2012 BPA Rate Case
Customer Workshop

Generation Inputs/Wind Balancing Service

July 15, 2010

Agenda

About Today's Discussion

- We want to share our current thinking about Reserve Forecast, Provisional Balancing Service, and Formula Rate Design. We also have an update from the Wind Integration Team on the Customer-Supplied Generation Imbalance Pilot Program.

- The issues discussed today do not reflect BPA commitment to adopt any particular proposal or position. The materials are very much a work in progress.

- Today's discussion is preliminary and pre-decisional.

- We look forward to working together to better understand the issues that will help shape the development of the Initial Proposal.

Parking Lot Issues

Parking Lot Issues

	WIND/GENERATION INPUTS PARKING LOT TOPICS	
1	Persistent Deviation Penalty ▪ Relative to DSO 216	Covered in 12 May and 27 May 2010 workshops
2	DSO 216 – Experience to date	Covered in 12 May 2010 workshop
3	Generation Imbalance relationship to within-hour balancing	Covered in 12 May 2010 workshop
4	Incentive for scheduling accuracy	To be scheduled for August in Rate Design
5	Use of 120-hour peaking capacity for costing methodology vs. use of instantaneous capacity for reserve requirement calculation	Covered in 14 April 2010 workshop
6	Review of BPA's five services/protocols related to wind integration for duplication and consistency, esp. with regard to Persistent Deviation Penalty	Covered in 12 May 2010 workshop
7	Explore whether, and to what extent, BPA can set aside wind reserves on an incremental and flexible basis over the rate period (to enable incentive-based rate design)	To be scheduled for August in Rate Design
8	Tiered wind integration rate structure based on whether customers are committed to scheduling on a ½ hour basis	To be scheduled for August in Rate Design
9	Modify BPA's intra-hour scheduling policy to allow for incremental changes in wind schedules as well as the decremental changes currently allowed	Refer topic to Wind Integration Team (WIT) Quarterly Review
10	Formula rate for wind	Covered in 15 July 2010 workshop
11	Charge imbalance portion of the wind integration rate on a basis that reflects schedule accuracy – i.e., proportionate to the schedule imbalances.	To be scheduled for August in Rate Design

Parking Lot Issues (continued)

	WIND/GENERATION INPUTS PARKING LOT TOPICS	
12	Scaling methodology – revisit	Covered in 14 April 2010 and 17 June 2010 workshops
13	Timeline for decisions re. assumptions	See Workshop Schedule Each workshop
14	▪ Timing for: -Self-supply -Within-hour scheduling	See Workshop Schedule
15	Wind experience to date	Covered in 12 May 2010 workshop
16	Periodic presentations from the WIT to provide updates on WIT projects over the rate period	See Workshop Schedule
17	Marginal pricing for capacity sold as ancillary and control area services	To be scheduled for August in Cost Allocation/ Rate Design
18	Inclusion of Energy Shift costs in the variable cost component of Gen Input costs.	Covered in 12 May 2010 workshop
19	Take a pro-rata reduction in reserves from wind during a feathering/curtailment rather than taking the full amount.	Refer topic to Wind Integration Team (WIT)
20	If default on self-supply, what is the rate impact to them?	Covered in 12 May 2010 workshop
21	New Persistent Deviation design for the next rate case that meets the objective.	Covered in 27 May 2010 workshop To be scheduled in Rate Design
22	Look at different times of the year in setting up Persistent Deviation design	See Workshop Schedule
23	If a project leaves BPA during the rate period, can a failed self-supplier take over the reserve allocation?	To be scheduled
24	Redispatch: Review of current FY actual redispatch and inter-business-line payments	To be scheduled for August workshop

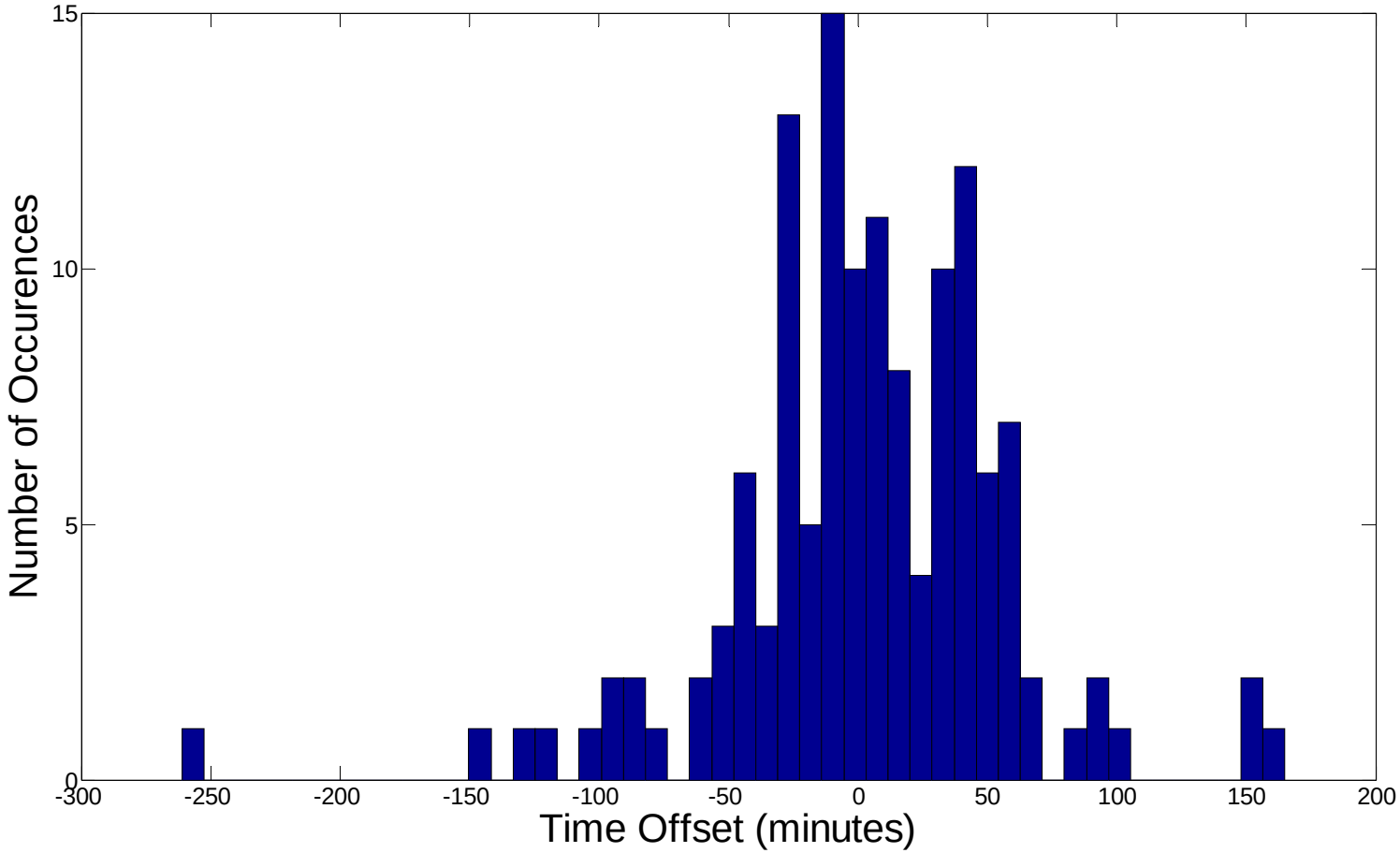
Reserve Forecast

Reserve Forecast

- Historical Usage of Balancing Reserves for Non-AGC Controlled Generation
- Base Reserves Calculations including Load/Generation Split

Wind Scaling Methodology

- Histogram of Time Leads and Lags from BPA-10



Historical Usage of Balancing Reserves for Non-AGC Controlled Generation

- Analysis performed on Historical Data from 10/1/07 to 09/30/09
- Non-AGC Controlled Generation Split into 3 Categories
  - Non-AGC Controlled Hydro Generation (Federal and Non-Federal)
  - Federal Thermal Generation (Columbia Generating Station)
  - Non-Federal Thermal Generation

Historical Usage of Balancing Reserves for Non-AGC Controlled Generation (continued)

- Non-AGC Controlled Hydro Generation
  - 33 Plants with 2548 MW of Nameplate Capacity
    - 2201 Federal Hydro Generation
    - 347 Non-Federal Hydro Generation
  - 21 MW Incremental and 29 MW of Decremental Balancing Reserves Calculated
    - ~0.63 MW INC per Plant and ~0.87 MW DEC per Plant
    - ~0.0083 MW INC per MW of Nameplate Capacity and ~0.0112 MW DEC per MW of Nameplate Capacity
  - For the BPA-12 Initial Proposal, we propose to add this balancing reserve requirement into the Load Balancing Reserves.

