

2010 BPA Rate Case  
Wholesale Power Rate Initial Proposal

**REVENUE REQUIREMENT  
STUDY DOCUMENTATION  
Volume 1**

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February 2009

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WP-10-E-BPA-02A



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Revenue requirement documentation

Volume 1

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## COMMONLY USED ACRONYMS

AC	alternating current
AFUDC	Allowance for Funds Used During Construction
AGC	Automatic Generation Control
ALF	Agency Load Forecast (computer model)
aMW	average megawatt
AMNR	Accumulated Modified Net Revenues
ANR	Accumulated Net Revenues
AOP	Assured Operating Plan
ASC	Average System Cost
ATC	Accrual to Cash
BAA	Balancing Authority Area
BASC	BPA Average System Cost
Bcf	billion cubic feet
BiOp	Biological Opinion
BPA	Bonneville Power Administration
Btu	British thermal unit
CAISO	California Independent System Operator
CBFWA	Columbia Basin Fish & Wildlife Authority
CCCT	combined-cycle combustion turbine
cfs	cubic feet per second
CGS	Columbia Generating Station
CHJ	Chief Joseph
C/M	consumers per mile of line for LDD
COB	California-Oregon Border
COE	U.S. Army Corps of Engineers
COI	California-Oregon Intertie
COSA	Cost of Service Analysis
COU	consumer-owned utility
Council	Northwest Power and Conservation Council
CP	Coincidental Peak
CRAC	Cost Recovery Adjustment Clause
CRC	Conservation Rate Credit
CRFM	Columbia River Fish Mitigation
CRITFC	Columbia River Inter-Tribal Fish Commission
CSP	Customer System Peak
CT	combustion turbine
CY	calendar year (January through December)
DC	direct current
DDC	Dividend Distribution Clause
dec	decremental
DJ	Dow Jones
DO	Debt Optimization
DOE	Department of Energy

DOP	Debt Optimization Program
DSI	direct-service industrial customer or direct-service industry
EAF	energy allocation factor
ECC	Energy Content Curve
EIA	Energy Information Administration
EIS	Environmental Impact Statement
EN	Energy Northwest, Inc. (formerly Washington Public Power Supply System)
EPA	Environmental Protection Agency
EPP	Environmentally Preferred Power
EQR	Electric Quarterly Report
ESA	Endangered Species Act
F&O	financial and operating reports
FBS	Federal Base System
FCRPS	Federal Columbia River Power System
FCRTS	Federal Columbia River Transmission System
FERC	Federal Energy Regulatory Commission
FELCC	firm energy load carrying capability
FPA	Federal Power Act
FPS	Firm Power Products and Services (rate)
FY	fiscal year (October through September)
GAAP	Generally Accepted Accounting Principles
GARD	Generation and Reserves Dispatch (computer model)
GCL	Grand Coulee
GCPs	General Contract Provisions
GEP	Green Energy Premium
GI	Generation Integration
GRI	Gas Research Institute
GRSPs	General Rate Schedule Provisions
GSP	Generation System Peak
GSU	generator step-up transformers
GTA	General Transfer Agreement
GWh	gigawatthour
HLH	heavy load hour
HOSS	Hourly Operating and Scheduling Simulator (computer model)
HYDSIM	Hydro Simulation (computer model)
IDC	interest during construction
inc	incremental
IOU	investor-owned utility
IP	Industrial Firm Power (rate)
IPR	Integrated Program Review
IRP	Integrated Resource Plan
ISD	incremental standard deviation
ISO	Independent System Operator
JDA	John Day
kaf	thousand (kilo) acre-feet

kcfs	thousand (kilo) cubic feet per second
K/I	kilowatthour per investment ratio for LDD
ksfd	thousand (kilo) second foot day
kV	kilovolt (1000 volts)
kVA	kilo volt-ampere (1000 volt-amperes)
kW	kilowatt (1000 watts)
kWh	kilowatthour
LDD	Low Density Discount
LGIP	Large Generator Interconnection Procedures
LLH	light load hour
LME	London Metal Exchange
LOLP	loss of load probability
LRA	Load Reduction Agreement
m/kWh	mills per kilowatthour
MAE	mean absolute error
Maf	million acre-feet
MCA	Marginal Cost Analysis
MCN	McNary
Mid-C	Mid-Columbia
MIP	Minimum Irrigation Pool
MMBtu	million British thermal units
MNR	Modified Net Revenues
MOA	Memorandum of Agreement
MOP	Minimum Operating Pool
MORC	Minimum Operating Reliability Criteria
MOU	Memorandum of Understanding
MRNR	Minimum Required Net Revenue
MVA <sub>r</sub>	megavolt ampere reactive
MW	megawatt (1 million watts)
MWh	megawatthour
NCD	non-coincidental demand
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NFB	National Marine Fisheries Service (NMFS) Federal Columbia River Power System (FCRPS) Biological Opinion (BiOp)
NIFC	Northwest Infrastructure Financing Corporation
NLSL	New Large Single Load
NOAA Fisheries	National Oceanographic and Atmospheric Administration Fisheries (formerly National Marine Fisheries Service)
NOB	Nevada-Oregon Border
NORM	Non-Operating Risk Model (computer model)
Northwest Power Act	Pacific Northwest Electric Power Planning and Conservation Act
NPCC	Northwest Power and Conservation Council
NPV	net present value
NR	New Resource Firm Power (rate)

NT	Network Transmission
NTSA	Non-Treaty Storage Agreement
NUG	non-utility generation
NWPP	Northwest Power Pool
OATT	Open Access Transmission Tariff
O&M	operation and maintenance
OMB	Office of Management and Budget
OTC	Operating Transfer Capability
OY	operating year (August through July)
PDP	proportional draft points
PF	Priority Firm Power (rate)
PI	Plant Information
PMA	(Federal) Power Marketing Agency
PNCA	Pacific Northwest Coordination Agreement
PNRR	Planned Net Revenues for Risk
PNW	Pacific Northwest
POD	Point of Delivery
POI	Point of Integration or Point of Interconnection
POM	Point of Metering
POR	Point of Receipt
Project Act	Bonneville Project Act
PS	BPA Power Services
PSC	power sales contract
PSW	Pacific Southwest
PTP	Point to Point Transmission (rate)
PUD	public or people's utility district
RAM	Rate Analysis Model (computer model)
RAS	Remedial Action Scheme
Reclamation	U.S. Bureau of Reclamation
RD	Regional Dialogue
REC	Renewable Energy Certificate
REP	Residential Exchange Program
RevSim	Revenue Simulation Model (component of RiskMod)
RFA	Revenue Forecast Application (database)
RFP	Request for Proposal
RiskMod	Risk Analysis Model (computer model)
RiskSim	Risk Simulation Model (component of RiskMod)
RMS	Remote Metering System
RMSE	root-mean squared error
ROD	Record of Decision
RPSA	Residential Purchase and Sale Agreement
RTF	Regional Technical Forum
RTO	Regional Transmission Operator
SCADA	Supervisory Control and Data Acquisition
SCCT	single-cycle combustion turbine
Slice	Slice of the System (product)

SME	subject matter expert
TAC	Targeted Adjustment Charge
TDA	The Dalles
Tcf	trillion cubic feet
TPP	Treasury Payment Probability
Transmission System Act	Federal Columbia River Transmission System Act
TRL	Total Retail Load
TRM	Tiered Rate Methodology
TS	BPA Transmission Services
UAI	Unauthorized Increase
UDC	utility distribution company
URC	Upper Rule Curve
USFWS	U.S. Fish and Wildlife Service
VOR	Value of Reserves
WECC	Western Electricity Coordinating Council (formerly WSCC)
WIT	Wind Integration Team
WPRDS	Wholesale Power Rate Development Study
WREGIS	Western Renewable Energy Generation Information System
WSPP	Western Systems Power Pool

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## **1. GENERATION REVENUE REQUIREMENTS**

### **1.1 Introduction**

This chapter documents how Bonneville Power Administration's (BPA) annual generation revenue requirements are determined. Two tables are presented for each year of the rate period (FY 2010-2011) and for the 7(b)(2) period (FY 2012–2015). On the first table, revenue requirements for FY 2010-2011 (the rate period) and 2012 through 2015 (the outyears for the 7(b)(2) Rate Test) are projected in an income statement format. The second table, a statement of annual cash flows, determines the minimum required net revenues and presents the annual cash flows available for risk mitigation. These revenue requirements form the basis of both the program and the 7(b)(2) cases for the 7(b)(2) Rate Test.

### **1.2 Income Statement**

A more detailed description of the following line items is included in Chapter 4 of the Revenue Requirement Study, WP-10-E-BPA-02. Operating expenses (lines 1-20) include: operations and maintenance expenses for Corps of Engineers (COE) and U.S. Bureau of Reclamation (BOR), and annual expenses for Energy Northwest (EN) (line 3); Colville Settlement Act payments to the Confederated Colville Tribes (line 4); decommissioning expenses for Trojan and other, unfinished nuclear plants (line 5); short-term purchases of power, both balancing power purchases and system augmentation (lines 6 and 7); annual expenses associated with the Residential Exchange Program (line 8); the expense associated with BPA's renewable generation program (line 9); the expense portion of BPA's energy conservation activities (including the Energy Efficiency group) (lines 10); the conservation and renewable discount (line 11); Transmission acquisition and ancillary services expenses necessary to deliver energy to markets (line 12); internal operations expenses necessary to support the power function (line 13); the expense portion of BPA's funding for fish and wildlife protection, mitigation and enhancement pursuant to Section 4(h) of the Northwest Power Act (lines 14); general corporate and administrative expenses (line 15); other miscellaneous expenses (line 16); debt service on capitalized contracts and other fixed, long term contractual obligations (line 17); annual depreciation for BPA, COE, and BOR plant-in-service (line 18); and the annual amortization of capital investments in conservation and fish and wildlife activities (line 19).

Federal interest expense is calculated in generation repayment studies on appropriations granted by Congress for COE and BOR capital investments (line 22) and bonds that BPA issues to the U.S. Treasury (line 25). Bond interest is reduced by interest income from BPA's projected cash reserves (line 28). The capitalization adjustment and the Allowance for Funds Used During Construction (AFUDC) (lines 24 and 27) further reduce gross interest expense. The capitalization adjustment, a non-cash expense, is the annual recognition of the write-down in principal that resulted from the Bonneville Appropriations Refinancing Act.

Planned net revenues (lines 31-33) are included to ensure coverage of planned amortization and irrigation assistance payments (minimum required net revenues) and to meet the Administrator's risk mitigation policy (planned net revenues for risk). See Risk Analysis and Mitigation Study, WP-10-E-BPA-04 for a discussion of BPA risk mitigation policy and planned net revenues for risk.

### **1.3 Statement of Cash Flows**

Cash from Current Operations: Minimum required net revenues (line 2) is the amount necessary to ensure that cash from operations is sufficient for planned amortization and irrigation assistance payments. It is the amount by which these planned payments to the U.S. Treasury exceed the expenses that do not require cash outlays. Non-cash expenses include depreciation and amortization (line 4), amortization of capitalized bond premiums (line 5), the capitalization adjustment (line 6), and accrual revenues (line 7).

Cash Used for Capital Investments: Investment in utility plant (line 11) is the increase in investment for appropriated additions to plant for the COE and BOR and for capital outlays associated with BPA capital equipment and the direct-funding of COE and BOR investments. Investment in conservation (line 12) and fish and wildlife (line 13) is the annual capital outlays for these intangible assets.

Cash from Treasury Borrowing and Appropriations: Increase in bonds issued to the U.S. Treasury (line 16) is the annual increment in bonds that BPA issues to Treasury to fund capital outlays for capital equipment, BOR and COE investments that BPA plans to direct-fund, and BPA conservation and fish and wildlife investments. Repayment of bonds issued to the U.S. Treasury (line 17) is planned amortization of bonds issued to Treasury, as determined in generation repayment studies. Increase in Federal construction appropriations (line 18) is projected annual appropriations to fund new COE and BOR plant-in-service that BPA did not direct-fund with bonds issued to Treasury. Repayment of Federal construction appropriations (line 19) is planned amortization of investments associated with the COE and BOR, as determined in generation repayment studies. Payment of irrigation assistance (line 20) is the projected payment of appropriated capital construction costs of BOR irrigation facilities that have been determined to be beyond the ability of irrigators to pay and allocated to generation revenues for repayment.

The revenue requirements for the 7(b)(2) case reflect the required exclusion of costs associated with energy conservation, the Residential Exchange Program, and resources acquired under the authority of the Northwest Power Act. These revenue requirements are determined according to the same cost accounting methodology as those in the program case and reflect the same risk mitigation (equivalent annual cash flows) when such is specified.

	A	B	C	D	E	F
1	<b>Table 1A</b>					
2						
3	<b>GENERATION REVENUE REQUIREMENT</b>					
4	<b>INCOME STATEMENT</b>					
5	<b>(\$000s)</b>					
6						
7						
8						
9						
10					<b><u>2010</u></b>	<b><u>2011</u></b>
11	1	OPERATING EXPENSES				
12	2	POWER SYSTEM GENERATION RESOURCES				
13	3	OPERATING GENERATION			581,789	693,804
14	4	OPERATING GENERATION SETTLEMENT PAYMENT			21,328	21,754
15	5	NON-OPERATING GENERATION			2,618	2,728
16	6	CONTRACTED POWER PURCHASES			71,235	57,155
17	7	AUGMENTATION POWER PURCHASES			176,305	304,610
18	8	EXCHANGES & SETTLEMENTS			2,421	1,440
19	9	RENEWABLE GENERATION			45,588	45,938
20	10	GENERATION CONSERVATION			55,088	54,722
21	11	CONSERVATION AND RENEWABLE DISCOUNT			32,000	32,000
22	12	PS TRANSMISSION ACQUISITION AND ANCILLARY SERVICES			173,162	170,570
23	13	POWER NON-GENERATION OPERATIONS			82,793	86,650
24	14	F&W/USF&W/PLANNING COUNCIL/ENVIRONMENTAL REQUIREMENTS			263,541	270,618
25	15	GENERAL AND ADMINISTRATIVE/SHARED SERVICES			67,475	68,341
26	16	OTHER INCOME, EXPENSES AND ADJUSTMENTS			1,800	3,600
27	17	NON-FEDERAL DEBT SERVICE			556,052	576,365
28	18	DEPRECIATION			118,616	119,921
29	19	AMORTIZATION			79,118	86,989
30	20	TOTAL OPERATING EXPENSES			2,330,928	2,597,205
31						
32	21	INTEREST EXPENSE:				
33	22	INTEREST				
34	23	APPROPRIATED FUNDS			222,131	208,672
35	24	CAPITALIZATION ADJUSTMENT			(45,937)	(45,937)
36	25	BONDS ISSUED TO U.S. TREASURY			49,849	68,317
37	26	AMORTIZATION OF CAPITALIZED BOND PREMIUMS			185	185
38	27	ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION			(10,800)	(10,200)
39	28	INTEREST CREDIT			(49,605)	(49,317)
40	29	NET INTEREST EXPENSE			165,823	171,720
41						
42	30	TOTAL EXPENSES			2,496,751	2,768,925
43						
44	31	MINIMUM REQUIRED NET REVENUES 1/			118,806	4,254
45	32	PLANNED NET REVENUES FOR RISK			48,000	48,000
46	33	PLANNED NET REVENUES, TOTAL (31+32)			166,806	52,254
47						
48	34	TOTAL REVENUE REQUIREMENT			2,663,557	2,821,179
49						
50	1/	SEE NOTE ON CASH FLOW STATEMENT				
51						

	A	B	C	D	E	F
1	<b>Table 1B</b>					
2	<b>GENERATION REVENUE REQUIREMENT</b>					
3	<b>STATEMENT OF CASH FLOWS</b>					
4	<b>(\$000s)</b>					
5						
6						
7						
8						
9					<b><u>2010</u></b>	<b><u>2011</u></b>
10	1	CASH FROM OPERATING ACTIVITIES				
11	2	MINIMUM REQUIRED NET REVENUES 1/			118,806	4,254
12	3	NON-CASH ITEMS:				
13	4	DEPRECIATION AND AMORTIZATION			197,734	206,910
14	5	AMORTIZATION OF CAPITALIZED BOND PREMIUM			185	185
15	6	CAPITALIZATION ADJUSTMENT			(45,937)	(45,937)
16	7	ACCRUAL REVENUES			(3,524)	(3,524)
17	8	CASH PROVIDED BY OPERATING ACTIVITIES			267,264	161,888
18	9	CASH FROM INVESTMENT ACTIVITIES:				
19	10	INVESTMENT IN:				
20	11	UTILITY PLANT (INCLUDING AFUDC)			(259,721)	(281,800)
21	12	CONSERVATION			(32,300)	(39,100)
22	13	FISH & WILDLIFE			(70,000)	(60,000)
23	14	CASH USED FOR INVESTMENT ACTIVITIES			(362,021)	(380,900)
24	15	CASH FROM BORROWING AND APPROPRIATIONS:				
25	16	INCREASE IN BONDS ISSUED TO U.S. TREASURY			274,021	284,900
26	17	REPAYMENT OF BONDS ISSUED TO U.S. TREASURY			(68)	0
27	18	INCREASE IN FEDERAL CONSTRUCTION APPROPRIAT			88,000	96,000
28	19	REPAYMENT OF FEDERAL CONSTRUCTION APPROPR			(267,196)	(161,888)
29	20	PAYMENT OF IRRIGATION ASSISTANCE			0	0
30	21	CASH PROVIDED BY BORROWING AND APPROPRIATIONS			94,757	219,012
31	22	ANNUAL INCREASE (DECREASE) IN CASH			0	0
32	23	PLANNED NET REVENUES FOR RISK			48,000	48,000
33	24	<b>TOTAL ANNUAL INCREASE (DECREASE) IN CASH</b>			<b>48,000</b>	<b>48,000</b>
34						
35						
36						
37						
38						
39						
40	<b>1/ Line 22 must be greater than or equal to zero, otherwise net revenues will be added so that there are no negative cash flows for the year.</b>					
41						

	A	B	C	D	E	F	G	H
1	<b>Table 1C</b>							
2	<b>OUTYEAR GENERATION REVENUE REQUIREMENT</b>							
3	<b>INCOME STATEMENT</b>							
4	<b>(S000s)</b>							
5					<b><u>2012</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>
6								
7								
8								
9	1							
10	2							
11	3							
12	4							
13	5							
14	6							
15	7							
16	8							
17	9							
18	10							
19	11							
20	12							
21	13							
22	14							
23	15							
24	16							
25	17							
26	18							
27	19							
28	20							
29								
30	21							
31	22							
32	23							
33	24							
34	25							
35	26							
36	27							
37	28							
38	29							
39								
40	30							
41								
42	31							
43	32							
44	33							
45								
46	34							
47								
48								
49	1/							

	A	B	C	D	E	F	G	H
1	<b>Table 1D</b>							
2								
3	<b>OUTYEAR GENERATION REVENUE REQUIREMENT</b>							
4	<b>STATEMENT OF CASH FLOWS</b>							
5	<b>(\$000s)</b>							
6								
7								
8		<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>			
9		<b><u>2012</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>			
10	1	CASH FROM OPERATING ACTIVITIES						
11	2	MINIMUM REQUIRED NET REVENUES 1/						
12	3	NON-CASH ITEMS:						
13	4	DEPRECIATION AND AMORTIZATION						
14	5	AMORTIZATION OF CAPITALIZED BOND PREMIUMS						
15	6	CAPITALIZATION ADJUSTMENT						
16	7	ACCRUAL REVENUES						
17	8	CASH PROVIDED BY OPERATING ACTIVITIES						
18	9	CASH FROM INVESTMENT ACTIVITIES:						
19	10	INVESTMENT IN:						
20	11	UTILITY PLANT (INCLUDING AFUDC)						
21	12	CONSERVATION						
22	13	FISH & WILDLIFE						
23	14	CASH USED FOR INVESTMENT ACTIVITIES						
24	15	CASH FROM BORROWING AND APPROPRIATIONS:						
25	16	INCREASE IN BONDS ISSUED TO U.S. TREASURY						
26	17	REPAYMENT OF BONDS ISSUED TO U.S. TREASURY						
27	18	INCREASE IN FEDERAL CONSTRUCTION APPROPRIATIONS						
28	19	REPAYMENT OF FEDERAL CONSTRUCTION APPROPRIATIONS						
29	20	PAYMENT OF IRRIGATION ASSISTANCE						
30	21	CASH PROVIDED BY BORROWING AND APPROPRIATIONS						
31	22	ANNUAL INCREASE (DECREASE) IN CASH						
32	23	PLANNED NET REVENUES FOR RISK						
33	24	TOTAL ANNUAL INCREASE (DECREASE) IN CASH						
34								
35								
36								
37								
38								
39								
40	1/ Line 22 must be greater than or equal to zero to indicate that cash cost recovery requirements are being							
41	achieved. If not, net revenues (MRNR) are added so that net cash flows for the year (Line 22) are zero.							
42								

	A	B	C	D	E	F	G	H	I	J
1	<b>Table 1E</b>									
2	<b>7(b)(2) GENERATION REVENUE REQUIREMENT</b>									
3	<b>INCOME STATEMENT</b>									
4	<b>(\$000s)</b>									
5										
6										
7					<b><u>2010</u></b>	<b><u>2011</u></b>	<b><u>2012</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>
8	1	OPERATING EXPENSES								
9	2	POWER SYSTEM GENERATION RESOURCES								
10	3	OPERATING GENERATION RESOURCES	549,900	661,461	625,403	684,294	660,034	732,253		
11	4	OPERATING GENERATION SETTLEMENT PAYMENTS	21,328	21,754	22,189	22,633	23,086	23,533		
12	5	NON-OPERATING GENERATION	2,618	2,728	2,738	2,848	2,958	3,068		
13	6	CONTRACTED POWER PURCHASES	71,235	57,155	58,562	50,973	65,184	56,155		
14	7	AUGMENTATION POWER PURCHASES	176,305	304,610	159,868	274,762	274,959	411,560		
15	8	EXCHANGES & SETTLEMENTS								
16	9	RENEWABLE GENERATION								
17	10	GENERATION CONSERVATION								
18	11	CONSERVATION AND RENEWABLE DISCOUNT								
19	12	PS TRANSMISSION ACQUISITION AND ANCILLARY SERVICES	173,162	170,570	178,331	178,340	178,349	178,349		
20	13	POWER NON-GENERATION OPERATIONS	73,434	76,703	77,276	77,038	79,668	82,256		
21	14	F&W/USF&W/PLANNING COUNCIL/ENVIRONMENTAL REQUIREM	263,541	270,618	278,095	285,875	291,950	298,942		
22	15	GENERAL AND ADMINISTRATIVE/SHARED SERVICES	56,529	57,187	58,590	60,178	61,849	63,472		
23	16	OTHER INCOME, EXPENSES AND ADJUSTMENTS	1,800	3,600	3,672	3,745	3,820	3,894		
24	17	NON-FEDERAL DEBT SERVICE	537,207	557,683	648,943	595,890	592,204	569,838		
25	18	DEPRECIATION	118,616	119,921	123,131	126,572	132,468	136,146		
26	19	AMORTIZATION	28,842	31,423	32,663	34,435	35,833	37,460		
27	20	TOTAL OPERATING EXPENSES	2,074,516	2,335,413	2,269,461	2,397,584	2,402,363	2,596,925		
28										
29	21	INTEREST EXPENSE:								
30	22	INTEREST								
31	23	APPROPRIATED FUNDS	217,788	203,369	197,537	193,877	197,535	192,462		
32	24	CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)	(45,937)	(45,937)	(45,937)	(45,937)		
33	25	BONDS ISSUED TO U.S. TREASURY	42,303	59,132	79,806	99,250	112,388	129,273		
34	26	AMORTIZATION OF CAPITALIZED BOND PREMIUMS								
35	27	ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION	(10,800)	(10,200)	(10,200)	(10,200)	(10,200)	(10,200)		
36	28	INTEREST INCOME	(49,370)	(49,030)	(49,520)	(50,974)	(51,307)	(51,868)		
37	29	NET INTEREST EXPENSE	203,354	206,364	221,206	236,990	253,787	265,597		
38										
39	30	TOTAL EXPENSES	2,277,870	2,541,776	2,490,667	2,634,573	2,656,149	2,862,522		
40										
41	31	MINIMUM REQUIRED NET REVENUES 1/	167,154	56,391	6,499	57,965	54,838	70,392		
42	32	PLANNED NET REVENUES FOR RISK	48,000	48,000						
43	33	PLANNED NET REVENUES, TOTAL (31+32)	215,154	104,391	6,499	57,965	54,838	70,392		
44										
45	34	TOTAL REVENUE REQUIREMENT	2,493,024	2,646,168	2,497,166	2,692,538	2,710,987	2,932,914		
46										
47	1/	SEE NOTE ON CASH FLOW STATEMENT								

	A	B	C	D	E	F	G	H	I	J
1	<b>Table 1F</b>									
2	<b>7(b)(2) GENERATION REVENUE REQUIREMENT</b>									
3	<b>STATEMENT OF CASH FLOWS</b>									
4	<b>(\$000s)</b>									
5					<b><u>2010</u></b>	<b><u>2011</u></b>	<b><u>2012</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>
6	1	CASH FROM OPERATING ACTIVITIES								
7	2	MINIMUM REQUIRED NET REVENUES 1/								
8	3	NON-CASH ITEMS:								
9	4	DEPRECIATION AND AMORTIZATION								
10	5	AMORTIZATION OF CAPITALIZED BOND PREMIUMS								
11	6	CAPITALIZATION ADJUSTMENT								
12	7	ACCRUAL REVENUES								
13	8	CASH PROVIDED BY OPERATING ACTIVITIES								
14	9	CASH FROM INVESTMENT ACTIVITIES:								
15	10	INVESTMENT IN:								
16	11	UTILITY PLANT (INCLUDING AFUDC)								
17	12	CONSERVATION								
18	13	FISH & WILDLIFE								
19	14	CASH USED FOR INVESTMENT ACTIVITIES								
20	15	CASH FROM BORROWING AND APPROPRIATIONS:								
21	16	INCREASE IN BONDS ISSUED TO U.S. TREASURY								
22	17	REPAYMENT OF BONDS ISSUED TO U.S. TREASURY								
23	18	INCREASE IN FEDERAL CONSTRUCTION APPROPRIATIONS								
24	19	REPAYMENT OF FEDERAL CONSTRUCTION APPROPRIATIONS								
25	20	PAYMENT OF IRRIGATION ASSISTANCE								
26	21	CASH PROVIDED BY BORROWING AND APPROPRIATIONS								
27	22	ANNUAL INCREASE (DECREASE) IN CASH								
28	23	PLANNED NET REVENUES FOR RISK								
29	24	TOTAL ANNUAL INCREASE (DECREASE) IN CASH								
30	1/ Line 22 must be greater than or equal to zero to indicate that cash cost recovery requirements are being									
31	achieved. If not, net revenues (MRNR) are added so that net cash flows for the year (Line 22) are zero.									
32										
33										
34										
35										
36										
37										
38										
39										
40										
41										

## 2. COST ANALYSES

### 2.1 Introduction

This chapter documents the development of the costs necessary for ratemaking from the annual generation revenue requirements. For The Itemized Revenue Requirement in the Cost of Service Analysis (COSA), the total generation revenue requirements (all years of both the program and 7(b)(2) cases) are assigned to each Federal Columbia River Power System (FCRPS) resource pool according to the necessary level of detail. The interbusiness unit embedded costs, generation inputs to ancillary services, synchronous condensing and COE and BOR transmission, are developed from the COSA data. In addition, accrued expenses and the Minimum Required Net Revenues for the Slice revenue requirement are verified for consistency with the total generation revenue requirement.

Data development for the COSA, interbusiness unit embedded costs, and the Slice revenue requirement are derived from the annual costs identified in Table 1A - Generation Income Statement. For the COSA, costs are assigned to the resource pools primarily by direct identification, related to the rate development requirements of the Northwest Power Act. Exceptions are net interest expenses and planned net revenues, which are first split between Federal hydro projects and the remainder of generation by the use of equivalent annual costs (defined below). The generation portions are then divided between Fish & Wildlife, Conservation and BPA generation programs based on average net investment. These allocations, in turn, form the basis for the association of net interest expenses and MRNR with the interbusiness unit embedded costs. The O&M and depreciation are direct identification for the interbusiness unit embedded costs. The Slice revenue requirement is derived from the generation revenue requirement with the exclusion of certain budget line items.

### 2.2 Annual Cost Components of COSA Resource Pools

#### FBS Operating Expenses

- Hydro: COE, BOR, and US Fish & Wildlife O&M, and depreciation; Colville settlement payment; PNCA headwater benefits.
- Fish and Wildlife: BPA F&W direct program O&M and amortization of F&W direct program capital investments.
- Remaining FBS items: Contractual costs associated with Trojan, CGS, WNP-1 and -3 (excluding WNP 3 investor owned utility (IOU) settlement costs); balancing (short-term) power purchases and potential system augmentation purchases.

#### New Resources Operating Expenses

- Contractual obligations associated with energy acquired under the long-term generating projects and renewable generation programs, including the renewables rate credit, but excluding billing credits.

#### Residential Exchange Operating Expenses

- IOU and COU Residential Exchange program implementation expenses (benefits are calculated in the rate development process).

#### Conservation Operating Expenses

- Operating expenses associated with PS's generation conservation programs
- PS conservation support.
- Amortization of BPA capital investments in Legacy conservation, ConAug and conservation acquisitions.
- Third party debt service in conservation programs backed by BPA.
- Conservation rate credit.
- Energy Efficiency's share of corporate expense.
- Billing Credits expense.

#### Other Generation Costs Operating Expenses

- BPA programs are expense programs, including Power Marketing and Business Support, Power Scheduling, PBL System Operations, CSRS Pension expense, agency Administrative & Support Services, and the Northwest Planning and Conservation Council (NWPCC); depreciation associated with investment in capital equipment (office furniture & fixtures, communications equipment, data processing hardware and software) for PS and Corporate.

#### Transmission Costs

- TS transmission is estimated costs of BPA transmission service acquired when necessary for delivery of BPA wholesale power.
- Ancillary services are estimated annual costs of BPA Generation Integration transmission facilities (Note: while these are not specifically ancillary service product costs, this is the program under which this interbusiness unit expense currently is being reported).
- General Transfer Agreements are annual expenses associated with General Transfer Agreements for delivery of BPA wholesale power and non-BPA wheeling acquired for same.

#### Equivalent Annual Costs

Equivalent annual costs are used to prorate net interest expense and planned net revenues between Federal Hydro and the remainder of generation. They are calculated as levelized principal and interest payments (mortgage basis) using gross plant investment and projected additions. A weighted average interest rate is used for the historical plant and projected interest rates are used for additions. The prorating is based on the sum of all calculated proxy-payments for COE and BOR (Federal Hydro), and BPA plant, BPA fish and wildlife investment and all BPA conservation investments (all other generation). The generation portion is then allocated based on average net plant investment.

## 2.3 Interbusiness Unit Embedded Costs

### Generation Inputs to Ancillary Services

#### Operating Reserves

All Federal Hydro Projects in the BPA Balancing Authority (excludes Boise, Minidoka-Palisades, Green Springs and Lost Creek)

- O&M: sum of generation O&M for each hydro project, including Colville payment (associated with Columbia Basin), less F&W related O&M at projects.
- Depreciation: depreciation expense associated with generation investments at each hydro project.
- Net Interest Expense/MRNR: suballocation from Hydro in the COSA Itemized Revenue Requirement table based on generation net plant investment from Federal hydro projects in the BPA balancing authority. MRNR is determined from the Revenue Requirement Income Statement as a ratio of MRNR to Planned Net Revenues, Total and is applied to the suballocation from Hydro.
- Fish & Wildlife O&M: sum of BPA direct program, US F&W Service (Lower Snake River Compensation Plan) F&W portion of O&M at individual COE projects and 1/2 of the Planning Council budget
- Amortization/Depreciation: annual write-down of F&W investments from BPA direct program, Lower Snake River Compensation Plan (LSRCP), and CRFM.
- Net Interest Expense/MRNR: suballocation from COSA table Hydro line based on net plant investment from LSRCP and CRFM plus amounts in COSA table Fish & Wildlife line. MRNR is determined from the Revenue Requirement Income Statement as a ratio of MRNR to Planned Net Revenues, Total and is applied to the suballocation from Hydro and to the F&W COSA allocations.
- A&G Expense: generation revenue requirement O&M for Power Marketing, Power Scheduling, Generation Oversight, (one-half of) Planning Council budget, and BPA Administrative and Support Services.
- Revenue Credits: offsetting revenues associated with funding for BPA F&W program (4h10C credit associated with Direct Program expense and capital expenditure) and annual Colville settlement payments (Colville payment Treasury credit).

#### Regulation

- All components identical to operating reserves except that data associated with the top 10 COE/BOR hydro plants (Columbia Basin, Bonneville, John Day, The Dalles, Chief Joseph, Ice Harbor, Lower Granite, Lower Monumental, Little Goose, and McNary) is used instead of all COE/BOR projects in the BPA balancing authority.

### Synchronous Condensing

Synchronous Condensing: Capital-related Annual Costs are from identified investment in synchronous condensers: depreciation expense is calculated directly; suballocation of interest and MRNR from Federal Hydro in COSA, based on ratio of synchronous condenser net investment to total COE/BOR net plant investment. MRNR is determined from the Revenue Requirement Income Statement as a ratio of MRNR to Planned Net Revenues, Total and is applied to the suballocation from Hydro.

### COE And BOR Transmission

- O&M: sum of transmission O&M for each project with transmission facilities, as identified in Chapter 3, Functionalization of COE and BOR O&M.
- Depreciation: depreciation expense associated with transmission investments at each project, as identified in Chapter 4.
- Net Interest Expense/MRNR: suballocation from Hydro in the COSA Itemized Revenue Requirement table based on transmission net plant investment, as identified in Chapter 4. MRNR is determined from the Revenue Requirement Income Statement as a ratio of MRNR to Planned Net Revenues, Total and is applied to the suballocation from Hydro.

