Discussion Paper

Potential use of Firm Contingent energy product code on e-Tags for variable generation For transparency under WECC product codes

April 29, 2010

BPA is seeking comment on the concept of requiring the use of the Western Electricity Coordinating Council "Firm Contingent" energy product code for variable generation located in its balancing authority area. This energy is currently tagged with a "Firm" product code. The Northwest Power Pool Operating Committee has raised concerns about the accuracy of using the Firm product code, given the potential for curtailment under BPA Dispatchers Standing Order 216.

BPA is requesting comments on this matter through June 4, 2010. At the conclusion of the discussion, BPA will make a determination on whether to move forward with implementing this change on October 1, 2010.

Discussion

On October 1, 2009, BPA implemented Dispatcher Standing Order 216 (DSO 216) to maintain system reliability when wind variability exhausts the incremental and decremental balancing reserve capacity established for load and wind in the BPA balancing authority area.

DSO 216 has two essential features: when *unscheduled increases* in wind generation and load exhaust the Federal Columbia River Power System's (FCRPS) decremental balancing reserve to ramp Federal generation down, dispatchers send reliability directives via electronic signals to the wind fleet requiring reductions in wind output to preserve load and resource balance within the BPA balancing authority area. When *unscheduled reductions* in wind generation and load exceed the FCRPS' incremental balancing reserve to increase Federal generation to respond with imbalance energy, dispatchers curtail wind transmission schedules down to reflect the lower wind output levels. Such curtailments shift the responsibility for balancing the under-generation beyond BPA's balancing reserves to the receiving balancing authority, as discussed in BPA's approach to integrating variable generation paper, issued in March 2009 (see pgs. 2-3).

Although BPA developed DSO 216 initially as a reliability backstop tool, it has served a commercial purpose as well by allowing BPA and wind generators to balance quality of service with costs. In the last rate case, BPA forecast the amount of balancing reserve capacity needed to provide balancing services for wind during the rate period. The assumption about the scheduling accuracy of the wind fleet was a primary driver of the amount of capacity that BPA would need. Wind developers and operators encouraged BPA to assume that the wind fleet would schedule more accurately during the rate period than the fleet had historically, because assuming more accurate schedules would reduce the overall amount and cost of balancing reserve capacity that BPA would make available. In other words, they advocated that BPA should carry—and charge—for a lower quantity of available balancing reserve capacity. In exchange for BPA limiting the wind integration rate increase by making less balancing reserve capacity available, however, wind generators essentially were accepting a lower quality of service because the likelihood of feathering or curtailments under DSO 216 would increase.

E-Tags on transmission transactions tell all parties the source and type of the energy being transmitted. An e-Tag lists all transactions involving that energy until it reaches its point of consumption. The type of energy

product being transmitted is shown on the e-Tag as an energy product code. Wind power in BPA's balancing authority currently carries a Firm energy tag.

Some members of the Northwest Power Pool Operating Committee have expressed concerns that, if transmission schedules for wind energy are subject to curtailment under DSO 216, the Firm energy tag now used to label wind energy originating in BPA's balancing authority area is inaccurate.

Through April 19, 2010, BPA issued reliability directives pursuant to DSO 216 some 26 times in more than 4,824 scheduling hours. Of these cases, 10 reliability directives limited wind generation to scheduled amounts plus allocated DEC reserves. Sixteen times, BPA has curtailed wind generation transmission tags to actual generation output plus allocated INC reserves. This operating experience to date reflects less use of DSO 216 than was forecast in the rate case.

When schedules are curtailed under DSO 216, there is still a need to serve the load that was being met by the original schedules. Under DSO 216, where INC reserves are fully deployed, the responsibility for providing additional reserves once e-Tags are curtailed falls to the receiving balancing authority.

To address NWPP concerns, BPA may need a product type other than Firm to clearly move the responsibility to deploy contingency reserves to the receiving balancing authority. Using a Firm Contingent product type on the e-Tag would move the deployment of contingency reserves to the receiving balancing authority when there is a DSO 216 curtailment event.

All balancing authorities in the Western Electricity Coordinating Council area carry contingency reserves equal to 5 percent of their hydro and 7 percent of their thermal generation. The NWPP is currently considering a proposal to include certain wind under-generation events as eligible contingencies for deployment of contingency reserves.

The Firm Contingent product code is widely used in other areas of the Western Electricity Coordinating Council for energy schedules that are curtailable in-hour due to reduction in output capability of a specific generating unit. WECC and NWPP interpretations of load responsibility have identified the receiving balancing authority as responsible for supplying contingency reserves for transactions tagged as Firm Contingent.

BPA believes that either tagging the variable energy resources scheduled as Firm Contingent or some other alternative developed in the region would provide the necessary transparency for reliable operations in the receiving balancing authority. The receiving balancing authority will then have the information necessary to plan for potential curtailments resulting from reliability protocols designed to integrate variable energy resources on a cost-effective basis

Requiring the Firm Contingent energy product code would change the status quo in BPA Transmission, where BPA currently expects all energy transactions originating in its balancing authority to be labeled with the Firm energy product code.

Available product code choices

The North American Electric Reliability Corporation and WECC product code choices for tagging energy are numerous, but none of them was designed for variable generation. On reviewing the codes, BPA considers that Firm Contingent may be the best available product code currently available for variable generation in its balancing authority area. The current NERC and WECC product codes include, but are not limited to:

1) Firm Energy (G-F, NERC product code) This product may be curtailed only in the event of a reliability condition or to meet Seller's public utility or statutory obligations for reliability of service to native load. A G-F product cannot be interrupted for economic reasons.

