

BP-14 Generation Inputs Workshop

March 8, 2012



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Introduction

- This is the first generation inputs workshop of the BP-14 Rate Case. More workshops are being scheduled through July 2012.
- Workshops will be posted on the BPA agency calendar. Tech Forum notices for the dates and also for where the workshop materials are posted.
- These workshops are discussions between BPA and customers and stakeholders prior to BPA crafting an Initial Proposal.



BPA Public Processes for Non-Rate Case Issues

- 2012 Integrated Program Review
 - Building a Framework for the Integrated Program Review, 31 January 2012
 - Kick-Off workshop on 5 June
 - Contact your BPA Account Executive or BPA's Finance Master Blaster to receive information or link to BPA Web site
 - http://www.bpa.gov/corporate/Finance/?utm_source=Go-Address&utm_medium=Print&utm_campaign=Steve%2BWright%2BLetter
 - BPA is now offering external stakeholders an opportunity to sign up for BPA's Finance "Master Blaster," an email providing notification of upcoming finance-related public processes, scheduled meetings and recently published material. If you would like to sign up please email BPAFinance@bpa.gov with subject line enroll or contact Stephanie Adams at 503-230-4671.
 - Sets expense levels for hydro projects and Fish and Wildlife costs used in the embedded cost methodology for reserve-based ancillary and control area services.
 - Sets expense levels for the Wind Integration Team.



BPA Public Processes for Non-Rate Case Issues

- Enhanced BPA Balancing Authority
 - Strategic direction for FY 2017 and beyond
 - Workshop on 7 March 2012
 - Interim steps in FY 2014-2015 rate period toward strategic direction
 - Contact your BPA Account Executive or Tech Forum to receive information.
 - [Transmission Services E-Mail Sign-Up](http://transmission.bpa.gov/Business/contact_info/default.cfm?page=Email) at http://transmission.bpa.gov/Business/contact_info/default.cfm?page=Email



BPA Public Processes for Non-Rate Case Issues

- Dynamic Transfer Capability
 - Starting spot to begin discussions to test and flesh out the priorities of stakeholders
 - Workshops were held on 19 January and 7 March 2012.
 - Contact your BPA Account Executive or Tech Forum to receive information.
 - [Transmission Services E-Mail Sign-Up](http://transmission.bpa.gov/Business/contact_info/default.cfm?page=Email) at http://transmission.bpa.gov/Business/contact_info/default.cfm?page=Email



BPA Public Processes

- Oversupply Rate Case
 - Separate rate case on the oversupply rate
 - First workshop on 13 March 2012.
 - Contact Tech Forum to receive information.
 - [Transmission Services E-Mail Sign-Up](http://transmission.bpa.gov/Business/contact_info/default.cfm?page=Email) at http://transmission.bpa.gov/Business/contact_info/default.cfm?page=Email



BP-14 Rate Case Generation Inputs Game Plan

- Purpose
 - Set starting point for internal and external discussions of what will be in and what will be out of the rate case.
 - Focus discussions on stakeholder priorities.
 - Manage workload and workshop schedule given limits on time and resources.
 - See “Generation Inputs BP-14 Game Plan”
- Next Steps
 - Stakeholder input to setting priorities
 - Link to survey
 - Please send responses by 16 March 2012 to jrklippstein@bpa.gov and dhfisher@bpa.gov.
 - Results will be shared at a future workshop.



BP-14 Rate Case Generation Inputs Game Plan

Summary of your survey response			Please send your completed
	Count	Rank	Top Five
Unchanged	0	1	Credit for times when BPA is providing less than the level o
Explore	0	2	
Enhance	1	3	
		4	
		5	

A: Rate Design		Select Top Five priorities (where 1 is highest priority of your selected Top Five)
i.	Select an Option	1 Credit for times when BPA is providing less than the level of ba
ii.	Enhance	Clarify the treatment of <i>dec</i> capacity and Generation Imbalance
iii.	Select an Option	Performance-based (also called volumetric) component in Vari
iv.	Select an Option	Assess risk and determine appropriate risk mitigation for balan
v.	Select an Option	Persistent Deviation - Exemption from Persistent Deviation ch
v.	Select an Option	Persistent Deviation - Exemptions from Persistent Deviation c
v.	Select an Option	Persistent Deviation definition as of January 2012 with the thre
vi.	Select an Option	If any changes are needed to Dispatchable Energy Resource Ba

B: Cost Allocation	
i.	Select an Option Method for calculating embedded and variable cost of Federal
ii.	Select an Option FCRPS wear and tear adder to balancing services



VERBS Rate Design Discussion

In workshops for previous rate periods, BPA and VERBS Customers have discussed several variations on volumetric billing factors as an alternative to a single nameplate generating capacity based construct.