Historical Usage of Balancing Reserves for Non-AGC Controlled Generation (continued)

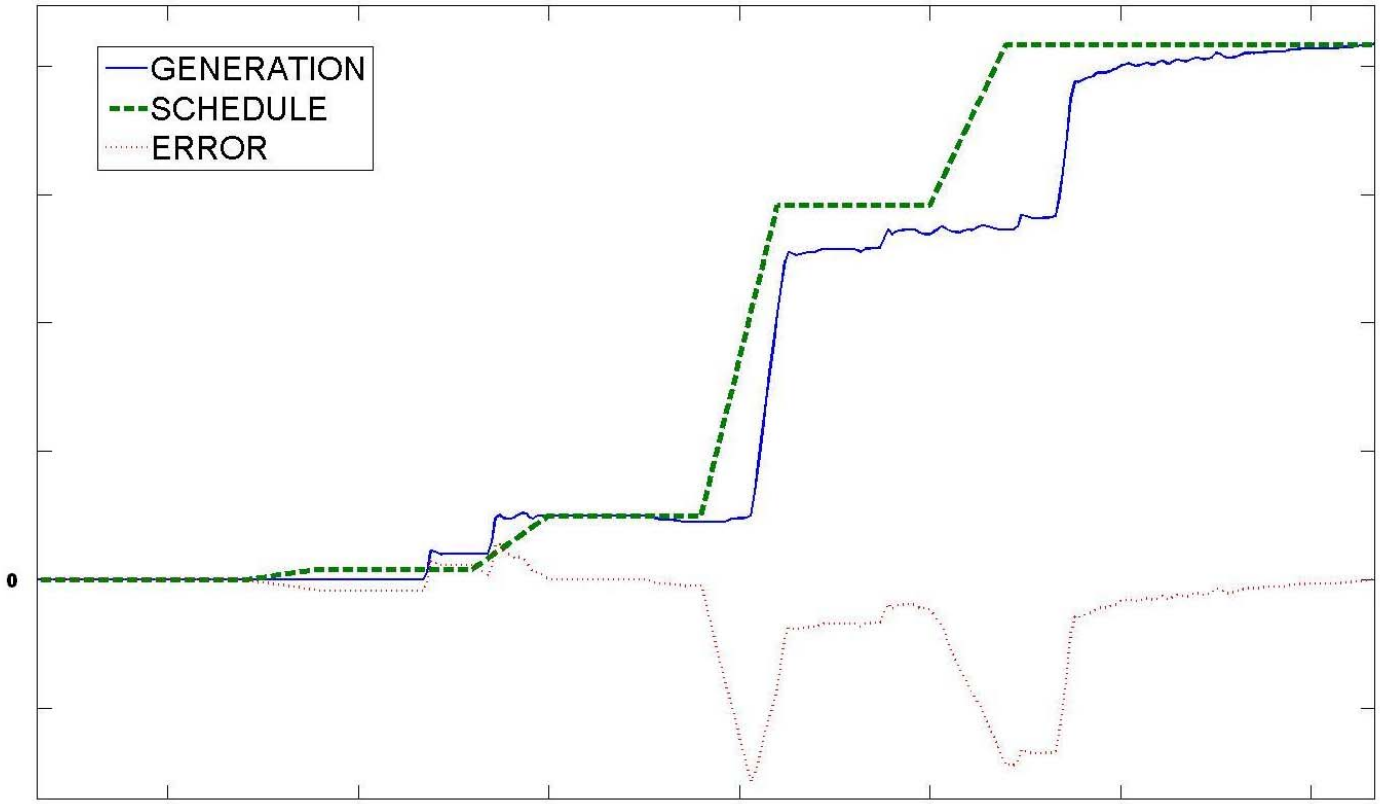
- Federal Thermal Generation
  - Columbia Generating Station (1276 MW of Nameplate Capacity)
  - 17 MW Incremental and 20 MW of Decremental Balancing Reserves Calculated
    - ~0.013 MW INC per MW of Nameplate Capacity and ~0.016 MW DEC per MW of Nameplate Capacity
  - Already accounted for in operational procedures of BPA
  - For the BPA-12 Initial Proposal, we propose to add this balancing reserve requirement into the Load Balancing Reserves.

Historical Usage of Balancing Reserves for Non-AGC Controlled Generation (continued)

- Non-Federal Thermal Generation
  - 28 Plants with 5858 MW of Nameplate Capacity
  - 69 MW Incremental and 86 MW of Decremental Balancing Reserves Calculated
    - ~2.5 MW INC per Plant and ~3.1 MW DEC per Plant
    - ~0.012 MW INC per MW of Nameplate Capacity and ~0.015 MW DEC per MW of Nameplate Capacity
  - Primarily a result of:
    - Generation start up
    - Generation shut down
    - Movement outside of the ramp period (XX:50 to XY:10)
  - For the BPA-12 Initial Proposal, we propose to assess this balancing reserve requirement separately.

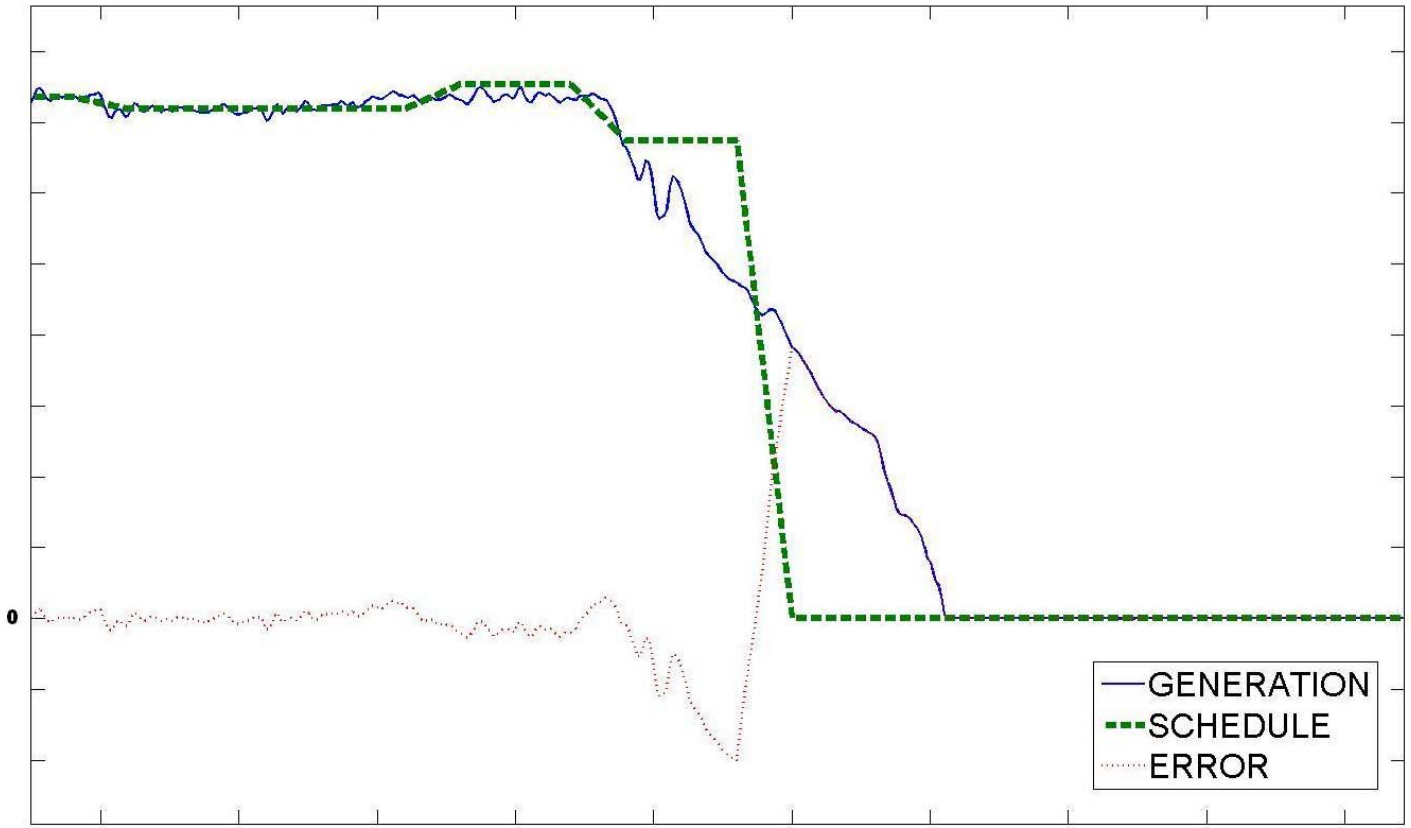
Historical Usage of Balancing Reserves for Non-AGC Controlled Generation (continued)

