

2002 Final Power Rate Proposal Revenue Requirement Study Documentation Volume 1

WP-02-FS-BPA-02A
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VOLUME 1

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CHAPTER 1

GENERATION REVENUE REQUIREMENTS

I. 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 (FYs 2002 – 2006) and for the 7(b)(2) period (FYs 2007 – 2010). On the first table, revenue requirements for FYs 2002 through 2006 (the rate period) and 2007 through 2010 (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. Revenue requirements are presented for both the program and 7(b)(2) cases.

II. Income Statement

A more detailed description of the following line items is included in Chapter 4 of the Revenue Requirement Study (Study) (WP-02-FS-BPA-02). Operating expenses (lines 1-16) include: BPA, Corps of Engineers (COE), U.S. Bureau of Reclamation (Reclamation), and U.S. Fish and Wildlife Service (USFWS) operation and maintenance expenses, including the Colville Settlement Act payments to the Confederated Colville Tribes (line 2); short-term purchases of power, both balancing power purchases and system augmentation (line 3); long-term acquisitions of energy resources to meet BPA loads, e.g., the Cowlitz Falls and Idaho Falls hydroelectric projects (line 5); annual expenses of nuclear project capitalized contracts (lines 6-9); annual expenses associated with the Residential Exchange Program (including the subscription settlement with the Investor-Owned Utilities) (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 and the annual write-down of BPA's capital investments in fish and wildlife (lines 11-12); the expense portion of BPA's energy conservation

activities (including the Energy Efficiency group) and the annual write-down of BPA's capital investment in energy conservation (lines 13-14); and annual straight-line depreciation for BPA, COE, and Reclamation plant-in-service (line 15).

Federal interest expense is calculated in generation repayment studies on appropriations granted by Congress for COE and Reclamation capital investments (line 19) and bonds that BPA issues to the U.S. Treasury (line 20). Bond interest is reduced by interest income from BPA's projected cash reserves (line 21). The capitalization adjustment and the Allowance for Funds Used During Construction (AFUDC) (lines 22-23) 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 BPA Appropriations Refinancing Act (*see* Chapter 8 of this document).

Planned net revenues (lines 26-28) 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* Chapter 12 of this volume and Section 2.2 of the Revenue Requirement Study WP-02-FS-BPA-02.

III. 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 (depreciation and amortization of conservation and fish and wildlife investments [lines 3-5] and the capitalization adjustment [line 6]).

- ***Cash Used for Capital Investments:*** Investment in utility plant (line 10) is the increase in investment for appropriated additions to plant for the COE and Reclamation and for capital outlays associated with BPA capital equipment and the direct-funding of COE and Reclamation investments. Investment in conservation (line 11) and fish and wildlife (line 12) is the annual capital outlays for these intangible assets.
- ***Cash from Treasury Borrowing and Appropriations:*** Increase in long-term debt (line 15) is the annual increment in bonds that BPA issues to Treasury to fund capital outlays for capital equipment, Reclamation and COE investments that BPA plans to direct-fund, and BPA conservation and fish and wildlife investments. Repayment of long-term debt (line 16) is planned amortization of bonds issued to Treasury, as determined in generation repayment studies. Increase in Congressional capital appropriations (line 17) is projected annual appropriations to fund new COE and Reclamation plant-in-service that BPA did not direct-fund with bonds issued to Treasury. Repayment of capital appropriations (line 18) is planned amortization of investments associated with the COE and Reclamation, as determined in generation repayment studies.

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.

**GENERATION REVENUE REQUIREMENT
INCOME STATEMENT
(\$thousands)**

	A	B	C	D	E
	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
1 OPERATING EXPENSES:					
2 OPERATION & MAINTENANCE	469,614	453,220	446,510	441,161	438,260
3 PURCHASE AND EXCHANGE POWER-					
4 SHORT-TERM POWER PURCHASES	457,608	485,266	449,626	487,688	487,457
5 LONG-TERM POWER PURCHASES	65,904	66,159	66,450	66,977	67,414
6 TROJAN	19,547	14,154	12,564	12,589	12,609
7 WNP NO. 1	178,104	168,240	175,007	168,294	180,376
8 WNP NO. 2	351,536	408,804	404,348	361,649	391,800
9 WNP NO. 3	156,806	156,162	152,401	152,649	151,006
10 RESIDENTIAL EXCHANGE PROGRAM	0	0	0	0	0
11 BPA FISH & WILDLIFE O&M	131,700	138,000	140,100	142,900	144,400
12 AMORTIZATION OF BPA FISH & WILDLIFE INVESTMENT	19,772	21,842	23,737	25,394	26,407
13 CONSERVATION	34,929	33,340	33,640	34,040	34,340
14 AMORTIZATION OF BPA CONSERVATION INVESTMENT	59,337	55,586	47,125	43,179	37,650
15 FEDERAL PROJECTS DEPRECIATION	97,608	100,773	103,661	106,003	108,403
16 TOTAL OPERATING EXPENSES	2,042,463	2,101,545	2,055,169	2,042,523	2,080,121
17 INTEREST EXPENSE:					
18 INTEREST ON FEDERAL INVESTMENT-					
19 ON APPROPRIATED FUNDS	252,003	255,597	261,715	267,926	268,119
20 ON LONG-TERM DEBT	63,472	67,412	72,664	77,374	80,178
21 INTEREST CREDIT ON CASH RESERVES	(61,063)	(67,549)	(75,054)	(79,878)	(84,818)
22 CAPITALIZATION ADJUSTMENT	(47,738)	(47,528)	(47,875)	(44,790)	(44,790)
23 ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION	(2,992)	(2,890)	(2,050)	(2,056)	(2,044)
24 NET INTEREST EXPENSE	203,682	205,042	209,400	218,576	216,645
25 TOTAL EXPENSES	2,246,145	2,306,587	2,264,569	2,261,099	2,296,766
26 MINIMUM REQUIRED NET REVENUES 1/	0	0	0	18,311	806
27 PLANNED NET REVENUES FOR RISK	98,000	98,000	98,000	98,000	98,000
28 TOTAL PLANNED NET REVENUES (26+27)	98,000	98,000	98,000	116,311	98,806
29 TOTAL REVENUE REQUIREMENT	2,344,145	2,404,587	2,362,569	2,377,410	2,395,572

1/ SEE NOTE ON CASH FLOW TABLE.

**GENERATION REVENUE REQUIREMENT
STATEMENT OF CASH FLOWS
(\$thousands)**

	A	B	C	D	E
	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
1 CASH FROM CURRENT OPERATIONS:					
2 MINIMUM REQUIRED NET REVENUES 1/	0	0	0	18,311	806
3 EXPENSES NOT REQUIRING CASH:					
4 FEDERAL PROJECTS DEPRECIATION	97,608	100,773	103,661	106,003	108,403
5 AMORTIZATION OF CONSERVATION/F&W INVESTMENT	79,109	77,428	70,862	68,573	64,057
6 CAPITALIZATION ADJUSTMENT	(47,738)	(47,528)	(47,875)	(44,790)	(44,790)
7 CASH PROVIDED BY CURRENT OPERATIONS	128,979	130,673	126,648	148,097	128,476
8 CASH USED FOR CAPITAL INVESTMENTS:					
9 INVESTMENT IN:					
10 UTILITY PLANT	(228,000)	(168,700)	(297,500)	(185,525)	(220,225)
11 CONSERVATION	0	0	0	0	0
12 FISH & WILDLIFE	(34,732)	(38,317)	(35,825)	(33,988)	(34,182)
13 CASH USED FOR CAPITAL INVESTMENTS	(262,732)	(207,017)	(333,325)	(219,513)	(254,407)
14 CASH FROM TREASURY BORROWING AND APPROPRIATIONS:					
15 INCREASE IN LONG-TERM DEBT	127,032	125,917	98,425	97,013	97,207
16 REPAYMENT OF LONG-TERM DEBT	(66,000)	(25,622)	(27,400)	(30,757)	0
17 INCREASE IN CONGRESSIONAL CAPITAL APPROPRIATIONS	135,700	81,100	234,900	122,500	157,200
18 REPAYMENT OF CAPITAL APPROPRIATIONS	(41,401)	(47,362)	(64,885)	(117,340)	(128,476)
19 PAYMENT OF IRRIGATION ASSISTANCE	0	0	(739)	0	0
20 CASH FROM TREASURY BORROWING AND APPROPRIATIONS	155,331	134,033	240,301	71,416	125,931
21 ANNUAL INCREASE (DECREASE) IN CASH	21,578	57,689	33,624	0	0
22 PLANNED NET REVENUES FOR RISK	98,000	98,000	98,000	98,000	98,000
23 TOTAL ANNUAL INCREASE (DECREASE) IN CASH	119,578	155,689	131,624	98,000	98,000

1/ Line 21 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.

**GENERATION REVENUE REQUIREMENT
INCOME STATEMENT
(\$thousands)**

	F FY 2007	G FY 2008	H FY 2009	I FY 2010
1 OPERATING EXPENSES:				
2 OPERATION & MAINTENANCE	439,898	437,359	436,022	425,285
3 PURCHASE AND EXCHANGE POWER-				
4 SHORT-TERM POWER PURCHASES	60,860	63,860	67,060	70,460
5 LONG-TERM POWER PURCHASES	68,119	68,707	71,021	72,096
6 TROJAN	12,413	12,759	2,401	3,000
7 WNP NO. 1	179,411	177,637	174,440	182,116
8 WNP NO. 2	415,479	432,576	434,488	429,937
9 WNP NO. 3	147,417	147,745	145,187	143,530
10 RESIDENTIAL EXCHANGE PROGRAM	0	0	0	0
11 BPA FISH & WILDLIFE O&M	148,800	153,200	157,800	162,600
12 AMORTIZATION OF BPA FISH & WILDLIFE INVESTMENT	26,952	26,761	26,183	25,255
13 CONSERVATION	34,719	33,221	31,210	17,894
14 AMORTIZATION OF BPA CONSERVATION INVESTMENT	33,112	28,323	27,704	25,759
15 FEDERAL PROJECTS DEPRECIATION	111,781	120,907	130,354	133,163
16 TOTAL OPERATING EXPENSES	1,678,961	1,703,055	1,703,870	1,691,094
17 INTEREST EXPENSE:				
18 INTEREST ON FEDERAL INVESTMENT-				
19 ON APPROPRIATED FUNDS	267,857	297,251	331,810	338,955
20 ON LONG-TERM DEBT	88,752	90,090	89,083	88,002
21 INTEREST CREDIT ON CASH RESERVES	(87,820)	(89,063)	(91,856)	(95,605)
22 CAPITALIZATION ADJUSTMENT	(44,790)	(44,790)	(44,790)	(44,790)
23 ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION	(2,058)	(2,000)	(2,079)	(2,083)
24 NET INTEREST EXPENSE	221,941	251,488	282,168	284,479
25 TOTAL EXPENSES	1,900,902	1,954,543	1,986,038	1,975,573
26 MINIMUM REQUIRED NET REVENUES 1/	0	0	0	0
27 PLANNED NET REVENUES FOR RISK				
28 TOTAL PLANNED NET REVENUES (26+27)	0	0	0	0
29 TOTAL REVENUE REQUIREMENT	1,900,902	1,954,543	1,986,038	1,975,573

1/ SEE NOTE ON CASH FLOW TABLE.

**GENERATION REVENUE REQUIREMENT
STATEMENT OF CASH FLOWS
(\$thousands)**

	F	G	H	I
	FY 2007	FY 2008	FY 2009	FY 2010
1 CASH FROM CURRENT OPERATIONS:				
2 MINIMUM REQUIRED NET REVENUES 1/	0	0	0	0
3 EXPENSES NOT REQUIRING CASH:				
4 FEDERAL PROJECTS DEPRECIATION	111,781	120,907	130,354	133,163
5 AMORTIZATION OF CONSERVATION/F&W INVESTMENT	60,064	55,084	53,887	51,014
6 CAPITALIZATION ADJUSTMENT	(44,790)	(44,790)	(44,790)	(44,790)
7 CASH PROVIDED BY CURRENT OPERATIONS	127,055	131,201	139,451	139,387
8 CASH USED FOR CAPITAL INVESTMENTS:				
9 INVESTMENT IN:				
10 UTILITY PLANT	(276,525)	(1,013,525)	(290,925)	(82,925)
11 CONSERVATION	0	0	0	0
12 FISH & WILDLIFE	(11,000)	(11,000)	(11,000)	(11,000)
13 CASH USED FOR CAPITAL INVESTMENTS	(287,525)	(1,024,525)	(301,925)	(93,925)
14 CASH FROM TREASURY BORROWING AND APPROPRIATIONS:				
15 INCREASE IN LONG-TERM DEBT	73,325	72,025	74,825	75,125
16 REPAYMENT OF LONG-TERM DEBT	(45,001)	(104,301)	(77,702)	(22,901)
17 INCREASE IN CONGRESSIONAL CAPITAL APPROPRIATIONS	214,200	952,500	227,100	18,800
18 REPAYMENT OF CAPITAL APPROPRIATIONS	(69,979)	0	0	(61,848)
19 PAYMENT OF IRRIGATION ASSISTANCE	(2,958)	0	(7,701)	0
20 CASH FROM TREASURY BORROWING AND APPROPRIATIONS	169,587	920,224	216,522	9,176
21 ANNUAL INCREASE (DECREASE) IN CASH	9,117	26,900	54,048	54,638
22 PLANNED NET REVENUES FOR RISK	0	0	0	0
23 TOTAL ANNUAL INCREASE (DECREASE) IN CASH	9,117	26,900	54,048	54,638

1/ Line 21 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.

**GENERATION REVENUE REQUIREMENT
INCOME STATEMENT
7(B)(2) CASE
(\$thousands)**

	A	B	C	D	E
	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
1 OPERATING EXPENSES:					
2 OPERATION & MAINTENANCE	469,614	453,220	446,510	441,161	438,260
3 PURCHASE AND EXCHANGE POWER-					
4 SHORT-TERM POWER PURCHASES	457,608	485,266	449,626	487,688	487,457
5 LONG-TERM POWER PURCHASES	21,593	21,584	21,602	21,832	21,998
6 TROJAN	19,547	14,154	12,564	12,589	12,609
7 WNP NO. 1	178,104	168,240	175,007	168,294	180,376
8 WNP NO. 2	351,536	408,804	404,348	361,649	391,800
9 WNP NO. 3	156,806	156,162	152,401	152,649	151,006
10 RESIDENTIAL EXCHANGE PROGRAM 1/					
11 FISH & WILDLIFE	131,700	138,000	140,100	142,900	144,400
12 AMORTIZATION OF FISH & WILDLIFE	19,772	21,842	23,737	25,394	26,407
13 CONSERVATION					
14 AMORTIZATION OF CONSERVATION					
15 FEDERAL PROJECTS DEPRECIATION	97,095	100,233	103,210	105,678	108,109
16 TOTAL OPERATING EXPENSES	1,903,374	1,967,505	1,929,105	1,919,835	1,962,421
17 INTEREST EXPENSE:					
18 INTEREST ON FEDERAL INVESTMENT-					
19 ON APPROPRIATED FUNDS	252,197	253,766	262,706	272,020	273,416
20 ON LONG-TERM DEBT	25,589	35,380	40,679	43,403	50,794
21 INTEREST CREDIT ON CASH RESERVES	(61,063)	(67,549)	(75,054)	(79,878)	(84,818)
22 CAPITALIZATION ADJUSTMENT	(47,738)	(47,528)	(47,875)	(44,790)	(44,790)
23 ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION	(2,992)	(2,890)	(2,050)	(2,056)	(2,044)
24 NET INTEREST EXPENSE	165,993	171,179	178,406	188,699	192,558
25 TOTAL EXPENSES	2,069,367	2,138,684	2,107,511	2,108,534	2,154,979
26 MINIMUM REQUIRED NET REVENUES 1/	3,679	0	0	13,929	0
27 PLANNED NET REVENUES FOR RISK	119,578	114,576	100,942	98,000	78,168
28 TOTAL PLANNED NET REVENUES (26+27)	123,257	114,576	100,942	111,929	78,168
29 TOTAL REVENUE REQUIREMENT	2,192,624	2,253,260	2,208,453	2,220,462	2,233,147

1/ SEE NOTE ON CASH FLOW TABLE.

**GENERATION REVENUE REQUIREMENT
STATEMENT OF CASH FLOWS
7(B)(2) CASE
(\$thousands)**

	A	B	C	D	E
	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
1 CASH FROM CURRENT OPERATIONS:					
2 MINIMUM REQUIRED NET REVENUES 1/	3,679	0	0	13,929	0
3 EXPENSES NOT REQUIRING CASH:					
4 FEDERAL PROJECTS DEPRECIATION	97,095	100,233	103,210	105,678	108,109
5 AMORTIZATION OF CONSERVATION/F&W INVESTMENT	19,772	21,842	23,737	25,394	26,407
6 CAPITALIZATION ADJUSTMENT	(47,738)	(47,528)	(47,875)	(44,790)	(44,790)
7 CASH PROVIDED BY CURRENT OPERATIONS	72,808	74,547	79,072	100,211	89,726
8 CASH USED FOR CAPITAL INVESTMENTS:					
9 INVESTMENT IN:					
10 UTILITY PLANT	(228,000)	(168,700)	(297,500)	(185,525)	(220,225)
11 CONSERVATION					
12 FISH & WILDLIFE	(34,732)	(38,317)	(35,825)	(33,988)	(34,182)
13 CASH USED FOR CAPITAL INVESTMENTS	(262,732)	(207,017)	(333,325)	(219,513)	(254,407)
14 CASH FROM TREASURY BORROWING AND APPROPRIATIONS:					
15 INCREASE IN LONG-TERM DEBT	127,032	125,917	98,425	97,013	97,207
16 REPAYMENT OF LONG-TERM DEBT	0	(25,622)	(27,400)	(2)	(4)
17 INCREASE IN CONGRESSIONAL CAPITAL APPROPRIATIONS	135,700	81,100	234,900	122,500	157,200
18 REPAYMENT OF CAPITAL APPROPRIATIONS	(72,808)	(7,812)	(20,251)	(100,209)	(69,890)
19 PAYMENT OF IRRIGATION ASSISTANCE	0	0	(739)	0	0
20 CASH FROM TREASURY BORROWING AND APPROPRIATIONS	189,924	173,583	284,935	119,302	184,513
21 ANNUAL INCREASE (DECREASE) IN CASH	0	41,113	30,682	0	19,832
22 PLANNED NET REVENUES FOR RISK	119,578	114,576	100,942	98,000	78,168
23 TOTAL ANNUAL INCREASE (DECREASE) IN CASH	119,578	155,689	131,624	98,000	98,000

1/ Line 21 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.

**GENERATION REVENUE REQUIREMENT
INCOME STATEMENT
7(B)(2) CASE
(\$thousands)**

	F	G	H	I
	FY 2007	FY 2008	FY 2009	FY 2010
1 OPERATING EXPENSES:				
2 OPERATION & MAINTENANCE	439,898	437,359	436,022	425,285
3 PURCHASE AND EXCHANGE POWER-				
4 SHORT-TERM POWER PURCHASES	60,860	63,860	67,060	70,460
5 LONG-TERM POWER PURCHASES	22,256	22,548	24,556	25,536
6 TROJAN	12,413	12,759	2,401	3,000
7 WNP NO. 1	179,411	177,637	174,440	182,116
8 WNP NO. 2	415,479	432,576	434,488	429,937
9 WNP NO. 3	147,417	147,745	145,187	143,530
10 RESIDENTIAL EXCHANGE PROGRAM 1/				
11 FISH & WILDLIFE	148,800	153,200	157,800	162,600
12 AMORTIZATION OF FISH & WILDLIFE	26,952	26,761	26,183	25,255
13 CONSERVATION				
14 AMORTIZATION OF CONSERVATION				
15 FEDERAL PROJECTS DEPRECIATION	111,624	120,822	130,268	133,076
16 TOTAL OPERATING EXPENSES	1,565,110	1,595,267	1,598,405	1,600,794
17 INTEREST EXPENSE:				
18 INTEREST ON FEDERAL INVESTMENT-				
19 ON APPROPRIATED FUNDS	277,089	309,326	343,885	347,240
20 ON LONG-TERM DEBT	59,178	61,057	61,152	65,768
21 INTEREST CREDIT ON CASH RESERVES	(88,808)	(91,528)	(94,737)	(98,266)
22 CAPITALIZATION ADJUSTMENT	(44,790)	(44,790)	(44,790)	(44,790)
23 ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION	(2,058)	(2,000)	(2,079)	(2,083)
24 NET INTEREST EXPENSE	200,611	232,065	263,431	267,869
25 TOTAL EXPENSES	1,765,721	1,827,332	1,861,836	1,868,663
26 MINIMUM REQUIRED NET REVENUES 1/	0	0	0	0
27 PLANNED NET REVENUES FOR RISK	0	0	0	0
28 TOTAL PLANNED NET REVENUES (26+27)	0	0	0	0
29 TOTAL REVENUE REQUIREMENT	1,765,721	1,827,332	1,861,836	1,868,663

1/ SEE NOTE ON CASH FLOW TABLE.

**GENERATION REVENUE REQUIREMENT
STATEMENT OF CASH FLOWS
7(B)(2) CASE
(\$thousands)**

	F	G	H	I
	FY 2007	FY 2008	FY 2009	FY 2010
1 CASH FROM CURRENT OPERATIONS:				
2 MINIMUM REQUIRED NET REVENUES 1/	0	0	0	0
3 EXPENSES NOT REQUIRING CASH:				
4 FEDERAL PROJECTS DEPRECIATION	111,624	120,822	130,268	133,076
5 AMORTIZATION OF CONSERVATION/F&W INVESTMENT	26,952	26,761	26,183	25,255
6 CAPITALIZATION ADJUSTMENT	(44,790)	(44,790)	(44,790)	(44,790)
7 CASH PROVIDED BY CURRENT OPERATIONS	93,786	102,793	111,661	113,541
8 CASH USED FOR CAPITAL INVESTMENTS:				
9 INVESTMENT IN:				
10 UTILITY PLANT	(276,525)	(1,013,525)	(290,925)	(82,925)
11 CONSERVATION				
12 FISH & WILDLIFE	(11,000)	(11,000)	(11,000)	(11,000)
13 CASH USED FOR CAPITAL INVESTMENTS	(287,525)	(1,024,525)	(301,925)	(93,925)
14 CASH FROM TREASURY BORROWING AND APPROPRIATIONS:				
15 INCREASE IN LONG-TERM DEBT	73,325	72,025	74,825	75,125
16 REPAYMENT OF LONG-TERM DEBT	(26,750)	(58,730)	0	(22,873)
17 INCREASE IN CONGRESSIONAL CAPITAL APPROPRIATIONS	214,200	952,500	227,100	18,800
18 REPAYMENT OF CAPITAL APPROPRIATIONS	(29,301)	(1)	(52,051)	(40,272)
19 PAYMENT OF IRRIGATION ASSISTANCE	0	(2,950)	(7,709)	0
20 CASH FROM TREASURY BORROWING AND APPROPRIATIONS	231,474	962,844	242,165	30,780
21 ANNUAL INCREASE (DECREASE) IN CASH	37,735	41,112	51,901	50,396
22 PLANNED NET REVENUES FOR RISK	0	0	0	0
23 TOTAL ANNUAL INCREASE (DECREASE) IN CASH	37,735	41,112	51,901	50,396

1/ Line 21 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.

CHAPTER 2

COSTS OF SERVICES

I. Introduction

This chapter documents the development of the costs necessary for ratemaking from the annual generation revenue requirements. For 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 costs of the generation inputs to ancillary services are developed from the COSA data. Also included is the accrued expense basis for the Slice product revenue requirement.

Data development for the COSA, generation inputs to ancillary services, and the Slice revenue requirement are derived from the annual costs identified in Table 1 - 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 conservation and the remainder of generation by the use of equivalent annual costs (defined below). The generation portions are then divided between the Federal Base System (FBS) Hydro, Fish & Wildlife, and BPA generation programs based on average net investment. These allocations, in turn, form the basis for the association of net interest expenses and, where applicable, planned net revenues with the ancillary services inputs. The O&M and depreciation are direct identification for the ancillary services inputs. The Slice revenue requirement is derived from the generation revenue requirement with the exclusion of certain budget line items.

II. Cost Components of COSA Resource Pools

FBS Operating Expenses

Hydro: COE, Reclamation, and US Fish & Wildlife O&M, and depreciation; Colville payment; upstream benefits; Packwood Dam (Long-Term Power Purchases).

- 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, WNPs 1, 2, 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 from Idaho Falls and Cowlitz Falls hydroelectric projects, Columbia Hills (CARES) Wind project, competitive acquisitions, and the expense of wheeling these power purchases (all part of Long-Term Power Purchases).

Residential Exchange Operating Expenses

- Financial settlement with IOUs as part of subscription.

Conservation Operating Expenses

- Legacy conservation are costs associated with existing commitments to conservation programs prior to the separation and redefinition of the Energy Efficiency group within PBL; the generation billing credits (Long-Term Power Purchases); amortization of BPA capital investments in energy conservation.

- Energy efficiency group is an annual cost associated with activities of BPA's Energy Efficiency Group, including depreciation associated with investment in capital equipment (office furniture & fixtures, data processing hardware and software) for Energy Efficiency staff.

Other Generation Costs Operating Expenses

- BPA programs are expense programs, including Power Marketing, Power Scheduling, Generation Oversight, CSRS Pension expense, Administrative & Support Services, between business lines expenses (charges from the Transmission Business Line related to use of their equipment for generation-related activities), and the Planning Council; developmental costs for geothermal generation and other renewable power and costs associated with contingency resources (all part of Long-Term Power Purchases/Renewables); depreciation associated with investment in capital equipment (office furniture & fixtures, data processing hardware and software) for Power Business Line staff.
- WNP-3 PLANT- WNP-3 IOU settlement costs

Transmission Costs

- TBL 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 line 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 are used to prorate net interest expense and planned net revenues between conservation and the remainder of generation, are calculated as levelized principal and interest payments (mortgage basis) using completed plant and projected additions. A weighted average interest rate is used for the historical plant and projected interest rates for additions. The proration is based on the sum of all calculated proxy-payments for COE, Reclamation, and BPA plant and BPA fish and wildlife investment (generation) and all BPA conservation investments (conservation). The generation portion is then allocated between FBS and other generation based on average net plant investment.

II. Generation Inputs to Ancillary Services

Operating Reserves

All Hydro Projects

- 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/Planned Net Revenues: suballocation from COSA table Hydro line based on generation net plant investment from hydro projects.

- Fish & Wildlife O&M: sum of BPA direct program, US F&W Service (Lower Snake River Compensation Plan) and F&W portion of O&M at individual COE projects, including Columbia River Bypass.
- Amortization/Depreciation: annual write-down of F&W investments from BPA direct program, Lower Snake River Compensation Plan (LSRCP), and Columbia River Bypass (CRB). Net Interest Expense/Planned Net Revenues: suballocation from COSA table Hydro line based on net plant investment from LSRCP and CRB plus amounts in COSA table Fish & Wildlife line.
- A&G Expense: generation revenue requirement O&M for Power Marketing, Power Scheduling, Generation Oversight, (one-half of) Planning Council, and BPA Administrative and Support Services.
- Revenue Credits: offsetting revenues associated with funding for BPA F&W program (4h10C) 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/Reclamation 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/Reclamation projects.

Reactive

- O&M at each COE/Reclamation project allocated to electric portion by identified percent (COE = 43%, Reclamation = 44.1%).

- A&G: Power Scheduling and Generation Oversight O&M from generation revenue requirement.
- Depreciation derived from percent of electric plant investment at each project (separate percentages for historical and projected investments) applied to calculated depreciation.
- WNP-2: identified percent of electric plant (0.74%) applied to debt service and O&M (exclusive of nuclear insurance, fuel and revenue-financed capital additions).
- Net Interest/Required Net Revenues: sub-allocation from COSA table Hydro line of net interest and required net revenues portion of total planned net revenues based on electric net plant investment.
- Synchronous Condenser Annual Costs (Revenue Credit) from identified investment in synchronous condensers, depreciation expense is calculated and suballocation of interest and required net revenues from Hydro line in COSA table, based on ratio of synchronous condenser net investment to total COE/Reclamation net plant investment. *See* testimony of DeClerk, Murphy, and Hart, on Generation Inputs for Ancillary Services and Other Services, WP-02-E-BPA-26, and Wholesale Power Rate Development Study, Sections 4.4 and 4.5, WP-02-FS-BPA-05.

III. Slice Product Accrued Expenses

Total generation expenses, exclusive of non-Federal wheeling, TBL transmission service (except PNCA and NTS transmission, PF transmission pass-through, and CEA transmission), and balancing power purchases. *See* testimony on Slice product, Mesa, Pearson, Keep and Homenick, WP-02-E-BPA-32, and Appendix C of the WPRDS, WP-02-FS-BPA-05.

**Generation Revenue Requirements by Resource Pool
PROGRAM CASE
(\$ in thousands)**

FY 2002

	A INVEST BASE	B NET INT	C NET REVS	D OPER EXP	E TOTAL (B+C+D)	F CREDITS	G TOTAL COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	4,953,259	157,914	75,979	283,532	517,425	-8,301	509,124
4. BPA FISH & WILDLIFE PROGRAM	205,137	6,540	3,147	151,472	161,159	-44,937	116,222
5. TROJAN				19,547	19,547	0	19,547
6. WNP #1				178,104	178,104	0	178,104
7. WNP #2				351,536	351,536	0	351,536
8. WNP #3				153,720	153,720	0	153,720
9. SYSTEM AUGMENTATION							
10. BALANCING POWER PURCHASES				457,608	457,608	0	457,608
11. TOTAL FEDERAL BASE SYSTEM	5,158,396	164,454	79,126	1,595,518	1,839,098	-53,238	1,785,860
12. NEW RESOURCES							
13. IDAHO FALLS				3,740	3,740	0	3,740
14. COWLITZ FALLS				14,914	14,914	0	14,914
15. OTHER LONG-TERM POWER PURCHASES				17,723	17,723	0	17,723
16. TOTAL NEW RESOURCES				36,377	36,377	0	36,377
17. RESIDENTIAL EXCHANGE 1/				0	0	0	0
18. LEGACY CONSERVATION		38,822	18,679	91,050	148,551		148,551
19. ENERGY EFFICIENCY BUSINESS				11,663	11,663	-13,046	-1,383
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	12,737	406	195	117,460	118,061	0	118,061
22. WNP #3 PLANT				3,086	3,086	0	3,086
23. TOTAL OTHER GENERATION COSTS	12,737	406	195	120,546	121,147	0	121,147
24. TOTAL GENERATION COSTS	5,171,133	203,682	98,000	1,855,153	2,156,835	-66,284	2,090,551
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				127,310	127,310		127,310
27. ANCILLARY SERVICES				8,000	8,000		8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000		52,000
29. TOTAL TRANSMISSION COSTS				187,310	187,310	0	187,310
30. TOTAL PBL REVENUE REQUIREMENT		203,682	98,000	2,042,463	2,344,145	-66,284	2,277,861
1/ IMPLEMENTATION COSTS:				0	0		0

FY 2003

	A INVEST BASE	B NET INT	C NET REVS	D OPER EXP	E TOTAL (B+C+D)	F CREDITS	G TOTAL COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	5,055,447	158,579	75,793	292,664	527,036	-8,284	518,752
4. FISH AND WILDLIFE	215,478	6,759	3,231	159,842	169,832	-47,606	122,226
5. TROJAN				14,154	14,154	0	14,154
6. WNP #1				168,240	168,240	0	168,240
7. WNP #2				408,804	408,804	0	408,804
8. WNP #3				152,993	152,993	0	152,993
9. SYSTEM AUGMENTATION							
10. BALANCING POWER PURCHASES				485,266	485,266	0	485,266
11. TOTAL FEDERAL BASE SYSTEM	5,270,925	165,338	79,024	1,681,963	1,926,325	-55,890	1,870,435
12. NEW RESOURCES							
13. IDAHO FALLS				3,737	3,737	0	3,737
14. COWLITZ FALLS				14,987	14,987	0	14,987
15. OTHER LONG-TERM POWER PURCHASES				17,953	17,953	0	17,953
16. TOTAL NEW RESOURCES				36,677	36,677	0	36,677
17. RESIDENTIAL EXCHANGE 1/				0	0	0	0
18. LEGACY CONSERVATION		39,345	18,805	85,674	143,824		143,824
19. ENERGY EFFICIENCY BUSINESS				11,690	11,690	-13,345	-1,655
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	11,444	359	172	98,450	98,981	0	98,981
22. WNP #3 PLANT				3,169	3,169	0	3,169
23. TOTAL OTHER GENERATION COSTS	11,444	359	172	101,619	102,150	0	102,150
24. TOTAL GENERATION COSTS	5,282,369	205,042	98,001	1,905,932	2,220,665	-69,235	2,151,430
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				123,923	123,923		123,923
27. ANCILLARY SERVICES				8,000	8,000		8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000		52,000
29. TOTAL TRANSMISSION COSTS				183,923	183,923		183,923
30. TOTAL PBL REVENUE REQUIREMENT	5,282,369	205,042	98,001	2,089,855	2,404,588	-69,235	2,335,353
1/ IMPLEMENTATION COSTS:				0	0		0

FY 2004

	A INVEST BASE	B NET INT	C NET REVS	D OPER EXP	E TOTAL (B+C+D)	F CREDITS	G TOTAL COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	5,190,485	166,657	77,996	297,067	541,720	-8,246	533,474
4. FISH AND WILDLIFE	223,663	7,181	3,361	163,837	174,379	-47,500	126,879
5. TROJAN				12,564	12,564	0	12,564
6. WNP #1				175,007	175,007	0	175,007
7. WNP #2				404,348	404,348	0	404,348
8. WNP #3				149,232	149,232	0	149,232
9. SYSTEM AUGMENTATION				0	0	0	0
10. BALANCING POWER PURCHASES				449,626	449,626	0	449,626
11. TOTAL FEDERAL BASE SYSTEM	5,414,148	173,838	81,357	1,651,682	1,906,877	-55,746	1,851,131
12. NEW RESOURCES							
13. IDAHO FALLS				3,744	3,744	0	3,744
14. COWLITZ FALLS				15,051	15,051	0	15,051
15. OTHER LONG-TERM POWER PURCHASES				18,187	18,187	0	18,187
16. TOTAL NEW RESOURCES				36,982	36,982	0	36,982
17. RESIDENTIAL EXCHANGE 1/				0	0	0	0
18. LEGACY CONSERVATION		35,237	16,491	77,481	129,209	0	129,209
19. ENERGY EFFICIENCY BUSINESS				11,601	11,601	-13,345	-1,744
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	10,118	325	152	88,301	88,778	0	88,778
22. WNP #3 PLANT				3,169	3,169	0	3,169
23. TOTAL OTHER GENERATION COSTS	10,118	325	152	91,470	91,947	0	91,947
24. TOTAL GENERATION COSTS	5,424,266	209,400	98,000	1,857,614	2,176,615	-69,091	2,107,524
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				125,954	125,954	0	125,954
27. ANCILLARY SERVICES				8,000	8,000	0	8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000	0	52,000
29. TOTAL TRANSMISSION COSTS				185,954	185,954	0	185,954
30. TOTAL PBL REVENUE REQUIREMENT		209,400	98,000	2,043,568	2,362,569	-69,091	2,293,478
1/ IMPLEMENTATION COSTS:				0	0		0

FY 2005

	A INVEST BASE	B NET INT	C NET REVS	D OPER EXP	E TOTAL (B+C+D)	F CREDITS	G TOTAL COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	5,330,532	176,226	93,775	301,751	571,752	-8,217	563,535
4. FISH AND WILDLIFE	219,574	7,259	3,863	168,294	179,416	-47,760	131,656
5. TROJAN				12,589	12,589	0	12,589
6. WNP #1				168,294	168,294	0	168,294
7. WNP #2				361,649	361,649	0	361,649
8. WNP #3				149,480	149,480	0	149,480
9. SYSTEM AUGMENTATION							
10. BALANCING POWER PURCHASES				487,688	487,688	0	487,688
11. TOTAL FEDERAL BASE SYSTEM	5,550,106	183,485	97,638	1,649,745	1,930,868	-55,977	1,874,891
12. NEW RESOURCES							
13. IDAHO FALLS				3,754	3,754	0	3,754
14. COWLITZ FALLS				15,123	15,123	0	15,123
15. OTHER LONG-TERM POWER PURCHASES				18,435	18,435	0	18,435
16. TOTAL NEW RESOURCES				37,312	37,312	0	37,312
17. RESIDENTIAL EXCHANGE 1/				0	0	0	0
18. LEGACY CONSERVATION		34,779	18,507	73,902	127,188	0	127,188
19. ENERGY EFFICIENCY BUSINESS				11,475	11,475	-13,345	-1,870
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	9,433	312	166	83,775	84,253	0	84,253
22. WNP #3 PLANT				3,169	3,169	0	3,169
23. TOTAL OTHER GENERATION COSTS	9,433	312	166	86,944	87,422	0	87,422
24. TOTAL GENERATION COSTS	5,559,539	218,576	116,311	1,847,903	2,194,265	-69,322	2,124,943
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				123,145	123,145		123,145
27. ANCILLARY SERVICES				8,000	8,000		8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000		52,000
29. TOTAL TRANSMISSION COSTS				183,145	183,145	0	183,145
30. TOTAL PBL REVENUE REQUIREMENT		218,576	116,311	2,031,048	2,377,410	-69,322	2,308,088
1/ IMPLEMENTATION COSTS:				0	0		0

FY 2006

	A INVEST BASE	B NET INT	C NET REVS	D OPER EXP	E TOTAL (B+C+D)	F CREDITS	G TOTAL COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	5,428,772	177,170	80,802	305,895	563,867	-8,144	555,723
4. FISH AND WILDLIFE	219,574	7,166	3,268	170,807	181,241	-48,217	133,024
5. TROJAN				12,609	12,609	0	12,609
6. WNP #1				180,376	180,376	0	180,376
7. WNP #2				391,800	391,800	0	391,800
8. WNP #3				147,836	147,836	0	147,836
9. SYSTEM AUGMENTATION				0	0	0	0
10. BALANCING POWER PURCHASES				487,457	487,457	0	487,457
11. TOTAL FEDERAL BASE SYSTEM	5,648,346	184,336	84,070	1,696,780	1,965,186	-56,361	1,908,825
12. NEW RESOURCES							
13. IDAHO FALLS				3,754	3,754	0	3,754
14. COWLITZ FALLS				15,196	15,196	0	15,196
15. OTHER LONG-TERM POWER PURCHASES				18,681	18,681	0	18,681
16. TOTAL NEW RESOURCES				37,631	37,631	0	37,631
17. RESIDENTIAL EXCHANGE 1/				0	0	0	0
18. LEGACY CONSERVATION		32,001	14,595	68,625	115,221	0	115,221
19. ENERGY EFFICIENCY BUSINESS				11,444	11,444	-13,345	-1,901
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	9,433	308	140	79,741	80,189	0	80,189
22. WNP #3 PLANT				3,169	3,169	0	3,169
23. TOTAL OTHER GENERATION COSTS	9,433	308	140	82,910	83,358	0	83,358
24. TOTAL GENERATION COSTS	5,657,779	216,645	98,805	1,885,946	2,212,840	-69,706	2,143,134
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				122,731	122,731	0	122,731
27. ANCILLARY SERVICES				8,000	8,000	0	8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000	0	52,000
29. TOTAL TRANSMISSION COSTS				182,731	182,731	0	182,731
30. TOTAL PBL REVENUE REQUIREMENT		216,645	98,805	2,068,677	2,395,571	-69,706	2,325,865
1/ IMPLEMENTATION COSTS:				0	0	0	0

FY 2007

	A INVEST BASE	B NET INT	C NET REVS	D OPER EXP	E TOTAL (B+C+D)	F CREDITS	G TOTAL COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	5,570,018	184,806	0	310,685	495,491	-8,103	487,388
4. FISH AND WILDLIFE	203,717	6,759	0	175,752	182,511	-43,146	139,365
5. TROJAN				12,413	12,413	0	12,413
6. WNP #1				179,411	179,411	0	179,411
7. WNP #2				415,479	415,479	0	415,479
8. WNP #3				144,248	144,248	0	144,248
9. SYSTEM AUGMENTATION				0	0	0	0
10. BALANCING POWER PURCHASES				60,860	60,860	0	60,860
11. TOTAL FEDERAL BASE SYSTEM	5,773,735	191,565	0	1,298,847	1,490,412	-51,249	1,439,163
12. NEW RESOURCES							
13. IDAHO FALLS				3,766	3,766	0	3,766
14. COWLITZ FALLS				15,264	15,264	0	15,264
15. OTHER LONG-TERM POWER PURCHASES				19,090	19,090	0	19,090
16. TOTAL NEW RESOURCES				38,120	38,120	0	38,120
17. RESIDENTIAL EXCHANGE 1/				0	0	0	0
18. LEGACY CONSERVATION		30,054	0	64,424	94,478	0	94,478
19. ENERGY EFFICIENCY BUSINESS				11,307	11,307	-13,345	-2,038
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	9,703	322	0	79,311	79,633	0	79,633
22. WNP #3 PLANT				3,169	3,169	0	3,169
23. TOTAL OTHER GENERATION COSTS	9,703	322	0	82,480	82,802	0	82,802
24. TOTAL GENERATION COSTS	5,783,438	221,941	0	1,483,871	1,717,119	-64,594	1,652,525
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				123,783	123,783	0	123,783
27. ANCILLARY SERVICES				8,000	8,000	0	8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000	0	52,000
29. TOTAL TRANSMISSION COSTS				183,783	183,783	0	183,783
30. TOTAL PBL REVENUE REQUIREMENT		221,941	0	1,667,654	1,900,902	-64,594	1,836,308
1/ IMPLEMENTATION COSTS:				0	0	0	0

FY 2008

	A INVEST BASE	B NET INT	C NET REVS	D OPER EXP	E TOTAL (B+C+D)	F CREDITS	G TOTAL COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	6,102,197	216,047	0	321,362	537,409	-8,114	529,295
4. FISH AND WILDLIFE	203,717	7,213	0	179,961	187,174	-44,334	142,840
5. TROJAN				12,759	12,759	0	12,759
6. WNP #1				177,637	177,637	0	177,637
7. WNP #2				432,576	432,576	0	432,576
8. WNP #3				144,576	144,576	0	144,576
9. SYSTEM AUGMENTATION				0	0	0	0
10. BALANCING POWER PURCHASES				63,860	63,860	0	63,860
11. TOTAL FEDERAL BASE SYSTEM	6,305,914	223,260	0	1,332,731	1,555,991	-52,448	1,503,543
12. NEW RESOURCES							
13. IDAHO FALLS				3,751	3,751	0	3,751
14. COWLITZ FALLS				15,323	15,323	0	15,323
15. OTHER LONG-TERM POWER PURCHASES				19,376	19,376	0	19,376
16. TOTAL NEW RESOURCES				38,449	38,449	0	38,449
17. RESIDENTIAL EXCHANGE 1/				0	0	0	0
18. LEGACY CONSERVATION		27,874	0	58,104	85,978	0	85,978
19. ENERGY EFFICIENCY BUSINESS				11,235	11,235	-13,345	-2,110
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	10,014	355	0	78,327	78,682	0	78,682
22. WNP #3 PLANT				3,169	3,169	0	3,169
23. TOTAL OTHER GENERATION COSTS	10,014	355	0	81,496	81,851	0	81,851
24. TOTAL GENERATION COSTS	6,315,928	251,489	0	1,510,780	1,773,504	-65,793	1,707,711
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				121,040	121,040	0	121,040
27. ANCILLARY SERVICES				8,000	8,000	0	8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000	0	52,000
29. TOTAL TRANSMISSION COSTS				181,040	181,040	0	181,040
30. TOTAL PBL REVENUE REQUIREMENT		251,489	0	1,691,820	1,954,544	-65,793	1,888,751
1/ IMPLEMENTATION COSTS:				0	0		0

FY 2009

	A INVEST BASE	B NET INT	C NET REVS	D OPER EXP	E TOTAL (B+C+D)	F CREDITS	G TOTAL COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	6,632,242	246,562	0	335,175	581,737	-8,116	573,621
4. FISH AND WILDLIFE	188,245	6,998	0	183,983	190,981	-45,576	145,405
5. TROJAN				2,401	2,401	0	2,401
6. WNP #1				174,440	174,440	0	174,440
7. WNP #2				434,488	434,488	0	434,488
8. WNP #3				142,018	142,018	0	142,018
9. SYSTEM AUGMENTATION				0	0	0	0
10. BALANCING POWER PURCHASES				67,060	67,060	0	67,060
11. TOTAL FEDERAL BASE SYSTEM	6,820,487	253,560	0	1,339,565	1,593,125	-53,692	1,539,433
12. NEW RESOURCES							
13. IDAHO FALLS				3,746	3,746	0	3,746
14. COWLITZ FALLS				15,379	15,379	0	15,379
15. OTHER LONG-TERM POWER PURCHASES				19,670	19,670	0	19,670
16. TOTAL NEW RESOURCES				38,795	38,795	0	38,795
17. RESIDENTIAL EXCHANGE 1/				0	0	0	0
18. LEGACY CONSERVATION		28,223	0	55,434	83,657	0	83,657
19. ENERGY EFFICIENCY BUSINESS				11,236	11,236	-13,345	-2,109
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	10,352	385	0	80,541	80,926	0	80,926
22. WNP #3 PLANT				3,169	3,169	0	3,169
23. TOTAL OTHER GENERATION COSTS	10,352	385	0	83,710	84,095	0	84,095
24. TOTAL GENERATION COSTS	6,830,839	282,168	0	1,517,504	1,810,908	-67,037	1,743,871
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				115,130	115,130	0	115,130
27. ANCILLARY SERVICES				8,000	8,000	0	8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000	0	52,000
29. TOTAL TRANSMISSION COSTS				175,130	175,130	0	175,130
30. TOTAL PBL REVENUE REQUIREMENT		282,168	0	1,692,634	1,986,038	-67,037	1,919,001
1/ IMPLEMENTATION COSTS:				0	0	0	0