BPA is not proposing a volumetric billing factor for VERBS. We did agree in the BP-12 Record of Decision to take a look at the implications of a volumetric rate design.

“BPA will use the experience it will gain with using a volumetric component for the DERBS rate during the FY 2012-2013 rate period and evaluate the possibility of including a volumetric component to the VERBS rate in the next rate case.”

“During the FY 2012-2013 rate period, BPA will continue to explore in a series of technical workshops with customers the design of a VERBS rate that includes a volumetric charge...”



VERBS Rate Design Discussion, Cont'd

Volumetric billing factors can have attractive elements, such as better alignment between scheduling accuracy and the billed amount, as well as some less attractive elements, such as uncertainty for Customers and potential revenue recovery risk for BPA

Previously, we have looked at developing a billing factor that disaggregates the hourly wind fleet net station control error for regulation, following, and the imbalance component. This approach relies on statistics to arrive at the individual generating facility's contribution to the use of *Incs* and *Decs* for each hour and apportions the revenue requirement accordingly.



VERBS Rate Design Discussion, Cont'd

Disaggregation approaches were not further pursued because Customers objected to having their billing be dependent on the coincident use of reserves by other Customers and because it would be difficult for individual Customers to verify their billing. We proposed a similar approach for Dispatchable Energy Resource Balancing Service (DERBS) in the last rate case and moved away from it in favor of a simpler billing factor based on the station control error (SCE) of each facility taken in isolation.

In this discussion, we will look at how SCE for each wind generating facility could be evaluated in isolation and will also look at using a billing factor that is based on persistence scheduling timeframes, along the lines of the current VERBS rate discount for Committed Intra-Hour Scheduling.



VERBS Rate Design Discussion, Cont'd

One of our starting assumptions is that there is not any real benefit in basing a variable billing factor on the regulation and following components. These moment-to-moment and slightly longer timeframe components are strongly correlated with nameplate capacity.

To arrive at a variable billing factor for the Imbalance component, we took this approach for illustration:

- Calculate four 15-minute average station control errors per hour
- Take largest positive SCE for hour = *Dec* deviation
- Take absolute value of largest negative SCE for hour = *Inc* deviation
- Total *Inc* & *Dec* for 7 plants (5 schedulers) for 1 year (Feb 2011 – Jan 2012) & calculate rate to reproduce current \$0.78 / kW-month rate revenue
- Rescale all to same 100 MW size for anonymity & analyze