- Thermal Generation Reserves Usage – Start Up



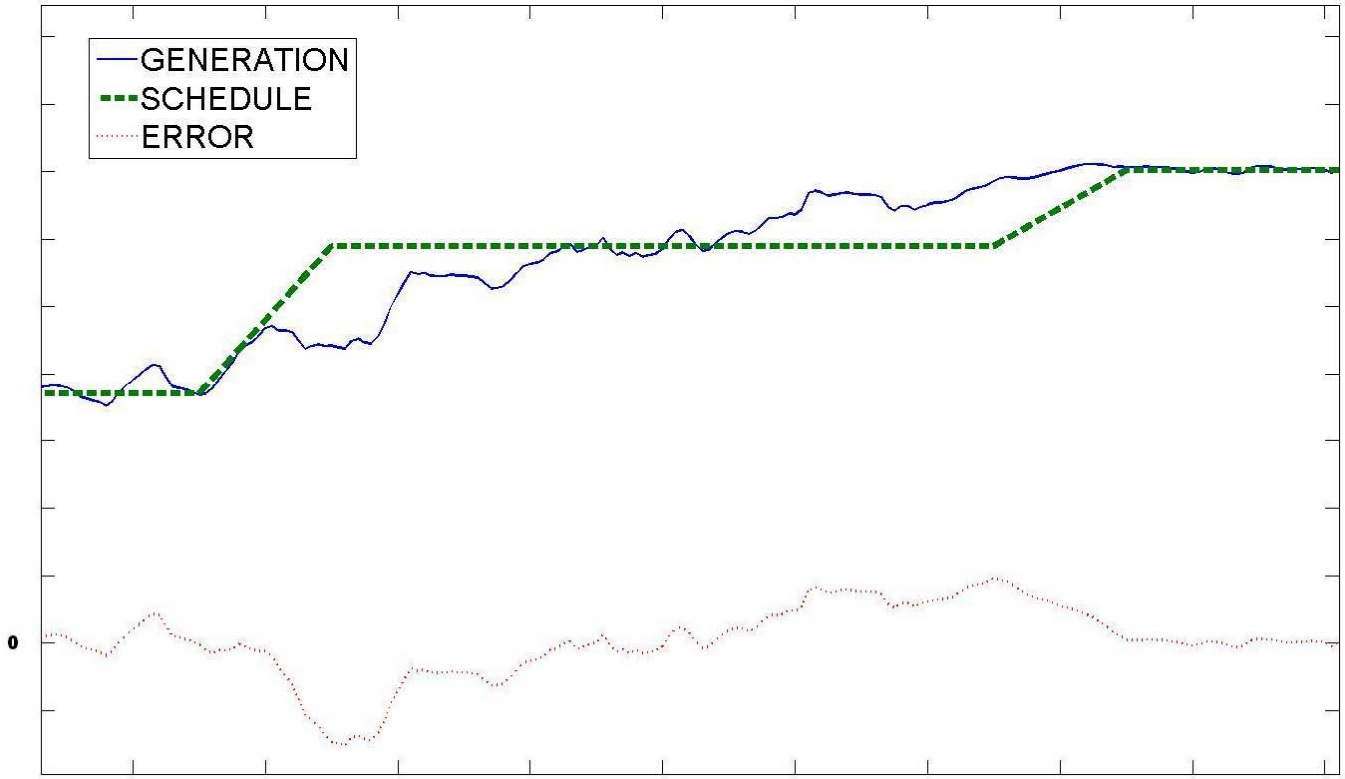
Historical Usage of Balancing Reserves for Non-AGC Controlled Generation (continued)

- Thermal Generation Reserves Usage – Shut Down



Historical Usage of Balancing Reserves for Non-AGC Controlled Generation (continued)

- Thermal Generation Reserves Usage – Movement Outside of Ramp



Historical Usage of Balancing Reserves for Non-AGC Controlled Generation (continued)

- Summary of Average Balancing Reserve Usage
  - Calculated from 1-minute time series data (10/1/2007 to 9/30/2009)
  - 0.25% of extremes are removed from each case, leaving 99.5%

	Non-AGC Controlled Hydro Generation							
	REG		LF		GI		TOTAL	
	INC	DEC	INC	DEC	INC	DEC	INC	DEC
FY12 AVG	5 MW	-6 MW	2 MW	-2 MW	14 MW	-21 MW	21 MW	-29 MW
FY13 AVG	5 MW	-5 MW	2 MW	-2 MW	13 MW	-21 MW	20 MW	-28 MW
BPA-12 AVG	5 MW	-5 MW	2 MW	-2 MW	13 MW	-21 MW	21 MW	-29 MW

	Federal Thermal Generation (Columbia Generating Station)							
	REG		LF		GI		TOTAL	
	INC	DEC	INC	DEC	INC	DEC	INC	DEC
FY12 AVG	4 MW	-4 MW	6 MW	-7 MW	6 MW	-10 MW	17 MW	-21 MW
FY13 AVG	4 MW	-4 MW	6 MW	-6 MW	6 MW	-10 MW	17 MW	-20 MW
BPA-12 AVG	4 MW	-4 MW	6 MW	-7 MW	6 MW	-10 MW	17 MW	-20 MW

	Non-Federal Thermal Generation							
	REG		LF		GI		TOTAL	
	INC	DEC	INC	DEC	INC	DEC	INC	DEC
FY12 AVG	18 MW	-19 MW	24 MW	-24 MW	29 MW	-45 MW	71 MW	-88 MW
FY13 AVG	18 MW	-18 MW	22 MW	-22 MW	28 MW	-45 MW	68 MW	-85 MW
BPA-12 AVG	18 MW	-18 MW	23 MW	-23 MW	28 MW	-45 MW	69 MW	-86 MW

Non-AGC Controlled Generation Summary

- For the BPA-12 Initial Proposal, we propose to treat Non-AGC Controlled Generation Balancing Reserve Requirements in the following ways:
  - Non-AGC Controlled Hydro Generation will be added to the Load Balancing Reserve Requirement.
  - Federal Thermal Generation (CGS) will be added to the Load Balancing Reserve Requirement.
  - Non-Federal Thermal Generation will be assessed a separate Balancing Reserve Requirement.
  - Biomass Generation will be assessed the Thermal Balancing Reserve Requirement as an allocated amount by nameplate capacity.
  - Solar Generation will be assessed ½ of the Wind Balancing Reserve Requirement as an allocated amount by nameplate capacity.

Reserve Calculations - Base Methodology

- Data Requirements
  - Actual Balancing Area Load
  - Balancing Area Load Forecast
  - Total Actual Wind Generation
  - Total Actual Non-AGC Hydro Generation
  - Total Actual Non-AGC Hydro Schedule
  - Total Actual Thermal Generation
  - Total Actual Thermal Schedule
  - Balancing Area Contingency Reserves Used

Reserve Calculations - Base Methodology

Data Created

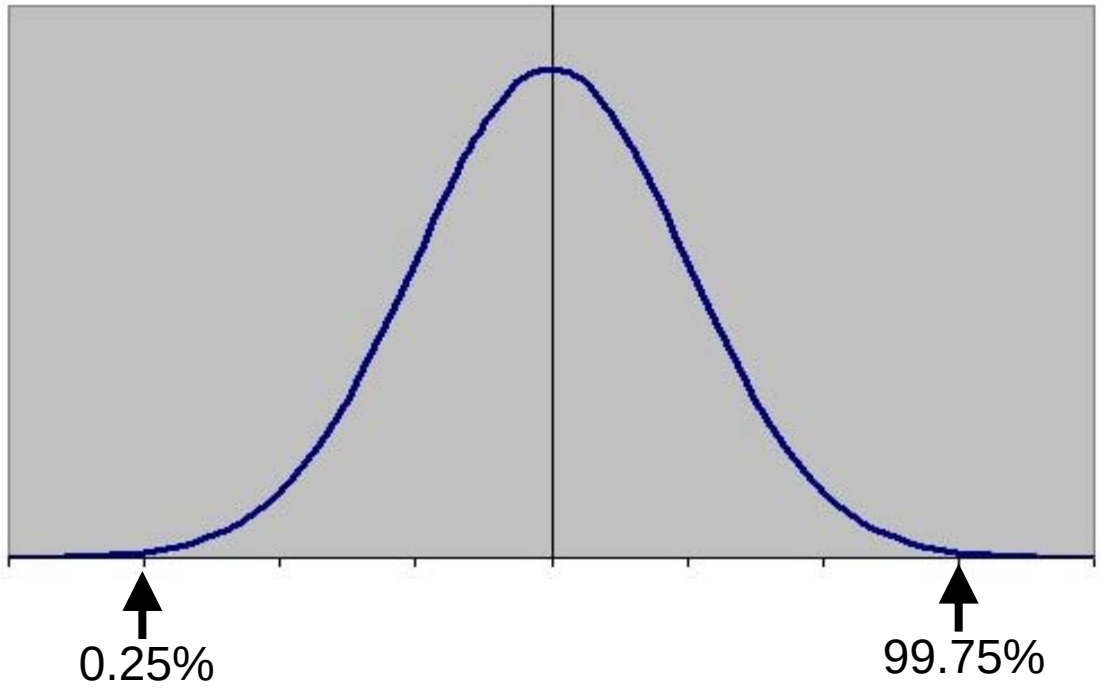
- Load net Wind net Thermal net Hydro Actual
  - Actual BAA Load – Total Wind Gen – Total Thermal Gen – Total Hydro Gen – Contingency Reserves Used
- Load net Wind net Thermal net Hydro Schedule
  - BAA Load Forecast – Total Wind Forecast – Total Thermal Schedule – Total Hydro Schedule
- Perfect Schedules
  - Hourly Average
  - Load, Wind Gen, Thermal Gen, Hydro Gen and Load net Wind net Thermal net Hydro
- Total Wind Generation Estimated Forecast
  - 30-Minute Persistence Forecast

Reserve Calculations - Base Methodology (continued)