	A	B	C	D	E	F
1	<b>Table 2A</b>					
2						
3	<b>Generation Revenue Requirements by Resource Pool</b>					
4	<b>PROGRAM CASE</b>					
5	<b>(\$000s)</b>					
6						
7	FY 2010					
8		<b>INVEST</b>	<b>NET</b>	<b>NET</b>	<b>OPER</b>	<b>TOTAL</b>
9		<b>BASE</b>	<b>INT</b>	<b>REVS</b>	<b>EXP</b>	<b>(B+C+D)</b>
10	1. GENERATION COSTS					
11						
12	2. FEDERAL BASE SYSTEM					
13	3. HYDRO		133,499	134,290	433,943	701,732
14	4. FISH AND WILDLIFE	204,098	17,296	17,400	263,845	298,541
15	5. TROJAN				2,200	2,200
16	6. WNP #1				163,589	163,589
17	7. CGS				503,533	503,533
18	8. WNP #3				139,704	139,704
19	9. SYSTEM AUGMENTATION				176,305	176,305
20	10. BALANCING POWER PURCHASES				69,193	69,193
21	11. TOTAL FEDERAL BASE SYSTEM	204,098	150,795	151,690	1,752,311	2,054,796
22						
23	12. NEW RESOURCES					
24	13. IDAHO FALLS				2,788	2,788
25	14. COWLITZ FALLS				14,354	14,354
26	15. OTHER LONG-TERM POWER PURCHASES				66,719	66,719
27	16. TOTAL NEW RESOURCES				83,861	83,861
28						
29	17. RESIDENTIAL EXCHANGE				2,421	2,421
30						
31	18. CONSERVATION	162,293	13,754	13,835	170,130	197,719
32						
33	19. OTHER GENERATION COSTS					
34	20. BPA PROGRAMS	15,032	1,274	1,281	149,044	151,599
35	21. WNP #3 PLANT					0
36	22. TOTAL OTHER GENERATION COSTS	15,032	1,274	1,281	149,044	151,599
37						
38	23. TOTAL GENERATION COSTS	381,423	165,823	166,806	2,157,766	2,490,395
39						
40	24. TRANSMISSION COSTS					
41	25. TBL TRANSMISSION/ANCILLARY SERVICES				121,472	121,472
42	26. 3RD PARTY TRANS/ANCILLARY SERVICES				1,000	1,000
43	27. GENERAL TRANSFER AGREEMENTS				50,690	50,690
44	28. TOTAL TRANSMISSION COSTS				173,162	173,162
45						
46	29. TOTAL PBL REVENUE REQUIREMENT		165,823	166,806	2,330,928	2,663,557
47	30. BPA TRANSMISSION REVENUE REQUIREMENT		150,888	57,893	525,233	734,014
48	(Net of Line 25)					

	A	B	C	D	E	F
1	<b>Table 2A</b>					
2	<b>Generation Revenue Requirements by Resource Pool</b>					
3	<b>PROGRAM CASE</b>					
4	<b>(\$000s)</b>					
5						
49						
50						
51						
52	FY 2011					
53		A	B	C	D	E
54		INVEST	NET	NET	OPER	TOTAL
55		BASE	INT	REVS	EXP	(B+C+D)
56	1. GENERATION COSTS					
57						
58	2. FEDERAL BASE SYSTEM					
59	3. HYDRO		136,952	41,674	454,344	632,971
60	4. FISH AND WILDLIFE	243,903	21,102	6,422	272,623	300,147
61	5. TROJAN				2,300	2,300
62	6. WNP #1				165,500	165,500
63	7. CGS				592,762	592,762
64	8. WNP #3				164,849	164,849
65	9. SYSTEM AUGMENTATION				304,610	304,610
66	10. BALANCING POWER PURCHASES				54,535	54,535
67	11. TOTAL FEDERAL BASE SYSTEM	243,903	158,054	48,096	2,011,523	2,217,673
68						
69	12. NEW RESOURCES					
70	13. IDAHO FALLS				2,819	2,819
71	14. COWLITZ FALLS				14,381	14,381
72	15. OTHER LONG-TERM POWER PURCHASES				67,371	67,371
73	16. TOTAL NEW RESOURCES				84,571	84,571
74						
75	17. RESIDENTIAL EXCHANGE				1,440	1,440
76						
77	18. CONSERVATION	145,072	12,551	3,819	175,781	192,151
78						
79	19. OTHER GENERATION COSTS					
80	20. BPA PROGRAMS	12,887	1,115	339	153,320	154,774
81	21. WNP #3 PLANT					0
82	22. TOTAL OTHER GENERATION COSTS	12,887	1,115	339	153,320	154,774
83						
84	23. TOTAL GENERATION COSTS	401,862	171,720	52,254	2,426,635	2,650,609
85						
86	24. TRANSMISSION COSTS					
87	25. TBL TRANSMISSION/ANCILLARY SERVICES				118,230	118,230
88	26. 3RD PARTY TRANS/ANCILLARY SERVICES				1,000	1,000
89	27. GENERAL TRANSFER AGREEMENTS				51,340	51,340
90	28. TOTAL TRANSMISSION COSTS				170,570	170,570
91						
92	29. TOTAL PBL REVENUE REQUIREMENT		171,720	52,254	2,597,205	2,821,179
93	30. BPA TRANSMISSION REVENUE REQUIREMENT		166,505	57,581	548,866	772,952
94	(Net of Line 25)					
95						

	A	B	C	D	E	F
1	<b>Table 2A</b>					
2	<b>Generation Revenue Requirements by Resource Pool</b>					
3	<b>PROGRAM CASE</b>					
4	<b>(\$000s)</b>					
5						
96						
97						
98	FY 2012					
99						
100		A	B	C	D	E
101		INVEST	NET	NET	OPER	TOTAL
102		BASE	INT	REVS	EXP	(B+C+D)
103	1. GENERATION COSTS					
104	2. FEDERAL BASE SYSTEM					
105	3. HYDRO		150,980	0	470,874	621,854
106	4. FISH AND WILDLIFE	271,798	22,567	0	280,059	302,626
107	5. TROJAN				2,300	2,300
108	6. WNP #1				190,546	190,546
109	7. CGS				618,211	618,211
110	8. WNP #3				157,976	157,976
111	9. SYSTEM AUGMENTATION				159,868	159,868
112	10. BALANCING POWER PURCHASES				55,692	55,692
113	11. TOTAL FEDERAL BASE SYSTEM	271,798	173,547	0	1,935,526	2,109,073
114	12. NEW RESOURCES					
115	13. IDAHO FALLS				2,848	2,848
116	14. COWLITZ FALLS				14,407	14,407
117	15. OTHER LONG-TERM POWER PURCHASES				96,916	96,916
118	16. TOTAL NEW RESOURCES				114,171	114,171
119	17. RESIDENTIAL EXCHANGE				2,564	2,564
120	18. CONSERVATION	133,224	11,062	0	169,024	180,086
121	19. OTHER GENERATION COSTS					
122	20. BPA PROGRAMS	11,935	991	0	155,603	156,594
123	21. WNP #3 PLANT					0
124	22. TOTAL OTHER GENERATION COSTS	11,935	991	0	155,603	156,594
125	23. TOTAL GENERATION COSTS	416,957	185,600	0	2,376,888	2,562,487
126	24. TRANSMISSION COSTS					
127	25. TBL TRANSMISSION/ANCILLARY SERVICES				124,903	124,903
128	26. 3RD PARTY TRANS/ANCILLARY SERVICES				1,000	1,000
129	27. GENERAL TRANSFER AGREEMENTS				52,428	52,428
130	28. TOTAL TRANSMISSION COSTS				178,331	178,331
131	29. TOTAL PBL REVENUE REQUIREMENT		185,600	0	2,555,219	2,740,819
132						
133						
134						
135						
136						
137						
138						
139						
140						

	A	B	C	D	E	F
1	<b>Table 2A</b>					
2	<b>Generation Revenue Requirements by Resource Pool</b>					
3	<b>PROGRAM CASE</b>					
4	<b>(\$000s)</b>					
5						
141						
142						
143						
144	FY 2013					
145		A	B	C	D	E
146		INVEST	NET	NET	OPER	TOTAL
147		BASE	INT	REVS	EXP	(B+C+D)
148	1. GENERATION COSTS					
149						
150	2. FEDERAL BASE SYSTEM					
151	3. HYDRO		164,708	36,218	485,336	686,262
152	4. FISH AND WILDLIFE	293,187	25,405	5,586	288,032	319,023
153	5. TROJAN				2,400	2,400
154	6. WNP #1				285,733	285,733
155	7. CGS				506,447	506,447
156	8. WNP #3				172,276	172,276
157	9. SYSTEM AUGMENTATION				274,762	274,762
158	10. BALANCING POWER PURCHASES				47,853	47,853
159	11. TOTAL FEDERAL BASE SYSTEM	293,187	190,113	41,804	2,062,840	2,294,757
160						
161	12. NEW RESOURCES					
162	13. IDAHO FALLS				2,876	2,876
163	14. COWLITZ FALLS				14,422	14,422
164	15. OTHER LONG-TERM POWER PURCHASES				98,395	98,395
165	16. TOTAL NEW RESOURCES				115,692	115,692
166						
167	17. RESIDENTIAL EXCHANGE				1,583	1,583
168						
169	18. CONSERVATION	124,366	10,777	2,370	173,151	186,298
170						
171	19. OTHER GENERATION COSTS					
172	20. BPA PROGRAMS	11,935	1,034	227	156,403	157,664
173	21. WNP #3 PLANT					
174	22. TOTAL OTHER GENERATION COSTS	11,935	1,034	227	156,403	157,664
175						
176	23. TOTAL GENERATION COSTS	429,488	201,924	44,401	2,509,670	2,755,995
177						
178	24. TRANSMISSION COSTS					
179	25. TBL TRANSMISSION/ANCILLARY SERVICES				124,903	124,903
180	26. 3RD PARTY TRANS/ANCILLARY SERVICES				1,000	1,000
181	27. GENERAL TRANSFER AGREEMENTS				52,437	52,437
182	28. TOTAL TRANSMISSION COSTS				178,340	178,340
183						
184	29. TOTAL PBL REVENUE REQUIREMENT		201,924	44,401	2,688,010	2,934,335
185						
186						

	A	B	C	D	E	F
1	<b>Table 2A</b>					
2	<b>Generation Revenue Requirements by Resource Pool</b>					
3	<b>PROGRAM CASE</b>					
4	<b>(\$000s)</b>					
5						
187						
188						
189						
190	FY 2014					
191		A	B	C	D	E
192		INVEST	NET	NET	OPER	TOTAL
193		BASE	INT	REVS	EXP	(B+C+D)
194	1. GENERATION COSTS					
195						
196	2. FEDERAL BASE SYSTEM					
197	3. HYDRO		178,774	34,758	498,709	712,240
198	4. FISH AND WILDLIFE	305,991	29,297	5,424	295,635	330,356
199	5. TROJAN				2,500	2,500
200	6. WNP #1				269,571	269,571
201	7. CGS				496,369	496,369
202	8. WNP #3				162,214	162,214
203	9. SYSTEM AUGMENTATION				274,959	274,959
204	10. BALANCING POWER PURCHASES				61,814	61,814
205	11. TOTAL FEDERAL BASE SYSTEM	305,991	208,071	40,182	2,061,772	2,310,024
206						
207	12. NEW RESOURCES					
208	13. IDAHO FALLS				2,904	2,904
209	14. COWLITZ FALLS				14,445	14,445
210	15. OTHER LONG-TERM POWER PURCHASES				99,390	99,390
211	16. TOTAL NEW RESOURCES				116,738	116,738
212						
213	17. RESIDENTIAL EXCHANGE				2,604	2,604
214						
215	18. CONSERVATION	113,434	9,829	2,161	174,250	186,240
216						
217	19. OTHER GENERATION COSTS					
218	20. BPA PROGRAMS	10,177	882	194	162,242	163,318
219	21. WNP #3 PLANT					
220	22. TOTAL OTHER GENERATION COSTS	10,177	882	194	162,242	163,318
221						
222	23. TOTAL GENERATION COSTS	429,602	218,782	42,537	2,517,606	2,778,924
223						
224	24. TRANSMISSION COSTS					
225	25. TBL TRANSMISSION/ANCILLARY SERVICES				124,903	124,903
226	26. 3RD PARTY TRANS/ANCILLARY SERVICES				1,000	1,000
227	27. GENERAL TRANSFER AGREEMENTS				52,446	52,446
228	28. TOTAL TRANSMISSION COSTS				178,349	178,349
229						
230	29. TOTAL PBL REVENUE REQUIREMENT		218,782	42,537	2,695,955	2,957,273
231						
232						

	A	B	C	D	E	F
1	<b>Table 2A</b>					
2	<b>Generation Revenue Requirements by Resource Pool</b>					
3	<b>PROGRAM CASE</b>					
4	<b>(\$000s)</b>					
5						
233						
234						
235						
236	FY 2015					
237		A	B	C	D	E
238		INVEST	NET	NET	OPER	TOTAL
239		BASE	INT	REVS	EXP	(B+C+D)
240	1. GENERATION COSTS					
241						
242	2. FEDERAL BASE SYSTEM					
243	3. HYDRO		189,952	53,792	510,956	754,700
244	4. FISH AND WILDLIFE	310,283	32,524	9,819	303,464	345,807
245	5. TROJAN				2,600	2,600
246	6. WNP #1				201,573	201,573
247	7. CGS				584,907	584,907
248	8. WNP #3				182,918	182,918
249	9. SYSTEM AUGMENTATION				411,560	411,560
250	10. BALANCING POWER PURCHASES				52,535	52,535
251	11. TOTAL FEDERAL BASE SYSTEM	310,283	222,476	63,611	2,250,512	2,536,599
252						
253	12. NEW RESOURCES					
254	13. IDAHO FALLS				2,927	2,927
255	14. COWLITZ FALLS				14,458	14,458
256	15. OTHER LONG-TERM POWER PURCHASES				100,233	100,233
257	16. TOTAL NEW RESOURCES				117,617	117,617
258						
259	17. RESIDENTIAL EXCHANGE				1,700	1,700
260						
261	18. CONSERVATION	103,259	8,948	1,967	168,064	178,979
262						
263	19. OTHER GENERATION COSTS					
264	20. BPA PROGRAMS	7,603	659	145	168,064	168,868
265	21. WNP #3 PLANT					
266	22. TOTAL OTHER GENERATION COSTS	7,603	659	145	168,064	168,868
267						
268	23. TOTAL GENERATION COSTS	421,145	232,083	65,723	2,705,958	3,003,764
269						
270	24. TRANSMISSION COSTS					
271	25. TBL TRANSMISSION/ANCILLARY SERVICES				124,903	124,903
272	26. 3RD PARTY TRANS/ANCILLARY SERVICES				1,000	1,000
273	27. GENERAL TRANSFER AGREEMENTS				52,446	52,446
274	28. TOTAL TRANSMISSION COSTS				178,349	178,349
275						
276	29. TOTAL PBL REVENUE REQUIREMENT		232,083	65,723	2,884,307	3,182,113
277						
278						

	A	B	C	D	E	F
1	<b>Table 2B</b>					
2						
3	<b>Allocation of Net Interest and Planned Net Revenues for COSA</b>					
4	<b>(\$000s)</b>					
5						
6						
7						
8	<b><u>FY 2010</u></b>			<b><u>Hydro</u></b>	<b><u>All Other</u></b>	<b><u>Total</u></b> <b><u>Generation</u></b>
9	1	Equivalent Annual Costs		544,605	131,864	676,468
10	2	Percent		81%	19%	100%
11						
12	3	Net Interest Expense		133,499	32,324	165,823
13						
14	4	Planned Net Revenues		134,290	32,516	166,806
15						
16						
17	<b><u>FY 2011</u></b>			<b><u>Hydro</u></b>	<b><u>All Other</u></b>	<b><u>Total</u></b> <b><u>Generation</u></b>
18	5	Equivalent Annual Costs		551,895	140,111	692,006
19	6	Percent		80%	20%	100%
20						
21	7	Net Interest Expense		136,952	34,768	171,720
22						
23	8	Planned Net Revenues		41,674	10,580	52,254
24						
25						
26	<b><u>FY 2012</u></b>			<b><u>Hydro</u></b>	<b><u>All Other</u></b>	<b><u>Total</u></b> <b><u>Generation</u></b>
27	9	Equivalent Annual Costs		567,605	130,155	697,760
28	10	Percent		81%	19%	100%
29						
30	11	Net Interest Expense		150,980	34,620	185,600
31						
32	12	Planned Net Revenues		-	-	-
33						

	A	B	C	D	E	F
1	<b>Table 2B</b>					
2						
3	<b>Allocation of Net Interest and Planned Net Revenues for COSA</b>					
4	<b>(\$000s)</b>					
34						
35	<b><u>FY 2013</u></b>			<b><u>Hydro</u></b>	<b><u>All Other</u></b>	<b><u>Total</u></b>
36	13	Equivalent Annual Costs		595,064	134,456	729,520
37	14	Percent		82%	18%	100%
38						
39	15	Net Interest Expense		164,708	37,216	201,924
40						
41	16	Planned Net Revenues		36,218	8,183	44,401
42						
43						
44	<b><u>FY 2014</u></b>			<b><u>Hydro</u></b>	<b><u>All Other</u></b>	<b><u>Total</u></b>
45	17	Equivalent Annual Costs		611,047	136,749	747,795
46	18	Percent		82%	18%	100%
47						
48	19	Net Interest Expense		178,774	40,008	218,782
49						
50	20	Planned Net Revenues		34,758	7,779	42,537
51						
52						
53	<b><u>FY 2015</u></b>			<b><u>Hydro</u></b>	<b><u>All Other</u></b>	<b><u>Total</u></b>
54	21	Equivalent Annual Costs		616,410	136,720	753,130
55	22	Percent		82%	18%	100%
56						
57	23	Net Interest Expense		189,952	42,131	232,083
58						
59	24	Planned Net Revenues		53,792	11,931	65,723
60						

Table 2C

Equivalent Annual Costs  
(\$000s)

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2												
3												
4												
5												
6												
7												
8			<b>COMP</b>	<b>WT AV</b>	<b>2010</b>	<b>COMP</b>	<b>WT AV</b>	<b>2011</b>	<b>COMP</b>	<b>WT AV</b>	<b>2012</b>	
9		<b>AVG</b>	<b>PLANT</b>	<b>INT</b>	<b>EQ ANN</b>	<b>PLANT</b>	<b>INT</b>	<b>EQ ANN</b>	<b>PLANT</b>	<b>INT</b>	<b>EQ ANN</b>	
10		<b>LIFE</b>	<b>9/30/2010</b>	<b>RATE</b>	<b>COSTS</b>	<b>9/30/2011</b>	<b>RATE</b>	<b>COSTS</b>	<b>9/30/2012</b>	<b>RATE</b>	<b>COSTS</b>	
11	1	Corps of Engineers/Bureau of Reclamation	50	8,126,782	6.40%	\$544,605	8,268,670	6.37%	\$551,885	8,527,134	6.35%	\$567,605
12												
13	2	BPA F&W	15	373,327	6.00%	\$38,439	407,281	6.06%	\$42,099	429,217	6.11%	\$44,512
14	3	PBL General Plant	6	98,069	6.46%	\$21,188	113,019	6.52%	\$20,301	128,060	6.57%	\$21,148
15	4	CONSERVATION	13	659,654	5.58%	\$72,237	653,040	5.69%	\$77,711	524,941	5.80%	\$64,495
16	5	Sub-Total				\$131,864			\$140,111			\$130,155
17												
18		PBL										
19	6	OFFICE FURNITURE & FIXTURES										
20	7	DATA PROCESSING EQUIPMENT										
21	8	DATA PROCESSING SOFTWARE										
22	9	TOTAL GENERAL PLANT - PBL	6	98,069	17,281	7	113,019	15,830	8	128,060	16,065	9
23		CONSERVATION										
24	10	LEGACY										
25	11	CONAUG										
26	12	CONSERVATION ACQUISITION										
27	13	TOTAL CONSERVATION	13	659,654	50,275	12	653,040	55,565	11	524,941	46,331	9

Table 2C

Equivalent Annual Costs  
(\$000s)

	A	B	M	N	O	P	Q	R	S	T	U
1											
2											
3											
4											
5											
6											
7											
8			<b>COMP</b>	<b>WT AV</b>	<b>2013</b>	<b>COMP</b>	<b>WT AV</b>	<b>2014</b>	<b>COMP</b>	<b>WT AV</b>	<b>2015</b>
9			<b>PLANT</b>	<b>INT</b>	<b>EQ ANN</b>	<b>PLANT</b>	<b>INT</b>	<b>EQ ANN</b>	<b>PLANT</b>	<b>INT</b>	<b>EQ ANN</b>
10			<u><b>9/30/2013</b></u>	<u><b>RATE</b></u>	<u><b>COSTS</b></u>	<u><b>9/30/2014</b></u>	<u><b>RATE</b></u>	<u><b>COSTS</b></u>	<u><b>9/30/2015</b></u>	<u><b>RATE</b></u>	<u><b>COSTS</b></u>
11	1	Corps of Engineers/Bureau of Reclamation	8,951,723	6.34%	\$595,064	9,192,145	6.34%	\$611,047	9,272,836	6.34%	\$616,410
12											
13	2	BPA F&W	457,222	6.15%	\$47,539	478,474	6.15%	\$49,749	500,576	6.15%	\$52,047
14	3	PBL General Plant	143,159	6.60%	\$21,134	158,258	6.60%	\$23,197	173,357	6.60%	\$25,334
15	4	CONSERVATION	461,185	5.88%	\$65,782	376,492	5.88%	\$63,803	315,964	5.88%	\$59,338
16	5	Sub-Total			\$134,456			\$136,749			\$136,720
17											
18		PBL									
19	6	OFFICE FURNITURE & FIXTURES									
20	7	DATA PROCESSING EQUIPMENT									
21	8	DATA PROCESSING SOFTWARE									
22	9	TOTAL GENERAL PLANT - PBL	143,159	15,442	9	158,258	16,905	9	173,357	18,442	
23		CONSERVATION									
24	10	LEGACY									
25	11	CONAUG									
26	12	CONSERVATION ACQUISITION									
27	13	TOTAL CONSERVATION	461,185	49,584	7	376,492	50,480	7	315,964	48,069	

	A	B	C	D	E	F
1	<b>Table 2D</b>					
2						
3	<b>Generation Revenue Requirements by Resource Pool</b>					
4	<b>7B2 CASE</b>					
5	<b>(\$000s)</b>					
6						
7	<b>FY 2010</b>					
8						
9		<b>INVEST</b>	<b>NET</b>	<b>NET</b>	<b>OPER</b>	<b>TOTAL</b>
10		<b>BASE</b>	<b>INT</b>	<b>REVS</b>	<b>EXP</b>	<b>(B+C+D)</b>
11	1. GENERATION COSTS					
12						
13	2. FEDERAL BASE SYSTEM					
14	3. HYDRO		183,287	193,922	433,943	811,152
15	4. FISH AND WILDLIFE	182,695	18,920	20,018	263,845	302,783
16	5. TROJAN				2,200	2,200
17	6. WNP #1				163,589	163,589
18	7. CGS				503,533	503,533
19	8. WNP #3				139,704	139,704
20	9. SYSTEM AUGMENTATION				176,305	176,305
21	10. BALANCING POWER PURCHASES				69,193	69,193
22	11. TOTAL FEDERAL BASE SYSTEM	182,695	202,207	213,940	1,752,311	2,168,458
23						
24	12. NEW RESOURCES					
25	13. IDAHO FALLS					
26	14. COWLITZ FALLS					
27	15. OTHER LONG-TERM POWER PURCHASES					
28	16. TOTAL NEW RESOURCES					
29						
30	17. RESIDENTIAL EXCHANGE					
31						
32	18. CONSERVATION					
33						
34	19. OTHER GENERATION COSTS					
35	20. BPA PROGRAMS	11,080	1,147	1,214	149,044	151,405
36	21. WNP #3 PLANT					0
37	22. TOTAL OTHER GENERATION COSTS	11,080	1,147	1,214	149,044	151,405
38						
39	23. TOTAL GENERATION COSTS	193,775	203,354	215,154	1,901,354	2,319,862
40						
41	24. TRANSMISSION COSTS					
42	25. TBL TRANSMISSION/ANCILLARY SERVICES				121,472	121,472
43	26. 3RD PARTY TRANS/ANCILLARY SERVICES				1,000	1,000
44	27. GENERAL TRANSFER AGREEMENTS				50,690	50,690
45	28. TOTAL TRANSMISSION COSTS				173,162	173,162
46						
47	29. TOTAL PBL REVENUE REQUIREMENT		203,354	215,154	2,074,516	2,493,024

	A	B	C	D	E	F
1	<b>Table 2D</b>					
2						
3	<b>Generation Revenue Requirements by Resource Pool</b>					
4	<b>7B2 CASE</b>					
5	<b>(\$000s)</b>					
48						
49						
50						
51						
52						
53	<b>FY 2011</b>					
54						
55		<b>INVEST</b>	<b>NET</b>	<b>NET</b>	<b>OPER</b>	<b>TOTAL</b>
56		<b>BASE</b>	<b>INT</b>	<b>REVS</b>	<b>EXP</b>	<b>(B+C+D)</b>
57	1. GENERATION COSTS					
58						
59	2. FEDERAL BASE SYSTEM					
60	3. HYDRO		185,402	93,787	454,344	733,533
61	4. FISH AND WILDLIFE	195,997	20,015	10,125	272,623	302,763
62	5. TROJAN				2,300	2,300
63	6. WNP #1				165,500	165,500
64	7. CGS				592,762	592,762
65	8. WNP #3				164,849	164,849
66	9. SYSTEM AUGMENTATION				304,610	304,610
67	10. BALANCING POWER PURCHASES				54,535	54,535
68	11. TOTAL FEDERAL BASE SYSTEM	195,997	205,417	103,912	2,011,523	2,320,852
69						
70	12. NEW RESOURCES					
71	13. IDAHO FALLS					
72	14. COWLITZ FALLS					
73	15. OTHER LONG-TERM POWER PURCHASES					
74	16. TOTAL NEW RESOURCES					
75						
76	17. RESIDENTIAL EXCHANGE					
77						
78	18. CONSERVATION					
79						
80	19. OTHER GENERATION COSTS					
81	20. BPA PROGRAMS	9,274	947	479	153,320	154,746
82	21. WNP #3 PLANT					0
83	22. TOTAL OTHER GENERATION COSTS	9274	947	479	153,320	154,746
84						
85	23. TOTAL GENERATION COSTS	205,271	206,364	104,391	2,164,843	2,475,598
86						
87	24. TRANSMISSION COSTS					
88	25. TBL TRANSMISSION/ANCILLARY SERVICES				118,230	118,230
89	26. 3RD PARTY TRANS/ANCILLARY SERVICES				1,000	1,000
90	27. GENERAL TRANSFER AGREEMENTS				51,340	51,340
91	28. TOTAL TRANSMISSION COSTS				170,570	170,570
92						
93	29. TOTAL PBL REVENUE REQUIREMENT		206,364	104,391	2,335,413	2,646,168

	A	B	C	D	E	F
1	<b>Table 2D</b>					
2	<b>Generation Revenue Requirements by Resource Pool</b>					
3	<b>7B2 CASE</b>					
4	<b>(\$000s)</b>					
5						
94						
95						
96						
97						
98						
99	<b>FY 2012</b>					
100						
101		<b>INVEST</b>	<b>NET</b>	<b>NET</b>	<b>OPER</b>	<b>TOTAL</b>
102		<b>BASE</b>	<b>INT</b>	<b>REVS</b>	<b>EXP</b>	<b>(B+C+D)</b>
103	1. GENERATION COSTS					
104						
105	2. FEDERAL BASE SYSTEM					
106	3. HYDRO		198,270	5,825	470,874	674,970
107	4. FISH AND WILDLIFE	312,022	33,299	979	280,059	314,337
108	5. TROJAN				2,300	2,300
109	6. WNP #1				190,546	190,546
110	7. CGS				618,211	618,211
111	8. WNP #3				157,976	157,976
112	9. SYSTEM AUGMENTATION				159,868	159,868
113	10. BALANCING POWER PURCHASES				55,692	55,692
114	11. TOTAL FEDERAL BASE SYSTEM	208,989	231,569	6,804	1,935,526	2,173,900
115						
116	12. NEW RESOURCES					
117	13. IDAHO FALLS					
118	14. COWLITZ FALLS					
119	15. OTHER LONG-TERM POWER PURCHASES					
120	16. TOTAL NEW RESOURCES					
121						
122	17. RESIDENTIAL EXCHANGE					
123						
124	18. CONSERVATION					
125						
126	19. OTHER GENERATION COSTS					
127	20. BPA PROGRAMS	5,931	-10,363	-305	155,603	144,935
128	21. WNP #3 PLANT					0
129	22. TOTAL OTHER GENERATION COSTS	5,931	-10,363	-305	155,603	144,935
130						
131	23. TOTAL GENERATION COSTS	214,920	221,206	6,499	2,091,129	2,318,835
132						
133	24. TRANSMISSION COSTS					
134	25. TBL TRANSMISSION/ANCILLARY SERVICES				124,903	124,903
135	26. 3RD PARTY TRANS/ANCILLARY SERVICES				1,000	1,000
136	27. GENERAL TRANSFER AGREEMENTS				52,428	52,428
137	28. TOTAL TRANSMISSION COSTS				178,331	178,331
138						
139	29. TOTAL PBL REVENUE REQUIREMENT		221,206	6,499	2,269,461	2,497,166

	A	B	C	D	E	F
1	<b>Table 2D</b>					
2						
3	<b>Generation Revenue Requirements by Resource Pool</b>					
4	<b>7B2 CASE</b>					
5	<b>(\$000s)</b>					
140						
141						
142						
143						
144						
145	<b>FY 2013</b>					
146						
147		<b>INVEST</b>	<b>NET</b>	<b>NET</b>	<b>OPER</b>	<b>TOTAL</b>
148		<b>BASE</b>	<b>INT</b>	<b>REVS</b>	<b>EXP</b>	<b>(B+C+D)</b>
149	1. GENERATION COSTS					
150						
151	2. FEDERAL BASE SYSTEM					
152	3. HYDRO		212,470	51,968	485,336	749,773
153	4. FISH AND WILDLIFE	221,576	24,520	5,997	288,032	318,549
154	5. TROJAN				2,400	2,400
155	6. WNP #1				285,733	285,733
156	7. CGS				506,447	506,447
157	8. WNP #3				172,276	172,276
158	9. SYSTEM AUGMENTATION				274,762	274,762
159	10. BALANCING POWER PURCHASES				47,853	47,853
160	11. TOTAL FEDERAL BASE SYSTEM	221,576	236,990	57,965	2,062,840	2,357,795
161						
162	12. NEW RESOURCES					
163	13. IDAHO FALLS					
164	14. COWLITZ FALLS					
165	15. OTHER LONG-TERM POWER PURCHASES					
166	16. TOTAL NEW RESOURCES					
167						
168	17. RESIDENTIAL EXCHANGE					
169						
170	18. CONSERVATION					
171						
172	19. OTHER GENERATION COSTS					
173	20. BPA PROGRAMS	0	0	0	156,403	156,403
174	21. WNP #3 PLANT					
175	22. TOTAL OTHER GENERATION COSTS	0	0	0	156,403	156,403
176						
177	23. TOTAL GENERATION COSTS	221,576	236,990	57,965	2,219,244	2,514,198
178						
179	24. TRANSMISSION COSTS					
180	25. TBL TRANSMISSION/ANCILLARY SERVICES				124,903	124,903
181	26. 3RD PARTY TRANS/ANCILLARY SERVICES				1,000	1,000
182	27. GENERAL TRANSFER AGREEMENTS				52,437	52,437
183	28. TOTAL TRANSMISSION COSTS				178,340	178,340
184						
185	29. TOTAL PBL REVENUE REQUIREMENT		236,990	57,965	2,397,584	2,692,538

	A	B	C	D	E	F
1	<b>Table 2D</b>					
2						
3	<b>Generation Revenue Requirements by Resource Pool</b>					
4	<b>7B2 CASE</b>					
5	<b>(\$000s)</b>					
186						
187						
188						
189						
190						
191	<b>FY 2014</b>					
192						
193		<b>INVEST</b>	<b>NET</b>	<b>NET</b>	<b>OPER</b>	<b>TOTAL</b>
194		<b>BASE</b>	<b>INT</b>	<b>REVS</b>	<b>EXP</b>	<b>(B+C+D)</b>
195	1. GENERATION COSTS					
196						
197	2. FEDERAL BASE SYSTEM					
198	3. HYDRO		226,721	48,990	498,709	774,420
199	4. FISH AND WILDLIFE	305,991	26,195	5,660	295,635	327,490
200	5. TROJAN				2,500	2,500
201	6. WNP #1				269,571	269,571
202	7. CGS				496,369	496,369
203	8. WNP #3				162,214	162,214
204	9. SYSTEM AUGMENTATION				274,959	274,959
205	10. BALANCING POWER PURCHASES				61,814	61,814
206	11. TOTAL FEDERAL BASE SYSTEM	305,991	252,916	54,650	2,061,772	2,369,337
207						
208	12. NEW RESOURCES					
209	13. IDAHO FALLS					
210	14. COWLITZ FALLS					
211	15. OTHER LONG-TERM POWER PURCHASES					
212	16. TOTAL NEW RESOURCES					
213						
214	17. RESIDENTIAL EXCHANGE					
215						
216	18. CONSERVATION					
217						
218	19. OTHER GENERATION COSTS					
219	20. BPA PROGRAMS	10,177	871	188	162,242	163,301
220	21. WNP #3 PLANT					
221	22. TOTAL OTHER GENERATION COSTS	10,177	871	188	162,242	163,301
222						
223	23. TOTAL GENERATION COSTS	316,168	253,787	54,838	2,224,014	2,532,638
224						
225	24. TRANSMISSION COSTS					
226	25. TBL TRANSMISSION/ANCILLARY SERVICES				124,903	124,903
227	26. 3RD PARTY TRANS/ANCILLARY SERVICES				1,000	1,000
228	27. GENERAL TRANSFER AGREEMENTS				52,446	52,446
229	28. TOTAL TRANSMISSION COSTS				178,349	178,349
230						
231	29. TOTAL PBL REVENUE REQUIREMENT		253,787	54,838	2,402,363	2,710,987

	A	B	C	D	E	F
1	<b>Table 2D</b>					
2						
3	<b>Generation Revenue Requirements by Resource Pool</b>					
4	<b>7B2 CASE</b>					
5	<b>(\$000s)</b>					
232						
233						
234						
235						
236						
237	<b>FY 2015</b>					
238						
239		<b>INVEST</b>	<b>NET</b>	<b>NET</b>	<b>OPER</b>	<b>TOTAL</b>
240		<b>BASE</b>	<b>INT</b>	<b>REVS</b>	<b>EXP</b>	<b>(B+C+D)</b>
241	1. GENERATION COSTS					
242						
243	2. FEDERAL BASE SYSTEM					
244	3. HYDRO		235,974	62,541	510,956	809,471
245	4. FISH AND WILDLIFE	310,283	28,914	7,663	303,464	340,041
246	5. TROJAN				2,600	2,600
247	6. WNP #1				201,573	201,573
248	7. CGS				584,907	584,907
249	8. WNP #3				182,918	182,918
250	9. SYSTEM AUGMENTATION				411,560	411,560
251	10. BALANCING POWER PURCHASES				52,535	52,535
252	11. TOTAL FEDERAL BASE SYSTEM	310,283	264,888	70,204	2,250,512	2,585,604
253						
254	12. NEW RESOURCES					
255	13. IDAHO FALLS					
256	14. COWLITZ FALLS					
257	15. OTHER LONG-TERM POWER PURCHASES					
258	16. TOTAL NEW RESOURCES					
259						
260	17. RESIDENTIAL EXCHANGE					
261						
262	18. CONSERVATION					
263						
264	19. OTHER GENERATION COSTS					
265	20. BPA PROGRAMS	7,603	709	188	168,064	168,961
266	21. WNP #3 PLANT					
267	22. TOTAL OTHER GENERATION COSTS	7,603	709	188	168,064	168,961
268						
269	23. TOTAL GENERATION COSTS	317,886	265,597	70,392	2,418,576	2,754,565
270						
271	24. TRANSMISSION COSTS					
272	25. TBL TRANSMISSION/ANCILLARY SERVICES				124,903	124,903
273	26. 3RD PARTY TRANS/ANCILLARY SERVICES				1,000	1,000
274	27. GENERAL TRANSFER AGREEMENTS				52,446	52,446
275	28. TOTAL TRANSMISSION COSTS				178,349	178,349
276						
277	29. TOTAL PBL REVENUE REQUIREMENT		265,597	70,392	2,596,925	2,932,914