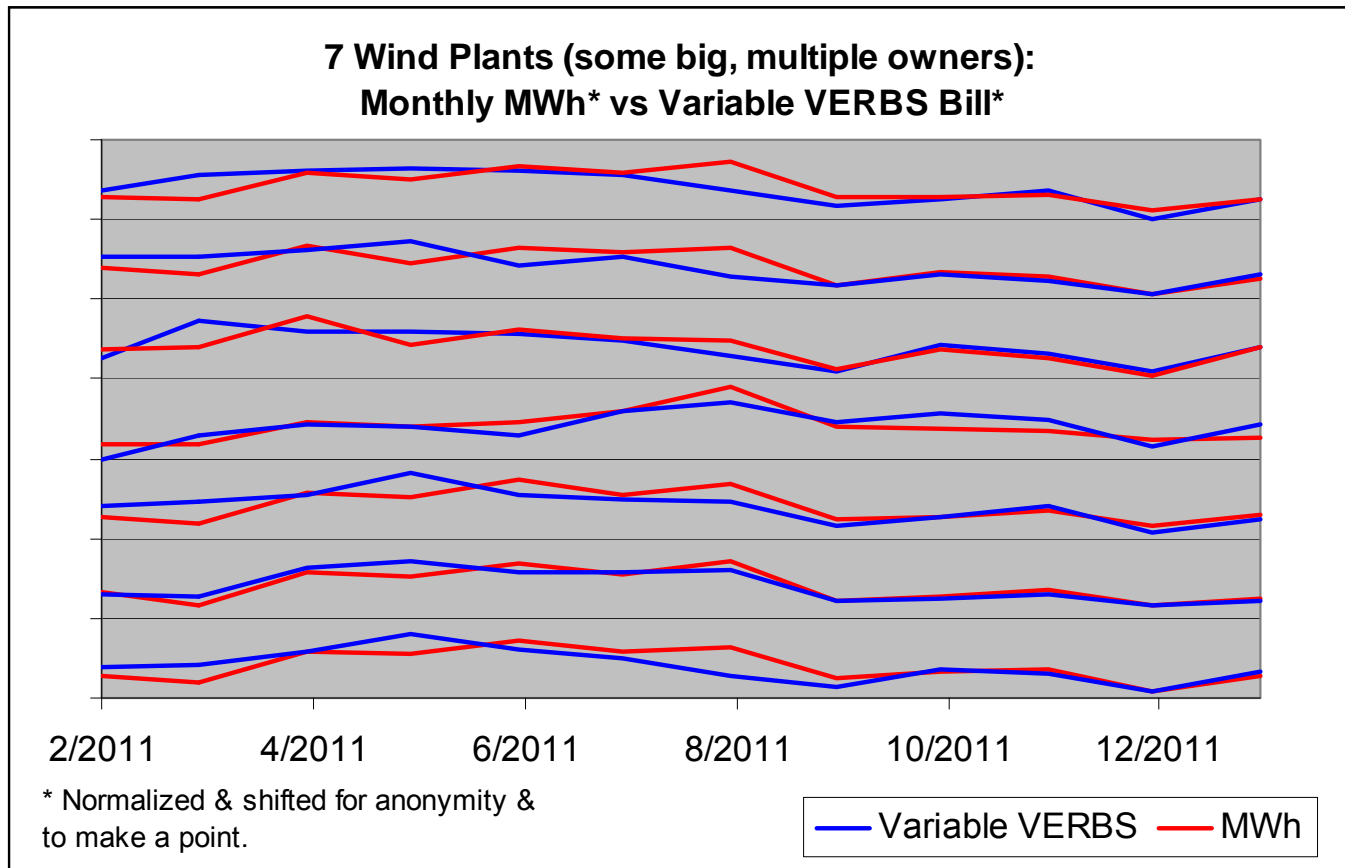


Variable VERBS Billing Determinant: VERBS Bills Correlate with MWh

VERBS Components:

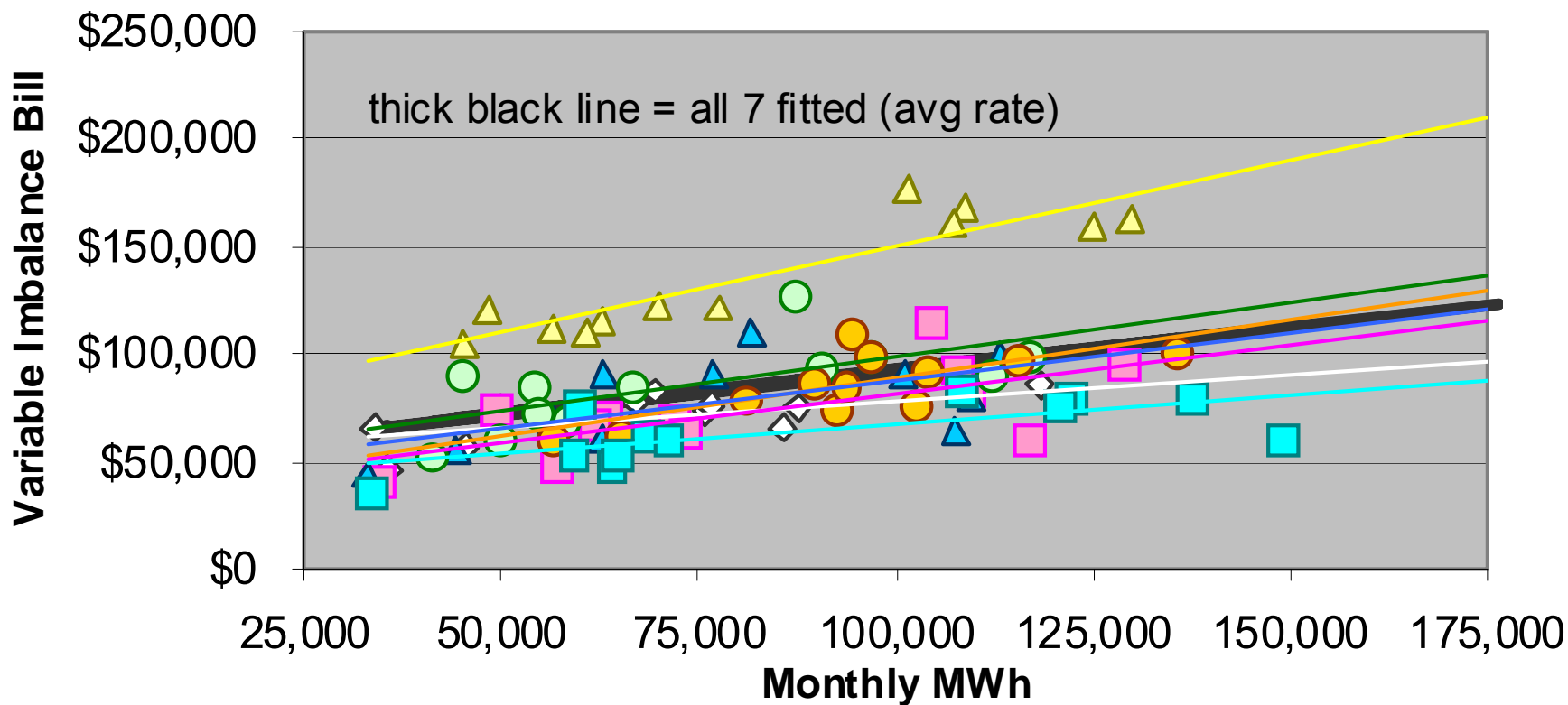
- 1) Regulation & Following:
nameplate
- 2) Imbalance:
Max(four 15-min
SCE / hr)

Note: Normalization process made correlation look better.