FY 2010

	A INVEST BASE	B NET INT	C NET REVS	D OPER EXP	E TOTAL (B+C+D)	F CREDITS	G TOTAL COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	6,691,029	251,468	0	336,381	587,849	-8,082	579,767
4. FISH AND WILDLIFE	173,527	6,522	0	187,855	194,377	-46,872	147,505
5. TROJAN				3,000	3,000	0	3,000
6. WNP #1				182,116	182,116	0	182,116
7. WNP #2				429,937	429,937	0	429,937
8. WNP #3				140,361	140,361	0	140,361
9. SYSTEM AUGMENTATION				0	0	0	0
10. BALANCING POWER PURCHASES				70,460	70,460	0	70,460
11. TOTAL FEDERAL BASE SYSTEM	6,864,556	257,990	0	1,350,109	1,608,099	-54,954	1,553,145
12. NEW RESOURCES							
13. IDAHO FALLS				3,511	3,511	0	3,511
14. COWLITZ FALLS				15,440	15,440	0	15,440
15. OTHER LONG-TERM POWER PURCHASES				19,981	19,981	0	19,981
16. TOTAL NEW RESOURCES				38,933	38,933	0	38,933
17. RESIDENTIAL EXCHANGE 1/				0	0	0	0
18. LEGACY CONSERVATION		26,091	0	40,130	66,221	0	66,221
19. ENERGY EFFICIENCY BUSINESS				11,237	11,237	-13,345	-2,108
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	10,586	398	0	81,816	82,214	0	82,214
22. WNP #3 PLANT				3,169	3,169	0	3,169
23. TOTAL OTHER GENERATION COSTS	10,586	398	0	84,985	85,383	0	85,383
24. TOTAL GENERATION COSTS	6,875,142	284,479	0	1,514,157	1,809,873	-68,299	1,741,574
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				105,700	105,700	0	105,700
27. ANCILLARY SERVICES				8,000	8,000	0	8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000	0	52,000
29. TOTAL TRANSMISSION COSTS				165,700	165,700	0	165,700
30. TOTAL PBL REVENUE REQUIREMENT		284,479	0	1,679,857	1,975,573	-68,299	1,907,274
1/ IMPLEMENTATION COSTS:				0	0		0

Allocation of Net Interest and Planned Net Revenues for COSA
(\$ in thousands)

	Generation	Conservation	Total Generation
FY 2002			
1 Equivalent Annual Costs	374,588	88,209	462,797
2 Percent	80.94%	19.06%	100%
3 Net Interest Expense	164,860	38,822	203,682
4 Planned Net Revenues	79,321	18,679	98,000
FY 2003			
5 Equivalent Annual Costs	344,958	81,910	426,868
6 Percent	80.81%	19.19%	100%
7 Net Interest Expense	165,697	39,345	205,042
8 Planned Net Revenues	79,195	18,805	98,000
FY 2004			
9 Equivalent Annual Costs	358,005	72,432	430,437
10 Percent	83.17%	16.83%	100%
11 Net Interest Expense	174,163	35,237	209,400
12 Planned Net Revenues	81,509	16,491	98,000
FY 2005			
13 Equivalent Annual Costs	367,790	69,595	437,385
14 Percent	84.09%	15.91%	100%
15 Net Interest Expense	183,797	34,779	218,576
16 Planned Net Revenues	97,804	18,507	116,311
FY 2006			
17 Equivalent Annual Costs	375,808	65,131	440,939
18 Percent	85.23%	14.77%	100%
19 Net Interest Expense	184,644	32,001	216,645
20 Planned Net Revenues	84,211	14,595	98,806
FY 2007			
21 Equivalent Annual Costs	380,116	59,535	439,651
22 Percent	86.46%	13.54%	100%
23 Net Interest Expense	191,887	30,054	221,941
24 Planned Net Revenues	0	0	0

FY 2008				
25	Equivalent Annual Costs	416,177	51,877	468,054
26	Percent	88.92%	11.08%	100%
27	Net Interest Expense	223,614	27,874	251,488
28	Planned Net Revenues	0	0	0
FY 2009				
29	Equivalent Annual Costs	448,093	49,801	497,894
30	Percent	90.00%	10.00%	100%
31	Net Interest Expense	253,945	28,223	282,168
32	Planned Net Revenues	0	0	0
FY 2010				
33	Equivalent Annual Costs	455,852	46,030	501,882
34	Percent	90.83%	9.17%	100%
35	Net Interest Expense	258,388	26,091	284,479
36	Planned Net Revenues	0	0	0

Revenue Credits Provided by Finance Group
(\$ in thousands)

	2002	2003	2004	2005	2006	2007	2008	2009	2010
1 Colville Credit from Treasury	4,600	4,600	4,600	4,600	4,600	4,600	4,600	4,600	4,600
2 COE/BOR Network/Delivery	3,701	3,684	3,646	3,617	3,544	3,503	3,514	3,516	3,482
3 4h10C (w/out operations)	44,937	47,606	47,500	47,760	48,217	43,146	44,334	45,576	46,872
4 Energy Efficiency Revenues	13,046	13,345	13,345	13,345	13,345	13,345	13,345	13,345	13,345

	2002	2003	2004	2005	2006	2007	2008	2009	2010
4h10C Credit Calculation									
1 BPA Expense	131,700	138,000	140,100	142,900	144,400	148,800	153,200	157,800	162,600
2 BPA Capital	34,732	38,317	35,825	33,988	34,182	11,000	11,000	11,000	11,000
3 Net Replacement Power									
4 Total	166,432	176,317	175,925	176,888	178,582	159,800	164,200	168,800	173,600
5 Credit @ 27%	44,937	47,606	47,500	47,760	48,217	43,146	44,334	45,576	46,872

	2002	2003	2004	2005	2006	2007	2008	2009	2010
COE/BOR Transmission Costs									
O&M	1,941	1,963	1,924	1,887	1,850	1,815	1,784	1,759	1,739
Depreciation	681	681	680	680	680	680	679	679	679
Interest Expense	1,079	1,040	1,042	1,050	1,014	1,008	1,051	1,078	1,064
Total COE/BOR Trans Costs	3,701	3,684	3,646	3,617	3,544	3,503	3,514	3,516	3,482

Average Net Tx Plant	33,854	33,153	32,457	31,762	31,067	30,374	29,683	28,995	28,309
Total Average Net Plant	4,953,259	5,055,447	5,190,485	5,330,532	5,428,772	5,570,018	6,102,197	6,632,242	6,691,029
percent Tx	0.68%	0.66%	0.63%	0.60%	0.57%	0.55%	0.49%	0.44%	0.42%

Equivalent Annual Costs

(\$ in thousands)	A	B	C	D	E	F	G	H	I	J
	AVG SERV LIFE	COMP PLANT 9/30/02	WT AV INT RATE	2002 EQ ANN COSTS	COMP PLANT 9/30/03	WT AV INT RATE	2003 EQ ANN COSTS	COMP PLANT 9/30/04	WT AV INT RATE	2004 EQ ANN COSTS
1 Corps of Engineers/Bureau of Reclamation	66	10,687,761	2.45%	\$329,212	7,132,781	3.78%	\$295,649	7,429,370	3.75%	\$305,945
2 BPA F&W	15	315,650	8.05%	\$36,991	349,258	7.76%	\$40,207	377,356	7.45%	\$42,606
3 PBL General Plant	8	42,252	10.47%	\$8,384	45,464	10.73%	\$9,102	48,676	9.85%	\$9,454
4 TOTAL GENERATION				\$374,588			\$344,958			\$358,005
5 CONSERVATION										
6 BPA Energy Conservation Investment	20	1,215,170	3.72%	\$87,250	1,153,813	3.46%	\$80,925	949,721	4.25%	\$71,460
7 EEU General Plant	7	4,785	10.47%	\$960	4,867	10.73%	\$985	4,949	9.85%	\$972
8 TOTAL CONSERVATION				\$88,209			\$81,910			\$72,432

Equivalent Annual Costs

(\$ in thousands)	K	L	M	N	O	P	Q	R	S	T
	COMP PLANT 9/30/05	WT AV INT RATE	2005 EQ ANN COSTS	COMP PLANT 9/30/06	WT AV INT RATE	2006 EQ ANN COSTS	COMP PLANT 9/30/07	WT AV INT RATE	2007 EQ ANN COSTS	COMP PLANT 9/30/08
1 Corps of Engineers/Bureau of Reclamation	7,429,370	3.87%	\$313,230	7,833,252	3.70%	\$319,213	8,110,271	3.59%	\$322,999	9,124,255
2 BPA F&W	403,077	7.05%	\$44,391	421,066	6.82%	\$45,712	414,386	7.01%	\$45,520	414,208
3 PBL General Plant	51,888	10.11%	\$10,169	55,100	10.34%	\$10,883	58,312	10.54%	\$11,597	61,524
4 TOTAL GENERATION			\$367,790			\$375,808			\$380,116	
5 CONSERVATION										
6 BPA Energy Conservation Investment	882,938	4.62%	\$68,599	779,871	5.29%	\$64,110	682,253	5.79%	\$58,491	616,295
7 EEU General Plant	5,031	10.11%	\$997	5,113	10.34%	\$1,021	5,195	10.54%	\$1,044	5,277
8 TOTAL CONSERVATION			\$69,595			\$65,131			\$59,535	

Equivalent Annual Costs

(\$ in thousands)	U	V	W	X	Y	Z	AA	AB
	WT AV INT RATE	2008 EQ ANN COSTS	COMP PLANT 9/30/09	WT AV INT RATE	2009 EQ ANN COSTS	COMP PLANT 9/30/10	WT AV INT RATE	2010 EQ ANN COSTS
1 Corps of Engineers/Bureau of Reclamation	3.52%	\$358,137	9,415,703	3.78%	\$390,473	9,499,218	3.83%	\$397,880
2 BPA F&W	7.09%	\$45,729	407,870	6.93%	\$44,594	398,383	7.18%	\$44,232
3 PBL General Plant	10.72%	\$12,311	64,736	10.88%	\$13,025	67,948	11.02%	\$13,740
4 TOTAL GENERATION		\$416,177			\$448,093			\$455,852
5 CONSERVATION								
6 BPA Energy Conservation Investment	5.32%	\$50,810	563,810	5.89%	\$48,712	526,643	5.73%	\$44,918
7 EEU General Plant	10.72%	\$1,067	5,359	10.88%	\$1,090	5,441	11.02%	\$1,112
8 TOTAL CONSERVATION		\$51,877			\$49,801			\$46,030

Long-term Power Purchases Detail
(\$ in thousands)

	TOTAL	FBS	CONSERV	NEW RESOURCES	OTHER GEN
FY 2002					
IDAHO FALLS	3,740			3,740	
COWLITZ FALLS	14,914			14,914	
PACKWOOD DAM PROJECT	2,343	2,343			
BILLING CREDITS	7,934		7,934		
COMPETITIVE ACQUISITIONS	12,158			12,158	
COLUMBIA HILLS (CARES WIND)	4,323			4,323	
GEOTHERMAL DEMONSTRATION	15,768				15,768
RENEWABLES	3,091				3,091
CONTINGENCY RESOURCES	391				391
WHEELING POWER PURCHASE	1,242			1,242	
	-----	-----	-----	-----	-----
TOTAL PROGRAM FY 2002	65,904	2,343	7,934	36,377	19,250
FY 2003					
IDAHO FALLS	3,737			3,737	
COWLITZ FALLS	14,987			14,987	
PACKWOOD DAM PROJECT	2,577	2,577			
BILLING CREDITS	7,898		7,898		
COMPETITIVE ACQUISITIONS	12,340			12,340	
COLUMBIA HILLS (CARES WIND)	4,359			4,359	
GEOTHERMAL DEMONSTRATION	15,768				15,768
RENEWABLES	2,870				2,870
CONTINGENCY RESOURCES	369				369
WHEELING POWER PURCHASE	1,253			1,253	
	-----	-----	-----	-----	-----
TOTAL PROGRAM FY 2003	66,159	2,577	7,898	36,677	19,007
FY 2004					
IDAHO FALLS	3,744			3,744	
COWLITZ FALLS	15,051			15,051	
PACKWOOD DAM PROJECT	2,835	2,835			
BILLING CREDITS	7,866		7,866		
COMPETITIVE ACQUISITIONS	12,526			12,526	
COLUMBIA HILLS (CARES WIND)	4,397			4,397	
GEOTHERMAL DEMONSTRATION	15,768				15,768
RENEWABLES	2,683				2,683
CONTINGENCY RESOURCES	317				317
WHEELING POWER PURCHASE	1,264			1,264	
	-----	-----	-----	-----	-----
TOTAL PROGRAM FY 2004	66,450	2,835	7,866	36,982	18,768

Long-term Power Purchases Detail
(\$ in thousands)

	TOTAL	FBS	CONSERV	NEW RESOURCES	OTHER GEN
FY 2005					
IDAHO FALLS	3,754			3,754	
COWLITZ FALLS	15,123			15,123	
PACKWOOD DAM PROJECT	3,118	3,118			
BILLING CREDITS	7,834		7,834		
COMPETITIVE ACQUISITIONS	12,713			12,713	
COLUMBIA HILLS (CARES WIND)	4,446			4,446	
GEOTHERMAL DEMONSTRATION	15,768				15,768
RENEWABLES	2,551				2,551
CONTINGENCY RESOURCES	395				395
WHEELING POWER PURCHASE	1,275			1,275	
	-----	-----	-----	-----	-----
TOTAL PROGRAM FY 2005	66,977	3,118	7,834	37,312	18,714
FY 2006					
IDAHO FALLS	3,754			3,754	
COWLITZ FALLS	15,196			15,196	
PACKWOOD DAM PROJECT	3,430	3,430			
BILLING CREDITS	7,785		7,785		
COMPETITIVE ACQUISITIONS	12,904			12,904	
COLUMBIA HILLS (CARES WIND)	4,490			4,490	
GEOTHERMAL DEMONSTRATION	15,768				15,768
RENEWABLES	2,459				2,459
CONTINGENCY RESOURCES	342				342
WHEELING POWER PURCHASE	1,287			1,287	
	-----	-----	-----	-----	-----
TOTAL PROGRAM FY 2006	67,414	3,430	7,785	37,631	18,569
FY 2007					
IDAHO FALLS	3,766			3,766	
COWLITZ FALLS	15,264			15,264	
PACKWOOD DAM PROJECT	3,773	3,773			
BILLING CREDITS	7,743		7,743		
COMPETITIVE ACQUISITIONS	13,254			13,254	
COLUMBIA HILLS (CARES WIND)	4,536			4,536	
GEOTHERMAL DEMONSTRATION	15,768				15,768
RENEWABLES	2,374				2,374
CONTINGENCY RESOURCES	342				342
WHEELING POWER PURCHASE	1,300			1,300	
	-----	-----	-----	-----	-----
TOTAL PROGRAM FY 2007	68,119	3,773	7,743	38,120	18,484

Long-term Power Purchases Detail
(\$ in thousands)

	TOTAL	FBS	CONSERV	NEW RESOURCES	OTHER GEN
FY 2008					
IDAHO FALLS	3,751			3,751	
COWLITZ FALLS	15,323			15,323	
PACKWOOD DAM PROJECT	4,150	4,150			
BILLING CREDITS	7,710		7,710		
COMPETITIVE ACQUISITIONS	13,483			13,483	
COLUMBIA HILLS (CARES WIND)	4,581			4,581	
GEOTHERMAL DEMONSTRATION	15,768				15,768
RENEWABLES	2,288				2,288
CONTINGENCY RESOURCES	342				342
WHEELING POWER PURCHASE	1,312			1,312	
TOTAL PROGRAM FY 2008	68,707	4,150	7,710	38,449	18,398
FY 2009					
IDAHO FALLS	3,746			3,746	
COWLITZ FALLS	15,379			15,379	
PACKWOOD DAM PROJECT	4,565	4,565			
BILLING CREDITS	7,670		7,670		
COMPETITIVE ACQUISITIONS	13,721			13,721	
COLUMBIA HILLS (CARES WIND)	4,624			4,624	
GEOTHERMAL DEMONSTRATION	15,768				15,768
RENEWABLES	3,881				3,881
CONTINGENCY RESOURCES	342				342
WHEELING POWER PURCHASE	1,325			1,325	
TOTAL PROGRAM FY 2009	71,021	4,565	7,670	38,795	19,991
FY 2010					
IDAHO FALLS	3,511			3,511	
COWLITZ FALLS	15,440			15,440	
PACKWOOD DAM PROJECT	5,022	5,022			
BILLING CREDITS	7,627		7,627		
COMPETITIVE ACQUISITIONS	13,974			13,974	
COLUMBIA HILLS (CARES WIND)	4,669			4,669	
GEOTHERMAL DEMONSTRATION	15,768				15,768
RENEWABLES	4,404				4,404
CONTINGENCY RESOURCES	342				342
WHEELING POWER PURCHASE	1,338			1,338	
TOTAL PROGRAM FY 2010	72,096	5,022	7,627	38,933	20,514

**7(B)(2) CASE
(\$ THOUSANDS)**

FY 2002

	A	B	C	D	E	F	G
	INVEST	NET	NET	OPER	TOTAL	CREDITS	TOTAL
	BASE	INT	REVS	EXP	(B+C+D)		COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	4,953,259	158,999	118,064	283,532	560,595	-8,301	552,294
4. FISH AND WILDLIFE	205,137	6,585	4,890	151,472	162,947	-44,937	118,010
5. TROJAN				19,547	19,547	0	19,547
6. WNP #1				178,104	178,104	0	178,104
7. WNP #2				351,536	351,536	0	351,536
8. WNP #3				153,720	153,720	0	153,720
9. SYSTEM AUGMENTATION				0	0	0	0
10. BALANCING POWER PURCHASES				457,608	457,608	0	457,608
11. TOTAL FEDERAL BASE SYSTEM	5,158,396	165,584	122,954	1,595,518	1,884,056	-53,238	1,830,818
12. NEW RESOURCES							
13. IDAHO FALLS							
14. COWLITZ FALLS							
15. OTHER LONG-TERM POWER PURCHASES							
16. TOTAL NEW RESOURCES							
17. RESIDENTIAL EXCHANGE 1/							
18. LEGACY CONSERVATION							
19. ENERGY EFFICIENCY BUSINESS							
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	12,737	409	304	117,460	118,173	0	118,173
22. WNP #3 PLANT				3,086	3,086	0	3,086
23. TOTAL OTHER GENERATION COSTS	12,737	409	304	120,546	121,259	0	121,259
24. TOTAL GENERATION COSTS	5,171,133	165,993	123,258	1,716,064	2,005,315	-53,238	1,952,077
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				127,310	127,310		127,310
27. ANCILLARY SERVICES				8,000	8,000		8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000		52,000
29. TOTAL TRANSMISSION COSTS				187,310	187,310	0	187,310
30. TOTAL PBL REVENUE REQUIREMENT		165,993	123,258	1,903,374	2,192,625	-53,238	2,139,387

FY 2003

	A	B	C	D	E	F	G
	INVEST	NET	NET	OPER	TOTAL	CREDITS	TOTAL
	BASE	INT	REVS	EXP	(B+C+D)		COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	5,055,447	163,825	109,654	292,664	566,143	-8,284	557,859
4. FISH AND WILDLIFE	215,478	6,983	4,674	159,842	171,499	-47,606	123,893
5. TROJAN				14,154	14,154	0	14,154
6. WNP #1				168,240	168,240	0	168,240
7. WNP #2				408,804	408,804	0	408,804
8. WNP #3				152,993	152,993	0	152,993
9. SYSTEM AUGMENTATION							
10. BALANCING POWER PURCHASES				485,266	485,266	0	485,266
11. TOTAL FEDERAL BASE SYSTEM	5,270,925	170,808	114,328	1,681,963	1,967,099	-55,890	1,911,209
12. NEW RESOURCES							
13. IDAHO FALLS							
14. COWLITZ FALLS							
15. OTHER LONG-TERM POWER PURCHASES							
16. TOTAL NEW RESOURCES							
17. RESIDENTIAL EXCHANGE 1/							
18. LEGACY CONSERVATION							
19. ENERGY EFFICIENCY BUSINESS							
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	11,444	371	248	98,450	99,069	0	99,069
22. WNP #3 PLANT				3,169	3,169	0	3,169
23. TOTAL OTHER GENERATION COSTS	11,444	371	248	101,619	102,238	0	102,238
24. TOTAL GENERATION COSTS	5,282,369	171,179	114,576	1,783,582	2,069,337	-55,890	2,013,447
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				123,923	123,923		123,923
27. ANCILLARY SERVICES				8,000	8,000		8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000		52,000
29. TOTAL TRANSMISSION COSTS				183,923	183,923		183,923
30. TOTAL PBL REVENUE REQUIREMENT	5,282,369	171,179	114,576	1,967,505	2,253,260	-55,890	2,197,370

FY 2004

	A	B	C	D	E	F	G
	INVEST	NET	NET	OPER	TOTAL	CREDITS	TOTAL
	BASE	INT	REVS	EXP	(B+C+D)		COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	5,190,485	170,717	96,591	297,067	564,375	-8,246	556,129
4. FISH AND WILDLIFE	223,663	7,356	4,162	163,837	175,355	-47,500	127,855
5. TROJAN				12,564	12,564	0	12,564
6. WNP #1				175,007	175,007	0	175,007
7. WNP #2				404,348	404,348	0	404,348
8. WNP #3				149,232	149,232	0	149,232
9. SYSTEM AUGMENTATION				0	0	0	0
10. BALANCING POWER PURCHASES				449,626	449,626	0	449,626
11. TOTAL FEDERAL BASE SYSTEM	5,414,148	178,073	100,753	1,651,682	1,930,508	-55,746	1,874,762
12. NEW RESOURCES							
13. IDAHO FALLS							
14. COWLITZ FALLS							
15. OTHER LONG-TERM POWER PURCHASES							
16. TOTAL NEW RESOURCES							
17. RESIDENTIAL EXCHANGE 1/							
18. LEGACY CONSERVATION							
19. ENERGY EFFICIENCY BUSINESS							
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	10,118	333	188	88,301	88,822	0	88,822
22. WNP #3 PLANT				3,169	3,169	0	3,169
23. TOTAL OTHER GENERATION COSTS	10,118	333	188	91,470	91,991	0	91,991
24. TOTAL GENERATION COSTS	5,424,266	178,406	100,941	1,743,151	2,022,498	-55,746	1,966,752
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				125,954	125,954	0	125,954
27. ANCILLARY SERVICES				8,000	8,000	0	8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000	0	52,000
29. TOTAL TRANSMISSION COSTS				185,954	185,954	0	185,954
30. TOTAL PBL REVENUE REQUIREMENT		178,406	100,941	1,929,105	2,208,452	-55,746	2,152,706

FY 2005

	A	B	C	D	E	F	G
	INVEST	NET	NET	OPER	TOTAL	CREDITS	TOTAL
	BASE	INT	REVS	EXP	(B+C+D)		COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	5,330,532	180,926	107,318	301,751	589,995	-8,217	581,778
4. FISH AND WILDLIFE	219,574	7,453	4,421	168,294	180,168	-47,760	132,408
5. TROJAN				12,589	12,589	0	12,589
6. WNP #1				168,294	168,294	0	168,294
7. WNP #2				361,649	361,649	0	361,649
8. WNP #3				149,480	149,480	0	149,480
9. SYSTEM AUGMENTATION							
10. BALANCING POWER PURCHASES				487,688	487,688	0	487,688
11. TOTAL FEDERAL BASE SYSTEM	5,550,106	188,379	111,739	1,649,745	1,949,863	-55,977	1,893,886
12. NEW RESOURCES							
13. IDAHO FALLS							
14. COWLITZ FALLS							
15. OTHER LONG-TERM POWER PURCHASES							
16. TOTAL NEW RESOURCES							
17. RESIDENTIAL EXCHANGE 1/							
18. LEGACY CONSERVATION							
19. ENERGY EFFICIENCY BUSINESS							
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	9,433	320	190	83,775	84,285	0	84,285
22. WNP #3 PLANT				3,169	3,169	0	3,169
23. TOTAL OTHER GENERATION COSTS	9,433	320	190	86,944	87,454	0	87,454
24. TOTAL GENERATION COSTS	5,559,539	188,699	111,929	1,736,690	2,037,318	-55,977	1,981,341
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				123,145	123,145		123,145
27. ANCILLARY SERVICES				8,000	8,000		8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000		52,000
29. TOTAL TRANSMISSION COSTS				183,145	183,145	0	183,145
30. TOTAL PBL REVENUE REQUIREMENT		188,699	111,929	1,919,835	2,220,463	-55,977	2,164,486

FY 2006

	A	B	C	D	E	F	G
	INVEST	NET	NET	OPER	TOTAL	CREDITS	TOTAL
	BASE	INT	REVS	EXP	(B+C+D)		COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	5,428,772	184,764	75,004	305,895	565,663	-8,144	557,519
4. FISH AND WILDLIFE	219,574	7,473	3,034	170,807	181,314	-48,217	133,097
5. TROJAN				12,609	12,609	0	12,609
6. WNP #1				180,376	180,376	0	180,376
7. WNP #2				391,800	391,800	0	391,800
8. WNP #3				147,836	147,836	0	147,836
9. SYSTEM AUGMENTATION				0	0	0	0
10. BALANCING POWER PURCHASES				487,457	487,457	0	487,457
11. TOTAL FEDERAL BASE SYSTEM	5,648,346	192,237	78,038	1,696,780	1,967,055	-56,361	1,910,694
12. NEW RESOURCES							
13. IDAHO FALLS							
14. COWLITZ FALLS							
15. OTHER LONG-TERM POWER PURCHASES							
16. TOTAL NEW RESOURCES							
17. RESIDENTIAL EXCHANGE 1/							
18. LEGACY CONSERVATION							
19. ENERGY EFFICIENCY BUSINESS							
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	9,433	321	130	79,741	80,192	0	80,192
22. WNP #3 PLANT				3,169	3,169	0	3,169
23. TOTAL OTHER GENERATION COSTS	9,433	321	130	82,910	83,361	0	83,361
24. TOTAL GENERATION COSTS	5,657,779	192,558	78,168	1,779,690	2,050,416	-56,361	1,994,055
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				122,731	122,731	0	122,731
27. ANCILLARY SERVICES				8,000	8,000	0	8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000	0	52,000
29. TOTAL TRANSMISSION COSTS				182,731	182,731	0	182,731
30. TOTAL PBL REVENUE REQUIREMENT		192,558	78,168	1,962,421	2,233,147	-56,361	2,176,786

FY 2007

	A	B	C	D	E	F	G
	INVEST	NET	NET	OPER	TOTAL	CREDITS	TOTAL
	BASE	INT	REVS	EXP	(B+C+D)		COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	5,570,018	193,208	0	310,685	503,893	-8,103	495,790
4. FISH AND WILDLIFE	203,717	7,066	0	175,752	182,818	-43,146	139,672
5. TROJAN				12,413	12,413	0	12,413
6. WNP #1				179,411	179,411	0	179,411
7. WNP #2				415,479	415,479	0	415,479
8. WNP #3				144,248	144,248	0	144,248
9. SYSTEM AUGMENTATION				0	0	0	0
10. BALANCING POWER PURCHASES				60,860	60,860	0	60,860
11. TOTAL FEDERAL BASE SYSTEM	5,773,735	200,274	0	1,298,847	1,499,121	-51,249	1,447,872
12. NEW RESOURCES							
13. IDAHO FALLS							
14. COWLITZ FALLS							
15. OTHER LONG-TERM POWER PURCHASES							
16. TOTAL NEW RESOURCES							
17. RESIDENTIAL EXCHANGE 1/							
18. LEGACY CONSERVATION							
19. ENERGY EFFICIENCY BUSINESS							
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	9,703	337	0	79,311	79,648	0	79,648
22. WNP #3 PLANT				3,169	3,169	0	3,169
23. TOTAL OTHER GENERATION COSTS	9,703	337	0	82,480	82,817	0	82,817
24. TOTAL GENERATION COSTS	5,783,438	200,611	0	1,381,327	1,581,938	-51,249	1,530,689
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				123,783	123,783	0	123,783
27. ANCILLARY SERVICES				8,000	8,000	0	8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000	0	52,000
29. TOTAL TRANSMISSION COSTS				183,783	183,783	0	183,783
30. TOTAL PBL REVENUE REQUIREMENT		200,611	0	1,565,110	1,765,721	-51,249	1,714,472

FY 2008

	A	B	C	D	E	F	G
	INVEST	NET	NET	OPER	TOTAL	CREDITS	TOTAL
	BASE	INT	REVS	EXP	(B+C+D)		COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	6,102,197	224,212	0	321,362	545,574	-8,114	537,460
4. FISH AND WILDLIFE	203,717	7,485	0	179,961	187,446	-44,334	143,112
5. TROJAN				12,759	12,759	0	12,759
6. WNP #1				177,637	177,637	0	177,637
7. WNP #2				432,576	432,576	0	432,576
8. WNP #3				144,576	144,576	0	144,576
9. SYSTEM AUGMENTATION				0	0	0	0
10. BALANCING POWER PURCHASES				63,860	63,860	0	63,860
11. TOTAL FEDERAL BASE SYSTEM	6,305,914	231,697	0	1,332,731	1,564,428	-52,448	1,511,980
12. NEW RESOURCES							
13. IDAHO FALLS							
14. COWLITZ FALLS							
15. OTHER LONG-TERM POWER PURCHASES							
16. TOTAL NEW RESOURCES							
17. RESIDENTIAL EXCHANGE 1/							
18. LEGACY CONSERVATION							
19. ENERGY EFFICIENCY BUSINESS							
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	10,014	368	0	78,327	78,695	0	78,695
22. WNP #3 PLANT				3,169	3,169	0	3,169
23. TOTAL OTHER GENERATION COSTS	10,014	368	0	81,496	81,864	0	81,864
24. TOTAL GENERATION COSTS	6,315,928	232,065	0	1,414,227	1,646,292	-52,448	1,593,844
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				121,040	121,040	0	121,040
27. ANCILLARY SERVICES				8,000	8,000	0	8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000	0	52,000
29. TOTAL TRANSMISSION COSTS				181,040	181,040	0	181,040
30. TOTAL PBL REVENUE REQUIREMENT		232,065	0	1,595,267	1,827,332	-52,448	1,774,884

FY 2009

	A	B	C	D	E	F	G
	INVEST	NET	NET	OPER	TOTAL	CREDITS	TOTAL
	BASE	INT	REVS	EXP	(B+C+D)		COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	6,632,242	255,772	0	335,175	590,947	-8,116	582,831
4. FISH AND WILDLIFE	188,245	7,260	0	183,983	191,243	-45,576	145,667
5. TROJAN				2,401	2,401	0	2,401
6. WNP #1				174,440	174,440	0	174,440
7. WNP #2				434,488	434,488	0	434,488
8. WNP #3				142,018	142,018	0	142,018
9. SYSTEM AUGMENTATION				0	0	0	0
10. BALANCING POWER PURCHASES				67,060	67,060	0	67,060
11. TOTAL FEDERAL BASE SYSTEM	6,820,487	263,032	0	1,339,565	1,602,597	-53,692	1,548,905
12. NEW RESOURCES							
13. IDAHO FALLS							
14. COWLITZ FALLS							
15. OTHER LONG-TERM POWER PURCHASES							
16. TOTAL NEW RESOURCES							
17. RESIDENTIAL EXCHANGE 1/							
18. LEGACY CONSERVATION							
19. ENERGY EFFICIENCY BUSINESS							
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	10,352	399	0	80,541	80,940	0	80,940
22. WNP #3 PLANT				3,169	3,169	0	3,169
23. TOTAL OTHER GENERATION COSTS	10,352	399	0	83,710	84,109	0	84,109
24. TOTAL GENERATION COSTS	6,830,839	263,431	0	1,423,275	1,686,706	-53,692	1,633,014
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				115,130	115,130	0	115,130
27. ANCILLARY SERVICES				8,000	8,000	0	8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000	0	52,000
29. TOTAL TRANSMISSION COSTS				175,130	175,130	0	175,130
30. TOTAL PBL REVENUE REQUIREMENT		263,431	0	1,598,405	1,861,836	-53,692	1,808,144

FY 2010

	A	B	C	D	E	F	G
	INVEST	NET	NET	OPER	TOTAL	CREDITS	TOTAL
	BASE	INT	REVS	EXP	(B+C+D)		COSTS
1. GENERATION COSTS							
2. FEDERAL BASE SYSTEM							
3. HYDRO	6,691,029	260,696	0	336,381	597,077	-8,082	588,995
4. FISH AND WILDLIFE	173,527	6,761	0	187,855	194,616	-46,872	147,744
5. TROJAN				3,000	3,000	0	3,000
6. WNP #1				182,116	182,116	0	182,116
7. WNP #2				429,937	429,937	0	429,937
8. WNP #3				140,361	140,361	0	140,361
9. SYSTEM AUGMENTATION				0	0	0	0
10. BALANCING POWER PURCHASES				70,460	70,460	0	70,460
11. TOTAL FEDERAL BASE SYSTEM	6,864,556	267,457	0	1,350,109	1,617,566	-54,954	1,562,612
12. NEW RESOURCES							
13. IDAHO FALLS							
14. COWLITZ FALLS							
15. OTHER LONG-TERM POWER PURCHASES							
16. TOTAL NEW RESOURCES							
17. RESIDENTIAL EXCHANGE 1/							
18. LEGACY CONSERVATION							
19. ENERGY EFFICIENCY BUSINESS							
20. OTHER GENERATION COSTS							
21. BPA PROGRAMS	10,586	412	0	81,816	82,228	0	82,228
22. WNP #3 PLANT				3,169	3,169	0	3,169
23. TOTAL OTHER GENERATION COSTS	10,586	412	0	84,985	85,397	0	85,397
24. TOTAL GENERATION COSTS	6,875,142	267,869	0	1,435,094	1,702,963	-54,954	1,648,009
25. TRANSMISSION COSTS							
26. TBL TRANSMISSION				105,700	105,700	0	105,700
27. ANCILLARY SERVICES				8,000	8,000	0	8,000
28. GENERAL TRANSFER AGREEMENTS				52,000	52,000	0	52,000
29. TOTAL TRANSMISSION COSTS				165,700	165,700	0	165,700
30. TOTAL PBL REVENUE REQUIREMENT		267,869	0	1,600,794	1,868,663	-54,954	1,813,709

Regulation
Power Revenue Requirement for Big Ten Hydroelectric Projects and F&W
(\$thousands)

	2002	2003	2004	2005	2006
1 Big 10 Dams					
2 O&M	110,453	113,079	113,949	112,680	111,852
3 Depreciation	74,554	76,278	77,778	79,051	80,381
4 Net Interest	98,563	98,231	101,301	104,519	103,488
5 Planned Net Revenues	47,423	46,949	47,409	55,618	47,198
6 Subtotal	330,993	334,537	340,437	351,868	342,919
7 Fish & Wildlife					
8 O&M	179,489	188,399	190,664	196,154	199,636
9 Amortization/Depreciation	34,639	38,068	42,211	46,521	49,424
10 Net Interest	35,190	36,899	41,591	47,036	49,233
11 Planned Net Revenues	16,932	17,636	19,465	25,030	22,453
12 Subtotal	266,250	281,002	293,931	314,741	320,746
13 A&G Expense 1/	50,764	41,650	34,150	32,850	31,050
14 Total Revenue Requirement	648,007	657,189	668,518	699,459	694,715
15 Revenue Credits:					
16 4h10C (non-operations)	44,937	47,606	47,500	47,760	48,217
17 Colville payment Treas. Credit	4,600	4,600	4,600	4,600	4,600
18 Net Revenue Requirement	598,470	604,983	616,418	647,099	641,898

1/ Power Marketing, Power Scheduling, Generation Oversight, Corporate Expense and 1/2 Planning Council

Operating Reserves
Power Revenue Requirement for Big Ten Hydroelectric Projects and F&W
(\$in thousands)

	2002	2003	2004	2005	2006
1 All Hydro Projects					
2 O&M	139,220	142,685	143,357	141,601	140,553
3 Depreciation	77,251	78,633	79,673	80,460	81,439
4 Net Interest	128,185	127,399	131,205	135,399	134,089
5 Planned Net Revenues	62,194	61,388	61,892	72,608	61,617
6 Total Revenue Requirement	406,850	410,105	416,127	430,068	417,698
7 Fish & Wildlife					
8 O&M	179,489	188,399	190,664	196,154	199,636
9 Amortization/Depreciation	34,639	38,068	42,211	46,521	49,424
10 Net Interest	35,190	36,899	41,591	47,036	49,233
11 Planned Net Revenues	16,932	17,636	19,465	25,030	22,453
12 Subtotal	266,250	281,002	293,931	314,741	320,746
13 A&G Expense 1/	50,764	41,650	34,150	32,850	31,050
14 Total Revenue Requirement	723,864	732,757	744,207	777,659	769,494
15 Revenue Credits					
16 4h10C (non-operations)	44,937	47,606	47,500	47,760	48,217
17 Colville payment Treas. Credit	4,600	4,600	4,600	4,600	4,600
18 Net Revenue Requirement	674,327	680,551	692,107	725,299	716,677

1/ Power Marketing, Power Scheduling, Generation Oversight, Corporate Expense and 1/2 Planning Council

**Reactive - Electric Portion of
Power Revenue Requirement for Federal Base System Generating Units
(\$thousands)**

	2002	2003	2004	2005	2006
1 O&M	54,292	55,798	56,087	55,320	54,853
2 A&G Expense 1/	23,864	15,750	15,150	15,850	15,850
3 Depreciation	8,903	9,646	10,307	10,849	11,411
4 Non-Federal Projects (WNP-2)	2,498	2,868	2,792	2,452	2,635
5 Net Interest Expense	22,218	22,881	24,268	25,579	25,876
6 Minimum Required Net Revenues	-	-	-	2,143	96
7 Total Revenue Requirement	111,775	106,943	108,604	112,193	110,721

1/ Power Scheduling and Generation Oversight

Calculations

	2002	2003	2004	2005	2006
1 Total Electric Average Net Plant	699,598	732,223	758,626	776,515	795,674
2 Total Corps/Bureau Average Net Plant	4,972,465	5,074,653	5,209,691	5,349,738	5,447,978
3 percent electric	14.07%	14.43%	14.56%	14.52%	14.60%
4 Corps/Bureau Net Interest	157,914	158,579	166,657	176,226	177,170
5 Electric Net Interest	22,218	22,881	24,268	25,579	25,876
6 Corps/Bureau MRNR	0	0	0	14,763	659
7 Electric MRNR	-	-	-	2,143	96
8 Total COE O&M 1/	82,200	85,100	84,200	82,000	81,000
9 COE Electric O&M @ 43%	35,346	36,593	36,206	35,260	34,830
10 Total BOR O&M 2/	42,961	43,548	45,081	45,488	45,403
11 BOR Electric O&M @ 44.1%	18,946	19,205	19,881	20,060	20,023
12 WNP-2 costs 3/	337,542	387,580	377,324	331,325	356,076
13 WNP-2 Electric @ 0.74%	2,498	2,868	2,792	2,452	2,635

1/excludes Lower Snake F&W and O&M attributable in the aggregate to F&W at projects.

2/excludes payment to Colville Tribes, shown elsewhere in Columbia Basin O&M and F&W.

3/debt service and O&M (excludes nuclear insurance, fuel and revenue-financed capital).

Determination of Synchronous Condensator Annual Costs

1 Synchronous Condensers Avg Net Plt	7,334	7,209	7,084	6,959	6,834
2 Total Corps/Bureau Average Net Plant	4,972,465	5,074,653	5,209,691	5,349,738	5,447,978
3 percent	0.15%	0.14%	0.14%	0.13%	0.13%
4 Corps/Bureau Net Interest	157,914	158,579	166,657	176,226	177,170
5 Sync Cond Net Interest	233	225	227	229	222
6 Corps/Bureau MRNR	-	-	-	-	-
7 Sync Cond MRNR	-	-	-	-	-
8 Sync Cond Depreciation	125	125	125	125	125
9 Total Sync Cond Costs	358	350	352	354	347

**Synchronous Condensers
Net Plant Calculation
(\$thousands)**

Life	Project	plant- in-service 1999	Annual Deprec	Accumulated Depreciation					
				2001	2002	2003	2004	2005	2006
58.8	John Day	3,956	67	168	235	302	369	436	503
64.8	The Dalles	3,753	58	145	203	261	319	377	435
		7,709	125	313	438	563	688	813	938
		net plant investment		7,396	7,271	7,146	7,021	6,896	6,771
		average net plant			7,334	7,209	7,084	6,959	6,834

**Investment, Accumulated Depreciation, Depreciation Expense by Project assigned to Reactive
(\$in thousands)**

Effective Service Lives	9/30/97			9/30/98			9/30/99		
	gross	acc dep	depr exp	gross	acc dep	depr exp	gross	acc dep	depr exp
Bureau of Reclamation									
	BOISE	14,805	7,136	169					
	historic	3,435	1,656	39	3,435	1,695	39	3,435	1,734
91	projected				8	-	-	(21)	-
	COLUMBIA BASIN	1,087,580	266,650	16,106					
	1st and 2nd	456,006	78,696	6,753					
	historic	121,754	21,012	1,803	121,754	22,815	1,803	121,754	24,618
71	projected (all Col. Basin)				84	1	1	(125)	1
	3rd Powerhouse	631,574	187,954	9,353					
	historic	203,367	60,521	3,012	203,367	63,533	3,012	203,367	66,545
	HUNGRY HORSE	111,791	38,376	1,184					
	historic	26,718	9,172	283	26,718	9,455	283	26,718	9,738
83	projected				127	1	1	10	2
	MINIDOKA-PALISADES	104,666	14,257	228					
	historic	43,750	5,959	95	43,750	6,054	95	43,750	6,149
83	projected				217	1	1	292	4
	YAKIMA	5,294	2,597	66					
	historic	2,838	1,392	35	2,838	1,427	35	2,838	1,462
91	projected				(5)	-	-	-	-
	Total Bureau	1,489,442	366,362	21,373	402,209	104,981	5,269	402,143	110,252
								5,271	

**Investment, Accumulated Dep
(\$in thousands)**

Effective Service Lives	9/30/00			9/30/01			9/30/02			
	gross	acc dep	depr exp	gross	acc dep	depr exp	gross	acc dep	depr exp	
Bureau of Reclamation										
BOISE										
	historic	3,435	1,773	39	3,435	1,812	39	3,435	1,851	39
91	projected	2,642	14	14	2,955	45	31	3,273	79	34
COLUMBIA BASIN										
1st and 2nd										
	historic	121,754	26,421	1,803	121,754	28,224	1,803	121,754	30,027	1,803
71	projected (all Col. Basin)	19,574	138	137	41,232	565	427	65,781	1,317	752
3rd Powerhouse										
	historic	203,367	69,557	3,012	203,367	72,569	3,012	203,367	75,581	3,012
HUNGRY HORSE										
	historic	26,718	10,021	283	26,718	10,304	283	26,718	10,587	283
83	projected	515	5	3	978	14	9	1,449	29	15
MINIDOKA-PALISADES										
	historic	43,750	6,244	95	43,750	6,339	95	43,750	6,434	95
83	projected	534	9	5	800	17	8	1,069	28	11
YAKIMA										
	historic	2,838	1,497	35	2,838	1,532	35	2,838	1,567	35
91	projected	62	-	-	124	1	1	188	3	2
Total Bureau		405,615	115,541	5,289	406,719	120,857	5,316	407,841	126,186	5,329

**Investment, Accumulated Dep
(\$in thousands)**

Effective Service Lives	9/30/03			9/30/04			9/30/05			
	gross	acc dep	depr exp	gross	acc dep	depr exp	gross	acc dep	depr exp	
Bureau of Reclamation										
BOISE										
	historic	3,435	1,890	39	3,435	1,929	39	3,435	1,968	39
91	projected	3,598	117	38	3,932	158	41	4,273	203	45
COLUMBIA BASIN										
1st and 2nd										
	historic	121,754	31,830	1,803	121,754	33,633	1,803	121,754	35,436	1,803
71	projected (all Col. Basin)	88,033	2,398	1,081	105,588	3,759	1,361	125,824	5,386	1,627
3rd Powerhouse										
	historic	203,367	78,593	3,012	203,367	81,605	3,012	203,367	84,617	3,012
HUNGRY HORSE										
	historic	26,718	10,870	283	26,718	11,153	283	26,718	11,436	283
83	projected	1,927	49	20	2,597	76	27	3,459	112	36
MINIDOKA-PALISADES										
	historic	43,750	6,529	95	43,750	6,624	95	43,750	6,719	95
83	projected	1,343	42	14	1,683	60	18	2,090	83	23
YAKIMA										
	historic	2,838	1,602	35	2,838	1,637	35	2,838	1,672	35
91	projected	254	5	2	322	8	3	391	12	4
Total Bureau										
		408,984	131,527	5,341	410,396	136,883	5,356	412,075	142,258	5,375

**Investment, Accumulated Dep
(\$in thousands)**

Effective Service Lives		gross	9/30/06 acc dep	depr exp
	Bureau of Reclamation			
	BOISE			
	historic	3,435	2,007	39
91	projected	4,623	252	49
	COLUMBIA BASIN			
	1st and 2nd			
	historic	121,754	37,239	1,803
71	projected (all Col. Basin)	145,925	7,296	1,910
	3rd Powerhouse			
	historic	203,367	87,629	3,012
	HUNGRY HORSE			
	historic	26,718	11,719	283
83	projected	4,329	159	47
	MINIDOKA-PALISADES			
	historic	43,750	6,814	95
83	projected	2,501	111	28
	YAKIMA			
	historic	2,838	1,707	35
91	projected	462	17	5
	Total Bureau	413,777	147,654	5,396

