Agency Within-Year Treasury Payment Probability (TPP)

Workshop #2: Methodology

February 23, 2007

Purpose of this Workshop

- To provide a description of the methodology that BPA will use to calculate the Agency Within-Year Treasury Payment Probability (TPP) which is one of the two triggers needed to activate the Emergency NFB Surcharge

Disclaimer

- The data used in this workshop are for illustration purposes only. The data does not tie to either a specific historical period or the recent agreement on 2007 operations. This analysis is not intended to be a forecast of the effect of any possible future NFB trigger event. It is intended to aid in the illustration of the steps that BPA will take in calculating Agency Within-year TPP.

- Financial Disclosure Statement: This information is provided for the purposes of illustrating the calculation of Agency Within-year TPP and is supplied for discussion or exploratory purposes only. The data included is hypothetical in nature, does not represent in any manner the official position of BPA, and will not agree with externally released Agency Financial Information. Such information should be used only for the purpose for which it is provided and should not be re-communicated by the recipient without the foregoing qualification.

Topics for Discussion Today

- How forecasts (stream flow, operations, prices, etc.) for the remainder of a fiscal year will be developed
- How forecasts for the Agency's expected revenues, expenses, and sources and uses of cash will be made
- Which revenues, expenses, or other funds and financial obligations will be treated deterministically or probabilistically
- Which tools will be used for performing probabilistic calculations
- How, and from what sources, the data for major components of the Agency Within-Year TPP will be obtained or derived

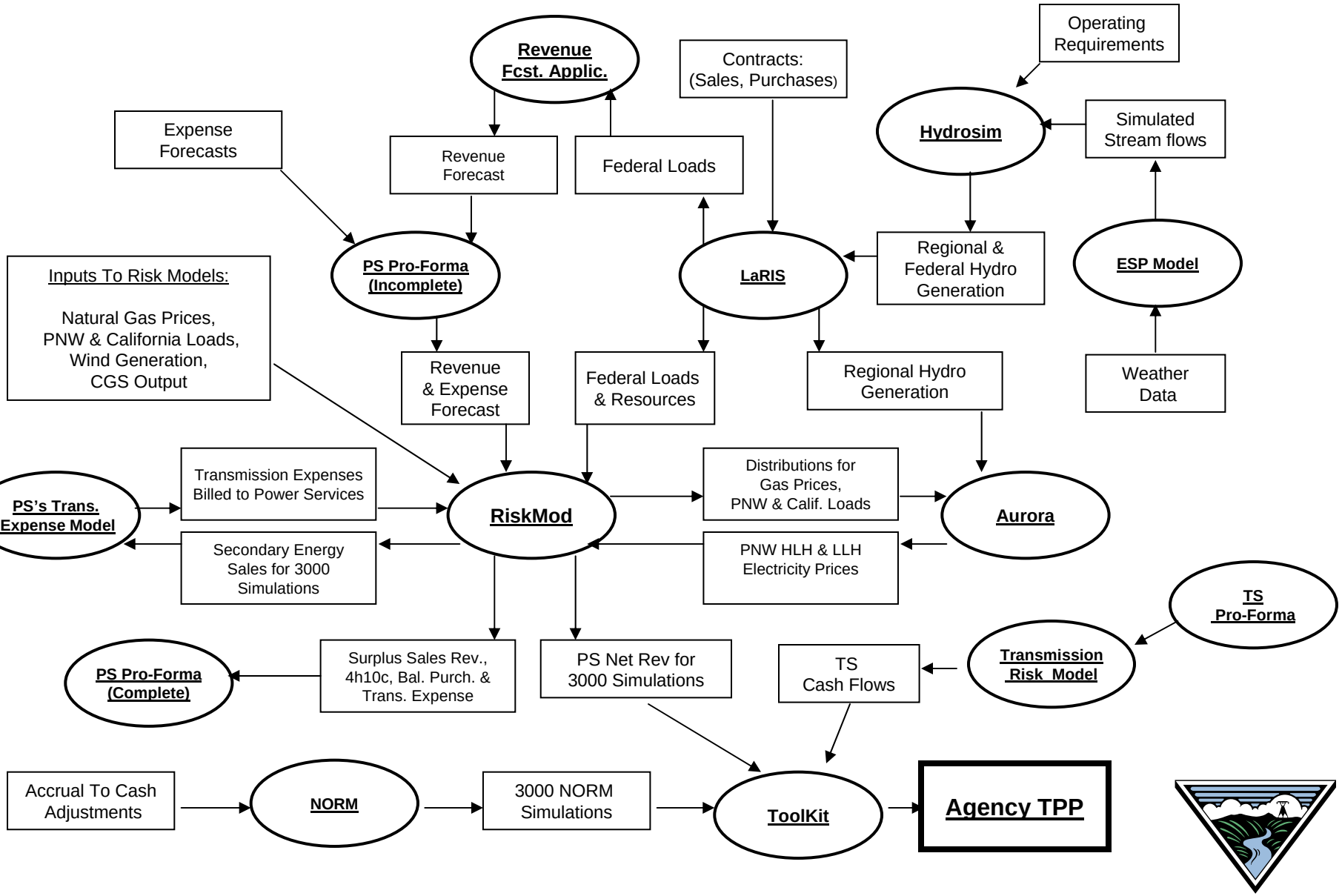
What is Agency Within-year TPP?