2) Non-Firm Energy **(**G-NF, NERC product code) This product may be interrupted for any reason or no reason, without liability on the part of either the buyer or seller.

3) Firm Contingent Energy (G-FC, WECC product code) The energy is from a designated generating unit or source. This product may be interrupted only to the extent the output capability of the designated unit or source has been reduced due to a deration or outage of the designated unit or source. A G-FC product cannot be interrupted for economic reasons.

4) Firm Provisional Energy (G-FP, WECC product code) (Not recognized by NWPP) This product may be interrupted only if the interruption is within the recall time and for conditions allowed by applicable provisions governing interruption of service, as mutually agreed to by the parties. A G-FP product cannot be interrupted for economic reasons.

There is also an Interruptible Schedule, as defined in NWPP reserve sharing documentation but not defined among WECC energy product codes. In NWPP terminology, any energy schedule for "interruptible" energy for a given hour refers to an energy schedule that can be curtailed at any time for any reason. This is not synonymous with common industry standard vernacular "unit contingent" or with the more limited interruptibility of Firm Contingent products.

While various regional and national discussions of appropriate product tags for variable energy resources are underway, none is now expected to come to resolution in the next few months. Meanwhile, Northwest utilities through NWPP are urging resolution of the issue they have raised.

Regional discussions on product tags for variable energy resources

At this point in the evolution of the power industry, there are several discrepancies among the tagging options among various authorities and organizations. In addition, in some cases, different organizations define the same term differently.

A number of organizations hold responsibility for developing power system procedures, and these organizations are in the process of adapting their existing approaches to better fit with the nature of new, variable generation sources.

North American Electric Reliability Corporation (NERC) is the reliability organization for the United States under the National Energy Policy Act of 2005 and for Canada. It develops and enforces

reliability standards; subject to oversight by the U.S. Federal Energy Regulatory Commission and Canadian authorities.

Western Electricity Coordinating Council (WECC) is the Regional Entity responsible for coordinating and promoting bulk electric system reliability in the Western Interconnection under a delegation agreement from NERC. WECC includes Alberta, British Columbia, small parts of Mexico and all or portions of the 14 Western states between. WECC provides forums for resolving transmission access disputes and coordinating the operating and planning activities

Northwest Power Pool (NWPP) serves as a forum for reliability and operational adequacy issues in the Northwest to achieve reliable operation of the electrical power system, coordinate power system planning and assist in transmission planning. The power pool is a voluntary organization of major generating utilities in the Northwestern U.S., British Columbia and Alberta.

WSPP provides a default standardized contract for electric power sales on the wholesale power market in the Western Interconnection. More than 300 utilities, other generation owners and power marketers use this WSPP Agreement for market power sales. The agreement is used to allow transactions to occur without constant renegotiations of contract terms and to standardize terms, thereby promoting liquidity in the market. It is the most commonly used standardized power sales contract in the electric industry.

BPA is participating actively in these discussions and encourages other parties to do so.

BPA is participating in a Northwest Power Pool effort to develop regional solutions among the 19 balancing authorities, the Agent Agreement members, in the Power Pool to further promote integration of wind in the NWPP footprint.

Similarly, the WECC is working on refining its product codes for variable generation, and BPA is participating in this forum, as well. The Federal Energy Regulatory Commission has issued a Notice of Inquiry on issues related to integrating variable generation. BPA has responded, and has included this issue as an example of a barrier to be overcome.

BPA requests feedback and alternative ideas

We are announcing our intended course of action now so as to invite customer and constituent feedback and suggestions, particularly ideas for other approaches that will achieve the following objectives.

Objectives:

1) Limit BPA balancing reserves to established quantities.
2) Assure clarity on who has the obligation to deploy contingency reserves.
3) Ensure product tagging transparency and accuracy that reflect the attributes of the product transaction.

BPA Principles:

1) Promote efficient use of the transmission system.
2) Keep customers whole per decisions in rate case and assure costs follow benefits.
3) Maintain reliability.
4) Use existing industry e-Tag product codes if at all possible.
5) Continue to support growth of wind power and other variable resources in Pacific Northwest.

Options:

BPA has identified the following options:

1) Tag wind energy as Firm Contingent, and change BPA business practices to require Firm Contingent energy tag transactions for variable generation or for energy subject to DSO 216, until such time as new product codes or other approaches designed specifically for variable energy resources are adopted regionally or nationally.

2) Customers and the industry develop an alternative product code that identifies wind or other variable energy resources that are subject to DSO 216 or some other reliability or operational protocol.

In the long run, we expect that the various utility organizations will come to agreement on product types and definitions appropriate for variable generation. However, this may take some time.

BPA would expect to require use of the Firm Contingent product code for variable generation located in its balancing authority area until superseded by, for example, a WECC product code specifically designed for the output of variable energy resources that are subject to DSO 216 type curtailments.

To effect this change, BPA would issue a draft business practice this summer for customer and stakeholder review and put the resulting business practice in effect at the beginning of fiscal year 2011, October 1, 2010.

We invite comments on this approach and suggestions of viable alternatives through May 31. Submit comments to the BPAT Business Practices external Web page at techforum@bpa.gov. BPA will discuss this concept at a public meeting May 21 from 10 a.m. to noon in the Rates Hearing Room at BPA Headquarters in Portland. Please see the BPA calendar for details.