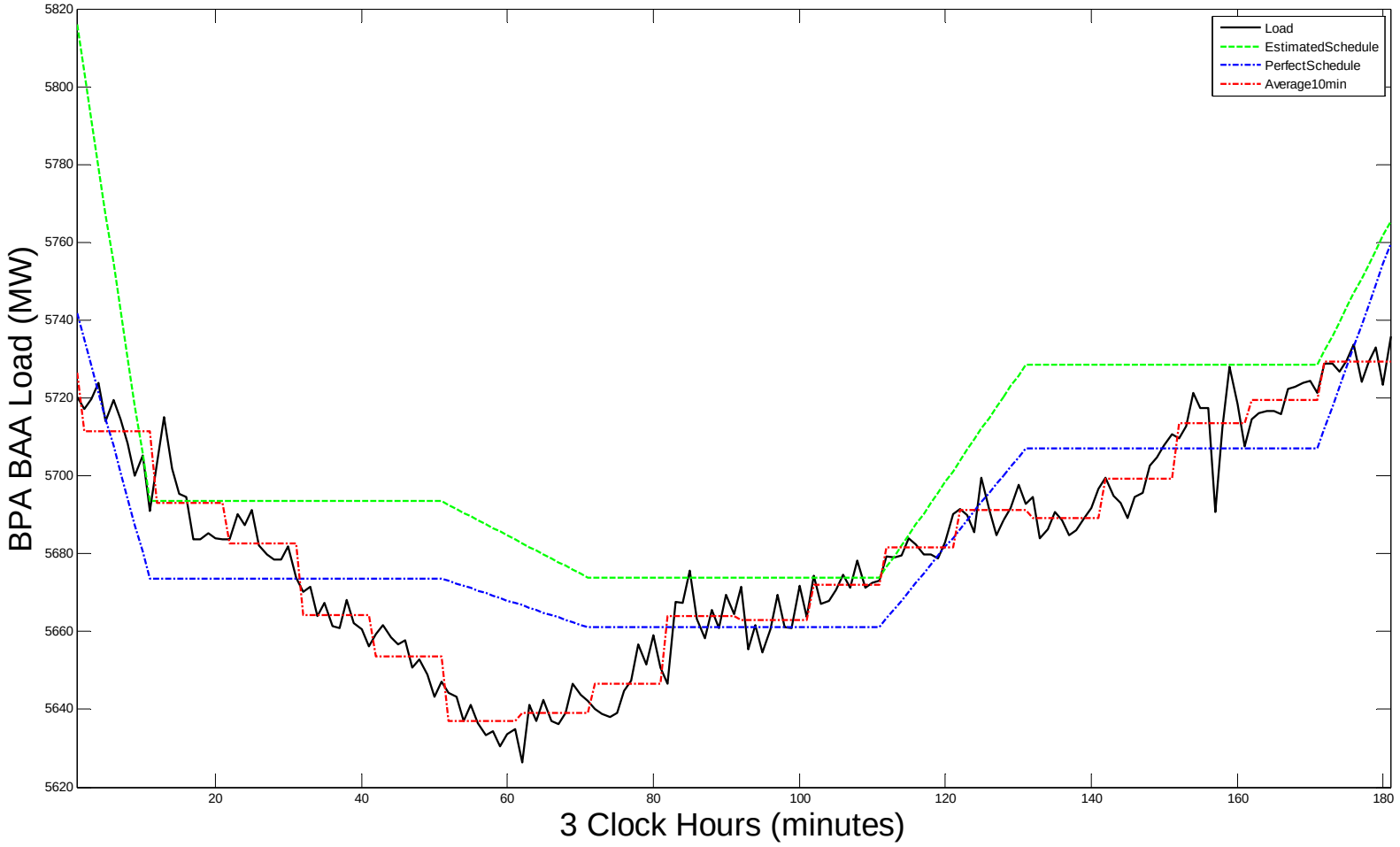
- Four components calculated for total reserve requirement
  - Total Reserve Requirement with submitted/estimated schedules and/or load forecast (TRR)
  - Regulation
  - Load following with perfect schedules (LFPS)
  - Imbalance
- TRR is difference between actual and submitted/estimated schedules and/or load forecast.
- Regulation is difference between actual and 10-minute average
- LFPS is difference between 10-minute average and perfect schedule
- Imbalance is difference between perfect schedule and submitted/estimated schedules and/or load forecast

Reserve Calculations - Base Methodology (continued)

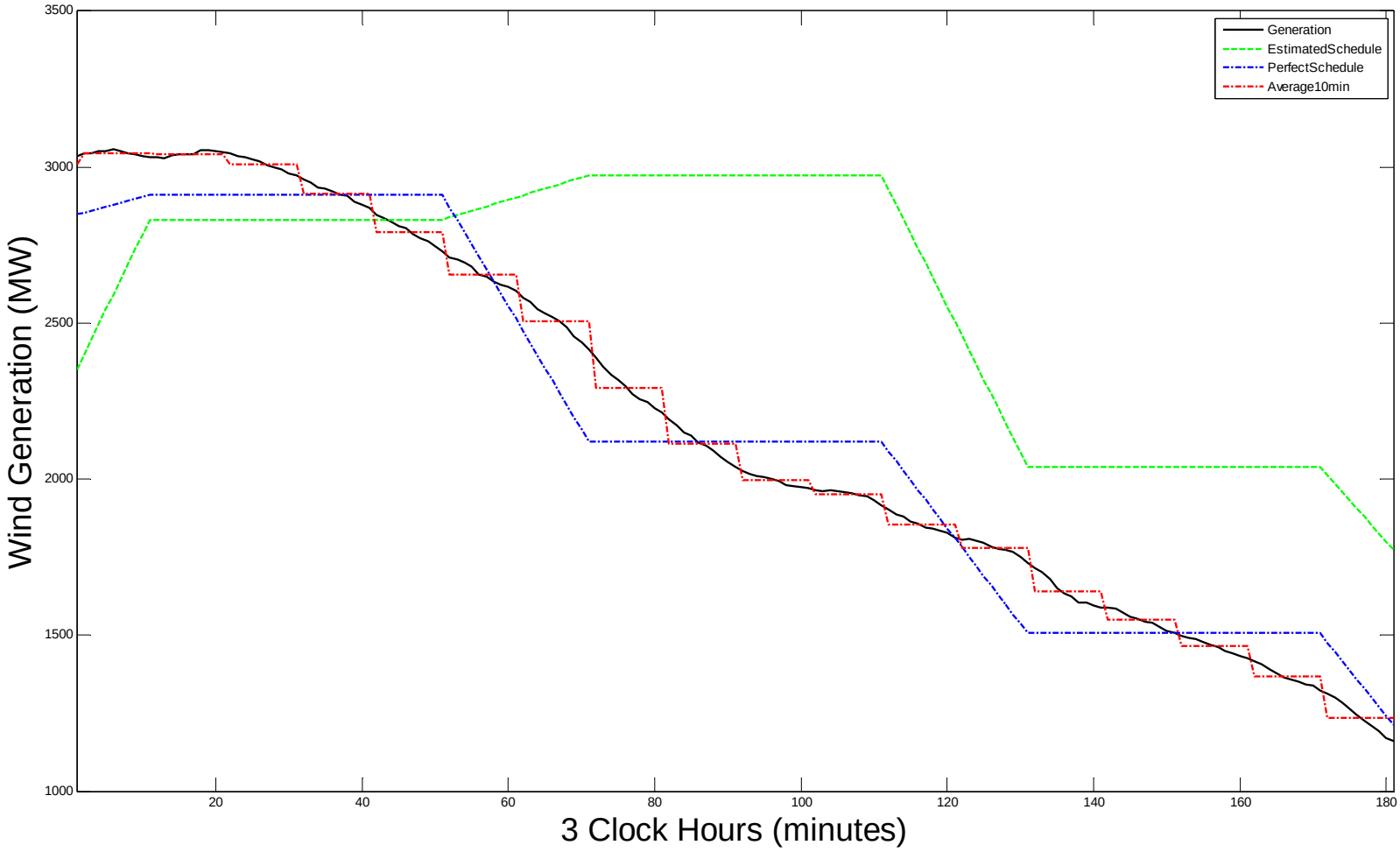
- For each component, INC and DEC requirements are calculated.
- 0.25% of extremes are removed from each case, leaving 99.5% of all values. This is used to calculate the capacity requirements for BPA.