	A	B	C	D	E
1	<b>Table 2E</b>				
2					
3	<b>Regulation</b>				
4	<b>Power Revenue Requirement for</b>				
5	<b>Big Ten Hydroelectric Projects and F&amp;W</b>				
6	<b>(\$000s)</b>				
7					
8			<b>A</b>	<b>B</b>	
9			<b><u>2010</u></b>	<b><u>2011</u></b>	
10	1 Big 10 Dams				
11	2 O&M		193,913	205,143	
12	3 Depreciation		70,178	71,478	
13	4 Net Interest		80,664	81,818	
14	5 Minimum Required Net Revenues		57,793	2,027	
15	6 Subtotal		402,548	360,466	
16					
17	7 Fish & Wildlife				
18	8 O&M		307,579	315,597	
19	9 Amortization/Depreciation		40,270	44,024	
20	10 Net Interest		45,900	51,835	
21	11 Minimum Required Net Revenues		32,887	1,284	
22	12 Subtotal		426,636	412,740	
23					
24	13 A&G Expense 1/		100,187	101,747	
25					
26	14 Total Revenue Requirement		929,371	874,953	
27	15 Revenue Credits:				
28	16 4h10C (non-operations)		66,900	66,008	
29	17 Colville payment Treas. Credit		4,600	4,600	
30	18 Net Revenue Requirement		857,871	804,345	
31					
32	1/ Power Marketing Sales & Support, Power Scheduling, Generation				
33	Oversight, Corporate Expense and 1/2 Planning Council				

	A	B	C	D	E
1	<b>Table 2E</b>				
2					
3	<b>Regulation</b>				
4	<b>Power Revenue Requirement for</b>				
5	<b>Big Ten Hydroelectric Projects and F&amp;W</b>				
6	<b>(\$000s)</b>				
34					
35			<b><u>2010</u></b>	<b><u>2011</u></b>	
36	19	Big 10 average net plant	3,091,721	3,118,466	
37	20	Total COE/BOR av net plt	5,116,782	5,219,905	
38	21	Percent of total	60.42%	59.74%	
39					
40	22	O&M by project			
41	23	Columbia Basin	84,380	92,620	
42	24	Bonneville	22,569	23,142	
43	25	John Day	19,117	19,603	
44	26	The Dalles	19,180	19,668	
45	27	Chief Joseph	23,390	23,986	
46	28	Ice Harbor	9,306	9,543	
47	29	Lower Granite	12,070	12,377	
48	30	Lower Monumental	9,682	9,929	
49	31	Little Goose	8,793	9,016	
50	32	McNary	25,160	25,801	
51	33	Total O&M	233,647	245,685	
52					
53	34	COE/USFW F&W COSTS			
54	35	O&M: USFW	23600	24480	
55	36	COE	40,858	41,898	
56	37	Depreciation	16,366	17,539	
57	38	Interest	28,604	30,733	
58	39	Minimum Required Net Revenues	20,494	761	
59	40	CRFM/LSFW Average Net Plant	1,096,350	1,171,398	
60	41	Percent of total	21%	22%	
61	42	F&W O&M in Big 10 Projects	31,734	32,542	
62	43	F&W O&M in Col Basin O&M	8,000	8,000	
63					
64	44	4H10C non-operations			
65	45	Direct Program Expense	230,000	236,000	
66	46	Direct Program Capital	70,000	60,000	
67	47	Credit @ 22.3%	66,900	66,008	
68					
69					

	A	B	C	D	E
1	<b>Table 2F</b>				
2					
3	<b>Operating Reserves</b>				
4	<b>Power Revenue Requirement for</b>				
5	<b>All Hydroelectric Projects and F&amp;W</b>				
6	<b>(\$000s)</b>				
7					
8					
9			<b><u>2010</u></b>	<b><u>2011</u></b>	
10	1	All Hydro Projects 1/			
11	2	O&M	233,593	246,547	
12	3	Depreciation	86,739	88,286	
13	4	Net Interest	102,764	104,161	
14	5	Minimum Required Net Revenues	73,627	2,581	
15	6	Total Revenue Requirement	496,723	441,575	
16					
17	7	Fish & Wildlife			
18	8	O&M	307,579	315,597	
19	9	Amortization/Depreciation	40,270	44,024	
20	10	Net Interest	45,900	51,835	
21	11	Minimum Required Net Revenues	32,887	1,284	
22	12	Subtotal	426,636	412,740	
23					
24	13	A&G Expense 2/	100,187	101,747	
25					
26	14	Total Revenue Requirement	1,023,546	956,061	
27	15	Revenue Credits			
28	16	4h10C (non-operations)	66,900	66,008	
29	17	Colville payment Treas. Credit	4,600	4,600	
30	18	Net Revenue Requirement	<b>952,046</b>	<b>885,453</b>	
31					
32					
33	1/	Power Marketing, Power Scheduling, Generation Oversight, Corporate Expense and 1/2			
34		Planning Council			
35					

	B	C	D	E	F	G	H	I	J	K	L	M	N
1	<b>Table 2G</b>												
2	<b>Synchronous Condensers</b>												
3	<b>Net Plant Calculation</b>												
4	<b>(\$000s)</b>												
5			<b>plant-</b>										
6			<b>in-service</b>										
7				<b>Annual</b>									
8				<b>Deprec</b>									
9	<b>Life</b>	<b>Project</b>	<b>1999</b>		<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
10	75.0	John Day	3,956	53	106	159	212	265	318	371	424	477	530
11	75.0	The Dalles	3,753	50	100	150	200	250	300	350	400	450	500
12		TOTAL	7,709	103	206	309	412	515	618	721	824	927	1,030
13													
14	net plant investment				7,503	7,400	7,297	7,194	7,091	6,988	6,885	6,782	6,679
15													
16													

	A	B	C	D
1		<b>Table 2H</b>		
2				
3		<b>Determination of Synchronous Condenser Annual Costs</b>		
4		<b>(\$000s)</b>		
5			<b><u>2010</u></b>	<b><u>2011</u></b>
6				
7				
8	1	Synchronous Condensers Net Plant	6,576	6,473
9	2	Total Corps/Bureau Average Net Plant	5,116,782	5,219,905
10	3	percent	0.13%	0.12%
11	4	Corps/Bureau Net Interest	133,499	136,952
12	5	Sync Cond Net Interest	172	170
13	6	Corps/Bureau MRNR	95,647	3,393
14	7	Sync Cond MRNR	123	4
15	8	Sync Cond Depreciation	103	103
16	9	Total Sync Cond Costs	398	277
17				

	A	B	C	D	E	F	G	H
1	<b>Table 2I</b>							
2								
3	<b>Corps/Reclamation Transmission Costs</b>							
4	<b>(\$000s)</b>							
5								
6			<b>Total</b>			<b>Total</b>		
7			<b>2010</b>	<b>Network</b>	<b>Delivery</b>	<b>2011</b>	<b>Network</b>	<b>Delivery</b>
8	1	O&M	3,973	3,239	734	4,441	3,617	824
9	2	Depreciation	777	751	26	777	751	26
10	3	Interest Expense	1,030	993	37	1,015	979	36
11	4	MRNR	738	712	26	25	24	1
12	5	Total COE/BOR Trans Costs	6,518	5,695	823	6,258	5,371	887
13								
14								
15								
16	6	Average Net Transmission Plant	39,477	38,074	1,403	38,700	37,323	1,377
17	7	Total Hydro Projects Average Net Plant	5,116,782			5,219,905		
18	8	percent Transmission	0.77%			0.74%		
19								
20	9	Revenue Requirement MRNR	118,806			4,254		
21	10	Revenue Requirement Total PNR	166,806			52,254		
22	11	percent MRNR	71%			8%		
23								

	A	B	C	D	E	F	G	H	I	J	
1		<b>Table 2J</b>									
2		<b>Corps/Reclamation Transmission Plant, Investment, &amp; Depreciation</b>									
3		<b>(\$000s)</b>									
4											
5											
6											
7			<b>2010</b>	<b>2010</b>	<b>2010</b>	<b>2010</b>	<b>2011</b>	<b>2011</b>	<b>2011</b>	<b>2011</b>	
8			<b>GROSS</b>	<b>DEPREC</b>	<b>O&amp;M</b>	<b>AVG NET</b>	<b>GROSS</b>	<b>DEPREC</b>	<b>O&amp;M</b>	<b>AVG NET</b>	
9			<b>PLANT</b>	<b>EXP</b>		<b>PLANT</b>	<b>PLANT</b>	<b>EXP</b>		<b>PLANT</b>	
10											
11		<b>1 Bureau of Reclamation</b>									
12		<b>2 COLUMBIA BASIN</b>									
13		3									
14		4	Network	50,920	679	2,414	33,910	50,920	679	2,699	33,231
15		5	Delivery	763	10	36	507	763	10	40	497
16		6	TOTAL	51,684	689	2,450	34,419	51,684	689	2,739	33,730
17		<b>6 HUNGRY HORSE</b>									
18		7	Network	1,120	15	34	652	1,120	15	38	637
19		<b>8 MINIDOKA-PALISADES</b>									
20		9	Network	1,266	17	726	932	1,266	17	815	915
21		10	Delivery	1,217	16	698	896	1,217	16	784	880
22		11	TOTAL	2,483	33	1,424	1,828	2,483	33	1,599	1,795
23		<b>12 Corps of Engineers</b>									
24		<b>13 BONNEVILLE</b>									
25		14	Network	3,000	40	65	2,580	3,000	40	65	2,540
26		<b>15 TOTAL TRANSMISSION</b>									
27		16	Network	56,306	751	3,239	38,074	56,306	751	3,617	37,323
28		17	Delivery	1,980	26	734	1,403	1,980	26	824	1,377
29		18	TOTAL	58,286	777	3,973	39,477	58,286	777	4,441	38,700
30											

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### **3. GENERATION EXPENSES**

#### **3.1 Introduction**

This chapter compiles the expenses that are the basis for cost recovery in determination of generation revenue requirements for the rate approval period and the outyears.

#### **3.2 Expenses**

Table 3A displays the expenses used in the revenue requirement income statement and statement of cash flows of the Study. See Revenue Requirement Study, WP-10-E-BPA-02, Tables 5A and 5B. Table 3B displays the expense statement used in the revised revenue test in the Study. Id. Tables 6A through 9. Table 3B includes expenses that are revised as a result of the rate development process such as Residential Exchange Benefits, depicted in Figure 1 of the Study. Id. at 7

O&M program expenses are from the Integrated Program Review with revisions. Id. at Appendix A. Federal Projects Depreciation calculations are found in Chapter 4 of this document. Interest expense is summarized here from the results of the annual generation repayment studies. The calculation of AFUDC is also shown in this chapter.

Debt service for Energy Northwest (EN) projects are based on the tables found in Chapter 8, Capitalized Contract Obligations, of this document.

COE and BOR O&M must be functionalized between generation and the transmission component that will be included in transmission rates.

Depreciation expense, calculated using the straight-line method, is functionalized according to the associated investment used in the calculations as identified in Chapter 4 of this document.

Interest expense is calculated in the repayment studies for generation using the generation capital appropriations and BPA revenue bonds issued to Treasury at individual interest rates. Generation AFUDC is associated with BPA's direct funding of COE and BOR power-related capital projects.

Table 3A

Power Services Program Spending Levels  
(\$000s)

	A	B	C	D	E	F	G	H	I	J	K
1											
2											
3											
4											
5											
6											
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37											





**Table 3B**

**Power Services Program Spending Levels for Revenue Test  
(\$000s)**

	A	B	C	D	E	F	G
1							
2						<b>FY 2010</b>	<b>FY 2011</b>
3	1			Power System Generation Resources			
4	2			Operating Generation			
5	3			COLUMBIA GENERATING STATION		269,200	365,000
6	4			BUREAU OF RECLAMATION		87,700	98,550
7	5			CORPS OF ENGINEERS		193,000	197,911
8	6			LONG-TERM CONTRACT GENERATING PI		31,889	32,343
9	7			<b>Sub-Total</b>		<b>581,789</b>	<b>693,804</b>
10	8			Operating Generation Settlement Payment			
11	9			COLVILLE GENERATION SETTLEMENT		21,328	21,754
12	10			SPOKANE GENERATION SETTLEMENT		-	-
13	11			<b>Sub-Total</b>		<b>21,328</b>	<b>21,754</b>
14	12			Non-Operating Generation			
15	13			TROJAN DECOMMISSIONING		2,200	2,300
16	14			WNP-1&3 DECOMMISSIONING		418	428
17	15			<b>Sub-Total</b>		<b>2,618</b>	<b>2,728</b>
18	16			Gross Contracted Power Purchases			
19	17			DSI MONETIZED POWER SALES		58,674	58,674
20	18			PNCA HEADWATER BENEFITS		2,042	2,620
21	19			HEDGING/MITIGATION			
22	20			OTHER POWER PURCHASES		63,288	51,706
23	21			<b>Sub-Total</b>		<b>124,004</b>	<b>113,000</b>
24	22			Bookout Adjustments to Contracted Power			-
25	23			Augmentation Power Purchases			
26	24			AUGMENTATION POWER PURCHASES		176,580	304,818
27	25			CONSERVATION AUGMENTATION		-	-
28	26			Exchanges & Settlements			
29	27			Residential Exchange Program		265,857	266,293
30	28			Other Settlements		-	-
31	29			Renewable Generation			
32	30			Renewables		36,755	37,346
33	31			RENEWABLE CONSERVATION RATE		4,000	2,500
34	32			Renewables R&D		4,833	6,092
35	33			<b>Sub-Total</b>		<b>45,588</b>	<b>45,938</b>
36	34			Generation Conservation			
37	35			Generation Conservation R&D			
38	36			LOW INCOME WEATHERIZATION &		5,000	5,000
39	37			ENERGY EFFICIENCY DEVELOPMENT		20,500	20,500
40	38			CONSERVATION ACQUISITION		14,000	14,000
41	39			LEGACY		1,988	1,622
42	40			MARKET TRANSFORMATION		12,000	12,000
43	41			DSM TECHNOLOGY		1,600	1,600
44	42			<b>Sub-Total</b>		<b>55,088</b>	<b>54,722</b>
45	43			Conservation Rate Credit (CRC)		32,000	32,000
46	44			<b>Sub-Total</b>		<b>1,304,852</b>	<b>1,535,058</b>

**Table 3B**

**Power Services Program Spending Levels for Revenue Test  
(\$000s)**

	A	B	C	D	E	F	G
1							
2						<b>FY 2010</b>	<b>FY 2011</b>
47	45						
48	46			Power Non-Generation Operations			
49	47			Power Services System Operations			
50	48			EFFICIENCIES PROGRAM		-	-
51	49			PBL System Operations R&D		-	-
52	50			INFORMATION TECHNOLOGY		6,359	6,324
53	51			GENERATION PROJECT COORDINATION		7,892	8,118
54	52			SLICE IMPLEMENTATION		2,790	2,870
55	53			<b>Sub-Total</b>		<b>17,042</b>	<b>17,311</b>
56	54			Power Services Scheduling			
57	55			OPERATIONS SCHEDULING		9,999	10,350
58	56			PBL Scheduling R&D		-	-
59	57			OPERATIONS PLANNING		6,207	6,473
60	58			<b>Sub-Total</b>		<b>16,206</b>	<b>16,823</b>
61	59			Power Services Marketing and Business			
62	60			SALES & SUPPORT		19,391	19,617
63	61			PUBLIC COMMUNICATION & TRIBAL LIAIS		-	-
64	62			STRATEGY, FINANCE & RISK MGMT		17,151	17,632
65	63			EXECUTIVE AND ADMINISTRATIVE SERVI		3,645	5,320
66	64			CONSERVATION SUPPORT		9,359	9,947
67	65			<b>Sub-Total</b>		<b>49,545</b>	<b>52,515</b>
68	66			<b>Sub-Total</b>		<b>82,793</b>	<b>86,650</b>
69	67						
70	68			POWER SERVICES TRANSMISSION &		114,622	111,380
71	69			3RD PARTY GTA WHEELING		50,690	51,340
72	70			POWER SERVICES - 3RD PARTY TRANS &		1,000	1,000
73	71			GENERATION INTEGRATION		6,800	6,800
74	72			TELEMETERING/EQUIP REPLACEMT		50	50
75	73			<b>Sub-Total</b>		<b>173,162</b>	<b>170,570</b>
76	74						
77	75			BPA Fish and Wildlife (includes F&W Shared Services)			
78	76			FISH & WILDLIFE		230,000	236,000
79	77			F&W HIGH PRIORITY ACTION PROJECTS		-	-
80	78			<b>Sub-Total</b>		<b>230,000</b>	<b>236,000</b>
81	79			USF&W Lower Snake Hatcheries		23,600	24,480
82	80			Planning Council		9,641	9,838
83	81			Environmental Requirements		300	300
84	82			<b>Sub-Total</b>		<b>263,541</b>	<b>270,618</b>
85	83						
86	84			BPA Internal Support			
87	85			Additional Post-Retirement Contribution		15,598	16,071
88	86			Agency Services G&A (excludes direct project		51,877	52,270
89	87			Shared Services (includes Supply Chain &		-	-
90	88			<b>BPA Internal Support Sub-Total</b>		<b>67,475</b>	<b>68,341</b>
91	89						
92	90			Other Income, Expenses, & Adjustments		1,800	3,600

**Table 3B**

**Power Services Program Spending Levels for Revenue Test  
(\$000s)**

	A	B	C	D	E	F	G
1							
2						<b>FY 2010</b>	<b>FY 2011</b>
93	91						
94	92	Non-Federal Debt Service					
95	93	Energy Northwest Debt Service					
96	94	COLUMBIA GENERATING STATION DEBT				234,333	227,762
97	95	WNP-1 DEBT SVC				163,171	165,072
98	96	WNP-3 DEBT SVC				139,704	164,849
99	97	EN RETIRED DEBT				-	-
100	98	EN LIBOR INTEREST RATE SWAP				-	-
101	99	<b>Sub-Total</b>				<b>537,207</b>	<b>557,683</b>
102	100	Non-Energy Northwest Debt Service					
103	101	TROJAN DEBT SVC				-	-
104	102	CONSERVATION DEBT SVC				5,079	4,924
105	103	COWLITZ FALLS DEBT SVC				11,566	11,563
106	104	NORTHERN WASCO DEBT SVC				2,200	2,196
107	105	<b>Sub-Total</b>				<b>18,845</b>	<b>18,682</b>
108	106	<b>Sub-Total</b>				<b>556,052</b>	<b>576,365</b>
109	107						
110	108	<b>Total</b>				<b>2,449,675</b>	<b>2,711,201</b>

	A	B	C	D	E	F	G	H
1	<b>Table 3C</b>							
2	<b>FUNCTIONALIZATION OF Corps/Reclamation O&amp;M</b>							
3	<b>(\$000s)</b>							
4								
5			<b>Average</b>			<b>Average</b>		
6			<b>Investment</b>		<b>O&amp;M</b>	<b>Investment</b>		<b>O&amp;M</b>
7			<b>2010</b>	<b>Percent</b>	<b>2010</b>	<b>2011</b>	<b>Percent</b>	<b>2011</b>
8								
9	1	BOISE						
10	2	<b>GENERATION</b>		100.00%	4,809		100.00%	5,404
11	3	COLUMBIA BASIN						
12	4	<b>GENERATION</b>	1,330,353	96.26%	63,052	1,337,267	96.28%	70,866
13	5	TRANSMISSION	51,684	3.74%	2,450	51,684	3.72%	2,739
14	6	<b>TOTAL</b>	1,382,037	100.00%	65,502	1,388,951	100.00%	73,605
15	7	GREEN SPRINGS						
16	8	<b>GENERATION</b>		100.00%	761		100.00%	855
17	9	HUNGRY HORSE						
18	10	GENERATION	132,234	99.16%	4,056	135,739	99.18%	4,558
19	11	TRANSMISSION	1,120	0.84%	34	1,120	0.82%	38
20	12	<b>TOTAL</b>	133,354	100.00%	4,090	136,859	100.00%	4,596
21	13	MINIDOKA-PALISADES						
22	14	GENERATION	111,726	97.83%	7,164	111,826	97.83%	8,052
23	15	TRANSMISSION	2,483	2.17%	1,424	2,483	2.17%	1,599
24	16	<b>TOTAL</b>	114,209	100.00%	8,588	114,309	100.00%	9,651
25	17	<b>YAKIMA</b>						
26	18	GENERATION		100.00%	3,950		100.00%	4,438
27								
28	19	GENERATION 1/			104,359			115,072
29	20	TRANSMISSION			3,908			4,376
30	21	<b>TOTAL USBR</b>			108,267			119,448
31								
32								
33	1/	INCLUDES COLVILLE PAYMENT OF			21,328			21,754
34								
35								
36								
37	22	BONNEVILLE						
38	23	GENERATION	1,039,858	99.71%	22,569	1,075,254	99.72%	23,142
39	24	TRANSMISSION	3,000	0.29%	65	3,000	0.28%	65
40	25	<b>TOTAL</b>	1,042,858	100.00%	22,634	1,078,254	100.00%	23,207
41	26	OTHER PROJECTS						
42	27	<b>CORPS - GENERATION ONLY</b>			<b>170,366</b>			<b>174,704</b>

	A	B	C	D	E	F	G	H
1	<b>Table 3D</b>							
2								
3	<b>Allocation of Total O&amp;M to Projects for Corps and Reclamation based on actual data</b>							
4	<b>(\$000s)</b>							
5								
6			<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>AVERAGE</u></b>	<b><u>FY 2010</u></b>	<b><u>FY 2011</u></b>
7	1	BOISE	2,837	3,359	4,216	3,471	4,809	5,404
8	2	COLUMBIA BASIN	42,375	47,337	52,103	47,272	65,502	73,605
9	3	GREEN SPRINGS	624	514	510	549	761	855
10	4	HUNGRY HORSE	2,105	3,086	3,665	2,952	4,090	4,596
11	5	MINIDOKA	4,775	6,584	7,235	6,198	8,588	9,651
12	6	YAKIMA	2,295	3,496	2,760	<u>2,850</u>	<u>3,950</u>	<u>4,438</u>
13	7	<b>Total USBR</b>				<b>63,292</b>	<b>87,700</b>	<b>98,550</b>
15								
16								
17	8	ALBENI FALLS	3,440	4,291	4,772	4,168	5,399	5,537
18	9	BONNEVILLE	13,800	18,135	20,475	17,470	22,634	23,207
19	10	CHIEF JOSEPH	13,557	19,309	21,299	18,055	23,390	23,986
20	11	COUGAR	760	779	859	799	1,036	1,062
21	12	DETROIT	1,906	6,726	7,000	5,211	6,750	6,922
22	13	DWORSHAK	6,241	8,965	9,569	8,258	10,699	10,971
23	14	GREEN-PETER	2,176	2,931	3,388	2,832	3,668	3,762
24	15	HILLS CREEK	491	738	763	664	860	882
25	16	ICE HARBOR	5,840	7,174	8,536	7,183	9,306	9,543
26	17	JOHN DAY	11,379	16,001	16,888	14,756	19,117	19,603
27	18	LIBBY	5,134	6,494	6,613	6,080	7,877	8,078
28	19	LITTLE GOOSE	5,519	7,220	7,622	6,787	8,793	9,016
29	20	LOOKOUT POINT	2,603	4,628	4,974	4,068	5,271	5,405
30	21	LOST CREEK	1,216	1,780	1,888	1,628	2,109	2,163
31	22	LOWER GRANITE	8,040	9,565	10,346	9,317	12,070	12,377
32	23	LOWER MONUMENTAL	6,136	8,183	8,102	7,474	9,682	9,929
33	24	M McNARY	12,155	17,146	28,963	19,421	25,160	25,801
34	25	THE DALLES	12,995	15,740	15,679	<u>14,805</u>	<u>19,180</u>	<u>19,668</u>
35	26	<b>Total COE</b>				<b>148,976</b>	<b>193,000</b>	<b>197,911</b>
36								

	A	B	C	D	E	F	G	H
1	<b>Table 3E</b>							
2								
3	<b>FEDERAL COLUMBIA RIVER POWER SYSTEM</b>							
4	<b>SUMMARY OF GENERATION CURRENT REPAYMENT STUDY DATA</b>							
5	<b>(\$000s)</b>							
6								
7								
8			<b><u>2010</u></b>	<b><u>2011</u></b>	<b><u>2012</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>
9	1	INTEREST EXPENSE (GROSS)						
10	2	CORPS	162,314	147,766	141,667	141,212	145,643	142,466
11	3	BUREAU	43,367	43,306	43,306	42,791	40,141	40,141
12	4	LOWER SNAKE RIVER COMPENSATION PLAN	16,450	16,450	16,450	16,450	16,450	16,450
13	5	TOTAL APPROPRIATIONS	222,131	207,522	201,423	200,453	202,234	199,058
14	6	BONDS ISSUED TO TREASURY	49,849	68,317	91,416	109,752	125,195	142,402
15	7	TOTAL INTEREST EXPENSE	271,980	275,839	292,839	310,204	327,429	341,459
16								
17	8	PLANNED AMORTIZATION						
18	9	CORPS	266,346	161,888	46,790	38,684	92,692	54,187
19	10	BUREAU	850	-	7,192	37,005	-	32,856
20	11	LOWER SNAKE RIVER COMPENSATION PLAN	-	-	-	-	-	-
21	12	TOTAL APPROPRIATIONS	267,196	161,888	53,983	75,689	92,692	87,043
22	13	LONG-TERM DEBT	68	-	92,800	70,000	65,850	32,300
23	14	TOTAL GENERATION AMORTIZATION	267,264	161,888	146,783	145,689	158,542	119,343
24	15	IRRIGATION ASSISTANCE	-	-	1,206	60,027	53,500	118,779
25	16	TOTAL AMORTIZATION/IRRIGATION	267,264	161,888	147,989	205,716	212,042	238,122

	A	B	C	D	E	F	G	H
1	<b>Table 3F</b>							
2								
3	<b>FEDERAL COLUMBIA RIVER POWER SYSTEM</b>							
4	<b>SUMMARY OF 7(b)(2) CASE REPAYMENT STUDY DATA</b>							
5	<b>(\$000s)</b>							
6								
7								
8			<b><u>2010</u></b>	<b><u>2011</u></b>	<b><u>2012</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>
9	1	INTEREST EXPENSE (GROSS)						
10	2	CORPS	157,988	143,630	138,334	137,303	140,961	138,609
11	3	BUREAU	43,367	43,306	42,770	40,141	40,141	37,420
12	4	LOWER SNAKE RIVER COMPENSATION PLAN	16,433	16,433	16,433	16,433	16,433	16,433
13	5	TOTAL APPROPRIATIONS	217,788	203,369	197,537	193,877	197,535	192,462
14	6	BONDS ISSUED TO TREASURY	42,303	59,132	79,806	99,250	112,388	129,273
15	7	TOTAL INTEREST EXPENSE	260,091	262,501	277,343	293,127	309,924	321,734
16								
17	8	PLANNED AMORTIZATION						
18	9	CORPS	264,233	150,791	54,912	49,484	81,167	13,793
19	10	BUREAU	850	7,484	36,714	-	38,061	55,657
20	11	LOWER SNAKE RIVER COMPENSATION PLAN	-	-	-	-	-	-
21	12	TOTAL APPROPRIATIONS	265,083	158,275	91,626	49,484	119,228	69,450
22	13	LONG-TERM DEBT	68	-	20,000	60,000	950	-
23	14	TOTAL GENERATION AMORTIZATION	265,151	158,275	111,626	109,484	120,178	69,450
24	15	IRRIGATION ASSISTANCE	-	-	1,206	60,027	53,500	125,087
25	16	TOTAL AMORTIZATION/IRRIGATION	265,151	158,275	112,832	169,511	173,678	194,537
26								

	A	B	C	D	E	F	G	H	I
1	<b>Table 3G</b>								
2									
3	<b>Federal Projects Depreciation Summary</b>								
4	<b>(\$000s)</b>								
5									
6									
7									
8	1	BPA (PBL + CORP GP)		<b><u>2010</u></b>	<b><u>2011</u></b>	<b><u>2012</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>
9	2	Corps 1/		17,281	15,830	16,065	15,442	16,905	18,442
10	3	Bureau		78,906	81,468	83,337	84,004	84,870	85,737
11	4	<b>Total Depreciation</b>		22,429	22,622	23,729	27,126	30,693	31,967
12	5	Amortization of Legacy Conservation		<b>118,616</b>	<b>119,920</b>	<b>123,131</b>	<b>126,572</b>	<b>132,468</b>	<b>136,146</b>
13	6	Amortization of ConAug		25,289	23,439	20,948	17,408	13,930	9,649
14	7	Amortization of Conservation Acquisitions		13,335	13,335	-	-	-	-
15	8	Amortization of CRFM Intangible Investmer		11,651	18,791	25,383	32,176	36,550	38,420
16	9	Amortization of Fish & Wildlife		4,938	4,938	4,938	4,938	4,938	4,938
17	10	<b>Total Amortization</b>		23,904	26,485	27,725	29,497	30,895	32,522
18	11	<b>Total Federal Projects Depreciation</b>		<b>79,118</b>	<b>86,989</b>	<b>78,994</b>	<b>84,019</b>	<b>86,313</b>	<b>85,529</b>
19				<b>197,734</b>	<b>206,909</b>	<b>202,125</b>	<b>210,591</b>	<b>218,781</b>	<b>221,675</b>
20									
21		1/ excludes depreciation from investments							
22		paid for by BPA-TS		23	23	23	23	23	23

	A	B	C	D
1	<b>Table 3H</b>			
2				
3	<b>Power Services Regulatory Assets</b>			
4	<b>(\$000s)</b>			
5				
6			<b><u>FY 2010</u></b>	<b><u>FY 2011</u></b>
7				
8	1	Terminated Nuclear Facilities	133,694	172,774
9	2	REP Lookback Amount from IOUs	65,214	65,861
10	3	Columbia River Fish Mitigation amortization	4,938	4,938
11	4	Conservation Measures		
12	5	Additions	32,300	39,100
13	6	Amortization	11,651	18,791
14	7	Direct Service Industries' benefits	58,674	58,674
15	8	Fish and Wildlife Measures		
16	9	Additions	70,000	60,000
17	10	Amortization	23,904	26,485
18	11	Settlements	21,328	21,754
19	12	FECA		
20	13	Sponsored Conservation	4,118	4,147
21	14	Trojan Decommissioning/Restoration	2,200	2,300
22	15	Terminated Hydro Facilities	1,037	1,087
23	16	Capitalized Bond Premiums	185	185
24				

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## **4. FCRPS GENERATION INVESTMENT BASE**

### **4.1 Introduction**

This chapter documents the development of the FCRPS generation investment base by year for the rate approval period and the outyears. The investment data are the source of depreciation calculations and provide certain inputs to the generation repayment studies. It is also the basis for allocations of net interest expense and planned net revenues in the development of the COSA tables and the generation inputs to ancillary services.

### **4.2 Methodology**

The FCRPS plant investment information is separately compiled for the COE, BOR, and BPA, including BPA conservation and fish and wildlife investments. BPA generation (general) plant investment consists of office furniture and fixtures and data processing software and hardware associated with the Power Business Line, including the Energy Efficiency Group. Historical investment data are taken from the supporting documents of FCRPS financial statements. All plant investment is depreciated and intangible plant is amortized using the straight-line method. Tables 4A and 4B have not been republished in this supplement because they are not necessary for calculations for FY 2010-2011.

For BPA facilities, forecasted depreciation expense is calculated consistent with the group concept methodology used for plant accounting records. For general plant categories, average service lives incorporate an adjustment for salvage applicable to the individual groups. Both historical investment and forecasted additions are depreciated according to their adjusted group life.

BPA conservation investments use three different amortization schedules depending on when the investment occurred. Legacy investments, made before 2002, are amortized over 20 years. Conservation augmentation investments, made from 2002 through 2006, use a declining 10 year schedule ending in 2011. Conservation acquisition investments, made after 2006, are amortized over 5 years.

BPA fish and wildlife investments are amortized over 15 years.

COE and BOR investments are depreciated according to the weighted-average service lives of the individual projects.

Projected investments and projected depreciation expenses are accumulated with historical amounts to provide projected cumulative investments and accumulated depreciation for each forecasted year.

The investment base is calculated for each year of the rate period and outyears as an annual average.