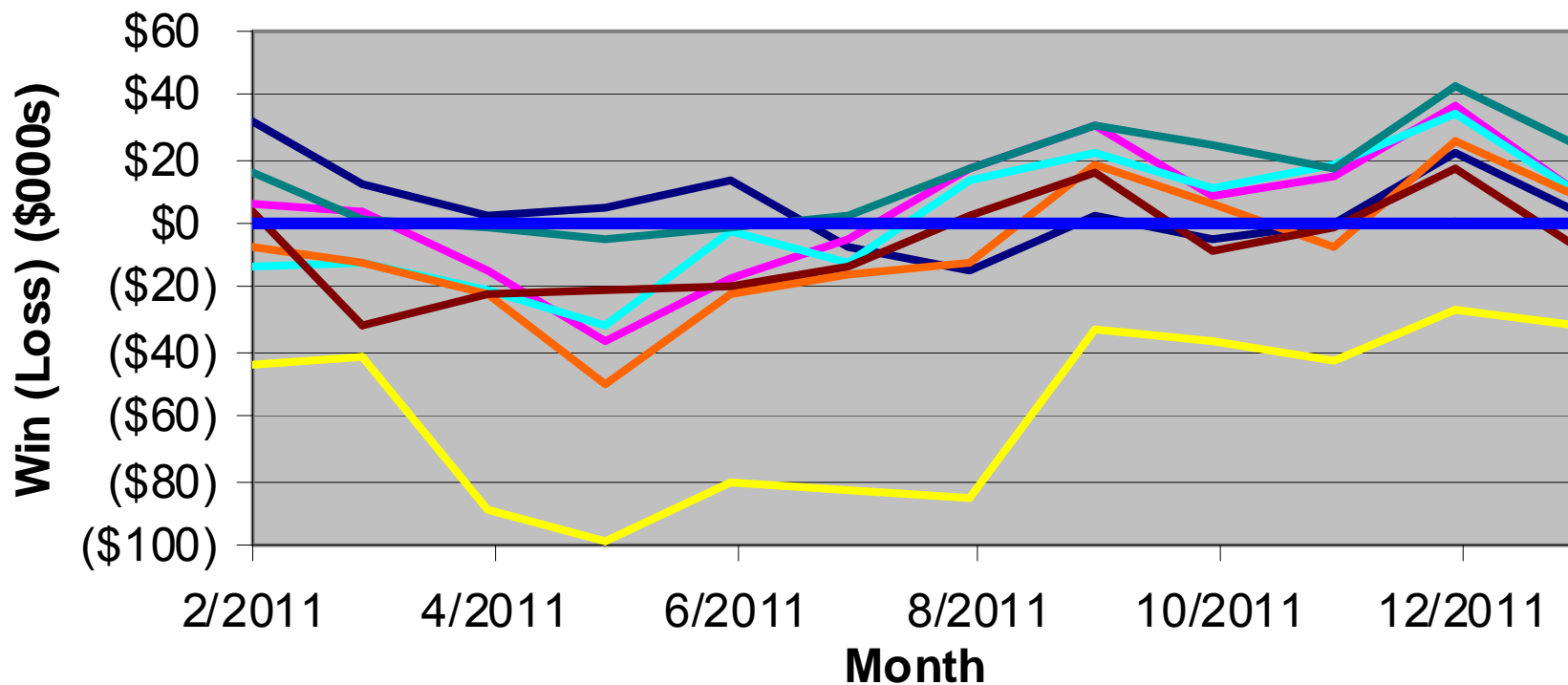


VERBS Imbalance on Variable Basis

Variable VERBS Imbalance Bills on 7 Plants
 (Monthly \$, Scaled to 100 MW Nameplate, 2/11 - 1/12)



Variable Imbalance VERBS: Win / Loss vs Flat Bill 1 Year, 7 Plants @ 100 MW



VERBS Imbalance Win (Loss) w/ Variable Rate, (At 7 Plant Aggregate Rate, 100 MW Capacity)							
Month	Plant 1	Plant 2	Plant 3	Plant 4	Plant 5	Plant 6	Plant 7
2/1/2011	\$38,229	\$13,455	(\$36,953)	(\$6,395)	(\$396)	\$10,891	\$22,786
3/1/2011	\$19,065	\$10,910	(\$34,882)	(\$5,674)	(\$6,070)	(\$24,566)	\$7,884
4/1/2011	\$9,421	(\$8,071)	(\$82,280)	(\$14,653)	(\$15,107)	(\$15,448)	\$5,015
5/1/2011	\$11,450	(\$29,691)	(\$91,445)	(\$25,560)	(\$42,881)	(\$14,227)	\$1,897
6/1/2011	\$19,657	(\$10,196)	(\$73,618)	\$4,426	(\$14,880)	(\$13,004)	\$5,326
7/1/2011	(\$572)	\$2,156	(\$76,047)	(\$5,575)	(\$9,047)	(\$6,604)	\$8,531
8/1/2011	(\$7,776)	\$24,223	(\$78,429)	\$19,985	(\$5,904)	\$8,604	\$23,902
9/1/2011	\$8,593	\$36,843	(\$26,063)	\$29,112	\$24,488	\$22,857	\$37,245
10/1/2011	\$2,298	\$15,355	(\$30,327)	\$17,551	\$12,632	(\$1,375)	\$30,781
11/1/2011	\$7,149	\$20,768	(\$36,284)	\$24,674	(\$431)	\$5,770	\$24,204
12/1/2011	\$28,370	\$43,157	(\$20,349)	\$40,933	\$32,119	\$23,625	\$49,366
1/1/2012	\$10,677	\$17,021	(\$25,099)	\$15,931	\$15,779	(\$5)	\$30,772
Total Win (Loss)	\$146,561	\$135,929	(\$611,776)	\$94,758	(\$9,698)	(\$3,482)	\$247,708
Flat Annual Bill	\$936,000	\$936,000	\$936,000	\$936,000	\$936,000	\$936,000	\$936,000
Variable Annual Bill	\$789,439	\$800,071	\$1,547,776	\$841,242	\$945,698	\$939,482	\$688,292



VERBS Rate Design Discussion, Cont'd

SCE data from these 7 generating facilities illustrate that some Customers would benefit and some Customers would see increased costs for VERBS under this approach to rate design.