**Investment, Accumulated Depreciation, Depreciation Expense by Project assigned to Reactive
(\$in thousands)**

Effective Service Lives	9/30/97			9/30/98			9/30/99			
	gross	acc dep	depr exp	gross	acc dep	depr exp	gross	acc dep	depr exp	
	ALBENI FALLS	38,404	16,237	580						
	historic	3,495	1,478	53	3,495	1,531	53	3,495	1,584	53
41	projected				-	-	-	141	2	2
	BONNEVILLE	823,184	186,905	11,397						
	historic	49,391	11,214	684	49,391	11,898	684	49,391	12,582	684
73	projected				-	-	-	11,581	79	79
	CHIEF JOSEPH	558,800	163,766	8,606						
	historic	112,878	33,081	1,738	112,878	34,819	1,738	112,878	36,557	1,738
65	projected				315	2	2	1,394	15	13
	COUGAR	20,306	6,397	231						
	historic	406	128	5	406	133	5	406	138	5
82	projected				-	-	-	151	1	1
	DETROIT-BIG CLIFF	41,292	20,766	894						
	historic	867	436	19	867	455	19	867	474	19
82	projected				158	1	1	316	4	3
	DWORSHAK	313,522	80,419	4,385						
	historic	9,092	2,332	127	9,092	2,459	127	9,092	2,586	127
75	projected				-	-	-	401	3	3
	GREEN PETER-FOSTER	49,967	15,316	622						
	historic	1,699	521	21	1,699	542	21	1,699	563	21
84	projected				-	-	-	1,448	9	9
	HILLS CREEK	17,521	6,487	269						
	historic	2,103	778	32	2,103	810	32	2,103	842	32
58	projected				(1)	-	-	151	1	1
	ICE HARBOR	140,575	53,325	2,419						
	historic	19,399	7,359	334	19,399	7,693	334	19,399	8,027	334
72	projected				-	-	-	711	5	5
	JOHN DAY	466,369	119,146	7,731						
	historic	52,233	13,344	866	52,233	14,210	866	52,233	15,076	866
57	projected				(388)	(3)	(3)	2,936	19	22
	LIBBY	427,924	91,423	5,822						
	historic	48,783	10,422	664	48,783	11,086	664	48,783	11,750	664
58	projected				-	-	-	475	4	4
	LITTLE GOOSE	211,454	59,899	3,328						
	historic	28,335	8,026	446	28,335	8,472	446	28,335	8,918	446
67	projected				-	-	-	771	6	6
	LOOKOUT POINT	47,428	20,877	803						

**Investment, Accumulated Dep
(\$in thousands)**

Effective Service Lives	9/30/00			9/30/01			9/30/02			
	gross	acc dep	depr exp	gross	acc dep	depr exp	gross	acc dep	depr exp	
	ALBENI FALLS									
	historic	3,495	1,637	53	3,495	1,690	53	3,495	1,743	53
41	projected	355	8	6	499	19	11	653	33	14
	BONNEVILLE									
	historic	49,391	13,266	684	49,391	13,950	684	49,391	14,634	684
73	projected	25,620	334	255	37,396	765	431	44,005	1,322	557
	CHIEF JOSEPH									
	historic	112,878	38,295	1,738	112,878	40,033	1,738	112,878	41,771	1,738
65	projected	11,927	118	103	23,628	393	275	36,276	857	464
	COUGAR									
	historic	406	143	5	406	148	5	406	153	5
82	projected	290	4	3	426	8	4	568	14	6
	DETROIT-BIG CLIFF									
	historic	867	493	19	867	512	19	867	531	19
82	projected	513	9	5	693	16	7	901	26	10
	DWORSHAK									
	historic	9,092	2,713	127	9,092	2,840	127	9,092	2,967	127
75	projected	994	12	9	1,310	27	15	1,720	47	20
	GREEN PETER-FOSTER									
	historic	1,699	584	21	1,699	605	21	1,699	626	21
84	projected	1,634	27	18	1,806	48	21	2,002	71	23
	HILLS CREEK									
	historic	2,103	874	32	2,103	906	32	2,103	938	32
58	projected	293	5	4	431	11	6	576	20	9
	ICE HARBOR									
	historic	19,399	8,361	334	19,399	8,695	334	19,399	9,029	334
72	projected	1,127	18	13	1,689	38	20	2,394	67	29
	JOHN DAY									
	historic	52,233	15,942	866	52,233	16,808	866	52,233	17,674	866
57	projected	13,487	162	143	15,142	412	250	17,126	694	282
	LIBBY									
	historic	48,783	12,414	664	48,783	13,078	664	48,783	13,742	664
58	projected	1,138	18	14	1,682	42	24	2,310	76	34
	LITTLE GOOSE									
	historic	28,335	9,364	446	28,335	9,810	446	28,335	10,256	446
67	projected	1,913	26	20	2,574	59	33	3,427	104	45
	LOOKOUT POINT									

**Investment, Accumulated Dep
(\$in thousands)**

Effective Service Lives	9/30/03			9/30/04			9/30/05			
	gross	acc dep	depr exp	gross	acc dep	depr exp	gross	acc dep	depr exp	
	ALBENI FALLS									
	historic	3,495	1,796	53	3,495	1,849	53	3,495	1,902	53
41	projected	807	51	18	965	73	22	1,136	99	26
	BONNEVILLE									
	historic	49,391	15,318	684	49,391	16,002	684	49,391	16,686	684
73	projected	58,471	2,023	701	59,507	2,830	807	60,811	3,653	823
	CHIEF JOSEPH									
	historic	112,878	43,509	1,738	112,878	45,247	1,738	112,878	46,985	1,738
65	projected	49,047	1,518	661	51,124	2,294	776	53,795	3,107	813
	COUGAR									
	historic	406	158	5	406	163	5	406	168	5
82	projected	710	22	8	855	32	10	1,009	43	11
	DETROIT-BIG CLIFF									
	historic	867	550	19	867	569	19	867	588	19
82	projected	1,109	38	12	1,321	53	15	1,564	71	18
	DWORSHAK									
	historic	9,092	3,094	127	9,092	3,221	127	9,092	3,348	127
75	projected	2,130	73	26	2,543	104	31	3,055	141	37
	GREEN PETER-FOSTER									
	historic	1,699	647	21	1,699	668	21	1,699	689	21
84	projected	2,198	96	25	2,397	123	27	2,622	153	30
	HILLS CREEK									
	historic	2,103	970	32	2,103	1,002	32	2,103	1,034	32
58	projected	721	31	11	869	45	14	1,028	61	16
	ICE HARBOR									
	historic	19,399	9,363	334	19,399	9,697	334	19,399	10,031	334
72	projected	3,073	105	38	3,759	153	48	4,595	211	58
	JOHN DAY									
	historic	52,233	18,540	866	52,233	19,406	866	52,233	20,272	866
57	projected	19,013	1,010	316	20,877	1,358	348	23,265	1,744	386
	LIBBY									
	historic	48,783	14,406	664	48,783	15,070	664	48,783	15,734	664
58	projected	2,934	121	45	3,564	177	56	4,326	245	68
	LITTLE GOOSE									
	historic	28,335	10,702	446	28,335	11,148	446	28,335	11,594	446
67	projected	4,255	161	57	5,089	230	69	6,123	313	83
	LOOKOUT POINT									

**Investment, Accumulated Dep
(\$in thousands)**

Effective Service Lives		gross	9/30/06 acc dep	depr exp
	ALBENI FALLS			
	historic	3,495	1,955	53
41	projected	1,311	129	30
	BONNEVILLE			
	historic	49,391	17,370	684
73	projected	62,121	4,494	841
	CHIEF JOSEPH			
	historic	112,878	48,723	1,738
65	projected	56,474	3,961	854
	COUGAR			
	historic	406	173	5
82	projected	1,166	56	13
	DETROIT-BIG CLIFF			
	historic	867	607	19
82	projected	1,810	92	21
	DWORSHAK			
	historic	9,092	3,475	127
75	projected	3,570	185	44
	GREEN PETER-FOSTER			
	historic	1,699	710	21
84	projected	2,851	186	33
	HILLS CREEK			
	historic	2,103	1,066	32
58	projected	1,190	80	19
	ICE HARBOR			
	historic	19,399	10,365	334
72	projected	5,438	281	70
	JOHN DAY			
	historic	52,233	21,138	866
57	projected	25,661	2,171	427
	LIBBY			
	historic	48,783	16,398	664
58	projected	5,094	326	81
	LITTLE GOOSE			
	historic	28,335	12,040	446
67	projected	7,164	412	99
	LOOKOUT POINT			

**Investment, Accumulated Depreciation, Depreciation Expense by Project assigned to Reactive
(\$in thousands)**

Effective Service Lives	9/30/97			9/30/98			9/30/99			
	gross	acc dep	depr exp	gross	acc dep	depr exp	gross	acc dep	depr exp	
19	historic	949	418	16	949	434	16	949	450	16
	projected				-	-	-	163	4	4
	LOST CREEK	27,073	6,289	361						
	historic	2,897	673	39	2,897	712	39	2,897	751	39
72	projected				138	1	1	276	4	3
	LOWER GRANITE	332,421	77,479	5,700						
	historic	32,245	7,515	553	32,245	8,068	553	32,245	8,621	553
66	projected				-	-	-	771	6	6
	LOWER MONUMENTAL	227,812	66,823	3,727						
	historic	28,477	8,353	466	28,477	8,819	466	28,477	9,285	466
46	projected				-	-	-	788	9	9
	MCNARY	280,857	129,867	4,386						
	historic	14,324	6,623	224	14,324	6,847	224	14,324	7,071	224
66	projected				-	-	-	1,326	10	10
	THE DALLES	296,223	125,643	4,150						
	historic	33,177	14,072	465	33,177	14,537	465	33,177	15,002	465
56	projected				(57)	(1)	(1)	(57)	(2)	(1)
	Total Corps				440,915	133,525	6,752	464,493	140,456	6,931
	Total Corps and Bureau				843,124	238,506	12,021	866,636	250,708	12,202

**Investment, Accumulated Dep
(\$in thousands)**

Effective Service Lives	9/30/00			9/30/01			9/30/02			
	gross	acc dep	depr exp	gross	acc dep	depr exp	gross	acc dep	depr exp	
19	historic	949	466	16	949	482	16	949	498	16
	projected	371	18	14	559	42	24	780	77	35
	LOST CREEK									
72	historic	2,897	790	39	2,897	829	39	2,897	868	39
	projected	430	9	5	577	16	7	736	25	9
	LOWER GRANITE									
66	historic	32,245	9,174	553	32,245	9,727	553	32,245	10,280	553
	projected	1,525	24	18	2,186	52	28	3,039	92	40
	LOWER MONUMENTAL									
46	historic	28,477	9,751	466	28,477	10,217	466	28,477	10,683	466
	projected	1,100	30	21	1,761	61	31	2,614	109	48
	MCNARY									
66	historic	14,324	7,295	224	14,324	7,519	224	14,324	7,743	224
	projected	1,886	35	25	2,664	70	35	3,675	118	48
	THE DALLES									
56	historic	33,177	15,467	465	33,177	15,932	465	33,177	16,397	465
	projected	6,340	54	56	19,692	286	232	33,856	764	478
	Total Corps	511,693	147,940	7,484	555,465	156,146	8,206	597,408	165,049	8,903
	Total Corps and Bureau	917,308	263,481	12,773	962,184	277,003	13,522	1,005,249	291,235	14,232

**Investment, Accumulated Dep
(\$in thousands)**

Effective Service Lives	9/30/03			9/30/04			9/30/05			
	gross	acc dep	depr exp	gross	acc dep	depr exp	gross	acc dep	depr exp	
19	historic	949	514	16	949	530	16	949	546	16
	projected	1,001	124	47	1,225	182	58	1,484	253	71
	LOST CREEK									
72	historic	2,897	907	39	2,897	946	39	2,897	985	39
	projected	895	36	11	1,057	50	14	1,234	66	16
	LOWER GRANITE									
66	historic	32,245	10,833	553	32,245	11,386	553	32,245	11,939	553
	projected	3,867	145	53	4,701	210	65	5,735	290	80
	LOWER MONUMENTAL									
46	historic	28,477	11,149	466	28,477	11,615	466	28,477	12,081	466
	projected	3,442	175	66	4,276	259	84	5,310	363	104
	MCNARY									
66	historic	14,324	7,967	224	14,324	8,191	224	14,324	8,415	224
	projected	4,686	182	64	9,891	293	111	21,318	531	238
	THE DALLES									
56	historic	33,177	16,862	465	33,177	17,327	465	33,177	17,792	465
	projected	48,560	1,499	735	63,540	2,499	1,000	73,083	3,718	1,219
	Total Corps	647,669	174,695	9,646	678,310	185,002	10,307	712,243	195,851	10,849
	Total Corps and Bureau	1,056,653	306,222	14,987	1,088,706	321,885	15,663	1,124,318	338,109	16,224

**Investment, Accumulated Dep
(\$in thousands)**

Effective Service Lives	gross	9/30/06 acc dep	depr exp
historic	949	562	16
19 projected LOST CREEK	1,747	338	85
historic	2,897	1,024	39
72 projected LOWER GRANITE	1,415	84	18
historic	32,245	12,492	553
66 projected LOWER MONUMENTAL	6,776	385	95
historic	28,477	12,547	466
46 projected MCNARY	6,351	490	127
historic	14,324	8,639	224
66 projected THE DALLES	32,754	944	413
historic	33,177	18,257	465
56 projected	82,634	5,107	1,389
Total Corps	746,277	207,262	11,411
Total Corps and Bureau	1,160,054	354,916	16,807

Revision for COE Project % Reactive

	Net Plant 9/30/97	Net Plant Reactive	Percent Reactive
ALBENI FALLS	22,167	2,018	9.1%
BONNEVILLE	636,279	37,911	6.0%
CHIEF JOSEPH	395,034	79,891	20.2%
COUGAR	13,909	278	2.0%
DETROIT-BIG CLIFF	20,526	430	2.1%
DWORSHAK	233,103	6,697	2.9%
GREEN PETER-FOSTER	34,651	1,163	3.4%
HILLS CREEK	11,034	1,322	12.0%
ICE HARBOR	87,250	12,030	13.8%
JOHN DAY	347,223	39,046	11.2%
LIBBY	336,501	38,381	11.4%
LITTLE GOOSE	151,555	20,325	13.4%
LOOKOUT POINT	26,551	523	2.0%
LOST CREEK	20,784	2,227	10.7%
LOWER GRANITE	254,942	24,692	9.7%
LOWER MONUMENTAL	160,989	20,175	12.5%
MCNARY	150,990	7,665	5.1%
THE DALLES	170,580	19,107	11.2%

SLICE PRODUCT COSTING AND TRUE-UP TABLE

1	PBL Costs (\$000)	2002	2002	2003	2004	2005	2006	TOTAL
2	GENERATION COSTS	For True-up	Projected	→				
3	Federal Base System							
4	Hydro		\$ 441,446	\$ 451,243	\$ 463,724	\$ 477,977	\$ 483,065	\$ 2,317,455
5	Upstream benefits							
6	Corps of Engineers O&M							
7	Corps Depreciation							
8	U.S. Fish & Wildlife O&M							
9	Bureau of Reclamation O&M							
10	Bureau Depreciation							
11	Colville Settlement							
12	Packwood Dam							
13	Net Interest Expense							
14	Subtotal							
15	Fish and Wildlife		\$ 158,012	\$ 166,601	\$ 171,018	\$ 175,553	\$ 177,973	\$ 849,157
16	Expense							
17	Amortization							
18	Net Interest Expense							
19	Subtotal							
20	Trojan		\$ 19,547	\$ 14,154	\$ 12,564	\$ 12,589	\$ 12,609	\$ 71,463
21	Decommissioning							
22	Debt Service							
23	Subtotal							
24	WNP #1		\$ 178,104	\$ 168,240	\$ 175,007	\$ 168,294	\$ 180,376	\$ 870,021
25	O&M							
26	Debt Service							
27	Subtotal							
28	WNP #2		\$ 351,536	\$ 408,804	\$ 404,348	\$ 361,649	\$ 391,800	\$ 1,918,137
29	O&M/Capital Requirements							
30	Debt Service							
31	Subtotal							
32	WNP #3		\$ 153,720	\$ 152,993	\$ 149,232	\$ 149,480	\$ 147,836	\$ 753,261
33	Debt Service							
34	Total		\$ 1,302,364	\$ 1,362,035	\$ 1,375,894	\$ 1,345,542	\$ 1,393,659	\$ 6,779,494
35								
36	New Resources							
37	Idaho Falls		\$ 3,740	\$ 3,737	\$ 3,744	\$ 3,754	\$ 3,754	\$ 18,729
38	Cowlitz		\$ 14,914	\$ 14,987	\$ 15,051	\$ 15,123	\$ 15,196	\$ 75,271
39	Firm Purchased Power		\$ 17,723	\$ 17,953	\$ 18,187	\$ 18,435	\$ 18,681	\$ 90,978
40	Competitive Acquisitions							
41	Columbia Hills (CARES)							
42	Wheeling Power Purchase							
43	Other Acquisitions		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
44	Total		\$ 36,377	\$ 36,677	\$ 36,982	\$ 37,312	\$ 37,631	\$ 184,978
45								
46	Legacy Conservation		\$ 129,872	\$ 125,019	\$ 112,718	\$ 108,681	\$ 100,626	\$ 576,915
47	Conservation expense							
48	Billing Credits for Conservation							
49	Conservation Financing							
50	Conservation Amortization							
51	Conservation Interest							
52	Subtotal							
53	Energy Services Business		\$ 11,663	\$ 11,690	\$ 11,601	\$ 11,475	\$ 11,444	\$ 57,873
54	Other Generation Costs							
55	BPA Programs		\$ 117,866	\$ 98,809	\$ 88,626	\$ 84,087	\$ 80,049	\$ 469,437
56	CSRS Pension Expense							
57	Power Marketing							
58	Power Scheduling							
59	Generation Oversight							
60	Administrative & Support Services							
61	Power Planning Council							
62	Miscellaneous Depreciation							
63	Geothermal Demonstration							
64	Renewables							
65	Contingency Resources							
66	Net Interest Expense							
67	Between Business Line Expense							
68	Other							
69	WNP #3 Plant		\$ 3,086	\$ 3,169	\$ 3,169	\$ 3,169	\$ 3,169	\$ 15,762
70	Total		\$ 120,952	\$ 101,978	\$ 91,795	\$ 87,256	\$ 83,218	\$ 485,199
71	Minimum Required Net Revenues							
72	COSA Table Subtotal		\$ 1,601,227	\$ 1,637,398	\$ 1,628,989	\$ 1,590,266	\$ 1,626,578	\$ 8,084,458

CHAPTER 3

GENERATION EXPENSES

I. 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.

II. Expenses

- O&M program expenses are from Issues 98 with revisions (*See* Chapter 2 of the Study). Federal Projects Depreciation calculations are found in Chapter 4. Interest expense is summarized herein from the results of the annual generation repayment studies. The calculation of AFUDC is also shown in this chapter.

- COE and Reclamation O&M must be functionalized between generation and the transmission component that will be included in transmission rates. The functionalization, as previously done, is based on average gross investment at the individual project level.

- Depreciation expense, calculated using the straight-line method, is functionalized according to the associated investment used in the calculations. *See* Chapter 4 – FCRPS Generation Investment Base.

- 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 Reclamation power-related capital projects.

Power Business Line Expenses (\$000)

	2002	2003	2004	2005	2006	2007	2008	2009	2010
1 System Operations									
2 CSRS Pension Expense	27,600	17,550	15,450	13,250	11,600	10,550	9,000	8,800	8,600
3 Power Marketing	16,000	15,700	8,800	6,800	5,000	18,219	18,762	19,318	19,889
4 Wheeling (GTAs)	52,000	52,000	52,000	52,000	52,000	52,000	52,000	52,000	52,000
5 Power Scheduling/Storage	20,900	12,800	12,100	12,800	12,700	0	0	0	0
6 ST Purchased Power/Upstream Benefits	459,598	487,316	451,737	489,862	489,697	63,100	66,100	69,300	72,700
7 PNCA Interchange	0	0	0	0	0	0	0	0	0
8 Generation Oversight	2,964	2,950	3,050	3,050	3,150	3,228	3,309	3,392	3,477
9 Conservation & Consumer Services	18,201	16,613	16,913	17,313	17,613	18,000	16,500	14,500	1,400
10 Fish & Wildlife	131,700	138,000	140,100	142,900	144,400	148,800	153,200	157,800	162,600
11 Administrative & Support Services	17,350	16,650	16,650	16,650	16,650	16,650	16,650	16,650	16,650
12 Planning Council ^{1/}	5,100	5,100	5,100	5,100	5,100	5,228	5,358	5,492	5,629
13 Corps of Engineers O&M	108,000	112,000	112,000	112,000	112,000	112,000	112,000	112,000	112,000
14 U.S. Fish & Wildlife O&M	15,400	16,197	16,995	17,892	18,789	19,700	20,700	24,700	22,800
15 Bureau of Reclamation O&M	47,000	48,300	48,300	48,300	48,300	48,300	48,300	48,300	48,300
16 Colville Settlement	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000
17 Renewable Projects	20,302	20,117	19,968	19,885	19,836	19,798	19,757	21,393	21,962
18 WNP-1 O&M	400	384	384	384	384	600	600	600	600
19 WNP-2 O&M/Capital Requirements	154,094	163,824	170,724	173,824	179,824	181,078	184,578	187,778	191,078
20 WNP-3 O&M	3,086	3,169	3,169	3,169	3,169	3,169	3,169	3,169	3,169
21 Trojan Decommissioning	9,600	4,200	2,600	2,600	2,600	2,700	2,800	2,900	3,000
22 Between Business Line Expense	139,310	135,923	137,954	135,145	134,731	135,783	133,040	127,130	117,700
23 LT Power Purchases	26,805	27,245	27,682	28,279	28,763	29,499	30,142	30,828	31,570
24 Undistributed Expense Reduction									
25 System Operation & Maintenance Targets	1,291,409	1,312,038	1,277,676	1,317,203	1,322,306	904,402	911,965	922,050	911,123
Non-Federal Projects Debt Service									
26 WNP-1	177,704	167,856	174,623	167,910	179,992	178,811	177,037	173,840	181,516
27 WNP-2	197,442	244,980	233,624	187,825	211,976	234,401	247,998	246,710	238,859
28 WNP-3	153,720	152,993	149,232	149,480	147,836	144,248	144,576	142,018	140,361
29 Trojan	9,947	9,954	9,964	9,989	10,009	9,713	9,959	-499	0
30 Conservation Financing	5,578	5,577	5,577	5,577	5,577	5,569	5,571	5,560	5,344
31 Renewable Projects	2,880	2,880	2,880	2,880	2,880	2,880	2,880	2,880	2,880
32 LT Power Purchases	15,917	15,916	15,920	15,933	15,935	15,943	15,928	15,920	15,685
33 Total Non-Fed. Projects Debt Service	563,187	600,156	591,820	539,594	574,205	591,563	603,949	586,428	584,644
34 Depreciation	97,608	100,773	103,661	106,003	108,403	111,781	120,907	130,354	133,163
35 Amort.: Conservation & Fish & Wildlife	79,109	77,428	70,862	68,573	64,057	60,064	55,084	53,887	51,014
36 Total Federal Projects Depreciation	176,717	178,201	174,523	174,576	172,460	171,845	175,991	184,241	184,177
37 Net Residential Exchange	0								
38 Total PBL Operating Expenses	2,031,313	2,090,395	2,044,018	2,031,373	2,068,970	1,667,811	1,691,905	1,692,720	1,679,944
39 Energy Efficiency Group O&M	11,150								
40 Total Operating Expenses	2,042,463	2,101,545	2,055,168	2,042,523	2,080,120	1,678,961	1,703,055	1,703,870	1,691,094
41 Net Federal Interest Expense	203,682	205,042	209,400	218,576	216,645	221,941	251,488	282,168	284,479
42 Total Operating & Net Interest Expenses	2,246,145	2,306,587	2,264,568	2,261,099	2,296,765	1,900,902	1,954,543	1,986,038	1,975,573

1/ May require legislation to achieve cost cuts assumed here.

Backup Worksheet for Power Business Line Expenses and for COSA Tables

	2,002	2,003	2,004	2,005	2,006	2,007	2,008	2,009	2,010
Total of Debt Service and Operations									
WNP-1	178,104	168,240	175,007	168,294	180,376	179,411	177,637	174,440	182,116
WNP-2	351,536	408,804	404,348	361,649	391,800	415,479	432,576	434,488	429,937
WNP-3	156,806	156,162	152,401	152,649	151,006	147,417	147,745	145,187	143,530
Trojan	19,547	14,154	12,564	12,589	12,609	12,413	12,759	2,401	3,000
Renewable Projects	23,182	22,997	22,848	22,765	22,716	22,678	22,637	24,273	24,841
LT Power Purchases (incl/Renewables)	65,904	66,159	66,450	66,977	67,414	68,119	68,707	71,021	72,096
Generation Oversight	2,964	2,950	3,050	3,050	3,150	3,228	3,309	3,392	3,477
Conservation									
Conservation & Consumer Services *	23,779	22,190	22,490	22,890	23,190	23,569	22,071	20,060	6,744
Energy Efficiency Group O&M	11,150	11,150	11,150	11,150	11,150	11,150	11,150	11,150	11,150
Total Conservation	34,929	33,340	33,640	34,040	34,340	34,719	33,221	31,210	17,894
Energy Efficiency Group Revenues	13,046	13,345	13,345	13,345	13,345	13,345	13,345	13,345	13,345
Power Marketing									
Power Marketing	16,000	15,700	8,800	6,800	5,000	18,219	18,762	19,318	19,889
CSRS Pension Expense	27,600	17,550	15,450	13,250	11,600	10,550	9,000	8,800	8,600
Corporate Expenses	17,350	16,650	16,650	16,650	16,650	16,650	16,650	16,650	16,650
Undistributed Expense Reduction Between Business Line Expense	0	0	0	0	0	0	0	0	0
Total Power Marketing	64,950	53,900	44,900	40,700	37,250	49,419	48,412	48,768	49,139
Power Scheduling	20,900	12,800	12,100	12,800	12,700	0	0	0	0
ST Purchased Power	457,608	485,266	449,626	487,688	487,457	17,460	18,460	22,460	20,560
input Upstream Benefits	1,990	2,050	2,111	2,174	2,240	2,240	2,240	2,240	2,240
PNCA Interchange	0	0	0	0	0	0	0	0	0
Fish & Wildlife	131,700	138,000	140,100	142,900	144,400	148,800	153,200	157,800	162,600
Planning Council	5,100	5,100	5,100	5,100	5,100	5,228	5,358	5,492	5,629
Transmission Costs									
input TBL Transmission	127,310	123,923	125,954	123,145	122,731	123,783	121,040	115,130	105,700
Wheeling (GTAs)	52,000	52,000	52,000	52,000	52,000	52,000	52,000	52,000	52,000
input Ancillary Services	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
Total Transmission	187,310	183,923	185,954	183,145	182,731	183,783	181,040	175,130	165,700
Residential Exchange	0	0	0	0	0	0	0	0	0
Total BPA O&M per Revenue Requirement table	283,214	260,723	253,215	246,969	243,171	243,898	240,359	235,022	226,185
Total O&M per Revenue Requirement table	469,614	453,220	446,510	441,161	438,260	439,898	437,359	436,022	425,285

Expenses - Energy Efficiency Group

(\$ in thousands)	2002	2003	2004	2005	2006	2007	2008	2009	2010
1. Total Operating Revenues	13,046	13,345	13,345	13,345	13,345	13,345	13,345	13,345	13,345
Expenses									
2. Energy Efficiency	10,300	10,300	10,300	10,300	10,300	10,300	10,300	10,300	10,300
3. Corporate Expenses	850	850	850	850	850	850	850	850	850
4. Undistributed Expense Reduction	0	0	0	0	0	0	0	0	0
5. Total System Operation & Maintenance	11,150	11,150	11,150	11,150	11,150	11,150	11,150	11,150	11,150

Allocation of Administrative and Support Service Costs
(\$Million)

New Methodology

	FY 1999 Estimate	Allocation Percentage
Power Business Line Expense	30	42%
Energy Efficiency Expense	1.5	2%
Power Subtotal	31.5	44%
Transmission Business Line Expense	29	41%
Capital	10.7	15%
Agency Total	71.2	

Cost Review
Recommendation Using New Methodology

	2002	2003	2004	2005	2006 Average	Average Percent
Power Business Line Expense	17.4	16.7	16.7	16.7	16.7	16.8 42%
Energy Efficiency Expense	0.9	0.8	0.8	0.8	0.8	0.8 2%
Power Subtotal	18.3	17.5	17.5	17.5	17.5	17.7 44%
Transmission Business Line Expense	16.9	16.1	16.1	16.1	16.1	16.3 41%
Capital	6.2	6	6	6	6	6 15%
Agency Total	41.4	39.6	39.6	39.6	39.6	40

FUNCTIONALIZATION OF COE/BOR O&M (\$ in thousands)	Average Investment 2002	Percent	O&M 2002	Average Investment 2003	Percent	O&M 2003
1 BOISE						
2 GENERATION	19,996	100.00%	3,433	20,533	100.00%	3,433
3 TRANSMISSION	-	0.00%	-	-	0.00%	-
4 TOTAL	19,996	100%	3,433	20,533	100%	3,433
5 COLUMBIA BASIN						
6 GENERATION	1,110,826	96.18%	33,515	1,149,958	96.31%	34,811
7 TRANSMISSION	44,110	3.82%	1,331	44,110	3.69%	1,335
8 TOTAL	1,154,936	100%	34,846	1,194,068	100%	36,146
9 HUNGRY HORSE						
10 GENERATION	111,335	97.81%	2,060	112,128	97.83%	2,060
11 TRANSMISSION	2,488	2.19%	46	2,488	2.17%	46
12 TOTAL	113,823	100%	2,106	114,616	100%	2,106
13 MINIDOKA-PALISADES						
14 GENERATION	104,442	98.42%	3,941	104,896	98.42%	3,923
15 TRANSMISSION	1,679	1.58%	551	1,679	1.58%	569
16 TOTAL	106,121	100%	4,492	106,575	100%	4,492
17 YAKIMA						
18 GENERATION	5,556	100.00%	2,123	5,664	100.00%	2,123
19 TRANSMISSION	-	0.00%	-	-	0.00%	-
20 TOTAL	5,556	100%	2,123	5,664	100%	2,123
21 GENERATION 1/ 22 TRANSMISSION			61,072 1,928			62,350 1,950
23 TOTAL USBR			63,000			64,300
1/ INCLUDES COLVILLE PAYMENT OF			16,000			16,000
24 BONNEVILLE						
25 GENERATION	891,245	99.90%	12,820	908,866	99.90%	13,295
26 TRANSMISSION	885	0.10%	13	885	0.10%	13
27 TOTAL	892,130	100%	12,833	909,751	100%	13,308
28 DWORSHAK						
29 GENERATION	316,335	100.00%	5,649	317,021	100.00%	5,858
30 TRANSMISSION	0	0.00%	-	0	0.00%	-
31 TOTAL	316,335	100%	5,649	317,021	100%	5,858
32 ICE HARBOR						
33 GENERATION	148,363	100.00%	5,510	149,520	100.00%	5,714
34 TRANSMISSION	0	0.00%	-	0	0.00%	-
35 TOTAL	148,363	100%	5,510	149,520	100%	5,714
36 OTHER PROJECTS						
37 CORPS - GENERATION ONLY			84,008			87,120
38 USF&W (LSRCP)			15,400			16,197
39 GENERATION			123,387			128,184
40 TRANSMISSION			13			13
41 TOTAL CORPS			123,400			128,197

FUNCTIONALIZATION OF COE/BOR O&M (\$ in thousands)	Average Investment		O&M 2004	Average Investment		O&M 2005
	2004	Percent		2005	Percent	
1 BOISE						
2 GENERATION	21,084	100.00%	3,433	21,649	100.00%	3,433
3 TRANSMISSION	-	0.00%	-	-	0.00%	-
4 TOTAL	21,084	100%	3,433	21,649	100%	3,433
5 COLUMBIA BASIN						
6 GENERATION	1,183,242	96.41%	34,847	1,214,840	96.50%	34,880
7 TRANSMISSION	44,110	3.59%	1,299	44,110	3.50%	1,266
8 TOTAL	1,227,352	100%	36,146	1,258,950	100%	36,146
9 HUNGRY HORSE						
10 GENERATION	113,087	97.85%	2,061	114,368	97.87%	2,061
11 TRANSMISSION	2,488	2.15%	45	2,488	2.13%	45
12 TOTAL	115,575	100%	2,106	116,856	100%	2,106
13 MINIDOKA-PALISADES						
14 GENERATION	105,410	98.43%	3,925	106,035	98.44%	3,929
15 TRANSMISSION	1,679	1.57%	567	1,679	1.56%	563
16 TOTAL	107,089	100%	4,492	107,714	100%	4,492
17 YAKIMA						
18 GENERATION	5,776	100.00%	2,123	5,890	100.00%	2,123
19 TRANSMISSION	-	0.00%	-	-	0.00%	-
20 TOTAL	5,776	100%	2,123	5,890	100%	2,123
21 GENERATION 1/ 22 TRANSMISSION 23 TOTAL USBR			62,389 1,911 64,300			62,426 1,874 64,300
1/ INCLUDES COLVILLE PAYMENT OF			16,000			16,000
24 BONNEVILLE						
25 GENERATION	921,828	99.90%	13,295	923,785	99.90%	13,295
26 TRANSMISSION	885	0.10%	13	885	0.10%	13
27 TOTAL	922,713	100%	13,308	924,670	100%	13,308
28 DWORSHAK						
29 GENERATION	317,710	100.00%	5,858	318,483	100.00%	5,858
30 TRANSMISSION	0	0.00%	-	0	0.00%	-
31 TOTAL	317,710	100%	5,858	318,483	100%	5,858
32 ICE HARBOR						
33 GENERATION	150,662	100.00%	5,714	151,934	100.00%	5,714
34 TRANSMISSION	0	0.00%	-	0	0.00%	-
35 TOTAL	150,662	100%	5,714	151,934	100%	5,714
36 OTHER PROJECTS						
37 CORPS - GENERATION ONLY 38 USF&W (LSRCP)			87,120 16,995			87,120 17,892
39 GENERATION 40 TRANSMISSION 41 TOTAL CORPS			128,982 13 128,995			129,879 13 129,892

FUNCTIONALIZATION OF COE/BOR O&M (\$ in thousands)	Average Investment 2006	Percent	O&M 2006	Average Investment 2007	Percent	O&M 2007
1 BOISE						
2 GENERATION	22,227	100.00%	3,433	22,819	100.00%	3,433
3 TRANSMISSION	-	0.00%	-	-	0.00%	-
4 TOTAL	22,227	100%	3,433	22,819	100%	3,433
5 COLUMBIA BASIN						
6 GENERATION	1,248,566	96.59%	34,913	1,282,466	96.67%	34,944
7 TRANSMISSION	44,110	3.41%	1,233	44,110	3.33%	1,202
8 TOTAL	1,292,676	100%	36,146	1,326,576	100%	36,146
9 HUNGRY HORSE						
10 GENERATION	115,817	97.90%	2,062	117,278	97.92%	2,062
11 TRANSMISSION	2,488	2.10%	44	2,488	2.08%	44
12 TOTAL	118,305	100%	2,106	119,766	100%	2,106
13 MINIDOKA-PALISADES						
14 GENERATION	106,719	98.45%	3,932	107,411	98.46%	3,936
15 TRANSMISSION	1,679	1.55%	560	1,679	1.54%	556
16 TOTAL	108,398	100%	4,492	109,090	100%	4,492
17 YAKIMA						
18 GENERATION	6,008	100.00%	2,123	6,128	100.00%	2,123
19 TRANSMISSION	-	0.00%	-	-	0.00%	-
20 TOTAL	6,008	100%	2,123	6,128	100%	2,123
21 GENERATION 1/ 22 TRANSMISSION			62,463 1,837			62,498 1,802
23 TOTAL USBR			64,300			64,300
1/ INCLUDES COLVILLE PAYMENT OF			16,000			16,000
24 BONNEVILLE						
25 GENERATION	925,971	99.90%	13,295	928,168	99.90%	13,295
26 TRANSMISSION	885	0.10%	13	885	0.10%	13
27 TOTAL	926,856	100%	13,308	929,053	100%	13,308
28 DWORSHAK						
29 GENERATION	319,342	100.00%	5,858	320,207	100.00%	5,858
30 TRANSMISSION	0	0.00%	-	0	0.00%	-
31 TOTAL	319,342	100%	5,858	320,207	100%	5,858
32 ICE HARBOR						
33 GENERATION	153,338	100.00%	5,714	154,753	100.00%	5,714
34 TRANSMISSION	0	0.00%	-	0	0.00%	-
35 TOTAL	153,338	100%	5,714	154,753	100%	5,714
36 OTHER PROJECTS						
37 CORPS - GENERATION ONLY			87,120			87,120
38 USF&W (LSRCP)			18,789			19,700
39 GENERATION			130,776			131,687
40 TRANSMISSION			13			13
41 TOTAL CORPS			130,789			131,700

FUNCTIONALIZATION OF COE/BOR O&M (\$ in thousands)	Average Investment 2008	Percent	O&M 2008	Average Investment 2009	Percent	O&M 2009
1 BOISE						
2 GENERATION	23,426	100.00%	3,433	24,048	100.00%	3,433
3 TRANSMISSION	-	0.00%	-	-	0.00%	-
4 TOTAL	23,426	100%	3,433	24,048	100%	3,433
5 COLUMBIA BASIN						
6 GENERATION	1,313,309	96.75%	34,971	1,336,971	96.81%	34,992
7 TRANSMISSION	44,110	3.25%	1,175	44,110	3.19%	1,154
8 TOTAL	1,357,419	100%	36,146	1,381,081	100%	36,146
9 HUNGRY HORSE						
10 GENERATION	118,753	97.95%	2,063	120,242	97.97%	2,063
11 TRANSMISSION	2,488	2.05%	43	2,488	2.03%	43
12 TOTAL	121,241	100%	2,106	122,730	100%	2,106
13 MINIDOKA-PALISADES						
14 GENERATION	108,110	98.47%	3,939	108,817	98.48%	3,943
15 TRANSMISSION	1,679	1.53%	553	1,679	1.52%	549
16 TOTAL	109,789	100%	4,492	110,496	100%	4,492
17 YAKIMA						
18 GENERATION	6,252	100.00%	2,123	6,378	100.00%	2,123
19 TRANSMISSION	-	0.00%	-	-	0.00%	-
20 TOTAL	6,252	100%	2,123	6,378	100%	2,123
21 GENERATION 1/ 22 TRANSMISSION			62,529 1,771			62,554 1,746
23 TOTAL USBR			64,300			64,300
1/ INCLUDES COLVILLE PAYMENT OF			16,000			16,000
24 BONNEVILLE						
25 GENERATION	930,594	99.90%	13,295	933,686	99.91%	13,295
26 TRANSMISSION	885	0.10%	13	885	0.09%	13
27 TOTAL	931,479	100%	13,308	934,571	100%	13,308
28 DWORSHAK						
29 GENERATION	321,158	100.00%	5,858	322,353	100.00%	5,858
30 TRANSMISSION	0	0.00%	-	0	0.00%	-
31 TOTAL	321,158	100%	5,858	322,353	100%	5,858
32 ICE HARBOR						
33 GENERATION	156,300	100.00%	5,714	158,219	100.00%	5,714
34 TRANSMISSION	0	0.00%	-	0	0.00%	-
35 TOTAL	156,300	100%	5,714	158,219	100%	5,714
36 OTHER PROJECTS						
37 CORPS - GENERATION ONLY			87,120			87,120
38 USF&W (LSRCP)			20,700			24,700
39 GENERATION			132,687			136,687
40 TRANSMISSION			13			13
41 TOTAL CORPS			132,700			136,700

FUNCTIONALIZATION OF COE/BOR O&M (\$ in thousands)	Average Investment 2010	Percent	O&M 2010
1 BOISE			
2 GENERATION	24,685	100.00%	3,433
3 TRANSMISSION	-	0.00%	-
4 TOTAL	24,685	100%	3,433
5 COLUMBIA BASIN			
6 GENERATION	1,356,845	96.85%	35,008
7 TRANSMISSION	44,110	3.15%	1,138
8 TOTAL	1,400,955	100%	36,146
9 HUNGRY HORSE			
10 GENERATION	121,746	98.00%	2,064
11 TRANSMISSION	2,488	2.00%	42
12 TOTAL	124,234	100%	2,106
13 MINIDOKA-PALISADES			
14 GENERATION	109,533	98.49%	3,946
15 TRANSMISSION	1,679	1.51%	546
16 TOTAL	111,212	100%	4,492
17 YAKIMA			
18 GENERATION	6,508	100.00%	2,123
19 TRANSMISSION	-	0.00%	-
20 TOTAL	6,508	100%	2,123
21 GENERATION 1/ 22 TRANSMISSION			62,574 1,726
23 TOTAL USBR			64,300
1/ INCLUDES COLVILLE PAYMENT OF			16,000
24 BONNEVILLE			
25 GENERATION	937,225	99.91%	13,295
26 TRANSMISSION	885	0.09%	13
27 TOTAL	938,110	100%	13,308
28 DWORSHAK			
29 GENERATION	323,714	100.00%	5,858
30 TRANSMISSION	0	0.00%	-
31 TOTAL	323,714	100%	5,858
32 ICE HARBOR			
33 GENERATION	160,390	100.00%	5,714
34 TRANSMISSION	0	0.00%	-
35 TOTAL	160,390	100%	5,714
36 OTHER PROJECTS			
37 CORPS - GENERATION ONLY			87,120
38 USF&W (LSRCP)			22,800
39 GENERATION			134,787
40 TRANSMISSION			13
41 TOTAL CORPS			134,800

**FEDERAL COLUMBIA RIVER POWER SYSTEM
SUMMARY OF GENERATION CURRENT REPAYMENT STUDY DATA
(\$000)**

	A	B	C	D	E	F	G	H	I
	2002	2003	2004	2005	2006	2007	2008	2009	2010
1 INTEREST EXPENSE (GROSS)									
2 CORPS	195,767	199,229	206,421	212,525	212,708	212,342	241,648	276,105	283,150
3 BUREAU	39,454	39,562	38,488	38,595	38,605	38,709	38,797	38,899	38,999
4 LOWER SNAKE RIVER COMPENSATION PLAN	16,782	16,806	16,806	16,806	16,806	16,806	16,806	16,806	16,806
5 TOTAL APPROPRIATIONS	252,003	255,597	261,715	267,926	268,119	267,857	297,251	331,810	338,955
6 LONG-TERM DEBT	63,472	67,412	72,664	77,374	80,178	88,752	90,090	89,083	88,002
7 SHORT-TERM NOTE	0	0	0	0	0	0	0	0	0
8 TOTAL INTEREST EXPENSE	315,475	323,009	334,379	345,300	348,297	356,609	387,341	420,893	426,957
9 PLANNED AMORTIZATION									
10 CORPS	41,401	30,000	64,885	115,897	128,469	69,750	0	0	61,767
11 BUREAU	0	17,362	0	1,443	7	229	0	0	81
12 LOWER SNAKE RIVER COMPENSATION PLAN	0	0	0	0	0	0	0	0	0
13 TOTAL APPROPRIATIONS	41,401	47,362	64,885	117,340	128,476	69,979	0	0	61,848
14 LONG-TERM DEBT	66,000	25,622	27,400	30,757	0	45,001	104,301	77,702	22,901
15 TOTAL GENERATION AMORTIZATION	107,401	72,984	92,285	148,097	128,476	114,980	104,301	77,702	84,749
16 IRRIGATION ASSISTANCE			739			2,958		7,701	
17 TOTAL AMORTIZATION/IRRIGATION	107,401	72,984	93,024	148,097	128,476	117,938	104,301	85,403	84,749

**FEDERAL COLUMBIA RIVER POWER SYSTEM
SUMMARY OF 7(b)(2) CASE REPAYMENT STUDY DATA
(\$000)**

	A	B	C	D	E	F	G	H	I
	2002	2003	2004	2005	2006	2007	2008	2009	2010
1 INTEREST EXPENSE (GROSS)									
2 CORPS	196,002	198,303	207,453	216,660	217,950	221,519	253,668	288,125	291,380
3 BUREAU	39,413	38,657	38,447	38,554	38,660	38,764	38,852	38,954	39,054
4 LOWER SNAKE RIVER COMPENSATION PLAN	16,782	16,806	16,806	16,806	16,806	16,806	16,806	16,806	16,806
5 TOTAL APPROPRIATIONS	252,197	253,766	262,706	272,020	273,416	277,089	309,326	343,885	347,240
6 LONG-TERM DEBT	25,589	35,380	40,679	43,403	50,794	59,178	61,057	61,152	65,768
7 SHORT-TERM NOTE	0	0	0	0	0	0	0	0	0
8 TOTAL INTEREST EXPENSE	277,786	289,146	303,385	315,423	324,210	336,267	370,383	405,037	413,008
9 PLANNED AMORTIZATION									
10 CORPS	60,178	3,080	20,251	100,209	69,883	29,072	1	52,051	40,191
11 BUREAU	12,630	4,732	0	0	7	229	0	0	81
12 LOWER SNAKE RIVER COMPENSATION PLAN	0	0	0	0	0	0	0	0	0
13 TOTAL APPROPRIATIONS	72,808	7,812	20,251	100,209	69,890	29,301	1	52,051	40,272
14 LONG-TERM DEBT	0	25,622	27,400	2	4	26,750	58,730	0	22,873
15 TOTAL GENERATION AMORTIZATION	72,808	33,434	47,651	100,211	69,894	56,051	58,731	52,051	63,145
16 IRRIGATION ASSISTANCE			739				2,950	7,709	
17 TOTAL AMORTIZATION/IRRIGATION	72,808	33,434	48,390	100,211	69,894	56,051	61,681	59,760	63,145

**Federal Projects Depreciation
Generation
(\$000)**

	2002	2003	2004	2005	2006	2007	2008	2009	2010
BPA	4,809	5,233	4,834	3,736	3,267	3,109	2,935	2,984	3,144
Corps	73,329	75,497	78,292	81,258	83,620	86,646	95,478	104,509	106,842
Bureau	19,470	20,043	20,535	21,009	21,516	22,026	22,494	22,861	23,177
Total Depreciation	97,608	100,773	103,661	106,003	108,403	111,781	120,907	130,354	133,163
Amortization of Conservation	59,337	55,586	47,125	43,179	37,650	33,112	28,323	27,704	25,759
Amortization of Fish & Wildlife	19,772	21,842	23,737	25,394	26,407	26,952	26,761	26,183	25,255
Total Amortization	79,109	77,428	70,862	68,573	64,057	60,064	55,084	53,887	51,014
Total Federal Projects Depreciation	176,717	178,201	174,523	174,576	172,460	171,845	175,991	184,241	184,177
PBL	4,296	4,693	4,383	3,411	2,973	2,952	2,850	2,898	3,057
EE Group	513	540	451	325	294	157	85	86	87

AFUDC for BOR/COE Direct Funded Capital

	Cost Evaluation Period						
	Rate Period						
	2000	2001	2002	2003	2004	2005	2006
1 Starting CWIP Balance	4,693	0	0	0	0	0	0
2 Annual Capital Expenditures	77,773	73,477	86,863	83,759	59,601	60,033	60,022
3 AFUDC Rate	7.29%	7.08%	6.89%	6.90%	6.88%	6.85%	6.81%
4 Annual AFUDC (Line 1 x Line 4 + 1/2 Line 2 x Line 4)	3,177	2,601	2,992	2,890	2,050	2,056	2,044
5 Additions to CWIP (Lines 1 + 2 + 4)	85,643	76,078	89,855	86,649	61,651	62,089	62,066
6 Less: Amount Transferred to Plant (including AFUDC)	85,643	76,078	89,855	86,649	61,651	62,089	62,066
7 Ending CWIP Balance (Line 5 - Line 6)	0	0	0	0	0	0	0

	7(b)(2) period			
	2007	2008	2009	2010
1 Starting CWIP Balance	0	0	0	0
2 Annual Capital Expenditures	60,789	59,539	62,331	62,651
3 AFUDC Rate	6.77%	6.72%	6.67%	6.65%
4 Annual AFUDC (Line 1 x Line 4 + 1/2 Line 2 x Line 4)	2,058	2,000	2,079	2,083
5 Additions to CWIP (Lines 1 + 2 + 4)	62,846	61,539	64,410	64,734
6 Less: Amount Transferred to Plant (including AFUDC)	62,846	61,539	64,410	64,734
7 Ending CWIP Balance (Line 5 - Line 6)	0	0	0	0

CHAPTER 4

FCRPS GENERATION INVESTMENT BASE

I. 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.

II. Methodology

The FCRPS plant investment information is separately compiled for the COE, Reclamation, 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.