- It is the probability that BPA will be able to meet all Agency financial obligations to the Treasury for the fiscal year in which a trigger event occurs
- The calculation of Agency Within-Year TPP will take into account for the remainder of the affected fiscal year:
  - all funds reasonably expected to be available to BPA to repay the Treasury such as financial reserves including deferred borrowing, EN refinancings under Debt Optimization, expense reductions, revenue increases, and 4(h)(10)(C) credits
  - All financial obligations reasonably expected to require payment such as Treasury payments scheduled in the WP-07 rate case, repayments to the Treasury pursuant to the previous exercise of liquidity tools, prepayments to the Treasury called for in the Debt Optimization program, and updated forecasts of other reasonably necessary expenses and uses of cash
- At this time, BPA intends to calculate this probability using end-of-year statistics only. If BPA develops a different methodology such as one using monthly models, workshops will be held to explain the methodology.

Analytical Process

- Generally, the process, including risk modeling, is the same one that BPA uses during Agency quarterly reviews to compute year-end reserves estimates and rate period TPP.
- The analytical tools and models are the same as those used in a Power or Transmission rate case, except that ESP traces will be used instead of 50 historical water years. For example, the process uses Hydrosim, LaRIS, Aurora, RiskMod, Non-Operating Risk Model (NORM), Transmission Risk Model (TRM), and Toolkit.

Analytical Process for Calculating Agency Within-year TPP



Sources of Data

- Revenues:
  - The forecast of Power and Transmission revenues will be updated to include the latest forecasts and reflect actual results through the most recently concluded quarter and will include, where appropriate, updates of stream flow, operations, loads, and prices.
  - Stream flows will be modeled using the ESP model described at the November 7, 2006 workshop.
  - Operations are modeled in Hydrosim.
  - LaRIS is used to model Federal and regional resources and loads.
  - Aurora is used to model market prices.
  - RiskMod is used to model secondary sales, balancing purchases, transmission expenses, and 4(h)(10)(C) credits.
- Expenses:
  - The latest forecast of end-of-year (EOY) Power and Transmission expenses will be reviewed and updated to include any pertinent changes for the year and reflect actual results through the recently concluded quarter.
- Sources and Uses of Cash:
  - All known or reasonably expected sources and uses of cash will be incorporated in the accrual-to-cash (ATC) adjustments used by NORM and TRM and will be consistent with the EOY financial forecast of revenues and expenses. The ATC adjustments will incorporate such things as deferred borrowing, EN debt refinancings, advanced amortization of Treasury debt, Slice true-up, and other reasonably necessary changes.

The Illustration

The Hypothetical NFB Trigger Event

- This illustration is based on a hypothetical NFB trigger event that has effects on both hydro operations and program spending.
  - A spill regime that results in a 10% reduction in generation in July and August.
  - An increase in Direct Program Fish and Wildlife spending of $20 million.
- The calculation of the financial effects of the NFB trigger event is separate from the calculation of Agency Within-year TPP. The TPP calculation will include the financial effect. The two calculations need not occur at the same time.
- The calculation of the financial effect for this illustration is not intended to be indicative of the methods that would be used to calculate the financial effect of all possible NFB trigger events. The details of those calculations will depend on the nature of the changes caused by the NFB trigger event. Some NFB trigger events may necessitate different steps than those reflected in this illustration.

