



Transmission Services

Draft White Paper: Clarification on DSO216 "Strikes"

November 5, 2009

Background:

On March 5, 2009, BPA posted its requirements for Connecting Variable Generating Resources to the Federal Columbia River Transmission System. As part of those requirements, BPA explained that when BPA experiences an "over-generation" condition from the wind fleet, BPA will send an electronic signal to the wind facilities or wind operators to reduce generation. Among other things, BPA stated that any entity that fails to fully respond to this electronic signal in 10 minutes will be assessed a "violation," also known as a "strike." Connecting Variable Generating Resources to the FCRTS, pg. 6. Additionally, if a generator fails to fully respond three times within a 24-month period, BPA stated that it will require a generator to receive generation limits for the facility or facilities directly from BPA's energy management system. *Id.* at 7.

Since the implementation of Dispatcher Standing Order 216 on October 1, 2009, BPA has gained valuable experience with wind limiting events. Currently BPA is reviewing the actions of certain wind generators that fully comply with BPA dispatch directives to reduce generation. Such generators either (1) missed the 10-minute window to reduce generation as directed, or (2) reduced generation within the 10-minute window, but then exceeded their specified generation limit within the hour. Under the DSO, a failure to strictly comply with a BPA directive may constitute a "strike."

Currently DSO 216 states that after three strikes, BPA will require the offending generator to install communication and signaling equipment to allow BPA to automatically control generation levels. BPA added this language to the DSO after extensive discussions with operators because it was important for wind generators to understand BPA's reliability concerns and the significance of each Dispatcher directive.

BPA has limited wind output three times since the inception of the automated wind limitation and curtailment on October 1, 2009. The first limitation occurred on October 8th with many wind facilities not meeting the requirements specified in BPA's dispatch directive. The second limitation occurred on October 17th. Although BPA observed increased compliance from the wind generators, some wind generators continued to miss the absolute Dispatch directive. In both wind limiting events, the reserves deployed by BPA did drop in the first 10 minutes by 250 MW (10/8) and 500 MW (10/17), which provided BPA the relief needed to preserve reliability. The third event occurred on November 5th. During this event, most generators fully complied with dispatch directives, however, there were a couple that did nothing in response to the directive.

What is the issue?

BPA has observed three DSO216 events and it is becoming apparent from an initial review of the data that most wind generators used best efforts to get to the targeted generation levels. Since BPA will require operational changes after three strikes within a 24-month period, BPA is reviewing the strike criteria to assess the violations that are generally insignificant.

Furthermore, the language in the DSO 216 currently states that if BPA assesses three strikes on an individual wind plant in a 24 month period, BPA will require equipment to be installed in the wind plant to control the specific wind plant's generation levels. Under strict interpretation of the DSO language, since October 1st, some generators will already have accumulated two out of their three strikes and one would have three strikes already.

Recommendations:

BPA staff has developed two recommendations and a few options for BPA's management and customers to consider. The first recommendation is for BPA to assess strikes beginning November 2009, including the limitation event that occurred on 11/5/2009. Under this recommendation, BPA would consider

October to be a month of testing and an opportunity to work with the wind generators to iron out issues associated with both BPA and the wind facilities.

The second recommendation by BPA staff is to adopt metrics to assess compliance with dispatcher directives. These metrics will be discussed at the November 10, 2009 Live Meeting with the Joint Operating Committee (BPA technical staff and wind operators).

1. The first metric is the facility must be at or below the limitation provided by BPA within ten minutes of notification. Having seen this from the response of multiple wind plants, this should not be an impossible requirement or difficult to meet.
2. The second metric has three options. All of these options are for the wind output after the initial 10 minute period following the directive until the top of the hour when the directive automatically is reset.

The Options provided below are listed in order of simplest to implement to most difficult.

Option 1: Keep the limit in place as a hard limit and do not allow the wind facilities to error above the limit at any time.

Option 1 will force the wind plant to enter a value less than the limit in order to insure the facility does not deviate above the limit during the DSO action.

Option 2: Add a small dead band to the limit provided by BPA to account for the control actions taken by the wind plants control system. This will create a simple feed-back loop that will make it more apparent that their output increase is due to the wind increasing and that they are then feathering the turbine blades to bring the total plant output back to the limit. The deadband would be based on the limit. Example: A 500 MW wind plant being limited to 100 MW should not perform any differently than a 200 MW facility being limited to 100 MW.

Option 2 will allow the wind plant to input the limit then allow the control system to take the corrective actions needed to stay close to the limit. This option will take into account a steadily increasing wind pattern across a facility during a limitation but will not over control the turbines to meet the levels needed for Option 1 and Option 3. This option is also what BPA will see if a wind plant gets three strikes in a 2-year period, thereby forcing it to make control system modifications to directly take the limitation into the plant controller and control to that limit. The wind generator will still receive a Failure to Comply penalty charge on the MWH above the limit.

Option 3: Measure the wind output on a 30-second rolling timeline. The average output of the wind facility for all 30-second periods must be at or below the limit level.

Option 3 will allow the wind facilities to put in the upper limit provided by BPA and have the actual output 'sawtooth' around the limit without being assessed a strike. Therefore, if the wind increases thereby increasing the generation output, the control system can feather the wind generators to bring the output back below the limit. As long as the average does not exceed the limit, this would be considered to be in compliance. However, the wind generator will still receive a Failure to Comply penalty charge on the MWH above the limit.

All three options have merit. Under all options, failure to comply penalties will remain as they are represented in the existing business practice. There was general support for choosing an alternative that is both easy to implement and will met reliability needs

Timeline:

1. Develop and post timeline and draft criteria for internal and external review. (Joint Operating Committee members, WIT Executives, and others) on November 6th.
2. Discuss with JOC members during the live meeting on November 10th.
3. Accepting Customer feedback ends November 23rd.
4. Post Final Decision on Clarification of Strikes on December 11, 2009.