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 and fish and wildlife investments are amortized over 20 years and 15 years, respectively.

COE and Reclamation 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.

**FCRPS INVESTMENT BASE
FY 2002
(\$ IN THOUSANDS)**

	A	B	C
	BALANCE-AS-OF	BALANCE-AS-OF	AVERAGE
	9/30/02	9/30/01	2002
1 CORPS OF ENGINEERS			
2 COMPLETED PLANT			
3 HYDROELECTRIC GEN	5,591,312	5,409,374	5,500,343
4 TRANSMISSION	885	885	885
5 TOTAL COMPLETED PLANT	5,592,197	5,410,259	5,501,228
6 ACCUMULATED DEPRECIATION			
7 HYDROELECTRIC GEN	1,593,684	1,520,355	1,557,020
8 TRANSMISSION	885	885	885
9 TOTAL ACCUMULATED DEPRECIATION	1,594,569	1,521,240	1,557,905
10 NET COMPLETED PLANT			
11 HYDROELECTRIC GEN	3,997,628	3,889,019	3,943,323
12 TRANSMISSION	0	0	0
13 TOTAL NET COMPLETED PLANT	3,997,628	3,889,019	3,943,323
14 BUREAU OF RECLAMATION			
15 COMPLETED PLANT			
16 HYDROELECTRIC GEN	1,373,617	1,330,690	1,352,154
17 TRANSMISSION	48,277	48,277	48,277
18 GENERAL PLANT	22,243	22,243	22,243
19 TOTAL COMPLETED PLANT	1,444,137	1,401,210	1,422,674
20 ACCUMULATED DEPRECIATION			
21 HYDROELECTRIC GEN	400,178	381,690	390,934
22 TRANSMISSION	15,273	14,603	14,938
23 GENERAL PLANT	7,022	6,710	6,866
24 TOTAL ACCUM DEPRECIATION	422,473	403,003	412,738
25 NET COMPLETED PLANT			
26 HYDROELECTRIC GEN	973,439	949,000	961,220
27 TRANSMISSION	33,004	33,674	33,339
28 GENERAL PLANT	15,221	15,533	15,377
29 TOTAL NET COMPLETED PLANT	1,021,664	998,207	1,009,936
30 CONSERVATION			
31 CUMULATIVE INVESTMENT	1,215,170	1,215,170	1,215,170
32 ACCUM PREPAID EXPENSE	828,645	769,308	798,977
33 NET CONSERVATION	386,525	445,862	416,193
34 FISH AND WILDLIFE			
35 CUMULATIVE INVESTMENT	377,356	349,258	363,307
36 ACCUM PREPAID EXPENSE	166,175	150,165	158,170
37 NET FISH AND WILDLIFE	211,181	199,093	205,137
38 BPA PLANT (PBL)			
39 CUMULATIVE INVESTMENT	42,252	39,060	40,656
40 ACCUMULATED DEPRECIATION	30,067	25,771	27,919
41 NET BPA PLANT INVESTMENT	12,185	13,289	12,737
42 TOTAL NET PLANT INVESTMENT	5,629,183	5,545,470	5,587,326

FCRPS INVESTMENT BASE
FY 2003
(\$ IN THOUSANDS)

	A	B	C
	BALANCE-AS-OF	BALANCE-AS-OF	AVERAGE
	9/30/03	9/30/02	2003
1 CORPS OF ENGINEERS			
2 COMPLETED PLANT			
3 HYDROELECTRIC GEN	5,720,042	5,591,312	5,655,677
4 GEN INTEGRATION	885	885	885
5 TOTAL COMPLETED PLANT	5,720,927	5,592,197	5,656,562
6 ACCUMULATED DEPRECIATION			
7 HYDROELECTRIC GEN	1,669,181	1,593,684	1,631,433
8 GEN INTEGRATION	885	885	885
9 TOTAL ACCUMULATED DEPRECIATION	1,670,066	1,594,569	1,632,318
10 NET COMPLETED PLANT			
11 HYDROELECTRIC GEN	4,050,861	3,997,628	4,024,244
12 GEN INTEGRATION	0	0	0
13 TOTAL NET COMPLETED PLANT	4,050,861	3,997,628	4,024,244
14 BUREAU OF RECLAMATION			
15 COMPLETED PLANT			
16 HYDROELECTRIC GEN	1,412,739	1,373,617	1,393,178
17 GEN INTEGRATION	48,277	48,277	48,277
18 GENERAL PLANT	22,243	22,243	22,243
19 TOTAL COMPLETED PLANT	1,483,259	1,444,137	1,463,698
20 ACCUMULATED DEPRECIATION			
21 HYDROELECTRIC GEN	419,239	400,178	409,709
22 GEN INTEGRATION	15,943	15,273	15,608
23 GENERAL PLANT	7,334	7,022	7,178
24 TOTAL ACCUM DEPRECIATION	442,516	422,473	432,495
25 NET COMPLETED PLANT			
26 HYDROELECTRIC GEN	993,500	973,439	983,469
27 GEN INTEGRATION	32,334	33,004	32,669
28 GENERAL PLANT	14,909	15,221	15,065
29 TOTAL NET COMPLETED PLANT	1,040,743	1,021,664	1,031,203
30 CONSERVATION			
31 CUMULATIVE INVESTMENT	1,153,813	1,215,170	1,184,492
32 ACCUM PREPAID EXPENSE	822,874	828,645	825,760
33 NET CONSERVATION	330,939	386,525	358,732
34 FISH AND WILDLIFE			
35 CUMULATIVE INVESTMENT	403,077	377,356	390,217
36 ACCUM PREPAID EXPENSE	183,302	166,175	174,739
37 NET FISH AND WILDLIFE	219,775	211,181	215,478
38 BPA PLANT (PBL)			
39 CUMULATIVE INVESTMENT	45,464	42,252	43,858
40 ACCUMULATED DEPRECIATION	34,760	30,067	32,414
41 NET BPA PLANT INVESTMENT	10,704	12,185	11,444
42 TOTAL NET PLANT INVESTMENT	5,653,022	5,629,183	5,641,101

FCRPS INVESTMENT BASE

FY 2004

(\$ IN THOUSANDS)

	A	B	C
	BALANCE-AS-OF	BALANCE-AS-OF	AVERAGE
	9/30/04	9/30/03	2004
1 CORPS OF ENGINEERS			
2 COMPLETED PLANT			
3 HYDROELECTRIC GEN	5,984,914	5,720,042	5,852,478
4 GEN INTEGRATION	885	885	885
5 TOTAL COMPLETED PLANT	5,985,799	5,720,927	5,853,363
6 ACCUMULATED DEPRECIATION			
7 HYDROELECTRIC GEN	1,747,473	1,669,181	1,708,327
8 GEN INTEGRATION	885	885	885
9 TOTAL ACCUMULATED DEPRECIATION	1,748,358	1,670,066	1,709,212
10 NET COMPLETED PLANT			
11 HYDROELECTRIC GEN	4,237,441	4,050,861	4,144,151
12 GEN INTEGRATION	0	0	0
13 TOTAL NET COMPLETED PLANT	4,237,441	4,050,861	4,144,151
14 BUREAU OF RECLAMATION			
15 COMPLETED PLANT			
16 HYDROELECTRIC GEN	1,444,456	1,412,739	1,428,598
17 GEN INTEGRATION	48,277	48,277	48,277
18 GENERAL PLANT	22,243	22,243	22,243
19 TOTAL COMPLETED PLANT	1,514,976	1,483,259	1,499,118
20 ACCUMULATED DEPRECIATION			
21 HYDROELECTRIC GEN	438,792	419,239	429,016
22 GEN INTEGRATION	16,613	15,943	16,278
23 GENERAL PLANT	7,646	7,334	7,490
24 TOTAL ACCUM DEPRECIATION	463,051	442,516	452,784
25 NET COMPLETED PLANT			
26 HYDROELECTRIC GEN	1,005,664	993,500	999,582
27 GEN INTEGRATION	31,664	32,334	31,999
28 GENERAL PLANT	14,597	14,909	14,753
29 TOTAL NET COMPLETED PLANT	1,051,925	1,040,743	1,046,334
30 CONSERVATION			
31 CUMULATIVE INVESTMENT	949,721	1,153,813	1,051,767
32 ACCUM PREPAID EXPENSE	665,907	822,874	744,391
33 NET CONSERVATION	283,814	330,939	307,376
34 FISH AND WILDLIFE			
35 CUMULATIVE INVESTMENT	421,066	403,077	412,072
36 ACCUM PREPAID EXPENSE	193,516	183,302	188,409
37 NET FISH AND WILDLIFE	227,550	219,775	223,663
38 BPA PLANT (PBL)			
39 CUMULATIVE INVESTMENT	48,676	45,464	47,070
40 ACCUMULATED DEPRECIATION	39,143	34,760	36,952
41 NET BPA PLANT INVESTMENT	9,533	10,704	10,118
42 TOTAL NET PLANT INVESTMENT	5,810,263	5,653,022	5,731,642

FCRPS INVESTMENT BASE
FY 2005
(\$ IN THOUSANDS)

	A	B	C
	BALANCE-AS-OF	BALANCE-AS-OF	AVERAGE
	9/30/05	9/30/04	2005
1 CORPS OF ENGINEERS			
2 COMPLETED PLANT			
3 HYDROELECTRIC GEN	6,132,863	5,984,914	6,058,889
4 GEN INTEGRATION	885	885	885
5 TOTAL COMPLETED PLANT	6,133,748	5,985,799	6,059,774
6 ACCUMULATED DEPRECIATION			
7 HYDROELECTRIC GEN	1,828,731	1,747,473	1,788,102
8 GEN INTEGRATION	885	885	885
9 TOTAL ACCUMULATED DEPRECIATION	1,829,616	1,748,358	1,788,987
10 NET COMPLETED PLANT			
11 HYDROELECTRIC GEN	4,304,132	4,237,441	4,270,787
12 GEN INTEGRATION	0	0	0
13 TOTAL NET COMPLETED PLANT	4,304,132	4,237,441	4,270,787
14 BUREAU OF RECLAMATION			
15 COMPLETED PLANT			
16 HYDROELECTRIC GEN	1,481,105	1,444,456	1,462,781
17 GEN INTEGRATION	48,277	48,277	48,277
18 GENERAL PLANT	22,243	22,243	22,243
19 TOTAL COMPLETED PLANT	1,551,625	1,514,976	1,533,301
20 ACCUMULATED DEPRECIATION			
21 HYDROELECTRIC GEN	458,819	438,792	448,806
22 GEN INTEGRATION	17,283	16,613	16,948
23 GENERAL PLANT	7,958	7,646	7,802
24 TOTAL ACCUM DEPRECIATION	484,060	463,051	473,556
25 NET COMPLETED PLANT			
26 HYDROELECTRIC GEN	1,022,286	1,005,664	1,013,975
27 GEN INTEGRATION	30,994	31,664	31,329
28 GENERAL PLANT	14,285	14,597	14,441
29 TOTAL NET COMPLETED PLANT	1,067,565	1,051,925	1,059,745
30 CONSERVATION			
31 CUMULATIVE INVESTMENT	882,938	949,721	916,330
32 ACCUM PREPAID EXPENSE	642,303	665,907	654,105
33 NET CONSERVATION	240,635	283,814	262,225
34 FISH AND WILDLIFE			
35 CUMULATIVE INVESTMENT	414,386	421,066	417,726
36 ACCUM PREPAID EXPENSE	202,788	193,516	198,152
37 NET FISH AND WILDLIFE	211,598	227,550	219,574
38 BPA PLANT (PBL)			
39 CUMULATIVE INVESTMENT	51,888	48,676	50,282
40 ACCUMULATED DEPRECIATION	42,554	39,143	40,849
41 NET BPA PLANT INVESTMENT	9,334	9,533	9,433
42 TOTAL NET PLANT INVESTMENT	5,833,264	5,810,263	5,821,764

FCRPS INVESTMENT BASE
FY 2006
(\$ IN THOUSANDS)

	A	B	C
	BALANCE-AS-OF	BALANCE-AS-OF	AVERAGE
	9/30/06	9/30/05	2006
1 CORPS OF ENGINEERS			
2 COMPLETED PLANT			
3 HYDROELECTRIC GEN	6,315,686	6,132,863	6,224,275
4 GEN INTEGRATION	885	885	885
5 TOTAL COMPLETED PLANT	6,316,571	6,133,748	6,225,160
6 ACCUMULATED DEPRECIATION			
7 HYDROELECTRIC GEN	1,912,351	1,828,731	1,870,541
8 GEN INTEGRATION	885	885	885
9 TOTAL ACCUMULATED DEPRECIATION	1,913,236	1,829,616	1,871,426
10 NET COMPLETED PLANT			
11 HYDROELECTRIC GEN	4,403,335	4,304,132	4,353,734
12 GEN INTEGRATION	0	0	0
13 TOTAL NET COMPLETED PLANT	4,403,335	4,304,132	4,353,734
14 BUREAU OF RECLAMATION			
15 COMPLETED PLANT			
16 HYDROELECTRIC GEN	1,517,566	1,481,105	1,499,336
17 GEN INTEGRATION	48,277	48,277	48,277
18 GENERAL PLANT	22,243	22,243	22,243
19 TOTAL COMPLETED PLANT	1,588,086	1,551,625	1,569,856
20 ACCUMULATED DEPRECIATION			
21 HYDROELECTRIC GEN	479,353	458,819	469,086
22 GEN INTEGRATION	17,953	17,283	17,618
23 GENERAL PLANT	8,270	7,958	8,114
24 TOTAL ACCUM DEPRECIATION	505,576	484,060	494,818
25 NET COMPLETED PLANT			
26 HYDROELECTRIC GEN	1,038,213	1,022,286	1,030,250
27 GEN INTEGRATION	30,324	30,994	30,659
28 GENERAL PLANT	13,973	14,285	14,129
29 TOTAL NET COMPLETED PLANT	1,082,510	1,067,565	1,075,038
30 CONSERVATION			
31 CUMULATIVE INVESTMENT	779,871	882,938	831,405
32 ACCUM PREPAID EXPENSE	576,886	642,303	609,595
33 NET CONSERVATION	202,985	240,635	221,810
34 FISH AND WILDLIFE			
35 CUMULATIVE INVESTMENT	414,208	414,386	414,297
36 ACCUM PREPAID EXPENSE	218,371	202,788	210,580
37 NET FISH AND WILDLIFE	195,837	211,598	203,717
38 BPA PLANT (PBL)			
39 CUMULATIVE INVESTMENT	55,100	51,888	53,494
40 ACCUMULATED DEPRECIATION	45,527	42,554	44,041
41 NET BPA PLANT INVESTMENT	9,573	9,334	9,453
42 TOTAL NET PLANT INVESTMENT	5,894,240	5,833,264	5,863,752

**FCRPS INVESTMENT BASE
FY 2007
(\$ IN THOUSANDS)**

	A	B	C
	BALANCE-AS-OF	BALANCE-AS-OF	AVERAGE
	9/30/07	9/30/06	2007
1 CORPS OF ENGINEERS			
2 COMPLETED PLANT			
3 HYDROELECTRIC GEN	6,555,634	6,315,686	6,435,660
4 TRANSMISSION	885	885	885
5 TOTAL COMPLETED PLANT	6,556,519	6,316,571	6,436,545
6 ACCUMULATED DEPRECIATION			
7 HYDROELECTRIC GEN	1,998,998	1,912,351	1,955,675
8 TRANSMISSION	885	885	885
9 TOTAL ACCUMULATED DEPRECIATION	1,999,883	1,913,236	1,956,560
10 NET COMPLETED PLANT			
11 HYDROELECTRIC GEN	4,556,636	4,403,335	4,479,985
12 TRANSMISSION	0	0	0
13 TOTAL NET COMPLETED PLANT	4,556,636	4,403,335	4,479,985
14 BUREAU OF RECLAMATION			
15 COMPLETED PLANT			
16 HYDROELECTRIC GEN	1,554,637	1,517,566	1,536,102
17 TRANSMISSION	48,277	48,277	48,277
18 GENERAL PLANT	22,243	22,243	22,243
19 TOTAL COMPLETED PLANT	1,625,157	1,588,086	1,606,622
20 ACCUMULATED DEPRECIATION			
21 HYDROELECTRIC GEN	500,397	479,353	489,875
22 TRANSMISSION	18,623	17,953	18,288
23 GENERAL PLANT	8,582	8,270	8,426
24 TOTAL ACCUM DEPRECIATION	527,602	505,576	516,589
25 NET COMPLETED PLANT			
26 HYDROELECTRIC GEN	1,054,240	1,038,213	1,046,227
27 TRANSMISSION	29,654	30,324	29,989
28 GENERAL PLANT	13,661	13,973	13,817
29 TOTAL NET COMPLETED PLANT	1,097,555	1,082,510	1,090,033
30 CONSERVATION			
31 CUMULATIVE INVESTMENT	682,253	779,871	731,062
32 ACCUM PREPAID EXPENSE	512,380	576,886	544,633
33 NET CONSERVATION	169,873	202,985	186,429
34 FISH AND WILDLIFE			
35 CUMULATIVE INVESTMENT	414,386	414,208	414,297
36 ACCUM PREPAID EXPENSE	202,788	218,371	210,580
37 NET FISH AND WILDLIFE	211,598	195,837	203,717
38 BPA PLANT (PBL)			
39 CUMULATIVE INVESTMENT	58,312	55,100	56,706
40 ACCUMULATED DEPRECIATION	48,479	45,527	47,003
41 NET BPA PLANT INVESTMENT	9,833	9,573	9,703
42 TOTAL NET PLANT INVESTMENT	6,045,495	5,894,240	5,969,867

FCRPS INVESTMENT BASE
FY 2008
(\$ IN THOUSANDS)

	A	B	C
	BALANCE-AS-OF	BALANCE-AS-OF	AVERAGE
	9/30/08	9/30/07	2008
1 CORPS OF ENGINEERS			
2 COMPLETED PLANT			
3 HYDROELECTRIC GEN	7,539,194	6,555,634	7,047,414
4 TRANSMISSION	885	885	885
5 TOTAL COMPLETED PLANT	7,540,079	6,556,519	7,048,299
6 ACCUMULATED DEPRECIATION			
7 HYDROELECTRIC GEN	2,094,476	1,998,998	2,046,737
8 TRANSMISSION	885	885	885
9 TOTAL ACCUMULATED DEPRECIATION	2,095,361	1,999,883	2,047,622
10 NET COMPLETED PLANT			
11 HYDROELECTRIC GEN	5,444,718	4,556,636	5,000,677
12 TRANSMISSION	0	0	0
13 TOTAL NET COMPLETED PLANT	5,444,718	4,556,636	5,000,677
14 BUREAU OF RECLAMATION			
15 COMPLETED PLANT			
16 HYDROELECTRIC GEN	1,585,061	1,554,637	1,569,849
17 TRANSMISSION	48,277	48,277	48,277
18 GENERAL PLANT	22,243	22,243	22,243
19 TOTAL COMPLETED PLANT	1,655,581	1,625,157	1,640,369
20 ACCUMULATED DEPRECIATION			
21 HYDROELECTRIC GEN	521,909	500,397	511,153
22 TRANSMISSION	19,293	18,623	18,958
23 GENERAL PLANT	8,894	8,582	8,738
24 TOTAL ACCUM DEPRECIATION	550,096	527,602	538,849
25 NET COMPLETED PLANT			
26 HYDROELECTRIC GEN	1,063,152	1,054,240	1,058,696
27 TRANSMISSION	28,984	29,654	29,319
28 GENERAL PLANT	13,349	13,661	13,505
29 TOTAL NET COMPLETED PLANT	1,105,485	1,097,555	1,101,520
30 CONSERVATION			
31 CUMULATIVE INVESTMENT	616,295	682,253	649,274
32 ACCUM PREPAID EXPENSE	474,745	512,380	493,563
33 NET CONSERVATION	141,550	169,873	155,711
34 FISH AND WILDLIFE			
35 CUMULATIVE INVESTMENT	414,208	414,386	414,297
36 ACCUM PREPAID EXPENSE	218,371	202,788	210,580
37 NET FISH AND WILDLIFE	195,837	211,598	203,717
38 BPA PLANT (PBL)			
39 CUMULATIVE INVESTMENT	61,524	58,312	59,918
40 ACCUMULATED DEPRECIATION	51,329	48,479	49,904
41 NET BPA PLANT INVESTMENT	10,195	9,833	10,014
42 TOTAL NET PLANT INVESTMENT	6,897,785	6,045,495	6,471,639

**FCRPS INVESTMENT BASE
FY 2009
(\$ IN THOUSANDS)**

	A	B	C
	BALANCE-AS-OF	BALANCE-AS-OF	AVERAGE
	9/30/09	9/30/08	2009
1 CORPS OF ENGINEERS			
2 COMPLETED PLANT			
3 HYDROELECTRIC GEN	7,807,853	7,539,194	7,673,524
4 TRANSMISSION	885	885	885
5 TOTAL COMPLETED PLANT	7,808,738	7,540,079	7,674,409
6 ACCUMULATED DEPRECIATION			
7 HYDROELECTRIC GEN	2,198,985	2,094,476	2,146,731
8 TRANSMISSION	885	885	885
9 TOTAL ACCUMULATED DEPRECIATION	2,199,870	2,095,361	2,147,616
10 NET COMPLETED PLANT			
11 HYDROELECTRIC GEN	5,608,868	5,444,718	5,526,793
12 TRANSMISSION	0	0	0
13 TOTAL NET COMPLETED PLANT	5,608,868	5,444,718	5,526,793
14 BUREAU OF RECLAMATION			
15 COMPLETED PLANT			
16 HYDROELECTRIC GEN	1,607,850	1,585,061	1,596,456
17 TRANSMISSION	48,277	48,277	48,277
18 GENERAL PLANT	22,243	22,243	22,243
19 TOTAL COMPLETED PLANT	1,678,370	1,655,581	1,666,976
20 ACCUMULATED DEPRECIATION			
21 HYDROELECTRIC GEN	543,788	521,909	532,849
22 TRANSMISSION	19,963	19,293	19,628
23 GENERAL PLANT	9,206	8,894	9,050
24 TOTAL ACCUM DEPRECIATION	572,957	550,096	561,527
25 NET COMPLETED PLANT			
26 HYDROELECTRIC GEN	1,064,062	1,063,152	1,063,607
27 TRANSMISSION	28,314	28,984	28,649
28 GENERAL PLANT	13,037	13,349	13,193
29 TOTAL NET COMPLETED PLANT	1,105,413	1,105,485	1,105,449
30 CONSERVATION			
31 CUMULATIVE INVESTMENT	563,810	616,295	590,053
32 ACCUM PREPAID EXPENSE	449,964	474,745	462,355
33 NET CONSERVATION	113,846	141,550	127,698
34 FISH AND WILDLIFE			
35 CUMULATIVE INVESTMENT	407,870	414,208	411,039
36 ACCUM PREPAID EXPENSE	227,216	218,371	222,794
37 NET FISH AND WILDLIFE	180,654	195,837	188,245
38 BPA PLANT (PBL)			
39 CUMULATIVE INVESTMENT	64,736	61,524	63,130
40 ACCUMULATED DEPRECIATION	54,227	51,329	52,778
41 NET BPA PLANT INVESTMENT	10,509	10,195	10,352
42 TOTAL NET PLANT INVESTMENT	7,019,290	6,897,785	6,958,537

FCRPS INVESTMENT BASE
FY 2010
(\$ IN THOUSANDS)

	A	B	C
	BALANCE-AS-OF	BALANCE-AS-OF	AVERAGE
	9/30/10	9/30/09	2010
1 CORPS OF ENGINEERS			
2 COMPLETED PLANT			
3 HYDROELECTRIC GEN	7,868,437	7,807,853	7,838,145
4 TRANSMISSION	885	885	885
5 TOTAL COMPLETED PLANT	7,869,322	7,808,738	7,839,030
6 ACCUMULATED DEPRECIATION			
7 HYDROELECTRIC GEN	2,305,827	2,198,985	2,252,406
8 TRANSMISSION	885	885	885
9 TOTAL ACCUMULATED DEPRECIATION	2,306,712	2,199,870	2,253,291
10 NET COMPLETED PLANT			
11 HYDROELECTRIC GEN	5,562,610	5,608,868	5,585,739
12 TRANSMISSION	0	0	0
13 TOTAL NET COMPLETED PLANT	5,562,610	5,608,868	5,585,739
14 BUREAU OF RECLAMATION			
15 COMPLETED PLANT			
16 HYDROELECTRIC GEN	1,630,781	1,607,850	1,619,316
17 TRANSMISSION	48,277	48,277	48,277
18 GENERAL PLANT	22,243	22,243	22,243
19 TOTAL COMPLETED PLANT	1,701,301	1,678,370	1,689,836
20 ACCUMULATED DEPRECIATION			
21 HYDROELECTRIC GEN	565,983	543,788	554,886
22 TRANSMISSION	20,633	19,963	20,298
23 GENERAL PLANT	9,518	9,206	9,362
24 TOTAL ACCUM DEPRECIATION	596,134	572,957	584,546
25 NET COMPLETED PLANT			
26 HYDROELECTRIC GEN	1,064,798	1,064,062	1,064,430
27 TRANSMISSION	27,644	28,314	27,979
28 GENERAL PLANT	12,725	13,037	12,881
29 TOTAL NET COMPLETED PLANT	1,105,167	1,105,413	1,105,290
30 CONSERVATION			
31 CUMULATIVE INVESTMENT	526,643	563,810	545,227
32 ACCUM PREPAID EXPENSE	438,556	449,964	444,260
33 NET CONSERVATION	88,087	113,846	100,967
34 FISH AND WILDLIFE			
35 CUMULATIVE INVESTMENT	398,383	407,870	403,127
36 ACCUM PREPAID EXPENSE	231,984	227,216	229,600
37 NET FISH AND WILDLIFE	166,399	180,654	173,527
38 BPA PLANT (PBL)			
39 CUMULATIVE INVESTMENT	67,948	64,736	66,342
40 ACCUMULATED DEPRECIATION	57,284	54,227	55,756
41 NET BPA PLANT INVESTMENT	10,664	10,509	10,586
42 TOTAL NET PLANT INVESTMENT	6,932,927	7,019,290	6,976,109

PBL GENERAL PLANT INVESTMENT
(\$ thousands)

FERC ACCOUNT 391.1 OFFICE FURNITURE AND FIXTURES
ASL, Remaining Life, Annual Percent=5.18%

FY	INVEST	FIRST YEAR	FULL YEAR	ANNUAL DEPR	ACCUM DEPR	CUMUL INVEST
1997	397	5	21	21	199	397
1998	407	11	21	32	231	804
1999	1,026	27	53	69	887	1,830
2000	630	17	33	112	999	2,460
2001	650	17	34	145	1,144	3,110
2002	660	17	34	179	1,323	3,770
2003	680	18	35	214	1,537	4,450
2004	680	18	35	244	1,781	5,130
2005	680	18	35	263	2,044	5,810
2006	680	18	35	298	2,342	6,490
2007	680	18	35	333	2,675	7,170
2008	680	18	35	368	3,043	7,850
2009	680	18	35	403	3,446	8,530
2010	680	18	35	438	3,884	9,210

FERC ACCOUNT 391.2 DATA PROCESSING EQUIPMENT
ASL, Remaining Life, Annual Percent=14.05%

FY	INVEST	FIRST YEAR	FULL YEAR	ANNUAL DEPR	ACCUM DEPR	CUMUL INVEST
1997	6,051	282	850	850	4,473	6,051
1998	6,929	487	974	1,337	5,810	12,980
1999	5,681	399	798	2,223	10,053	18,661
2000	207	15	29	2,637	12,690	18,868
2001	436	31	61	2,400	15,090	19,304
2002	207	15	29	1,877	16,967	19,511
2003	207	15	29	1,906	18,873	19,718
2004	332	24	47	1,177	20,050	20,050
2005	207	15	29	207	20,257	20,257
2006	207	15	29	207	20,464	20,464
2007	332	24	47	332	20,796	20,796
2008	207	15	29	207	21,003	21,003
2009	207	15	29	207	21,210	21,210
2010	332	24	47	332	21,542	21,542

**FERC ACCOUNT 391.3 DATA PROCESSING SOFTWARE
ASL=5 YEARS**

FY	INVEST	FIRST YEAR	FULL YEAR	ANNUAL DEPR	ACCUM DEPR	CUMUL INVEST
1997	6,612	882	1,322	1,322	6,172	6,612
1998	1,309	131	262	571	6,743	7,921
1999	-659	(66)	(132)	196	7,262	7,262
2000	5379	538	1,076	668	7,930	12,641
2001	4005	401	801	1,607	9,537	16,646
2002	2325	233	465	2,240	11,777	18,971
2003	2325	233	465	2,573	14,350	21,296
2004	2200	220	440	2,962	17,312	23,496
2005	2325	233	465	2,941	20,253	25,821
2006	2325	233	465	2,468	22,721	28,146
2007	2200	220	440	2,287	25,008	30,346
2008	2325	233	465	2,275	27,283	32,671
2009	2325	233	465	2,288	29,571	34,996
2010	2200	220	440	2,287	31,858	37,196

SUMMARY - PBL

FY	ANNUAL DEPR	ACCUM DEPR	CUMUL INVEST
1997	2,193	10,844	13,060
1998	1,940	12,784	21,705
1999	2,488	18,202	27,753
2000	3,417	21,619	33,969
2001	4,152	25,771	39,060
2002	4,296	30,067	42,252
2003	4,693	34,760	45,464
2004	4,383	39,143	48,676
2005	3,411	42,554	51,888
2006	2,973	45,527	55,100
2007	2,952	48,479	58,312
2008	2,850	51,329	61,524
2009	2,898	54,227	64,736
2010	3,057	57,284	67,948

EE GENERAL PLANT INVESTMENT
(\$ thousands)

FERC ACCOUNT 391.1 OFFICE FURNITURE AND FIXTURES
ASL=13 YEARS

FY	INVEST	FIRST YEAR	FULL YEAR	ANNUAL DEPR	ACCUM DEPR	CUMUL INVEST
1997	47		2	2	23	47
1998	(3)	-	-	2	25	44
1999	232	6	12	8	154	276
2000	17	1	1	15	169	293
2001	18	1	1	16	185	311
2002	18	1	1	17	202	329
2003	18	1	1	18	220	347
2004	18	1	1	19	239	365
2005	18	1	1	20	259	383
2006	18	1	1	19	278	401
2007	18	1	1	20	298	419
2008	18	1	1	21	319	437
2009	18	1	1	22	341	455
2010	18	1	1	23	364	473

FERC ACCOUNT 391.2 DATA PROCESSING EQUIPMENT
ASL=13 YEARS

FY	INVEST	FIRST YEAR	FULL YEAR	ANNUAL DEPR	ACCUM DEPR	CUMUL INVEST
1997	735	35	103	103	527	735
1998	745	53	105	156	683	1,480
1999	672	47	94	255	578	2,152
2000	19	2	3	304	882	2,171
2001	31	2	4	272	1,154	2,202
2002	19	2	3	208	1,362	2,221
2003	19	2	3	211	1,573	2,240
2004	19	2	3	214	1,787	2,259
2005	19	2	3	217	2,004	2,278
2006	19	2	3	220	2,224	2,297
2007	19	2	3	92	2,316	2,316
2008	19	2	3	19	2,335	2,335
2009	19	2	3	19	2,354	2,354
2010	19	2	3	19	2,373	2,373

**FERC ACCOUNT 391.3 DATA PROCESSING SOFTWARE
ASL=5 YEARS**

FY	INVEST	FIRST YEAR	FULL YEAR	ANNUAL DEPR	ACCUM DEPR	CUMUL INVEST
1997	777	105	155	155	727	777
1998	-124	(13)	(25)	37	764	653
1999	1108	111	222	86	630	1,761
2000	289	29	58	226	856	2,050
2001	140	14	28	269	1,125	2,190
2002	45	5	9	288	1,413	2,235
2003	45	5	9	311	1,724	2,280
2004	45	5	9	218	1,942	2,325
2005	45	5	9	88	2,030	2,370
2006	45	5	9	55	2,085	2,415
2007	45	5	9	45	2,130	2,460
2008	45	5	9	45	2,175	2,505
2009	45	5	9	45	2,220	2,550
2010	45	5	9	45	2,265	2,595

SUMMARY - EE

FY	ANNUAL DEPR	ACCUM DEPR	CUMUL INVEST
1997	260	1,277	1,559
1998	195	1,472	2,177
1999	349	1,362	4,189
2000	545	1,907	4,514
2001	557	2,464	4,703
2002	513	2,977	4,785
2003	540	3,517	4,867
2004	451	3,968	4,949
2005	325	4,293	5,031
2006	294	4,587	5,113
2007	157	4,744	5,195
2008	85	4,829	5,277
2009	86	4,915	5,359
2010	87	5,002	5,441

BPA FISH & WILDLIFE INVESTMENT (\$000)

FY	INVEST	FIRST YEAR	FULL YEAR	ANNUAL AMORT	ACCUM AMORT	CUMUL INVEST
1985	4,318	138	288	138	138	4,318
1986	5,590	220	373	508	646	9,908
1987	4,709	113	314	774	1,420	14,617
1988	7,727	166	515	1,141	2,561	22,344
1989	8,267	227	551	1,717	4,278	30,611
1990	16,193	337	1,080	2,378	6,656	46,804
1991	17,680	519	1,179	3,640	10,296	64,484
1992	11,178	309	745	4,609	14,905	75,662
1993	17,338	483	1,156	5,528	20,433	93,000
1994	20,487	637	1,366	6,838	27,271	113,487
1995	32,486	931	2,166	8,498	35,769	145,973
1996	26,046	518	1,736	10,251	46,020	172,019
1997	28,064	1,209	1,871	12,678	58,698	200,083
1998	21,995	899	1,466	14,239	72,937	222,078
1999	14,748	900	983	15,706	88,643	236,826
2000	27,000	900	1,800	16,549	105,192	263,826
2001	27,000	900	1,800	17,976	118,850	286,508
2002	34,732	1,158	2,315	19,772	133,032	315,650
2003	38,317	1,277	2,554	21,842	150,165	349,258
2004	35,825	1,194	2,388	23,737	166,175	377,356
2005	33,988	1,133	2,266	25,394	183,302	403,077
2006	34,182	1,140	2,279	26,407	193,516	421,066
2007	11,000	367	733	26,952	202,788	414,386
2008	11,000	367	733	26,761	218,371	414,208
2009	11,000	367	733	26,183	227,216	407,870
2010	11,000	367	733	25,255	231,984	398,383
2011	11,000	367	733	24,245	223,743	376,897

Actuals through 1999

BPA ENERGY CONSERVATION INVESTMENT (\$000)

FY	INVEST	FIRST YEAR	FULL YEAR	ANNUAL AMORT	ACCUM AMORT	CUMUL INVEST
1982	61,357	1,418	3,068	1,418	1,418	61,357
1983	204,092	2,096	10,205	5,164	6,582	265,449
1984	66,783	363	3,339	13,636	20,218	332,232
1985	103,067	974	5,153	17,586	37,804	435,299
1986	97,618	1,341	4,881	23,106	60,910	532,917
1987	65,958	998	3,298	27,644	88,554	598,875
1988	52,485	2,496	2,624	32,440	120,994	651,360
1989	37,167	493	1,858	33,061	154,055	688,527
1990	33,777	570	1,689	34,996	189,051	722,304
1991	45,593	761	2,280	36,876	225,927	767,897
1992	74,668	1,177	3,733	39,572	265,499	842,565
1993	97,910	1,882	4,896	44,010	309,509	940,475
1994	113,488	2,036	5,674	49,060	358,569	1,053,963
1995	73,507	1,099	3,675	53,797	412,366	1,127,470
1996	38,726	675	1,936	57,048	469,414	1,166,196
1997	20,336	317	1,017	58,626	528,040	1,186,532
1998	14,154	328	708	59,654	587,694	1,200,686
1999	12,484	164	624	60,198	647,892	1,213,170
2000	1,000	25	50	60,683	708,575	1,214,170
2001	1,000	25	50	60,733	769,308	1,215,170
2002		-	-	59,337	828,645	1,215,170
2003		-	-	55,586	822,874	1,153,813
2004		-	-	47,125	665,907	949,721
2005		-	-	43,179	642,303	882,938
2006		-	-	37,650	576,886	779,871
2007		-	-	33,112	512,380	682,253
2008		-	-	28,323	474,745	616,295
2009		-	-	27,704	449,964	563,810
2010		-	-	25,759	438,556	526,643
2011		-	-	23,875	428,654	492,866

Actuals through 1999

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

	A	B	C	D	E	F	G	H	I
	TOTAL	1999			ADDTNS:	2000	TOTAL	2000	
	DEPR	ACCUM	INVESTMENT	2000	1/2 YR	DEPR	DEPR	ACCUM	INVESTMENT
	EXP	DEPR	9/30/99	ADDTNS	DEPR	INCR	EXP	DEPR	9/30/00
1 BOISE									
2 GENERATION	162	7,491	14,754	4,453	24	162	186	7,677	19,207
3 TRANSMISSION /DELIVERY	-	-	-	-	-	-	-	-	-
4 GENERAL PLANT	-	8	16	-	-	-	-	8	16
5 TOTAL	162	7,499	14,770	4,453	24	162	186	7,685	19,223
6 COLUMBIA BASIN									
7 GENERATION	14,361	279,833	1,021,141	32,942	232	14,356	14,588	294,421	1,054,083
8 TRANSMISSION /DELIVERY	620	12,088	44,110	-	-	620	620	12,708	44,110
9 GENERAL PLANT	311	6,061	22,119	-	-	311	311	6,372	22,119
10 TOTAL	15,292	297,982	1,087,370	32,942	232	15,287	15,519	313,501	1,120,312
11 HUNGRY HORSE									
12 GENERATION	1,312	39,852	109,321	845	5	1,312	1,317	41,169	110,166
13 TRANSMISSION /DELIVERY	30	907	2,488	-	-	30	30	937	2,488
14 TOTAL	1,342	40,759	111,809	845	5	1,342	1,347	42,106	112,654
15 MINIDOKA-PALISADES									
16 GENERATION	1,240	16,476	103,368	405	2	1,240	1,242	17,718	103,773
17 TRANSMISSION /DELIVERY	20	268	1,679	-	-	20	20	288	1,679
18 GENERAL PLANT	1	17	108	-	-	1	1	18	108
19 TOTAL	1,261	16,761	105,155	405	2	1,261	1,263	18,024	105,560
20 YAKIMA									
21 GENERATION	58	2,722	5,294	104	1	58	59	2,781	5,398
22 TRANSMISSION /DELIVERY	-	-	-	-	-	-	-	-	-
23 TOTAL	58	2,722	5,294	104	1	58	59	2,781	5,398
24 TOTAL USBR	18,115	365,723	1,324,398	38,749	264	18,110	18,374	384,097	1,363,147
25 GENERATION	17,133	346,374	1,253,878				17,392	363,766	1,292,627
26 TRANSMISSION	670	13,263	48,277				670	13,933	48,277
27 GENERAL PLANT	312	6,086	22,243				312	6,398	22,243
28 TOTAL	18,115	365,723	1,324,398				18,374	384,097	1,363,147

Bureau of Reclamation: Investment and Depreciation
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	J	K	L	M	N	O	P	Q	R
	2001	ADDTNS:	2001	TOTAL	2001	INVESTMENT	2002	ADDTNS:	2002
	ADDTNS	1/2 YR	DEPR	DEPR	ACCUM	9/30/01	ADDTNS	1/2 YR	DEPR
		DEPR	INCR	EXP	DEPR			DEPR	INCR
1 BOISE									
2 GENERATION	523	3	211	214	7,891	19,730	531	3	217
3 TRANSMISSION /DELIVERY		-	-	-	-	-		-	-
4 GENERAL PLANT		-	-	-	8	16		-	-
5 TOTAL	523	3	211	214	7,899	19,746	531	3	217
6 COLUMBIA BASIN									
7 GENERATION	36,217	255	14,819	15,074	309,495	1,090,300	41,052	289	15,328
8 TRANSMISSION /DELIVERY		-	620	620	13,328	44,110		-	620
9 GENERAL PLANT		-	311	311	6,683	22,119		-	311
10 TOTAL	36,217	255	15,750	16,005	329,506	1,156,529	41,052	289	16,259
11 HUNGRY HORSE									
12 GENERATION	775	5	1,323	1,328	42,497	110,941	787	5	1,332
13 TRANSMISSION /DELIVERY		-	30	30	967	2,488		-	30
14 TOTAL	775	5	1,353	1,358	43,464	113,429	787	5	1,362
15 MINIDOKA-PALISADES									
16 GENERATION	444	3	1,245	1,248	18,966	104,217	450	3	1,250
17 TRANSMISSION /DELIVERY		-	20	20	308	1,679		-	20
18 GENERAL PLANT		-	1	1	19	108		-	1
19 TOTAL	444	3	1,266	1,269	19,293	106,004	450	3	1,271
20 YAKIMA									
21 GENERATION	104	1	59	60	2,841	5,502	107	1	60
22 TRANSMISSION /DELIVERY		-	-	-	-	-		-	-
23 TOTAL	104	1	59	60	2,841	5,502	107	1	60
24 TOTAL USBR	38,063	267	18,639	18,906	403,003	1,401,210	42,927	301	19,169
25 GENERATION				17,924	381,690	1,330,690			
26 TRANSMISSION				670	14,603	48,277			
27 GENERAL PLANT				312	6,710	22,243			
28 TOTAL				18,906	403,003	1,401,210			

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	S	T	U	V	W	X	Y	Z	AA
	TOTAL	2002	INVESTMENT	2003	ADDTNS:	2003	TOTAL	2003	INVESTMENT
	DEPR	ACCUM	9/30/02	ADDTNS	1/2 YR	DEPR	DEPR	ACCUM	9/30/03
	EXP	DEPR			DEPR	INCR	EXP	DEPR	
1 BOISE									
2 GENERATION	220	8,111	20,261	544	3	223	226	8,337	20,805
3 TRANSMISSION /DELIVERY	-	-	-		-	-	-	-	-
4 GENERAL PLANT	-	8	16		-	-	-	8	16
5 TOTAL	220	8,119	20,277	544	3	223	226	8,345	20,821
6 COLUMBIA BASIN									
7 GENERATION	15,617	325,112	1,131,352	37,211	262	15,905	16,167	341,279	1,168,563
8 TRANSMISSION /DELIVERY	620	13,948	44,110		-	620	620	14,568	44,110
9 GENERAL PLANT	311	6,994	22,119		-	311	311	7,305	22,119
10 TOTAL	16,548	346,054	1,197,581	37,211	262	16,836	17,098	363,152	1,234,792
11 HUNGRY HORSE									
12 GENERATION	1,337	43,834	111,728	799	5	1,341	1,346	45,180	112,527
13 TRANSMISSION /DELIVERY	30	997	2,488		-	30	30	1,027	2,488
14 TOTAL	1,367	44,831	114,216	799	5	1,371	1,376	46,207	115,015
15 MINIDOKA-PALISADES									
16 GENERATION	1,253	20,219	104,667	458	3	1,256	1,259	21,478	105,125
17 TRANSMISSION /DELIVERY	20	328	1,679		-	20	20	348	1,679
18 GENERAL PLANT	1	20	108		-	1	1	21	108
19 TOTAL	1,274	20,567	106,454	458	3	1,277	1,280	21,847	106,912
20 YAKIMA									
21 GENERATION	61	2,902	5,609	110	1	62	63	2,965	5,719
22 TRANSMISSION /DELIVERY	-	-	-		-	-	-	-	-
23 TOTAL	61	2,902	5,609	110	1	62	63	2,965	5,719
24 TOTAL USBR	19,470	422,473	1,444,137	39,122	274	19,769	20,043	442,516	1,483,259
25 GENERATION	18,488	400,178	1,373,617				19,061	419,239	1,412,739
26 TRANSMISSION	670	15,273	48,277				670	15,943	48,277
27 GENERAL PLANT	312	7,022	22,243				312	7,334	22,243
28 TOTAL	19,470	422,473	1,444,137				20,043	442,516	1,483,259