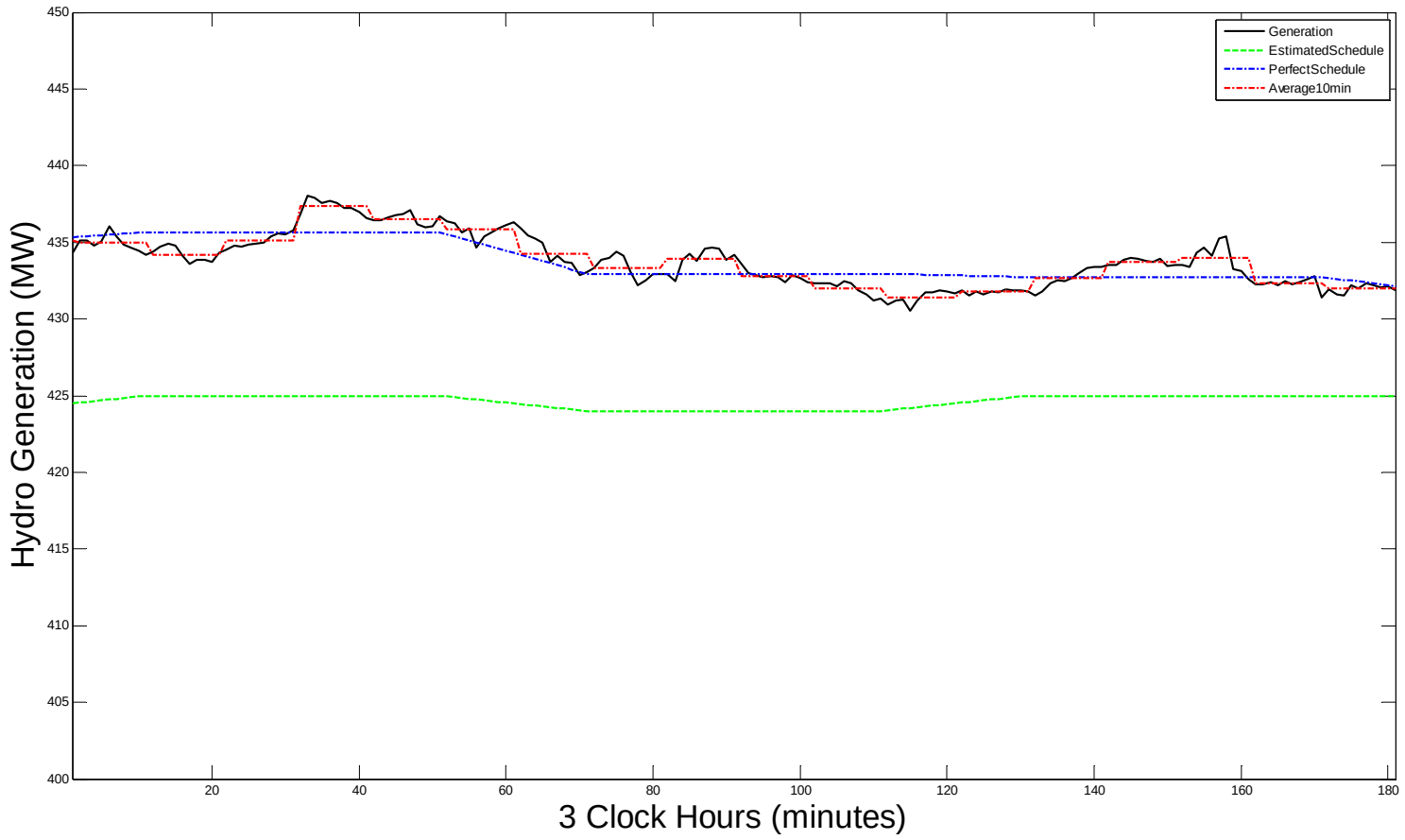
Reserve Calculations - Base Methodology
Graphical Depiction of Load



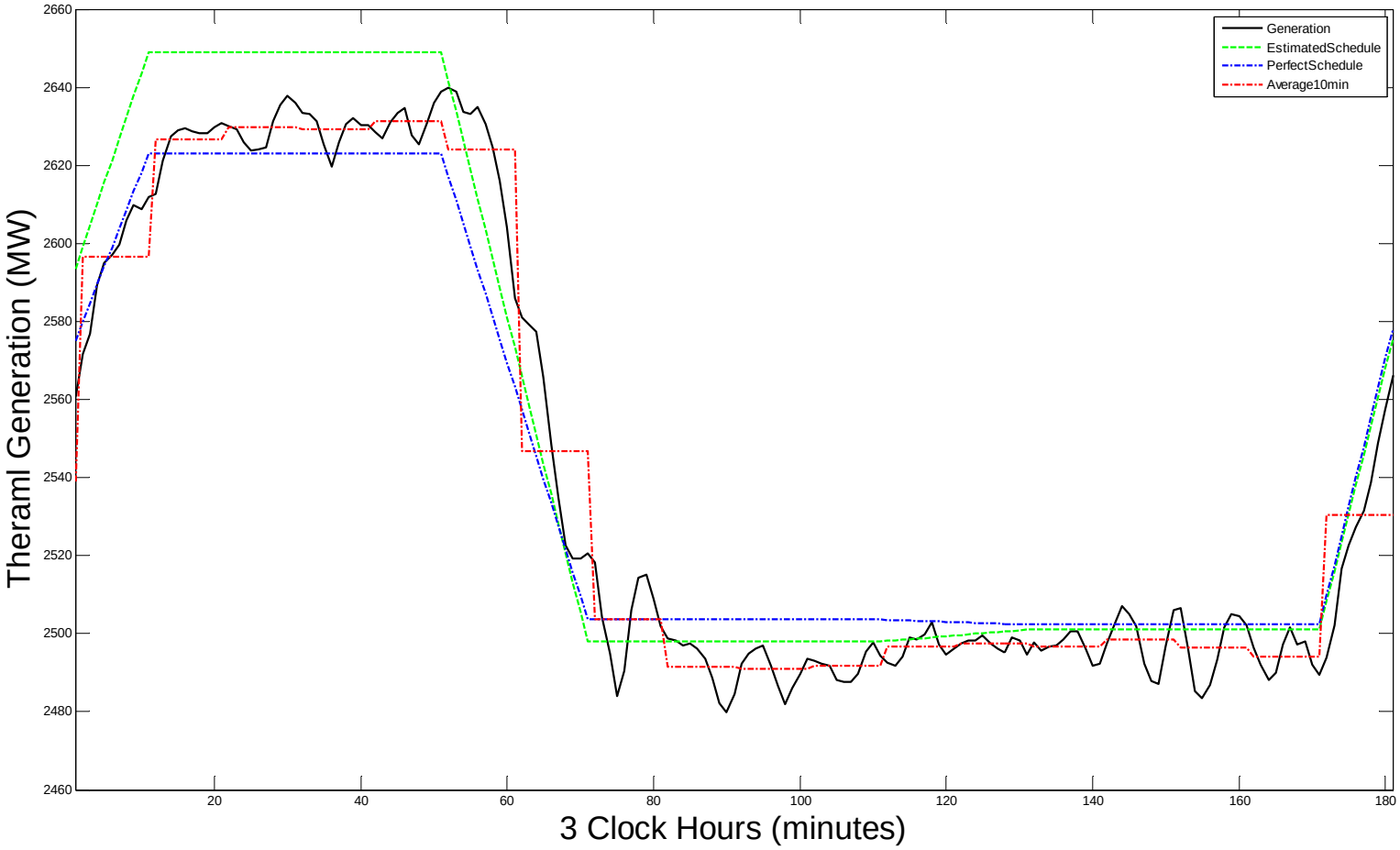
Reserve Calculations - Base Methodology
Graphical Depiction of Wind Generation



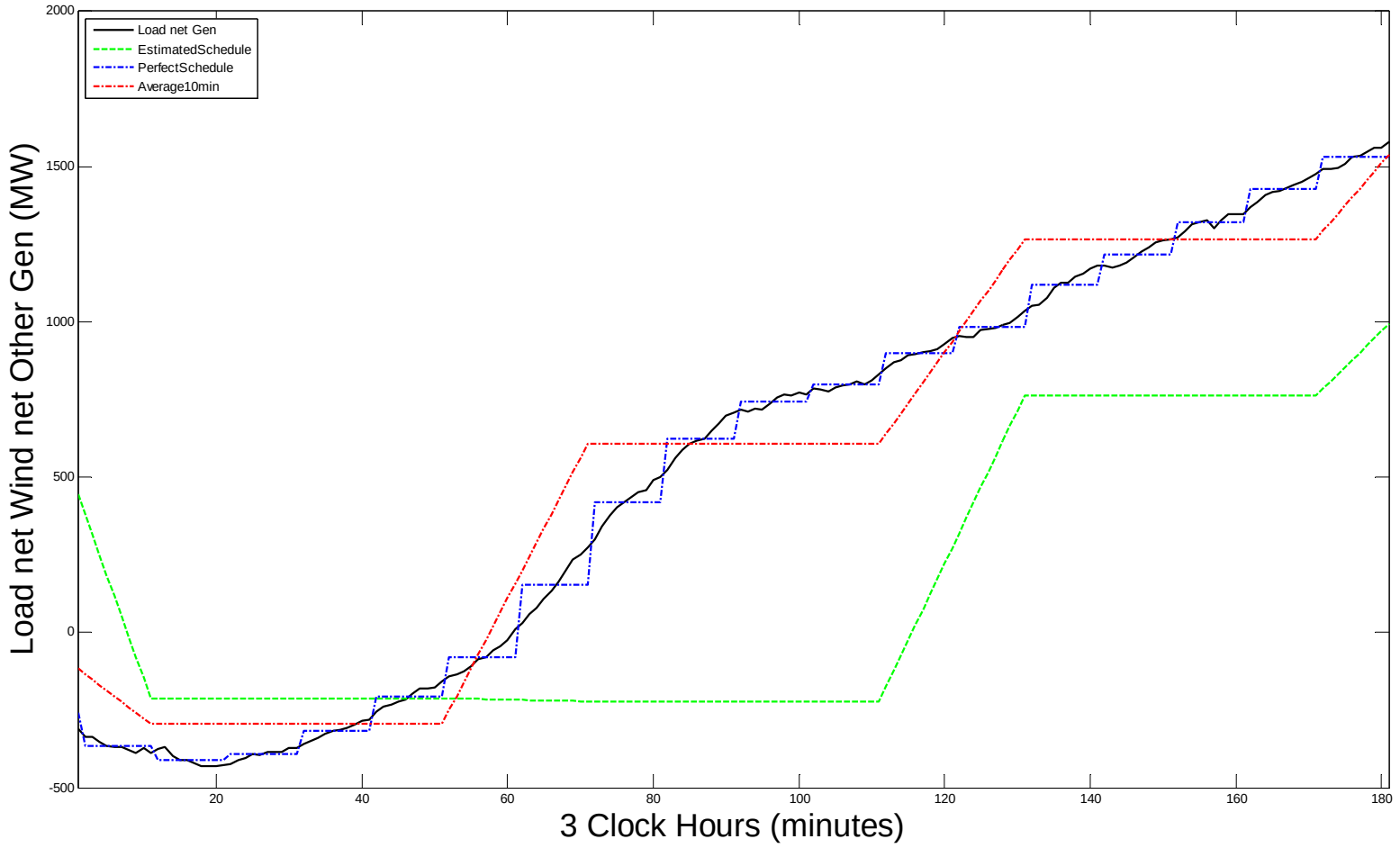
Reserve Calculations - Base Methodology
Graphical Depiction of Hydro



