



Use of the Firm Contingent Energy Product Code for Wind



Introduction

- Background:
 - Operational approach to connecting variable generation
 - DSO 216 history
 - NWPP procedures
- Tagging firm contingent
- Contingency reserve
- Customer Supplied Generation Imbalance
- No operational changes

Background

- Developed 'Connecting Variable Generating Resources to the FCRTS' with customers, final posted March 5, 2009
 - Described the issues faced by BPA with amount of variable generation being integrated
 - Rolled out the operational approach considered at that time for limiting wind output or curtailing tags, resulting in the implementation of a new Dispatchers Standing Order (DSO) 216
 - Outlined changes BPA needed to make in its EMS to automate DSO 216
 - Spelled out process that would be taken when violations to DSO 216 occurred
 - Draft document was circulated 12/29/08, modified in response to comments 1/29/09, further modified in response to additional comments and finalized 3/5/09.

DSO 216 Events as of April 30, 2010

Limit (DEC) Events	2009 Oct - Dec Total		2010 Jan - Mar Total		April	
	Act	Est	Act	Est	Act	Est
Level 1	5	12.2	5	12.9	1	3.6
MW per L1 Event	380	277	198	264	596	147
L1 MW per Month	634	1126	330	1136	596	531
Average Number of Sources	11	n/a	8	n/a	14	n/a
Average MW by Source	36	n/a	26	n/a	43	n/a
Curtailment (INC) Events	2009 Oct - Dec Total		2010 Jan - Mar Total		April	
	Act	Est	Act	Est	Act	Est
Level 1	9	12.4	4	12.6	3*	4.0
MW per L1 Event	267	277	402	235	265*	242
L1 MW per Month	800	1146	536	986	794*	967
Average Number of Sources	10	n/a	13	n/a	15	n/a
Average Number of PODs	10	n/a	10	n/a	14	n/a
Average MW by Source	27	n/a	35	n/a	19	n/a

* These numbers include one Level 2 event.

Installed Capacity (as of the end of each month)	As of Dec 2009	As of Mar 2010	April
		2680	2780

DSO 216

- DSO 216 is a tool that needs to stay in place in order to integrate variable resources.
 - It allows BPA to hold a certain amount of in-hour balancing reserve without the risk of uncontrolled deployment of incs or decs that could cause the FCRPS operations to violate non-power constraints on operation.
 - Without DSO 216, the in-hour balancing reserve requirements would increase to levels that would make additional variable generation integration infeasible in the BPA Balancing Authority Area, absent non-federal capacity purchases or comparable action by BPA.

NWPP Procedures

- NWPP has a ‘Firm for the Hour’ rule in the reserve sharing group program.
 - This requirement states, ‘Any energy schedule for “firm” energy for a given hour will be included in the Load Responsibility for the Participating Balancing Authority that is the source for the schedule.’
 - A schedule that is not firm is interruptible and is defined as: ‘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. (The term “interruptible” for purposes of the Reserve Sharing Program is not synonymous with common industry vernacular such as non-firm or unit contingent.)’

NWPP Procedures

- Following the WECC Board's approval of the interpretation of load responsibility on Sept. 7, 2007, NWPP issued a response to the interpretation on Oct. 11, 2007, including the following paragraph:

‘NWPP RSG members will agree with the WECC assumption that transactions between BAs that are unit contingent (firm contingent energy code) will be treated the same as transactions with generating units residing inside the sink BA for Contingency Reserve purposes.’

Tagging Firm Contingent

- E-Tag Examples
 - Current variable generation e-Tag sourcing in BPA BAA, example next slide

Tagging Firm Contingent

The screenshot shows the OATI system interface with several data sections:

- Tag Information:**

GCA	PSE	Tag Code	LCA
BPAT	CUST02	MISSAPVQ	
- Contact Information:**

PSE Code	PSE Contact	PSE Phone	PSE Fax	Gen Contact	Gen Phone	Gen Fax	Lead Contact	Lead Phone	Lead Fax	Comment
- WECC Reserve Requirements:**

BPAT (BA)

PSE	Product	Contract	Misc
WIND101	G-F		Yes
CUST01			Yes
CUST02			Yes
CUST01	L		Yes
- Physical Path:**

CA	TP	PSE	POR	POD	Contract	Misc
BPAT	BPAT			BPAT		Yes
- Energy and Transmission Profiles:**

Start Time	Energy	Transmission	Res	Res	Trans	Total
05-13-2010 00:00			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
05-14-2010 00:00						
- Transmission Allocation:**

