balancing authority for how balancing services will be provided;
4. Support immediate collaboration with Northwest parties on increasing the utilization of the existing interties for both physical deliverability and balancing services;
5. Create incentives through the REC qualification processes for the development of new flexibility options to help limit the need for curtailments of out-of state variable energy projects;
and
6. Support the development of real options for transmission expansion between the Northwest and California with associated financial subscription procedures to improve transfer capacity and balancing capabilities.

BPA appreciates the opportunity to comment in this proceeding and looks forward to working collaboratively with California policymakers and stakeholders to further consider and respond to these recommendations.

Respectfully Submitted,

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By: /s/ J. Courtney Olive
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Dated: May 12, 2010

VERIFICATION

I am the Executive Vice President for the Corporate Strategy group at Bonneville Power Administration and am authorized to make this verification on its behalf. I am informed and believe that the matters stated in the foregoing pleading are true.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this **12th day of May, 2010**, at Portland, Oregon.

/s/ Elliot Mainzer
By: Elliot Mainzer
Executive VP, Corporate Strategy
BONNEVILLE POWER ADMINISTRATION

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of **POST-WORKSHOP REPLY COMMENTS OF THE BONNEVILLE POWER ADMINISTRATION** on all known parties to R. 06-02-012 and R. 08-08-009 by mailing a properly addressed copy by first-class mail with postage prepaid, or transmitting an e-mail message with the document attached to each party named in the official service list.

Executed on May 12, 2010 at Portland, Oregon.

/s/ J. Courtney Olive