Reserve Calculations - Base Methodology
Graphical Depiction of Thermal Generation



Reserve Calculations - Base Methodology
Graphical Depiction of Load net Wind net Other Gen



Reserve Calculations - Base Methodology

- A total reserve requirement is calculated for each of the components
  - The need is calculated as the 99.75% and 0.25% values of the total reserves signal
  - Total Reserve Requirement, Regulation, Load Following

```
TOTAL RESERVE
Tot INC    = P9975[Total SCE]
Tot DEC    = P0025[Total SCE]

TOTAL REG
Reg INC    = P9975[Total REG]
Reg DEC    = P0025[Total REG]

TOTAL LF
LF INC     = P9975[Total LF]
LF DEC     = P0025[Total LF]
```

  - Imbalance is the Total Reserve Requirement minus Regulation and Load Following

```
TOTAL GI
GI INC     = Tot INC - Reg INC - LF INC
GI DEC     = Tot DEC - Reg DEC - LF DEC
```

Reserve Calculations - Base Methodology

- Reserves signals for the components are sorted into 24 hourly bins.
  - Regulation (Total, Load, Wind, Hydro, Thermal)
  - Load Following (Total, Load, Wind, Hydro, Thermal)
  - Imbalance (Total, Load, Wind, Hydro, Thermal)

- The reserve requirement is allocated by reserve type for each of the customer classes for each of the 24 hours (see slides 31 - 32 for detail regarding the allocation).

- The maximum allocated INC and DEC need is calculated from the 24 hourly bins for each customer class.
  - For example:

Max24 LD REG = MAX[LD REG H1, LD REG H2,. . ., LD REG H24]

Reserve Calculations - Base Methodology (continued)

- The final reserve quantity for each resource type and each reserve category is calculated using the maximum values observed in the 24 hour bins.
  - For example:

LD REG INC = REG INC * MAX24 LD REG/ Max24 TOTAL REG INC

Where :

Reg INC = P9975[Total REG]

and

Max24 TOTAL REG INC =
Max24 LD REG INC + Max24 WND REG INC +
Max24 HYD REG INC + Max24 THR REG INC

Reserve Calculations – Allocation

- The purpose of the calculation is to allocate reserves by type and by resource based on need causation.
- The calculation results in a relative contribution by reserve type and resource type that is applied to the hourly reserve need.
- Given the total capacity obligation (from slide 28), each requirement is allocated among the resource types.

Reserve Calculations – Allocation (continued)

- For example, the regulation requirement is allocated to the resource types using the incremental standard deviation (ISD) approach.

$$\text{LD REG} = \text{Reg INC} / S_{\text{Reg}} * S_{\text{Reg LD}} * r_{\text{Reg LD, Tot Reg}}$$
$$\text{WND REG} = \text{Reg INC} / S_{\text{Reg}} * S_{\text{Reg WND}} * r_{\text{Reg WND, Tot Reg}}$$
$$\text{HYD REG} = \text{Reg INC} / S_{\text{Reg}} * S_{\text{Reg HYD}} * r_{\text{Reg HYD, Tot Reg}}$$
$$\text{THR REG} = \text{Reg INC} / S_{\text{Reg}} * S_{\text{Reg THR}} * r_{\text{Reg THR, Tot Reg}}$$

Where

$$\text{Reg INC} = \text{P9975[Total REG]}$$
$$S_{\text{Reg}} = \text{STNDDEV[Total REG]}$$
$$S_{\text{Reg LD}} = \text{STNDDEV[LD REG]}$$
$$r_{\text{Reg LD, Tot Reg}} = \text{CORR[LD REG, Total REG]}$$

Reserve Calculations - Base Methodology Summary

- In BP-10, the total reserve requirement equaled the sum of the independently calculated regulation, load following and imbalance requirements.

- The refined BP-12 method constrains the sum of the regulation, load following and imbalance to the maximum INC and DEC as calculated from the net Station Control Error (SCE) signal, while ensuring that the spinning reserve requirement is maintained.
  - Spinning reserve requirement is 100% of Regulation and 50% of Load Following

- Consequently, all else being equal, a lower reserve requirement is calculated using the refined BP-12 method.

Reserve Calculations – Base Methodology Summary (continued)

- DRAFT Balancing Reserve Requirements

		99.5% Reserves 30 min Persistence BPA-12 Calculations		99.7% Reserves 30 min Persistence BPA-12 Calculations		99.5% Reserves 30 min Persistence BPA-10 Calculations	
		TOTAL		TOTAL		TOTAL	
		INC	DEC	INC	DEC	INC	DEC
TOTAL	FY12 AVG	960 MW	-1252 MW	1058 MW	-1396 MW	1070 MW	-1371 MW
	FY13 AVG	1105 MW	-1468 MW	1214 MW	-1634 MW	1226 MW	-1588 MW
	BPA-12 AVG	1032 MW	-1360 MW	1137 MW	-1515 MW	1149 MW	-1480 MW
LOAD*	FY12 AVG	286 MW	-328 MW	319 MW	-365 MW	269 MW	-335 MW
	FY13 AVG	295 MW	-334 MW	327 MW	-375 MW	268 MW	-335 MW
	BPA-12 AVG	290 MW	-331 MW	324 MW	-371 MW	269 MW	-334 MW
WIND**	FY12 AVG	603 MW	-836 MW	660 MW	-931 MW	735 MW	-955 MW
	FY13 AVG	738 MW	-1042 MW	806 MW	-1158 MW	894 MW	-1174 MW
	BPA-12 AVG	670 MW	-940 MW	734 MW	-1045 MW	814 MW	-1064 MW
THERM***	FY12 AVG	72 MW	-89 MW	79 MW	-99 MW	67 MW	-82 MW
	FY13 AVG	73 MW	-91 MW	80 MW	-101 MW	64 MW	-80 MW
	BPA-12 AVG	72 MW	-89 MW	79 MW	-100 MW	66 MW	-81 MW

INSTALLED CAPACITY FORECAST

WIND	FY12 AVG	4429 MW
	FY13 AVG	5403 MW
	BPA-12 AVG	4916 MW
SOLAR	FY12 AVG	36 MW
	FY13 AVG	59 MW
	BPA-12 AVG	47 MW
BIOMASS	FY12 AVG	52 MW
	FY13 AVG	95 MW
	BPA-12 AVG	74 MW
THERMAL	FY12 AVG	5858 MW
	FY13 AVG	6188 MW
	BPA-12 AVG	6023 MW
NON - AGC HYDRO	FY12 AVG	2572 MW
	FY13 AVG	2643 MW
	BPA-12 AVG	2607 MW

NOTES:

*** Load includes all Non-AGC-Controlled Hydro and CGS**

**** Wind includes Solar assesed at 1/2 the reserve need of Wind**

***** Thermal includes new Thermal and BioMass as an allocated amount by nameplate capacity**

Reserve Calculations - Base Methodology Summary (continued)

- DSO 216 Event Frequency from BP-10 Rate Case Calculations

DSO 216 Events Predicted in the BPA-10 Rate Case with Reserve Levels Held for 99.5% and 30 Min Persistence