	A	B	C	D	E	F
1	<b>Table 4A</b>					
2						
3	<b>FCRPS INVESTMENT BASE</b>					
4	<b>FY 2010</b>					
5	<b>(\$000s)</b>					
6						
7						
8				<b>BALANCE-AS-OF</b>	<b>AVERAGE</b>	
9				<b><u>9/30/2009</u></b>	<b><u>9/30/2010</u></b>	<b><u>2010</u></b>
10	<b>1 CORPS OF ENGINEERS</b>					
11	2 COMPLETED PLANT					
12	3	HYDROELECTRIC GEN		6,227,097	6,434,932	6,331,015
13	4	TRANSMISSION		3,000	3,000	3,000
14	5	TOTAL COMPLETED PLANT		6,230,097	6,437,932	6,334,015
15	6 ACCUMULATED DEPRECIATION					
16	7	HYDROELECTRIC GEN		2,303,727	2,387,554	2,345,641
17	8	TRANSMISSION		400	440	420
18	9	TOTAL ACCUMULATED DEPRECIATION		2,304,127	2,387,994	2,346,061
19	10 NET COMPLETED PLANT					
20	11	HYDROELECTRIC GEN		3,923,370	4,047,378	3,985,374
21	12	TRANSMISSION		2,600	2,560	2,580
22	13	TOTAL NET COMPLETED PLANT		3,925,970	4,049,938	3,987,954
23	<b>14 BUREAU OF RECLAMATION</b>					
24	15 COMPLETED PLANT					
25	16	HYDROELECTRIC GEN		1,619,979	1,633,405	1,626,692
26	17	TRANSMISSION		55,445	55,445	55,445
27	18	TOTAL COMPLETED PLANT		1,675,424	1,688,850	1,682,137
28	19 ACCUMULATED DEPRECIATION					
29	20	HYDROELECTRIC GEN		523,889	545,579	534,734
30	21	TRANSMISSION		18,205	18,944	18,575
31	22	TOTAL ACCUM DEPRECIATION		542,094	564,523	553,309
32	23 NET COMPLETED PLANT					
33	24	HYDROELECTRIC GEN		1,096,090	1,087,826	1,091,958
34	25	TRANSMISSION		37,240	36,501	36,870
35	26	TOTAL NET COMPLETED PLANT		1,133,330	1,124,327	1,128,828
36	<b>27 CONSERVATION</b>					
37	28	CUMULATIVE INVESTMENT		661,449	659,654	660,552
38	29	ACCUM PREPAID EXPENSE		490,169	506,349	498,259
39	30	NET CONSERVATION		171,280	153,305	162,293
40	<b>31 FISH AND WILDLIFE</b>					
41	32	CUMULATIVE INVESTMENT		335,813	373,327	354,570
42	33	ACCUM PREPAID EXPENSE		154,763	146,181	150,472
43	34	NET FISH AND WILDLIFE		181,050	227,146	204,098
44	<b>35 BPA PLANT (PBL)</b>					
45	36	CUMULATIVE INVESTMENT		84,198	98,069	91,134
46	37	ACCUMULATED DEPRECIATION		67,461	84,742	76,102
47	38	NET BPA PLANT INVESTMENT		16,737	13,327	15,032
48	39	<b>TOTAL NET PLANT INVESTMENT</b>		<b>5,428,367</b>	<b>5,568,042</b>	<b>5,498,205</b>

	A	B	C	D	E	F	
1	<b>Table 4B</b>						
2							
3	<b>FCRPS INVESTMENT BASE</b>						
4	<b>FY 2011</b>						
5	<b>(\$000s)</b>						
6							
7				<b>BALANCE-AS-OF</b>	<b>AVERAGE</b>		
8				<u>9/30/2010</u>	<u>9/30/2011</u>	<u>2011</u>	
9	<b>1 CORPS OF ENGINEERS</b>						
10	2 COMPLETED PLANT						
11	3	HYDROELECTRIC GEN		6,434,932	6,619,449	6,527,191	
12	4	GEN INTEGRATION		3,000	3,000	3,000	
13	5	TOTAL COMPLETED PLANT		6,437,932	6,622,449	6,530,191	
14	6	ACCUMULATED DEPRECIATION					
15	7	HYDROELECTRIC GEN		2,387,554	2,473,943	2,430,749	
16	8	GEN INTEGRATION		440	480	460	
17	9	TOTAL ACCUMULATED DEPRECIATION		2,387,994	2,474,423	2,431,209	
18	10	NET COMPLETED PLANT					
19	11	HYDROELECTRIC GEN		4,047,378	4,145,506	4,096,442	
20	12	GEN INTEGRATION		2,560	2,520	2,540	
21	13	TOTAL NET COMPLETED PLANT		4,049,938	4,148,026	4,098,982	
22	14	<b>BUREAU OF RECLAMATION</b>					
23	15	COMPLETED PLANT					
24	16	HYDROELECTRIC GEN		1,633,405	1,649,221	1,641,313	
25	17	GEN INTEGRATION		55,445	55,445	55,445	
26	18	TOTAL COMPLETED PLANT		1,688,850	1,704,666	1,696,758	
27	19	ACCUMULATED DEPRECIATION					
28	20	HYDROELECTRIC GEN		545,579	567,462	556,521	
29	21	GEN INTEGRATION		18,944	19,683	19,314	
30	22	TOTAL ACCUM DEPRECIATION		564,523	587,145	575,835	
31	23	NET COMPLETED PLANT					
32	24	HYDROELECTRIC GEN		1,087,826	1,081,759	1,084,792	
33	25	GEN INTEGRATION		36,501	35,762	36,131	
34	26	TOTAL NET COMPLETED PLANT		1,124,327	1,117,521	1,120,923	
35	27	<b>CONSERVATION</b>					
36	28	CUMULATIVE INVESTMENT		659,654	653,040	656,347	
37	29	ACCUM PREPAID EXPENSE		506,349	516,201	511,275	
38	30	NET CONSERVATION		153,305	136,839	145,072	
39	31	<b>FISH AND WILDLIFE</b>					
40	32	CUMULATIVE INVESTMENT		373,327	407,281	390,304	
41	33	ACCUM PREPAID EXPENSE		146,181	146,620	146,401	
42	34	NET FISH AND WILDLIFE		227,146	260,661	243,903	
43	35	<b>BPA PLANT (PBL)</b>					
44	36	CUMULATIVE INVESTMENT		98,069	113,019	105,544	
45	37	ACCUMULATED DEPRECIATION		84,742	100,572	92,657	
46	38	NET BPA PLANT INVESTMENT		13,327	12,447	12,887	
47	39	<b>TOTAL NET PLANT INVESTMENT</b>		<b>5,568,042</b>	<b>5,675,494</b>	<b>5,621,767</b>	
48							

	A	B	C	D	E	F
1	<b>Table 4C</b>					
2						
3	<b>FCRPS INVESTMENT BASE</b>					
4	<b>FY 2012</b>					
5	<b>(\$000s)</b>					
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	A	B	C	D	E	F
1	<b>Table 4D</b>					
2						
3	<b>FCRPS INVESTMENT BASE</b>					
4	<b>FY 2013</b>					
5	<b>(\$000s)</b>					
6						
7						
8				<b>BALANCE-AS-OF</b>	<b>AVERAGE</b>	
9				<b><u>9/30/2012</u></b>	<b><u>9/30/2013</u></b>	<b><u>2013</u></b>
10	<b>1 CORPS OF ENGINEERS</b>					
11	2 COMPLETED PLANT					
12	3		HYDROELECTRIC GEN	6,669,449	6,734,449	6,701,949
13	4		TRANSMISSION	3,000	3,000	3,000
14	5		TOTAL COMPLETED PLANT	6,672,449	6,737,449	6,704,949
15	6 ACCUMULATED DEPRECIATION					
16	7		HYDROELECTRIC GEN	2,562,201	2,651,126	2,606,664
17	8		TRANSMISSION	520	560	540
18	9		TOTAL ACCUMULATED DEPRECIATION	2,562,721	2,651,686	2,607,204
19	10 NET COMPLETED PLANT					
20	11		HYDROELECTRIC GEN	4,107,248	4,083,323	4,095,285
21	12		TRANSMISSION	2,480	2,440	2,460
22	13		TOTAL NET COMPLETED PLANT	4,109,728	4,085,763	4,097,745
23	<b>14 BUREAU OF RECLAMATION</b>					
24	15 COMPLETED PLANT					
25	16		HYDROELECTRIC GEN	1,799,240	2,158,829	1,979,035
26	17		TRANSMISSION	55,445	55,445	55,445
27	18		TOTAL COMPLETED PLANT	1,854,685	2,214,274	2,034,480
28	19 ACCUMULATED DEPRECIATION					
29	20		HYDROELECTRIC GEN	590,452	616,839	603,646
30	21		TRANSMISSION	20,422	21,161	20,792
31	22		TOTAL ACCUM DEPRECIATION	610,874	638,000	624,438
32	23 NET COMPLETED PLANT					
33	24		HYDROELECTRIC GEN	1,208,788	1,541,990	1,375,389
34	25		TRANSMISSION	35,023	34,284	34,653
35	26		TOTAL NET COMPLETED PLANT	1,243,811	1,576,274	1,410,042
36	<b>27 CONSERVATION</b>					
37	28		CUMULATIVE INVESTMENT	524,941	461,185	493,063
38	29		ACCUM PREPAID EXPENSE	395,333	342,061	368,697
39	30		NET CONSERVATION	129,608	119,124	124,366
40	<b>31 FISH AND WILDLIFE</b>					
41	32		CUMULATIVE INVESTMENT	429,217	457,222	443,219
42	33		ACCUM PREPAID EXPENSE	146,281	153,783	150,032
43	34		NET FISH AND WILDLIFE	282,936	303,439	293,187
44	<b>35 BPA PLANT (PBL)</b>					
45	36		CUMULATIVE INVESTMENT	128,060	143,159	135,610
46	37		ACCUMULATED DEPRECIATION	116,637	132,079	124,358
47	38		NET BPA PLANT INVESTMENT	11,423	11,080	11,252
48	39		<b>TOTAL NET PLANT INVESTMENT</b>	<b>5,777,506</b>	<b>6,095,680</b>	<b>5,936,592</b>

	A	B	C	D	E	F
1	<b>Table 4E</b>					
2						
3	<b>FCRPS INVESTMENT BASE</b>					
4	<b>FY 2014</b>					
5	<b>(\$000s)</b>					
6						
7				<b>BALANCE-AS-OF</b>	<b>AVERAGE</b>	
8				<b><u>9/30/2013</u></b>	<b><u>9/30/2014</u></b>	<b><u>2014</u></b>
9	<b>1 CORPS OF ENGINEERS</b>					
10	2 COMPLETED PLANT					
11	3		HYDROELECTRIC GEN	6,734,449	6,799,449	6,766,949
12	4		TRANSMISSION	3,000	3,000	3,000
13	5		TOTAL COMPLETED PLANT	6,737,449	6,802,449	6,769,949
14	6 ACCUMULATED DEPRECIATION					
15	7		HYDROELECTRIC GEN	2,651,126	2,740,917	2,696,022
16	8		TRANSMISSION	560	600	580
17	9		TOTAL ACCUMULATED DEPRECIATION	2,651,686	2,741,517	2,696,602
18	10 NET COMPLETED PLANT					
19	11		HYDROELECTRIC GEN	4,083,323	4,058,532	4,070,927
20	12		TRANSMISSION	2,440	2,400	2,420
21	13		TOTAL NET COMPLETED PLANT	4,085,763	4,060,932	4,073,347
22	<b>14 BUREAU OF RECLAMATION</b>					
23	15 COMPLETED PLANT					
24	16		HYDROELECTRIC GEN	2,158,829	2,334,251	2,246,540
25	17		TRANSMISSION	55,445	55,445	55,445
26	18		TOTAL COMPLETED PLANT	2,214,274	2,389,696	2,301,985
27	19 ACCUMULATED DEPRECIATION					
28	20		HYDROELECTRIC GEN	616,839	646,793	631,816
29	21		TRANSMISSION	21,161	21,900	21,531
30	22		TOTAL ACCUM DEPRECIATION	638,000	668,693	653,347
31	23 NET COMPLETED PLANT					
32	24		HYDROELECTRIC GEN	1,541,990	1,687,458	1,614,724
33	25		TRANSMISSION	34,284	33,545	33,914
34	26		TOTAL NET COMPLETED PLANT	1,576,274	1,721,003	1,648,638
35	<b>27 CONSERVATION</b>					
36	28		CUMULATIVE INVESTMENT	461,185	376,492	418,839
37	29		ACCUM PREPAID EXPENSE	342,061	268,748	305,405
38	30		NET CONSERVATION	119,124	107,744	113,434
39	<b>31 FISH AND WILDLIFE</b>					
40	32		CUMULATIVE INVESTMENT	457,222	478,474	467,848
41	33		ACCUM PREPAID EXPENSE	153,783	169,930	161,857
42	34		NET FISH AND WILDLIFE	303,439	308,544	305,991
43	<b>35 BPA PLANT (PBL)</b>					
44	36		CUMULATIVE INVESTMENT	143,159	158,258	150,709
45	37		ACCUMULATED DEPRECIATION	132,079	148,984	140,532
46	38		NET BPA PLANT INVESTMENT	11,080	9,274	10,177
47	39		<b>TOTAL NET PLANT INVESTMENT</b>	<b>6,095,680</b>	<b>6,207,497</b>	<b>6,151,587</b>
48						

	A	B	C	D	E	F
1	<b>Table 4F</b>					
2						
3	<b>FCRPS INVESTMENT BASE</b>					
4	<b>FY 2015</b>					
5	<b>(\$000s)</b>					
6						
7						
8			<b>BALANCE-AS-OF</b>		<b>AVERAGE</b>	
9			<b>9/30/2014</b>		<b>9/30/2015</b>	
10					<b>2015</b>	
11	1	CORPS OF ENGINEERS				
12	2	COMPLETED PLANT				
13	3	HYDROELECTRIC GEN	6,799,449	6,864,449	6,831,949	
14	4	GEN INTEGRATION	3,000	3,000	3,000	
15	5	TOTAL COMPLETED PLANT	6,802,449	6,867,449	6,834,949	
16	6	ACCUMULATED DEPRECIATION				
17	7	HYDROELECTRIC GEN	2,740,917	2,831,575	2,786,246	
18	8	GEN INTEGRATION	600	640	620	
19	9	TOTAL ACCUMULATED DEPRECIATION	2,741,517	2,832,215	2,786,866	
20	10	NET COMPLETED PLANT				
21	11	HYDROELECTRIC GEN	4,058,532	4,032,874	4,045,703	
22	12	GEN INTEGRATION	2,400	2,360	2,380	
23	13	TOTAL NET COMPLETED PLANT	4,060,932	4,035,234	4,048,083	
24	14	BUREAU OF RECLAMATION				
25	15	COMPLETED PLANT				
26	16	HYDROELECTRIC GEN	2,334,251	2,349,942	2,342,097	
27	17	GEN INTEGRATION	55,445	55,445	55,445	
28	18	TOTAL COMPLETED PLANT	2,389,696	2,405,387	2,397,542	
29	19	ACCUMULATED DEPRECIATION				
30	20	HYDROELECTRIC GEN	646,793	678,021	662,407	
31	21	GEN INTEGRATION	21,900	22,639	22,270	
32	22	TOTAL ACCUM DEPRECIATION	668,693	700,660	684,677	
33	23	NET COMPLETED PLANT				
34	24	HYDROELECTRIC GEN	1,687,458	1,671,921	1,679,690	
35	25	GEN INTEGRATION	33,545	32,806	33,175	
36	26	TOTAL NET COMPLETED PLANT	1,721,003	1,704,727	1,712,865	
37	27	CONSERVATION				
38	28	CUMULATIVE INVESTMENT	376,492	315,964	346,228	
39	29	ACCUM PREPAID EXPENSE	268,748	217,189	242,969	
40	30	NET CONSERVATION	107,744	98,775	103,259	
41	31	FISH AND WILDLIFE				
42	32	CUMULATIVE INVESTMENT	478,474	500,576	489,525	
43	33	ACCUM PREPAID EXPENSE	169,930	188,554	179,242	
44	34	NET FISH AND WILDLIFE	308,544	312,022	310,283	
45	35	BPA PLANT (PBL)				
46	36	CUMULATIVE INVESTMENT	158,258	173,357	165,808	
47	37	ACCUMULATED DEPRECIATIO	148,984	167,426	158,205	
48	38	NET BPA PLANT INVESTMENT	9,274	5,931	7,603	
49	39	TOTAL NET PLANT INVESTMENT	6,207,497	6,156,689	6,182,093	

**Power General Plant Investments (Including Corporate Allocation)**  
**(\$000s)**

	A	B	C	D	E	F	G	H	I
1	<b>Table 4G</b>								
2									
3	<b>FERC ACCOUNT 391.1 OFFICE FURNITURE AND FIXTURES</b>								
4	ASL, Remaining Life, Annual Percent=5.18%				9.9% as of FY 2006				
5									
6		<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	
7			<b>FIRST</b>	<b>FULL</b>	<b>ANNUAL</b>	<b>ACCUM</b>	<b>CUMUL</b>	<b>NET</b>	
8		<b>FY</b>	<b>INVEST</b>	<b>YEAR</b>	<b>DEPR</b>	<b>DEPR</b>	<b>INVEST</b>	<b>INVEST</b>	
9	1	2009	-	-	107	1,210	2,137	927	
10	2	2010	-	-	107	1,317	2,137	820	
11	3	2011	-	-	107	1,424	2,137	713	
12	4	2012	-	-	107	1,531	2,137	606	
13	5	2013	-	-	107	1,638	2,137	499	
14	6	2014	-	-	107	1,745	2,137	392	
15	7	2015	-	-	107	1,852	2,137	285	
16									
17									
18									
19	<b>Table 4H</b>								
20									
21	<b>FERC ACCOUNT 391.2 DATA PROCESSING EQUIPMENT</b>								
22	ASL, Remaining Life, Annual Percent=20%				18.07% as of FY 2006				
23									
24		<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	
25			<b>FIRST</b>	<b>FULL</b>	<b>ANNUAL</b>	<b>ACCUM</b>	<b>CUMUL</b>	<b>NET</b>	
26		<b>FY</b>	<b>INVEST</b>	<b>YEAR</b>	<b>DEPR</b>	<b>DEPR</b>	<b>INVEST</b>	<b>INVEST</b>	
27	1	2009	-	-	2,484	13,501	15,371	1,870	
28	2	2010	-	-	1,870	15,371	15,371	-	
29	3	2011	-	-	-	15,371	15,371	-	
30	4	2012	-	-	-	15,371	15,371	-	
31	5	2013	-	-	-	15,371	15,371	-	
32	6	2014	-	-	-	15,371	15,371	-	
33	7	2015	-	-	-	15,371	15,371	-	
34									
35									
36									

**Power General Plant Investments (Including Corporate Allocation)**  
**(\$000s)**

	A	B	C	D	E	F	G	H	I
1	<b>Table 4I</b>								
2									
3	<b>FERC ACCOUNT 391.3 DATA PROCESSING SOFTWARE</b>								
4	<b>18.33% as of FY 2006</b>								
5									
6		<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	
7			<b>FIRST</b>	<b>FULL</b>	<b>ANNUAL</b>	<b>ACCUM</b>	<b>CUMUL</b>		<b>NET</b>
8		<b>FY</b>	<b>INVEST</b>	<b>YEAR</b>	<b>YEAR</b>	<b>DEPR</b>	<b>DEPR</b>	<b>INVEST</b>	<b>INVEST</b>
9	1	2009	12,714	1,165	2,330	15,132	51,614	63,073	11,459
10	2	2010	13,871	1,272	2,543	15,055	66,669	76,944	10,275
11	3	2011	14,950	1,370	2,740	15,474	82,143	91,894	9,751
12	4	2012	15,041	1,379	2,757	15,709	97,852	106,935	9,083
13	5	2013	15,099	1,384	2,768	15,086	112,938	122,034	9,096
14	6	2014	15,099	1,384	2,768	16,549	129,487	137,133	7,646
15	7	2015	15,099	1,384	2,768	18,086	147,573	152,232	4,659
16									
17									
18	<b>Table 4J</b>								
19									
20	<b>FERC ACCOUNT 397 COMMUNICATION EQUIPMENT</b>								
21	<b>ASL, Remaining Life, Annual Percent=6.02%</b>								
22									
23		<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	
24			<b>FIRST</b>	<b>FULL</b>	<b>ANNUAL</b>	<b>ACCUM</b>	<b>CUMUL</b>		<b>NET</b>
25		<b>FY</b>	<b>INVEST</b>	<b>YEAR</b>	<b>YEAR</b>	<b>DEPR</b>	<b>DEPR</b>	<b>INVEST</b>	<b>INVEST</b>
26	1	2009		0	0	249	1,136	3,617	2,481
27	2	2010		0	0	249	1,385	3,617	2,232
28	3	2011		0	0	249	1,634	3,617	1,983
29	4	2012		0	0	249	1,883	3,617	1,734
30	5	2013		0	0	249	2,132	3,617	1,485
31	6	2014		0	0	249	2,381	3,617	1,236
32	7	2015		-	0	249	2,630	3,617	987
33									
34									
35	<b>Table 4K</b>								
36									
37	<b>SUMMARY - PBL GENERAL PLANT</b>								
38									
39		<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>				
40		<b>ANNUAL</b>	<b>ACCUM</b>	<b>CUMUL</b>	<b>D</b>				
41		<b>FY</b>	<b>DEPR</b>	<b>DEPR</b>	<b>INVEST</b>	<b>INVEST</b>			
42	1	2009	17,972	67,461	84,198	16,737			
43	2	2010	17,281	84,742	98,069	13,327			
44	3	2011	15,830	100,572	113,019	12,447			
45	4	2012	16,065	116,637	128,060	11,423			
46	5	2013	15,442	132,079	143,159	11,080			
47	6	2014	16,905	148,984	158,258	9,274			
48	7	2015	18,442	167,426	173,357	5,931			
49									
50									

	A	B	C	D	E	F	G	H	I
1	<b>Table 4L</b>								
2	<b>BPA FISH &amp; WILDLIFE INVESTMENT</b>								
3	<b>((\$000s))</b>								
4									
5									
6									
7				<b>FIRST</b>	<b>FULL</b>	<b>ANNUAL</b>	<b>ACCUM</b>	<b>CUMUL</b>	<b>NET</b>
8		<b>FY</b>	<b>INVEST</b>	<b>YEAR</b>	<b>YEAR</b>	<b>AMORT</b>	<b>AMORT</b>	<b>INVEST</b>	<b>INVEST</b>
9	1	2009	50,000	1,667	3,333	21,565	154,763	335,813	181,050
10	2	2010	70,000	2,333	4,667	23,904	146,181	373,327	227,146
11	3	2011	60,000	2,000	4,000	26,485	146,620	407,281	260,661
12	4	2012	50,000	1,667	3,333	27,725	146,281	429,217	282,936
13	5	2013	50,000	1,667	3,333	29,497	153,783	457,222	303,439
14	6	2014	36,000	1,200	2,400	30,895	169,930	478,474	308,544
15	7	2015	36,000	1,200	2,400	32,522	188,554	500,576	312,022
16									

	A	B	C	D	E	F	G	H	I
1	<b>Table 4M</b>								
2									
3	<b>BPA LEGACY CONSERVATION INVESTMENT</b>								
4	<b>(\$000s)</b>								
5									
6									
7									
8		<b><u>FY</u></b>	<b><u>INVEST</u></b>	<b><u>FIRST</u></b>	<b><u>FULL</u></b>	<b><u>ANNUAL</u></b>	<b><u>ACCUM</u></b>	<b><u>CUMUL</u></b>	<b><u>NET</u></b>
9	1	2009		-	-	27,283	403,636	514,299	110,663
10	2	2010		-	-	25,289	394,830	480,204	85,374
11	3	2011		-	-	23,439	372,555	434,490	61,935
12	4	2012				20,948	331,352	372,339	40,987
13	5	2013				17,408	252,043	275,622	23,579
14	6	2014				13,930	150,943	160,592	9,649
15	7	2015				9,649	88,164	88,164	-
16									

	A	B	C	D	E	F	G	H	I
1	<b>Table 4N</b>								
2									
3	<b>BPA CONSERVATION AUGMENTATION INVESTMENT</b>								
4	<b>(\$000s)</b>								
5									
6									
7				<b>FIRST</b>	<b>FULL</b>	<b>ANNUAL</b>	<b>ACCUM</b>	<b>CUMUL</b>	<b>NET</b>
8		<b><u>FY</u></b>	<b><u>INVEST</u></b>	<b><u>YEAR</u></b>	<b><u>YEAR</u></b>	<b><u>AMORT</u></b>	<b><u>AMORT</u></b>	<b><u>INVEST</u></b>	<b><u>INVEST</u></b>
9	1	2009	-	-	-	13,335	78,377	105,048	26,671
10	2	2010	-	-	-	13,335	91,712	105,048	13,336
11	3	2011	-	-	-	13,335	105,048	105,048	0
12	4	2012	-	-	-	-	-	-	-
13	5	2013	-	-	-	-	-	-	-
14	6	2014	-	-	-	-	-	-	-
15	7	2015	-	-	-	-	-	-	-
16									

	A	B	C	D	E	F	G	H	I
1	<b>Table 40</b>								
2	<b>BPA CONSERVATION ACQUISITIONS INVESTMENT</b>								
3	<b>(\$000s)</b>								
4									
5									
6									
7									
8		<b><u>FY</u></b>	<b><u>INVEST</u></b>	<b><u>FIRST</u></b>	<b><u>FULL</u></b>	<b><u>ANNUAL</u></b>	<b><u>ACCUM</u></b>	<b><u>CUMUL</u></b>	<b><u>NET</u></b>
9	1	2009	27,200	2,720	5,440	5,701	8,156	42,102	33,946
10	2	2010	32,300	3,230	6,460	11,651	19,807	74,402	54,595
11	3	2011	39,100	3,910	7,820	18,791	38,598	113,502	74,904
12	4	2012	39,100	3,910	7,820	25,383	63,981	152,602	88,621
13	5	2013	39,100	3,910	7,820	32,176	90,018	185,563	95,545
14	6	2014	39,100	3,910	7,820	36,550	117,805	215,900	98,095
15	7	2015	39,100	3,910	7,820	38,420	129,025	227,800	98,775

Table 4P

Bureau of Reclamation: Investment and Depreciation  
(\$000s)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3														
4			<u>ACCUM</u>	<u>INVESTMENT</u>	<u>2009</u>	<u>DEPR</u>	<u>ACCUM</u>	<u>INVESTMENT</u>	<u>2010</u>	<u>DEPR</u>	<u>ACCUM</u>	<u>INVESTMENT</u>	<u>2011</u>	<u>DEPR</u>
5			<u>DEPR</u>	<u>9/30/08</u>	<u>ADDTNS</u>	<u>EXP</u>	<u>DEPR</u>	<u>9/30/09</u>	<u>ADDTNS</u>	<u>EXP</u>	<u>DEPR</u>	<u>9/30/10</u>	<u>ADDTNS</u>	<u>EXP</u>
6														
7	1	<b>BOISE</b>												
8	2	GENERATION	8,664	29,127	225	390	9,054	29,352	345	394	9,448	29,697	295	398
9	3	<b>COLUMBIA BASIN</b>												
10	4	GENERATION	406,114	1,293,126	35,656	17,479	423,593	1,328,782	3,142	17,738	441,331	1,331,924	10,686	17,830
11	5	TRANSMISSION /DELIVERY	16,232	51,684		689	16,921	51,684		689	17,610	51,684		689
12	6	TOTAL	422,346	1,344,810	35,656	18,168	440,514	1,380,466	3,142	18,427	458,941	1,383,608	10,686	18,519
13	7	<b>GREEN SPRINGS</b>												
14	8	GENERATION	8,299	10,821	100	145	8,444	10,921	75	146	8,590	10,996	4,285	175
15	9	<b>HUNGRY HORSE</b>												
16	10	GENERATION	48,822	122,500	5,463	1,670	50,492	127,963	6,685	1,751	52,243	134,648	325	1,797
17	11	TRANSMISSION /DELIVERY	816	2,048		27	843	2,048		27	870	2,048		27
18	12	TOTAL	49,638	124,548	5,463	1,697	51,335	130,011	6,685	1,778	53,113	136,696	325	1,824
19	13	<b>MINIDOKA-PALISADES</b>												
20	14	GENERATION	27,361	112,171	275	1,497	28,858	112,446	100	1,500	30,358	112,546	100	1,501
21	15	TRANSMISSION /DELIVERY	418	1,713		23	441	1,713		23	464	1,713		23
22	16	TOTAL	27,779	113,884	275	1,520	29,299	114,159	100	1,523	30,822	114,259	100	1,524
23	17	<b>YAKIMA</b>												
24	18	GENERATION	3,324	8,151	2,364	124	3,448	10,515	3,079	161	3,609	13,594	125	182
25	19	TOTAL USBR	520,050	1,631,341	44,083	22,044	542,094	1,675,424	13,426	22,429	564,523	1,688,850	15,816	22,622
26	20	GENERATION	502,584	1,575,896		21,305	523,889	1,619,979		21,690	545,579	1,633,405		21,883
27	21	TRANSMISSION	17,466	55,445		739	18,205	55,445		739	18,944	55,445		739
28	22	TOTAL	520,050	1,631,341		22,044	542,094	1,675,424		22,429	564,523	1,688,850		22,622

Table 4P

Bureau of Reclamation: Investment and Depreciation  
(\$000s)

	A	B	O	P	Q	R	S	T	U	V	W	X	Y	Z
			ACCUM	INVESTMENT	2012	DEPR	ACCUM	INVESTMENT	2013	DEPR	ACCUM	INVESTMENT	2014	DEPR
			DEPR	9/30/11	ADDTNS	EXP	DEPR	9/30/12	ADDTNS	EXP	DEPR	9/30/13	ADDTNS	EXP
1														
2														
3														
4														
5														
6		<b>1 BOISE</b>												
7		2 GENERATION	9,846	29,992	150,019	1,400	11,246	180,011	359,589	4,797	16,043	539,600	175,422	8,364
8		<b>3 COLUMBIA BASIN</b>												
9		4 GENERATION	459,161	1,342,610		17,901	477,062	1,342,610		17,901	494,963	1,342,610		17,901
10		5 TRANSMISSION /DELIVERY	18,299	51,684		689	18,988	51,684		689	19,677	51,684		689
11		6 TOTAL	477,460	1,394,294	-	18,590	496,050	1,394,294	-	18,590	514,640	1,394,294	-	18,590
12		<b>7 GREEN SPRINGS</b>												
13		8 GENERATION	8,765	15,281		204	8,969	15,281		204	9,173	15,281		204
14		<b>9 HUNGRY HORSE</b>												
15		10 GENERATION	54,040	134,973		1,800	55,840	134,973		1,800	57,640	134,973		1,800
16		11 TRANSMISSION /DELIVERY	897	2,048		27	924	2,048		27	951	2,048		27
17		12 TOTAL	54,937	137,021	-	1,827	56,764	137,021	-	1,827	58,591	137,021	-	1,827
18		<b>13 MINIDOKA-PALISADES</b>												
19		14 GENERATION	31,859	112,646		1,502	33,361	112,646		1,502	34,863	112,646		1,502
20		15 TRANSMISSION /DELIVERY	487	1,713		23	510	1,713		23	533	1,713		23
21		16 TOTAL	32,346	114,359	-	1,525	33,871	114,359	-	1,525	35,396	114,359	-	1,525
22		<b>17 YAKIMA</b>												
23		18 GENERATION	3,791	13,719		183	3,974	13,719		183	4,157	13,719		183
24														
25		19 TOTAL USBR	587,145	1,704,666	150,019	23,729	610,874	1,854,685	359,589	27,126	638,000	2,214,274	175,422	30,693
26														
27		20 GENERATION	567,462	1,649,221		22,990	590,452	1,799,240		26,387	616,839	2,158,829		29,954
28		21 TRANSMISSION	19,683	55,445		739	20,422	55,445		739	21,161	55,445		739
29		22 TOTAL	587,145	1,704,666		23,729	610,874	1,854,685		27,126	638,000	2,214,274		30,693

Table 4P

Bureau of Reclamation: Investment and Depreciation  
(\$000s)

	A	B	AA	AB	AC	AD	AE	AF
1								
2								
3			<b>ACCUM</b>	<b>INVESTMENT</b>	<b>2015</b>	<b>DEPR</b>	<b>ACCUM</b>	<b>INVESTMENT</b>
4			<b>DEPR</b>	<b>9/30/14</b>	<b>ADDTNS</b>	<b>EXP</b>	<b>DEPR</b>	<b>9/30/15</b>
5								
6		<b>1 BOISE</b>						
7		2 GENERATION	24,407	715,022	15,691	9,638	34,045	730,713
8		<b>3 COLUMBIA BASIN</b>						
9		4 GENERATION	512,864	1,342,610		17,901	530,765	1,342,610
10		5 TRANSMISSION /DELIVERY	20,366	51,684		689	21,055	51,684
11		6 TOTAL	533,230	1,394,294	-	18,590	551,820	1,394,294
12		<b>7 GREEN SPRINGS</b>						
13		8 GENERATION	9,377	15,281		204	9,581	15,281
14		<b>9 HUNGRY HORSE</b>						
15		10 GENERATION	59,440	134,973		1,800	61,240	134,973
16		11 TRANSMISSION /DELIVERY	978	2,048		27	1,005	2,048
17		12 TOTAL	60,418	137,021	-	1,827	62,245	137,021
18		<b>13 MINIDOKA-PALISADES</b>						
19		14 GENERATION	36,365	112,646		1,502	37,867	112,646
20		15 TRANSMISSION /DELIVERY	556	1,713		23	579	1,713
21		16 TOTAL	36,921	114,359	-	1,525	38,446	114,359
22		<b>17 YAKIMA</b>						
23		18 GENERATION	4,340	13,719		183	4,523	13,719
24								
25		19 TOTAL USBR	668,693	2,389,696	15,691	31,967	700,660	2,405,387
26								
27		20 GENERATION	646,793	2,334,251		31,228	678,021	2,349,942
28		21 TRANSMISSION	21,900	55,445		739	22,639	55,445
29		22 TOTAL	668,693	2,389,696		31,967	700,660	2,405,387

Table 4Q

Corps of Engineers: Investment and Depreciation  
(\$000s)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
			ACCUM	INVESTMENT	2009	DEPR	ACCUM	INVESTMENT	2010	DEPR	ACCUM	INVESTMENT	2011	DEPR
			DEPR	9/30/08	ADDTNS	EXP	DEPR	9/30/09	ADDTNS	EXP	DEPR	9/30/10	ADDTNS	EXP
1														
2														
3														
4														
5														
7														
8			362,197	1,020,693	14,202	13,704	375,901	1,034,895	9,926	13,865	389,766	1,044,821	60,865	14,337
9			360	3,000		40	400	3,000		40	440	3,000		40
10			362,557	1,023,693		13,744	376,301	1,037,895		13,905	390,206	1,047,821		14,377
11														
12														
13			21,776	43,453	6,729	624	22,400	50,182	2,926	689	23,089	53,108	222	710
14			279,913	576,972	3,814	7,718	287,631	580,786	5,059	7,778	295,409	585,845	7,919	7,864
15			11,060	82,291	1,654	1,108	12,168	83,945	166	1,120	13,288	84,111	366	1,124
16			26,552	51,041	14,498	777	27,329	65,539	11,399	950	28,279	76,938	186	1,027
17			110,607	295,982	3,617	3,971	114,578	299,599	6,104	4,035	118,613	305,703	289	4,078
18			23,177	55,658	2,937	762	23,939	58,595	729	786	24,725	59,324	335	793
19			11,410	20,686	547	279	11,689	21,233	759	288	11,977	21,992	132	294
20			76,896	168,667	2,811	2,268	79,164	171,478	1,281	2,295	81,459	172,759	7,241	2,352
21			216,736	509,308	2,256	6,806	223,542	511,564	3,420	6,844	230,386	514,984	2,120	6,881
22			151,745	436,072	1,161	5,822	157,567	437,233	2,199	5,844	163,411	439,432	207	5,860
23			99,028	220,314	1,415	2,947	101,975	221,729	2,386	2,972	104,947	224,115	643	2,992
24			41,710	61,216	8,081	870	42,580	69,297	210	925	43,505	69,507	477	930
25			11,312	28,543	156	382	11,694	28,699	161	384	12,078	28,860	167	386
26			133,715	345,033	6,695	4,645	138,360	351,728	13,381	4,779	143,139	365,109	903	4,874
27			108,170	243,135	11,368	3,318	111,488	254,503	2,534	3,410	114,898	257,037	683	3,432
28			191,829	345,718	35,621	4,847	196,676	381,339	6,699	5,129	201,805	388,038	1,411	5,183
29			193,191	365,169	12,146	4,950	198,141	377,315	50,496	5,368	203,509	427,811	4,351	5,733
30			40,027	255,832		3,411	43,438	255,832		3,411	46,849	255,832		3,411
31			111,979	861,606	110,000	11,488	123,467	971,606	88,000	12,955	136,422	1,059,606	96,000	14,128
32			1,860,833	4,966,696	225,506	66,993	1,927,826	5,192,202	197,909	69,962	1,997,788	5,390,111	123,652	72,052
33														
34			2,223,390	5,990,389	225,506	80,737	2,304,127	6,230,097	197,909	83,867	2,387,994	6,437,932	123,652	86,429
35														
36			2,223,030	5,987,389		80,697	2,303,727	6,227,097		83,827	2,387,554	6,434,932		86,389
37			360	3,000		40	400	3,000		40	440	3,000		40
38			2,223,390	5,990,389		80,737	2,304,127	6,230,097		83,867	2,387,994	6,437,932		86,429
39														
40			4955	370332		4938	9893	370332		4938	14831	370332		4938
41														
42			Acc Dep	Gross Plant	Net Plant		Acc Dep	Gross Plant	Net Plant		Acc Dep	Gross Plant	Net Plant	
43			1,661,675	3,795,009	2,133,334		1,712,878	3,885,337	2,172,459		1,765,318	3,980,519	2,215,201	
44			152,006	1,117,438	965,432		166,905	1,227,438	1,060,533		183,271	1,315,438	1,132,167	

Table 4Q

Corps of Engineers: Investment and Depreciation  
(\$000s)

	A	B	O	P	Q	R	S	T	U	V	W	X	Y	Z
1														
2														
3														
4														
5			<b>ACCUM</b>	<b>INVESTMENT</b>	<b>2012</b>	<b>DEPR</b>	<b>ACCUM</b>	<b>INVESTMENT</b>	<b>2013</b>	<b>DEPR</b>	<b>ACCUM</b>	<b>INVESTMENT</b>	<b>2014</b>	<b>DEPR</b>
6			<b>DEPR</b>	<b>9/30/11</b>	<b>ADDTNS</b>	<b>EXP</b>	<b>DEPR</b>	<b>9/30/12</b>	<b>ADDTNS</b>	<b>EXP</b>	<b>DEPR</b>	<b>9/30/13</b>	<b>ADDTNS</b>	<b>EXP</b>
7														
8														
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37														
38														
39														
40														
41														
42			<b>Acc Dep</b>	<b>Gross Plant</b>	<b>Net Plant</b>		<b>Acc Dep</b>	<b>Gross Plant</b>	<b>Net Plant</b>		<b>Acc Dep</b>	<b>Gross Plant</b>	<b>Net Plant</b>	
43														
44														

Table 4Q

Corps of Engineers: Investment and Depreciation  
(\$000s)

	A	B	AA	AB	AC	AD	AE	AF	AG
1									
2									
3									
4									
5			<b>ACCUM</b>	<b>INVESTMENT</b>	<b>2015</b>	<b>DEPR</b>	<b>ACCUM</b>	<b>INVESTMENT</b>	
6			<b>DEPR</b>	<b>9/30/14</b>	<b>ADDTNS</b>	<b>EXP</b>	<b>DEPR</b>	<b>9/30/15</b>	
7		1 BONNEVILLE							
8		2 GENERATION	448,329	1,105,686		14,742	463,071	1,105,686	
9		3 TRANSMISSION	600	3,000		40	640	3,000	
10		4 TOTAL	448,929	1,108,686		14,782	463,711	1,108,686	
11		5 OTHER PROJECTS							
12		6 (GENERATION ONLY)							
13		7 ALBENI FALLS	25,932	53,330		711	26,643	53,330	
14		8 CHIEF JOSEPH	327,024	593,764		7,917	334,941	593,764	
15		9 COUGAR	17,790	84,477		1,126	18,916	84,477	
16		10 DETROIT-BIG CLIFF	32,390	77,124		1,028	33,418	77,124	
17		11 DWORSHAK	134,931	305,992		4,080	139,011	305,992	
18		12 GREEN PETER-FOSTER	27,903	59,659		795	28,698	59,659	
19		13 HILLS CREEK	13,156	22,124		295	13,451	22,124	
20		14 ICE HARBOR	91,011	180,000		2,400	93,411	180,000	
21		15 JOHN DAY	257,952	517,104		6,895	264,847	517,104	
22		16 LIBBY	186,857	439,639		5,862	192,719	439,639	
23		17 LITTLE GOOSE	116,930	224,758		2,997	119,927	224,758	
24		18 LOOKOUT POINT-DEXTER	47,234	69,984		933	48,167	69,984	
25		19 LOST CREEK	13,625	29,027		387	14,012	29,027	
26		20 LOWER GRANITE	162,653	366,012		4,880	167,533	366,012	
27		21 LOWER MONUMENTAL	128,638	257,720		3,436	132,074	257,720	
28		22 MCNARY	222,567	389,449		5,193	227,760	389,449	
29		23 THE DALLES	226,528	432,162		5,762	232,290	432,162	
30		24 LOWER SNAKE F&W	60,493	255,832		3,411	63,904	255,832	
31		25 COLUMBIA R. FISH BYPASS	198,974	1,335,606	65,000	17,808	216,782	1,400,606	
32		26 TOTAL OTHER	2,292,588	5,693,763	65,000	75,916	2,368,504	5,758,763	
33									
34		27 TOTAL CORPS	2,741,517	6,802,449	65,000	90,698	2,832,215	6,867,449	
35									
36		28 GENERATION	2,740,917	6,799,449		90,658	2,831,575	6,864,449	
37		29 TRANSMISSION	600	3,000		40	640	3,000	
38		30 TOTAL	2,741,517	6,802,449		90,698	2,832,215	6,867,449	
39									
40		1/ Includes FAS 71 Intangible Assr	34583	370332		4938	39521	370332	
41									
42			<b>Acc Dep</b>	<b>Gross Plant</b>	<b>Net Plant</b>		<b>Acc Dep</b>	<b>Gross Plant</b>	<b>Net Plant</b>
43		COE portion of Big 10	1,981,632	4,066,655	2,085,023		2,035,854	4,066,655	2,030,801
44		F&W portion	259,467	1,591,438	1,331,971		280,686	1,656,438	1,375,752

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## **5. PROJECTED CASH BALANCES / INTEREST CREDITS**

### **5.1 Introduction**

This chapter documents the projection of the generation interest income (credited to interest expense) to be earned during the rate approval period and the outyears on BPA's projected cash balances and on funds attributable to generation to be returned to Treasury at year-end.