Bureau of Reclamation: Investment and Depreciation
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	AB	AC	AD	AE	AF	AG	AH	AI	AJ
	2004	AC	2004	TOTAL	2004	INVESTMENT	2005	ADDTNS:	2005
	ADDTNS	ADDTNS:	DEPR	DEPR	ACCUM	9/30/04	ADDTNS	1/2 YR	DEPR
		1/2 YR	INCR	EXP	DEPR			DEPR	INCR
		DEPR							
1 BOISE									
2 GENERATION	558	3	229	232	8,569	21,363	571	3	235
3 TRANSMISSION /DELIVERY		-	-	-	-	-		-	-
4 GENERAL PLANT		-	-	-	8	16		-	-
5 TOTAL	558	3	229	232	8,577	21,379	571	3	235
6 COLUMBIA BASIN									
7 GENERATION	29,357	206	16,429	16,635	357,914	1,197,920	33,839	238	16,841
8 TRANSMISSION /DELIVERY		-	620	620	15,188	44,110		-	620
9 GENERAL PLANT		-	311	311	7,616	22,119		-	311
10 TOTAL	29,357	206	17,360	17,566	380,718	1,264,149	33,839	238	17,772
11 HUNGRY HORSE									
12 GENERATION	1,120	7	1,351	1,358	46,538	113,647	1,442	9	1,364
13 TRANSMISSION /DELIVERY		-	30	30	1,057	2,488		-	30
14 TOTAL	1,120	7	1,381	1,388	47,595	116,135	1,442	9	1,394
15 MINIDOKA-PALISADES									
16 GENERATION	569	3	1,261	1,264	22,742	105,694	681	4	1,268
17 TRANSMISSION /DELIVERY		-	20	20	368	1,679		-	20
18 GENERAL PLANT		-	1	1	22	108		-	1
19 TOTAL	569	3	1,282	1,285	23,132	107,481	681	4	1,289
20 YAKIMA									
21 GENERATION	113	1	63	64	3,029	5,832	116	1	64
22 TRANSMISSION /DELIVERY		-	-	-	-	-		-	-
23 TOTAL	113	1	63	64	3,029	5,832	116	1	64
24 TOTAL USBR	31,717	220	20,315	20,535	463,051	1,514,976	36,649	255	20,754
25 GENERATION				19,553	438,792	1,444,456			
26 TRANSMISSION				670	16,613	48,277			
27 GENERAL PLANT				312	7,646	22,243			
28 TOTAL				20,535	463,051	1,514,976			

Bureau of Reclamation: Investment and Depreciation
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	AK TOTAL DEPR EXP	AL 2005 ACCUM DEPR	AM INVESTMENT 9/30/05	AN 2006 ADDTNS	AO ADDTNS: 1/2 YR DEPR	AP 2006 DEPR INCR	AQ TOTAL DEPR EXP	AR 2006 ACCUM DEPR	AS INVESTMENT 9/30/06
1 BOISE									
2 GENERATION	238	8,807	21,934	585	3	241	244	9,051	22,519
3 TRANSMISSION /DELIVERY	-	-	-		-	-	-	-	-
4 GENERAL PLANT	-	8	16		-	-	-	8	16
5 TOTAL	238	8,815	21,950	585	3	241	244	9,059	22,535
6 COLUMBIA BASIN									
7 GENERATION	17,079	374,993	1,231,759	33,614	236	17,317	17,553	392,546	1,265,373
8 TRANSMISSION /DELIVERY	620	15,808	44,110		-	620	620	16,428	44,110
9 GENERAL PLANT	311	7,927	22,119		-	311	311	8,238	22,119
10 TOTAL	18,010	398,728	1,297,988	33,614	236	18,248	18,484	417,212	1,331,602
11 HUNGRY HORSE									
12 GENERATION	1,373	47,911	115,089	1,455	9	1,382	1,391	49,302	116,544
13 TRANSMISSION /DELIVERY	30	1,087	2,488		-	30	30	1,117	2,488
14 TOTAL	1,403	48,998	117,577	1,455	9	1,412	1,421	50,419	119,032
15 MINIDOKA-PALISADES									
16 GENERATION	1,272	24,014	106,375	688	4	1,276	1,280	25,294	107,063
17 TRANSMISSION /DELIVERY	20	388	1,679		-	20	20	408	1,679
18 GENERAL PLANT	1	23	108		-	1	1	24	108
19 TOTAL	1,293	24,425	108,162	688	4	1,297	1,301	25,726	108,850
20 YAKIMA									
21 GENERATION	65	3,094	5,948	119	1	65	66	3,160	6,067
22 TRANSMISSION /DELIVERY	-	-	-		-	-	-	-	-
23 TOTAL	65	3,094	5,948	119	1	65	66	3,160	6,067
24 TOTAL USBR	21,009	484,060	1,551,625	36,461	253	21,263	21,516	505,576	1,588,086
25 GENERATION	20,027	458,819	1,481,105				20,534	479,353	1,517,566
26 TRANSMISSION	670	17,283	48,277				670	17,953	48,277
27 GENERAL PLANT	312	7,958	22,243				312	8,270	22,243
28 TOTAL	21,009	484,060	1,551,625				21,516	505,576	1,588,086

Bureau of Reclamation: Investment and Depreciation
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	AT	AU	AV	AW	AX	AY	AZ	BA	BB
	2007	ADDTNS:	2007	TOTAL	2007	INVESTMENT	2008	ADDTNS:	2008
	ADDTNS	1/2 YR	DEPR	DEPR	ACCUM	9/30/07	ADDTNS	1/2 YR	DEPR
		DEPR	INCR	EXP	DEPR			DEPR	INCR
1 BOISE									
2 GENERATION	600	3	247	250	9,301	23,119	614	3	254
3 TRANSMISSION /DELIVERY		-	-	-	-	-		-	-
4 GENERAL PLANT		-	-	-	8	16		-	-
5 TOTAL	600	3	247	250	9,309	23,135	614	3	254
6 COLUMBIA BASIN									
7 GENERATION	34,186	240	17,790	18,030	410,576	1,299,559	27,500	193	18,270
8 TRANSMISSION /DELIVERY		-	620	620	17,048	44,110		-	620
9 GENERAL PLANT		-	311	311	8,549	22,119		-	311
10 TOTAL	34,186	240	18,721	18,961	436,173	1,365,788	27,500	193	19,201
11 HUNGRY HORSE									
12 GENERATION	1,468	9	1,399	1,408	50,710	118,012	1,482	9	1,417
13 TRANSMISSION /DELIVERY		-	30	30	1,147	2,488		-	30
14 TOTAL	1,468	9	1,429	1,438	51,857	120,500	1,482	9	1,447
15 MINIDOKA-PALISADES									
16 GENERATION	695	4	1,284	1,288	26,582	107,758	703	4	1,293
17 TRANSMISSION /DELIVERY		-	20	20	428	1,679		-	20
18 GENERAL PLANT		-	1	1	25	108		-	1
19 TOTAL	695	4	1,305	1,309	27,035	109,545	703	4	1,314
20 YAKIMA									
21 GENERATION	122	1	67	68	3,228	6,189	125	1	68
22 TRANSMISSION /DELIVERY		-	-	-	-	-		-	-
23 TOTAL	122	1	67	68	3,228	6,189	125	1	68
24 TOTAL USBR	37,071	257	21,769	22,026	527,602	1,625,157	30,424	210	22,284
25 GENERATION				21,044	500,397	1,554,637			
26 TRANSMISSION				670	18,623	48,277			
27 GENERAL PLANT				312	8,582	22,243			
28 TOTAL				22,026	527,602	1,625,157			

Bureau of Reclamation: Investment and Depreciation
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	BC TOTAL DEPR EXP	BD 2008 ACCUM DEPR	BE INVESTMENT 9/30/08	BF 2009 ADDTNS	BG ADDTNS: 1/2 YR DEPR	BH 2009 DEPR INCR	BI TOTAL DEPR EXP	BJ 2009 ACCUM DEPR	BK INVESTMENT 9/30/09
1 BOISE									
2 GENERATION	257	9,558	23,733	629	3	261	264	9,822	24,362
3 TRANSMISSION /DELIVERY	-	-	-		-	-	-	-	-
4 GENERAL PLANT	-	8	16		-	-	-	8	16
5 TOTAL	257	9,566	23,749	629	3	261	264	9,830	24,378
6 COLUMBIA BASIN									
7 GENERATION	18,463	429,039	1,327,059	19,824	139	18,657	18,796	447,835	1,346,883
8 TRANSMISSION /DELIVERY	620	17,668	44,110		-	620	620	18,288	44,110
9 GENERAL PLANT	311	8,860	22,119		-	311	311	9,171	22,119
10 TOTAL	19,394	455,567	1,393,288	19,824	139	19,588	19,727	475,294	1,413,112
11 HUNGRY HORSE									
12 GENERATION	1,426	52,136	119,494	1,496	9	1,435	1,444	53,580	120,990
13 TRANSMISSION /DELIVERY	30	1,177	2,488		-	30	30	1,207	2,488
14 TOTAL	1,456	53,313	121,982	1,496	9	1,465	1,474	54,787	123,478
15 MINIDOKA-PALISADES									
16 GENERATION	1,297	27,879	108,461	712	4	1,301	1,305	29,184	109,173
17 TRANSMISSION /DELIVERY	20	448	1,679		-	20	20	468	1,679
18 GENERAL PLANT	1	26	108		-	1	1	27	108
19 TOTAL	1,318	28,353	110,248	712	4	1,322	1,326	29,679	110,960
20 YAKIMA									
21 GENERATION	69	3,297	6,314	128	1	69	70	3,367	6,442
22 TRANSMISSION /DELIVERY	-	-	-		-	-	-	-	-
23 TOTAL	69	3,297	6,314	128	1	69	70	3,367	6,442
24 TOTAL USBR	22,494	550,096	1,655,581	22,789	156	22,705	22,861	572,957	1,678,370
25 GENERATION	21,512	521,909	1,585,061				21,879	543,788	1,607,850
26 TRANSMISSION	670	19,293	48,277				670	19,963	48,277
27 GENERAL PLANT	312	8,894	22,243				312	9,206	22,243
28 TOTAL	22,494	550,096	1,655,581				22,861	572,957	1,678,370

Bureau of Reclamation: Investment and Depreciation
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	BL	BM	BN	BO	BP	BQ
	2010	ADDTNS:	2010	TOTAL	2010	
	ADDTNS	1/2 YR	DEPR	DEPR	ACCUM	INVESTMENT
		DEPR	INCR	EXP	DEPR	9/30/10
1 BOISE						
2 GENERATION	645	4	268	272	10,094	25,007
3 TRANSMISSION /DELIVERY		-	-	-	-	-
4 GENERAL PLANT		-	-	-	8	16
5 TOTAL	645	4	268	272	10,102	25,023
6 COLUMBIA BASIN						
7 GENERATION	19,924	140	18,936	19,076	466,911	1,366,807
8 TRANSMISSION /DELIVERY		-	620	620	18,908	44,110
9 GENERAL PLANT		-	311	311	9,482	22,119
10 TOTAL	19,924	140	19,867	20,007	495,301	1,433,036
11 HUNGRY HORSE						
12 GENERATION	1,511	9	1,452	1,461	55,041	122,501
13 TRANSMISSION /DELIVERY		-	30	30	1,237	2,488
14 TOTAL	1,511	9	1,482	1,491	56,278	124,989
15 MINIDOKA-PALISADES						
16 GENERATION	720	4	1,310	1,314	30,498	109,893
17 TRANSMISSION /DELIVERY		-	20	20	488	1,679
18 GENERAL PLANT		-	1	1	28	108
19 TOTAL	720	4	1,331	1,335	31,014	111,680
20 YAKIMA						
21 GENERATION	131	1	71	72	3,439	6,573
22 TRANSMISSION /DELIVERY		-	-	-	-	-
23 TOTAL	131	1	71	72	3,439	6,573
24 TOTAL USBR	22,931	158	23,019	23,177	596,134	1,701,301
25 GENERATION				22,195	565,983	1,630,781
26 TRANSMISSION				670	20,633	48,277
27 GENERAL PLANT				312	9,518	22,243
28 TOTAL				23,177	596,134	1,701,301

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

	A	B	C	D	E	F	G	H	I	J
	DEPR	1999	INVESTMENT	2000	ADDTNS:	2000	TOTAL	2000	INVESTMENT	2001
	EXP	ACCUM	9/30/99	ADDTNS	1/2 YR	DEPR	DEPR	ACCUM	9/30/00	ADDTNS
		DEPR			DEPR	INCR	EXP	DEPR		
1 BONNEVILLE										
2 GENERATION	11,399	209,570	842,551	23,476	161	11,531	11,692	221,262	866,027	19,692
3 TRANSMISSION	0	885	885		0		0	885	885	
4 TOTAL	11,399	210,455	843,436	23,476	161	11,531	11,692	222,147	866,912	19,692
5 DWORSHAK										
6 GENERATION	4,175	88,765	314,472	992	7	4,183	4,190	92,955	315,464	528
7 TRANSMISSION	0	0	0		0	0	0	0	0	
8 TOTAL	4,175	88,765	314,472	992	7	4,183	4,190	92,955	315,464	528
9 ICE HARBOR										
10 GENERATION	1,974	57,265	146,137	696	5	2,044	2,049	59,314	146,833	940
11 TRANSMISSION	0	0	0		0	0	0	0	0	
12 TOTAL	1,974	57,265	146,137	696	5	2,044	2,049	59,314	146,833	940
13 OTHER PROJECTS										
14 (GENERATION ONLY)										
15 ALBENI FALLS	951	18,136	39,592	358	4	978	982	19,118	39,950	241
16 CHIEF JOSEPH	8,679	181,104	560,597	17,614	136	8,685	8,821	189,925	578,211	19,567
17 COUGAR	249	6,893	20,306	233	1	247	248	7,141	20,539	227
18 DETROIT-BIG CLIFF	509	21,782	41,095	330	2	504	506	22,288	41,425	301
19 GREEN PETER-FOSTER	610	16,522	49,826	311	2	595	597	17,119	50,137	287
20 HILLS CREEK	307	7,099	14,888	238	2	259	261	7,360	15,126	231
21 JOHN DAY	8,226	135,518	469,229	17,643	154	8,196	8,350	143,868	486,872	2,767
22 LIBBY	7,375	106,166	426,961	1,109	10	7,351	7,361	113,527	428,070	909
23 LITTLE GOOSE	3,147	66,183	211,168	1,909	14	3,133	3,147	69,330	213,077	1,105
24 LOOKOUT POINT	2,492	25,854	46,077	348	9	2,414	2,423	28,277	46,425	315
25 LOST CREEK	377	7,041	26,919	258	2	373	375	7,416	27,177	246
26 LOWER GRANITE	5,083	87,635	333,277	1,261	10	5,086	5,096	92,731	334,538	1,105
27 LOWER MONUMENTAL	4,965	76,739	227,579	521	6	4,946	4,952	81,691	228,100	1,105
28 LOWER SNAKE F&W	2,562	20,646	253,362	771	4	2,534	2,538	23,184	254,133	7,649
29 MCNARY	4,305	138,460	280,701	937	7	4,286	4,293	142,753	281,638	1,301
30 THE DALLES	5,326	136,254	296,105	10,697	95	5,283	5,378	141,632	306,802	22,328
31 COLUMBIA R. FISH BYPASS	3,869	12,669	185,971	4,541	40	3,237	3,277	15,946	190,512	457,474
32 TOTAL OTHER	59,032	1,064,701	3,483,653	59,079	498	58,107	58,605	1,123,306	3,542,732	517,158
33 DEPRECIATION ADJUSTMENT	-12,741	-31,947					-12,734	-44,681		
34 TOTAL CORPS	63,839	1,389,239	4,787,698	84,243	671	75,865	63,802	1,453,041	4,871,941	538,318
35 GENERATION	63,839	1,388,354	4,786,813				63,802	1,452,156	4,871,056	
36 TRANSMISSION	0	885	885				0	885	885	
37 TOTAL	63,839	1,389,239	4,787,698				63,802	1,453,041	4,871,941	

Corps of Engineers: Investment and Depreciation
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	K ADDTNS: 1/2 YR DEPR	L 2001 DEPR INCR	M TOTAL DEPR EXP	N 2001 ACCUM DEPR	O INVESTMENT 9/30/01	P 2002 ADDTNS	Q ADDTNS: 1/2 YR DEPR	R 2002 DEPR INCR	S TOTAL DEPR EXP	T 2002 ACCUM DEPR
1 BONNEVILLE										
2 GENERATION	135	11,852	11,987	233,249	885,719	11,052	76	12,122	12,198	245,447
3 TRANSMISSION	0		0	885	885		0		0	885
4 TOTAL	135	11,852	11,987	234,134	886,604	11,052	76	12,122	12,198	246,332
5 DWORSHAK										
6 GENERATION	4	4,197	4,201	97,156	315,992	686	5	4,204	4,209	101,365
7 TRANSMISSION	0	0	0	0	0		0	0	0	0
8 TOTAL	4	4,197	4,201	97,156	315,992	686	5	4,204	4,209	101,365
9 ICE HARBOR										
10 GENERATION	7	2,054	2,061	61,375	147,773	1,179	8	2,067	2,075	63,450
11 TRANSMISSION	0	0	0	0	0		0	0	0	0
12 TOTAL	7	2,054	2,061	61,375	147,773	1,179	8	2,067	2,075	63,450
13 OTHER PROJECTS										
14 (GENERATION ONLY)										
15 ALBENI FALLS	3	986	989	20,107	40,191	258	3	992	995	21,102
16 CHIEF JOSEPH	152	8,958	9,110	199,035	597,778	21,151	164	9,261	9,425	208,460
17 COUGAR	1	250	251	7,392	20,766	237	1	253	254	7,646
18 DETROIT-BIG CLIFF	2	508	510	22,798	41,726	348	2	512	514	23,312
19 GREEN PETER-FOSTER	2	598	600	17,719	50,424	327	2	602	604	18,323
20 HILLS CREEK	2	263	265	7,625	15,357	243	2	267	269	7,894
21 JOHN DAY	24	8,504	8,528	152,396	489,639	3,318	29	8,553	8,582	160,978
22 LIBBY	8	7,370	7,378	120,905	428,979	1,051	9	7,386	7,395	128,300
23 LITTLE GOOSE	8	3,161	3,169	72,499	214,182	1,427	11	3,178	3,189	75,688
24 LOOKOUT POINT	8	2,433	2,441	30,718	46,740	369	10	2,449	2,459	33,177
25 LOST CREEK	2	376	378	7,794	27,423	266	2	380	382	8,176
26 LOWER GRANITE	8	5,105	5,113	97,844	335,643	1,427	11	5,122	5,133	102,977
27 LOWER MONUMENTAL	12	4,958	4,970	86,661	229,205	1,427	16	4,982	4,998	91,659
28 LOWER SNAKE F&W	38	2,541	2,579	25,763	261,782	753	4	2,618	2,622	28,385
29 MCNARY	10	4,300	4,310	147,063	282,939	1,691	13	4,320	4,333	151,396
30 THE DALLES	199	5,474	5,673	147,305	329,130	23,686	211	5,872	6,083	153,388
31 COLUMBIA R. FISH BYPASS	3,981	3,316	7,297	23,243	647,986	111,042	966	11,279	12,245	35,488
32 TOTAL OTHER	4,460	59,101	63,561	1,186,867	4,059,890	169,021	1,456	68,026	69,482	1,256,349
33 DEPRECIATION ADJUSTMENT			-13,611	-58,292					-14,635	-72,927
34 TOTAL CORPS	4,606	77,204	68,199	1,521,240	5,410,259	181,938	1,545	86,419	73,329	1,594,569
35 GENERATION			68,199	1,520,355	5,409,374				73,329	1,593,684
36 TRANSMISSION			0	885	885				0	885
37 TOTAL			68,199	1,521,240	5,410,259				73,329	1,594,569

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	U	V	W	X	Y	Z	AA	AB	AC	AD
	INVESTMENT	2003	ADDTNS:	2003	TOTAL	2003	INVESTMENT	2004	ADDTNS:	2004
	9/30/02	ADDTNS	1/2 YR	DEPR	DEPR	ACCUM	9/30/03	ADDTNS	1/2 YR	DEPR
			DEPR	INCR	EXP	DEPR			DEPR	INCR
1 BONNEVILLE										
2 GENERATION	896,771	24,190	166	12,273	12,439	257,886	920,961	1,733	12	12,604
3 TRANSMISSION	885		0		0	885	885		0	
4 TOTAL	897,656	24,190	166	12,273	12,439	258,771	921,846	1,733	12	12,604
5 DWORSHAK										
6 GENERATION	316,678	686	5	4,213	4,218	105,583	317,364	691	5	4,222
7 TRANSMISSION	0		0	0	0	0	0		0	0
8 TOTAL	316,678	686	5	4,213	4,218	105,583	317,364	691	5	4,222
9 ICE HARBOR										
10 GENERATION	148,952	1,136	8	2,083	2,091	65,541	150,088	1,147	8	2,099
11 TRANSMISSION	0		0	0	0	0	0		0	0
12 TOTAL	148,952	1,136	8	2,083	2,091	65,541	150,088	1,147	8	2,099
13 OTHER PROJECTS										
14 (GENERATION ONLY)										
15 ALBENI FALLS	40,449	258	3	999	1,002	22,104	40,707	264	3	1,005
16 CHIEF JOSEPH	618,929	21,357	165	9,588	9,753	218,213	640,286	3,473	27	9,919
17 COUGAR	21,003	237	1	256	257	7,903	21,240	242	1	258
18 DETROIT-BIG CLIFF	42,074	348	2	516	518	23,830	42,422	354	2	521
19 GREEN PETER-FOSTER	50,751	327	2	606	608	18,931	51,078	332	2	610
20 HILLS CREEK	15,600	243	2	271	273	8,167	15,843	248	2	276
21 JOHN DAY	492,957	3,156	28	8,611	8,639	169,617	496,113	3,117	27	8,666
22 LIBBY	430,030	1,043	9	7,404	7,413	135,713	431,073	1,053	9	7,422
23 LITTLE GOOSE	215,609	1,384	10	3,199	3,209	78,897	216,993	1,395	10	3,219
24 LOOKOUT POINT	47,109	369	10	2,468	2,478	35,655	47,478	374	10	2,488
25 LOST CREEK	27,689	266	2	384	386	8,562	27,955	271	2	387
26 LOWER GRANITE	337,070	1,384	11	5,144	5,155	108,132	338,454	1,395	11	5,165
27 LOWER MONUMENTAL	230,632	1,384	15	5,013	5,028	96,687	232,016	1,395	15	5,043
28 LOWER SNAKE F&W	262,535	0	0	2,625	2,625	31,010	262,535	0	0	2,625
29 MCNARY	284,630	1,691	13	4,345	4,358	155,754	286,321	8,704	66	4,371
30 THE DALLES	352,816	24,589	219	6,295	6,514	159,902	377,405	25,051	223	6,733
31 COLUMBIA R. FISH BYPASS	759,028	44,682	389	13,212	13,601	49,089	803,710	213,633	1,859	13,990
32 TOTAL OTHER	4,228,911	102,718	881	70,936	71,817	1,328,166	4,331,629	261,301	2,269	72,698
33 DEPRECIATION ADJUSTMENT					-15,068	-87,995				
34 TOTAL CORPS	5,592,197	128,730	1,060	89,505	75,497	1,670,066	5,720,927	264,872	2,294	91,623
35 GENERATION	5,591,312				75,497	1,669,181	5,720,042			
36 TRANSMISSION	885				0	885	885			
37 TOTAL	5,592,197				75,497	1,670,066	5,720,927			

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	AE TOTAL DEPR EXP	AF 2004 ACCUM DEPR	AG INVESTMENT 9/30/04	AH 2005 ADDTNS	AI ADDTNS: 1/2 YR DEPR	AJ 2005 DEPR INCR	AK TOTAL DEPR EXP	AL 2005 ACCUM DEPR	AM INVESTMENT 9/30/05	AN 2006 ADDTNS
1 BONNEVILLE										
2 GENERATION	12,616	270,502	922,694	2,181	15	12,628	12,643	283,145	924,875	2,191
3 TRANSMISSION	0	885	885		0		0	885	885	
4 TOTAL	12,616	271,387	923,579	2,181	15	12,628	12,643	284,030	925,760	2,191
5 DWORSHAK										
6 GENERATION	4,227	109,810	318,055	856	6	4,231	4,237	114,047	318,911	862
7 TRANSMISSION	0	0	0		0	0	0	0	0	
8 TOTAL	4,227	109,810	318,055	856	6	4,231	4,237	114,047	318,911	862
9 ICE HARBOR										
10 GENERATION	2,107	67,648	151,235	1,398	10	2,115	2,125	69,773	152,633	1,409
11 TRANSMISSION	0	0	0		0	0	0	0	0	
12 TOTAL	2,107	67,648	151,235	1,398	10	2,115	2,125	69,773	152,633	1,409
13 OTHER PROJECTS										
14 (GENERATION ONLY)										
15 ALBENI FALLS	1,008	23,112	40,971	286	4	1,012	1,016	24,128	41,257	292
16 CHIEF JOSEPH	9,946	228,159	643,759	4,467	35	9,973	10,008	238,167	648,226	4,480
17 COUGAR	259	8,162	21,482	258	2	261	263	8,425	21,740	263
18 DETROIT-BIG CLIFF	523	24,353	42,776	406	2	525	527	24,880	43,182	412
19 GREEN PETER-FOSTER	612	19,543	51,410	377	2	613	615	20,158	51,787	383
20 HILLS CREEK	278	8,445	16,091	266	2	280	282	8,727	16,357	271
21 JOHN DAY	8,693	178,310	499,230	3,993	35	8,720	8,755	187,065	503,223	4,006
22 LIBBY	7,431	143,144	432,126	1,274	11	7,440	7,451	150,595	433,400	1,285
23 LITTLE GOOSE	3,229	82,126	218,388	1,729	13	3,240	3,253	85,379	220,117	1,740
24 LOOKOUT POINT	2,498	38,153	47,852	433	11	2,507	2,518	40,671	48,285	439
25 LOST CREEK	389	8,951	28,226	296	2	391	393	9,344	28,522	302
26 LOWER GRANITE	5,176	113,308	339,849	1,729	13	5,186	5,199	118,507	341,578	1,740
27 LOWER MONUMENTAL	5,058	101,745	233,411	1,729	19	5,073	5,092	106,837	235,140	1,740
28 LOWER SNAKE F&W	2,625	33,635	262,535	0	0	2,625	2,625	36,260	262,535	0
29 MCNARY	4,437	160,191	295,025	19,109	146	4,504	4,650	164,841	314,134	19,123
30 THE DALLES	6,956	166,858	402,456	15,959	142	7,180	7,322	174,180	418,415	15,972
31 COLUMBIA R. FISH BYPASS	15,849	64,938	1,017,343	91,203	794	17,708	18,502	83,440	1,108,546	125,913
32 TOTAL OTHER	74,967	1,403,133	4,592,930	143,514	1,233	77,238	78,471	1,481,604	4,736,444	178,361
33 DEPRECIATION ADJUSTMENT	-15,625	-103,620					-16,218	-119,838		
34 TOTAL CORPS	78,292	1,748,358	5,985,799	147,949	1,264	96,212	81,258	1,829,616	6,133,748	182,823
35 GENERATION	78,292	1,747,473	5,984,914				81,258	1,828,731	6,132,863	
36 TRANSMISSION	0	885	885				0	885	885	
37 TOTAL	78,292	1,748,358	5,985,799				81,258	1,829,616	6,133,748	

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	AO ADDTNS: 1/2 YR DEPR	AP 2006 DEPR INCR	AQ TOTAL DEPR EXP	AR 2006 ACCUM DEPR	AS INVESTMENT 9/30/06	AT 2007 ADDTNS	AU ADDTNS: 1/2 YR DEPR	AV 2007 DEPR INCR	AW TOTAL DEPR EXP	AX 2007 ACCUM DEPR
1 BONNEVILLE										
2 GENERATION	15	12,657	12,672	295,817	927,066	2,203	15	12,687	12,702	308,519
3 TRANSMISSION	0		0	885	885		0		0	885
4 TOTAL	15	12,657	12,672	296,702	927,951	2,203	15	12,687	12,702	309,404
5 DWORSHAK										
6 GENERATION	6	4,243	4,249	118,296	319,773	868	6	4,254	4,260	122,556
7 TRANSMISSION	0	0	0	0	0		0	0	0	0
8 TOTAL	6	4,243	4,249	118,296	319,773	868	6	4,254	4,260	122,556
9 ICE HARBOR										
10 GENERATION	10	2,135	2,145	71,918	154,042	1,421	10	2,154	2,164	74,082
11 TRANSMISSION	0	0	0	0	0		0	0	0	0
12 TOTAL	10	2,135	2,145	71,918	154,042	1,421	10	2,154	2,164	74,082
13 OTHER PROJECTS										
14 (GENERATION ONLY)										
15 ALBENI FALLS	4	1,019	1,023	25,151	41,549	298	4	1,026	1,030	26,181
16 CHIEF JOSEPH	35	10,042	10,077	248,244	652,706	4,494	35	10,112	10,147	258,391
17 COUGAR	2	264	266	8,691	22,003	269	2	268	270	8,961
18 DETROIT-BIG CLIFF	3	530	533	25,413	43,594	417	3	535	538	25,951
19 GREEN PETER-FOSTER	2	618	620	20,778	52,170	389	2	623	625	21,403
20 HILLS CREEK	2	284	286	9,013	16,628	277	2	289	291	9,304
21 JOHN DAY	35	8,790	8,825	195,890	507,229	4,020	35	8,860	8,895	204,785
22 LIBBY	11	7,462	7,473	158,068	434,685	1,296	11	7,484	7,495	165,563
23 LITTLE GOOSE	13	3,266	3,279	88,658	221,857	1,751	13	3,292	3,305	91,963
24 LOOKOUT POINT	12	2,530	2,542	43,213	48,724	445	12	2,553	2,565	45,778
25 LOST CREEK	2	395	397	9,741	28,824	307	2	399	401	10,142
26 LOWER GRANITE	13	5,213	5,226	123,733	343,318	1,751	13	5,239	5,252	128,985
27 LOWER MONUMENTAL	19	5,111	5,130	111,967	236,880	1,751	19	5,148	5,167	117,134
28 LOWER SNAKE F&W	0	2,625	2,625	38,885	262,535	0	0	2,625	2,625	41,510
29 MCNARY	146	4,796	4,942	169,783	333,257	19,137	146	5,088	5,234	175,017
30 THE DALLES	142	7,465	7,607	181,787	434,387	15,986	143	7,750	7,893	189,680
31 COLUMBIA R. FISH BYPASS	1,096	19,296	20,392	103,832	1,234,459	182,868	1,592	21,488	23,080	126,912
32 TOTAL OTHER	1,537	79,706	81,243	1,562,847	4,914,805	235,456	2,034	82,779	84,813	1,647,660
33 DEPRECIATION ADJUSTMENT			-16,689	-136,527					-17,293	-153,819
34 TOTAL CORPS	1,568	98,741	83,620	1,913,236	6,316,571	239,948	2,065	101,874	86,646	1,999,883
35 GENERATION			83,620	1,912,351	6,315,686				86,646	1,998,998
36 TRANSMISSION			0	885	885				0	885
37 TOTAL			83,620	1,913,236	6,316,571				86,646	1,999,883

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	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH
	INVESTMENT	2008	ADDTNS:	2008	TOTAL	2008	INVESTMENT	2009	ADDTNS:	2009
	9/30/07	ADDTNS	1/2 YR	DEPR	DEPR	ACCUM	9/30/08	ADDTNS	1/2 YR	DEPR
			DEPR	INCR	EXP	DEPR			DEPR	INCR
1 BONNEVILLE										
2 GENERATION	929,269	2,650	18	12,718	12,736	321,255	931,919	3,533	24	12,754
3 TRANSMISSION	885		0		0	885	885		0	
4 TOTAL	930,154	2,650	18	12,718	12,736	322,140	932,804	3,533	24	12,754
5 DWORSHAK										
6 GENERATION	320,641	1,033	7	4,266	4,273	126,829	321,674	1,358	9	4,279
7 TRANSMISSION	0		0	0	0	0	0		0	0
8 TOTAL	320,641	1,033	7	4,266	4,273	126,829	321,674	1,358	9	4,279
9 ICE HARBOR										
10 GENERATION	155,463	1,673	12	2,174	2,186	76,268	157,136	2,165	15	2,198
11 TRANSMISSION	0		0	0	0	0	0		0	0
12 TOTAL	155,463	1,673	12	2,174	2,186	76,268	157,136	2,165	15	2,198
13 OTHER PROJECTS										
14 (GENERATION ONLY)										
15 ALBENI FALLS	41,847	321	4	1,033	1,037	27,218	42,168	361	4	1,041
16 CHIEF JOSEPH	657,200	5,488	43	10,181	10,224	268,615	662,688	7,462	58	10,266
17 COUGAR	22,272	285	2	271	273	9,234	22,557	311	2	274
18 DETROIT-BIG CLIFF	44,011	470	3	540	543	26,494	44,481	570	3	546
19 GREEN PETER-FOSTER	52,559	434	3	627	630	22,033	52,993	520	3	632
20 HILLS CREEK	16,905	295	3	294	297	9,601	17,200	325	3	299
21 JOHN DAY	511,249	4,896	43	8,930	8,973	213,758	516,145	6,632	58	9,016
22 LIBBY	435,981	1,517	13	7,507	7,520	173,083	437,498	1,948	17	7,533
23 LITTLE GOOSE	223,608	2,086	15	3,318	3,333	95,296	225,694	2,743	20	3,349
24 LOOKOUT POINT	49,169	504	13	2,576	2,589	48,367	49,673	618	16	2,603
25 LOST CREEK	29,131	333	2	403	405	10,547	29,464	378	3	408
26 LOWER GRANITE	345,069	2,086	16	5,266	5,282	134,267	347,155	2,743	21	5,298
27 LOWER MONUMENTAL	238,631	2,086	23	5,187	5,210	122,344	240,717	2,743	30	5,232
28 LOWER SNAKE F&W	262,535	0	0	2,625	2,625	44,135	262,535	0	0	2,625
29 MCNARY	352,394	19,542	149	5,380	5,529	180,546	371,936	20,338	155	5,678
30 THE DALLES	450,373	4,194	37	8,035	8,072	197,752	454,567	5,650	50	8,110
31 COLUMBIA R. FISH BYPASS	1,417,327	933,667	8,126	24,671	32,797	159,709	2,350,994	208,261	1,813	40,922
32 TOTAL OTHER	5,150,261	978,204	8,495	86,844	95,339	1,742,999	6,128,465	261,603	2,256	103,832
33 DEPRECIATION ADJUSTMENT					-19,056	-172,875				
34 TOTAL CORPS	6,556,519	983,560	8,532	106,002	95,478	2,095,361	7,540,079	268,659	2,304	123,063
35 GENERATION	6,555,634				95,478	2,094,476	7,539,194			
36 TRANSMISSION	885				0	885	885			
37 TOTAL	6,556,519				95,478	2,095,361	7,540,079			

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	BI	BJ	BK	BL	BM	BN	BO	BP	BQ
	TOTAL	2009			ADDTNS:	2010	TOTAL	2010	
	DEPR	ACCUM	INVESTMENT	2010	1/2 YR	DEPR	DEPR	ACCUM	INVESTMENT
	EXP	DEPR	9/30/09	ADDTNS	DEPR	INCR	EXP	DEPR	9/30/10
1 BONNEVILLE									
2 GENERATION	12,778	334,033	935,452	3,546	24	12,802	12,826	346,859	938,998
3 TRANSMISSION	0	885	885		0	0	0	885	885
4 TOTAL	12,778	334,918	936,337	3,546	24	12,802	12,826	347,744	939,883
5 DWORSHAK									
6 GENERATION	4,288	131,117	323,032	1,364	9	4,297	4,306	135,423	324,396
7 TRANSMISSION	0	0	0		0	0	0	0	0
8 TOTAL	4,288	131,117	323,032	1,364	9	4,297	4,306	135,423	324,396
9 ICE HARBOR									
10 GENERATION	2,213	78,481	159,301	2,178	15	2,228	2,243	80,724	161,479
11 TRANSMISSION	0	0	0		0	0	0	0	0
12 TOTAL	2,213	78,481	159,301	2,178	15	2,228	2,243	80,724	161,479
13 OTHER PROJECTS									
14 (GENERATION ONLY)									
15 ALBENI FALLS	1,045	28,263	42,529	367	5	1,050	1,055	29,318	42,896
16 CHIEF JOSEPH	10,324	278,939	670,150	7,476	58	10,382	10,440	289,379	677,626
17 COUGAR	276	9,510	22,868	317	2	278	280	9,790	23,185
18 DETROIT-BIG CLIFF	549	27,043	45,051	577	4	553	557	27,600	45,628
19 GREEN PETER-FOSTER	635	22,668	53,513	526	3	639	642	23,310	54,039
20 HILLS CREEK	302	9,903	17,525	331	3	305	308	10,211	17,856
21 JOHN DAY	9,074	222,832	522,777	6,647	58	9,131	9,189	232,021	529,424
22 LIBBY	7,550	180,633	439,446	1,960	17	7,566	7,583	188,216	441,406
23 LITTLE GOOSE	3,369	98,665	228,437	2,756	20	3,389	3,409	102,074	231,193
24 LOOKOUT POINT	2,619	50,986	50,291	624	16	2,635	2,651	53,637	50,915
25 LOST CREEK	411	10,958	29,842	384	3	413	416	11,374	30,226
26 LOWER GRANITE	5,319	139,586	349,898	2,756	21	5,340	5,361	144,947	352,654
27 LOWER MONUMENTAL	5,262	127,606	243,460	2,756	30	5,291	5,321	132,927	246,216
28 LOWER SNAKE F&W	2,625	46,760	262,535	0	0	2,625	2,625	49,385	262,535
29 MCNARY	5,833	186,379	392,274	20,354	155	5,989	6,144	192,523	412,628
30 THE DALLES	8,160	205,912	460,217	5,665	51	8,211	8,262	214,174	465,882
31 COLUMBIA R. FISH BYPASS	42,735	202,444	2,559,255	0	0	44,548	44,548	246,992	2,559,255
32 TOTAL OTHER	106,088	1,849,087	6,390,068	53,496	446	108,345	108,791	1,957,878	6,443,564
33 DEPRECIATION ADJUSTMENT	-20,858	-193,733					-21,324	-215,057	
34 TOTAL CORPS	104,509	2,199,870	7,808,738	60,584	494	127,672	106,842	2,306,712	7,869,322
35 GENERATION	104,509	2,198,985	7,807,853				106,842	2,305,827	7,868,437
36 TRANSMISSION	0	885	885				0	885	885
37 TOTAL	104,509	2,199,870	7,808,738				106,842	2,306,712	7,869,322

CHAPTER 5

PROJECTED CASH BALANCES / INTEREST CREDITS

I. 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.

Interest credits on projected cash balances

The Tool Kit 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 rates, 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.

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 Reclamation 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. For a further explanation of the calculation of the interest credit computed within repayment studies, *see* Revenue Requirement Study (WP-02-FS-BPA-02), Appendix B - The Repayment Program.

**Interest Income from Projected Cash Balances
Generation Revenue Requirements
(\$ thousands)**

	2002	2003	2004	2005	2006	2007	2008	2009	2010
1 Annual Cash Surplus/(Deficit)						9,117	26,900	54,048	54,638
2 Adjustments to Cash									
3 SOY Cash Balance	842,300	948,400	1,044,200	1,125,000	1,190,300	1,268,200	1,277,317	1,304,218	1,358,266
4 EOY Cash Balance 1/	948,400	1,044,200	1,125,000	1,190,300	1,268,200	1,277,317	1,304,218	1,358,266	1,412,904
5 Average Cash Balance	895,350	996,300	1,084,600	1,157,650	1,229,250	1,272,759	1,290,767	1,331,242	1,385,585
6 Interest Income Rate	6.82%	6.78%	6.92%	6.90%	6.90%	6.90%	6.90%	6.90%	6.90%
7 Annual Interest Income	61,063	67,549	75,054	79,878	84,818	87,820	89,063	91,856	95,605

1/ Annual Generation Cash Balances for 2001-2006 are from Toolkit results.

Interest Income from Projected Cash Balances - Generation Only
Revenues From Current Rates
(\$ thousands)

	2002	2003	2004	2005	2006
1 Annual Cash Surplus/(Deficit)	28,204	29,591	1,040	(27,197)	(29,956)
2 Adjustments to Cash					
3 SOY Cash Balance	842,300	927,626	1,019,982	1,088,885	1,133,087
4 EOY Cash Balance	870,504	957,217	1,021,022	1,061,688	1,103,131
5 Average Cash Balance	856,402	942,422	1,020,502	1,075,286	1,118,109
6 Interest Income Rate	6.67%	6.66%	6.65%	6.64%	6.63%
7 Annual Interest Income	57,122	62,765	67,863	71,399	74,131

**Interest Income from Projected Cash Balances
Generation Revenues From Proposed Rates
(\$ thousands)**

	2002	2003	2004	2005	2006
1 Annual Cash Surplus/(Deficit)					
2 Adjustments to Cash					
3 SOY Cash Balance	842,300	948,400	1,044,200	1,125,000	1,190,300
4 EOY Cash Balance 1/	948,400	1,044,200	1,125,000	1,190,300	1,268,200
5 Average Cash Balance	895,350	996,300	1,084,600	1,157,650	1,229,250
6 Interest Income Rate	6.67%	6.66%	6.65%	6.64%	6.63%
7 Annual Interest Income	59,720	66,354	72,126	76,868	81,499

1/ Annual Generation Cash Balances for 2001-2006 are from Toolkit results.

**Interest Income from Projected Cash Balances
Generation - 7b2 Case Revenue Requirement
(\$ thousands)**

	2002	2003	2004	2005	2006	2007	2008	2009	2010
1 Annual Cash Surplus/(Deficit)						37,735	41,112	51,901	50,396
2 Adjustments to Cash									
3 SOY Cash Balance	842,300	948,400	1,044,200	1,125,000	1,190,300	1,268,200	1,305,935	1,347,048	1,398,949
4 EOY Cash Balance	948,400	1,044,200	1,125,000	1,190,300	1,268,200	1,305,935	1,347,048	1,398,949	1,449,345
5 Average Cash Balance	895,350	996,300	1,084,600	1,157,650	1,229,250	1,287,068	1,326,491	1,372,998	1,424,147
6 Interest Income Rate	6.82%	6.78%	6.92%	6.90%	6.90%	6.90%	6.90%	6.90%	6.90%
7 Annual Interest Income	61,063	67,549	75,054	79,878	84,818	88,808	91,528	94,737	98,266

Cash flows in rate period are equivalent to program case.

CALCULATION OF BPA'S INCOME INTEREST RATE

RATE FOR A GIVEN YEAR IS CALCULATED AS THE WEIGHTED RATE OF OBLIGATIONS ISSUED TO TREASURY WHICH COME IN ON OR BEFORE THE GIVEN YEAR, AND ARE DUE ON OR AFTER THAT YEAR

OBLIGATIONS ON WHICH RATES ARE BASED:

GENERATION

61998ZABFX	38	0083502032	1992	10
61998ZABFX	67	67077002025	1995	07 05
61998ZABFX	5622	5622059002003	1996	08 T
61998ZABFX	7400	7400068002004	1997	01 T
61998ZACOX	140000	0122002003	1983	09
61998ZACOX	150000	0130502004	1984	09
61998ZACOX	-120000	0130502004	1989	09
61998ZACOX	50000	0101501990	1985	09 T
61998ZACOX	50000	0081501996	1986	03 T
61998ZACOX	50000	0078001991	1986	03 T
61998ZACOX	75000	0093002007	1987	04
61998ZACOX	-75000	0093002007	1992	04
61998ZACOX	50000	0083501992	1987	06 T
61998ZACOX	90000	0099002008	1988	04
61998ZACOX	40000	40000085502009	1989	07 T
61998ZACOX	66000	0086001995	1989	09 T
61998ZACOX	66000	66000086502002	1989	09 T
61998ZACOX	100000	0071402007	1992	07
61998ZACOX	-100000	0071402007	1998	09
61998ZACOX	80200	0058001997	1992	07 T
61998ZACOX	50000	0080502012	1992	10
61998ZACOX	50000	0074002013	1993	02
61998ZACOX	-50000	0074002013	1998	09
61998ZACOX	40000	40000067502013	1993	08
61998ZACOX	50000	50000067502014	1994	01
61998ZACOX	50000	0071001998	1994	05 01
61998ZACOX	85000	85000075002015	1995	05 05
61998ZACOX	30000	30000067002011	1996	01 05
61998ZACOX	40000	40000072002017	1996	11 05
61998ZACOX	37700	37700060002009	1998	05 T
61998ZACOX	52800	52800056002013	1998	09 T
61998ZACOX	104300	104300053002008	1998	09 T
61998ZADBX	35000	35000075002015	1995	05 05
61998ZADBX	50000	24536065002000	1997	05 T
61998ZADBX	-25464	0065002000	1997	05 T
61998ZADBX	25464	25464075402042	2000	03
61998ZADBX	25000	25000060002008	1998	04
61998ZAFWX	61500	25000089501999	1989	05 T
61998ZAFWX	50000	0079501996	1991	05 T
61998ZAFWX	20000	20000069502008	1993	02
61998ZAFWX	20000	0076501999	1994	09 01
61998ZAFWX	22900	22900072002010	1995	08 05
61998ZAFWX	60000	60000061002013	1998	01
61999ZABFX	4400	4400076202044	1999	03
61999ZACOX	6000	6000074702019	1999	03
61999ZADBX	20000	20000064002004	1999	09

61999ZAFWX	20000	20000063002003	1999	09
62000ZABFX	4100	4100075402045	2000	03
62000ZACOX	32555	32555074002020	2000	03
62000ZADBX	95369	95369075402045	2000	03
62000ZAFWX	27000	27000072402015	2000	03
62001ZABFX	7600	7600072902046	2001	03
62001ZACOX	1000	1000071102021	2001	03
62001ZADBX	76100	76100072902046	2001	03
62001ZAFWX	27000	27000069202016	2001	03
62002ZABFX	2100	2100070802047	2002	03
62002ZADBX	89855	89855070802047	2002	03
62002ZAFWX	34732	34732066902017	2002	03
62003ZABFX	1400	1400068902048	2003	03
62003ZADBX	86650	86650068902048	2003	03
62003ZAFWX	38317	38317065002018	2003	03
62004ZABFX	1400	1400069002049	2004	03
62004ZADBX	61700	61700069002049	2004	03
62004ZAFWX	35825	35825064802019	2004	03
62005ZABFX	1400	1400068802050	2005	03
62005ZADBX	62100	62100068802050	2005	03
62005ZAFWX	33988	33988064402020	2005	03
62006ZABFX	1400	1400068502051	2006	03
62006ZADBX	62100	62100068502051	2006	03
62006ZAFWX	34182	34182063802021	2006	03

FISCAL YEAR	TOTAL INTEREST	TOTAL PRINCIPAL	WEIGHTED INTR. RATE	TOTAL ISSUED
1999	53105	776525	.06839	2004927
2000	60690	888970	.06827	2189415
2001	70008	1012527	.06914	2301115
2002	78445	1131721	.06931	2427802
2003	81432	1192248	.06830	2554169
2004	87457	1279272	.06836	2653094
2005	92289	1350078	.06836	2750582
2006	98833	1447663	.06827	2848264
2007	102099	1496504	.06823	2848264
2008	102099	1496504	.06823	2848264
2009	93681	1347204	.06954	2848264
2010	87999	1269504	.06932	2848264
2011	86350	1246604	.06927	2848264
2012	84340	1216604	.06932	2848264

CHAPTER 6
INTEREST RATES FOR TREASURY SOURCES OF CAPITAL
AND PRICE DEFLATORS

Introduction

Interest rates on bonds issued by BPA to Treasury and interest rates for COE, Reclamation 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.