	Limits			Curtailments		
	Number	Average (MW)	Total (MW)	Number	Average (MW)	Total (MW)
2041 MW Inst Cap 30 Min Pers Performance	4.6	119.7	547.2	3.0	104.0	317.0
2515 MW Inst Cap 30 Min Pers Performance	4.5	144.6	647.3	3.3	154.0	513.3
3593 MW Inst Cap 30 Min Pers Performance	4.7	194.6	917.4	4.0	258.4	1021.3
3843 MW Inst Cap 30 Min Pers Performance	5.1	200.1	1019.6	3.8	305.1	1147.8
30 Min Average	**4.7**	**165**	**783**	**3.5**	**205**	**750**
2041 MW Inst Cap 45 Min Pers Performance	6.6	155.8	1023.8	5.7	130.8	741.2
2515 MW Inst Cap 45 Min Pers Performance	6.8	183.8	1251.6	6.1	184.7	1125.8
3593 MW Inst Cap 45 Min Pers Performance	7.1	245.9	1744.7	7.1	319.0	2278.6
3843 MW Inst Cap 45 Min Pers Performance	7.4	262.5	1950.0	7.2	345.4	2483.6
45 Min Average	**7.0**	**212**	**1493**	**6.5**	**245**	**1657**
AVERAGE	**5.8**	**188**	**1138**	**5.0**	**225**	**1204**

Reserve Calculations - Base Methodology Summary (continued)

- DSO 216 Event Frequency with BP-12 Balancing Reserve Requirements for October 2009 to May 2010

DSO 216 Events with BPA-12 Reserve Levels Held; Calculated from Post-Analysis (99.5%, 30 Min Persistence & BPA-12 Calculation Method)

	Limits			Curtailments		
	Number	Average (MW)	Total (MW)	Number	Average (MW)	Total (MW)
Oct-09	4	338	1354	5	244	1218
Nov-09	7	281	1968	8	232	1857
Dec-09	3	374	1121	1	319	319
Jan-10	2	263	526	2	220	439
Feb-10	3	206	619	3	194	583
Mar-10	14	350	4905	6	381	2286
Apr-10	11	336	3695	10	247	2469
May-10	9	291	2618	12	229	2745
AVERAGE	**6.6**	**305**	**2101**	**5.9**	**258**	**1490**

Reserve Calculations - Base Methodology Summary (continued)

- Actual DSO 216 Event Frequency with BP-10 Balancing Reserve Requirements for October 2009 to May 2010

Actual DSO 216 Events with BPA-10 Reserve Levels Held
(99.5%, 30 Min Persistence & BPA-10 Calculation Method)

	Limits			Curtailments		
	Number	Average (MW)	Total (MW)	Number	Average (MW)	Total (MW)
Oct-09	2	379	758	2	151	302
Nov-09	2	305	610	5	327	1633
Dec-09	1	534	534	2	233	466
Jan-10	1	214	214	1	329	329
Feb-10	0	0	0	1	179	179
Mar-10	4	194	776	2	550	1100
Apr-10	1	596	596	3	265	794
May-10	6	436	2615	7	293	2050
AVERAGE	**2.1**	**332**	**763**	**2.9**	**291**	**857**

Reserve Calculations - Base Methodology Summary (continued)

- As discussed, upon evaluation of the BP-10 method, BPA has identified an interaction between regulation, load following, and imbalance. The refined BP-12 method takes that interaction into account.

- Although the standard for the quality of reserves for the current rate period was set at 99.5%, the actual BP-10 reserve calculations support a standard closer to 99.7%.

- For BP-12, BPA is currently evaluating whether to apply the 99.5% standard that was anticipated for BP-10 or the 99.7% standard.

Reserve Calculations - Base Methodology Summary (continued)

- Compared to BP-12 Reserve Calculations at 99.5% and 30-minute persistence, BP-12 Reserve Calculations at 99.7% and 30-minute persistence produce higher reserve requirements with fewer DSO 216 events.

- The frequency of DSO 216 events at 99.5% and 30-minute persistence is consistent on average with the predictions that were made for BP-10 at 99.5% and 30-minute persistence.

Reserve Calculations - Base Methodology Summary (continued)

- Thus, for BP-12, the choice between using a standard of either 99.5% or 99.7% will result in a tradeoff between quality of service and price. Use of a 99.5% standard will lower the level of total reserves and, consequently, the rate, but the frequency of DSO 216 events will be approximately twice what it would otherwise be using a standard of 99.7%.

- In light of this information, BPA would like feedback with respect to which standard --99.5 % or 99.7%-- is preferable for the BP-12 Reserve Calculations.

Customer-Supplied Generation Imbalance Pilot Program Update

Customer Supplied Generation Imbalance Pilot - Update

Rate Case Briefing

July 15, 2010

Overview of Customer Supplied Generation Imbalance Pilot

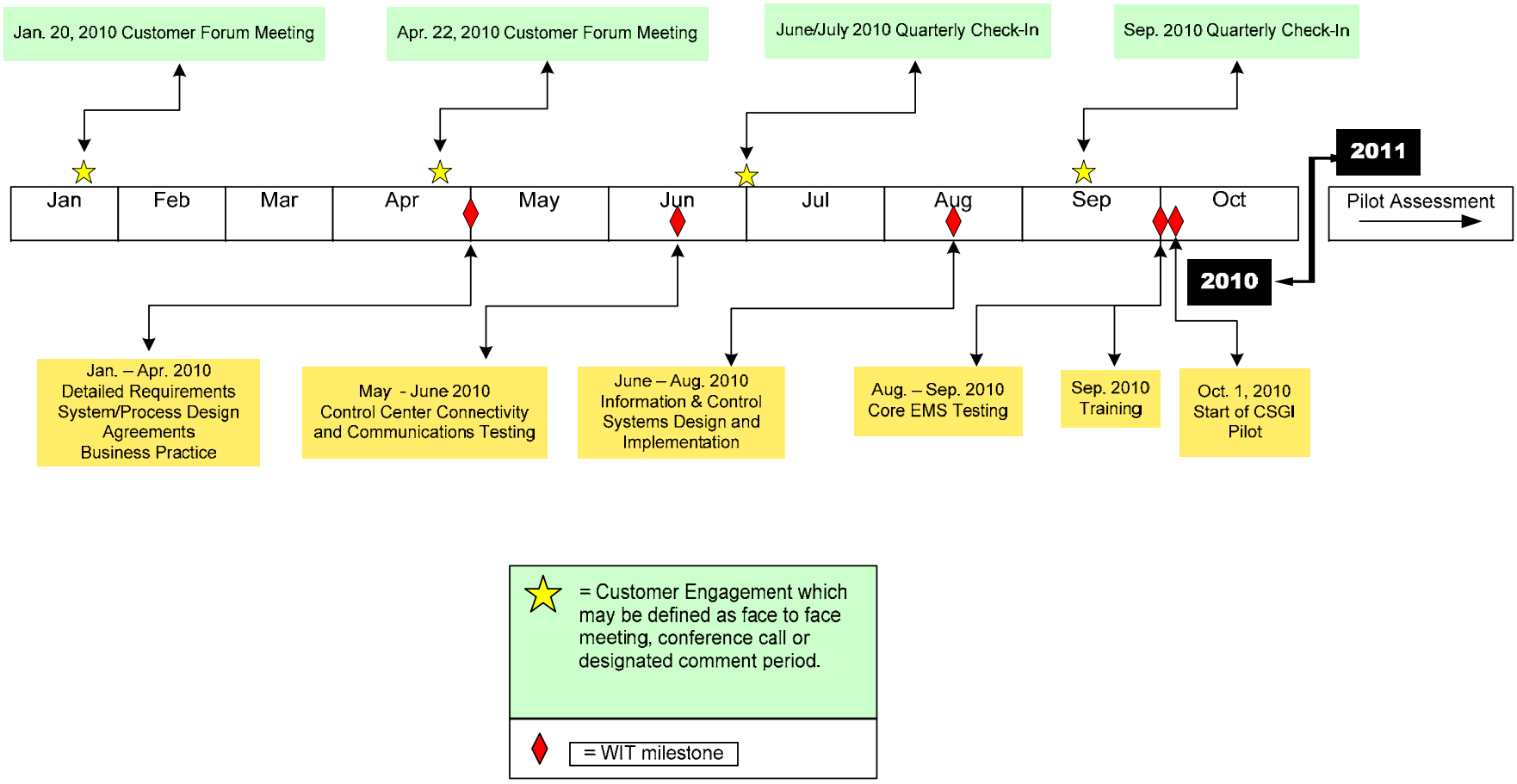
Customer Supplied Generation Imbalance Pilot

- This Pilot will develop systems and processes to enable customers to self-supply their “within hour” balancing requirements from their own and/or contracted dispatchable resources for one or more wind plants.
  - Generators will be netted for the purposes of calculating generation imbalance, wind limits, and e-Tag curtailments.
  - Customers will have the option to determine which resource to limit, including thermal and contract resources, if a limit order is given.
  - The Generator owner/operator, not BPA, will deploy reserves needed for imbalance of its resources and load following.

CSGI Pilot Timeline

- The Customer Supplied Generation Imbalance pilot will begin no later than October 1, 2010.
- Currently BPA is working with one participant on this initial pilot (Iberdrola).
- Iberdrola will be participating in the pilot until at least the end of the FY 2010/2011 rate case period which ends September 30, 2011.
- Iberdrola will supply their own generation imbalance on a persistent basis.
- BPA will continue to supply load following and regulation for Iberdrola.