### **5.2 Interest credits on projected cash balances**

The ToolKit model provides the annual cash balances for the rate approval period. In the outyears, the internal cash flows from revenue requirements are added to the ending rate period cash balances separately for the program and 7(b)(2) cases and averaged. The projected interest earnings rate, the projected weighted average interest rate on outstanding bonds from the end of the previous year, is multiplied by the average cash balance to determine the annual interest income. The resulting interest income is applied as a credit against interest expense in the generation revenue requirements.

### **5.3 Interest income (repayment program calculation)**

The interest income rates listed in this chapter are calculated and used in repayment studies to determine an interest income credit on funds collected during each year for year-end payment of amortization and interest on COE and BOR appropriations and bonds BPA issued to Treasury. The repayment program assumes that cash accumulates at a uniform rate throughout the year, except for interest paid on bonds issued to Treasury at mid-year.

	A	B	C	D	E	F	G	H
1	<b>TABLE 5A</b>							
2								
3	<b>Interest Income from Projected Cash Balances</b>							
4	<b>Generation Revenue Requirement</b>							
5	<b>(\$000s)</b>							
6								
7								
8			<b><u>2010</u></b>	<b><u>2011</u></b>	<b><u>2012</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>
9	Annual Cash Surplus/(Deficit)		48,000	48,000	4,860	-	-	0
10								
11	SOY Cash Balance		777,897	825,897	873,897	878,757	878,757	878,757
12	EOY Cash Balance		825,897	873,897	878,757	878,757	878,757	878,757
13	Average Cash Balance		801,897	849,897	876,327	878,757	878,757	878,757
14								
15	Interest Income Rate		4.73%	4.73%	4.73%	4.73%	4.73%	4.73%
16								
17	Repayment Study Interest Income		11,675	9,117	9,237	10,764	11,130	11,859
18								
19	Annual Interest Income		49,605	49,317	50,687	52,329	52,695	53,424
20								

	A	B	C	D	E	F
1	<b>Table 5B</b>					
2						
3	<b>Interest Income from Projected Cash Balances</b>					
4	<b>Generation Current Revenue Test</b>					
5	<b>(\$000s)</b>					
6						
7						
8			<b><u>2009</u></b>	<b><u>2010</u></b>	<b><u>2011</u></b>	
9						
10	Annual Cash Surplus/(Deficit)			(186,598)	(270,035)	
11						
12	SOY Cash Balance			777,897	591,299	
13	EOY Cash Balance		777,897	591,299	321,265	
14	Average Cash Balance			684,598	456,282	
15						
16	Interest Income Rate			4.73%	4.73%	
17						
18	Repayment Study Interest Income			11,708	9,083	
19						
20	Annual Interest Income			44,089	30,665	
21						

	A	B	C	D	E	F
1	<b>Table 5C</b>					
2						
3	<b>Interest Income from Projected Cash Balances</b>					
4	<b>Generation Revised Revenue Test</b>					
5	<b>(\$000s)</b>					
6						
7			<b><u>2009</u></b>	<b><u>2010</u></b>	<b><u>2011</u></b>	
8						
9	Annual Cash Surplus/(Deficit)			12,743	(11,336)	
10						
11	SOY Cash Balance			777,897	790,640	
12	EOY Cash Balance		777,897	790,640	779,305	
13	Average Cash Balance			784,269	784,972	
14						
15	Interest Income Rate			0	0	
16						
17	Repayment Study Interest Income			11,708	9,083	
18						
19	Annual Interest Income			48,804	46,212	
20						

	A	B	C	D	E	F	G	H
1	<b>Table 5D</b>							
2								
3	<b>Interest Income from Projected Cash Balances</b>							
4	<b>7(b)(2) Generation Revenue Requirement</b>							
5	<b>(\$000s)</b>							
6								
7			<u><b>2010</b></u>	<u><b>2011</b></u>	<u><b>2012</b></u>	<u><b>2013</b></u>	<u><b>2014</b></u>	<u><b>2015</b></u>
8	Annual Cash Surplus/(Deficit)		48,000	48,000	-	-	-	-
9								
10	SOY Cash Balance		777,897	825,897	873,897	873,897	873,897	873,897
11	EOY Cash Balance		825,897	873,897	873,897	873,897	873,897	873,897
12	Average Cash Balance		801,897	849,897	873,897	873,897	873,897	873,897
13								
14	Interest Income Rate		4.73%	4.73%	4.73%	4.73%	4.73%	4.73%
15								
16	Repayment Study Interest Income		11,440	8,830	8,185	9,639	9,972	10,533
17								
18	Annual Interest Income		49,370	49,030	49,520	50,974	51,307	51,868
19								

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## **6. INTEREST RATES FOR TREASURY SOURCES OF CAPITAL AND PRICE DEFLATORS**

### **6.1 Introduction**

Interest rates on bonds issued by BPA to Treasury and interest rates for COE and BOR appropriations are used in development of repayment studies and projections of Federal interest expense in revenue requirements. Price deflators are used for developing spending levels in revenue requirements.

### **6.2 Source of Forecasts**

To project interest rates on bonds issued to Treasury, BPA uses Treasury yield curve forecasts provided by the Global Insights Group (GI). GI is also the source of price deflators that BPA treats as escalators for purposes of developing spending levels. GI develops the price deflators taking into account projections of Gross Domestic Product (GDP). The GDP consists of the sum of consumption, investment, government purchases and net exports, excluding transfers to foreigners.

### **6.3 Interest Rate Projections**

Projected interest rates for BPA bonds issued to Treasury are based on GI's yield curve projections of Treasury market rates, plus a markup of up to 150 basis points depending on the length of time to maturity. The markup estimate reflects an interagency agreement that Treasury price BPA bonds at a level comparable to securities (bonds) issued by U.S. government corporations. The markup estimate reflects the average basis point markup on recent intermediate and long-term bonds issued by BPA. As noted in the attached transmittal memo documenting the interest rates in this revenue requirement study, for the FY 2010-2011 period the 30-year rate reflects a markup of 150 and 120 basis points respectively.

Interest rates on projected capital investments funded by appropriations are also based on GI's projections of Treasury yield curves. The yield curves used for appropriations do not include the basis point markup.

### **6.4 Deflators**

The current and cumulative price deflator used to escalate midyear dollars are derived from the fiscal and calendar year price deflators provided by GI. They are calculated as follows:

$$[(FY1/100) \times 0.5] + 1 = \text{Cumulative Price Deflator}_1$$

The fiscal year GDP price deflator for the current year is divided by one hundred and multiplied by one half. The result, when added to one, yields the cumulative price deflator for the first year.

$$[1 + (FYt/100)] \times \text{Cumulative Price Deflator}_{t-1} = \text{Cumulative Price Deflator}_t, \text{ when } t > 1$$

The fiscal year GDP price deflator for a future year is divided by one hundred and added to one. The result, when multiplied by the cumulative price deflator from the previous year, yields the cumulative price deflator for the each successive year.

To the extent deflators are used in developing the FY 2010-2011 spending levels they are based on the price deflators from the Third Quarter 2008 GI forecast.

# memorandum

DATE: November 14, 2008

REPLY TO  
ATTN OF: FTC-2

SUBJECT: FY 2009 BPA Borrowing and Inflation Rate Assumptions

TO: See attached cc list:

## COMMON AGENCY ASSUMPTIONS

### BPA Borrowing and Inflation Rate Assumptions

Please see attached BPA borrowing rate and inflation assumptions for the period FY 2009 through 2038.

These forecasts provide an internally consistent basis for BPA decisions regarding: debt management, budget formulation, and other financial analyses, as well as capital budgeting, and strategic planning efforts. The FY 2009 forecasts are summarized in the following tables:

- Table 1: 30-year term (2009 Forecast)
- Table 2: 30-year term (Comparison of 2009 and 2008 Forecasts)
- Table 3: 20-year term (2009 Forecast)
- Table 4: 15-year term (2009 Forecast).
- Table 5: Appropriations
- Table 6: BPA Treasury borrowing
- Table 7: Third-party taxable borrowing
- Table 8: Third-party tax-exempt borrowing
- Table 9: FERC (Prime Rate)
- Table 10: LIBOR 3-Month Rate
- Table 11: Projected change in the GDP price deflator
- Table 12: Summary of equivalent cumulative discount rates for alternative base years

Although BPA borrowing rates trend lower over the near term, they are projected in Global Insight (GI) trend forecast to recover to a constant long-term equilibrium rate by 2011.

In contrast, the FY 2009 inflation forecast trends lower over the entire forecast period, just as in the FY 2008 forecast. There is, in fact, little difference between the inflation environments envisioned by the FY 2009 and FY 2008 forecasts.

### **FY 2009 Borrowing Rate and Inflation Forecasts**

The FY 2009 forecast of BPA borrowing rates and inflation expectations is based on the GI August Third Quarter 2008 Long-Term Economic Outlook.

Table 1 illustrates the basis of BPA's Treasury borrowing rate. GI calendar year (CY) projections of 30-year Treasury bond yields are shown in Column A. BPA fiscal year projections are shown in Column B. Column C reflects BPA's Treasury borrowing rate.

The U.S. Treasury pricing of BPA borrowing reflects a mark-up over the Treasury yield curve. The markup is based upon the Government Agency borrowing rate spread over the Treasury yield curve, and, when appropriate, an adder for call options embedded in BPA Treasury borrowings.

Markup assumptions have changed in the FY 2009 borrowing rate forecast. These revisions were based on a review of historical market information, and data provided by the U.S. Treasury.

Revised estimates of Treasury borrowing rates reflect the market's relative perception of credit quality risks since 1995. This period includes two periods of economic and financial stress and uncertainty in 2000-01 and 2007-08. Over these periods, the Treasury markup widened to reflect: (1) widening yield spreads between U.S. Treasury and Agency securities, and (2) higher premiums on embedded call options. These revisions are consistent with the progressive escalation spreads for longer dated BPA borrowings.

BPA inflation assumptions reflect projected changes in the U.S. Gross Domestic Product (GDP) Price Deflator. This index assumes a base year of 2000. The projected change in the GDP price deflator is summarized in Table 11. Column A shows the projected trend in GDP inflation rates between 2009-2038 on a calendar year basis and in column B by BPA fiscal year. Column C provides the cumulative price index projections. The forecast expresses fiscal year dollar values as mid-year dollar values.

This update expands the set of BPA borrowing rate assumptions to include the Prime rate and a short-term LIBOR rate. The Prime rate reverts over the next three years from a GI forecast of 5.40 percent in FY 2009 to a long-term equilibrium rate of 7.75 percent in FY 2012. LIBOR rates are projected to increase from 3.15 percent in FY 2009 to 5.20 percent in FY 2012. Since early October 2008, the 3-month LIBOR rate has fallen 253 bp from 4.82 percent to 2.29 percent.

### **BPA Borrowing Forecasts**

The FY 2009 forecast begins in an environment of financial crisis of historic proportions, slowing economic growth, and falling interest rates in which the risk of recession has risen significantly. However, with the projected economic recovery in 2010, borrowing rates rebound to long-term equilibrium levels. In this environment interest rates and borrowing costs rise over the next four years.

The FY 2009 outlook suggests BPA borrowing rates will, in the near term, increase to a long-term equilibrium over all funding sources. The borrowing rate on FCRPS appropriations over a 2-year term is projected to increase 319 bp, from 2.25 percent in FY 2009 to a long-term equilibrium rate of 4.99 percent in 2012. The appropriation borrowing rate over a 10-year term is projected to increase 169 bp from 3.75 percent to 5.44 percent in 2012

By 2012, the 10-year rate on BPA's Treasury borrowing is expected to increase 155 bp from 4.45 percent in FY 2009 to 6.00 percent. The Third-party taxable 10-year rate is expected to increase 195 bp from 4.74 percent to 6.69 percent in 2012, and the Third-party tax-exempt 10-year rate increases 149 bp from 3.42 percent to 4.91 percent. Beyond 2012, BPA borrowing rates are expected to remain at a constant long-term equilibrium rate.

### **Inflation Forecast**

The GDP Price Deflator is the broadest measure of inflation in the U.S. economy. GDP reflects the value of all goods and services produced by domestic and foreign capital and labor within the United States. Major components of GDP include total consumption, investment, government purchases, and net exports. The real GDP calculations reflect both the changing mix of the components in GDP, and the relative price changes in these components.

The GI August 2008 Trend forecast assumes inflation will remain subdued over the next 30 years. Slower growth and greater slack in the economy reduces inflationary pressures. The outlook for inflation is essentially the same as BPA's FY 2008 forecast.

Inflationary pressures decline throughout the forecast period. Inflation slips from 2.19 percent in 2009 to 2.09 percent by 2012. The annual rate of inflation continues to decline gradually to 1.72 percent by 2038. Inflation in the 2009 forecast is essentially the same outlook as the 2008 forecast (See Table 11).

If you have questions, or suggestions concerning the FY 2009 Agency borrowing rate and inflation forecasts, please contact Robert Mealey at (503) 230-5389. Also, please forward this to the appropriate people in your group. Your assistance in identifying addressees for future forecasts is appreciated.

Robert Mealey  
Economist

Table 1  
**30 YEAR TREASURY YIELDS**  
**FY 2008 FORECAST OF BPA TREASURY BORROWING RATES**

Calendar/Fiscal Years 2009 - 2038

<u>YEAR</u>	<u>(A)</u> BOND RATE 1/ <u>Calendar Year</u>	<u>(B)</u> BOND RATE <u>Fiscal Year</u>	<u>(C)</u> BPA RATE 2/ <u>Fiscal Year</u>
2009	4.46	4.45	5.35
2010	5.56	5.29	6.79
2011	5.79	5.73	6.93
2012	5.79	5.79	6.69
2013	5.79	5.79	6.69
2014	5.79	5.79	6.69
2015	5.79	5.79	6.69
2016	5.79	5.79	6.69
2017	5.79	5.79	6.69
2018	5.79	5.79	6.69
2019	5.79	5.79	6.69
2020	5.79	5.79	6.69
2021	5.79	5.79	6.69
2022	5.79	5.79	6.69
2023	5.79	5.79	6.69
2024	5.79	5.79	6.69
2025	5.79	5.79	6.69
2026	5.79	5.79	6.69
2027	5.79	5.79	6.69
2028	5.79	5.79	6.69
2029	5.79	5.79	6.69
2030	5.79	5.79	6.69
2031	5.79	5.79	6.69
2032	5.79	5.79	6.69
2033	5.79	5.79	6.69
2034	5.79	5.79	6.69
2035	5.79	5.79	6.69
2036	5.79	5.79	6.69
2037	5.79	5.79	6.69
2038	5.79	5.79	6.69

1/ BPA Forecast November 2008; Global Insight CY 2008 Q3 long-term outlook.  
The U.S. Economy: 30-Year Focus, August 2008 Forecast, Base Case

2/ Column C = Column B + U.S. Treasury markup of 90 bp for all years except  
2010 and 2011 when it is 150 bp and 120 bp respectively.

Table 2  
**30 YEAR TREASURY YIELDS**  
**FY 2009 COMPARISON OF BPA BORROWING RATE FORECASTS**

Fiscal Years 2009 - 2038

<u>YEAR</u>	(A) FY 2008 FORECAST 1/ BPA RATE	(B) FY 2007 FORECAST 2/ BPA RATE	(C) DIFFERENCE (A-B)
2009	5.35	6.54	-1.19
2010	6.79	6.78	0.01
2011	6.93	6.84	0.09
2012	6.69	6.84	-0.15
2013	6.69	6.73	-0.04
2014	6.69	6.52	0.17
2015	6.69	6.46	0.23
2016	6.69	6.46	0.23
2017	6.69	6.46	0.23
2018	6.69	6.46	0.23
2019	6.69	6.46	0.23
2020	6.69	6.46	0.23
2021	6.69	6.46	0.23
2022	6.69	6.46	0.23
2023	6.69	6.46	0.23
2024	6.69	6.46	0.23
2025	6.69	6.46	0.23
2026	6.69	6.46	0.23
2027	6.69	6.46	0.23
2028	6.69	6.46	0.23
2029	6.69	6.46	0.23
2030	6.69	6.46	0.23
2031	6.69	6.46	0.23
2032	6.69	6.46	0.23
2033	6.69	6.46	0.23
2034	6.69	6.46	0.23
2035	6.69	6.46	0.23
2036	6.69	6.46	0.23
2037	6.69	6.46	0.23
2038	6.69	6.46	0.23

1/ BPA Forecast November 2008; Global Insight CY 2008.Q3 long-term outlook.  
The U.S. Economy: 30-Year Focus, August 2008 Forecast, Base Case

2/ BPA Forecast October 2007; Global Insight CY 2007.Q3 long-term outlook.  
The U.S. Economy: 30-Year Focus, February 2007 Core Forecast

Table 3  
**20 YEAR TREASURY YIELDS**  
**FY 2009 FORECAST OF BPA TREASURY BORROWING RATES**

Calendar/Fiscal Years 2009 - 2038

<u>YEAR</u>	(A) <u>BOND RATE 1/ Calendar Year</u>	(B) <u>BOND RATE Fiscal Year</u>	(C) <u>BPA RATE Fiscal Year</u>
2009	4.20	4.18	5.00
2010	5.38	5.08	6.18
2011	5.62	5.56	6.46
2012	5.62	5.62	6.44
2013	5.62	5.62	6.44
2014	5.62	5.62	6.44
2015	5.62	5.62	6.44
2016	5.62	5.62	6.44
2017	5.62	5.62	6.44
2018	5.62	5.62	6.44
2019	5.62	5.62	6.44
2020	5.62	5.62	6.44
2021	5.62	5.62	6.44
2022	5.62	5.62	6.44
2023	5.62	5.62	6.44
2024	5.62	5.62	6.44
2025	5.62	5.62	6.44
2026	5.62	5.62	6.44
2027	5.62	5.62	6.44
2028	5.62	5.62	6.44
2029	5.62	5.62	6.44
2030	5.62	5.62	6.44
2031	5.62	5.62	6.44
2032	5.62	5.62	6.44
2033	5.62	5.62	6.44
2034	5.62	5.62	6.44
2035	5.62	5.62	6.44
2036	5.62	5.62	6.44
2037	5.62	5.62	6.44
2038	5.62	5.62	6.44

1/ BPA Forecast November 2008; Global Insight CY 2008, Q3 long-term outlook.  
 The U.S. Economy: 30-Year Focus, August 2008 Forecast, Base Case

2/ Column C = Column B + U.S. Treasury markup of 82 bp for all years except  
 2010 and 2011 when it is 110 bp and 90 bp respectively.

Table 4  
**15 YEAR TREASURY YIELDS**  
**FY 2009 FORECAST OF BPA TREASURY BORROWING RATES**

Calendar/Fiscal Years 2009 - 2038

YEAR	(A)	(B)	(C)
	BOND RATE 1/ Calendar Year	BOND RATE Fiscal Year	BPA RATE Fiscal Year
2009	4.06	4.04	4.72
2010	5.28	4.98	5.87
2011	5.53	5.47	6.22
2012	5.53	5.53	6.21
2013	5.53	5.53	6.21
2014	5.53	5.53	6.21
2015	5.53	5.53	6.21
2016	5.53	5.53	6.21
2017	5.53	5.53	6.21
2018	5.53	5.53	6.21
2019	5.53	5.53	6.21
2020	5.53	5.53	6.21
2021	5.53	5.53	6.21
2022	5.53	5.53	6.21
2023	5.53	5.53	6.21
2024	5.53	5.53	6.21
2025	5.53	5.53	6.21
2026	5.53	5.53	6.21
2027	5.53	5.53	6.21
2028	5.53	5.53	6.21
2029	5.53	5.53	6.21
2030	5.53	5.53	6.21
2031	5.53	5.53	6.21
2032	5.53	5.53	6.21
2033	5.53	5.53	6.21
2034	5.53	5.53	6.21
2035	5.53	5.53	6.21
2036	5.53	5.53	6.21
2037	5.53	5.53	6.21
2038	5.53	5.53	6.21

1/ BPA Forecast November 2008; Global Insight CY 2008 Q3 long-term outlook.  
The U.S. Economy: 30-Year Focus, August 2008 Forecast, Base Case

2/ Column C = Column B + U.S. Treasury markup of 69 bp for all years except 21  
2010 and 2011 when it is 89 bp and 75 bp respectively.

Table 5  
**FY 2009 BPA APPROPRIATIONS BORROWING RATE FORECAST 1/**

BPA Fiscal Years 2009 - 2038

**MATURITY**

Year	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year	11 Year	12 Year	13 Year	14 Year	15 Year	16 Year	17 Year	18 Year	
2009	2.00	2.25	3.50	2.75	3.00	3.13	3.25	3.50	3.63	3.75	3.88	4.00	4.13	4.25	4.38	4.38	4.38	4.38	4.38
2010	4.02	4.20	4.28	4.36	4.44	4.53	4.62	4.70	4.79	4.88	4.90	4.92	4.94	4.96	4.98	5.00	5.02	5.04	5.04
2011	4.75	4.90	4.97	5.03	5.10	5.15	5.21	5.27	5.32	5.38	5.40	5.41	5.43	5.45	5.47	5.48	5.50	5.52	5.52
2012	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2013	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2014	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2015	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2016	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2017	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2018	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2019	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2020	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2021	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2022	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2023	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2024	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2025	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2026	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2027	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2028	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2029	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2030	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2031	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2032	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2033	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2034	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2035	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2036	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2037	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58
2038	4.84	4.99	5.06	5.12	5.19	5.24	5.29	5.34	5.39	5.44	5.46	5.48	5.49	5.51	5.53	5.55	5.56	5.58	5.58

1/ Global Insight CY 2008 Q3 long-term outlook. The U.S. Economy: 30-Year Focus, August 2008 Forecast, Base Case

19 Year	20 Year	21 Year	22 Year	23 Year	24 Year	25 Year	26 Year	27 Year	28 Year	29 Year	30 Year	50 Year	Year
4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	2009
5.06	5.08	5.10	5.12	5.14	5.16	5.18	5.20	5.22	5.24	5.26	5.29	5.29	2010
5.54	5.56	5.57	5.59	5.61	5.63	5.64	5.66	5.68	5.71	5.71	5.73	5.73	2011
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2012
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2013
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2014
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2015
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2016
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2017
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2018
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2019
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2020
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2021
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2022
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2023
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2024
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2025
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2026
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2027
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2028
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2029
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2030
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2031
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2032
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2033
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2034
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2035
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2036
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2037
5.60	5.62	5.63	5.65	5.67	5.69	5.70	5.72	5.74	5.76	5.77	5.79	5.79	2038

Table 6  
**BPA FY 2009 BPA TREASURY BORROWING YIELD CURVE FORECAST 1/**

BPA Fiscal Years 2009 - 2038

**MATURITY**

Year	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year	11 Year	12 Year	13 Year	14 Year	15 Year	16 Year	17 Year	18 Year
2009	2.79	3.14	3.31	3.49	3.66	3.82	3.98	4.14	4.30	4.45	4.51	4.56	4.61	4.67	4.72	4.77	4.83	4.88
2010	4.25	4.56	4.69	4.81	4.93	5.06	5.19	5.31	5.44	5.57	5.63	5.69	5.75	5.81	5.87	5.93	5.99	6.05
2011	4.98	5.27	5.36	5.46	5.56	5.64	5.73	5.81	5.90	5.98	6.03	6.08	6.13	6.17	6.22	6.27	6.32	6.36
2012	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2013	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2014	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2015	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2016	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2017	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2018	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2019	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2020	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2021	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2022	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2023	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2024	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2025	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2026	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2027	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2028	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2029	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2030	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2031	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2032	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2033	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2034	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2035	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2036	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2037	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34
2038	5.07	5.36	5.45	5.54	5.62	5.70	5.77	5.85	5.92	6.00	6.04	6.08	6.13	6.17	6.21	6.26	6.30	6.34

1/ Global Insight CY 2008.Q3 long-term outlook. The U.S. Economy: 30-Year Focus, August 2008 Forecast, Base Case

<u>19 Year</u>	<u>20 Year</u>	<u>21 Year</u>	<u>22 Year</u>	<u>23 Year</u>	<u>24 Year</u>	<u>25 Year</u>	<u>26 Year</u>	<u>27 Year</u>	<u>28 Year</u>	<u>29 Year</u>	<u>30 Year</u>	<u>50 Year</u>	<u>Year</u>
4.93	5.00	5.03	5.07	5.10	5.14	5.18	5.21	5.25	5.28	5.32	5.35	5.35	2009
6.12	6.18	6.24	6.30	6.36	6.42	6.48	6.54	6.60	6.66	6.72	6.79	6.79	2010
6.41	6.46	6.51	6.55	6.60	6.65	6.70	6.74	6.79	6.84	6.89	6.93	6.93	2011
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2012
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2013
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2014
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2015
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2016
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2017
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2018
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2019
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2020
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2021
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2022
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2023
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2024
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2025
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2026
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2027
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2028
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2029
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2030
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2031
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2032
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2033
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2034
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2035
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2036
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2037
6.38	6.44	6.46	6.49	6.51	6.54	6.56	6.59	6.61	6.64	6.66	6.69	6.69	2038

Table 7  
**BPA FY 2009 THIRD-PARTY TAXABLE BORROWING RATE FORECAST 1/**  
 BPA Fiscal Years 2009 - 2038

**MATURITY**

Year	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year	11 Year	12 Year	13 Year	14 Year	15 Year	16 Year	17 Year	18 Year
2009	2.96	3.35	3.54	3.73	3.93	4.09	4.25	4.42	4.58	4.74	4.78	4.81	4.85	4.88	4.91	4.95	4.98	5.01
2010	4.55	5.03	5.16	5.29	5.42	5.54	5.66	5.78	5.90	6.02	6.05	6.07	6.10	6.13	6.15	6.18	6.20	6.23
2011	5.33	5.94	5.96	6.08	6.19	6.28	6.36	6.45	6.53	6.62	6.64	6.67	6.69	6.71	6.74	6.76	6.78	6.80
2012	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2013	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2014	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2015	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2016	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2017	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2018	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2019	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2020	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2021	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2022	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2023	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2024	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2025	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2026	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2027	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2028	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2029	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2030	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2031	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2032	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2033	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2034	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2035	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2036	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2037	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88
2038	5.43	5.94	6.06	6.18	6.30	6.38	6.46	6.54	6.62	6.69	6.72	6.74	6.76	6.79	6.81	6.83	6.85	6.88

1/ Global Insight CY 2008.Q3 long-term outlook. The U.S. Economy: 30-Year Focus, August 2008 Forecast, Base Case

<u>19 Year</u>	<u>20 Year</u>	<u>21 Year</u>	<u>22 Year</u>	<u>23 Year</u>	<u>24 Year</u>	<u>25 Year</u>	<u>26 Year</u>	<u>27 Year</u>	<u>28 Year</u>	<u>29 Year</u>	<u>30 Year</u>	<u>50 Year</u>	<u>Year</u>
5.05	5.08	5.11	5.15	5.18	5.21	5.25	5.28	5.31	5.35	5.38	5.42	5.42	2009
6.26	6.28	6.31	6.34	6.36	6.39	6.41	6.44	6.47	6.49	6.52	6.55	6.55	2010
6.83	6.85	6.87	6.90	6.92	6.94	6.97	6.99	7.01	7.04	7.06	7.08	7.08	2011
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2012
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2013
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2014
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2015
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2016
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2017
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2018
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2019
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2020
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2021
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2022
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2023
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2024
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2025
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2026
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2027
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2028
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2029
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2030
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2031
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2032
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2033
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2034
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2035
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2036
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2037
6.90	6.92	6.95	6.97	6.99	7.01	7.04	7.06	7.08	7.11	7.13	7.15	7.15	2038

Table 8  
**BPA FY 2009 THIRD-PARTY TAX-EXEMPT BORROWING RATE FORECAST 1/**  
 BPA Fiscal Years 2009 - 2038

Year	<u>MATURITY</u>																	
	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year	11 Year	12 Year	13 Year	14 Year	15 Year	16 Year	17 Year	18 Year
2009	2.01	2.29	2.44	2.59	2.73	2.87	3.01	3.15	3.28	3.42	3.45	3.49	3.52	3.56	3.59	3.62	3.66	3.69
2010	3.04	3.42	3.54	3.67	3.79	3.91	4.04	4.17	4.29	4.42	4.45	4.49	4.52	4.56	4.59	4.63	4.66	4.70
2011	3.55	3.96	4.08	4.20	4.32	4.42	4.53	4.64	4.74	4.85	4.89	4.92	4.95	4.99	5.02	5.06	5.09	5.13
2012	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2013	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2014	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2015	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2016	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2017	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2018	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2019	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2020	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2021	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2022	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2023	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2024	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2025	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2026	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2027	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2028	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2029	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2030	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2031	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2032	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2033	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2034	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2035	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2036	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2037	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18
2038	3.62	4.03	4.15	4.27	4.39	4.49	4.60	4.70	4.80	4.91	4.94	4.97	5.01	5.04	5.08	5.11	5.15	5.18

1/ Global Insight CY 2008 Q3 long-term outlook. The U.S. Economy: 30-Year Focus, August 2008 Forecast, Base Case

19 Year	20 Year	21 Year	22 Year	23 Year	24 Year	25 Year	26 Year	27 Year	28 Year	29 Year	30 Year	50 Year	Year
3.73	3.76	3.79	3.83	3.86	3.90	3.93	3.96	4.00	4.03	4.07	4.10	4.10	2009
4.73	4.77	4.80	4.84	4.88	4.91	4.95	4.98	5.02	5.05	5.09	5.12	5.12	2010
5.16	5.20	5.23	5.26	5.30	5.33	5.37	5.40	5.44	5.47	5.50	5.54	5.54	2011
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2012
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2013
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2014
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2015
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2016
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2017
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2018
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2019
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2020
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2021
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2022
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2023
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2024
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2025
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2026
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2027
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2028
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2029
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2030
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2031
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2032
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2033
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2034
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2035
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2036
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2037
5.21	5.25	5.28	5.32	5.35	5.39	5.42	5.45	5.49	5.52	5.56	5.59	5.59	2038

Table 9  
 PA FY 2009 FERC BORROWING RATE (Bank Prime) FORECAST 1/  
 Calendar/Fiscal Years 2009 - 2038