We also need to point out that we have a fixed revenue requirement to recover, and if we were to base the billing on individual use instead of allocating the fixed revenue requirement there is revenue risk. It seems unlikely that other transmission or power Customers would openly embrace that risk and we would have to develop a true-up mechanism for any variable rate.



VERBS Charge Based on Customer Choice of Scheduling Practice

- Another potential use-based rate construct is to retain a nameplate charge, but base the reserve requirement on Customers' election to commit to a specific level of scheduling accuracy – either via persistence scheduling (or a use of capacity and energy that is less than or equal to that level of persistence).
- Currently, the VERBS rate is based on the same assumed scheduling behavior for all customers (30/60 scheduling). One reason the construct outlined above has winners and losers is because not everyone is actually doing 30/60 persistence scheduling.
- This approach is essentially an extension of the construct for Committed Intra-Hour (CIH) rate discount for 30-minute persistence and 30-minute schedules (30/30) to other persistence and scheduling timeframes.
- Options could include, for example, 30/30, 30/60, 45/60, or a centralized forecast. The key requirement is that any option must have an objective capacity use and imbalance accumulation metric, with pre-defined consequences if the metrics are not met throughout the rate period.



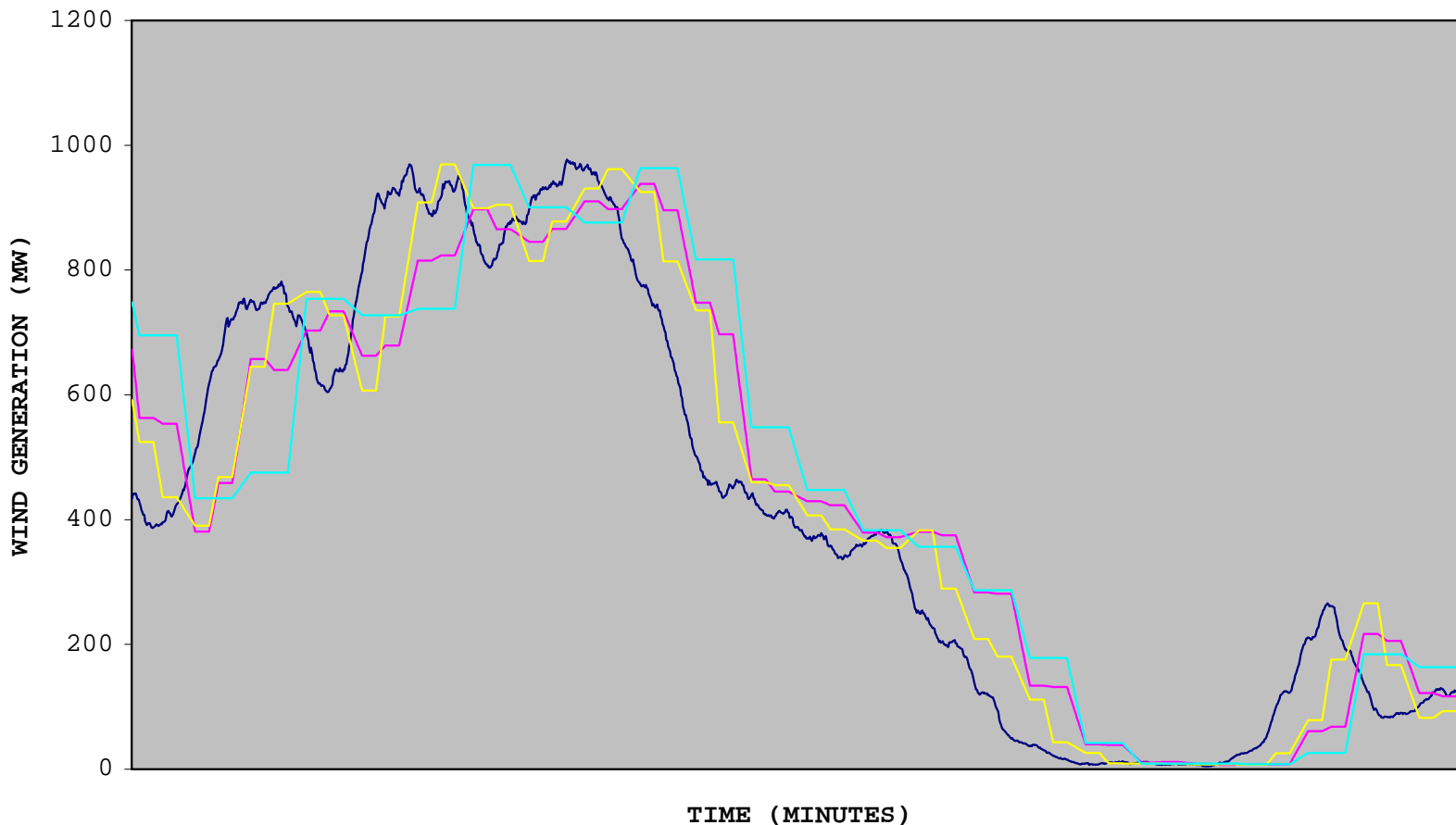
VERBS Charge Based on Customer Choice of Scheduling Practice (cont.)