WEFA

The WEFA Group (WEFA) provides Treasury yield curve forecasts that BPA uses to calculate projections of interest during construction (IDC) on CWIP balances for FCRPS investments funded by appropriations. These forecasts are also used to project interest rates on bonds issued to Treasury and on appropriated investments as plant is placed in service. WEFA is also the source of price deflators that BPA treats as escalators for purposes of developing spending levels. The price deflators are derived from projections of Gross Domestic Product (GDP). The GDP consists of the sum of consumption, investment, government purchases and net exports, excluding transfers to foreigners.

Interest Rate Projections

Projected interest rates for BPA bonds issued to Treasury are based on WEFA's yield curve projections of Treasury market rates, plus a markup of 32 to 90 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 2002-2006 period the 30-year rate reflects a markup of 90 basis points.

Interest rates on projected capital investments funded by appropriations are also based on WEFA's projections of Treasury yield curves. The yield curves used for appropriations do not include the 32 to 90 basis point markup.

Deflators

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

$$[(FY_1/100) \times 0.5] + 1 = \text{Cumulative Price Deflator}_1$$

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.

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

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 2002-2006 spending levels they are based on the price deflators from the Fourth Quarter 1997 WEFA forecast.

TABLE 1

30 YEAR TREASURY YIELDS
 FY 1998.Q2 FORECAST OF BPA TREASURY BORROWING RATES

Calendar/Fiscal Years 1997 - 2019

	(A)	(B)	(C)
<u>YEAR</u>	<u>BOND RATE 1/ Calendar Year</u>	<u>BOND RATE Fiscal Year</u>	<u>BPA RATE 2/ Fiscal Year</u>
1997	6.62%	6.64%	7.54%
1998	6.62%	6.62%	7.52%
1999	6.75%	6.72%	7.62%
2000	6.60%	6.64%	7.54%
2001	6.32%	6.39%	7.29%
2002	6.14%	6.18%	7.08%
2003	5.94%	5.99%	6.89%
2004	6.01%	6.00%	6.90%
2005	5.97%	5.98%	6.88%
2006	5.94%	5.95%	6.85%
2007	5.90%	5.91%	6.81%
2008	5.86%	5.87%	6.77%
2009	5.81%	5.82%	6.72%
2010	5.76%	5.77%	6.67%
2011	5.75%	5.75%	6.65%
2012	5.74%	5.74%	6.64%
2013	5.74%	5.74%	6.64%
2014	5.74%	5.74%	6.64%
2015	5.75%	5.75%	6.65%
2016	5.76%	5.76%	6.66%
2017	5.76%	5.76%	6.66%
2018	5.77%	5.77%	6.67%
2019	5.77%	5.77%	6.67%

1/ Source: The WEFA Group, U.S. Long-Term Economic Outlook, Fourth Quarter 1997, Volume 1 Trend/Moderate Growth Scenario. Average market yield on 30-year Treasury bonds. Calendar year adjusted to reflect BPA fiscal year.

2/ Column C = Column B + markup of 90 bp. The Treasury markup is based on the average rate of BPA long term bonds issued to the U.S. Treasury in FY 1993, 1994 and 1995, and adjustments by BPA Treasury analyst.

TABLE 2

30 YEAR TREASURY YIELDS
FY 1998.Q2 COMPARISON OF BPA BORROWING RATES

Fiscal Years 1997 - 2019

	(A)	(B)	(C)
<u>YEAR</u>	<u>FY 1998 Q.2 FORECAST BPA RATE 1/</u>	<u>FY 1998 Q.2 FORECAST BPA RATE 2/</u>	<u>DIFFERENCE (A-B)</u>
1997	7.54%	7.35%	0.19%
1998	7.52%	7.16%	0.36%
1999	7.62%	7.05%	0.57%
2000	7.54%	6.94%	0.60%
2001	7.29%	6.83%	0.46%
2002	7.08%	6.77%	0.31%
2003	6.89%	6.74%	0.15%
2004	6.90%	6.71%	0.19%
2005	6.88%	6.69%	0.19%
2006	6.85%	6.67%	0.18%
2007	6.81%	6.67%	0.14%
2008	6.77%	6.66%	0.11%
2009	6.72%	6.64%	0.08%
2010	6.67%	6.67%	0.00%
2011	6.65%	6.72%	-0.07%
2012	6.64%	6.75%	-0.11%
2013	6.64%	6.72%	-0.08%
2014	6.64%	6.71%	-0.07%
2015	6.65%	6.73%	-0.08%
2016	6.66%	6.72%	-0.06%
2017	6.66%	6.71%	-0.05%
2018	6.67%	6.72%	-0.05%
2019	6.67%	6.73%	-0.06%

1/ Forecast prepared February 20, 1998. Source: The WEFA Group, U.S. Long-Term Economic Outlook, Fourth Quarter 1997, Volume 1 Trend\Moderate Growth Scenario. Average market yield on 30-year Treasury bonds. Calendar year adjusted to reflect BPA fiscal year.

2/ Source: The WEFA Group, U.S. Long-Term Economic Outlook, Fourth Quarter 1996, Volume 1 Trend\Moderate Growth Scenario. Average market yield on 30-year Treasury bonds. Calendar year adjusted to reflect BPA fiscal year.

TABLE 3

15 YEAR TREASURY YIELDS

FY 1998.Q2 FORECAST OF BPA TREASURY BORROWING RATES

Calendar/Fiscal Years 1997 - 2019

	(A)	(B)	(C)
YEAR	BOND RATE 1/ <u>Calendar Year</u>	BOND RATE <u>Fiscal Year</u>	BPA RATE 2/ <u>Fiscal Year</u>
1997	6.43%	6.45%	7.14%
1998	6.49%	6.48%	7.17%
1999	6.66%	6.62%	7.31%
2000	6.52%	6.55%	7.24%
2001	6.17%	6.24%	6.93%
2002	5.95%	6.00%	6.69%
2003	5.76%	5.81%	6.50%
2004	5.81%	5.79%	6.48%
2005	5.73%	5.75%	6.44%
2006	5.68%	5.69%	6.38%
2007	5.64%	5.65%	6.34%
2008	5.58%	5.60%	6.29%
2009	5.53%	5.54%	6.23%
2010	5.48%	5.49%	6.18%
2011	5.47%	5.47%	6.16%
2012	5.46%	5.46%	6.15%
2013	5.46%	5.46%	6.15%
2014	5.46%	5.46%	6.15%
2015	5.47%	5.47%	6.16%
2016	5.48%	5.48%	6.17%
2017	5.48%	5.48%	6.17%
2018	5.49%	5.49%	6.18%
2019	5.49%	5.49%	6.18%

1/ Source: The WEFA Group, U.S. Long-Term Economic Outlook, Fourth Quarter 1997, Volume 1 Trend/Moderate Growth Scenario. Average market yield on 15-year Treasury bonds. Calendar year adjusted to reflect BPA fiscal year.

2/ Column C = Column B + markup of 69 bp. The Treasury markup is based on the average rate of BPA long term bonds issued to the U.S. Treasury in FY 1993, 1994 and 1995, and adjustments by BPA Treasury analyst.

TABLE 4**20 YEAR TREASURY YIELDS**

FY 1998.Q2 FORECAST OF BPA TREASURY BORROWING RATES

Calendar/Fiscal Years 1997 - 2019

	(A)	(B)	(C)
YEAR	BOND RATE 1/ <u>Calendar Year</u>	BOND RATE <u>Fiscal Year</u>	BPA RATE 2/ <u>Fiscal Year</u>
1997	6.50%	6.52%	7.34%
1998	6.54%	6.53%	7.35%
1999	6.69%	6.65%	7.47%
2000	6.54%	6.58%	7.40%
2001	6.20%	6.29%	7.11%
2002	6.02%	6.06%	6.88%
2003	5.82%	5.87%	6.69%
2004	5.87%	5.86%	6.68%
2005	5.81%	5.83%	6.65%
2006	5.77%	5.78%	6.60%
2007	5.73%	5.74%	6.56%
2008	5.68%	5.69%	6.51%
2009	5.62%	5.63%	6.45%
2010	5.58%	5.59%	6.41%
2011	5.56%	5.57%	6.39%
2012	5.55%	5.56%	6.38%
2013	5.55%	5.55%	6.37%
2014	5.56%	5.56%	6.38%
2015	5.56%	5.56%	6.38%
2016	5.57%	5.57%	6.39%
2017	5.58%	5.58%	6.40%
2018	5.58%	5.58%	6.40%
2019	5.58%	5.58%	6.40%

1/ Source: The WEFA Group, U.S. Long-Term Economic Outlook, Fourth Quarter 1997, Volume 1 Trend/Moderate Growth Scenario. Average market yield on 20-year Treasury bonds. Calendar year adjusted to reflect BPA fiscal year.

2/ Column C = Column B + markup of 82 bp. The Treasury markup is based on the average rate of BPA long term bonds issued to the U.S. Treasury in FY 1993, 1994 and 1995, and adjustments by BPA Treasury analyst.

TABLE 5
FY 1998.Q2 FORECAST OF BPA TREASURY BORROWING RATES
FORECAST PREPARED FEBRUARY 20, 1998

Fiscal Years 1997 - 2019

<u>Year</u>	<u>1 Year</u>	<u>2 Year</u>	<u>3 Year</u>	<u>4 Year</u>	<u>5 Year</u>	<u>6 Year</u>	<u>7 Year</u>	<u>8 Year</u>	<u>9 Year</u>	<u>10 Year</u>	<u>11 Year</u>	<u>12 Year</u>	<u>13 Year</u>	<u>14 Year</u>	<u>15 Year</u>	<u>16 Year</u>	<u>17 Year</u>	<u>18 Year</u>	<u>19 Year</u>
1997	5.92	6.19	6.45	6.55	6.65	6.73	6.82	6.89	6.90	6.95	6.98	7.02	7.06	7.10	7.14	7.18	7.22	7.27	7.30
1998	6.18	6.40	6.62	6.68	6.75	6.82	6.89	6.92	6.95	6.98	7.02	7.06	7.09	7.13	7.17	7.20	7.24	7.27	7.31
1999	6.41	6.59	6.77	6.84	6.91	6.97	7.03	7.07	7.10	7.14	7.18	7.21	7.24	7.27	7.31	7.34	7.37	7.41	7.44
2000	6.26	6.43	6.60	6.68	6.77	6.83	6.89	6.95	7.02	7.08	7.11	7.14	7.18	7.21	7.24	7.27	7.30	7.34	7.37
2001	5.88	6.05	6.23	6.30	6.38	6.44	6.50	6.58	6.66	6.74	6.78	6.82	6.85	6.89	6.92	6.96	7.00	7.03	7.07
2002	5.74	5.91	6.08	6.15	6.22	6.28	6.34	6.39	6.45	6.50	6.54	6.58	6.61	6.65	6.69	6.73	6.77	6.81	6.84
2003	5.56	5.75	5.93	6.00	6.07	6.12	6.18	6.22	6.26	6.30	6.34	6.38	6.42	6.46	6.50	6.54	6.54	6.61	6.65
2004	5.69	5.81	5.92	5.98	6.04	6.10	6.16	6.20	6.24	6.28	6.32	6.36	6.40	6.44	6.48	6.52	6.56	6.60	6.64
2005	5.73	5.81	5.89	5.94	5.99	6.04	6.10	6.15	6.19	6.23	6.27	6.32	6.36	6.40	6.44	6.48	6.52	6.57	6.61
2006	5.70	5.77	5.83	5.87	5.91	5.97	6.03	6.08	6.12	6.16	6.21	6.25	6.27	6.34	6.38	6.42	6.47	6.51	6.55
2007	5.65	5.71	5.78	5.82	5.86	5.92	5.98	6.02	6.07	6.12	6.16	6.20	6.25	6.29	6.34	6.38	6.42	6.47	6.51
2008	5.56	5.63	5.71	5.75	5.80	5.86	5.92	5.97	6.02	6.06	6.11	6.15	6.20	6.24	6.29	6.33	6.38	6.42	6.46
2009	5.46	5.55	5.63	5.68	5.73	5.80	5.86	5.91	5.96	6.01	6.05	6.10	6.14	6.19	6.23	6.28	6.32	6.36	6.41
2010	5.38	5.47	5.57	5.62	5.68	5.75	5.81	5.86	5.91	5.96	6.00	6.05	6.09	6.14	6.18	6.23	6.27	6.32	6.36
2011	5.35	5.45	5.55	5.61	5.66	5.73	5.80	5.84	5.89	5.94	5.98	6.03	6.07	6.12	6.16	6.21	6.25	6.30	6.34
2012	5.33	5.43	5.54	5.59	5.65	5.72	5.78	5.83	5.88	5.93	5.97	6.02	6.06	6.11	6.15	6.20	6.24	6.29	6.33
2013	5.32	5.42	5.53	5.58	5.64	5.71	5.78	5.83	5.87	5.92	5.97	6.01	6.06	6.10	6.15	6.19	6.24	6.28	6.33
2014	5.32	5.42	5.53	5.58	5.64	5.71	5.78	5.83	5.88	5.93	5.97	6.02	6.06	6.11	6.15	6.20	6.24	6.29	6.33
2015	5.33	5.43	5.53	5.58	5.64	5.71	5.78	5.83	5.88	5.93	5.97	6.02	6.06	6.11	6.16	6.20	6.24	6.29	6.34
2016	5.34	5.44	5.54	5.60	5.65	5.72	5.79	5.84	5.89	5.94	5.98	6.03	6.07	6.12	6.17	6.21	6.25	6.30	6.34
2017	5.35	5.45	5.55	5.61	5.66	5.73	5.80	5.85	5.90	5.95	5.99	6.04	6.08	6.13	6.17	6.22	6.26	6.31	6.35
2018	5.36	5.46	5.56	5.61	5.67	5.74	5.81	5.85	5.90	5.95	6.00	6.04	6.09	6.13	6.18	6.22	6.27	6.31	6.36
2019	5.36	5.46	5.56	5.62	5.67	5.74	5.81	5.86	5.91	5.95	6.00	6.04	6.09	6.13	6.18	6.22	6.27	6.31	6.36

<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>
7.34	7.36	7.38	7.40	7.42	7.44	7.46	7.48	7.50	7.52	7.54	7.54	1997
7.35	7.36	7.38	7.40	7.42	7.43	7.45	7.47	7.49	7.51	7.52	7.52	1998
7.47	7.49	7.50	7.52	7.53	7.54	7.56	7.57	7.59	7.60	7.62	7.62	1999
7.40	7.42	7.43	7.44	7.46	7.47	7.48	7.50	7.51	7.53	7.54	7.54	2000
7.11	7.12	7.14	7.16	7.18	7.20	7.22	7.23	7.25	7.27	7.29	7.29	2001
6.88	6.90	6.92	6.94	6.96	6.98	7.00	7.02	7.04	7.06	7.08	7.08	2002
6.69	6.71	6.73	6.75	6.77	6.79	6.81	6.83	6.85	6.87	6.89	6.89	2003
6.68	6.70	6.72	6.75	6.77	6.79	6.81	6.83	6.85	6.87	6.90	6.90	2004
6.65	6.67	6.70	6.72	6.74	6.77	6.79	6.81	6.84	6.86	6.88	6.88	2005
6.60	6.62	6.65	6.67	6.7	6.72	6.75	6.77	6.80	6.82	6.85	6.85	2006
6.56	6.58	6.61	6.63	6.66	6.68	6.71	6.74	6.76	6.79	6.81	6.81	2007
6.51	6.53	6.56	6.59	6.61	6.64	6.67	6.69	6.72	6.74	6.77	6.77	2008
6.45	6.48	6.51	6.53	6.56	6.59	6.61	6.64	6.67	6.69	6.72	6.72	2009
6.41	6.43	6.46	6.49	6.51	6.54	6.57	6.59	6.62	6.65	6.67	6.67	2010
6.39	6.41	6.44	6.47	6.49	6.52	6.55	6.57	6.60	6.63	6.65	6.65	2011
6.38	6.40	6.43	6.46	6.48	6.51	6.54	6.56	6.59	6.62	6.64	6.64	2012
6.37	6.40	6.43	6.45	6.48	6.51	6.53	6.56	6.59	6.61	6.64	6.64	2013
6.38	6.40	6.43	6.46	6.48	6.51	6.54	6.56	6.59	6.62	6.64	6.64	2014
6.38	6.41	6.43	6.46	6.349	6.52	6.54	6.57	6.60	6.62	6.65	6.65	2015
6.39	6.42	6.44	6.47	6.50	6.52	6.55	6.58	6.60	6.63	6.66	6.66	2016
6.40	6.42	6.45	6.48	6.50	6.53	6.56	6.58	6.61	6.64	6.66	6.66	2017
6.40	6.43	6.45	6.48	6.51	6.53	6.56	6.59	6.61	6.64	6.67	6.67	2018
6.40	6.43	6.46	6.48	6.51	6.54	6.56	6.59	6.62	6.64	6.67	6.67	2019

TABLE 5A

1998.Q2 TREASURY YIELD CURVE FORECAST 1/
 FORECAST PREPARED FEBRUARY 20, 1998

BPA Fiscal Years 1997 - 2019
 No Mark-up for Appropriations

MATURITY

<u>Year</u>	<u>1 Year</u>	<u>2 Year</u>	<u>3 Year</u>	<u>4 Year</u>	<u>5 Year</u>	<u>6 Year</u>	<u>7 Year</u>	<u>8 Year</u>	<u>9 Year</u>	<u>10 Year</u>	<u>11 Year</u>	<u>12 Year</u>	<u>13 Year</u>	<u>14 Year</u>	<u>15 Year</u>	<u>16 Year</u>
1997	5.60	5.84	6.08	6.15	6.22	6.28	6.34	6.36	6.37	6.39	6.40	6.41	6.43	6.44	6.45	6.46
1998	5.86	6.05	6.24	6.28	6.32	6.36	6.41	6.41	6.42	6.43	6.44	6.45	6.46	6.47	6.48	6.49
1999	6.08	6.24	6.40	6.44	6.48	6.52	6.55	6.56	6.57	6.58	6.59	6.60	6.60	6.61	6.62	6.62
2000	5.94	6.09	6.23	6.28	6.34	6.37	6.41	6.45	6.48	6.52	6.53	6.53	6.54	6.55	6.55	6.56
2001	5.56	5.70	5.85	5.90	5.96	5.99	6.03	6.08	6.13	6.19	6.20	6.21	6.22	6.23	6.24	6.25
2002	5.42	5.56	5.71	5.75	5.80	5.83	5.86	5.89	5.91	5.94	5.95	5.97	5.98	5.99	6.00	6.01
2003	5.24	5.40	5.56	5.60	5.64	5.67	5.70	5.71	5.73	5.75	5.76	5.77	5.78	5.80	5.81	5.82
2004	5.37	5.46	5.55	5.58	5.62	5.65	5.68	5.69	5.71	5.73	5.74	5.75	5.77	5.78	5.79	5.81
2005	5.41	5.46	5.52	5.54	5.56	5.59	5.62	5.64	5.66	5.67	5.69	5.71	5.72	5.74	5.75	5.77
2006	5.38	5.42	5.46	5.47	5.49	5.52	5.55	5.57	5.59	5.61	5.62	5.64	5.66	5.68	5.69	5.71
2007	5.33	5.36	5.40	5.42	5.43	5.47	5.50	5.52	5.54	5.56	5.58	5.59	5.61	5.63	5.65	5.66
2008	5.24	5.29	5.33	5.35	5.37	5.41	5.45	5.47	5.49	5.51	5.52	5.54	5.56	5.58	5.60	5.62
2009	5.14	5.20	5.26	5.28	5.31	5.35	5.39	5.41	5.43	5.45	5.47	5.49	5.50	5.52	5.54	5.56
2010	5.06	5.13	5.20	5.22	5.25	5.29	5.33	5.36	5.38	5.40	5.42	5.44	5.46	5.48	5.49	5.51
2011	5.03	5.10	5.18	5.21	5.23	5.28	5.32	5.34	5.36	5.38	5.40	5.42	5.44	5.46	5.47	5.49
2012	5.01	5.09	5.16	5.19	5.22	5.26	5.31	5.33	5.35	5.37	5.39	5.41	5.43	5.45	5.46	5.48
2013	5.00	5.08	5.15	5.18	5.22	5.26	5.30	5.32	5.34	5.37	5.38	5.40	5.42	5.44	5.46	5.48
2014	5.00	5.08	5.15	5.18	5.22	5.26	5.30	5.32	5.35	5.37	5.39	5.41	5.42	5.44	5.46	5.48
2015	5.00	5.08	5.15	5.18	5.22	5.26	5.30	5.32	5.35	5.37	5.39	5.41	5.43	5.45	5.47	5.48
2016	5.02	5.09	5.16	5.20	5.23	5.27	5.31	5.33	5.36	5.38	5.40	5.42	5.44	5.46	5.47	5.49
2017	5.03	5.10	5.17	5.21	5.24	5.28	5.32	5.34	5.37	5.39	5.41	5.43	5.44	5.46	5.48	5.50
2018	5.04	5.11	5.18	5.21	5.24	5.29	5.33	5.35	5.37	5.39	5.41	5.43	5.45	5.47	5.49	5.51
2019	5.04	5.11	5.19	5.22	5.25	5.29	5.33	5.35	5.37	5.40	5.42	5.43	5.45	5.47	5.49	5.51

1/ Source: WEFA Group, U.S. Long-Term Economic Outlook, Fourth Quarter 1997, Trend/Moderate Growth Scenario. Table 8.1, Interest Rates, Pg. 5.58-5.59.

<u>17 Year</u>	<u>18 Year</u>	<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>
6.48	6.49	6.50	6.52	6.53	6.54	6.55	6.57	6.58	6.59	6.60	6.62	6.63	6.64	6.64	1997
6.50	6.51	6.52	6.53	6.54	6.55	6.56	6.57	6.57	6.58	6.59	6.60	6.61	6.62	6.62	1998
6.63	6.64	6.64	6.65	6.66	6.66	6.67	6.68	6.68	6.69	6.70	6.70	6.71	6.72	6.72	1999
6.56	6.57	6.58	6.58	6.59	6.59	6.60	6.60	6.61	6.62	6.62	6.63	6.63	6.64	6.64	2000
6.26	6.27	6.28	6.29	6.30	6.31	6.32	6.33	6.34	6.35	6.36	6.37	6.38	6.39	6.39	2001
6.03	6.04	6.05	6.06	6.07	6.09	6.10	6.11	6.12	6.14	6.15	6.16	6.17	6.18	6.18	2002
5.83	5.85	5.86	5.87	5.88	5.89	5.91	5.92	5.93	5.94	5.96	5.97	5.98	5.99	5.99	2003
5.82	5.83	5.85	5.86	5.87	5.89	5.90	5.91	5.93	5.94	5.96	5.97	5.98	6.00	6.00	2004
5.78	5.80	5.81	5.83	5.84	5.86	5.88	5.89	5.91	5.92	5.94	5.95	5.97	5.98	5.98	2005
5.73	5.74	5.76	5.78	5.80	5.81	5.83	5.85	5.86	5.88	5.90	5.92	5.93	5.95	5.95	2006
5.68	5.70	5.72	5.74	5.75	5.77	5.79	5.81	5.82	5.84	5.86	5.88	5.90	5.91	5.91	2007
5.63	5.65	5.67	5.69	5.71	5.72	5.74	5.76	5.78	5.80	5.82	5.83	5.85	5.87	5.87	2008
5.58	5.60	5.62	5.63	5.65	5.67	5.69	5.71	5.73	5.74	5.76	5.78	5.80	5.82	5.82	2009
5.53	5.55	5.57	5.59	5.61	5.63	5.64	5.66	5.68	5.70	5.72	5.74	5.76	5.77	5.77	2010
5.51	5.53	5.55	5.57	5.59	5.60	5.62	5.64	5.66	5.68	5.70	5.72	5.73	5.75	5.75	2011
5.50	5.52	5.54	5.56	5.58	5.59	5.61	5.63	5.65	5.67	5.69	5.71	5.72	5.74	5.74	2012
5.50	5.52	5.53	5.55	5.57	5.59	5.61	5.63	5.65	5.66	5.68	5.70	5.72	5.74	5.74	2013
5.50	5.52	5.54	5.56	5.57	5.59	5.61	5.63	5.65	5.67	5.69	5.71	5.72	5.74	5.74	2014
5.50	5.52	5.54	5.56	5.58	5.60	5.62	5.64	5.66	5.67	5.69	5.71	5.73	5.75	5.75	2015
5.51	5.53	5.55	5.57	5.59	5.61	5.63	5.64	5.66	5.68	5.70	5.72	5.74	5.76	5.76	2016
5.52	5.54	5.56	5.58	5.59	5.61	5.63	5.65	5.67	5.69	5.71	5.73	5.74	5.76	5.76	2017
5.53	5.54	5.56	5.58	5.60	5.62	5.64	5.66	5.67	5.69	5.71	5.73	5.75	5.77	5.77	2018
5.53	5.55	5.56	5.58	5.60	5.62	5.64	5.66	5.68	5.70	5.71	5.73	5.75	5.77	5.77	2019

TABLE 6

**FY 1998.Q2 FORECAST OF INFLATIONARY TRENDS
CHANGE IN GROSS DOMESTIC PRODUCT PRICE DEFLATOR**

Calendar/Fiscal Year							
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
	CALENDAR YEAR	FY 98 Q.2	FISCAL YEAR	FISCAL YEAR	FISCAL YEAR	FISCAL YEAR	FISCAL YEAR
<u>Year</u>	<u>% CHANGE 1/</u>	<u>% CHANGE</u>	<u>DEFLATOR INDEX 2/</u>	<u>DEFLATOR INDEX</u>	<u>DEFLATOR INDEX</u>	<u>DEFLATOR INDEX</u>	<u>DEFLATOR INDEX</u>
			(1994 Base Year)	(1995 Base Year)	(1996 Base Year)	(1997 Base Year)	(1998 Base Year)
1994	2.38%	2.45%	1.012				
1995	2.54%	2.50%	1.038	1.013			
1996	2.29%	2.35%	1.062	1.036	1.012		
1997	2.04%	2.10%	1.084	1.058	1.033	1.010	
1998	1.98%	2.00%	1.106	1.079	1.054	1.031	1.010
1999	6.62%	2.46%	1.133	1.106	1.080	1.056	1.035
2000	2.52%	2.54%	1.162	1.134	1.107	1.083	1.061
2001	2.46%	2.48%	1.191	1.162	1.134	1.110	1.087
2002	2.50%	2.49%	1.220	1.191	1.163	1.137	1.115
2003	2.80%	2.73%	1.254	1.223	1.194	1.168	1.145
2004	2.67%	2.70%	1.287	1.256	1.227	1.200	1.176
2005	2.67%	2.67%	1.322	1.290	1.259	1.232	1.207
2006	2.51%	2.55%	1.356	1.323	1.291	1.263	1.238
2007	2.48%	2.49%	1.389	1.356	1.324	1.295	1.269
2008	2.53%	2.51%	1.424	1.390	1.357	1.327	1.301
2009	2.56%	2.55%	1.461	1.425	1.391	1.361	1.334
2010	2.60%	2.59%	1.498	1.462	1.428	1.397	1.368
2011	2.57%	2.58%	1.537	1.500	1.464	1.433	1.404
2012	2.63%	2.62%	1.577	1.539	1.503	1.470	1.441
2013	2.67%	2.66%	1.619	1.580	1.543	1.509	1.479
2014	2.66%	2.66%	1.662	1.622	1.584	1.549	1.518
2015	2.70%	2.69%	1.707	1.666	1.626	1.591	1.559
2016	2.70%	2.70%	1.753	1.711	1.670	1.634	1.601
2017	2.68%	2.69%	1.800	1.757	1.715	1.678	1.644
2018	2.70%	2.70%	1.849	1.804	1.762	1.723	1.890
2019	2.71%	2.71%	1.899	1.853	1.809	1.770	1.734

1/ Source: WEFA Fourth Quarter 1997 U.S. Long-Term Economic Outlook, Gross Domestic Product Implicit Price Deflator Index, Calendar Year. Base year Index = 1992

2/ Fiscal Year Cumulative Price Deflator associates to midyear dollars. The first year, 1994, is determined as follows: $1.0118 = [(2.363\%/100)*0.5] + 1$. Subsequent years use the prior Fiscal Year Cumulative Price Deflator. For example, the rate in 1995 is given by: $1.036 = [1 + (2.363\%/100)]*1.0118$.

TABLE 7

**FY 1998.Q2 INFLATION FORECAST COMPARISONS
GROSS DOMESTIC PRODUCT PRICE DEFLATOR INDEXES**

BPA Fiscal Year			
	(A)	(B)	(C)
	FY 98.Q2 1/ FISCAL YEAR CUMULATIVE PRICE DEFLATOR INDEX (1994 Base Year)	FY 97.Q1 2/ FISCAL YEAR CUMULATIVE PRICE DEFLATOR INDEX (1994 Base Year)	(A-B) DIFFERENCE
<u>Year</u>	<u>DEFLATOR INDEX</u>	<u>DEFLATOR INDEX</u>	<u>DIFFERENCE</u>
1994	1.012	1.012	0.000
1995	1.038	1.037	0.001
1996	1.062	1.060	0.002
1997	1.084	1.084	0.000
1998	1.106	1.111	-0.005
1999	1.133	1.139	-0.006
2000	1.162	1.169	-0.007
2001	1.191	1.199	-0.008
2002	1.220	1.231	-0.011
2003	1.254	1.263	-0.009
2004	1.287	1.297	-0.010
2005	1.322	1.331	-0.009
2006	1.356	1.367	-0.011
2007	1.389	1.404	-0.015
2008	1.424	1.441	-0.017
2009	1.461	1.479	-0.018
2010	1.498	1.518	-0.020
2011	1.537	1.558	-0.021
2012	1.577	1.600	-0.023
2013	1.619	1.643	-0.024
2014	1.662	1.688	-0.026
2015	1.707	1.734	-0.027
2016	1.753	1.781	-0.028
2017	1.800	1.828	-0.028
2018	1.849	1.875	-0.026
2019	1.899	1.923	-0.024

1/ Source: WEFA Fourth Quarter 1997 U.S. Long-Term Economic Outlook, Gross Domestic Product Price Deflator Index, Calendar Year. Base year index = 1992.

2/ Source: WEFA Fourth Quarter 1996 U.S. Long-Term Economic Outlook, Gross Domestic Product Price Deflator Index.

CHAPTER 7

PROJECTED BONDS ISSUED TO TREASURY

I. Introduction

This chapter documents the bonds that BPA projects it will issue to the U.S. Treasury to finance BPA capital investments and Reclamation/COE investments that will be direct-funded by BPA.

II. Issuing Bonds

BPA primarily funds capital outlays by issuing new long-term debt in the form of bonds issued to Treasury. BPA issues four types of bonds: Construction, Conservation, Fish and Wildlife/Environment, and Reclamation/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 traditionally were issued to fund the legacy conservation program, however no such bonds are projected to be issued in the FY 2002-2006 rate period. Fish and Wildlife bonds are issued to fund the capital portion of BPA's Fish and Wildlife program. *See* Chapter 13. 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 Reclamation/COE generation efficiency and reliability improvements. All bonds projected for issuance have been entered into the generation repayment study.

Construction and Reclamation/COE direct funding bonds are entered in the repayment program with a maximum period to maturity of 45 years. Fish and Wildlife bonds are entered with a period to maturity of 15 years.

New bonds for the cost evaluation period (FYs 1999 - 2006) and projected borrowing for the 7(b)2 rate test period (FYs 2007-10) are based on projected BPA and Reclamation/COE capital program outlays. Maturities reflect the average services lives of the assets. Interest rates are assignment practices are discussed in Chapter 8. The interest rates used are in Chapter 6.

Bonneville Power Administration
Total Bonds Issued
(\$ in millions)

30-Sep-99

Date	Type	Amount Issued	Interest Rate	Term	Maturity Date	----1st Call----		Refinanced Bonds		Amortized Bonds		Call Price	Out-Stand	Interest Due	Semiannual Interest
						Date	Price	Date	Amount	Date	Amount				
09/30/1978	C	50.0	8.95%	35	2013	9/30/1983	107.64			9/30/1991	-50.0	105.53	0.0	Mar/Sep	0
06/30/1979	C	75.0	9.45%	35	2014	6/30/1984	108.10			9/30/1985/86/9	-75.0	various	0.0	Dec/Jun	0
09/30/1979	C	50.0	9.90%	35	2014	9/30/1984	108.49			9/30/1985	-50.0	108.20	0.0	Mar/Sep	0
09/30/1980	C	115.0	13.00%	35	2015	9/30/1985	111.14			9/30/1985	-115.0	111.14	0.0	Mar/Sep	0
09/30/1981	C	175.0	16.60%	35	2016	9/30/1986	114.23			9/30/1986	-175.0	114.23	0.0	Mar/Sep	0
12/31/1981	C	50.0	14.40%	35	2016	12/31/1981	112.34			2/28/1987	-50.0	112.34	0.0	Jun/Dec	0
04/30/1982	C	100.0	14.40%	35	2017	4/30/1987	112.34			4/30/1987	-100.0	112.34	0.0	Oct/Apr	0
07/31/1982	C	85.0	14.15%	35	2017	7/31/1987	112.13	7/31/1987	-85.0			112.13	0.0	Jan/Jul	0
11/30/1982	C	40.0	10.85%	35	2017	11/30/1987	109.30	2/29/1988	-40.0			109.30	0.0	May/Nov	0
06/30/1983	C	30.0	11.70%	35	2018	6/30/1988	110.03			11/30/1988	-30.0	110.03	0.0	Dec/Jun	0
09/30/1983	C	45.0	12.25%	35	2018	9/30/1988	110.50			9/30/1988	-45.0	110.50	0.0	Mar/Sep	0
09/30/1983	K	140.0	12.20%	20	2003	9/30/1988	109.15			9/30/1988	-140.0	109.15	0.0	Mar/Sep	0
11/30/1983	C	30.0	12.30%	35	2018	11/30/1988	110.54			11/30/1988	-30.0	110.54	0.0	May/Nov	0
09/30/1984	C	60.0	13.05%	35	2019	9/30/1989	111.19			9/30/1989	-60.0	111.19	0.0	Mar/Sep	0
09/30/1984	K	150.0	13.05%	20	2004	9/30/1989	109.79	9/30/1989	-120.0	9/30/1989	-30.0	109.79	0.0	Mar/Sep	0
06/30/1985	C	100.0	11.25%	45	2030	6/30/1990	110.00			6/30/1990	-100.0	110.00	0.0	Dec/Jun	0
09/30/1985	K	50.0	10.15%	5	1990	none	none			9/30/1990	-50.0	none	0.0	Mar/Sep	0
03/31/1986	C	100.0	8.15%	10	1996	none	none			3/31/1996	-100.0	none	0.0	Sep/Mar	0
03/31/1986	K	50.0	8.15%	10	1996	none	none			3/31/1996	-50.0	none	0.0	Sep/Mar	0
03/31/1986	K	50.0	7.80%	5	1991	none	none			3/31/1991	-50.0	none	0.0	Sep/Mar	0
06/30/1986	C	300.0	8.95%	45	2031	6/30/1991	107.96	7/31/92,5/31/9	-240.0	9/30/1991/94	-60.0	various	0.0	Dec/Jun	0
04/30/1987	C	100.0	9.30%	45	2032	4/30/1992	108.27	4/30/1992	-100.0			108.27	0.0	Oct/Apr	0
04/30/1987	K	75.0	9.30%	20	2007	4/30/1992	106.98	7/31/1992	-75.0			106.98	0.0	Oct/Apr	0
06/30/1987	C	100.0	8.35%	5	1992	none	none			6/30/1992	-100.0	none	0.0	Dec/Jun	0
06/30/1987	K	50.0	8.35%	5	1992	none	none			6/30/1992	-50.0	none	0.0	Dec/Jun	0
07/31/1987	C	95.0	9.55%	30	2017	7/31/1992	107.96			9/30/1992	-95.0	107.96	0.0	Jan/Jul	0
07/31/1987	C	50.0	9.55%	45	2032	7/31/1992	108.49			7/31/1993	-50.0	108.49	0.0	Jan/Jul	0
02/29/1988	C	150.0	9.50%	45	2033	2/28/1993	108.44	7/31/93,5/31/9	-150.0			various	0.0	Aug/Feb	0
02/29/1988	C	43.7	9.50%	30	2018	2/28/1993	107.92			9/30/1993	-43.7	107.92	0.0	Aug/Feb	0
04/30/1988	K	90.0	9.90%	20	2008	4/30/1993	107.43			5/31/1993	-90.0	107.43	0.0	Oct/Apr	0
06/30/1988	C	40.0	9.90%	45	2033	6/30/1993	108.80			6/30/1993	-40.0	108.80	0.0	Dec/Jun	0
05/31/1989	F	25.0	8.95%	10	1999	none	none			5/31/1999	-25.0	none	0.0	Nov/May	0
05/31/1989	C	75.0	8.95%	10	1999	none	none	5/31/99	-26.2	5/31/1999	-48.8	none	0.0	Nov/May	0
07/31/1989	K	40.0	8.55%	20	2009	none	none						40.0	Jan/Jul	1,710,000
09/30/1989	K	66.0	8.60%	6	1995	none	none			9/30/1995	-66.0	none	0.0	Mar/Sep	0
09/30/1989	K	66.0	8.65%	13	2002	none	none						66.0	Mar/Sep	2,854,500
01/31/1990	C	50.0	9.25%	40	2030	1/31/2000	106.94						50.0	Jul/Jan	2,312,500
02/28/1991	C	60.0	7.55%	4	1995	none	none			2/28/1995	-60.0	none	0.0	Aug/Feb	0
05/31/1991	F	50.0	7.95%	5	1996	none	none			5/31/1996	-50.0	none	0.0	Nov/May	0
04/30/1992	C	150.0	8.80%	40	2032	4/30/1997	107.70	8/31/97	-103.3	7/31/1997	-46.7	107.70	0.0	Oct/Apr	0
04/30/1992	C	50.0	7.00%	5	1997	none	none			4/30/1997	-50.0	none	0.0	Oct/Apr	0
04/30/1992	C	80.0	6.20%	3	1995	none	none			4/30/1995	-80.0	none	0.0	Oct/Apr	0
04/30/1992	C	28.3	7.00%	5	1997	none	none			4/30/1997	-28.3	none	0.0	Oct/Apr	0
07/31/1992	C	150.0	8.13%	40	2032	7/31/1997	107.11	7/30 & 5/31/9	-138.2	5/31/1997	-11.8	107.11	0.0	Jan/Jul	0

Bonneville Power Administration
Total Bonds Issued
(\$ in millions)

30-Sep-99

Date	Type	Amount Issued	Interest Rate	Term	Maturity Date	----1st Call----		Refinanced Bonds		Amortized Bonds		Call Price	Out-Stand	Interest Due	Semiannual Interest
						Date	Price	Date	Amount	Date	Amount				
07/31/1992	K	100.0	7.14%	15	2007	7/31/1997	104.76	9/30/98	-100.0			104.28	0.0	Jan/Jul	0
07/31/1992	K	80.2	5.80%	5	1997	none	none			7/31/1997	-80.2	none	0.0	Jan/Jul	0
08/31/1992	C	107.8	6.60%	8	2000	none	none						107.8	Feb/Aug	3,557,400
08/31/1992	C	107.7	7.25%	15	2007	8/31/1997	104.83	8/31/98	-107.7				0.0	Feb/Aug	0
10/31/1992	C	50.0	6.05%	5	1997	none	none			10/31/1997	-50.0	none	0.0	Apr/Oct	0
10/31/1992	K	50.0	8.05%	20	2012	10/31/1997	106.04			5/31/1998	-50.0	106.04	0.0	Apr/Oct	0
10/31/1992	C	100.0	8.35%	40	2032	10/31/1997	107.31			5/31/1998	-100.0	107.31	0.0	Apr/Oct	0
02/28/1993	F	20.0	6.95%	15	2008	2/28/1998	104.63						20.0	Aug/Feb	695,000
02/28/1993	K	50.0	7.40%	20	2013	2/28/1998	105.55	9/30/98	-50.0				0.0	Aug/Feb	0
02/28/1993	C	130.0	7.80%	40	2033	2/28/1998	106.83	5/31/98	-130.0				0.0	Aug/Feb	0
04/30/1993	C	100.0	7.50%	40	2033	4/30/1998	106.56	8/31/98	-100.0				0.0	Oct/Apr	0
08/31/1993	C	110.0	6.95%	40	2033	8/31/1998	106.08						110.0	Feb/Aug	3,822,500
08/31/1993	K	40.0	6.75%	20	2013	8/31/1998	105.06						40.0	Feb/Aug	1,350,000
10/31/1993	C	108.4	6.85%	40	2033	10/31/1998	105.99						108.4	Apr/Oct	3,712,700
10/31/1993	C	50.0	6.85%	40	2033	10/31/1998	105.99						50.0	Apr/Oct	1,712,500
01/31/1994	K	50.0	6.75%	20	2014	1/31/1999	105.06						50.0	Jul/Jan	1,687,500
01/31/1994	C	50.0	7.05%	40	2034	1/31/1999	106.17						50.0	Jul/Jan	1,762,500
05/31/1994	C	50.0	8.20%	40	2034	5/31/1999	107.18			6/30/1999	-50.0	107.18	0.0	Nov/May	0
05/31/1994	K	50.0	7.10%	4	1998	5/31/1995	100.00	5/31/98	-37.7	9/30/1996	-12.3	100.00	0.0	Nov/May	0
05/31/1994	C	97.1	7.10%	4	1998	5/31/1995	100.00			9/30/1995	-97.1	100.00	0.0	Nov/May	0
09/30/1994	C	55.0	7.65%	5	1999	9/30/1995	100.00			9/30/1995	-55.0	100.00	0.0	Mar/Sep	0
09/30/1994	F	20.0	7.65%	5	1999	9/30/1995	100.00			9/30/1995	-20.0	100.00	0.0	Mar/Sep	0
01/31/1995	C	55.0	8.35%	6	2001	1/31/1996	100.00			3/31/1996	-55.0	100.00	0.0	Jul/Jan	0
05/31/1995	K	85.0	7.50%	20	2015	5/31/2000	105.63						85.0	Nov/May	3,187,500
05/31/1995	B	35.0	7.50%	20	2015	5/31/2000	105.63						35.0	Nov/May	1,312,500
07/31/1995	C	50.0	7.70%	30	2025	7/31/2000	106.42						50.0	Jan/Jul	1,925,000
08/31/1995	C	65.0	7.70%	30	2025	8/31/2000	106.42						65.0	Feb/Aug	2,502,500
08/31/1995	F	35.0	7.20%	15	2010	8/31/2000	104.80						35.0	Feb/Aug	1,260,000
01/31/1996	C	60.0	5.90%	7	2003	none	none						60.0	Jul/Jan	1,770,000
01/31/1996	K	30.0	6.70%	15	2011	1/31/2001	104.47						30.0	Jul/Jan	1,005,000
08/31/1996	C	70.0	7.05%	10	2006	none	none						70.0	Feb/Aug	2,467,500
11/30/1996	K	40.0	7.20%	20	2016	11/30/2001	105.40						40.0	May/Nov	1,440,000
11/30/1996	E	40.0	6.95%	15	2011	11/30/2001	104.63						40.0	May/Nov	1,390,000
01/31/1997	C	30.0	6.80%	7	2004	none	none						30.0	Jul/Jan	1,020,000
05/31/1997	C	80.0	6.90%	8	2005	none	none						80.0	Nov/May	2,760,000
05/31/1997	B	50.0	6.50%	3	2000	none	none						50.0	Nov/May	1,625,000
08/31/1997	C	111.3	6.65%	10	2007	none	none						111.3	Feb/Aug	3,700,725
01/31/1998	F	60.0	6.10%	15	2013	none	none						60.0	Jul/Jan	1,830,000
04/30/1998	C	75.3	6.00%	10	2008	none	none						75.3	Oct/Apr	2,259,000
04/30/1998	C	50.0	6.65%	30	2028	4/30/2008	104.43						50.0	Oct/Apr	1,662,500
04/30/1998	B	25.0	6.00%	10	2008	none	none						25.0	Oct/Apr	750,000
05/31/1998	C	72.7	6.00%	11	2009	none	none						72.7	Nov/May	2,181,000
05/31/1998	C	40.0	6.20%	13	2011	none	none						40.0	Nov/May	1,240,000
05/31/1998	C	98.9	6.70%	34	2032	5/31/2008	104.73						98.9	Nov/May	3,313,150
05/31/1998	K	37.7	6.00%	11	2009	none	none						37.7	Nov/May	1,131,000

Bonneville Power Administration
Total Bonds Issued
(\$ in millions)

30-Sep-99

Date	Type	Amount Issued	Interest Rate	Term	Maturity Date	---1st Call---	Refinanced Bonds	Amortized Bonds	Call Price	Out- Stand	Interest Due	Semiannual Interest
						Date	Date	Date				
08/31/1998	C	106.5	5.85%	30	2028	none	none			106.5	Feb/Aug	3,115,125
08/31/1998	C	112.3	5.85%	30	2028	none	none			112.3	Feb/Aug	3,284,775
08/31/1998	C	40.0	5.75%	10	2008	none	none			40.0	Feb/Aug	1,150,000
09/30/1998	K	104.3	5.30%	10	2008	none	none			104.3	Mar/Sep	2,763,950
09/30/1998	K	52.8	5.60%	15	2013	none	none			52.8	Mar/Sep	1,478,400
02/28/1999	C	60.0	5.90%	15	2014	none	none			60.0	Aug/Feb	1,770,000
05/31/1999	C	26.2	5.95%	5	2004	none	none			26.2	Nov/May	779,450
09/30/1999	C	40.0	6.20%	3	2002	none	none			40.0	Mar/Sep	1,240,000
09/30/1999	F	20.0	6.30%	4	2003	none	none			20.0	Mar/Sep	630,000
09/30/1999	B	20.0	6.40%	5	2004	none	none			20.0	Mar/Sep	640,000
TOTAL		<u>\$6,983.2</u>					<u>(\$1,603.1)</u>			<u>\$2,515.2</u>		<u>83,761,175</u>