YEAR	(A)	(B)
	FERC RATE Calendar Year	FERC RATE Fiscal Year
2009	5.43	5.40
2010	7.32	6.85
2011	7.75	7.64
2012	7.75	7.75
2013	7.75	7.75
2014	7.75	7.75
2015	7.75	7.75
2016	7.75	7.75
2017	7.75	7.75
2018	7.75	7.75
2019	7.75	7.75
2020	7.75	7.75
2021	7.75	7.75
2022	7.75	7.75
2023	7.75	7.75
2024	7.75	7.75
2025	7.75	7.75
2026	7.75	7.75
2027	7.75	7.75
2028	7.75	7.75
2029	7.75	7.75
2030	7.75	7.75
2031	7.75	7.75
2032	7.75	7.75
2033	7.75	7.75
2034	7.75	7.75
2035	7.75	7.75
2036	7.75	7.75
2037	7.75	7.75
2038	7.75	7.75

1/ BPA Forecast November 2008; Global Insight CY 2008.Q3 long-term outlook.  
 The U.S. Economy: 30-Year Focus, August 2008 Forecast, Base Case

Table 10  
**BPA FY 2009 3-MONTH LIBOR RATE FORECAST 1/**  
 Calendar/Fiscal Years 2009 - 2038

<u>YEAR</u>	(A)	(B)
	<u>3-Mo LIBOR Calendar Year</u>	<u>3-Mo LIBOR Fiscal Year</u>
2009	3.19	3.15
2010	4.82	4.41
2011	5.20	5.11
2012	5.20	5.20
2013	5.20	5.20
2014	5.20	5.20
2015	5.20	5.20
2016	5.20	5.20
2017	5.20	5.20
2018	5.20	5.20
2019	5.20	5.20
2020	5.20	5.20
2021	5.20	5.20
2022	5.20	5.20
2023	5.20	5.20
2024	5.20	5.20
2025	5.20	5.20
2026	5.20	5.20
2027	5.20	5.20
2028	5.20	5.20
2029	5.20	5.20
2030	5.20	5.20
2031	5.20	5.20
2032	5.20	5.20
2033	5.20	5.20
2034	5.20	5.20
2035	5.20	5.20
2036	5.20	5.20
2037	5.20	5.20
2038	5.20	5.20

1/ BPA Forecast November 2008; Global Insight CY 2008.Q3 long-term outlook.  
 The U.S. Economy: 30-Year Focus, August 2008 Forecast, Base Case

TABLE 11

**COMPARISON OF INFLATION FORECAST COMPONENTS  
CALENDAR/FISCAL YEAR FORECASTS 2009 vs. 2008**

BPA Fiscal Years 2009 - 2038

	A	B	C	D	E	F	G
	FY 2009 1/ CALENDAR YEAR GDP PRICE DEFLATOR %	FY 2009 1/ FISCAL YEAR GDP PRICE DEFLATOR %	FY 2009 1/ FISCAL YEAR CUMULATIVE PRICE DEFATOR (Base Year 2009)	FY 2008 3/ LAST YEARS FY PRICE DEFATOR	FY 2008 3/ LAST YEARS FY CUMULATIVE PRICE DEFATOR (Base Year 2009)	CHANGE IN THE FY PRICE DEFATOR	CHANGE IN THE FY CUMULATIVE PRICE DEFATOR
2009	2.30%	2.19%	1.011	2.05%	1.010	0.15%	0.07%
2010	2.15%	2.06%	1.032	2.01%	1.031	0.05%	0.12%
2011	2.03%	2.02%	1.053	2.05%	1.052	-0.03%	0.09%
2012	2.12%	2.09%	1.075	2.10%	1.074	-0.01%	0.09%
2013	2.01%	2.04%	1.097	2.03%	1.096	0.01%	0.10%
2014	2.03%	2.03%	1.119	1.96%	1.117	0.06%	0.17%
2015	2.00%	2.01%	1.141	1.93%	1.139	0.08%	0.26%
2016	1.97%	1.98%	1.164	1.90%	1.160	0.08%	0.35%
2017	1.97%	1.97%	1.187	1.90%	1.182	0.07%	0.44%
2018	1.99%	1.98%	1.210	1.90%	1.205	0.09%	0.55%
2019	2.01%	2.01%	1.235	1.87%	1.227	0.14%	0.73%
2020	2.12%	2.09%	1.260	1.91%	1.251	0.18%	0.97%
2021	2.02%	2.04%	1.286	1.94%	1.275	0.10%	1.11%
2022	1.92%	1.95%	1.311	1.92%	1.299	0.03%	1.17%
2023	1.91%	1.91%	1.336	1.90%	1.324	0.01%	1.21%
2024	1.87%	1.88%	1.361	1.91%	1.350	-0.02%	1.20%
2025	1.83%	1.84%	1.387	1.93%	1.376	-0.09%	1.10%
2026	1.82%	1.82%	1.412	1.94%	1.402	-0.11%	0.97%
2027	1.86%	1.85%	1.438	1.92%	1.429	-0.07%	0.89%
2028	1.85%	1.85%	1.465	1.88%	1.456	-0.03%	0.87%
2029	1.82%	1.83%	1.491	1.86%	1.483	-0.04%	0.83%
2030	1.81%	1.81%	1.518	1.86%	1.511	-0.05%	0.77%
2031	1.81%	1.81%	1.546	1.83%	1.538	-0.02%	0.75%
2032	1.75%	1.77%	1.573	1.81%	1.566	-0.04%	0.70%
2033	1.70%	1.71%	1.600	1.76%	1.594	-0.05%	0.64%
2034	1.69%	1.69%	1.627	1.74%	1.621	-0.05%	0.57%
2035	1.70%	1.68%	1.655	1.74%	1.650	-0.05%	0.50%
2036	1.69%	1.69%	1.683	1.75%	1.679	-0.06%	0.42%
2037	1.72%	1.71%	1.712	1.75%	1.708	-0.06%	0.42%
2038	1.73%	1.72%	1.741	1.74%	1.738	-0.03%	0.37%

1/ BPA Forecast November 2008; Global Insight CY 2008.Q3 long-term outlook.  
The U.S. Economy: 30-Year Focus, August 2008 Forecast, Base Case

2/ BPA Forecast October 2008; Global Insight CY 2007.Q3 long-term outlook.  
The U.S. Economy: 30-Year Focus, August 2007 Forecast, Base Case

3/ Fiscal Year Cumulative Price Deflator escalates to midyear dollars. The first year, 2009, is determined as follows:  $1.011 = [(2.19/100)^5] + 1$ . An example of subsequent year cumulative growth such as in 2010 is found as:  $1.032 = [1 + (2.06/100)] * 1.011$

TABLE 12

FY 2009 INFLATION FORECAST COMPARISONS 1/  
GROSS DOMESTIC PRODUCT PRICE DEFLATOR INDEXES

BPA Fiscal Years 2008 - 2038

YEAR	(A) FY 2009 2/ CUMULATIVE PRICE DEFLATOR INDEX (Base Year 2009)	(B) FY 2008 3/ CUMULATIVE PRICE DEFLATOR INDEX (Base Year 2009)	(C) (A - B) DIFFERENCE
2009	1.0110	1.010	0.07%
2010	1.0318	1.031	0.12%
2011	1.0526	1.052	0.09%
2012	1.0747	1.074	0.09%
2013	1.0965	1.096	0.10%
2014	1.1187	1.117	0.17%
2015	1.1412	1.139	0.26%
2016	1.1638	1.160	0.35%
2017	1.1868	1.182	0.44%
2018	1.2103	1.205	0.55%
2019	1.2346	1.227	0.73%
2020	1.2604	1.251	0.97%
2021	1.2862	1.275	1.11%
2022	1.3112	1.299	1.17%
2023	1.3363	1.324	1.21%
2024	1.3615	1.350	1.20%
2025	1.3865	1.376	1.10%
2026	1.4118	1.402	0.97%
2027	1.4380	1.429	0.89%
2028	1.4646	1.456	0.87%
2029	1.4914	1.483	0.83%
2030	1.5183	1.511	0.77%
2031	1.5458	1.538	0.75%
2032	1.5732	1.566	0.70%
2033	1.6001	1.594	0.64%
2034	1.6271	1.621	0.57%
2035	1.6547	1.650	0.50%
2036	1.6827	1.679	0.42%
2037	1.7115	1.708	0.37%

1/ Fiscal Year Cumulative Price Deflator escalates to midyear dollars. The first year, 2009, is determined as follows:  $1.011 = [(2.19/100)^* 5] + 1$ . An example of subsequent year cumulative growth such as in 2010 is found  $1.032 = [1 + (2.06/100)]^* 1.011$

2/ Source: Global Insight, Third Quarter 2008 Long Term Economic Outlook, Base Case Forecast.

3/ Source: Global Insight, Third Quarter 2007 Long Term Economic Outlook, Base Case Forecast.

## **7. HISTORICAL AND PROJECTED BONDS ISSUED TO TREASURY**

### **7.1 Introduction**

This chapter documents all the bonds that BPA has issued, and those it projects it will issue, to the U.S. Treasury to finance BPA capital investments and BOR/COE investments that will be direct-funded by BPA.

### **7.2 Issuing Bonds**

BPA primarily funds capital outlays by issuing new long-term debt in the form of bonds issued to the U.S. Treasury. BPA issues four types of bonds for PBL: Construction, Conservation, Fish and Wildlife/Environment, and BOR/COE direct-funded. Construction bonds included in the generation study are the portions of bonds that fund furniture, ADP hardware and software for PBL. (Construction bonds are also issued to fund capital expenditures of the Transmission Business Line including ADP hardware and software and furniture.) Conservation bonds are issued to fund the capital portion of BPA's conservation program. Fish and Wildlife bonds are issued to fund the capital portion of BPA's Fish and Wildlife program. Environment bonds are issued to fund work done by the Transmission Business Line and are not included in the generation repayment study. BPA also issues bonds to fund BOR/COE generation efficiency and reliability improvements. All bonds projected for issuance have been entered into the generation repayment study.

BOR/COE direct funding bonds are entered in the repayment program with a maximum period to maturity of 45 years. Construction bonds are given a maximum repayment period of 40 years, Fish and Wildlife bonds are entered with a period to maturity of 15 years, and Conservation is given a maturity of 5 years.

New bonds for the cost evaluation period (FY 2009 - 2011) and projected borrowing for the 7(b)2 rate test period (FY 2012-15) are based on projected BPA and BOR/COE capital program outlays. Maturities reflect the average services lives of the assets. The assignment practices for interest rates are discussed in Chapter 2 of the Study. The interest rates used are in Chapter 6 of this document.

**Table 7A**  
**Association of Transmission Construction Functionalized to Generation Funded by Bonds 1/**  
**FY 1993 - 2008**  
**(\$000s)**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1			<b>Plant</b>		<b>Amount</b>		<b>Generation</b>		<b>Amount</b>		<b>Interest</b>				<b>Year</b>		<b>Refinancing</b>	
2	<b>Fiscal</b>		<b>in</b>		<b>Funded by</b>		<b>Amount</b>		<b>of Bond</b>		<b>Rate</b>		<b>Term</b>		<b>Due</b>		<b>Date</b>	<b>Amount</b>
3	<b>Year</b>		<b>Service</b> <sup>2/</sup>		<b>Bonds</b>		<b>Outstanding</b>		<b>Sales</b> <sup>3/</sup>		<b>Rate</b>		<b>Term</b>		<b>Due</b>		<b>Date</b>	<b>Amount</b>
4	1993		38		38	—	0		100,000		8.350		40		2033			
5																		
6	1995		67		67	—	0		50,000		7.700		30		2025			
7																		
8	1996		5,622		5,622	—	0		5,622		5.900		7		2003			
9																		
10	1997		7,400		7,400	—	0		30,000		6.800		7		2004			
11																		
12	1998		3,181		3,181	—	0		40,000		5.750		10		2008			
13																		
14	1999		950		950	—	950		60,000		5.900		15		2014			
15																		
16	2000		10,948		10,948	—	0		50,000		7.000		4		2004			
17																		
18	2001		68		68	—	68		60,000		6.050		10		2010			
19																		
20	2002		1,990		1,990	—	0		110,000		4.600		15		2005			
21																		
22	2003		45,062		45,062	—	0		50,000		3.000		3		2006			
23																		
24	2004		13,357		13,357	—	0		60,000		2.500		3		2007			
25																		
26	2005		7,990		7,990	—	7,990		35,000		3.750		4		2009			
27																		
28	2006		9,496		9,496	—	9,681		15,000		4.950		4		2010			
29																		
30	2007		6,995		6,995													
31																		
32	2008		9,877		3,005	—	10,000		40,000		3.200		4.00		2012			
33					6,872	—	10,000		35,000		3.444		4.00		2012			
34					9,877													
35																		
36																		
37																		
38																		
39																		
40																		
41																		

1/ These investments are funded out of Transmission Construction bonds, and have an estimated average service life of 40 years and a maximum repayment period of 40 years.

2/ Data comes from Plant Accounting.

3/ The portion of the Transmission Bond that is functionalized to Generation.

**Table 7B**  
**Association of COE/Reclamation Direct Funded Investment Funded by Bonds FY 1995 - 2008 1/**  
**(\$000s)**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1			<b>Plant</b>	<b>Amount</b>	<b>Amount</b>														
2	<b>Fiscal</b>	<b>in</b>	<b>Service</b>	<b>Funded by</b>	<b>of Bond</b>	<b>Amount</b>	<b>Interest</b>	<b>Term</b>	<b>Year</b>	<b>Refinancing</b>	<b>Date</b>	<b>Amount</b>							
3	<b>Year</b>	<b>Service</b>	<b>Bonds</b>	<b>Sales</b>	<b>Outstanding</b>	<b>Rate</b>	<b>Due</b>												
4	1995	35,000	35,000	35,000	35,000	0	7.500	20	2015										
5																			
6	1997	50,000	50,000	50,000	50,000	0	6.500	3	2000										
7																			
8	1998	25,000	25,000	25,000	25,000 <sup>5/</sup>	25,000	6.000	10	2008	5/22/2008	25,000								
9																			
10	1999	7,902 <sup>2/</sup>	7,902	20,000	20,000	0	6.400	5	2004										
11																			
12	2000	50,389	12,098	40,000 <sup>3/</sup>	40,000	0	6.850	3	2003	4/30/2003	40,000								
13			38,291	20,000	20,000	0	6.700	5	2005										
14				50,389	50,389														
15																			
16																			
17	2001	24,725	1,709	50,000	50,000	0	4.750	3	2004										
18			20,000	20,000	20,000														
19			3,016	24,725	24,725														
20																			
21																			
22	2002	36,472	36,472	30,000	30,000	0	4.600	3	2005										
23				40,000	40,000	0	3.050	4	2006										
24				36,472	36,472														
25																			
26	2003	47,489	10,512	25,000	25,000	0	2.400	3	2006										
27			30,000	30,000	30,000	0	2.300	3	2006										
28			6,977	25,000	25,000	0	2.500	3	2006										
29				40,000	40,000	0	3.050	4	2007										
30				47,489	47,489														
31																			
32	2004	67,041	33,023	25,000	25,000	0	2.500	3	2007										
33			25,000	35,000	35,000	0	2.950	3	2007										
34			9,018	25,000	25,000	0	3.450	3	2007										
35				30,000	30,000	0	3.100	3	2007										
36				67,041	67,041														
37																			
38	2005	167,277	20,982	20,000	20,000	0	3.500	3	2008										
39			25,000	20,000 <sup>4/</sup>	20,000	20,000	3.600	3	2008	1/31/2008	20,000								
40			40,000	30,000 <sup>6/</sup>	30,000	30,000	3.950	3	2008	6/30/2008	30,000								
41			25,000	25,000	25,000	0	4.250	3	2008										
42			35,000																
43			21,295																
44																			
45				167,277	167,277														
46																			
47	2006	40,799	3,705	25,000	25,000	25,000	5.050	3	2009										
48			30,000	45,000	45,000	45,000	5.350	3	2009										
49			7,094	15,000	15,000	15,000	4.950	3	2009										
50			40,799																
51																			
52	2007	76,682	12,906	35,000	35,000	35,000	5.100	3	2010										
53			20,000	30,000	30,000	30,000	4.800	3	2010										
54			30,000	30,000	30,000	30,000	5.350	3	2010										
55			13,776																
56			76,682																

**Table 7B**  
**Association of COE/Reclamation Direct Funded Investment Funded by Bonds FY 1995 - 2008 1/**  
**(\$000s)**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
1			<b>Plant</b>		<b>Amount</b>		<b>Amount</b>													
2	<b>Fiscal</b>		<b>in</b>		<b>Funded by</b>		<b>of Bond</b>		<b>Amount</b>	<b>Interest</b>				<b>Year</b>				<b>Refinancing</b>		
3	<b>Year</b>		<b>Service</b>		<b>Bonds</b>		<b>Sales</b>	<b>Outstanding</b>	<b>Rate</b>		<b>Term</b>		<b>Due</b>	<b>Date</b>			<b>Amount</b>			
57																				
58	2008		68,334		11,224	///	35,000	35,000	2.850		3		2011							
59					45,000	///	35,000	35,000	3.358		3		2011							
60					12,110	///	35,000	35,000	3.913		4		2012							
61							35,000	35,000	3.444		4		2012							
62					<u>68,334</u>															
63																				
64																				
65	1/	These investments have an estimated average service life of 45 years																		
66	2/	Data comes from Plant Accounting.																		
67	3/	Refinanced on 4/30/2003 with \$40,000 issued at 2.40% 3 year term, due in 2006																		
68	4/	Refinanced on 1/31/2008 with \$20,000 issued at 2.85% 3 year term, due in 2011																		
69	5/	Refinanced on 5/22/2008 (original was issued on 4/30/98) with \$25,000 issued at 3.358% 3 year term, due 5/31/2011																		
70																				
71	6/	Refinanced on 6/30/2008 with \$30,000 issued at 3.974% 3 year term, due 2012																		
72																				

**Table 7C**  
**Association of Conservation Investment Funded by Bonds 1/**  
**(\$000s)**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1			Plant		Amount		Amount													
2	Fiscal		in		Funded by		of Bond		Amount	Interest					Year					Refinancing
3	Year		Service <sup>2/</sup>		Bonds		Sales		Outstanding	Rate		Term		Due		Date		Amount		
4	1982		61,357		61,357															
5																				
6	1983		204,092		78,643		140,000		0	12.20		20		2003						
7					125,449															
8					204,092															
9																				
10	1984		66,783		24,551		150,000		0	13.05		20		2004		9/30/1989		66,000 <sup>3/</sup>		
11																9/30/1989		66,000 <sup>4/</sup>		
12					42,232															
13					66,783															
14																				
15	1985		103,067		7,768		50,000		0	10.15		5		1990						
16					50,000															
17					45,299															
18					103,067															
19																				
20	1986		97,618		4,701		50,000		0	8.15		10		1996						
21					75,000		50,000		0	7.80		5		1991						
22					17,917															
23					97,618															
24																				
25	1987		65,958		32,083		75,000		0	9.30		20		2007		7/31/1992		80,200 <sup>5/</sup>		
26					33,875		50,000		0	8.35		5		1992						
27					65,958															
28																				
29	1988		52,485		52,485		90,000		0	9.90		20		2008						
30																				
31	1989		37,167		3,640		40,000		40,000	8.55		20		2009						
32					33,527															
33					37,167															
34																				
35	1990		33,776		6,473															
36					27,303															
37					33,776															
38																				
39	1991		45,593		45,593															
40					45,593															
41																				
42	1992		74,668		27,104		100,000		0	7.14		15		2007		9/30/1998		104,300 <sup>6/</sup>		
43					47,564															
44					74,668															
45																				
46	1993		97,910		2,436		50,000		0	8.05		20		2013						
47					50,000		50,000		52,800	7.40		20		2013		9/30/1998		52,800 <sup>7/</sup>		
48					40,000		40,000		0	6.75		20		2013						
49					5,474															
50					97,910															
51																				
52	1994		113,488		44,526		50,000		0	6.75		20		2014						
53					50,000		50,000		37,700	7.10		4		1998		5/31/1998		37,700 <sup>8/</sup>		
54					18,962															
55					113,488															
56																				
57	1995		73,507		66,038		85,000		0	7.50		20		2015						
58					7,469															
59					73,507															
60																				
61	1996		38,726		22,531		30,000		0	6.70		15		2011						

**Table 7C**  
**Association of Conservation Investment Funded by Bonds 1/**  
**(\$000s)**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1			Plant		Amount		Amount				Interest				Year	Refinancing				
2	Fiscal		in		Funded by		of Bond		Amount		Rate		Term		Due	Date		Amount		
3	Year		Service <sup>2/</sup>		Bonds		Sales		Outstanding											
63					38,726															
64																				
65	1997		20,336		20,336		40,000		0		7.20		20		2016					
66					20,336															
67																				
68	1998		14,154		3,469															
69					10,685															
70					3,469															
71																				
72	1999		12,424		12,424															
73																				
74	2000		0		0		32,000		0		6.95		3		2003					
75																				
76	2001		141		141															
77																				
78	2002		25,344		8,750		40,000		0		3.75		3		2005					
79					16,594															
80					25,344															
81																				
82	2003		25,458		23,406															
83					2,052															
84					25,458															
85																				
86	2004		16,876		16,876		30,000		0		2.95		4		2008					
87					16,876															
88																				
89	2005		14,825		11,072															
90					3,753															
91					14,825															
92																				
93	2006		14,970		14,970		20,000		20,000		5.05		3		2009					
94																				
95	2007		10,725		1,277		20,000		20,000		5.35		3		2010					
96					9,448															
97					10,725															
98																				
99	2008		8,763				10,000		10,000		3.701		5		2013					
100																				
101																				
102																				
103	1/ Investments through 2005 have an estimated average service life of 20 years, 2006-2011 plant																			
104	was ConAug and had a maturity of 2011, and all plant issued in 2007 and forward has a 5-year maturity.																			
105	2/ Data comes from Plant Accounting.																			
106	3/ Refinanced on 9/30/89 with \$66,000 issued at 8.60%, 6 year term, due in 1995.																			
107	4/ Refinanced on 9/30/89 with \$66,000 issued at 8.65%, 13 year term, due in 2002.																			
108	5/ Refinanced on 7/31/92 with \$80,200 issued at 5.80%, 5 year term, due in 1997.																			
109	6/ Refinanced on 9/30/98 with \$104,300 issued at 5.30% 10 year term, due in 2008.																			
110	7/ Refinanced on 9/30/98 with \$52,800 issued at 5.60% 15 year term, due in 2013.																			
111	8/ Refinanced on 5/31/98 with \$37,700 issued at 6.00% 11 year term, due in 2009.																			

**Table 7D**  
**Association of Fish and Wildlife Investment Funded by Bonds 1/**  
**(\$000s)**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	
			Plant		Amount	Amount														Refinancing	
	Fiscal		in		Funded by	of Bond			Amount	Interest				Year							
	Year		Service		Bonds	Sales		Outstanding	Rate	Term	Due			Date						Amount	
1																					
2																					
3																					
4	1985		4,318		4,318																
5																					
6	1986		5,590		5,590																
7																					
8	1987		4,710		4,710																
9																					
10	1988		7,726		7,726																
11																					
12	1989		8,267		2,656	25,000		0	8.95	10	1999										
13					5,611																
14					8,267																
15																					
16	1990		16,193		16,193																
17																					
18	1991		17,680		17,680	50,000		0	7.95	5	1996										
19																					
20	1992		11,178		10,516																
21					662																
22					11,178																
23																					
24	1993		17,338		17,338	20,000		0	6.95	15	2008										
25																					
26	1994		20,487		2,000	20,000		0	7.65	5	1999										
27					18,487																
28					20,487																
29																					
30	1995		32,486		1,513	35,000		0	7.20	15	2010										
31					30,973																
32					32,486																
33																					
34	1996		26,046		4,027	15,000 <sup>2/</sup>															
35					15,000																
36					7,019																
37					26,046																
38																					
39	1997		28,064		28,064																
40																					
41																					
42	1998		21,995		21,995	60,000		60,000	6.10	15	2013										
43																					
44																					
45	1999		14,748		2,922	20,000		0	6.30	4	2003	9/30/2003								20,000 <sup>3/</sup>	
46					11,826																
47					14,748																
48																					
49	2000		13,898		8,174																
50					5,724																
51					13,898																
52																					
53	2001		16,494		16,494	25,000		0	5.65	4	2005										
54																					
55																					
56	2002		6,102		2,782																
57					3,320																
58					6,102																

**Table 7D**  
**Association of Fish and Wildlife Investment Funded by Bonds 1/**  
**(\$000s)**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1			<b>Plant</b>		<b>Amount</b>		<b>Amount</b>													<b>Refinancing</b>
2	<b>Fiscal</b>		<b>in</b>		<b>Funded by</b>		<b>of Bond</b>		<b>Amount</b>		<b>Interest</b>		<b>Year</b>							
3	<b>Year</b>		<b>Service</b>		<b>Bonds</b>		<b>Sales</b>		<b>Outstanding</b>		<b>Rate</b>		<b>Term</b>		<b>Due</b>		<b>Date</b>		<b>Amount</b>	
59																				
60	2003		11,156		11,156															
61																				
62	2004		5,849		5,524															
63					325															
64					5,849															
65																				
66	2005		14,575		14,575		20,000		0		4.25		3		2008					
67																				
68	2006		33,747		5,100		20,000		20,000		4.95		4		2010					
69					28,647															
70					33,747															
71																				
72	2007		35,635		1,353		30,000		30,000		5.35		3		2010					
73					20,000		20,000		20,000		4.7		4		2011					
74					14,282															
75					35,635															
76																				
77	2008		26,753		5,718		20,000		20,000		3.444		4		2012					
78					21,035 <sup>4/</sup>															
79																				
80																				
81	1/	These investments have an estimated average service life of 15 years.																		
82	2/	As proposed in Revenue Requirements for 1996 in the 1995 Final Rate Proposal \$15 million of																		
83		Fish & Wildlife investment was financed from revenues.																		
84	3/	Refinanced on 9/30/2003 with \$20,000 issued at 3.10% 4 year term, due in 2007																		
85	4/	Not yet funded.																		

**Table 7E**  
**BPA Projected Generation Federal Borrowing**  
**FY 2009 - 2011**  
**(\$000s)**

	A	B	C	D	E	F	G	H	I	J
1	<b>FY</b>				<b>Interest</b>				<b>Total</b>	
2	<b>Year</b>		<b>Description</b>		<b>Rate</b>		<b>Term</b>		<b>Borrowing</b>	
3	2009		IT and Facilities <sup>1/</sup>		5.350%		30		12,714	
4			Fish, Wildlife & Environmental				15		50,000	
5			Conservation				5		27,200	
6			BOR/COE <sup>2/</sup>				45		133,238	
7									<u>223,152</u>	
8										
9	2010		IT and Facilities <sup>1/</sup>				30		13,871	
10			Fish, Wildlife & Environmental				15		70,000	
11			Conservation				5		32,300	
12			BOR/COE <sup>2/</sup>				45		157,850	
13									<u>274,021</u>	
14										
15	2011		IT and Facilities <sup>1/</sup>				30		14,950	
16			Fish, Wildlife & Environmental				15		60,000	
17			Conservation				5		39,100	
18			BOR/COE <sup>2/</sup>				45		170,850	
19									<u>284,900</u>	
20										
21	1/		Bonds issued for this purpose are construction bonds and fund IT and facilities equipment							
22										
23	2/		Bonds issued for this purpose are for direct funding efficiency and reliability.							

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## **8. CAPITALIZED CONTRACTS AND OTHER LONG TERM RESOURCE ACQUISITION OBLIGATIONS**

### **8.1 Introduction**

This chapter documents the data on third-party debt service or payment costs associated with capitalized contracts and other long-term, fixed contractual obligations. This chapter does not include replacements for the Columbia Generating Station (CGS). This information is included in Chapter 10 of this document.

### **8.2 Methodology**

To determine debt service streams for EN Nuclear Projects WNP-1, CGS, and WNP-3, a bond model specifically developed for EN debt is used, and streams are based on the amount of EN debt outstanding. The debt service streams reflect all EN refinancings to date. Debt service streams for other capitalized contracts are derived from such sources as Official Statements, Agency agreements, Agency contracts, and budgetary data. Debt service streams include assumptions about projected CGS capital investments and future repayment of WNP-1 debt. It also includes a modeling assumption that some WNP-1 variable rate debt due in FY2016-2017 would be repaid in FY 2013-2015. The data used in the repayment study is shown in the attached tables. This data forms the basis for calculating debt service on the EN projects. See Chapter 3.

Debt service for the Northern Wasco project is also included in this chapter. After the bond issuance, BPA decided to cancel its participation in the project. The debt service goes from 1999 to 2025. It was paid from the construction fund until it was exhausted in 2007. From 2008 to 2025, the repayment study reflects the data on Table 8G.

	A	B	C	D	E	F	G	H	I	J
1	<b>Table 8A</b>									
2	<b>Capitalized Contract Expense</b>									
3										
4										
5										
6	<b>Fiscal Year</b>	<b>WNP-1</b>	<b>CGS</b>	<b>WNP-2</b>	<b>Emerald</b>	<b>CARES</b>	<b>Tacoma</b>	<b>Wasco</b>	<b>Cowlitz</b>	<b>Total</b>
7	2009	169,509,411	224,800,558	150,982,890	244,797	3,110,788	1,832,003	2,201,781	11,571,056	564,253,283
8	2010	163,170,937	234,332,746	139,703,639	138,215	3,107,125	1,833,228	2,200,220	11,566,306	556,052,416
9	2011	165,071,512	227,761,669	164,849,336	-	3,095,000	1,828,617	2,196,075	11,562,681	576,364,890
10	2012	190,107,858	300,859,160	157,976,065	-	3,091,750	1,831,213	2,193,439	11,559,431	667,618,916
11	2013	285,285,451	138,831,545	172,431,574	-	3,086,875	1,829,675	2,192,411	11,546,056	615,203,588
12	2014	269,113,244	161,514,993	162,608,017	-	3,080,125	1,830,537	2,192,605	11,541,806	611,881,326
13	2015	201,104,899	186,453,087	183,311,644	-	-	305,133	2,190,179	11,530,806	584,895,747
14	2016	317,654,549	116,697,990	273,665,747	-	-	-	2,188,430	11,517,431	721,724,148
15	2017	257,577,060	187,408,524	296,871,840	-	-	-	2,187,955	11,515,556	755,560,935
16	2018	-	291,686,864	282,885,899	-	-	-	2,184,435	11,504,181	588,261,379
17	<b>Total</b>	<b>2,018,594,920</b>	<b>2,070,347,136</b>	<b>1,985,286,653</b>	<b>383,012</b>	<b>18,571,663</b>	<b>11,290,406</b>	<b>21,927,530</b>	<b>115,415,310</b>	<b>6,241,816,629</b>
18										

	A	B	C	D	E	F
1	<b>Table 8B</b>					
2	<b>Total WNP-1 Net Debt Service -- GAAP BASIS</b>					
3						
4						
5						
6	<b>Fiscal</b>					<b>Total Debt</b>
7	<b>Year</b>	<b>Principal</b>	<b>Interest</b>	<b>Expenses</b>	<b>DSR Credit</b>	<b>Service</b>
8	2009	86,060,577	81,772,174	1,863,119	(186,460)	169,509,411
9	2010	86,235,000	75,259,278	1,863,119	(186,460)	163,170,937
10	2011	92,318,018	71,076,835	1,863,119	(186,460)	165,071,512
11	2012	121,879,692	66,551,507	1,863,119	(186,460)	190,107,858
12	2013	223,408,657	60,362,251	1,863,119	(348,576)	285,285,451
13	2014	219,396,836	48,885,277	1,863,119	(1,031,988)	269,113,244
14	2015	162,662,343	37,566,790	1,863,119	(987,354)	201,104,899
15	2016	287,676,673	29,057,477	1,863,119	(942,720)	317,654,549
16	2017	243,739,929	13,337,877	1,397,339	(898,086)	257,577,060
17	<b>Total</b>	<b>1,523,377,724</b>	<b>483,869,466</b>	<b>16,302,291</b>	<b>(4,954,561)</b>	<b>2,018,594,920</b>

	A	B	C	D	E	F	G
1	<b>Table 8C</b>						
2	<b>Total CGS Net Debt Service -- GAAP BASIS</b>						
3							
4							
5							
6	<b>Fiscal</b>	<b>Principal</b>	<b>Interest</b>	<b>Expenses</b>	<b>DSR Credit</b>	<b>Total Debt Service</b>	
7	<b>Year</b>						
8	2009	124,939,573	97,727,542	989,716	(202,460)	223,454,371	
9	2010	141,353,750	85,553,703	989,716	(202,460)	227,694,709	
10	2011	137,569,164	78,259,974	989,716	(202,460)	216,616,395	
11	2012	214,630,679	71,064,159	989,716	(202,460)	286,482,095	
12	2013	60,626,604	59,507,602	989,716	(202,460)	120,921,462	
13	2014	83,540,048	56,454,521	989,716	(177,909)	140,806,375	
14	2015	108,884,028	52,142,583	989,716	(146,197)	161,870,130	
15	2016	43,150,625	46,423,804	989,716	(114,485)	90,449,660	
16	2017	116,171,250	44,079,558	989,716	(82,772)	161,157,751	
17	2018	227,115,000	37,631,843	742,287	(51,060)	265,438,070	
18	2019	22,302,500	24,880,888			47,183,388	
19	2020	90,356,250	23,738,113			114,094,363	
20	2021	94,973,750	19,128,243			114,101,993	
21	2022	99,741,250	14,352,240			114,093,490	
22	2023	104,741,250	9,351,836			114,093,086	
23	2024	81,495,000	4,074,750			85,569,750	
24	<b>Total</b>	<b>1,751,590,720</b>	<b>724,371,358</b>	<b>9,649,731</b>	<b>(1,584,721)</b>	<b>2,484,027,089</b>	
25							
26	<b>Total CGS New Capital Projections</b>						
27							
28	<b>Fiscal</b>	<b>Principal</b>	<b>Interest</b>	<b>Expenses</b>	<b>DSR Credit</b>	<b>Total Debt Service</b>	
29	<b>Year</b>						
30	2009		1,346,187	-	-	1,346,187	
31	2010		6,638,037	-	-	6,638,037	
32	2011		11,145,275	-	-	11,145,275	
33	2012	300,000	14,077,066	-	-	14,377,066	
34	2013	1,345,000	16,565,083	-	-	17,910,083	
35	2014	2,336,250	18,372,368	-	-	20,708,618	
36	2015	4,261,250	20,321,707	-	-	24,582,957	
37	2016	5,087,500	21,160,830	-	-	26,248,330	
38	2017	5,320,000	20,930,772	-	-	26,250,772	
39	2018	5,566,250	20,682,544	-	-	26,248,794	
40	2019	17,003,750	20,416,037	-	-	37,419,787	
41	2020	51,388,750	19,538,280	-	-	70,927,030	
42	2021	54,103,750	16,828,091	-	-	70,931,841	
43	2022	56,981,250	13,948,438	-	-	70,929,688	
44	2023	60,033,750	10,892,500	-	-	70,926,250	
45	2024	48,761,250	7,647,730	-	-	56,408,980	
46	<b>Total</b>	<b>312,488,750</b>	<b>240,510,943</b>	<b>-</b>	<b>-</b>	<b>552,999,693</b>	