Effect on Operations of Hypothetical NFB Trigger Event

- The table on the following page illustrates the difference in generation (measured in average megawatts) between the “before trigger event” operation and the “after trigger event” operation. The table is based on generation tables produced in the hydro modeling process which are passed to RiskMod. The table includes the average change in net revenues calculated by RiskMod associated with each ESP trace.

Change in Generation (aMW)

For Illustration Only

Fiscal Year	ESP Trace	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	# of Games	Change in Net Revenue ($000)
2007	1	0	0	0	0	0	0	0	0	0	(1,151)	(701)	0	70	(36,207)
2007	2	0	0	0	0	0	0	0	0	0	(1,161)	(888)	0	70	(31,947)
2007	3	0	0	0	0	0	0	0	0	0	(889)	(619)	0	70	(57,992)
2007	4	0	0	0	0	0	0	0	0	0	(911)	(672)	0	69	(57,282)
2007	5	0	0	0	0	0	0	0	0	0	(1,295)	(929)	0	70	(25,219)
2007	6	0	0	0	0	0	0	0	0	0	(822)	(677)	0	70	(57,804)
2007	7	0	0	0	0	0	0	0	0	0	(1,146)	(809)	0	69	(36,105)
2007	8	0	0	0	0	0	0	0	0	0	(750)	(602)	0	71	(61,309)
2007	9	0	0	0	0	0	0	0	0	0	(734)	(611)	0	69	(67,461)
2007	10	0	0	0	0	0	0	0	0	0	(1,059)	(771)	0	69	(50,078)
2007	11	0	0	0	0	0	0	0	0	0	(691)	(593)	0	70	(70,275)
2007	12	0	0	0	0	0	0	0	0	0	(856)	(708)	0	70	(57,819)
2007	13	0	0	0	0	0	0	0	0	0	(750)	(677)	0	70	(62,589)
2007	14	0	0	0	0	0	0	0	0	0	(812)	(664)	0	70	(59,689)
2007	15	0	0	0	0	0	0	0	0	0	(1,158)	(801)	0	69	(43,109)
2007	16	0	0	0	0	0	0	0	0	0	(980)	(818)	0	70	(55,444)
2007	17	0	0	0	0	0	0	0	0	0	(1,009)	(771)	0	70	(51,320)
2007	18	0	0	0	0	0	0	0	0	0	(1,205)	(800)	0	69	(42,135)
2007	19	0	0	0	0	0	0	0	0	0	(898)	(720)	0	71	(59,215)
2007	20	0	0	0	0	0	0	0	0	0	(1,000)	(703)	0	70	(56,570)
2007	21	0	0	0	0	0	0	0	0	0	(732)	(572)	0	70	(60,860)
2007	22	0	0	0	0	0	0	0	0	0	(1,102)	(776)	0	69	(47,160)
2007	23	0	0	0	0	0	0	0	0	0	(1,456)	(1,035)	0	69	(13,582)
2007	24	0	0	0	0	0	0	0	0	0	(653)	(635)	0	70	(59,843)
2007	25	0	0	0	0	0	0	0	0	0	(1,492)	(915)	0	70	(17,138)
2007	26	0	0	0	0	0	0	0	0	0	(1,264)	(760)	0	70	(28,666)
2007	27	0	0	0	0	0	0	0	0	0	(981)	(1,017)	0	69	(51,570)
2007	28	0	0	0	0	0	0	0	0	0	(674)	(607)	0	71	(58,449)
2007	29	0	0	0	0	0	0	0	0	0	(1,016)	(721)	0	70	(67,599)
2007	30	0	0	0	0	0	0	0	0	0	(717)	(627)	0	69	(60,011)
2007	31	0	0	0	0	0	0	0	0	0	(778)	(663)	0	70	(60,764)
2007	32	0	0	0	0	0	0	0	0	0	(996)	(847)	0	69	(53,920)
2007	33	0	0	0	0	0	0	0	0	0	(1,590)	(1,035)	0	70	(12,450)
2007	34	0	0	0	0	0	0	0	0	0	(1,042)	(788)	0	70	(59,696)
2007	35	0	0	0	0	0	0	0	0	0	(1,026)	(717)	0	70	(57,681)
2007	36	0	0	0	0	0	0	0	0	0	(675)	(642)	0	70	(59,150)
2007	37	0	0	0	0	0	0	0	0	0	(832)	(658)	0	70	(59,659)
2007	38	0	0	0	0	0	0	0	0	0	(708)	(656)	0	69	(60,340)
2007	39	0	0	0	0	0	0	0	0	0	(767)	(716)	0	70	(60,359)
2007	40	0	0	0	0	0	0	0	0	0	(755)	(723)	0	70	(61,698)
2007	41	0	0	0	0	0	0	0	0	0	(954)	(729)	0	70	(70,499)
2007	42	0	0	0	0	0	0	0	0	0	(1,120)	(928)	0	69	(25,180)
2007	43	0	0	0	0	0	0	0	0	0	(697)	(618)	0	70	(60,566)
Wtd. Avg. After Losses and Slice											**(721)**	**(558)**			**(51,340)**