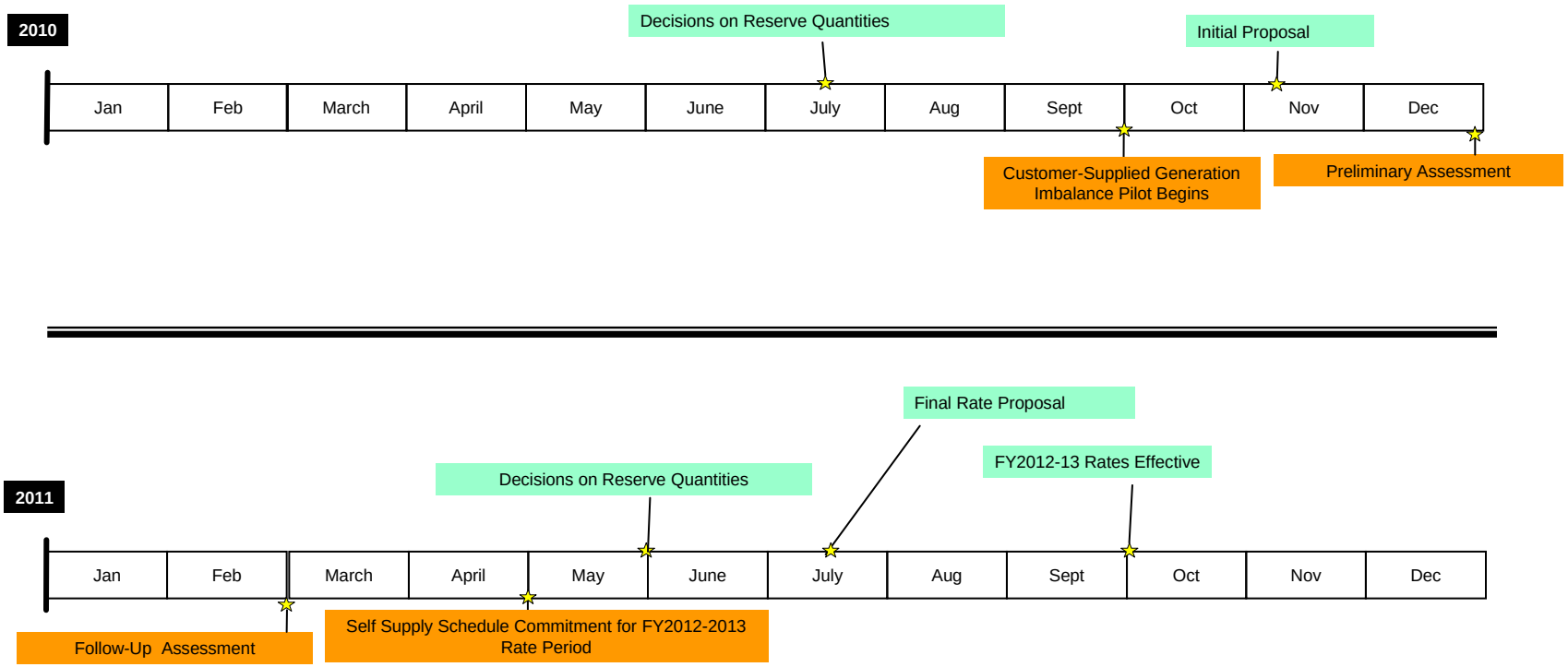
CSGI Pilot Timeline (cont'd)



Progress of the CSGI Pilot

- Iberdrola and BPA have tested the tagging and scheduling of the balancing resources as per the NERC required Balancing Authority procedural requirements.
- Currently testing the balancing resources that will be deployed by Iberdrola for the CSGI pilot, as well as the communication to request the movement of these resources.
- BPA is testing its Automatic Generation Control (AGC) system to track the movement of these balancing resources and the calculation of Generation Imbalance being provided by these resources.
- Iberdrola, Constellation Energy Control and Dispatch, and BPA will test the After-the-Fact accounting for billing and settlement as a final step in the movement of the balancing resources.
- This testing cycle will take 6-8 weeks to complete by all parties.

Timeline of Reserve Forecast Rate Case Decisions



Provisional Balancing Service Proposal

Provisional Balancing Service

- BPA is proposing to offer Provisional Balancing Service to Generating Customers that meet specific criteria during the FY 2012-2013 rate period.

- This service is not specifically requested by the Customer, but is offered by BPA as a bridge product during the rate period when one of the following conditions is met:

  - The Customer had elected to self-supply one or more components of Within-Hour Balancing for the rate period, but is unable to maintain the self-supply requirements.

  - The Customer did not have an expected interconnection date during the rate period. In this case, the Customer's reserve requirement was not included as part of forecasted balancing requirements for the BPA Balancing Authority Area during the rate period.

Provisional Balancing Service (continued)

- Proposed Attributes of Provisional Balancing Service:
  - Additional maximum Incremental and Decremental balancing capacity is not added to the reserves supplied by BPA when Provisional Balancing Service is offered. We would not explicitly forecast any use of this service, so no costs or revenues are assumed for the rate period.
  - Actual use of reserves within the maximum limits for Incs and Decs will increase when this service is taken.
  - Use of reserves by Customers taking Provisional Balancing Service would be limited under DSO 216. This action should prevent Provisional Balancing Service from degrading the quality-of-service for other Customers taking Within-Hour Balancing Service.

Provisional Balancing Service (continued)

Pricing Alternatives for Provisional Balancing Service:

1. Rate and Billing Factor the same as Within-Hour Balancing
   - Under this alternative, the reserves are priced the same as Within-Hour Balancing and the same rate and billing factor apply. Revenues would be passed-through to BPAP for providing increased deployment of reserves within the limits set in the rate case.
   - The Transmission Service analog is Conditional Firm Transmission Service. That service has greater curtailment exposure than does Firm Transmission Service, but it is priced the same as Firm.

Provisional Balancing Service (continued)

Pricing Alternatives for Provisional Balancing Service:

2. Under this alternative, the price of Provisional Balancing Service would be based on additional variable costs from an increase in expected deployment of reserves within maximum limits established in the rate case, plus components that were not self-supplied (Regulation and Following).

   - This could result in a relatively lower rate for Provisional Balancing Service. However, this approach could incent Customers to fail at Self-Supply or wait until a rate period begins to initiate acceleration of an expected interconnection date. This would be counter-productive to the intent to secure Customer commitment for self-supply.

Formula Rate Design

Formula Rate Design

- We propose to include a formula rate methodology in the Balancing Rate for recovering additional costs incurred to maintain forecasted levels of Inc and Dec reserve capability.

- Goal: Costs incurred during the rate period to maintain forecasted availability of reserves are recovered from Inc and Dec users of this service and avoid cost shifts to other ratepayers.

Demonstrating a Need for Additional Reserves

- Purchases would be made to maintain forecasted reserve availability assumed in BP-12 rate case
- Conditions that could require purchase of additional reserves to maintain reliable operating of the hydro system include:
  - Impact of changes in hydro operation and reserve availability
  - Impact of high or low flow on reserve availability

Cost Allocation Guidelines

- Reserve costs should be recovered from users of Reserves
- Variable costs could be adjusted for revised capacity allocations as part of formula rate calculation
- Includes costs for purchases of reserve capacity
- Costs identified by contracts specifying reserve purchases

Net vs. Total Cost Approach

- Net Cost Approach
  - Approximates what rate would have been if we had forecasted a need to acquire reserves during the rate period.
  - Therefore, Power customers bear a portion of the cost.

- Total Cost Approach
  - Balancing service customers bear the cost of the federal system originally allocated to the service for an amount of reserves that it is no longer capable of providing in full, plus the full cost of the acquired reserves.

Net vs. Total Cost Approach (continued)

- Recover Net or Total cost?
  - Net cost ($/MW) = recalculate rate substituting unit cost of acquisition
    - Acquired reserves ($/MW) – (BPA Balancing cost ($/MW))
  - Total cost ($/MW) = adder to published rate that reflects full cost of acquisition
    - Acquired reserves ($/MW) + (BPA Balancing cost ($/MW))

A Proposal:
Process Steps for Implementing a Formula Rate

- When BPA has identified a need to replenish the reserve stack:

- On approval of the Administrator, begin a predefined consultation process with customers re. reserve acquisition

  - Inform customers of the availability of reserves and current operating conditions
  - Take customer comment on decision to acquire reserves

- If BPA decides to acquire reserves:

  - Provide customers with draft calculation of new rate
  - Hold meeting to explain and answer questions
  - Issue final rate

Next Steps

- **<u>19 August 2010</u>:**
  - Redispatch
  - Intra-Hour Scheduling Update from Wind Integration Team
  - Rate Design

Wrap Up

- BPA would like to continue to receive your feedback regarding the topics we discussed today.
- Share your view today or feel free to submit a written response to:
  - techforum@bpa.gov.
  - Please state “2012 Rate Case” in the subject line.
- Our intent is to understand customer interest and the priority of topics to capture in the parking lot. This information will also inform us of the topics of interest to focus on as we develop the workshop schedule.
- We look forward to working together on these complex issues.