	A	B	C	D	E	F
1	<b>Table 8D</b>					
2	<b>Total WNP-3 Net Debt Service -- GAAP BASIS</b>					
3						
4						
5						
6	<b>Fiscal</b>					<b>Total Debt</b>
7	<b>Year</b>	<b>Principal</b>	<b>Interest</b>	<b>Expenses</b>	<b>DSR Credit</b>	<b>Service</b>
8	2009	54,498,732	94,553,388	2,064,697	(133,927)	150,982,890
9	2010	47,458,720	90,314,150	2,064,697	(133,927)	139,703,639
10	2011	80,456,090	82,462,476	2,064,697	(133,927)	164,849,336
11	2012	75,191,685	80,853,611	2,064,697	(133,927)	157,976,065
12	2013	87,654,194	82,846,610	2,064,697	(133,927)	172,431,574
13	2014	88,413,208	72,256,499	2,064,697	(126,387)	162,608,017
14	2015	129,409,554	51,943,559	2,064,697	(106,167)	183,311,644
15	2016	224,693,344	46,993,653	2,064,697	(85,947)	273,665,747
16	2017	260,571,396	34,301,473	2,064,697	(65,727)	296,871,840
17	2018	263,535,569	17,847,315	1,548,523	(45,506)	282,885,899
18	<b>Total</b>	<b>1,311,882,492</b>	<b>654,372,735</b>	<b>20,130,796</b>	<b>(1,099,370)</b>	<b>1,985,286,653</b>

	A	B	C	D	E	F
1	<b>Table 8E</b>					
2						
3	<b>Total Energy Northwest Net Debt Service -- GAAP BASIS</b>					
4	<b>Includes WNP-1 and -3, CGS, and CGS capital additions</b>					
5						
6	<b>Fiscal</b>					<b>Total Debt</b>
7	<b>Year</b>	<b>Principal</b>	<b>Interest</b>	<b>Expenses</b>	<b>DSR Credit</b>	<b>Service</b>
8	2009	265,498,882	275,399,291	4,917,532	(522,847)	545,292,859
9	2010	275,047,470	257,765,167	4,917,532	(522,847)	537,207,322
10	2011	310,343,272	242,944,560	4,917,532	(522,847)	557,682,517
11	2012	412,002,055	232,546,343	4,917,532	(522,847)	648,943,083
12	2013	373,034,455	219,281,546	4,917,532	(684,963)	596,548,571
13	2014	393,686,341	195,968,664	4,917,532	(1,336,284)	593,236,253
14	2015	405,217,175	161,974,640	4,917,532	(1,239,717)	570,869,629
15	2016	560,608,142	143,635,764	4,917,532	(1,143,151)	708,018,287
16	2017	625,802,575	112,649,681	4,451,752	(1,046,585)	741,857,424
17	2018	496,216,819	76,161,701	2,290,810	(96,566)	574,572,763
18	<b>Total</b>	<b>4,117,457,186</b>	<b>1,918,327,357</b>	<b>46,082,818</b>	<b>(7,638,652)</b>	<b>6,074,228,709</b>

	A	B	C	D
1	<b>Table 8F</b>			
2				
3	<b>Total CARES Net Debt Service -- GAAP BASIS</b>			
4				
5	<b>Fiscal</b>			<b>Total Debt</b>
	<b><u>Year</u></b>	<b><u>Principal</u></b>	<b><u>Interest</u></b>	<b><u>Service</u></b>
6	2009	2,380,000	730,788	3,110,788
7	2010	2,485,000	622,125	3,107,125
8	2011	2,600,000	495,000	3,095,000
9	2012	2,730,000	361,750	3,091,750
10	2013	2,865,000	221,875	3,086,875
11	2014	3,005,000	75,125	3,080,125
12	<b>Total</b>	<b>16,065,000</b>	<b>2,506,663</b>	<b>18,571,663</b>
13				

	A	B	C	D
1	<b>Table 8G</b>			
2	<b>Total Tacoma Net Debt Service -- GAAP BASIS</b>			
3				
4				
5				
6	<b>Fiscal</b>			<b>Total Debt</b>
7	<b>Year</b>	<b>Principal</b>	<b>Interest</b>	<b>Service</b>
8	2009	1,434,167	397,836	1,832,003
9	2010	1,495,000	338,228	1,833,228
10	2011	1,546,667	281,950	1,828,617
11	2012	1,613,333	217,880	1,831,213
12	2013	1,691,667	138,008	1,829,675
13	2014	1,775,833	54,704	1,830,537
14	2015	298,333	6,800	305,133
15	<b>Total</b>	<b>9,855,000</b>	<b>1,435,406</b>	<b>11,290,406</b>

	A	B	C	D	E
1	<b>Table 8H</b>				
2	<b>Total N. Wasco Net Debt Service -- GAAP BASIS</b>				
3					
4					
5					
6	<b>Fiscal</b>			<b>Debt Service</b>	<b>Total Debt</b>
7	<b>Year</b>	<b>Principal</b>	<b>Interest</b>	<b>Reserve Fund</b>	<b>Service</b>
8	2009	986,667	1,215,148	(34)	2,201,781
9	2010	1,036,667	1,163,553	-	2,200,220
10	2011	1,086,667	1,109,408	-	2,196,075
11	2012	1,140,833	1,052,606	-	2,193,439
12	2013	1,200,000	992,411	-	2,192,411
13	2014	1,264,167	928,438	-	2,192,605
14	2015	1,329,167	861,012	-	2,190,179
15	2016	1,398,333	790,097	-	2,188,430
16	2017	1,472,500	715,455	-	2,187,955
17	2018	1,547,500	636,935	-	2,184,435
18	2019	1,626,667	554,407	-	2,181,074
19	2020	1,710,833	467,632	-	2,178,465
20	2021	1,800,000	376,350	-	2,176,350
21	2022	1,894,167	280,302	-	2,174,469
22	2023	1,993,333	179,227	-	2,172,560
23	2024	2,097,500	72,865	-	2,170,365
24	2025	352,500	9,165	-	361,665
25	<b>Total</b>	<b>23,937,501</b>	<b>11,405,011</b>	<b>(34)</b>	<b>35,342,478</b>

	A	B	C	D
1	<b>Table 8I</b>			
2				
3				
4				
5	<b>Total Cowlitz Net Debt Service -- GAAP BASIS</b>			
6	<b>Fiscal</b>			<b>Total Debt</b>
7	<b>Year</b>	<b>Principal</b>	<b>Interest</b>	<b>Service</b>
8	2009	5,360,000	6,211,056	11,571,056
9	2010	5,630,000	5,936,306	11,566,306
10	2011	5,915,000	5,647,681	11,562,681
11	2012	6,215,000	5,344,431	11,559,431
12	2013	6,520,000	5,026,056	11,546,056
13	2014	6,850,000	4,691,806	11,541,806
14	2015	7,190,000	4,340,806	11,530,806
15	2016	7,545,000	3,972,431	11,517,431
16	2017	7,930,000	3,585,556	11,515,556
17	2018	8,325,000	3,179,181	11,504,181
18	2019	8,740,000	2,752,556	11,492,556
19	2020	9,175,000	2,304,681	11,479,681
20	2021	9,635,000	1,834,431	11,469,431
21	2022	10,120,000	1,340,556	11,460,556
22	2023	11,035,000	811,681	11,846,681
23	2024	<u>11,585,000</u>	<u>267,903</u>	<u>11,852,903</u>
24	<b>Total</b>	<b>127,770,000</b>	<b>57,247,118</b>	<b>185,017,118</b>

## **9. IRRIGATION ASSISTANCE**

### **9.1 Introduction**

This chapter documents the amount of irrigation construction costs for Federal reclamation projects in the Pacific Northwest allocated to irrigation use that the FCRPS has an obligation to repay. These payments are known as irrigation assistance.

### **9.2 Background**

In an effort to encourage settlement of the arid and semiarid lands of the Western United States, the 1902 Reclamation Act created the BOR to develop water resources for irrigation. The 1902 Reclamation Act provided that irrigators using the reclamation projects had 10 years to repay the construction costs of such projects. Title to the reclamation projects, however, remained with the Federal government even after all construction costs were repaid.

By the 1920s, a 10-year repayment period for irrigators was determined to be economically unrealistic. After several leniency acts and extensions, Congress passed the 1939 Reclamation Act, which changed the repayment period on reclamation projects to 40 years after a 10-year development period. Later revisions and project-specific legislation extended repayment periods for most reclamation projects to 50 years after a 10-year development period. However, the Kennewick project has a 66-year repayment period.

Originally, irrigators were responsible for repaying all project construction costs without interest. However, hydropower is a by-product of many reclamation projects and not all of the power generated is needed for irrigation works. As early as the Town Sites and Power Development Act (April 16, 1906, ch. 1631, 34 Stat. 116) Congress authorized BOR to lease surplus power and use the proceeds to repay part of the costs of the reclamation projects.

The concept of power revenues contributing to the repayment of BOR's multipurpose projects evolved to the current policy, in which power revenues are used to repay that portion of the project construction costs allocated to irrigation use that are beyond the irrigators' "ability to repay." Moreover, the costs to be repaid by power revenues, known as irrigation assistance, are to be repaid without interest. BOR has the responsibility to make the determination of the amount that is beyond the irrigators' "ability to repay" through a farm budget analysis. The results of this analysis are used to establish the irrigators' repayment responsibility. The irrigators, as an irrigation district, and BOR formalize this repayment responsibility in irrigation contracts.

### **9.3 Irrigation Repayment**

In the Pacific Northwest, the Third Powerplant, Grand Coulee Dam legislation, P.L. 89-448, authorized repayment of the irrigation assistance costs from net revenues of the entire FCRPS. There are, however, limitations on the FCRPS's repayment responsibility. These limitations were added in amendment to the Third Powerplant, Grand Coulee Dam legislation, P.L. 89-561, and apply to reclamation projects, including projects not previously receiving similar assistance, which are authorized to receive such assistance, for which construction was authorized after September 7, 1966.

#### **9.4 The Limitations**

The irrigation assistance for such projects is to be paid only from net revenues of the power system. Net revenues are defined as those revenues over and above the amount needed to recover all costs allocated to power, including the cost of acquiring power by purchase or exchange, and previously authorized irrigation assistance. The construction of such projects shall be scheduled so that the repayment of the irrigation assistance associated with such projects from power revenues will not require an increase in the BPA power rate level.

The total of all irrigation assistance to be repaid from power revenues shall not average more than \$30 million per year in any period of 20 consecutive years.

BOR provides BPA with data on the irrigation assistance to be repaid from each reclamation project, and estimates for future additions to such projects. The generation repayment study includes information provided in August 2004. Because irrigation assistance costs are repaid without interest and BPA repays highest interest-bearing investment first, irrigation assistance is generally scheduled to be repaid in the last year of the repayment period on each reclamation project. BPA made its first payment of \$25.1 million in 1997. A payment of \$7.2 million is due in 2009. No payments are due in the FY 2010-2011 rate period.

#### **9.5 Columbia Basin and Green Springs**

At Columbia Basin, the Department of Interior issued an Interim Cost Allocation Report that resulted in a reallocation to power of plant previously associated with irrigation (directly as irrigation or indirectly as common general plant). As a result, the investment at the project for which power rates are responsible increased by \$69.2 million, and there was a decrease in irrigation assistance of \$98.3 million. In addition, Green Springs (Rogue River Irrigation Project), a project in southern Oregon, with investment of \$11.17 million, was added to the FCRPS. Irrigation assistance was increased by \$9.9 million for this project.



# United States Department of the Interior



BUREAU OF RECLAMATION  
Pacific Northwest Region  
1150 North Curtis Road, Suite 100  
Boise, Idaho 83706-1234

IN REPLY REFER TO:

PN-7828  
WTR-4.00

JUL 22 2008

Bonneville Power Administration  
Attention: Ms. Lisa Kaiser, KSRD-2  
P.O. Box 3621  
Portland, OR 97208-3621

Subject: Federal Columbia River Power Systems Assistance to Authorized Bureau of Reclamation Irrigation Projects in the Pacific Northwest, Fiscal Year 2007

Dear Ms. Kaiser:

Enclosed are three tables which summarize the schedule for repayment of irrigation assistance from the Federal Columbia River Power System (FCRPS) to authorized irrigation projects in the Pacific Northwest Region of the Bureau of Reclamation as of September 30, 2007. This information is being furnished as requested by your letter of September 7, 1966, and your agency's annual call for project cost data on Reclamation projects that are part of the FCRPS. Table 1 is a summary, in chronological order, for all authorized projects. Table 2 contains more detailed data for all projects except the Columbia Basin Project. Table 3 contains the detailed information for the Columbia Basin Project. The data on irrigation assistance reflects Reclamation cost data for fiscal year 2007.

As shown, the irrigation assistance for Boise, Palisades, Avondale, Dalton Gardens, and Rathdrum Prairie (Hayden Lake Unit) projects have been paid. The next project due for payment is the Mann Creek Project in 2008.

If you have any questions about this data, please call Ms. Kay Henson, Accounting Technician, at 208-378-5073.

Sincerely,

J. William McDonald  
Regional Director

Enclosures-3

Table 1  
SUMMARY OF FINANCIAL ASSISTANCE TO IRRIGATION - FY 2006

5/2008

PROJECT	FISCAL YEAR DUE	AMOUNT	CUMULATIVE
Boise	1997	24,999 PAID-1997	24,999
Palisades	2001	16,560 PAID-2001	41,559
Avondale	2004	184 PAID-2004	41,743
Dalton Gardens	2004	208 PAID-2004	41,951
Rathdrum Prairie	2004	347 PAID-2004	42,298
Mann Creek	2008	2,950	45,248
Columbia Basin	2009	5,295	50,543
Spokane Valley	2009	1,979	52,522
Columbia Basin	2012	1,206	53,728
Columbia Basin	2013	60,027	113,755
Columbia Basin	2014	53,500	167,255
Columbia Basin	2015	53,053	220,308
Columbia Basin	2016	62,059	282,367
Columbia Basin	2017	50,132	332,499
Greater Wenatchee	2017	1,055	333,554
Yakima, Roza	2017	1,053	334,607
Columbia Basin	2018	26,585	361,192
Foster Creek	2018	675	361,867
Yakima, Roza	2018	729	362,596
Columbia Basin	2019	52,315	414,911
Foster Creek	2019	1,124	416,035
Michaud Flats	2019	2,081	418,116
Michaud-Fort Hall	2019	2,081	420,197
Yakima, Roza	2019	567	420,764
Columbia Basin	2020	22,621	443,385
Crooked River	2020	2,322	445,707
Columbia Basin	2021	10,329	456,036
Yakima, Roza	2021	2,025	458,061
Columbia Basin	2022	14,018	472,079
Yakima, Roza	2022	567	472,646
Columbia Basin	2023	10,059	482,705
Rogue River	2023	3,193	485,898
Columbia Basin	2024	8,020	493,918
Greater Wenatchee	2024	1,960	495,878
Yakima, Kennewick	2024	5,434	501,312
Columbia Basin	2025	12,808	514,120
Crooked River Ext	2025	1,092	515,212
Whitestone Coulee Unit	2026	3,810	519,022
Columbia Basin	2026	13,284	532,306
Greater Wenatchee	2026	901	533,207
Yakima, Roza	2026	3,159	536,366
Columbia Basin	2027	4,046	540,412
Rogue River	2027	2,129	542,541
Columbia Basin	2028	7,200	549,741
The Dalles	2028	4,204	553,945
Baker	2029	4,092	558,037
Lower Teton	2029	40,273	598,310
East Greenacres	2030	2,187	600,497
Columbia Basin	2031	10,851	611,348
Rogue River	2033	4,354	615,702
Columbia Basin	2035	8,004	623,706
Whitestone Coulee Unit	2036	3,660	627,366
Manson Unit	2036	16,163	643,529
Tualatin	2036	9,124	652,653
East Greenacres	2037	4,246	656,899
Columbia Basin	2037	12,443	669,342
Tualatin	2039	14,270	683,612
Oroville Tonasket	2042	73,659	757,271
Columbia Basin	2045	11,940	769,211

**Table 2 - Irrigation Assistance - Fiscal Year 2007**  
 (All Projects Except Columbia Basin Project)

PROJECT	Irrigated Acres	Initial	Development	Water Users	Total	Irrigation	Year
		Testing Year	Period	Repayment Period		Assistance	
		Calendar Year	Calendar Year	Calendar Year	Allocation (\$1,000)	(\$1,000)	Is Due Fiscal Year
In Service as of Sept. 30, 2007							
Boise	390,126	--	--	--	69,629	24,999	PAID 1997
Palisades	528,397	--	--	1961-2000	29,834	16,560	PAID 2001
Avondale	922	--	--	1964-2003	573	184	PAID 2004
Dalton Gardens	944	--	--	1964-2003	564	208	PAID 2004
Rathdrum Prairie, Hayden Lake	5,010	--	None	1964-2003	1,233	347	PAID 2004
Mann Creek Project	5,110		None	1968-2007	3,763	2,950	2008
Spokane Valley Project	7,241	1966-68	None	1969-2008	5,132	1,979	2009
Yakima Project, Roza Division							
Block 1	9,292	--	--	1942-2016	--	1,053	2017
Block 2	6,628	--	--	1943-2017	--	729	2018
Block 3	4,858	--	--	1944-2018	--	567	2019
Block 4	17,976	--	--	1946-2020	--	2,025	2021
Blocks 5 & 6	5,362	--	--	1947-2021	--	567	2022
Block 7	27,395	--	--	1951-2025	--	3,159	2026
<b>Total</b>	<b>71,511</b>				<b>27,355</b>	<b>8,100</b>	
Chief Joseph Dam Project							
Greater Wenatchee Division							
Block 1 East Unit	--	1963	1964-66	1967-2016	--	1,055	2017
Blocks 2&3 East & Howard Flat	--	1963	1964-73	1974-2023	--	1,960	2024
Block 4 Brays Landing	--	1965	1966-75	1976-2025	--	901	2026
<b>Total</b>	<b>7,104</b>				<b>8,664</b>	<b>3,916</b>	
Chief Joseph Dam Project							
Bridgeport Bar Dist.							
Bridgeport Bar Dist.	--	1957	1958-67	1968-2017	780	675	2018
Brewster Flat Dist.	--	1958	1959-68	1969-2018	2,591	1,124	2019
<b>Total</b>	<b>2,854</b>				<b>3,371</b>	<b>1,799</b>	
Michaud Flats Project	11,000	1958	1959-68	1969-2018	5,009	2,081	2019
Michaud-Fort Hall	--	--	--	--	--	2,081	2019
Crooked River Project	20,410	--	1963-69	1970-2019	7,019	2,322	2020
Yakima Project, Kennewick Div.	19,171	1957	1958-67	1958-2023	11,513	5,434	2024
Crooked River Project							
Crooked River Extension	2,890	1967	1968-74	1975-2024	2,096	1,092	2025

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## **10. REPLACEMENTS PROJECTED AFTER THE COST EVALUATION PERIOD**

### **10.1 Introduction**

This chapter documents the process used to project the amount of additional capital investment necessary to maintain an existing Federal project at its current operating level after the Cost Evaluation Period. This chapter also includes replacement costs for CGS. Replacement forecasts are included in repayment studies as required by RA 6120.2.

### **10.2 Methodology**

The repayment study incorporates a schedule of Federal investment with the replacements that are expected to occur over the repayment period for existing generation projects. This schedule, expressed in mid-year dollars for each repayment study, FY 2010 through 2011, is based on the amount of investment in the generating projects for the COE and BOR through the end of the cost evaluation period.

The data received from the COE and BOR are expressed in constant year dollars. The COE estimates its replacement costs for each piece of equipment by project, and by expected service life. Each piece of equipment has a life of 50 years or less as determined by engineering studies. A few years ago, Electric Power Research Institute (EPRI) worked with the COE and did a study that confirmed that the replacement years currently in place are proper.

The BOR estimates its replacements' costs by project and by expected service life to create a single figure for each service life category. The BOR's estimated costs of replacements are obtained from two sources: (1) program schedules reflecting a budget based on anticipated need and condition of facilities, and (2) computer printouts covering the long range estimates of replacements. The replacements are a product of the BOR's indexed capitalized replacement investments procedure, which provides for replacement of original facilities at current costs based on the latest cost indices. The cumulative reimbursable power investments are distributed into various FERC accounts for input into the replacement study. BOR personnel, located in the Engineering and Research Center at Denver, Colorado, compute the latest cost indices.

In order to incorporate projected replacements into the repayment study, an in-service date is calculated when the replacements for the COE and BOR are to begin. Each project's actual in-service date, for each of its respective generating units, is observed and a weighted average in-service date, for each project, is determined by weighting the number of generating units by the in-service years associated with those particular units.

A schedule of replacement investments for CGS is based on the original investment adjusted by the use of the Handy-Whitman indices for a nuclear power plant. The Handy-Whitman Index is widely used in industry for estimating replacement costs for plant. The result of this calculation was converted into a mortgage-style investment with payments sufficient to retire the replacement cost in 35 years.

**Table 10A: Corps/Reclamation Replacements (FY 2010)**  
**(\$000s)**

	A	B	C	D
1	<u>In Service Date</u>	<u>Current Principal</u>	<u>Interest Rate</u>	<u>Due Date</u>
2	2010	126,180	6.540%	2055
3	2011	117,932	6.540%	2056
4	2012	110,125	6.540%	2057
5	2013	102,832	6.540%	2058
6	2014	103,207	6.540%	2059
7	2015	103,601	6.540%	2060
8	2016	103,993	6.540%	2061
9	2017	104,447	6.540%	2062
10	2018	104,961	6.540%	2063
11	2019	105,532	6.540%	2064
12	2020	106,154	6.540%	2065
13	2021	106,827	6.540%	2066
14	2022	107,545	6.540%	2067
15	2023	95,731	6.540%	2068
16	2024	85,358	6.540%	2069
17	2025	76,207	6.540%	2070
18	2026	68,142	6.540%	2071
19	2027	61,037	6.540%	2072
20	2028	54,710	6.540%	2073
21	2029	49,119	6.540%	2074
22	2030	44,228	6.540%	2075
23	2031	39,875	6.540%	2076
24	2032	36,033	6.540%	2077
25	2033	51,481	6.540%	2078
26	2034	51,949	6.540%	2079
27	2035	52,461	6.540%	2080
28	2036	52,957	6.540%	2081
29	2037	53,494	6.540%	2082
30	2038	54,070	6.540%	2083
31	2039	54,684	6.540%	2084
32	2040	55,280	6.540%	2085
33	2041	55,911	6.540%	2086
34	2042	56,577	6.540%	2087
35	2043	53,302	6.540%	2088
36	2044	50,220	6.540%	2089
37	2045	47,374	6.540%	2090
38	2046	44,703	6.540%	2091
39	2047	42,201	6.540%	2092
40	2048	39,862	6.540%	2093
41	2049	35,966	6.540%	2094
42	2050	32,499	6.540%	2095
43	2051	29,444	6.540%	2096
44	2052	26,740	6.540%	2097
45	2053	41,875	6.540%	2098
46	2054	42,436	6.540%	2099
47	2055	43,028	6.540%	2100
48	2056	43,649	6.540%	2101
49	2057	44,255	6.540%	2102
50	2058	44,890	6.540%	2103
51	2059	45,553	6.540%	2104

**Table 10B: Corps/Reclamation Replacements (FY 2011)**  
**(\$000s)**

	A	B	C	D
1	<u>In Service Date</u>	<u>Current Principal</u>	<u>Interest Rate</u>	<u>Due Date</u>
2	2011	120,494	6.780%	2056
3	2012	112,517	6.780%	2057
4	2013	105,066	6.780%	2058
5	2014	105,449	6.780%	2059
6	2015	105,852	6.780%	2060
7	2016	106,251	6.780%	2061
8	2017	106,715	6.780%	2062
9	2018	107,240	6.780%	2063
10	2019	107,824	6.780%	2064
11	2020	108,460	6.780%	2065
12	2021	109,147	6.780%	2066
13	2022	109,881	6.780%	2067
14	2023	97,810	6.780%	2068
15	2024	87,212	6.780%	2069
16	2025	77,863	6.780%	2070
17	2026	69,622	6.780%	2071
18	2027	62,363	6.780%	2072
19	2028	55,898	6.780%	2073
20	2029	50,186	6.780%	2074
21	2030	45,188	6.780%	2075
22	2031	40,741	6.780%	2076
23	2032	36,816	6.780%	2077
24	2033	52,599	6.780%	2078
25	2034	53,078	6.780%	2079
26	2035	53,600	6.780%	2080
27	2036	54,107	6.780%	2081
28	2037	54,656	6.780%	2082
29	2038	55,244	6.780%	2083
30	2039	55,872	6.780%	2084
31	2040	56,480	6.780%	2085
32	2041	57,125	6.780%	2086
33	2042	57,806	6.780%	2087
34	2043	54,460	6.780%	2088
35	2044	51,311	6.780%	2089
36	2045	48,402	6.780%	2090
37	2046	45,674	6.780%	2091
38	2047	43,118	6.780%	2092
39	2048	40,728	6.780%	2093
40	2049	36,747	6.780%	2094
41	2050	33,205	6.780%	2095
42	2051	30,083	6.780%	2096
43	2052	27,321	6.780%	2097
44	2053	42,785	6.780%	2098
45	2054	43,358	6.780%	2099
46	2055	43,962	6.780%	2100
47	2056	44,597	6.780%	2101
48	2057	45,216	6.780%	2102
49	2058	45,864	6.780%	2103
50	2059	46,542	6.780%	2104
51	2060	47,245	6.780%	2105
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**Table 10C: Columbia Generating Station Replacements  
(\$000s)**

	A	B	C	D
1	<b>Fiscal Year</b>	<b>Principal</b>	<b>Interest</b>	<b>Total Debt Service</b>
2	2024	8,230	75,944	84,174
3	2025	33,483	303,250	336,733
4	2026	35,777	301,104	336,880
5	2027	38,228	298,810	337,038
6	2028	40,846	296,360	337,206
7	2029	43,644	293,742	337,386
8	2030	46,634	290,944	337,578
9	2031	49,828	287,955	337,783
10	2032	53,242	284,761	338,003
11	2033	56,889	281,348	338,237
12	2034	60,785	277,702	338,487
13	2035	64,949	273,805	338,754
14	2036	69,398	269,642	339,040
15	2037	74,152	265,194	339,345
16	2038	79,231	260,441	339,672
17	2039	84,659	255,362	340,020
18	2040	90,458	249,935	340,393
19	2041	96,654	244,137	340,791
20	2042	103,275	237,941	341,216
21	2043	110,349	231,321	341,670
22	2044	117,908	224,248	342,156
23	2045	125,984	216,690	342,674
24	2046	134,615	208,615	343,229
25	2047	143,836	199,986	343,822
26	2048	153,689	190,766	344,454
27	2049	164,216	180,915	345,131
28	2050	175,465	170,388	345,854
29	2051	187,485	159,141	346,625
30	2052	200,327	147,123	347,450
31	2053	214,049	134,282	348,331
32	2054	228,712	120,562	349,273
33	2055	244,379	105,901	350,280
34	2056	261,118	90,237	351,355
35	2057	279,005	73,499	352,503
36	2058	298,117	55,615	353,731
37	2059	318,538	36,505	355,043
38	2060	250,970	16,087	267,057

## **11. DEBT OPTIMIZATION DEMONSTRATION**

### **11.1 Background**

In FY 2001 BPA began carrying out the Debt Optimization (DO) Program in conjunction with Energy Northwest (EN) as a means for BPA to replenish its Treasury borrowing authority. The basic mechanism of the DO program is that, shortly before the principal of qualifying outstanding EN debt reaches its final maturity (due date) it is repaid with the proceeds of new EN debt that has a final maturity at a later date. The cash that otherwise would have been used to pay the principal of the refunded EN debt is used to repay an equivalent amount of Federal obligations, thereby restoring Treasury borrowing authority or providing opportunities for future restoration of borrowing authority for the agency.

### **11.2 DO Demonstration and Slice Settlement Agreement**

BPA has committed to manage the DO program in a manner such that rates are no higher with DO than they would be in the absence of DO. BPA complies with this commitment by conducting annual DO analysis that involves running two 20-year repayment studies for both transmission and generation, as follows: 1) a base repayment study that includes all debt management activities completed up through the prior year, and 2) a repayment study that includes the above plus new DO projections for the current and upcoming fiscal years. BPA demonstrates achievement of the “rates no higher” commitment when the comparison of the two studies shows that the combined levelized Federal and non-Federal debt service in the repayment study that includes DO is equal to or lower than the debt service in the repayment study that does not include DO.

As part of the Slice Settlement Agreement MOU, BPA agreed to make the above demonstration annually to customers in the late fall/ early winter period. This demonstration is contained in the tables described below. Also, as called for in the agreement, Sections B-1 through B-4 of Exhibit D, the Memorandum of Understanding Concerning the BPA Debt Optimization Program, of the MOU has been included as Attachment A of this chapter.

### **11.3 The Demonstration Tables**

Table 11A is the comparison of the results of the two repayment studies. Column B is the total levelized debt service calculated in the generation base repayment study. Column C is the total levelized debt service calculated in the generation debt optimization repayment study. It matches Column B of Table 11E. Column D shows the difference between columns B and C.

Table 11B summarizes the results of the generation base repayment study. This study incorporates all debt management transactions made on behalf of generation through September 30, 2008. It does not include projections of future DO actions. The study shows what the combined levelized debt service levels would be if no additional DO transactions occurred. Column B is the total levelized Federal and non Federal debt service. Column C is non-Federal debt service. Column D is gross Federal interest expense calculated in the repayment study.

Column E is Federal principal amortization. Column F is irrigation assistance as scheduled by the repayment study. Column G is the revenue surplus.

Table 11C shows the projected Federal investments used in the twenty-year study.

Table 11D displays the projected Energy Northwest net debt service associated with new capital additions at CGS. It does not include any projection of future DO actions. The par amount of the projected bonds and the issuance year are shown in the bottom half of the table. The resulting net debt service stream is in the top half of the table.

Table 11E contains the results of the generation debt optimization repayment study. This study incorporates all elements from the base study noted above, plus the DO projections for the current and upcoming fiscal years. Incorporating future DO into this study is the only difference between this and the base study. The table is laid out in the same manner as Table 11B, Summary of Base Repayment Study.

Table 11F shows the projected Federal investments used in the twenty-year study, which matches the projections shown in Table 11C.

Table 11G shows the projected Energy Northwest net debt service associated with the projected DO bonds and new capital additions for CGS, respectively. The par amount of the projected bonds and the issuance year are shown in the bottom half of the table. The resulting net debt service stream is in the top half of the table.