- Once customers elect a specific metric, the pooled capacity requirement calculation incorporates the elected choice of each customer. DSO 216 reserve limits and the costs of VERBS would also be allocated specifically to each customer or scheduling category depending on their election. Triggering processes for DSO 216 would remain unchanged.
- BPA's Persistent Deviation Penalty is focused on managing risks associated with persistent or biased schedule errors. Just as CIH participants are currently exempt from Persistent Deviation, and hours where the schedules beat 30/60 are currently exempt, any type of scheduling that has defined capacity and energy imbalance accumulation metrics, and consequences for not meeting the metrics could potentially be exempt from Persistent Deviation. One possible consequence of not meeting the expected schedule accuracy metric is to shift to the next level of service (e.g., parties that fail to meet 30/30 scheduling would be shifted to 30/60 cost of service).



Illustration of 30/30, 30/60, or Mixed Scheduling Accuracy

COMPARISON OF WIND SCHEDULING ASSUMPTIONS



— ACTUAL GEN — COMBINATION SCHEDULE — ALL 30/30 — ALL 30/60



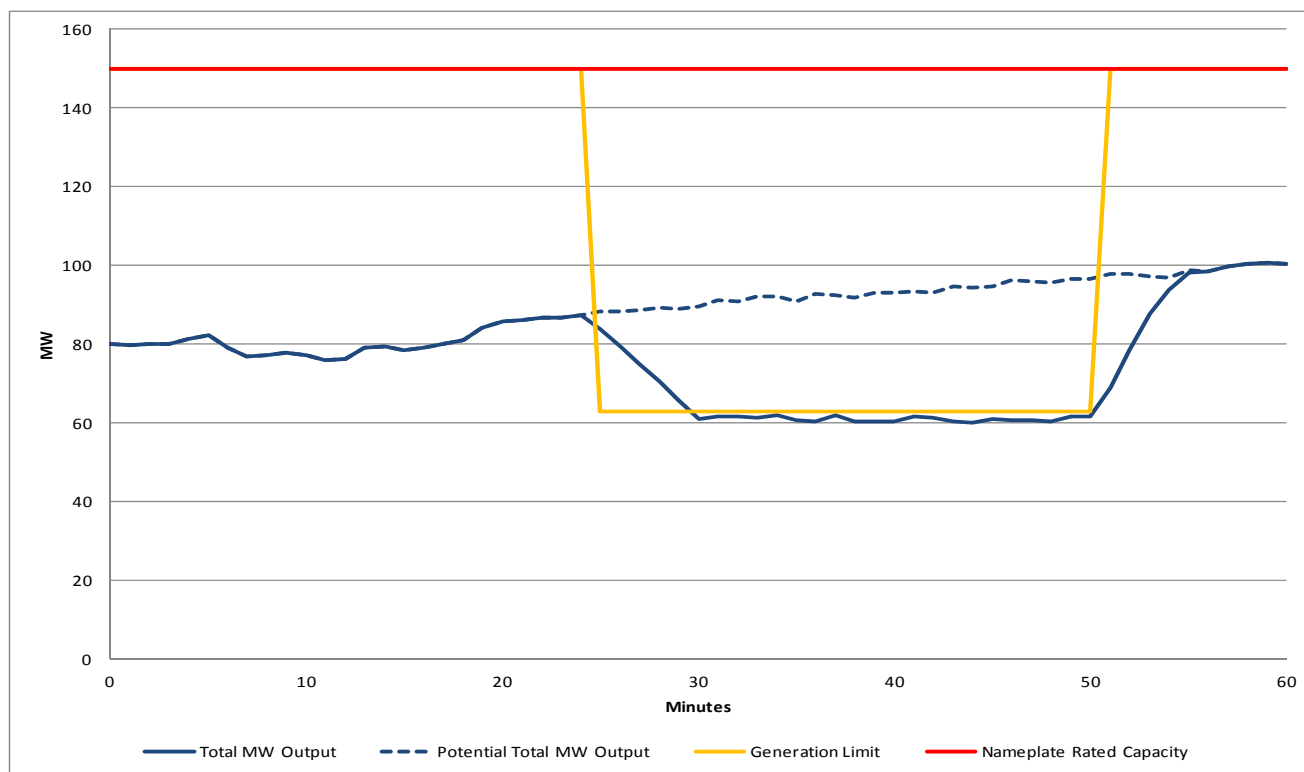
Request for Wind Generation Data

- For previous rate cases, BPA has updated the data set used to forecast reserve requirements to incorporate the most recent actual generation data that has become available. This was done, in part, because of suggestions that using more actual generation data would result in a more accurate forecast.
- BP-12 calculations used 2 consecutive years of historic generation data
 - Data time period deliberately chosen prior to initiatives that would alter wind generators output for reasons other than changes in wind
- Updating the data set for BP-14 using more recent actual generation data leaves periods with generation data that is skewed due to limitations for the wind fleet during the times these initiatives were applied.