Illustration of the Financial Effect of the Hypothetical NFB Trigger Event

For Illustration Only

- These tables illustrate the change in revenues and expenses associated with the hypothetical trigger event. The first portion is the net revenue change calculated in RiskMod. The lower portion displays the net revenue effect, net of the Slice true-up for the change in expense.

		($ millions)
Change in Net Secondary Revenue	$	(34.1)
Total Change in 4(h)(10)(C) Credit		3.6
Slice True-up Share of 4(h)(10)(C) Credit		(0.8)
Total Change in Revenue		**(31.3)**
Increase in Direct F&W Program Expense		20.0
RiskMod Net Revenue	**$**	**(51.3)**
Slice True-up Share of Increase in Expense		4.4
Net Revenue (net of Slice)	**$**	**(46.9)**

See Financial Disclosure Statement on page 3

Illustration of the TPP Result

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	**ToolKit v. 2.38, (6-26-2006)**					Study title:	Sample run for within-year TPP workshop; based on mis-matched data; ties to no actual results | BPA reserves										
2	**Time of run: 12:56:52 on 2-15-07**				1	-yr TPP =	100.00%	Run Type	All-BPA run								
3	**Inputs**	PBL data:	RM_output-for-within-year-TPP-run_13-Feb-07.xls														
4		NORM dat	NORM_for-within-year-TPP-run_14-Feb-07.xls														
5	Files =>	TBL data:	TBL_output-for-within-year-TPP-run_14-Feb-07.xls														
6	Start in	Stop in	Run Type	CRAC	PBL	TBL	PBL Strt.	Add'l	Deferral		Sec. Rev. Rebate Description						
7	TK Year	TK Year	PBL	Lim/Total	LiqRes	LiqRes	ANR				n / a						
8	4	4	BPA	20,000	50	20	-21.62										
9	Start TPP	"Small"	No. of	Starting	PBL Strt	TBL Strt	Debug	Reserves	AutoPrint	AutoPrint	Flat PNRR	Enable	CRAC	CRAC			
10	in TK Yr	Def. Size	Iterations	Iteration	Rsrv Bal	Rsrv Bal	Level	Graph	Res Grph	This Page	Rate Imp.?	PNRR?	Fixed?	Stats On?			
11	4	$200	3,000	1	915.2	278	0										
12	ToolKit	Fiscal	Probabi-	Treasury	Amort	Interest	PBL Int.	TBL Int.	Other	TBL Rsrvs	Cash Lag	PBL Cash	TBL Cash				
13	Year	Year	listic?	Int. Rate	Sched	Sched	Cr. Sched	Cr. Sched	Cash Adj	Available	for PNRR	Tmg Adj	Tmg Adj				
15	2	2005	FALSE		271.3	247.4	29.96	11.08		0.0		11.5	4.6				
16	3	2006	TRUE		296.5	250.4	35.7	11.9		0.0		12.2	5.8				
17	4	2007	TRUE	5.08%	202.3	270.4	54.0	14.50			-1.2	11.9					
18	5	2008	TRUE	5.08%	175.4	280.5	53.9				0.0	7.1					
19	6	2009	TRUE	5.08%	191.7	291.7	54.9			0.0	0.0	7.4					