TP	Owner	Product
BPAT	2NH	2NH

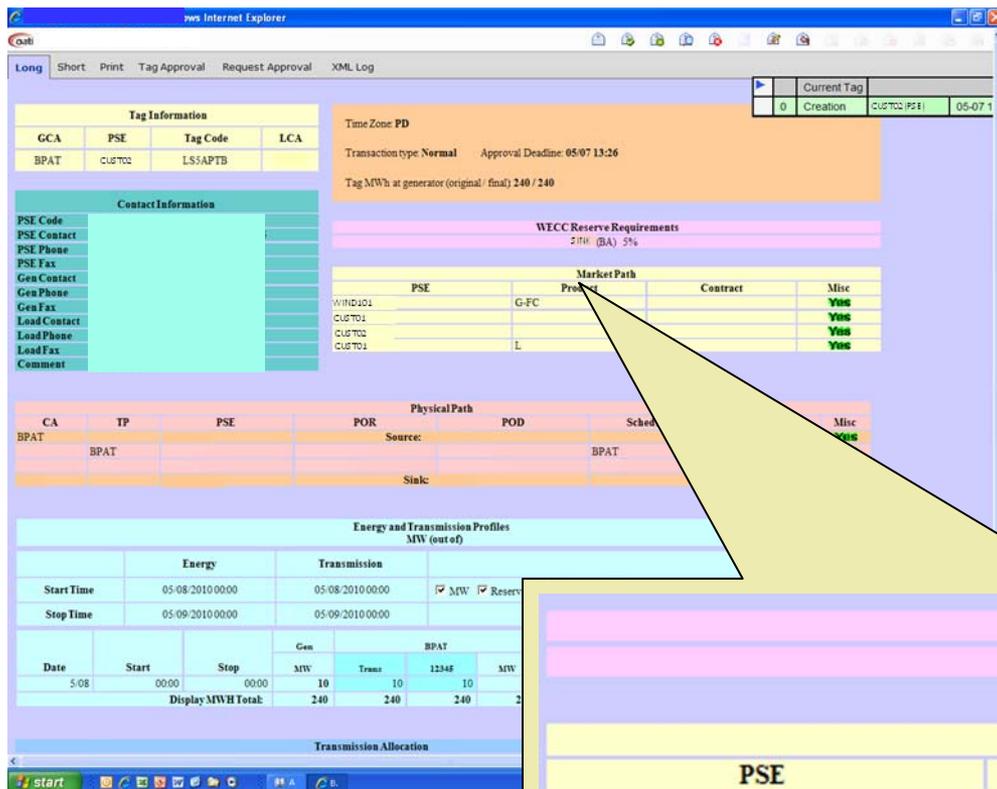
WECC Reserve Requirements BPAT (BA)			
Market Path			
PSE	Product	Contract	Misc
WIND101	G-F		Yes
CUST01			Yes
CUST02			Yes
CUST01	L		Yes

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Tagging Firm Contingent

- E-Tag Examples
 - Proposed variable generation e-Tag sourcing in BPA BAA, example next slide

Tagging Firm Contingent



WECC Reserve Requirements			
SINK (BA) 5%			
Market Path			
PSE	Product	Contract	Misc
WIND101	G-FC		Yes
CUST01			Yes
CUST02			Yes
CUST01	L		Yes

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Tagging Firm Contingent

- None of the numerous NERC and WECC product codes for tagging energy was designed for variable generation. Firm contingent is the best choice for variable generation in BPA's balancing authority that is available now.
- Firm Contingent Energy (G-FC, WECC product code) 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.

Consequences of Firm Contingent Tagging

- BPA would no longer carry contingency reserve for wind projects whose energy is tagged firm contingent and is exported from the BPA Balancing Authority to another balancing authority area.
- The BPA charge for contingency reserve held would not apply to these transactions.

Customer Supplied Generation Imbalance

- If BPA requires firm contingent energy on tags for wind, what happens with those participating in Customer Supplied Generation Imbalance (CSGI)?
 - The self-supplier is still subject to curtailments under DSO 216 (only if outside the regulation + following band).
 - BPA is assuming success with CSGI, so believes there will be no need to curtail the tags of the self-supplier.

Customer Supplied Generation Imbalance Options

- Option 1: All wind generation would be tagged firm contingent energy. BPA will evaluate this through the CSGI pilot period and may lift the requirement on CSGI participants if it is shown not to be needed.

- Option 2: Wind generation for the CSGI pilot will not need to be tagged firm contingent.
 - BPA does not expect to be curtailing tags on the CSGI projects.
 - If the netted CSGI projects, including balancing resources, are out of bounds on three separate occasions when a curtailment for DSO 216 is initiated during the pilot (or other metric), the wind projects associated with CSGI will be required to tag their output as firm contingent.

No Change in Operations

- Tagging wind with the firm contingent energy product code will not change BPA operations.
 - Level 1 curtailment: Curtail tags to the amount being generated plus reserve allocation when total reserve deployed equals 90% of total in-hour balancing inc reserve.
 - Level 2 curtailment: Curtail tags to the amount being generated when total reserve deployed equals 100% of total in-hour balancing inc reserve (must occur in same hour that has already had a level 1 curtailment).

No Change in Operations

- The energy product is one of many components of the e-Tag, which also includes the type of transmission purchased.
- All e-Tags can be curtailed due to reliability limitations.
 - Under transmission specific events, for example, line loading issues, the transmission type (NERC Curtailment priority, e.g., 7-F, 1-NS, 2-NH, 6-NN) would be the input used to issue curtailments, pro-rata non-firm and then pro-rata firm.
 - Under DSO 216 events, the wind farm curtailment is implemented when the actual generation plus reserve allocation is less than the schedule. The transmission NERC Curtailment priority would be the input used to determine the order in which the wind farm e-Tags are curtailed.

Next Steps

- BPA will be accepting comments on the potential use of the firm contingent energy product on e-Tags for variable generation through May 31.
- Responses to comments will be posted on the BPA website under Transmission Services Wind Activities - Operational Controls for Variable Generators by the end of June 2010.

Questions?