Weighted average interest rate for outstanding bonds **6.66%**

*Net amount issu \$5,380.1

- C= Transmission construction
- K= Conservation
- F= Fish and wildlife
- B= Corps and Bureau
- E= Environment

FEDERAL COLUMBIA RIVER POWER SYSTEM (FCRPS)
PROJECTED CAPITAL FUNDING REQUIREMENTS FOR THE POWER BUSINESS LINE
2002 FINAL RATE PROPOSAL
(Annual Outlays in Millions of Dollars)

	Actual	Current Rate Period					Next Rate Period						Average FYs '02-'06
	Average FYs 90-97	Actual FY 97	Actual FY98	Actual FY 99	FY 2000	FY 2001	Average FY 97-'01	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	
POWER													
Capital Requirements for Revenue Producing Investments													
Corps & Bureau Additions/Replacements - Direct Funded	11.1	19.6	28.0	28.0	80.9	76.1	46.5	89.9	86.7	61.7	62.1	62.1	72.5
Corps & Bureau Additions/Replacements - Appropriations	45.3	59.7	0.0	30.0	20.7	35.6	29.2	23.9	36.4	21.3	31.3	31.3	28.8
PBL Capital Equipment	N/A	0.0	2.6	11.0	3.0	3.0	3.9	2.0	2.0	2.0	2.0	2.0	2.0
Capitalized Bond Premium	0.0	0.0	7.1	0.0	8.4	3.0	3.7	5.2	3.0	3.0	3.0	3.0	3.4
WNP-2: Additions/Replacements	42.5	11.0	12.2	9.5	5.3	5.7	8.7	5.7	4.4	4.6	4.7	4.7	4.8
Other Non - Federal	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Annual Capital Requirements for Revenue Producing Inv	100.4	90.3	49.9	78.4	118.3	123.4	92.1	126.7	132.5	92.6	103.1	103.1	111.6
Cumulative Capital Requirements for Rev Producing Investments		90.3	140.2	218.6	336.9	460.3		126.7	259.1	351.7	454.8	557.9	
Capital Requirements for Non-Revenue Producing and Public Benefit Investments													
Energy Conservation	63.1	20.5	14.3	12.6	1.0	1.0	9.9	0.0	0.0	0.0	0.0	0.0	0.0
Fish Investment													
BPA Fish and Wildlife Investment ²	21.2	28.1	22.0	14.7	27.0	27.0	23.8	34.7	38.3	35.8	34.0	34.2	35.4
Corps & Bureau Fish Investment - Appropriations ²	23.7	(32.9) ⁴	0	20.7	4.5	468.9	92.2	111.8	44.7	213.6	91.2	125.9	117.4
Total Fish Investment	44.9	(4.8)	22	35.4	31.5	495.9	116.0	146.5	83.0	249.4	125.2	160.1	152.8
Other Third Party	47.7 ⁴	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Annual Capital Req. for Non-Rev. & Public Benefit Inves	155.7	15.7	36.3	48.0	32.5	496.9	125.9	146.5	83.0	249.4	125.2	160.1	152.8
Cumulative Capital Req. for Non-Rev. & Public Benefit Invest		15.7	52.0	100.0	132.5	629.4		146.5	229.5	478.9	604.1	764.2	
ANNUAL FUNDING REQUIREMENTS FOR POWER	256.1	106.0	86.2	126.4	150.8	620.3	217.9	273.2	215.5	342.0	228.3	263.2	264.4
CUMULATIVE FUNDING REQUIREMENTS FOR POWER		106.0	192.2	318.6	469.4	#####		273.2	488.6	830.6	#####	#####	

FOOTNOTES:

- Reflects plant in service, including IDC, not expenditures.
- Reflects annual average of the plant-in-service in all 13 scenarios.
- Reflects transfer from PIS to CWIP of \$42.9 million related to Mitigation Analysis.
- Includes Northern Wasco, CARES Conservation, Cowlitz Falls, and Tacoma Conservation

FEDERAL COLUMBIA RIVER POWER SYSTEM (FCRPS)
PROJECTED CAPITAL FUNDING REQUIREMENTS FOR THE POWER BUSINESS LINE
2002 FINAL RATE PROPOSAL
(Annual Outlays in Millions of Dollars)

	Next Rate Period					7(b)2 Period						Average FYs '07-'11
	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Average FYs '02-'06	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
POWER												
<u>Capital Requirements for Revenue Producing Investments</u>												
Corps & Bureau Additions/Replacements - Direct Funded	89.9	86.7	61.7	62.1	62.1	72.5	60.9	59.6	62.4	62.7	63.1	61.7
Corps & Bureau Additions/Replacements - Appropriations ¹	23.9	36.4	21.3	31.3	31.3	28.8	31.3	18.8	18.8	18.8	6.6	18.9
PBL Capital Equipment	2.0	2.0	2.0	2.0	2.0	2.0	1.4	1.4	1.4	1.4	1.4	1.4
Capitalized Bond Premium	5.2	3.0	3.0	3.0	3.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0
WNP-2: Additions/Replacements	5.7	4.4	4.6	4.7	4.7	4.8	4.7	4.7	4.7	4.7	4.7	4.7
Other Non - Federal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Annual Capital Requirements for Revenue Producing Investments	126.7	132.5	92.6	103.1	103.1	111.6	98.3	84.5	87.3	87.6	75.8	86.7
Cumulative Capital Requirements for Rev Producing Investments	126.7	259.1	351.7	454.8	557.9		98.3	182.9	270.2	357.8	433.6	
<u>Capital Requirements for Non-Revenue Producing and Public Benefit Investments</u>												
Energy Conservation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fish Investment												
BPA Fish and Wildlife Investment ²	34.7	38.3	35.8	34.0	34.2	35.4	11.0	11.0	11.0	11.0	11.0	11.0
Corps & Bureau Fish Investment - Appropriations ²	111.8	44.7	213.6	91.2	125.9	117.4	182.9	933.7	208.3	0.0	0.0	441.6
Total Fish Investment	146.5	83.0	249.4	125.2	160.1	152.8	193.9	944.7	219.3	11.0	11.0	149.8
Other Third Party	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Annual Capital Req. for Non-Rev. & Public Benefit Invests.	146.5	83.0	249.4	125.2	160.1	152.8	193.9	944.7	219.3	11.0	11.0	149.8
Cumulative Capital Req. for Non-Rev. & Public Benefit Invest.	146.5	229.5	478.9	604.1	764.2		193.9	1,138.6	1,357.9	1,368.9	1,379.9	
ANNUAL FUNDING REQUIREMENTS FOR POWER	273.2	215.5	342.0	228.3	263.2	264.4	292.2	1,029.2	306.6	98.6	86.8	236.5
CUMULATIVE FUNDING REQUIREMENTS FOR POWER	273.2	488.6	830.6	1,058.9	1,322.1		292.2	1,321.5	1,628.1	1,726.7	1,813.5	

FOOTNOTES:

¹ Reflects plant in service, including IDC, not expenditures.

² Reflects annual average of the plant-in-service in all 13 scenarios

**Association of Transmission Construction
Functionalized to Generation
Funded by Bonds 1/
FY 1991 - FY 1999
(\$ Thousands)**

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
<u>Fiscal Year</u>	<u>Plant in Service</u>	<u>Amount Funded by Bonds</u>	<u>Amount of Bond Sales</u>	<u>Amount Outstanding</u>	<u>Interest Rate</u>	<u>Term</u>	<u>Year Due</u>	<u>Date</u>	<u>Refinancing Amount</u>
1991	5,855	5,855	5,855	0	7.55	4	1995		
1992	2,479	2,479	2,479	0	8.80	40	2032		
1993	38	38	38	0	8.35	40	2033		
1995	67	67	67	67	7.70	30	2025		
1996	5,622	5,622	5,622	5,622	5.90	7	2003		
1997	7,400	7,400	7,400	7,400	6.80	7	2004		
1998	5,000	5,000	5,000	5,000	5.75	10	2008		
1999	11,088	11,088	11,088	11,088	5.90	15	2014		

1/ These investments have an estimated average service life of 45 years and a maximum repayment period of 45 years.

**Association of Conservation Investment 1/
Funded by Bonds
FY 1982 -1998
(\$ Thousands)**

(A) Fiscal Year	(B) Plant in Service	(C) Amount Funded by Bonds	(D) Amount of Bond Sales	(E) Amount Outstanding	(F) Interest Rate	(G) Term	(H) Year Due	(I) Date	(J) Refinancing Amount
1982	61,357	61,357							
1983	204,092	78,643 <u>125,449</u> 204,092	140,000	0	12.20	20	2003		
1984	66,783	24,551 <u>42,232</u> 66,783	150,000	0	13.05	20	2004	9/30/89 9/30/89	60,000 3/ 60,000 4/
1985	103,067	7,768 <u>50,000</u> 45,299 <u>103,067</u>	50,000	0	10.15	5	1990		
1986	97,618	4,701 <u>75,000</u> 17,917 <u>97,618</u>	50,000 50,000	0 0	8.15 7.80	10 5	1996 1991		
1987	65,958	32,083 <u>33,875</u> 65,958	75,000 50,000	0 0	9.30 8.35	20 5	2007 1992	7/31/92	75,000 5/
1988	52,485	52,485	90,000	0	9.90	20	2008		
1989	37,167	3,640 <u>33,527</u> 37,167	40,000	40,000	8.55	20	2009		
1990	33,776	6,473 <u>27,303</u> 33,776							
1991	45,593	45,593							
1992	74,668	27,104 <u>47,564</u> 74,668	100,000	0	7.14	15	2007	9/30/98	100,000 6/
1993	97,910	2,436 <u>50,000</u> 40,000 <u>5,474</u> 97,910	50,000 50,000 40,000	0 0 40,000	8.05 7.40 6.75	20 20 20	2013 2013 2013	9/30/98	50,000 7/
1994	113,488	44,526 <u>50,000</u> 18,962 <u>113,488</u>	50,000 50,000	50,000 0	6.75 7.10	20 4	2014 1998	5/31/98	37,700 8/
1995	73,507	66,038 <u>7,469</u> 73,507	85,000	85,000	7.50	20	2015		
1996	38,726	22,531 <u>16,195</u> 38,726	30,000	30,000	6.70	15	2011		
1997	20,336	20,336	40,000	40,000	7.20	20	2016		
1998	14,154	3,469 <u>10,685</u> 14,154							
1999	12,424	12,424 9/							

1/ These investments have an estimated average service life of 20 years.
2/ BPA's Annual Report, Balance Sheet, change from previous year.
3/ Refinanced on 9/30/89 with \$66,000 issued at 8.60%, 6 year term, due in 1995.
4/ Refinanced on 9/30/89 with \$66,000 issued at 8.65%, 13 year term, due in 2002.
5/ Refinanced on 7/31/92 with \$80,200 issued at 5.80%, 5 year term, due in 1997.
6/ Refinanced on 9/30/98 with \$104,300 issued at 5.30% 10 year term, due in 2008.
7/ Refinanced on 9/30/98 with \$52,800 issued at 5.60% 15 year term, due in 2013.
8/ Refinanced on 5/31/98 with \$37,700 issued at 6.00% 11 year term, due in 2009.
9/ This amount not yet financed through long-term bonds.

**Association of Fish and Wildlife Investment
Funded by Bonds
FY 1985 -1999
(\$ Thousands)**

(A) Fiscal Year	(B) Plant in Service 1/	(C) Amount Funded by Bonds	(D) Amount of Bond Sales	(E) Amount Outstanding	(F) Interest Rate	(G) Term	(H) Year Due	(I) Refinancing Date	(J) Amount
1985	4,318	4,318							
1986	5,590	5,590							
1987	4,710	4,710							
1988	7,726	7,726							
1989	8,267	2,656	25,000	0	8.95	10	1999		
		5,611							
		<u>8,267</u>							
1990	16,193	16,193							
1991	17,680	17,680	50,000	0	7.95	5	1996		
1992	11,178	10,516							
		662							
		<u>11,178</u>							
1993	17,338	17,338	20,000	20,000	6.95	15	2008		
1994	20,487	2,000	20,000	0	7.65	5	1999		
		18,487							
		<u>20,487</u>							
1995	32,486	1,513	18,986	18,986	7.20	15	2010		
		18,986							
		11,987							
		<u>32,486</u>							
1996	26,046	3,013	15,000 2/						
		23,033							
		<u>26,046</u>							
1997	28,064	28,064							
1998	21,995	8,903	60,000	60,000	6.10	15	2013		
		13,092							
		<u>21,995</u>							
1999	14,748	6,908	20,000	20,000	6.30	4	2003		
		7,840 3/							
		<u>14,748</u>							
	236,826			118,986					

1/ BPA's Annual Report, Balance Sheet, change from previous year.

2/ As proposed in Revenue Requirements for 1996 in the 1995 Final Rate Proposal \$15 million of Fish & Wildlife investment was financed from revenues.

3/ This amount not yet financed through long-term bonds.

BPA Projected Generation Federal Borrowing
FY 1999 - 2006 1/
(\$ Thousands)

<u>FY</u> <u>Year</u>	<u>Description</u>	<u>Interest</u> <u>Rate</u>	<u>Term</u>	<u>Total</u> <u>Borrowing</u>
1999	Construction 2/ 3/	5.90	15	11,088
	Fish, Wildlife & Environmental 4/	6.30	4	20,000
	BOR/COE 5/ 6/	6.40	5	20,000
				51,088
2000	Construction 2/	7.54	45	4,100
	Fish, Wildlife & Environmental	7.24	15	27,000
	Conservation	7.40	20	32,555
	BOR/COE 3/	7.54	45	95,369
				159,024
2001	Construction 2/	7.29	45	7,600
	Fish, Wildlife & Environmental	6.92	15	27,000
	Conservation	7.11	20	1,000
	BOR/COE 3/	7.29	45	76,100
				111,700
2002	Construction 2/	7.08	45	2,100
	Fish, Wildlife & Environmental	6.69	15	34,732
	BOR/COE 3/	7.08	45	89,855
				126,687
2003	Construction 2/	6.89	45	1,400
	Fish, Wildlife & Environmental	6.50	15	38,317
	BOR/COE 3/	6.89	45	86,650
				126,367
2004	Construction 2/	6.90	45	1,400
	Fish, Wildlife & Environmental	6.48	15	35,825
	BOR/COE 3/	6.90	45	61,700
				98,925
2005	Construction 2/	6.88	45	1,400
	Fish, Wildlife & Environmental	6.44	15	33,988
	BOR/COE 3/	6.88	45	62,100
				97,488
2006	Construction 2/	6.85	45	1,400
	Fish, Wildlife & Environmental	6.38	15	34,182
	BOR/COE 3/	6.85	45	62,100
				97,682

- 1/ Projected borrowing over the cost evaluation period includes FYs 1999-06.
2/ These bonds fund capital equipment
3/ On 2/28/99, \$60 million construction bond issued, \$11 million functionalized to go
4/ On 9/30/00, \$20 million fish/wildlife bond issued.
5/ On 9/30/00, \$20 million COE/BOR bond issued.
6/ Bonds issued for this purpose are construction.

CHAPTER 8

BPA APPROPRIATIONS REFINANCING ACT

I. Introduction

This chapter describes the BPA Appropriations Refinancing Act (the Act), and explains its implementation in repayment and revenue requirement studies. The 1996 Final Rate Proposal included a projected implementation of the Act. The Act was implemented in 1997.

II. Summary of the Act

In April 1996 Congress passed and President Clinton signed legislation, entitled “The Bonneville Appropriations Refinancing Act”, to refinance BPA’s outstanding repayment obligations on appropriations. This Act called for resetting the unpaid principal of FCRPS appropriations and reassigning interest rates as of October 1, 1996. As of October 1, 1997, new principal amounts were established at the present value of the principal and annual interest payments BPA would make to the U. S. Treasury for these obligations in the absence of the Act, plus \$100 million.

The Act restricted prepayment of the refinanced principal to \$100 million in the FY 1997-2001 period. As of the end of FY 1998, BPA had prepaid \$2.7 million in this principal. Other repayment terms and conditions remain unaffected by the Act. The Act also specified the amount of BPA’s credits against its annual payments to Treasury related to its payments to the Confederated Tribes of the Colville Reservation. These amounts were set at \$15.86 million in

FY 1997, \$16.49 million in FY 1998, \$17.15 million in FY 1999, \$17.84 million in FY 2000, \$18.55 million in FY 2001, and \$4.6 million in each succeeding fiscal year. These credits do not reduce BPA's payment obligation to the Treasury. Additionally, the legislation included a provision directing BPA to offer a contractual commitment to its customers that the repayment obligation on existing appropriations will not be increased in the future.

Interest rate assignment practices for new appropriated capital investments and for determining interest during construction have changed due to the enactment of the Bonneville Appropriations Refinancing Act. Each new capital investment is now assigned a rate from the Treasury yield curve prevailing for the fiscal year in which the new investment is placed in service. The yield curve is based on Treasury rates from the September prior to the beginning of the fiscal year. For example, the yield curve for FY 1998 is based on Treasury rates from September 1997. In determining interest during construction for new appropriated capital investments, the Treasury one-year rate is applied to the sum of the cumulative expenditures made and the interest during construction that has accrued prior to the end of the subject fiscal year.

III. Implementation

The 1996 Final Rate Proposal reflected projections of the implementation of the Act. After the Final Rate Proposal, and after 1996 audited actual financials were available, BPA implemented the refinancing transaction called for in the Act. A demonstration of the transaction was forwarded to the Department of the Treasury, which Treasury approved.

Refinancing Act Projections From the 1996 Final Rate Proposal

The following is a table showing the projections of BPA's outstanding repayment obligations appropriations as of the end of FY 1996, as they were shown in the 1996 Final Rate Proposal.

	Projected Total Outstanding Obligations on Appropriations	Projected Total Weighted Average Interest Rate	Projected Generation Outstanding Obligations on Appropriations	Projected Generation Weighted Average Interest Rate
Before Refinancing (September 30, 1996)	\$6,807 million	3.5%	\$5,211 million	3.4%
After Refinancing (October 1, 1996)	\$4,624 million	6.3%	\$3,366 million	6.4%

Actual Refinancing Act Results

The following table shows the *audited actual* outstanding obligations on appropriations at the end of FY 1996, and the outstanding obligations resulting from the *actual* refinancing transaction, as they are incorporated in this Initial Rate Proposal.

	Actual Total Outstanding Obligations on Appropriations	Actual Total Weighted Average Interest Rate	Actual Generation Outstanding Obligations on Appropriations	Actual Generation Weighted Average Interest Rate
Before Refinancing (September 30, 1996)	\$6,690 million	3.4%	\$5,100 million	3.3%
After Refinancing (October 1, 1996)	\$4,101 million	7.1%	\$2,958 million	7.1%

Attachment 1 displays the effect of the Act on the debt structure of the FCRPS. Attachment 2 shows the FY 1998 total FCRPS audited actual debt structure.

Each step of the transaction implementing the Act is summarized below:

Summary of the Refinancing Transaction Under the Act

1. Determine What Is To Be Refinanced:

The Act required that BPA re-set the principal associated with each capital investment funded by appropriations that remains outstanding (unrepaid) at the end of FY 1996. These principal amounts represent the appropriated investments that BPA is obligated to set rates to recover and to repay to Treasury. The Act refers to the principal amounts that are to be refinanced as "old capital investments." 16 U.S.C. 8381(a)(4).

"Old capital investments" include:

- The unrepaid Federal Columbia River Power System (FCRPS) portion of Corps of Engineers and Bureau of Reclamation capital investments that have been funded by appropriations.
- The unrepaid BPA transmission capital investments that were funded by appropriations until BPA fully implemented the Federal Columbia River Transmission Act in the late 1970s.

"Old capital investments" do not include:

- Principal on bonds that BPA has issued to Treasury.
- BPA's irrigation assistance liability.
- Debt issued by third parties that is secured by BPA. 16 U.S.C. 8381(a)(2).

2. Determine the New Principal Amount for Each Investment:

The refinancing transaction involved determining a new principal amount for each "old capital investment" to be refinanced by constructing a debt service stream ("old payment amount") for each investment.

To Determine the "Old Payment Amount" For Investments Placed in Service Prior to FY 1995

- The constructed debt service stream for each investment consisted of the interest and principal that would have been paid on the obligation over its remaining repayment period absent the Act.
- Outstanding principal was assumed to be paid in full at the end of the last year of the repayment period. 16 U.S.C. 8381 (b)(3)(A)(i).

Repayment periods for these pre-FY 1995 investments were established by the Administrator according to the criteria specified in RA 6120.2, the Department of Energy's financial reporting and repayment policy directive for Power Marketing Administrations (PMAs). Repayment periods were assigned to each principal amount at the time the associated asset was placed in service. The last year of the repayment period is the due date, or the date the investment is to be repaid in full to Treasury. Under RA 6120.2 criteria, repayment periods were set at the lesser of the expected service life of the asset or 50 years. Transmission assets typically were assigned 45-year repayment periods. In a few cases, however, these criteria have not been used. For example, investments at the Yakima-Chandler project have a legislated repayment period of 66 years. In addition, BPA's practice was to assign to replacement investments the same due date as the last original project investment. Hence, at the Columbia Basin project, there were investments in almost every year from 1951, the last original project in-service year, to 1985. All were assigned the original project due date of 2001.

- Inasmuch as the interest rates were assigned to these investments when they were placed in service, no change was made to the interest during construction (IDC) rate or the interest rate assigned by the Administrator. 16 U.S.C. 8381(b)(3)(B)(i).

To Determine the "Old Payment Amount" For Investments Placed in Service in 1995 and 1996

- It is assumed the principal is paid in full on the due date established by the Administrator, consistent with RA 6120.2, as with the investments placed in service prior to FY 1995. 16 U.S.C. 8381(b)(3)(A)(ii).
- However, to construct the debt service stream, the obligations are re-assigned interest rates from the Treasury yield curve prevailing for the year in which the investment was placed in service. Each obligation's remaining repayment period is associated with Treasury debt issues of comparable maturity. 16 U.S.C. 8381(b)(3)(B)(ii).
- The Act was silent on IDC rates to be used for investments placed in service in FYs 1995 and 1996. The IDC rate used was the one-year rate from the Treasury yield curve prevailing for each year's construction work in progress (CWIP). This IDC treatment is consistent with the subsection of the Act which directs that the one year Treasury rate be used to calculate IDC for investments placed in service after FY 1996. 16 U.S.C. 8381(f).

Once the debt service stream was constructed for each outstanding investment, the present value was calculated. 16 U.S.C. 8381(b)(1)(A). The annual interest payments were discounted as if they were an annuity, and the principal was discounted assuming it would be repaid in full in the year it is due. The discount rate used on each obligation was the September 1996 Treasury yield curve rate associated with the remaining repayment period of the obligation. For example, an investment with a repayment period that extends through FY 2010 is assigned a rate commensurate with Treasury obligations that mature in 2010. The present

value of the annual interest payments and the present value of the principal were then added together to arrive at the present value of the debt service stream for each investment.

A pro rata share of \$100 million was then added to the present value of each debt service stream. 16 U.S.C. 8381(b)(1)(B). The resulting sum was the new principal amount for each obligation.

3. Assign New Interest Rates:

The Act then called for the new principal to be assigned the same interest rate used to discount the debt service streams associated with the old capital investment. 16 U.S.C. 8381(c).

Treasury provided the interest rates used in implementing the refinancing transaction.

Attachment 5 is a table comparing the yield curve used in the projection in the 1996 Final Rate Proposal with the yield curve used in the actual implementation of the Act.

Under the Act, IDC on appropriations construction work in progress balances beginning in FY 1997 are calculated using the prevailing Treasury one-year interest rate rather than the traditional long-term rate defined in RA 6120.2. IDC is capitalized and included in principal for the investment. When the facility is placed in service, the principal is assigned an interest rate consistent with the prevailing Treasury yield curve and the expected service life of the investment. The yield curve used to calculate IDC and to assign interest rates to principal when the plant is placed in service is displayed in Attachment 3.

Capitalization Adjustment

As implemented, the Act entails a \$2,589 million reduction in appropriations principal to be repaid. This necessitates an adjustment (reduction) to outstanding appropriations liabilities in FCRPS financial statements. The total change in capitalization was the amount by which outstanding principal was reduced in the refinancing transaction. The capitalization adjustment was determined separately for the generation and transmission functions and \$2,142 million in generation and \$447 million in transmission. In accordance with Generally Accepted Accounting Practices, the adjustment is recognized annually over the remaining repayment period of the refinanced appropriations, and is included on the income statement as a negative, non-cash component of interest expense and on the statement of cash flows as a reduction in funds from operations. *See* Chapter 1. The schedule of annual recognition for each function is based on the increase in annual interest expense resulting from implementation of the Act. The 1996 Final Rate Proposal used projections for interest rates, investments, and repayment amounts. The total reduction of principal was projected to be \$2,183 million. The actual amount was \$2,589 million. This results in a generation capitalization adjustment of \$232.7 million for the 5-year rate period, or an average of \$46.5 million.

Attachments to Refinancing Act Section:

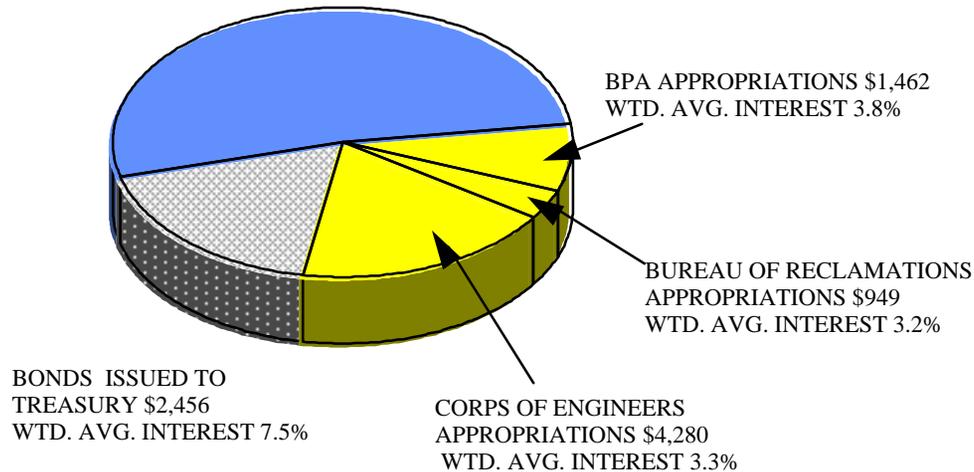
1. Implementation of the BPA Appropriations Refinancing Act on FCRPS Debt
2. FY 1998 FCRPS Debt
3. Yield curve used in refinancing transaction
4. Refinancing demonstration
5. Comparison of yield curves

IMPLEMENTATION OF BPA APPROPRIATIONS REFINANCING ACT FEDERAL COLUMBIA RIVER POWER SYSTEM DEBT

(\$ MILLIONS)

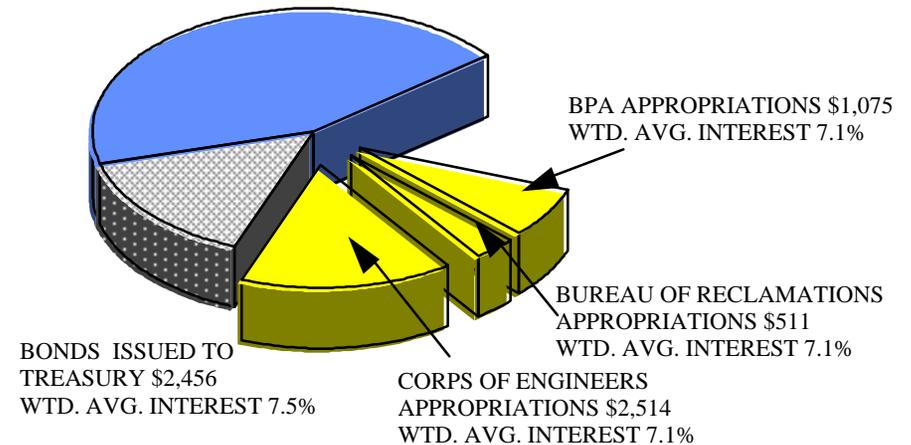
BEFORE REFINANCING TRANSACTION FY 1996 AUDITED ACTUALS

NON-FEDERAL PROJECTS \$7,106
WTD. AVG. INTEREST 5.7%



AFTER REFINANCING TRANSACTION EFFECTIVE OCTOBER 1996

NON-FEDERAL PROJECTS \$7,106
WTD. AVG. INTEREST 5.7%



	<u>BEFORE</u>		<u>AFTER</u>	
	DEBT OUTSTANDING (\$ MILLIONS)	WTD. AVG. INTEREST RATE (%)	DEBT. OUTSTANDING (\$ MILLIONS)	WTD. AVG INTEREST RATE (%)
TOTAL APPROPRIATIONS	\$6,690	3.4	\$4,101	7.1
TOTAL BONDS ISSUED TO TREASURY	<u>2,456</u>	<u>7.5</u>	<u>2,456</u>	<u>7.5</u>
TOTAL FEDERAL DEBT	9,146	4.5	6,557	7.3
TOTAL NON-FEDERAL PROJECTS	<u>7,106</u>	<u>5.7</u>	<u>7,106</u>	<u>5.7</u>
TOTAL FCRPS DEBT	<u>\$16,252</u>	5.0	<u>\$13,663</u>	6.5

Note: Repayment obligations on irrigation assistance are excluded (\$781 million at zero percent interest).

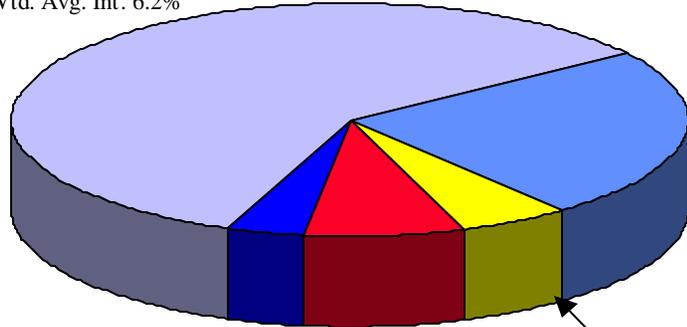
FCRPS Debt Outstanding

FY 1999 1/

(\$ MILLIONS)

Generation

Energy Northwest \$6,311
Wtd. Avg. Int. 6.2%



Other Non-Federal
Projects \$381
Wtd Avg. Int. 6.2%

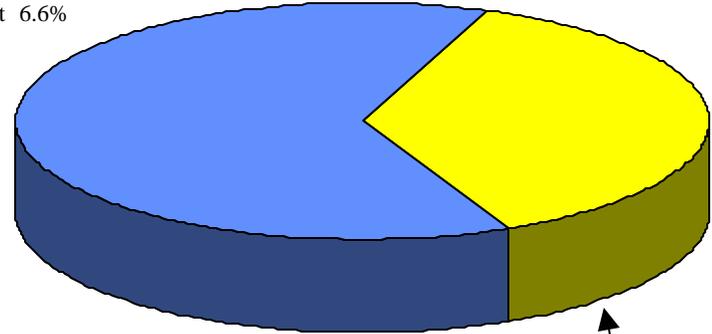
Bonds Issued to
Treasury \$829
Wtd. Avg. Int. 6.7%

Bureau of Reclamation Appropriations \$566
Wtd. Avg. Int. 7.1%

Corps of Engineers
Appropriations \$2,536
Wtd. Avg. Int. 7.1%

Transmission

Bonds Issued to Treasury \$1,686
Wtd. Avg. Int 6.6%



BPA Appropriations \$999
Wtd. Avg. Int. 7.2%

	<u>Generation</u>		<u>Transmission</u>		<u>Total</u>	
	Debt Outstanding (\$ Millions)	Wtd. Avg. Interest Rate (%)	Debt Outstanding (\$ Millions)	Wtd. Avg. Interest Rate (%)	Debt Outstanding (\$ millions)	Wtd. Avg. Interest Rate %
Total Appropriations	\$3,102	7.1	\$999	7.2	\$4,101	7.1
Bonds Issued To Treasury	829	6.7	1,686	6.6	2,515	6.7
Total Federal Debt	3,931	7.0	2,685	6.8	6,616	6.9
Non-Federal Projects	6,692	6.2	0	0	6,692	6.2
Total FCRPS Debt	<u>\$10,623</u>	6.5	<u>\$ 2,685</u>	6.8	<u>13,308</u>	6.5

Irrigation assistance liability not included (\$770 million at zero percent interest).
Reflects estimated impact of BPA Appropriations Refinancing Act.

Yield Curve BPA Appropriations Refinancing Act
(Used in determining New Principal amounts and assigning
interest rates to New Principal Amounts)
September 1996

Fiscal Year	Yield Curve
1997	5.920%
1998	6.330%
1999	6.510%
2000	6.620%
2001	6.710%
2002	6.790%
2003	6.840%
2004	6.880%
2005	6.910%
2006	6.950%
2007	6.980%
2008	7.020%
2009	7.060%
2010	7.090%
2011	7.130%
2012	7.160%
2013	7.200%
2014	7.230%
2015	7.270%
2016	7.290%
2017	7.290%
2018	7.280%
2019	7.270%
2020	7.250%
2021	7.230%
2022	7.210%
2023	7.190%
2024	7.170%
2025	7.160%
2026	7.150%
2027	7.150%
2028	7.150%
2029	7.150%
2030	7.150%
2031	7.150%
2032	7.150%
2033	7.150%
2034	7.150%
2035	7.150%
2036	7.150%
2037	7.150%
2038	7.150%
2039	7.150%
2040	7.150%
2041	7.150%
2042	7.150%
2043	7.150%
2044	7.150%
2045	7.150%
2046	7.150%
2047	7.150%

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Transmission Function
(\$ Thousands)**

PROJECT: Bonneville 2nd Powerhouse

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)	
								"OLD PAYMENT AMOUNTS" 3/			PRESENT VALUE AMOUNTS 4/			ALLOCATION OF \$100M		
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h) (i)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d) (j)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g) (k)	TOTAL "OLD PAYMENT AMOUNT" (DEBT SERVICE) (j + k) (l)	DISCOUNT RATE (=s) (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ^t -1]/[m(1+m) ^t]) (n)	PRESENT VALUE OF PRINCIPAL "OLD PAYMENT AMOUNT" (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x 1/6,688,606) (q)	NEW PRINCIPAL OUTSTANDING (p+q) (r)	NEW INTEREST RATE (= m) (s)	
																ORIGINAL PRINCIPAL
1	1981	2031	35	879,000	0.0325	28,568	999,863	879,000	1,878,863	0.0715	363,913	78,390	442,304	13.142	455,446	0.0715
2	1982	2032	36	4,397,000	0.0325	142,903	5,144,490	4,397,000	9,541,490	0.0715	1,832,289	365,964	2,198,253	65.739	2,263,992	0.0715
3	1983	2033	37	1,356,000	0.0325	44,070	1,630,590	1,356,000	2,986,590	0.0715	568,487	105,329	673,816	20.273	694,089	0.0715

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Transmission Function
(\$ Thousands)**

PROJECT: Columbia Basin 3rd Powerhouse

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)	
								OLD PAYMENT AMOUNTS 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M			
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	ANNUAL INTEREST PORTION OF *OLD PAYMENT AMOUNT* (g x h)	TOTAL INTEREST PORTION OF *OLD PAYMENT AMOUNT* (i x d)	PRINCIPAL PORTION OF *OLD PAYMENT AMOUNT* (=g)	TOTAL *OLD PAYMENT AMOUNT* (j + k)	DISCOUNT RATE (=s)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ^t -1]/[m(1+m) ^t]) (n)	PRESENT VALUE OF PRINCIPAL AMOUNT* (o)	PRESENT VALUE OF *OLD PAYMENT AMOUNT* (p)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)	NEW PRINCIPAL OUTSTANDING (r)	NEW INTEREST RATE (= m) (s)			
																	ORIGINAL PRINCIPAL	FINANCIAL STATEMENTS (f)	ANNUAL AUDITED PER FCRPS STATEMENTS (g)
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	
4	1975	2025	29	15,369,000	14,102,000	14,102,000	0.03125	440,688	12,779,938	14,102.0	26,881,938	0.0716	5,326,398	1,898,158	7,224,555	210,836	7,435,391	0.0716	
5	1976	2026	30	15,369,000	15,369,000	15,369,000	0.03125	480,281	14,408,438	15,369.0	29,777,438	0.0715	5,871,115	1,935,889	7,807,004	229,779	8,036,783	0.0715	
6	1977	2027	31	15,369,000	15,369,000	15,369,000	0.03125	480,281	14,888,719	15,369.0	30,257,719	0.0715	5,927,575	1,806,709	7,734,284	229,779	7,964,062	0.0715	
7	1978	2028	32	15,369,000	15,369,000	15,369,000	0.03125	480,281	15,369,000	15,369.0	30,738,000	0.0715	5,980,267	1,686,149	7,666,416	229,779	7,896,195	0.0715	
8	1979	2029	33	30,739,000	30,739,000	30,739,000	0.03125	960,594	31,699,594	30,739.0	62,438,594	0.0715	12,059,278	3,147,371	15,206,649	459,573	15,666,222	0.0715	
9	1984	2033	37	6,374,000	6,374,000	6,374,000	0.03125	199,188	7,369,938	6,374.0	13,743,838	0.0715	2,569,445	495,110	3,064,555	95,296	3,159,851	0.0715	
10	1985	2033	37	4,156,000	4,156,000	4,156,000	0.03125	129,875	4,805,375	4,156.0	8,961,375	0.0715	1,675,339	322,823	1,998,163	62,136	2,060,298	0.0715	
11	1986	2033	37	3,733,000	3,733,000	3,733,000	0.03125	116,656	4,316,281	3,733.0	8,049,281	0.0715	1,504,822	289,966	1,794,789	55,811	1,850,600	0.0715	
12	1987	2033	37	3,490,000	3,490,000	3,490,000	0.03125	109,063	4,035,313	3,490.0	7,525,313	0.0715	1,406,866	271,091	1,677,957	52,178	1,730,135	0.0715	
13	1988	2033	37	4,628,000	4,628,000	4,628,000	0.03125	144,625	5,351,125	4,628.0	9,979,125	0.0715	1,865,609	359,487	2,225,096	69,192	2,294,288	0.0715	

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.

2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.

3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.

4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Transmission Function
(\$ Thousands)**

PROJECT: Columbia Basin

As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)				
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M PRO RATA PORTION OF OF \$100M (100M x f/6,688,606)	NEW PRINCIPAL OUTSTANDING (p+q) (r)	NEW INTEREST RATE (= m) (s)		
						ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h) (i)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d) (j)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g) (k)	TOTAL "OLD PAYMENT AMOUNT" (DEBT SERVICE) (j + k) (l)	DISCOUNT RATE (=s) (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/[m(1+m) ⁿ]) (n)	PRESENT VALUE OF PRINCIPAL AMOUNT" g/(1+m) ⁿ (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o) (p)					
14	1951	2001	5	6,021,000	1,668,000	1,668,000	0.030	50.040	250.200	1,668,000	1,918,200	0.0671	206.777	1,205,509	1,412,286	24.938	1,437,224	0.0671
15	1952	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
16	1953	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
17	1954	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
18	1955	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
19	1956	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
20	1957	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
21	1958	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
22	1959	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
23	1960	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
24	1961	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
25	1962	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
26	1963	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
27	1964	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
28	1965	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
29	1966	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
30	1967	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
31	1968	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
32	1969	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
33	1970	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
34	1971	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
35	1972	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
36	1973	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
37	1974	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
38	1975	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
39	1976	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
40	1977	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
41	1978	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
42	1979	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
43	1980	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
44	1981	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
45	1982	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
46	1983	2001	5	56,000	56,000	56,000	0.030	1.680	8.400	56,000	64,400	0.0671	6.942	40.473	47.415	0.837	48,252	0.0671
47	1985	2001	5	13,000	13,000	13,000	0.030	0.390	1.950	13,000	14,950	0.0671	1.612	9.395	11.007	0.194	11,201	0.0671

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Transmission Function
(\$ Thousands)**

PROJECT: Dworshak

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)	
				INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS AUDITED FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING (p+q) (r)
ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h) (i)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d) (j)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g) (k)	TOTAL "OLD PAYMENT AMOUNT" (DEBT SERVICE) (j + k) (l)							DISCOUNT RATE (=s) (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ^t -1]/[m(1+m) ^t]) (n)	PRESENT VALUE OF PRINCIPAL (g/(1+m) ^t) (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x i/6,688,606) (q)					
48	1973	2023	27	1,714,000	1,681,000	1,681,000	0.02625	44.126	1,191.409	1,681,000	2,872.409	0.0719	519.571	257.871	777.442	25.132	802.574	0.0719	
49	1974	2023	27	7,000	7,000	7,000	0.02625	0.184	4.961	7,000	11.961	0.0719	2.164	1.074	3.237	0.105	3.342	0.0719	
50	1975	2023	27	7,000	7,000	7,000	0.02625	0.184	4.961	7,000	11.961	0.0719	2.164	1.074	3.237	0.105	3.342	0.0719	
51	1976	2023	27	7,000	7,000	7,000	0.02625	0.184	4.961	7,000	11.961	0.0719	2.164	1.074	3.237	0.105	3.342	0.0719	
52	1977	2023	27	7,000	7,000	7,000	0.02625	0.184	4.961	7,000	11.961	0.0719	2.164	1.074	3.237	0.105	3.342	0.0719	
53	1978	2023	27	7,000	7,000	7,000	0.02625	0.184	4.961	7,000	11.961	0.0719	2.164	1.074	3.237	0.105	3.342	0.0719	
54	1979	2023	27	7,000	7,000	7,000	0.02625	0.184	4.961	7,000	11.961	0.0719	2.164	1.074	3.237	0.105	3.342	0.0719	
55	1980	2023	27	7,000	7,000	7,000	0.02625	0.184	4.961	7,000	11.961	0.0719	2.164	1.074	3.237	0.105	3.342	0.0719	
56	1981	2023	27	7,000	7,000	7,000	0.02625	0.184	4.961	7,000	11.961	0.0719	2.164	1.074	3.237	0.105	3.342	0.0719	
57	1982	2023	27	7,000	7,000	7,000	0.02625	0.184	4.961	7,000	11.961	0.0719	2.164	1.074	3.237	0.105	3.342	0.0719	
58	1983	2023	27	7,000	7,000	7,000	0.02625	0.184	4.961	7,000	11.961	0.0719	2.164	1.074	3.237	0.105	3.342	0.0719	

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Transmission Function
(\$ Thousands)**

PROJECT: Hungry Horse

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)		
								OLD PAYMENT AMOUNTS 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M				
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS	AUDITED FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	ANNUAL INTEREST PORTION OF *OLD PAYMENT AMOUNT* (g x h) (i)	TOTAL INTEREST PORTION OF *OLD PAYMENT AMOUNT* (l x d) (j)	PRINCIPAL PORTION OF *OLD PAYMENT AMOUNT* (=g) (k)	TOTAL *OLD PAYMENT AMOUNT* (DEBT SERVICE) (j + k) (l)	DISCOUNT RATE (=s) (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/[m(1+m) ⁿ]) (n)	PRESENT VALUE OF PRINCIPAL AMOUNT* g/(1+m) ⁿ (o)	PRESENT VALUE OF *OLD PAYMENT AMOUNT* (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)	NEW PRINCIPAL OUTSTANDING (p+q) (r)	NEW INTEREST RATE (= m) (s)			
																		ORIGINAL PRINCIPAL	PRINCIPAL STATEMENTS	PRINCIPAL ADJUSTMENT 1/
59	1953	2003	7	2,243,000	607,000	607,000	0.030	18.210	127.470	607,000	734.470	0.0684	98.689	381.990	480.678	9.075	489.754	0.0684		
60	1954	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
61	1955	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
62	1956	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
63	1957	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
64	1958	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
65	1959	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
66	1960	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
67	1961	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
68	1962	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
69	1963	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
70	1964	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
71	1965	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
72	1966	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
73	1967	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
74	1968	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
75	1969	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
76	1970	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
77	1971	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
78	1972	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
79	1973	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
80	1974	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
81	1975	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
82	1976	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
83	1977	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
84	1978	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
85	1979	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
86	1980	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
87	1981	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
88	1982	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		
89	1983	2003	7	1,000	1,000	1,000	0.030	0.030	0.210	1,000	1,210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684		

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(i) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Transmission Function
(\$ Thousands)**

PROJECT: Ice Harbor

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)			
								OLD PAYMENT AMOUNTS 3/			PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M			
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	ANNUAL INTEREST PORTION OF *OLD PAYMENT AMOUNT* (g x h) (i)	TOTAL INTEREST PORTION OF *OLD PAYMENT AMOUNT* (l x d) (j)	PRINCIPAL PORTION OF *OLD PAYMENT AMOUNT* (=g) (k)	TOTAL *OLD PAYMENT AMOUNT* (DEBT SERVICE) (j + k) (l)	DISCOUNT RATE (=s) (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/[m(1+m) ²]) (n)	PRESENT VALUE OF PRINCIPAL (=g/(1+m) ²) (o)	PRESENT VALUE OF *OLD PAYMENT AMOUNT* (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)	NEW PRINCIPAL OUTSTANDING (r)	NEW INTEREST RATE (= m) (s)		
																	ORIGINAL PRINCIPAL	AUDITED FINANCIAL STATEMENTS (f)
90	1962	2012	16	1,022,000	851,000	851,000	0.025	21.275	340.400	851,000	1,191.400	0.0716	198.864	281.453	480.317	12.723	493.040	0.0716
91	1963	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
92	1964	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
93	1965	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
94	1966	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
95	1967	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
96	1968	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
97	1969	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
98	1970	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
99	1971	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
100	1972	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
101	1973	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
102	1974	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
103	1975	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
104	1976	2026	30	423,000	423,000	423,000	0.033	13.748	412.425	423,000	835.425	0.0715	168.054	53.281	221.335	6.324	227.659	0.0715
105	1976	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
106	1977	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
107	1978	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
108	1979	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
109	1980	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
110	1981	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
111	1982	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716
112	1983	2012	16	1,000	1,000	1,000	0.025	0.025	0.400	1,000	1,400	0.0716	0.234	0.331	0.564	0.015	0.579	0.0716