20	ToolKit	Fiscal	Div. Dist.		CRAC				PNRR			TBL Fed.	PBL Fed.	Other NR	Delta		
21	Year	Year	Threshold	Lim/Year	Threshold	Lim/Year	Rev Basis	Shape	Risk Mod	Calc'd in TK	Sum	Int. Red.	Int. Red.	& Csh Adj	Int. Cred.		
23	2	2005	401	5,000	1	0		0.0						6.6			
24	3	2006	401	5,000	1	0		0.0									
25	4	2007	148.8	1,208	-230.2	300	1,332.6	1.00	11	0	11			-0.3			
26	5	2008	192.0	1,208	-187.0	300	1,351.6	1.00	11	0	11			-0.8			
27	6	2009	346.9	1,222	-32.1	300	1,362.7	1.00	11	0	11			-1.4			
28	**Outputs**																
29	ToolKit	Fiscal	No. of	"Small"	1-year	Cumul.	Cumul.	Ave. Def.	Ave. Def.	Ave 1st	Ave. End.	Ave. End.	PNRR	BPA		Approx PF rat	
30	Year	Year	Deferrals	Deferrals	Probab.	Deferrals	Probab.	per Year	per Def.	Def./Def.	Reserves	PBL ANR	Added	Strt Bal		(average rates, no	
31														1193.1		Base	After PNRR
32																	
33	0	0												FCCF			
34	4	2007	0	-	**100.0%**	-	**100.0%**	0.0	n / a	n / a	1,199	64.96	-	Strt Bal		27.33	31.38
35	0	0												n / a		0.00	0.00
36	0	0														0.00	0.00
37	3	-yr Total	0	-	n / a	n / a	n / a	0.0	n / a	n / a	n / a	n / a	-	5-yr sum>		n / a	n / a
38	3	-yr Ave.	0	-	n / a	n / a	n / a	0.0	n / a	n / a	n / a	n / a	-	3-yr sum>		9.1	10.5
39	ToolKit	Fiscal	Ave. DDC	Ave DDC	PF share	IOU Share	No. of	Ave DDC	Ave. CRAC	Ave CRAC	PF share	IOU Share	No. of	Ave CRAC	Ann.Lim.	Total Lim.	CRAC
40	Year	Year	per each	per Year	of DDC	of DDC	DDCs	Rate	per each	per Year	of CRAC	of CRAC	CRACs	Rate	Reached	Reached	Freqncy
42				0			0							0%			0%
43	0	0		0			0							0%			0%
44	4	2007		0	0	0	0	0.0%		0	0	0	0	0.0%	0	0	0%
45	0	0		0			0							2.9%			0%
46	0	0		0			0							5.3%			0%
47	3	-yr Total	n / a	0.0	0.0	0	0	n / a	n / a	0	0	0	0	n / a	0	0	n / a
48	3	-yr Ave.	n / a	0	0	0	0	0.0%		0	0	0	0	0.0%	0	n / a	0%
49	ToolKit	Fiscal	NORM	PBL	TBL	A-T-C	Ave. Reb.	Ave Reb.	PF share	IOU Share	No. of	Ave. Re-	PBL Int	TBL Int	IOU Benefits After each calculatio		
50	Year	Year	Inputs	Inputs	Inputs	Totals	per each	per Year	of Rebate	of Rebate	Rebates	bate Rate	Credit	Credit	Base	PNRR	Mkt Upd
52			0												0		
53			0												0		
54	4	2007	-31	-74	20	-84			0	0		0.0%	44	14.2	323	323	323
55			0												0	0	0
56			0												0	0	0
57	3	-yr Total	-31	-74	20	-84						n / a	44	14.2	323	323	323
58	3	-yr Ave.	-10	-25	7	-28							15	4.7	108	108	108

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