- BPA is seeking data from the wind fleet for these periods to help continue to improve the data set used to forecast the balancing reserve requirements.



Request for Wind Generation Data

- Many plants calculate the “Potential Generation” output of their plant
 - MW output derived from a power curve and the anemometer data from each turbine.
 - While less accurate than actual generation data, it is more accurate than the output of a plant during operator control.



Request for Wind Generation Data

- BPA is requesting the total Potential Generation for all Wind Plants, who have or can calculate and archive such data, connected to the BPA system in the smallest time increment available (one minute average preferred) for the period of October 1, 2009, to Present.
 - If data is unavailable for this entire time period, please provide whatever data you do have.
- For those that are able to provide data to BPA immediately, please provide it (MW) in digital format (via email or mail a CD/DVD) to BPA in one of the following formats: comma separated variable (*.csv), Excel (*.xls or *.xlsx), MatLab (*.mat) or text (*.txt).
 - For wind plants consisting of multiple phases, please include each phase as a separate total generation if possible.
 - Provide data to Frank Puyleart: frpuyleart@bpa.gov
OR Frank Puyleart, TOT-DITT-2, P.O. Box 491, Vancouver, WA 98663
- Please contact Frank Puyleart at frpuyleart@bpa.gov with questions.



Iberdrola Draft Proposal for Discussion

- Wind Balancing Service Proposal for discussion
 - See “Iberdrola Wind Balancing Service Proposal, Draft for Discussion”



Next Steps

- Feedback on Stakeholder priorities through survey and voting on BP-14 Generation Inputs Game Plan

- Next Generation Inputs discussion workshops planned
 - 27 March 2012, 9:00-12:00
 - 12 April 2012
 - 26 April 2012
 - Tech Forum announcement will be sent to confirm dates and times