#### **11.4 Attachment A, Excerpt from the Slice Settlement Agreement**

Sections B-1 through B-4 of Schedule D of Exhibit D, the Memorandum of Understanding Concerning the BPA Debt Optimization Program

**Table 11A: Comparison of Generation Repayment Studies  
(\$000s)**

	A	B	C	D
	<b>Fiscal</b>	<b>Base Total</b>	<b>Debt Optimization</b>	
1	<u>Year</u>	<u>Debt Service</u>	<u>Total Debt Service</u>	<u>Delta</u>
2	2009	927,545	926,063	(1,482)
3	2010	1,035,036	1,031,890	(3,146)
4	2011	1,057,598	1,054,513	(3,086)
5	2012	1,099,500	1,099,010	(490)
6	2013	1,120,010	1,119,520	(490)
7	2014	1,139,510	1,139,021	(489)
8	2015	1,151,807	1,151,318	(489)
9	2016	1,160,090	1,159,600	(490)
10	2017	1,159,377	1,158,887	(490)
11	2018	1,031,618	1,031,130	(488)
12	2019	793,180	792,421	(759)
13	2020	803,230	802,472	(758)
14	2021	811,854	811,098	(756)
15	2022	821,810	821,055	(755)
16	2023	830,450	829,697	(753)
17	2024	838,395	837,642	(753)
18	2025	847,460	846,703	(757)
19	2026	857,828	857,071	(757)
20	2027	865,535	864,777	(758)
21	2028	884,191	883,433	(758)
22	<b>Total</b>			<b>(18,704)</b>

**Table 11B: Summary of Base Repayment Study  
(\$000s)**

	A	B	C	D	E	F	G
1	<u>Fiscal Year</u>	<u>Total Debt Service</u>	<u>3rd Party Debt Service</u>	<u>Federal Gross Interest</u>	<u>Federal Amortization</u>	<u>Irrigation Assistance</u>	<u>Rev. Surplus</u>
2	2009	927,545	564,348	252,858	103,065	7,274	-
3	2010	1,035,036	556,312	261,460	217,264	-	-
4	2011	1,057,598	576,632	269,078	211,888	-	-
5	2012	1,099,500	667,909	283,602	146,783	1,206	-
6	2013	1,120,010	614,853	299,441	145,689	60,027	-
7	2014	1,139,510	611,170	316,299	158,542	53,500	0
8	2015	1,151,807	584,085	329,600	128,893	109,228	0
9	2016	1,160,090	721,932	340,937	39,100	58,120	0
10	2017	1,159,377	759,480	352,293	47,601	4	-
11	2018	1,031,618	594,501	361,528	47,600	27,989	-
12	2019	793,180	110,481	365,939	258,592	58,168	0
13	2020	803,230	213,193	364,116	200,977	24,943	-
14	2021	811,854	216,226	364,141	219,133	12,354	0
15	2022	821,810	218,521	362,349	226,355	14,585	-
16	2023	830,450	221,944	360,303	234,951	13,252	0
17	2024	838,395	264,533	358,911	199,537	15,414	-
18	2025	847,460	373,987	363,128	96,445	13,900	0
19	2026	857,828	373,775	372,109	90,790	21,154	-
20	2027	865,535	373,935	381,050	104,376	6,175	0
21	2028	<u>884,191</u>	<u>374,088</u>	<u>389,048</u>	<u>109,651</u>	<u>11,404</u>	-
22	<b>Total</b>	<b>\$19,236,024</b>	<b>\$8,617,818</b>	<b>\$6,359,142</b>	<b>\$2,877,580</b>	<b>\$497,293</b>	<b>\$0</b>
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Table 11C: Projected Federal Investments in Base Study (\$000s)

	A	B	C	D	E	F	G	H	I	J
	Project	Original Principal	Current Principal	Interest Rate	Due Date	Replacement?	In Service Date	Month	Rollover Date	Rollover Rate
1										
2	COLUMBIA RIVER FISH MITIGATION	110,000	110,000	4.380%	2060	No	2009	-	-	-
3	COLUMBIA RIVER FISH MITIGATION	88,000	88,000	5.290%	2060	No	2010	-	-	-
4	COLUMBIA RIVER FISH MITIGATION	96,000	96,000	5.730%	2061	No	2011	-	-	-
5	COLUMBIA RIVER FISH MITIGATION	50,000	50,000	5.790%	2062	No	2012	-	-	-
6	COLUMBIA RIVER FISH MITIGATION	124,288	124,288	5.790%	2063	No	2013	-	-	-
7	COLUMBIA RIVER FISH MITIGATION	59,608	59,608	5.790%	2064	No	2014	-	-	-
8	COLUMBIA RIVER FISH MITIGATION	9,345	9,345	5.790%	2065	No	2015	-	-	-
9	COLUMBIA RIVER FISH MITIGATION	-	-	6.000%	2066	No	2016	-	-	-
10	COLUMBIA RIVER FISH MITIGATION	-	-	6.760%	2067	No	2017	-	-	-
11	COLUMBIA RIVER FISH MITIGATION	-	-	6.810%	2068	No	2018	-	-	-
12	COLUMBIA RIVER FISH MITIGATION	-	-	6.920%	2069	No	2019	-	-	-
13	COLUMBIA RIVER FISH MITIGATION	-	-	7.010%	2070	No	2020	-	-	-
14	COLUMBIA RIVER FISH MITIGATION	-	-	7.140%	2071	No	2021	-	-	-
15	COLUMBIA RIVER FISH MITIGATION	-	-	7.180%	2072	No	2022	-	-	-
16	COLUMBIA RIVER FISH MITIGATION	-	-	7.260%	2073	No	2023	-	-	-
17	COLUMBIA RIVER FISH MITIGATION	-	-	7.330%	2074	No	2024	-	-	-
18	COLUMBIA RIVER FISH MITIGATION	-	-	7.330%	2075	No	2025	-	-	-
19	COLUMBIA RIVER FISH MITIGATION	-	-	5.560%	2076	No	2026	-	-	-
20	COLUMBIA RIVER FISH MITIGATION	-	-	5.560%	2077	No	2027	-	-	-
21	COLUMBIA RIVER FISH MITIGATION	-	-	5.560%	2078	No	2028	-	-	-
22	BPA PROGRAM	16,500	12,714	5.350%	2044	No	2009	3	-	-
23	BPA PROGRAM	13,871	13,871	6.790%	2045	No	2010	3	-	-
24	BPA PROGRAM	14,950	14,950	6.930%	2046	No	2011	3	-	-
25	BPA PROGRAM	15,041	15,041	6.690%	2047	No	2012	3	-	-
26	BPA PROGRAM	15,099	15,099	6.690%	2048	No	2013	3	-	-
27	BPA PROGRAM	15,176	15,176	6.690%	2049	No	2014	3	-	-
28	BPA PROGRAM	15,935	15,935	6.690%	2050	No	2015	3	-	-
29	BPA PROGRAM	12,357	12,357	6.690%	2051	No	2016	3	-	-
30	BPA PROGRAM	12,384	12,384	6.690%	2052	No	2017	3	-	-
31	BPA PROGRAM	12,410	12,410	6.690%	2053	No	2018	3	-	-
32	BPA PROGRAM	12,437	12,437	6.690%	2054	No	2019	3	-	-
33	BPA PROGRAM	12,462	12,462	6.690%	2055	No	2020	3	-	-
34	BPA PROGRAM	12,487	12,487	6.690%	2056	No	2021	3	-	-
35	BPA PROGRAM	12,512	12,512	6.690%	2057	No	2022	3	-	-
36	BPA PROGRAM	12,537	12,537	6.690%	2058	No	2023	3	-	-
37	BPA PROGRAM	12,562	12,562	6.690%	2059	No	2024	3	-	-
38	BPA PROGRAM	12,587	12,587	6.690%	2060	No	2025	3	-	-
39	BPA PROGRAM	12,612	12,612	6.690%	2061	No	2026	3	-	-
40	BPA PROGRAM	12,637	12,637	6.690%	2062	No	2027	3	-	-
41	BPA PROGRAM	13,016	13,016	6.690%	2063	No	2028	3	-	-
42	BUREAU DIRECT FUND	133,238	133,238	5.350%	2054	No	2009	3	-	-
43	BUREAU DIRECT FUND	157,850	157,850	6.790%	2055	No	2010	3	-	-
44	BUREAU DIRECT FUND	170,850	170,850	6.930%	2056	No	2011	3	-	-
45	BUREAU DIRECT FUND	178,500	178,500	6.690%	2057	No	2012	3	-	-
46	BUREAU DIRECT FUND	188,700	188,700	6.690%	2058	No	2013	3	-	-
47	BUREAU DIRECT FUND	190,400	190,400	6.690%	2059	No	2014	3	-	-
48	BUREAU DIRECT FUND	192,100	192,100	6.690%	2060	No	2015	3	-	-
49	BUREAU DIRECT FUND	105,000	105,000	6.690%	2061	No	2016	3	-	-
50	BUREAU DIRECT FUND	110,000	110,000	6.690%	2062	No	2017	3	-	-
51	BUREAU DIRECT FUND	110,000	110,000	6.690%	2063	No	2018	3	-	-
52	BUREAU DIRECT FUND	113,000	113,000	6.690%	2064	No	2019	3	-	-
53	BUREAU DIRECT FUND	115,000	115,000	6.690%	2065	No	2020	3	-	-
54	BUREAU DIRECT FUND	118,000	118,000	6.690%	2066	No	2021	3	-	-
55	BUREAU DIRECT FUND	121,000	121,000	6.690%	2067	No	2022	3	-	-
56	BUREAU DIRECT FUND	124,000	124,000	6.690%	2068	No	2023	3	-	-
57	BUREAU DIRECT FUND	127,000	127,000	6.690%	2069	No	2024	3	-	-
58	BUREAU DIRECT FUND	130,000	130,000	6.690%	2070	No	2025	3	-	-
59	BUREAU DIRECT FUND	133,900	133,900	6.690%	2071	No	2026	3	-	-
60	BUREAU DIRECT FUND	137,917	137,917	6.690%	2072	No	2027	3	-	-
61	BUREAU DIRECT FUND	142,055	142,055	6.690%	2073	No	2028	3	-	-
62	CONSERVATION	27,200	27,200	3.660%	2014	No	2009	3	-	-
63	CONSERVATION	32,300	32,300	4.930%	2015	No	2010	3	-	-
64	CONSERVATION	39,100	39,100	5.560%	2016	No	2011	3	-	-
65	CONSERVATION	47,600	47,600	5.620%	2017	No	2012	3	-	-
66	CONSERVATION	47,600	47,600	5.620%	2018	No	2013	3	-	-
67	CONSERVATION	47,600	47,600	5.620%	2019	No	2014	3	-	-
68	CONSERVATION	47,600	47,600	5.620%	2020	No	2015	3	-	-
69	CONSERVATION	40,000	40,000	5.620%	2021	No	2016	3	-	-
70	CONSERVATION	40,000	40,000	5.620%	2022	No	2017	3	-	-
71	CONSERVATION	40,000	40,000	5.620%	2023	No	2018	3	-	-
72	CONSERVATION	40,000	40,000	5.620%	2024	No	2019	3	-	-
73	CONSERVATION	40,000	40,000	5.620%	2025	No	2020	3	-	-
74	CONSERVATION	40,000	40,000	5.620%	2026	No	2021	3	-	-
75	CONSERVATION	40,000	40,000	5.620%	2027	No	2022	3	-	-
76	CONSERVATION	40,000	40,000	5.620%	2028	No	2023	3	-	-

**Table 11C: Projected Federal Investments in Base Study (\$000s)**

	A	B	C	D	E	F	G	H	I	J
1	Project	Original Principal	Current Principal	Interest Rate	Due Date	Replacement?	In Service Date	Month	Rollover Date	Rollover Rate
77	CONSERVATION	40,000	40,000	5.620%	2029	No	2024	3	-	-
78	CONSERVATION	40,000	40,000	5.620%	2030	No	2025	3	-	-
79	CONSERVATION	40,000	40,000	5.620%	2031	No	2026	3	-	-
80	CONSERVATION	40,000	40,000	5.620%	2032	No	2027	3	-	-
81	CONSERVATION	40,000	40,000	5.620%	2033	No	2028	3	-	-
82	FISH, WILDLIFE	50,000	50,000	4.720%	2024	No	2009	3	-	-
83	FISH, WILDLIFE	70,000	70,000	4.930%	2025	No	2010	3	-	-
84	FISH, WILDLIFE	60,000	60,000	6.220%	2026	No	2011	3	-	-
85	FISH, WILDLIFE	50,000	50,000	6.210%	2027	No	2012	3	-	-
86	FISH, WILDLIFE	50,000	50,000	6.210%	2028	No	2013	3	-	-
87	FISH, WILDLIFE	50,000	50,000	6.210%	2029	No	2014	3	-	-
88	FISH, WILDLIFE	50,000	50,000	6.210%	2030	No	2015	3	-	-
89	FISH, WILDLIFE	36,000	36,000	6.213%	2031	No	2016	3	-	-
90	FISH, WILDLIFE	36,000	36,000	6.213%	2032	No	2017	3	-	-
91	FISH, WILDLIFE	36,000	36,000	6.213%	2033	No	2018	3	-	-
92	FISH, WILDLIFE	36,000	36,000	6.213%	2034	No	2019	3	-	-
93	FISH, WILDLIFE	36,000	36,000	6.213%	2035	No	2020	3	-	-
94	FISH, WILDLIFE	36,000	36,000	6.213%	2036	No	2021	3	-	-
95	FISH, WILDLIFE	36,000	36,000	6.213%	2037	No	2022	3	-	-
96	FISH, WILDLIFE	36,000	36,000	6.213%	2038	No	2023	3	-	-
97	FISH, WILDLIFE	36,000	36,000	6.213%	2039	No	2024	3	-	-
98	FISH, WILDLIFE	36,000	36,000	6.213%	2040	No	2025	3	-	-
99	FISH, WILDLIFE	36,000	36,000	6.213%	2041	No	2026	3	-	-
100	FISH, WILDLIFE	36,000	36,000	6.213%	2042	No	2027	3	-	-
101	FISH, WILDLIFE	36,000	36,000	6.213%	2043	No	2028	3	-	-

Table 11D: Debt Service of Projected Energy Northwest Capital Additions  
(\$000s)

	A	B	C	D
1	<b>Fiscal</b>			<b>Net</b>
2	<b>Year</b>	<b>Principal</b>	<b>Interest</b>	<b>New D/S</b>
3	2009	-	1,346	1,346
4	2010	-	6,638	6,638
5	2011	-	11,145	11,145
6	2012	300	14,077	14,377
7	2013	1,345	16,565	17,910
8	2014	2,336	18,372	20,709
9	2015	4,261	20,322	24,583
10	2016	5,474	21,789	27,263
11	2017	7,129	23,837	30,965
12	2018	8,648	25,478	34,125
13	2019	21,761	27,602	49,363
14	2020	57,223	27,944	85,167
15	2021	61,338	26,853	88,191
16	2022	65,415	25,075	90,490
17	2023	69,991	23,512	93,504
18	2024	59,733	20,711	80,444
19	2025	19,330	17,554	36,884
20	2026	20,305	16,590	36,895
21	2027	21,334	15,563	36,897
22	2028	22,411	14,471	36,882
23	2029	23,574	13,311	36,885
24	2030	24,806	12,080	36,887
25	2031	26,113	10,774	36,886
26	2032	26,730	9,386	36,116
27	2033	25,356	7,956	33,312
28	2034	23,850	6,596	30,446
29	2035	20,345	5,332	25,677
30	2036	18,754	4,252	23,005
31	2037	16,060	3,252	19,312
32	2038	13,745	2,394	16,139
33	2039	10,420	1,658	12,078
34	2040	8,680	1,098	9,778
35	2041	6,126	631	6,757
36	2042	4,166	300	4,467
37	2043	<u>1,373</u>	<u>75</u>	<u>1,447</u>
38	<b>TOTAL</b>	<b>698,430</b>	<b>454,542</b>	<b>1,152,972</b>

Table 11D: Debt Service of Projected Energy Northwest Capital Additions  
(\$000s)

	A	B	C	D
39				
40	<b>Par Amounts Of Selected Issues</b>			
41	NEG2009AW2			76,385
42	NEG2009BW2			25,465
43	NEG2010AW2			69,040
44	NEG2010BW2			23,015
45	NEG2011AW2			41,020
46	NEG2011BW2			13,675
47	NEG2012AW2			38,215
48	NEG2012BW2			12,740
49	NEG2013AW2			24,355
50	NEG2013BW2			8,120
51	NEG2014AW2			33,540
52	NEG2014BW2			11,180
53	NEG2015AW2			20,320
54	NEG2015BW2			6,775
55	NEG2016AW2			37,300
56	NEG2016BW2			12,435
57	NEG2017AW2			24,190
58	NEG2017BW2			8,065
59	NEG2018AW2			43,915
60	NEG2018BW2			14,640
61	NEG2019AW2			17,750
62	NEG2019BW2			5,920
63	NEG2020AW2			31,135
64	NEG2020BW2			10,380
65	NEG2021AW2			17,750
66	NEG2021BW2			5,920
67	NEG2022AW2			31,135
68	NEG2022BW2			10,380
69	NEG2023AW2			17,750
70	NEG2023BW2			<u>5,920</u>
71	<b>TOTAL</b>			<b>698,430</b>

**Table 11E: Summary of Debt Optimization Repayment Study  
(\$000s)**

	A	B	C	D	E	F	G
1	<u>Fiscal Year</u>	<u>Total Debt Service</u>	<u>3rd Party Debt Service</u>	<u>Federal Gross Interest</u>	<u>Federal Amortization</u>	<u>Irrigation Assistance</u>	<u>Rev. Surplus</u>
2	2009	926,063	449,320	250,108	219,360	7,274	-
3	2010	1,031,890	561,380	253,245	217,264	-	-
4	2011	1,054,513	581,701	260,924	211,888	-	-
5	2012	1,099,010	672,978	275,409	149,417	1,206	-
6	2013	1,119,520	629,172	291,284	139,037	60,027	-
7	2014	1,139,021	663,417	309,518	112,586	53,500	-
8	2015	1,151,318	646,173	326,338	69,578	109,228	-
9	2016	1,159,600	721,932	340,448	39,100	58,120	0
10	2017	1,158,887	759,480	351,803	47,600	4	-
11	2018	1,031,130	594,501	361,039	47,600	27,989	1
12	2019	792,421	110,481	365,456	258,316	58,168	0
13	2020	802,472	213,193	363,653	200,683	24,943	-
14	2021	811,098	216,226	363,699	218,819	12,354	0
15	2022	821,055	218,521	361,930	226,019	14,585	-
16	2023	829,697	221,944	359,908	234,594	13,252	0
17	2024	837,642	264,533	358,546	199,149	15,414	-
18	2025	846,703	373,987	362,799	96,017	13,900	0
19	2026	857,071	373,775	371,801	90,341	21,154	0
20	2027	864,777	373,935	380,770	103,897	6,175	0
21	2028	883,433	374,088	388,802	109,139	11,404	-
22	<b>Total</b>	<b>19,217,320</b>	<b>9,020,739</b>	<b>6,697,479</b>	<b>2,990,403</b>	<b>508,697</b>	<b>1</b>
23							

**Table 11F: Projected Federal Investments in Debt Optimization  
(\$000s)**

	A	B	C	D	E	F	G	H	I	J
1	<u>Project</u>	<u>Original Principal</u>	<u>Current Principal</u>	<u>Interest Rate</u>	<u>Due Date</u>	<u>Replacement?</u>	<u>In Service Date</u>	<u>Month</u>	<u>Rollover Date</u>	<u>Rollover Rate</u>
2	COLUMBIA RIVER FISH MITIGATION	110,000	110,000	4.380%	2060	No	2009	-	-	-
3	COLUMBIA RIVER FISH MITIGATION	88,000	88,000	5.290%	2060	No	2010	-	-	-
4	COLUMBIA RIVER FISH MITIGATION	96,000	96,000	5.730%	2061	No	2011	-	-	-
5	COLUMBIA RIVER FISH MITIGATION	50,000	50,000	5.790%	2062	No	2012	-	-	-
6	COLUMBIA RIVER FISH MITIGATION	124,288	124,288	5.790%	2063	No	2013	-	-	-
7	COLUMBIA RIVER FISH MITIGATION	59,608	59,608	5.790%	2064	No	2014	-	-	-
8	COLUMBIA RIVER FISH MITIGATION	9,345	9,345	5.790%	2065	No	2015	-	-	-
9	COLUMBIA RIVER FISH MITIGATION	-	-	6.000%	2066	No	2016	-	-	-
10	COLUMBIA RIVER FISH MITIGATION	-	-	6.760%	2067	No	2017	-	-	-
11	COLUMBIA RIVER FISH MITIGATION	-	-	6.810%	2068	No	2018	-	-	-
12	COLUMBIA RIVER FISH MITIGATION	-	-	6.920%	2069	No	2019	-	-	-
13	COLUMBIA RIVER FISH MITIGATION	-	-	7.010%	2070	No	2020	-	-	-
14	COLUMBIA RIVER FISH MITIGATION	-	-	7.140%	2071	No	2021	-	-	-
15	COLUMBIA RIVER FISH MITIGATION	-	-	7.180%	2072	No	2022	-	-	-
16	COLUMBIA RIVER FISH MITIGATION	-	-	7.260%	2073	No	2023	-	-	-
17	COLUMBIA RIVER FISH MITIGATION	-	-	7.330%	2074	No	2024	-	-	-
18	COLUMBIA RIVER FISH MITIGATION	-	-	7.330%	2075	No	2025	-	-	-
19	COLUMBIA RIVER FISH MITIGATION	-	-	5.560%	2076	No	2026	-	-	-
20	COLUMBIA RIVER FISH MITIGATION	-	-	5.560%	2077	No	2027	-	-	-
21	COLUMBIA RIVER FISH MITIGATION	-	-	5.560%	2078	No	2028	-	-	-
22	BPA PROGRAM	16,500	12,714	5.350%	2044	No	2009	3	-	-
23	BPA PROGRAM	13,871	13,871	6.790%	2045	No	2010	3	-	-
24	BPA PROGRAM	14,950	14,950	6.930%	2046	No	2011	3	-	-
25	BPA PROGRAM	15,041	15,041	6.690%	2047	No	2012	3	-	-
26	BPA PROGRAM	15,099	15,099	6.690%	2048	No	2013	3	-	-
27	BPA PROGRAM	15,176	15,176	6.690%	2049	No	2014	3	-	-
28	BPA PROGRAM	15,935	15,935	6.690%	2050	No	2015	3	-	-
29	BPA PROGRAM	12,357	12,357	6.690%	2051	No	2016	3	-	-
30	BPA PROGRAM	12,384	12,384	6.690%	2052	No	2017	3	-	-
31	BPA PROGRAM	12,410	12,410	6.690%	2053	No	2018	3	-	-
32	BPA PROGRAM	12,437	12,437	6.690%	2054	No	2019	3	-	-
33	BPA PROGRAM	12,462	12,462	6.690%	2055	No	2020	3	-	-
34	BPA PROGRAM	12,487	12,487	6.690%	2056	No	2021	3	-	-
35	BPA PROGRAM	12,512	12,512	6.690%	2057	No	2022	3	-	-
36	BPA PROGRAM	12,537	12,537	6.690%	2058	No	2023	3	-	-
37	BPA PROGRAM	12,562	12,562	6.690%	2059	No	2024	3	-	-
38	BPA PROGRAM	12,587	12,587	6.690%	2060	No	2025	3	-	-
39	BPA PROGRAM	12,612	12,612	6.690%	2061	No	2026	3	-	-
40	BPA PROGRAM	12,637	12,637	6.690%	2062	No	2027	3	-	-
41	BPA PROGRAM	13,016	13,016	6.690%	2063	No	2028	3	-	-
42	BUREAU DIRECT FUND	133,238	133,238	5.350%	2054	No	2009	3	-	-
43	BUREAU DIRECT FUND	157,850	157,850	6.790%	2055	No	2010	3	-	-
44	BUREAU DIRECT FUND	170,850	170,850	6.930%	2056	No	2011	3	-	-
45	BUREAU DIRECT FUND	178,500	178,500	6.690%	2057	No	2012	3	-	-
46	BUREAU DIRECT FUND	188,700	188,700	6.690%	2058	No	2013	3	-	-
47	BUREAU DIRECT FUND	190,400	190,400	6.690%	2059	No	2014	3	-	-
48	BUREAU DIRECT FUND	192,100	192,100	6.690%	2060	No	2015	3	-	-
49	BUREAU DIRECT FUND	105,000	105,000	6.690%	2061	No	2016	3	-	-
50	BUREAU DIRECT FUND	110,000	110,000	6.690%	2062	No	2017	3	-	-
51	BUREAU DIRECT FUND	110,000	110,000	6.690%	2063	No	2018	3	-	-
52	BUREAU DIRECT FUND	113,000	113,000	6.690%	2064	No	2019	3	-	-
53	BUREAU DIRECT FUND	115,000	115,000	6.690%	2065	No	2020	3	-	-
54	BUREAU DIRECT FUND	118,000	118,000	6.690%	2066	No	2021	3	-	-
55	BUREAU DIRECT FUND	121,000	121,000	6.690%	2067	No	2022	3	-	-
56	BUREAU DIRECT FUND	124,000	124,000	6.690%	2068	No	2023	3	-	-
57	BUREAU DIRECT FUND	127,000	127,000	6.690%	2069	No	2024	3	-	-
58	BUREAU DIRECT FUND	130,000	130,000	6.690%	2070	No	2025	3	-	-
59	BUREAU DIRECT FUND	133,900	133,900	6.690%	2071	No	2026	3	-	-
60	BUREAU DIRECT FUND	137,917	137,917	6.690%	2072	No	2027	3	-	-
61	BUREAU DIRECT FUND	142,055	142,055	6.690%	2073	No	2028	3	-	-
62	CONSERVATION	27,200	27,200	3.660%	2014	No	2009	3	-	-
63	CONSERVATION	32,300	32,300	4.930%	2015	No	2010	3	-	-
64	CONSERVATION	39,100	39,100	5.560%	2016	No	2011	3	-	-
65	CONSERVATION	47,600	47,600	5.620%	2017	No	2012	3	-	-
66	CONSERVATION	47,600	47,600	5.620%	2018	No	2013	3	-	-
67	CONSERVATION	47,600	47,600	5.620%	2019	No	2014	3	-	-
68	CONSERVATION	47,600	47,600	5.620%	2020	No	2015	3	-	-

**Table 11F: Projected Federal Investments in Debt Optimization  
(\$000s)**

	A	B	C	D	E	F	G	H	I	J
1	<u>Project</u>	<u>Original Principal</u>	<u>Current Principal</u>	<u>Interest Rate</u>	<u>Due Date</u>	<u>Replacement?</u>	<u>In Service Date</u>	<u>Month</u>	<u>Rollover Date</u>	<u>Rollover Rate</u>
69	CONSERVATION	40,000	40,000	5.620%	2021	No	2016	3	-	-
70	CONSERVATION	40,000	40,000	5.620%	2022	No	2017	3	-	-
71	CONSERVATION	40,000	40,000	5.620%	2023	No	2018	3	-	-
72	CONSERVATION	40,000	40,000	5.620%	2024	No	2019	3	-	-
73	CONSERVATION	40,000	40,000	5.620%	2025	No	2020	3	-	-
74	CONSERVATION	40,000	40,000	5.620%	2026	No	2021	3	-	-
75	CONSERVATION	40,000	40,000	5.620%	2027	No	2022	3	-	-
76	CONSERVATION	40,000	40,000	5.620%	2028	No	2023	3	-	-
77	CONSERVATION	40,000	40,000	5.620%	2029	No	2024	3	-	-
78	CONSERVATION	40,000	40,000	5.620%	2030	No	2025	3	-	-
79	CONSERVATION	40,000	40,000	5.620%	2031	No	2026	3	-	-
80	CONSERVATION	40,000	40,000	5.620%	2032	No	2027	3	-	-
81	CONSERVATION	40,000	40,000	5.620%	2033	No	2028	3	-	-
82	FISH, WILDLIFE	50,000	50,000	4.720%	2024	No	2009	3	-	-
83	FISH, WILDLIFE	70,000	70,000	4.930%	2025	No	2010	3	-	-
84	FISH, WILDLIFE	60,000	60,000	6.220%	2026	No	2011	3	-	-
85	FISH, WILDLIFE	50,000	50,000	6.210%	2027	No	2012	3	-	-
86	FISH, WILDLIFE	50,000	50,000	6.210%	2028	No	2013	3	-	-
87	FISH, WILDLIFE	50,000	50,000	6.210%	2029	No	2014	3	-	-
88	FISH, WILDLIFE	50,000	50,000	6.210%	2030	No	2015	3	-	-
89	FISH, WILDLIFE	36,000	36,000	6.213%	2031	No	2016	3	-	-
90	FISH, WILDLIFE	36,000	36,000	6.213%	2032	No	2017	3	-	-
91	FISH, WILDLIFE	36,000	36,000	6.213%	2033	No	2018	3	-	-
92	FISH, WILDLIFE	36,000	36,000	6.213%	2034	No	2019	3	-	-
93	FISH, WILDLIFE	36,000	36,000	6.213%	2035	No	2020	3	-	-
94	FISH, WILDLIFE	36,000	36,000	6.213%	2036	No	2021	3	-	-
95	FISH, WILDLIFE	36,000	36,000	6.213%	2037	No	2022	3	-	-
96	FISH, WILDLIFE	36,000	36,000	6.213%	2038	No	2023	3	-	-
97	FISH, WILDLIFE	36,000	36,000	6.213%	2039	No	2024	3	-	-
98	FISH, WILDLIFE	36,000	36,000	6.213%	2040	No	2025	3	-	-
99	FISH, WILDLIFE	36,000	36,000	6.213%	2041	No	2026	3	-	-
100	FISH, WILDLIFE	36,000	36,000	6.21%	2042	No	2027	3	-	-
101	FISH, WILDLIFE	36,000	36,000	6.21%	2043	No	2028	3	-	-

**Table 11G: Projected Energy Northwest Debt Service with Debt Optimization  
(\$000s)**

	A	B	C	D	E
1	<b>Fiscal</b>				
2	<b>Year</b>	<b>Principal</b>	<b>Interest</b>	<b>DO/DSR</b>	<b>Net New D/S</b>
2	2009	-	2,613	(116,295)	(113,682)
3	2010	-	11,707	-	11,707
4	2011	-	16,214	-	16,214
5	2012	300	19,146	-	19,446
6	2013	10,595	21,634	-	32,229
7	2014	49,910	23,046	-	72,956
8	2015	63,733	22,938	-	86,671
9	2016	5,474	21,789	-	27,263
10	2017	7,129	23,837	-	30,965
11	2018	8,648	25,478	-	34,125
12	2019	21,761	27,602	-	49,363
13	2020	57,223	27,944	-	85,167
14	2021	61,338	26,853	-	88,191
15	2022	65,415	25,075	-	90,490
16	2023	69,991	23,512	-	93,504
17	2024	59,733	20,711	-	80,444
18	2025	19,330	17,554	-	36,884
19	2026	20,305	16,590	-	36,895
20	2027	21,334	15,563	-	36,897
21	2028	22,411	14,471	-	36,882
22	2029	23,574	13,311	-	36,885
23	2030	24,806	12,080	-	36,887
24	2031	26,113	10,774	-	36,886
25	2032	26,730	9,386	-	36,116
26	2033	25,356	7,956	-	33,312
27	2034	23,850	6,596	-	30,446
28	2035	20,345	5,332	-	25,677
29	2036	18,754	4,252	-	23,005
30	2037	16,060	3,252	-	19,312
31	2038	13,745	2,394	-	16,139
32	2039	10,420	1,658	-	12,078
33	2040	8,680	1,098	-	9,778
34	2041	6,126	631	-	6,757
35	2042	4,166	300	-	4,467
36	2043	<u>1,373</u>	<u>75</u>	=	<u>1,447</u>
37	<b>Total</b>	<b>814,725</b>	<b>483,375</b>	<b>(116,295)</b>	<b>1,181,805</b>
38					

**Table 11G: Projected Energy Northwest Debt Service with Debt Optimization  
(\$000s)**

	A	B	C	D	E
39					
40	<b>Par Amounts Of Selected Issues</b>				
41	NEG2009AW2				76,385
42	NEG2009BW2				25,465
43	NEG2010AW2				69,040
44	NEG2010BW2				23,015
45	NEG2011AW2				41,020
46	NEG2011BW2				13,675
47	NEG2012AW2				38,215
48	NEG2012BW2				12,740
49	NEG2013AW2				24,355
50	NEG2013BW2				8,120
51	NEG2014AW2				33,540
52	NEG2014BW2				11,180
53	NEG2015AW2				20,320
54	NEG2015BW2				6,775
55	NEG2016AW2				37,300
56	NEG2016BW2				12,435
57	NEG2017AW2				24,190
58	NEG2017BW2				8,065
59	NEG2018AW2				43,915
60	NEG2018BW2				14,640
61	NEG2019AW2				17,750
62	NEG2019BW2				5,920
63	NEG2020AW2				31,135
64	NEG2020BW2				10,380
65	NEG2021AW2				17,750
66	NEG2021BW2				5,920
67	NEG2022AW2				31,135
68	NEG2022BW2				10,380
69	NEG2023AW2				17,750
70	NEG2023BW2				5,920
71	NEG2009 (DO) DUE 13-15				<u>116,295</u>
72	<b>TOTAL</b>				<b>814,725</b>

improvements in BPA's communications concerning the development and implementation of DOP. This MOU is entered in connection with the settlement of certain litigation involving the Participants. The settlement separately provides for certain actions that will resolve issues in the litigation concerning DOP and other financial issues, and are intended to avoid similar disputes in the future. The Participants intend this MOU to restore and maintain confidence that BPA is effectively managing the DOP in accordance with its commitments and to the benefit of its customers and public purposes.

**B. BPA Commitments Concerning the Debt Optimization Program**

1. BPA, working with Energy Northwest ("EN"), has developed the DOP to increase its available borrowing authority from the United States Treasury using proceeds accomplished as a result of EN bond refinancings.
2. One of the fundamental principles of the DOP, created at the time Debt Service Reassignment (DSR) (described more fully in Section B.4 below) was developed, is that the rates of each of BPA's business lines (Transmission Business Line ("TBL") and Power Business Line ("PBL")) are no higher with the DOP than they would have been in the absence of the DOP. BPA will manage the DOP in conformance with, and to achieve realization of, this principle, notwithstanding that the mechanics of recording the DOP transactions and understanding their impact on rates are complex. BPA annually demonstrates achievement of this principle by running repayment studies that compare a base repayment study that includes all debt management activities completed to date with a DOP repayment study that includes new DOP projections for the upcoming years, the results of which comply with such principle. BPA will continue to so demonstrate achievement of this principle annually and in the next and subsequent general wholesale power and transmission rate proceedings so long as new DOP refinancings occur. The demonstration for power rates will be made in the power rate case, and for the transmission rates in the transmission rate case. The Participants agree that for purposes of making its demonstration in the next general transmission rate proceeding, BPA will introduce the information for the first time in its rebuttal case, and the Administrator will direct the hearing officer in writing to provide parties a reasonable period of time to respond to such information with surrebuttal testimony and, if requested by any party (including BPA), a further reasonable period of time to respond to such surrebuttal with sur-surrebuttal testimony. Furthermore, BPA will adhere to this principle and will not move away from adherence to this principle without a public review and comment period, consistent with Section C of this MOU and any requirements of law.

3. In a letter to the EN Executive Board on December 11, 2000, BPA's Administrator stated that the success of the DOP in achieving its objectives depends both on the successful completion of the extension of the Columbia Generating Station debt and on the disciplined application of the proceeds from that action by BPA to amortize more Federal debt than would otherwise be scheduled for amortization. The Administrator gave the EN Executive Board BPA's commitment that this increased amortization would equal the reduction in BPA's net billing obligation resulting from debt management actions under this program on an annual basis and that only under extreme financial pressure would BPA consider deviating from the actions required to implement this program. These assurances also apply to extensions of Projects 1 and 3 debt. BPA will adhere to this principle and will not move away from adherence to this principle without a public review and comment period, consistent with Section C of this MOU and any requirements of law.
  
4. Customers have expressed a desire for assurance that BPA match, by business line, the benefit received (prepayment of Federal debt) with the obligation incurred (issuance of new EN debt). BPA has researched and believes it has implemented the appropriate accounting treatment and rate case methodologies to ensure that costs are recovered (per the repayment study) and debt service expense is attributed accurately as reflected in BPA's PBL and TBL income statements, thereby matching, by business line, the benefit received (prepayment of Federal debt allocated to a business line) with the obligation incurred (issuance of new EN debt) under DOP. When EN debt is issued and there is a resulting benefit to TBL, the original EN debt that was due in that particular year (and refinanced) is considered "paid" by the PBL. The original debt is no longer in existence due to the refinancing and the TBL responsibility for paying the debt service on the new debt is reflected in the accounting and rate case methodologies mentioned above. This all describes DSR, which is a component of DOP. References in this MOU to DOP shall include DSR, unless the context clearly requires otherwise.

BPA intends and will act to ensure that any EN debt service assigned to TBL through DSR cannot be later reassigned or reallocated to PBL customers during the term of such debt, consistent with law and contract. While net billing constraints, priority of payment requirements, and BPA ratemaking requirements to assure total cost recovery make it possible—though a very remote possibility—that BPA could find itself in a position unable to fulfill this commitment, BPA will seek to prevent that and, if it cannot, will inform the Participants consistent with Section C of this MOU. BPA does not now see any reason why it could or would not continue to set transmission rates to recover transmission costs and power rates to recover power costs, *i.e.*, it does not anticipate being in the situation where a transmission cost (*e.g.*, in this context, obligations

resulting from DSR) would need to be reallocated or reassigned to PBL for recovery, but in any event BPA will utilize the Communication Protocols set forth in Section C of this MOU to keep customers apprized of any change in circumstances.

Under BPA's priority of payment requirements, obligations resulting from DSR must be repaid before BPA repays Federal interest and amortization. That priority of payments makes it even more unlikely that obligations resulting from DSR would ever need to be allocated or assigned from TBL to PBL in order to assure total BPA cost recovery. However, in the event BPA did find itself in the situation where obligations resulting from DSR needed to be allocated or assigned back from TBL to PBL in order to assure total BPA cost recovery, BPA commits to treat the allocation or assignment in a manner where the costs would be tracked and the PBL would be fully compensated for its recovery of the TBL cost. The means of compensation would be proposed in a rate case and would be subject to review and comment by parties in that rate case, as addressed below.

5. In each general BPA PBL and TBL wholesale rate proceeding conducted while EN bonds refinanced under DOP, including EN debt service reassigned under DSR to TBL, are still outstanding, BPA will include the language of Sections B.1, B.2, B.3 and B.4 above in its Revenue Requirement Study, will clearly and transparently describe the DOP-related costs for the business line (PBL or TBL) for which rates are then being set, and will draw attention to that language in its testimony, except that the references to "Section C of this MOU" will be changed to give a complete citation to this MOU. After BPA's rate proceeding, and when BPA files its proposed rates with the Federal Energy Regulatory Commission (FERC), BPA will draw FERC's attention to such Revenue Requirement Study language in its cover letter. BPA will take all necessary and appropriate actions to defend the commitments made in this Section B, before FERC and elsewhere. In the event BPA were to propose to allocate or assign obligations resulting from DSR from TBL to PBL for recovery, BPA agrees that allocation or assignment must be implemented through a section 7(i) hearing and that it will not argue or otherwise assert that the Participant(s) are precluded from arguing or otherwise asserting in any such section 7(i) rate proceeding and thereafter in any proceeding before the FERC for approval of BPA wholesale rates, and thereafter in any proceeding for judicial review of BPA's rates, that BPA's proposal violates the equitable allocation standard or other standard of law.

### **C. Annual Communication and Management Protocols**

1. Participants have requested and BPA will provide them early annual estimates of potential financings under DOP. While these preliminary estimates will be provided by BPA to customers and constituents even if

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BONNEVILLE POWER ADMINISTRATION

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