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Transmission Function
(\$ Thousands)**

PROJECT: Minidoka

INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)	
			ORIGINAL PRINCIPAL	PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS AUDITED FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING	NEW INTEREST RATE	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h) (i)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d) (j)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g) (k)	TOTAL "OLD PAYMENT AMOUNT" (DEBT SERVICE) (j + k) (l)	DISCOUNT RATE (=s) (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/[m(1+m) ⁿ]) (n)	PRESENT VALUE OF PRINCIPAL (g/(1+m) ⁿ) (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x i/6,688,606) (q)	(p+q) (r)	(= s) (s)
113	1978	2008	12	29,000	29,000	29,000	0.030	0.870	10,440	29,000	39,440	0.0702	6,903	12,848	19,750	0.434	20,184	0.0702
114	1979	2008	12	28,000	28,000	28,000	0.030	0.840	10,080	28,000	38,080	0.0702	6,665	12,404	19,069	0.419	19,488	0.0702
115	1980	2008	12	29,000	29,000	29,000	0.030	0.870	10,440	29,000	39,440	0.0702	6,903	12,848	19,750	0.434	20,184	0.0702
116	1981	2008	12	29,000	29,000	29,000	0.030	0.870	10,440	29,000	39,440	0.0702	6,903	12,848	19,750	0.434	20,184	0.0702
117	1982	2008	12	28,000	28,000	28,000	0.030	0.840	10,080	28,000	38,080	0.0702	6,665	12,404	19,069	0.419	19,488	0.0702
118	1983	2008	12	29,000	29,000	29,000	0.030	0.870	10,440	29,000	39,440	0.0702	6,903	12,848	19,750	0.434	20,184	0.0702

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Transmission Function
(\$ Thousands)**

PROJECT: Yakima-Chandler

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)	
								OLD PAYMENT AMOUNTS 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M			
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS	AUDITED FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	ANNUAL INTEREST PORTION OF *OLD PAYMENT AMOUNT* (g x h) (i)	TOTAL INTEREST PORTION OF *OLD PAYMENT AMOUNT* (l x d) (j)	PRINCIPAL PORTION OF *OLD PAYMENT AMOUNT* (=g) (k)	TOTAL *OLD PAYMENT AMOUNT* (DEBT SERVICE) (j + k) (l)	DISCOUNT RATE (=s) (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/[m(1+m) ⁿ]) (n)	PRESENT VALUE OF PRINCIPAL AMOUNT* (n + o) (p)	PRESENT VALUE OF PRINCIPAL AMOUNT* (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)	NEW PRINCIPAL OUTSTANDING (r)	NEW INTEREST RATE (= m) (s)		
																		ORIGINAL PRINCIPAL	PRINCIPAL STATEMENTS
119	1956	2022	26	726.000	461.000	461.000	0.0250	11.525	299.650	461.000	760.650	0.0721	133.690	75.437	209.127	6.892	216.020	0.0721	
120	1959	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
121	1960	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
122	1961	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
123	1962	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
124	1963	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
125	1964	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
126	1965	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
127	1966	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
128	1967	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
129	1968	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
130	1969	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
131	1970	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
132	1971	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
133	1972	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
134	1973	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
135	1974	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
136	1975	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
137	1976	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	
138	1977	2022	26	1.000	1.000	1.000	0.0250	0.025	0.650	1.000	1.650	0.0721	0.290	0.164	0.454	0.015	0.469	0.0721	

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.
 5/ The investments in the Yakima-Chandler project have a useful life of 66 years, set by legislation.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Transmission Function
(\$ Thousands)**

PROJECT: Yakima-Rosa

INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)	
			ORIGINAL PRINCIPAL	PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS AUDITED FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING	NEW INTEREST RATE	
(a)	(b)	(c)	(e)	(f)	(g)	(h)	ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g)	TOTAL "OLD PAYMENT AMOUNT" (j + k)	DISCOUNT RATE (=s) (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/[m(1+m) ⁿ]) (n)	PRESENT VALUE OF PRINCIPAL (n + o) (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)	(p+q) (r)	(= m) (s)	
139	1958	2008	363.000	232.000	232.000	0.0300	6.960	83.520	232.000	315.520	0.0702	55.222	102.780	158.002	3.469	161.471	0.0702	

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Transmission Function
(\$ Thousands)**

PROJECT: Bonneville Power Administration

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)		
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	ASSIGNED INTEREST RATE 2/	PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS		PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING (p+q)	NEW INTEREST RATE (=m)			
				ORIGINAL PRINCIPAL	AUDITED FINANCIAL STATEMENTS		ANNUAL INTEREST PORTION OF 'OLD PAYMENT AMOUNT' (g x h) (i)	TOTAL INTEREST PORTION OF 'OLD PAYMENT AMOUNT' (l x d) (j)	PRINCIPAL PORTION OF 'OLD PAYMENT AMOUNT' (-g) (k)	TOTAL 'OLD PAYMENT AMOUNT' (j + k) (l)	DISCOUNT RATE (=s) (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i[(1+m) ⁻¹][m(1+m) ⁿ]) (n)	PRESENT VALUE OF PRINCIPAL 'OLD PAYMENT' AMOUNT' (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)						
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)		
140	1953	1998	2	33,631,000	24,919,000	24,919,000	0.02500	622.975	1,245,950	24,919,000	26,164,950	0.0633	1,136,898	22,040,375	23,177,273	372.559	23,549,832	0.0633		
141	1953	1998	2	16,574,000	12,280,000	12,280,000	0.02500	307.000	614,000	12,280,000	12,894,000	0.0633	560.259	10,861,423	11,421,683	183.596	11,605,278	0.0633		
142	1954	1999	3	25,985,000	25,985,000	25,985,000	0.02500	649.625	1,948,875	25,985,000	27,933,875	0.0651	1,720,200	21,505,600	23,225,800	388.496	23,614,296	0.0651		
143	1954	1999	3	19,114,000	19,114,000	19,114,000	0.02500	477.850	1,433,550	19,114,000	20,547,550	0.0651	1,265,341	15,819,051	17,084,392	285.770	17,370,162	0.0651		
144	1955	2000	4	13,529,000	13,529,000	13,529,000	0.02500	338.225	1,352,900	13,529,000	14,881,900	0.0662	1,155,536	10,469,139	11,624,676	202.269	11,826,945	0.0662		
145	1955	2000	4	11,763,000	11,763,000	11,763,000	0.02500	294.075	1,176,300	11,763,000	12,939,300	0.0662	1,004,699	9,102,557	10,107,256	175.866	10,283,122	0.0662		
146	1956	2001	5	17,328,000	17,328,000	17,328,000	0.02500	433.200	2,168,000	17,328,000	19,494,000	0.0671	1,790,083	12,523,417	14,313,500	259.067	14,572,567	0.0671		
147	1956	2001	5	38,314,000	38,314,000	38,314,000	0.02500	957.850	4,789,250	38,314,000	43,103,250	0.0671	3,958,059	27,690,570	31,648,629	572.825	32,221,454	0.0671		
148	1957	2002	6	9,804,000	9,804,000	9,804,000	0.02500	245.100	1,470,600	9,804,000	11,274,600	0.0679	1,175,891	6,610,279	7,785,170	146.578	7,932,748	0.0679		
149	1957	2002	6	19,749,000	19,749,000	19,749,000	0.02500	493.725	2,962,350	19,749,000	22,711,350	0.0679	2,368,694	13,315,626	15,684,320	295.263	15,979,584	0.0679		
150	1958	2003	7	19,998,000	19,998,000	19,998,000	0.02500	499.950	3,499,650	19,998,000	23,497,650	0.0684	2,709,470	12,584,890	15,294,360	298.986	15,593,346	0.0684		
151	1958	2003	7	13,663,000	13,663,000	13,663,000	0.02500	341.575	2,391,025	13,663,000	16,054,025	0.0684	1,851,160	8,598,227	10,449,387	204.273	10,653,660	0.0684		
152	1959	2004	8	10,845,000	10,845,000	10,845,000	0.02500	271.125	2,169,000	10,845,000	13,014,000	0.0688	1,626,524	6,368,806	7,995,330	162.141	8,157,471	0.0688		
153	1959	2004	8	11,783,000	11,783,000	11,783,000	0.02500	294.575	2,356,600	11,783,000	14,139,600	0.0688	1,767,205	6,919,653	8,686,858	176.165	8,863,023	0.0688		
154	1960	2005	9	4,953,000	4,953,000	4,953,000	0.02500	123.825	1,114,425	4,953,000	6,067,425	0.0691	809,846	2,714,584	3,524,431	74.051	3,598,482	0.0691		
155	1960	2005	9	5,806,000	5,806,000	5,806,000	0.02500	145.150	1,306,350	5,806,000	7,112,350	0.0691	949,317	3,182,087	4,131,404	86.804	4,218,209	0.0691		
156	1961	2006	10	6,367,000	6,367,000	6,367,000	0.02500	159.175	1,591,750	6,367,000	7,958,750	0.0695	1,120,567	3,251,823	4,372,391	95.192	4,467,582	0.0695		
157	1961	2006	10	16,063,000	16,063,000	16,063,000	0.02500	401.575	4,015,750	16,063,000	20,078,750	0.0695	2,827,025	8,203,870	11,030,895	240.155	11,271,050	0.0695		
158	1962	2007	11	28,875,000	28,875,000	28,875,000	0.02500	721.875	7,940,625	28,875,000	36,815,625	0.0698	5,418,502	13,746,542	19,165,044	431.704	19,596,748	0.0698		
159	1962	2007	11	7,186,000	7,186,000	7,186,000	0.02500	179.650	1,976,150	7,186,000	9,162,150	0.0698	1,348,480	3,421,044	4,769,524	107.436	4,876,961	0.0698		
160	1963	2008	12	7,429,000	7,429,000	7,429,000	0.02500	185.725	2,228,700	7,429,000	9,657,700	0.0702	1,475,584	3,291,175	4,764,760	111.069	4,875,829	0.0702		
161	1963	2008	12	6,597,000	6,597,000	6,597,000	0.02500	164.925	1,979,100	6,597,000	8,576,100	0.0702	1,308,552	2,922,585	4,231,137	98.630	4,329,768	0.0702		
162	1963	2008	12	1,318,000	1,318,000	1,318,000	0.02875	37.893	454,710	1,318,000	1,772,710	0.0702	300,648	583,897	884,544	19.705	904,250	0.0702		
163	1963	2008	12	1,170,000	1,170,000	1,170,000	0.02875	33.638	403,650	1,170,000	1,573,650	0.0702	266,888	518,330	785,218	17.492	802,710	0.0702		
164	1964	2009	13	6,229,000	6,229,000	6,229,000	0.02875	179.084	2,328,089	6,229,000	8,557,089	0.0706	1,491,643	2,566,045	4,057,687	93.129	4,150,816	0.0706		
165	1964	2009	13	8,611,000	8,611,000	8,611,000	0.02875	247.566	3,218,361	8,611,000	11,829,361	0.0706	2,062,054	3,547,313	5,609,367	128.741	5,738,108	0.0706		
166	1965	2010	14	5,717,000	5,717,000	5,717,000	0.02875	164.364	2,301,093	5,717,000	8,018,093	0.0709	1,429,712	2,191,207	3,620,918	85.474	3,706,392	0.0709		
167	1965	2010	14	11,180,000	11,180,000	11,180,000	0.02875	321.425	4,499,950	11,180,000	15,679,950	0.0709	2,795,903	4,285,060	7,080,963	167.150	7,248,113	0.0709		
168	1965	2010	14	7,892,000	7,892,000	7,892,000	0.03000	236.760	3,314,640	7,892,000	11,206,640	0.0709	2,059,448	3,024,839	5,084,286	117.992	5,202,278	0.0709		
169	1965	2010	14	15,430,000	15,430,000	15,430,000	0.03000	462.900	6,480,600	15,430,000	21,910,600	0.0709	4,026,518	5,913,997	9,940,514	230.691	10,171,205	0.0709		
170	1966	2011	15	18,430,000	18,430,000	18,430,000	0.03000	552.900	8,293,500	18,430,000	26,723,500	0.0713	4,994,676	6,559,319	11,553,996	275.543	11,829,539	0.0713		
171	1966	2011	15	4,751,000	4,751,000	4,751,000	0.03000	124.530	2,137,950	4,751,000	6,888,950	0.0713	1,287,559	1,690,902	2,978,461	71.031	3,049,492	0.0713		
172	1966	2011	15	10,176,000	10,176,000	10,176,000	0.03125	318.000	4,770,000	10,176,000	14,946,000	0.0713	2,872,684	3,621,684	6,494,368	152.139	6,646,507	0.0713		
173	1966	2011	15	2,624,000	2,624,000	2,624,000	0.03125	82.000	1,230,000	2,624,000	3,854,000	0.0713	740,755	933,893	1,674,648	39.231	1,713,879	0.0713		
174	1967	2012	16	29,795,000	29,795,000	29,795,000	0.03125	931.094	44,897,500	29,795,000	44,692,500	0.0716	8,703,225	9,854,171	18,557,396	445.459	19,002,855	0.0716		
175	1967	2012	16	7,159,000	7,159,000	7,159,000	0.03125	223.719	3,579,500	7,159,000	10,738,500	0.0716	2,091,169	2,367,713	4,458,882	107.033	4,565,915	0.0716		
176	1967	2012	16	22,422,000	22,422,000	22,422,000	0.03125	700.688	11,211,000	22,422,000	33,633,000	0.0716	6,549,545	7,415,682	13,965,227	335.227	14,300,454	0.0716		
177	1967	2012	16	5,388,000	5,388,000	5,388,000	0.03125	168.375	2,694,000	5,388,000	8,082,000	0.0716	1,573,854	1,781,986	3,355,840	80.555	3,436,395	0.0716		
178	1968	2013	17	65,970,000	65,970,000	65,970,000	0.03125	2,061.563	35,046,563	65,970,000	101,016,563	0.072	19,851,637	20,231,828	40,083,465	986.304	41,069,770	0.072		
179	1968	2013	17	12,972,000	12,972,000	12,972,000	0.03125	405.375	6,891,375	12,972,000	19,863,375	0.072	3,903,523	3,978,282	7,881,806	193.942	8,075,747	0.072		
180	1968	2013	17	37,269,000	37,269,000	37,269,000	0.03125	1,164,656	19,799,156	37,269,000	57,068,156	0.072	11,214,956	11,429,741	22,644,697	557.201	23,201,898	0.072		
181	1968	2013	17	7,328,000	7,328,000	7,328,000	0.03125	229.000	3,893,000	7,328,000	11,221,000	0.072	2,205,136	2,247,368	4,452,503	109.559	4,562,063	0.072		
182	1969	2014	18	69,378,000	69,378,000	69,378,000	0.03125	2,168.063	39,025,125	69,378,000	108,403,125	0.0723	21,451,316	19,748,234	41,199,551	1,037.256	42,236,807	0.0723		
183	1969	2014	18	37,019,000	37,019,000	37,019,000	0.03125	1,156.844	20,823,188	37,019,000	57,843,188	0.0723	11,446,082	10,637,344	21,983,427	553.464	22,536,890	0.0723		
184	1969	2014	18	618,000	618,000	618,000	0.03250	20.085	361,530	618,000	979,530	0.0723	198,726	175,912	374,637	9.240	383,877	0.0723		
185	1969	2014	18	330,000	330,000	330,000	0.03250	10.725	193,050	330,000	523,050	0.0723	106,116	93,933	200,049	4.934	204,983	0.0723		
186	1970	2015	19	106,915,000	106,915,000	106,915,000	0.03250	3,474,738	66,020,013	106,915,000	172,935,013	0.0727	35,197,603	28,180,670	63,378,273	1,598.465	64,976,737	0.0727		
187	1970	2015	19	13,155,000	13,155,000	13,155,000	0.03250	427.538	8,123,213	13,1										

194	1972	2017	21	38,624.000	38,624.000	38,624.000	0.04875	1,882.920	39,541.320	38,624.000	78,165.320	0.0729	19,935.484	8,812.783	28,748.268	577.460	29,325.727	0.0729
195	1972	2017	21	27,882.000	27,882.000	27,882.000	0.04875	1,359.248	28,544.198	27,882.000	56,426.198	0.0729	14,391.083	6,361.796	20,752.879	416.858	21,169.737	0.0729
196	1972	2017	21	4,900.000	4,900.000	4,900.000	0.05375	263.375	5,530.875	4,900.000	10,430.875	0.0729	2,788.492	1,118.026	3,906.519	73.259	3,979.777	0.0729
197	1972	2017	21	3,537.000	3,537.000	3,537.000	0.05375	190.114	3,992.389	3,537.000	7,529.389	0.0729	2,012.836	807.032	2,819.869	52.861	2,872.750	0.0729
198	1973	2018	22	48,182.000	41,763.000	41,763.000	0.05375	2,244.761	49,384.748	41,763.000	91,147.748	0.0728	24,263.716	8,899.772	33,163.488	624.390	33,787.878	0.0728
199	1973	2018	22	30,882.000	26,768.000	26,768.000	0.05375	1,438.780	31,653.160	26,768.000	58,421.160	0.0728	15,551.832	5,704.310	21,256.141	400.203	21,656.344	0.0728
200	1973	2018	22	27,422.000	18,964.000	18,964.000	0.05875	1,114.135	24,510.970	18,964.000	43,474.970	0.0728	12,042.731	4,041.263	16,083.994	283.527	16,367.521	0.0728
201	1973	2018	22	17,576.000	12,155.000	12,155.000	0.05875	714.106	15,710.338	12,155.000	27,865.338	0.0728	7,718.804	2,590.253	10,309.056	181.727	10,490.783	0.0728
202	1974	2019	23	14,025.000	14,025.000	14,025.000	0.05875	823.969	18,951.281	14,025.000	32,976.281	0.0727	9,077.629	2,791.916	11,869.546	209.685	12,079.231	0.0727
203	1974	2019	23	24,364.000	24,364.000	24,364.000	0.05875	1,431.385	32,921.855	24,364.000	57,285.855	0.0727	15,769.509	4,850.071	20,619.580	364.261	20,983.842	0.0727
204	1974	2019	23	15,322.000	15,322.000	15,322.000	0.05500	842.710	19,382.330	15,322.000	34,704.330	0.0727	9,284.101	3,050.106	12,334.207	229.076	12,563.284	0.0727
205	1974	2019	23	26,619.000	26,619.000	26,619.000	0.05500	1,464.045	33,673.035	26,619.000	60,292.035	0.0727	16,129.323	5,298.968	21,428.291	397.975	21,826.266	0.0727
206	1975	2020	24	39,125.000	39,125.000	39,125.000	0.05500	2,151.875	51,645.000	39,125.000	90,770.000	0.0725	24,148.249	7,293.217	31,441.466	584.950	32,026.416	0.0725
207	1975	2020	24	26,774.000	26,774.000	26,774.000	0.05500	1,472.570	35,341.680	26,774.000	62,115.680	0.0725	16,525.118	4,990.890	21,516.008	400.293	21,916.301	0.0725
208	1975	2020	24	20,608.000	20,608.000	20,608.000	0.05625	1,159.200	27,820.800	20,608.000	48,428.800	0.0725	13,008.493	3,841.498	16,849.991	308.106	17,158.097	0.0725
209	1975	2020	24	14,103.000	14,103.000	14,103.000	0.05625	793.294	19,039.050	14,103.000	33,142.050	0.0725	8,902.309	2,628.913	11,531.222	210.851	11,742.073	0.0725
210	1976	2021	25	73,372.000	73,372.000	73,372.000	0.05625	4,127.175	103,179.375	73,372.000	176,551.375	0.0723	47,116.050	12,812.170	59,928.220	1,095.970	61,025.190	0.0723
211	1976	2021	25	2,659.000	2,659.000	2,659.000	0.05625	149.569	3,739.219	2,659.000	6,398.219	0.0723	1,707.485	464.313	2,171.798	39.754	2,211.552	0.0723
212	1977	2022	26	4,750.000	4,750.000	4,750.000	0.05625	267.188	6,946.875	4,750.000	11,696.875	0.0721	3,099.385	777.277	3,876.662	71.016	3,947.678	0.0721
213	1977	2022	26	6,474.000	6,474.000	6,474.000	0.05625	364.163	9,468.225	6,474.000	15,942.225	0.0721	4,224.299	1,059.388	5,283.687	96.791	5,380.478	0.0721
214	1977	2022	26	37,906.000	37,906.000	37,906.000	0.06125	2,321.743	60,365.305	37,906.000	98,271.305	0.0721	26,932.300	6,202.835	33,135.135	566.725	33,701.860	0.0721
215	1977	2022	26	5,670.000	5,602.000	5,602.000	0.06125	343.123	8,921.185	5,602.000	14,523.185	0.0721	3,980.234	916.696	4,896.930	83.754	4,980.684	0.0721

- 1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
- 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments place in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
- 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments place in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
- 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Albeni Falls

As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)				
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M		NEW PRINCIPAL OUTSTANDING (p+q)	NEW INTEREST RATE (= m)	
						ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=e)	TOTAL "OLD PAYMENT AMOUNT" (DEBT SERVICE) (j + k)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹][m(1+m) ⁿ]) (n)	PRESENT VALUE OF PRINCIPAL (g/(1+m) ^d) (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x l/6,688,606) (q)				
(a)	(b)	(c)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	
1	1955	2005	9	31,838,000	23,198,000	23,198,000	0.025	579,950	5,219,550	23,198,000	28,417,550	0.0691	3,793,018	12,714,099	16,507,117	346,829	16,853,945	0.0691
2	1956	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
3	1957	2005	9	14,000	14,000	14,000	0.025	0.350	3.150	14,000	17,150	0.0691	2,289	7,673	9,962	0.209	10,171	0.0691
3	1958	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
5	1959	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
6	1960	2005	9	14,000	14,000	14,000	0.025	0.350	3.150	14,000	17,150	0.0691	2,289	7,673	9,962	0.209	10,171	0.0691
7	1961	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
8	1962	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
9	1963	2005	9	14,000	14,000	14,000	0.025	0.350	3.150	14,000	17,150	0.0691	2,289	7,673	9,962	0.209	10,171	0.0691
10	1964	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
11	1965	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
12	1966	2005	9	14,000	14,000	14,000	0.025	0.350	3.150	14,000	17,150	0.0691	2,289	7,673	9,962	0.209	10,171	0.0691
13	1967	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
14	1968	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
15	1969	2005	9	14,000	14,000	14,000	0.025	0.350	3.150	14,000	17,150	0.0691	2,289	7,673	9,962	0.209	10,171	0.0691
16	1970	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
17	1971	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
18	1972	2005	9	14,000	14,000	14,000	0.025	0.350	3.150	14,000	17,150	0.0691	2,289	7,673	9,962	0.209	10,171	0.0691
19	1973	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
20	1974	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
21	1975	2005	9	14,000	14,000	14,000	0.025	0.350	3.150	14,000	17,150	0.0691	2,289	7,673	9,962	0.209	10,171	0.0691
22	1976	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
23	1977	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
24	1978	2005	9	14,000	14,000	14,000	0.025	0.350	3.150	14,000	17,150	0.0691	2,289	7,673	9,962	0.209	10,171	0.0691
25	1979	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
26	1980	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
27	1981	2005	9	14,000	14,000	14,000	0.025	0.350	3.150	14,000	17,150	0.0691	2,289	7,673	9,962	0.209	10,171	0.0691
28	1982	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
29	1983	2005	9	15,000	15,000	15,000	0.025	0.375	3.375	15,000	18,375	0.0691	2,453	8,221	10,674	0.224	10,898	0.0691
30	1985	2005	9	9,000	9,000	9,000	0.025	0.225	2.025	9,000	11,025	0.0691	1,472	4,933	6,404	0.135	6,539	0.0691
31	1986	2005	9	403,000	403,000	403,000	0.025	10,075	90,675	403,000	493,675	0.0691	65,893	220,872	286,765	6,025	292,790	0.0691
32	1987	2005	9	16,000	16,000	16,000	0.025	0.400	3,600	16,000	19,600	0.0691	2,616	8,769	11,385	0.239	11,624	0.0691
33	1995	2010	14	16,000	16,000	16,000	0.0789	1,262	17,674	16,000	33,674	0.0709	10,981	6,132	17,113	0.239	17,353	0.0709
34	1995	2045	49	402,000	402,000	399,000	0.0786	31,361	1,536,709	399,000	1,935,709	0.0715	423,745	13,532	437,277	5,965	443,243	0.0715
35	1995	2045	49	486,000	486,000	478,000	0.0786	37,571	1,840,969	478,000	2,318,969	0.0715	507,645	16,211	523,856	7,146	531,002	0.0715
36	1995	2045	49	1,002,000	1,002,000	995,000	0.0786	78,207	3,832,143	995,000	4,827,143	0.0715	1,056,709	33,745	1,090,453	14,876	1,105,329	0.0715
37	1996	2016	20	137,000	137,000	136,000	0.0675	9,180	183,600	136,000	319,600	0.0729	95,099	33,293	128,392	2,033	130,425	0.0729

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.

2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(i) of the Act.

3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.

4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Boise

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)			
								"OLD PAYMENT AMOUNTS" 3/			PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M			
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	PRINCIPAL OUTSTANDING (REMAINING PER FCRPS AUDITED FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1,	ASSIGNED INTEREST RATE 2/	ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h) (i)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d) (j)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g) (k)	TOTAL "OLD PAYMENT AMOUNT" (DEBT SERVICE) (j + k) (l)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/[m(1+m) ⁿ]) (n)	PRESENT VALUE OF PRINCIPAL AMOUNT" g/(1+m) ^d (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)	NEW PRINCIPAL OUTSTANDING (r)	NEW INTEREST RATE (= m) (s)		
																	ORIGINAL PRINCIPAL	FINANCIAL STATEMENTS
38	1986	2001	5	108,000	103,000	103,000	0.0300	3.090	15,450	103,000	118,450	0.0671	12,769	74,441	87,210	1,540	88,749	0.0671
39	1996	2046	50	502,000	502,000	474,000	0.0666	31,568	1,578,420	474,000	2,052,420	0.0715	427,542	15,003	442,544	7,087	449,631	0.0715
40	1996	2006	10	7,000	7,000	7,000	0.0633	0,443	4,431	7,000	11,431	0.0695	3,119	3,575	6,694	0,105	6,799	0.0695
41	1996	2046	50	739,000	739,000	692,000	0.0666	46,087	2,304,360	692,000	2,996,360	0.0715	624,175	21,903	646,077	10,346	656,423	0.0715

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.

2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments place in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(i) of the Act.

3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments place in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.

4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Bonneville Second Powerhouse

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)			
				PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS		PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/			PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING	NEW INTEREST RATE	
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	ORIGINAL PRINCIPAL	AUDITED FINANCIAL STATEMENTS	ADJUSTMENT 1/	2/	ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g)	TOTAL "OLD PAYMENT AMOUNT" (DEBT SERVICE) (j + k)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/m(1+m) ⁿ) (n)	PRESENT VALUE OF PRINCIPAL g/(1+m) ^d (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o) (p)	PRO RATA PORTION OF \$100M (100M x f/6,688,606) (q)	(r)	(= m) (s)	
(a)	(b)	(c)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	
42	1981	2031	35	79,059.000	79,059.000	79,059.000	0.03250	2,569.418	89,929.613	79,059.000	168,988.613	0.0715	32,731.098	7,050.585	39,781.683	1,181.995	40,963.678	0.0715
43	1982	2032	36	395,295.000	395,295.000	395,295.000	0.03250	12,847.088	462,495.150	395,295.000	857,790.150	0.0715	164,724.755	32,900.539	197,625.294	5,909.976	203,535.270	0.0715
44	1983	2033	37	121,924.000	121,924.000	121,924.000	0.03250	3,962.530	146,613.610	121,924.000	268,537.610	0.0715	51,115.170	9,470.627	60,585.796	1,822.861	62,408.657	0.0715
45	1985	2033	37	17,852.000	17,852.000	17,852.000	0.03250	580.190	21,467.030	17,852.000	39,319.030	0.0715	7,484.236	1,386.680	8,870.917	266.902	9,137.818	0.0715
46	1986	2033	37	59,739.000	59,739.000	59,739.000	0.03250	1,941.518	71,836.148	59,739.000	131,575.148	0.0715	25,044.857	4,640.315	29,685.172	893.146	30,578.318	0.0715
47	1987	2033	37	5,473.000	5,473.000	5,473.000	0.03250	177.873	6,581.283	5,473.000	12,054.283	0.0715	2,294.489	425.123	2,719.613	81.826	2,801.438	0.0715
48	1988	2033	37	2,484.000	2,484.000	2,484.000	0.03250	80.730	2,987.010	2,484.000	5,471.010	0.0715	1,041.387	192.948	1,234.335	37.138	1,271.473	0.0715
49	1989	2033	37	2,406.000	2,406.000	2,406.000	0.03250	78.195	2,883.215	2,406.000	5,299.215	0.0715	1,008.687	186.890	1,195.576	35.972	1,231.548	0.0715
50	1990	2033	37	3,102.000	3,102.000	3,102.000	0.03250	100.815	3,730.155	3,102.000	6,832.155	0.0715	1,300.476	240.952	1,541.429	46.377	1,587.806	0.0715
51	1994	2044	48	5,635.000	5,635.000	5,635.000	0.07125	401.494	19,271.700	5,635.000	24,906.700	0.0715	5,411.242	204.771	5,616.013	84.248	5,700.261	0.0715
52	1995	2045	49	3,456.000	3,456.000	3,413.000	0.07860	268.262	13,144.828	3,413.000	16,557.828	0.0715	3,624.670	115.750	3,740.419	51.027	3,791.446	0.0715
53	1996	2046	50	400.000	400.000	396.000	0.06660	26.374	1,318.680	396.000	1,714.680	0.0715	357.187	12.534	369.721	5.921	375.641	0.0715

- 1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
- 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(i) of the Act.
- 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
- 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Bonneville

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)	
				PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS		PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1,		"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M		NEW PRINCIPAL OUTSTANDING	
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	ORIGINAL PRINCIPAL	AUDITED FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1,	ASSIGNED INTEREST RATE 2/	ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g)	TOTAL "OLD PAYMENT AMOUNT" (j + k)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/[m(1+m) ⁿ])	PRESENT VALUE OF PRINCIPAL g/(1+m) ^d	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o)	PRO RATA PORTION OF \$100M (100M x f/6,688,606)	NEW PRINCIPAL OUTSTANDING (p+q)	NEW INTEREST RATE (= m)		
(a)	(b)	(c)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)		
54	1977	2027	29,366.000	29,366.000	29,366.000	0.0325	954.395	29,586.245	29,366.000	58,952.245	0.0715	11,779.031	3,452.132	15,231.163	439.045	15,670.208	0.0715		
55	1995	2020	19.000	19.000	18.000	0.0793	1.427	34.258	18.000	52.258	0.0725	16.018	3.355	19.374	0.269	19.643	0.0725		
56	1995	2020	20.000	20.000	20.000	0.0793	1.586	38.064	20.000	58.064	0.0725	17.798	3.728	21.526	0.299	21.825	0.0725		
57	1995	2010	23.000	23.000	23.000	0.0789	1.815	25.406	23.000	48.406	0.0709	15.785	8.815	24.601	0.344	24.944	0.0709		
58	1995	2045	306.000	219.000	219.000	0.0786	17.213	843.457	219.000	1,062.457	0.0715	232.582	7.427	240.009	3.274	243.284	0.0715		
59	1995	2045	381.000	381.000	369.000	0.0786	29.003	1,421.167	369.000	1,790.167	0.0715	391.885	12.514	404.399	5.517	409.816	0.0715		
60	1995	2045	401.000	401.000	396.000	0.0786	31.126	1,525.154	396.000	1,921.154	0.0715	420.559	13.430	433.989	5.921	439.810	0.0715		
61	1996	2046	19.000	19.000	19.000	0.0666	1.265	63.270	19.000	82.270	0.0715	17.138	0.601	17.739	0.284	18.023	0.0715		
62	1996	2046	19.000	19.000	19.000	0.0666	1.265	63.270	19.000	82.270	0.0715	17.138	0.601	17.739	0.284	18.023	0.0715		
63	1996	2031	24.000	24.000	23.000	0.0666	1.532	53.613	23.000	76.613	0.0715	19.513	2.051	21.564	0.344	21.908	0.0715		
64	1996	2046	87.000	87.000	84.000	0.0666	5.594	279.720	84.000	363.720	0.0715	75.767	2.659	78.426	1.256	79.681	0.0715		
65	1996	2046	119.000	119.000	115.000	0.0666	7.659	382.950	115.000	497.950	0.0715	103.728	3.640	107.368	1.719	109.088	0.0715		
66	1996	2046	157.000	157.000	150.000	0.0666	9.990	499.500	150.000	649.500	0.0715	135.298	4.748	140.046	2.243	142.288	0.0715		
67	1996	2046	239.000	239.000	235.000	0.0666	15.651	782.550	235.000	1,017.550	0.0715	211.967	7.438	219.405	3.513	222.918	0.0715		
68	1996	2046	818.000	818.000	792.000	0.0666	52.747	2,637.360	792.000	3,429.360	0.0715	714.373	25.068	739.441	11.841	751.282	0.0715		
69	1996	2016	884.000	884.000	870.000	0.0675	58.725	1,174.500	870.000	2,044.500	0.0729	608.354	212.978	821.332	13.007	834.339	0.0729		
70	1996	2046	1,446.000	1,446.000	1,394.000	0.0666	92.840	4,642.020	1,394.000	6,036.020	0.0715	1,257.369	44.122	1,301.491	20.841	1,322.332	0.0715		

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.

2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.

3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.

4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Chief Joseph

As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)				
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	ORIGINAL PRINCIPAL	PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS AUDITED STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1.	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING (p+q)	NEW INTEREST RATE (r)	NEW INTEREST RATE (s)
							ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (i x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (e)	TOTAL "OLD PAYMENT" AMOUNT" (j + k)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (l [(1+m) ⁻¹]/m(1+m) ⁿ) (n)	PRESENT VALUE OF PRINCIPAL "OLD PAYMENT" AMOUNT" (o)	PRESENT VALUE OF "OLD PAYMENT" AMOUNT" (p)	PRO RATA PORTION OF OF \$100M (100M x l/6,688,606) (q)			
71	1955	2005	9	29,164.000	3,113.000	3,113.000	0.025	77.825	700.425	3,113.000	3,813.425	0.0691	508.995	1,706.138	2,215.133	46.542	2,261.675	0.0691
72	1956	2006	10	19,443.000	19,443.000	19,443.000	0.025	486.075	4,860.750	19,443.000	24,303.750	0.0695	3,421.892	9,930.140	13,352.032	290.688	13,642.721	0.0695
73	1957	2007	11	58,328.000	58,328.000	58,328.000	0.025	1,458.200	16,040.200	58,328.000	74,368.200	0.0698	10,945.468	27,768.253	38,713.721	872.050	39,585.771	0.0698
74	1958	2008	12	48,606.000	48,606.000	48,606.000	0.025	1,215.150	14,581.800	48,606.000	63,187.800	0.0702	9,641.276	21,533.297	31,174.573	726.699	31,901.271	0.0702
75	1959	2008	12	340.000	340.000	340.000	0.025	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
76	1960	2008	12	340.000	340.000	340.000	0.025	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
77	1961	2008	12	340.000	340.000	340.000	0.025	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
78	1962	2008	12	340.000	340.000	340.000	0.025	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
79	1963	2008	12	341.000	341.000	341.000	0.025	8.525	102.300	341.000	443.300	0.0702	67.639	151.069	218.708	5.098	223.806	0.0702
80	1964	2008	12	340.000	340.000	340.000	0.025	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
81	1965	2008	12	340.000	340.000	340.000	0.025	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
82	1966	2008	12	340.000	340.000	340.000	0.025	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
83	1967	2008	12	340.000	340.000	340.000	0.025	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
84	1968	2008	12	341.000	341.000	341.000	0.025	8.525	102.300	341.000	443.300	0.0702	67.639	151.069	218.708	5.098	223.806	0.0702
85	1969	2008	12	340.000	340.000	340.000	0.025	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
86	1970	2008	12	340.000	340.000	340.000	0.025	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
87	1971	2008	12	340.000	340.000	340.000	0.025	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
88	1972	2008	12	340.000	340.000	340.000	0.025	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
89	1973	2008	12	341.000	341.000	341.000	0.025	8.525	102.300	341.000	443.300	0.0702	67.639	151.069	218.708	5.098	223.806	0.0702
90	1974	2008	12	340.000	340.000	340.000	0.025	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
91	1975	2008	12	340.000	340.000	340.000	0.025	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
92	1976	2008	12	340.000	340.000	340.000	0.025	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
93	1977	2027	31	57,180.000	57,180.000	57,180.000	0.03250	1,859.350	57,680.850	57,180.000	114,788.850	0.0715	22,935.538	6,721.817	29,657.355	854.887	30,512.242	0.0715
94	1977	2008	12	340.000	340.000	340.000	0.02500	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
95	1978	2028	32	142,951.000	142,951.000	142,951.000	0.03250	4,645.908	148,669.040	142,951.000	291,620.040	0.0715	57,848.952	15,683.305	73,532.257	2,137.232	75,669.489	0.0715
96	1978	2008	12	341.000	341.000	341.000	0.02500	8.525	102.300	341.000	443.300	0.0702	67.639	151.069	218.708	5.098	223.806	0.0702
97	1979	2029	33	114,361.000	114,361.000	114,361.000	0.03250	3,716.733	122,652.173	114,361.000	237,013.173	0.0715	46,659.800	11,709.441	58,369.240	1,709.788	60,079.029	0.0715
98	1979	2008	12	340.000	340.000	340.000	0.02500	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
99	1980	2008	12	340.000	340.000	340.000	0.02500	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
100	1981	2008	12	340.000	340.000	340.000	0.02500	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
101	1982	2008	12	340.000	340.000	340.000	0.02500	8.500	102.000	340.000	442.000	0.0702	67.441	150.626	218.067	5.083	223.150	0.0702
102	1983	2008	12	341.000	341.000	341.000	0.02500	8.525	102.300	341.000	443.300	0.0702	67.639	151.069	218.708	5.098	223.806	0.0702
103	1985	2029	33	31,165.000	31,165.000	31,165.000	0.03250	1,012.863	33,424.463	31,165.000	64,589.463	0.0715	12,715.459	3,190.989	15,906.449	465.942	16,372.390	0.0715
104	1985	2008	12	70.000	70.000	70.000	0.02500	1.750	21.000	70.000	91.000	0.0702	13.885	31.011	44.896	1.047	45.943	0.0702
105	1986	2029	33	10,208.000	10,208.000	10,208.000	0.03250	331.760	10,948.080	10,208.000	21,156.080	0.0715	4,164.910	1,045.199	5,210.109	152.618	5,362.726	0.0715
106	1987	2029	33	5,779.000	5,779.000	5,779.000	0.03250	187.818	6,197.978	5,779.000	11,976.978	0.0715	2,357.858	591.713	2,949.571	86.401	3,035.971	0.0715
107	1988	2029	33	5,182.000	5,182.000	5,182.000	0.03250	168.415	5,557.695	5,182.000	10,739.695	0.0715	2,114.279	530.586	2,644.865	77.475	2,722.340	0.0715
108	1989	2029	33	4,239.000	4,239.000	4,239.000	0.03250	137.768	4,546.328	4,239.000	8,785.328	0.0715	1,729.531	434.032	2,163.563	63.376	2,226.939	0.0715
109	1990	2029	33	8,576.000	8,576.000	8,576.000	0.03250	278.720	9,197.760	8,576.000	17,773.760	0.0715	3,499.046	878.098	4,377.144	128.218	4,505.362	0.0715
110	1994	2044	48	4,234.000	3,971.000	3,971.000	0.07125	282.934	13,580.820	3,971.000	17,551.820	0.0715	3,813.317	144.303	3,957.620	59.370	4,016.990	0.0715
111	1995	2010	14	15.000	15.000	14.000	0.07890	1.105	15.464	14.000	29.464	0.0709	9.608	5.366	14.974	0.209	15.184	0.0709
112	1995	2045	49	133.000	133.000	132.000	0.07860	10.375	508.385	132.000	640.385	0.0715	140.186	4.477	144.663	1.974	146.637	0.0715
113	1995	2045	49	512.000	512.000	506.000	0.07860	39.772	1,948.808	506.000	2,454.808	0.0715	537.381	17.161	554.542	7.565	562.107	0.0715
114	1995	2045	49	653.000	653.000	641.000	0.07860	50.383	2,468.747	641.000	3,109.747	0.0715	680.754	21.739	702.493	9.583	712.077	0.0715
115	1995	2045	49	711.000	711.000	706.000	0.07860	55.492	2,719.988	706.000	3,425.988	0.0715	749.785	23.944	773.729	10.555	784.284	0.0715
116	1996	2046	50	4.000	4.000	3.000	0.06660	0.200	9.890	3.000	12.990	0.0715	2.706	0.095	2.801	0.045	2.846	0.0715
117	1996	2046	50	4.000	4.000	4.000	0.06660	0.266	13.320	4.000	17.320	0.0715	3.608	0.127	3.735	0.060	3.794	0.0715
118	1996	2031	35	28.000	28.000	28.000	0.06660	1.865	65.268	28.000	93.268	0.0715	23.755	2.497	26.252	0.419	26.671	0.0715
119	1996	2046	50	377.000	377.000	374.000	0.06660	24.908	1,245.420	374.000	1,619.420	0.0715	337.343	11.838	349.180	5.592	354.772	0.0715
120	1996	2046	50	774.000	774.000	769.000	0.06660	51.215	2,560.770	769.000	3,329.770	0.0715	693.628	24.340	717.967	11.497	729.465	0.0715

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments place in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments place in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Columbia Basin 3rd Powerhouse

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)			
								"OLD PAYMENT AMOUNTS" 3/			PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M			
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1,	ASSIGNED INTEREST RATE 2/	ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g)	TOTAL "OLD PAYMENT AMOUNT" (j + k)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/m(1+m) ⁿ)	PRESENT VALUE OF PRINCIPAL "OLD PAYMENT" (n + o)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606)	NEW PRINCIPAL OUTSTANDING (p+q)	NEW INTEREST RATE (=m)			
																ORIGINAL PRINCIPAL	FINANCIAL STATEMENTS	PRINCIPAL ADJUSTMENT
121	1975	2025	29	82,525.000	74,452.000	74,452.000	0.03125	2,326.625	67,472.125	74,452.000	141,924.125	0.0716	28,120.902	10,021.389	38,142.291	1,113.117	39,255.408	0.0716
122	1976	2026	30	79,037.000	79,037.000	79,037.000	0.03125	2,469.906	74,097.188	79,037.000	153,134.188	0.0715	30,192.942	9,955.548	40,148.491	1,181.666	41,330.157	0.0715
123	1977	2027	31	82,525.000	82,525.000	82,525.000	0.03125	2,578.906	79,946.094	82,525.000	162,471.094	0.0715	31,828.558	9,701.259	41,529.817	1,233.815	42,763.632	0.0715
124	1978	2028	32	82,525.000	82,525.000	82,525.000	0.03125	2,578.906	82,525.000	82,525.000	165,050.000	0.0715	32,111.493	9,053.905	41,165.397	1,233.815	42,399.212	0.0715
125	1979	2029	33	165,049.000	165,049.000	165,049.000	0.03125	5,157.781	170,206.781	165,049.000	335,255.781	0.0715	64,750.702	16,899.393	81,650.095	2,467.614	84,117.710	0.0715
126	1983	2033	37	1,484.000	1,484.000	1,484.000	0.03000	44.520	1,647.240	1,484.000	3,131.240	0.0715	574.292	115.272	689.563	22.187	711.750	0.0715
127	1983	2033	37	26,229.000	26,229.000	26,229.000	0.03125	819.656	30,327.281	26,229.000	56,556.281	0.0715	10,573.262	2,037.376	12,610.638	392.144	13,002.783	0.0715
128	1984	2033	37	34,222.000	34,222.000	34,222.000	0.03125	1,069.438	39,569.188	34,222.000	73,791.188	0.0715	13,795.348	2,658.244	16,453.592	511.646	16,965.238	0.0715
129	1984	2033	37	26,611.000	26,611.000	26,611.000	0.03125	831.594	30,768.969	26,611.000	57,379.969	0.0715	10,727.251	2,067.049	12,794.300	397.856	13,192.156	0.0715
130	1985	2033	37	84,261.000	84,261.000	84,261.000	0.03125	2,633.156	97,426.781	84,261.000	181,687.781	0.0715	33,966.741	6,545.097	40,511.838	1,259.769	41,771.607	0.0715
131	1985	2033	37	215.000	215.000	215.000	0.03125	6.719	248.594	215.000	463.594	0.0715	86.669	16.700	103.370	3.214	106.584	0.0715
132	1986	2033	37	31,343.000	31,343.000	31,343.000	0.03125	979.469	36,240.344	31,343.000	67,583.344	0.0715	12,634.784	2,434.614	15,069.398	468.603	15,538.001	0.0715
133	1987	2033	37	29,127.000	29,127.000	29,127.000	0.03125	910.219	33,678.094	29,127.000	62,805.094	0.0715	11,741.485	2,262.483	14,003.968	435.472	14,439.439	0.0715
134	1988	2033	37	8,777.000	8,777.000	8,777.000	0.03125	274.281	10,148.406	8,777.000	18,925.406	0.0715	3,538.127	681.766	4,219.893	131.223	4,351.116	0.0715
135	1989	2033	37	21,992.000	21,992.000	21,992.000	0.03125	687.250	25,428.250	21,992.000	47,420.250	0.0715	8,865.271	1,708.261	10,573.532	328.798	10,902.330	0.0715
136	1990	2033	37	12,876.000	12,876.000	12,876.000	0.03125	402.375	14,887.875	12,876.000	27,763.875	0.0715	5,190.489	1,000.162	6,190.651	192.506	6,383.157	0.0715
137	1994	2044	48	12,486.000	12,486.000	12,486.000	0.07125	889.628	42,702.120	12,486.000	55,188.120	0.0715	11,990.198	453.731	12,443.929	186.676	12,630.605	0.0715

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.

2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments place in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.

3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments place in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.

4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Columbia Basin

Project: Columbia Basin				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)			
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	ORIGINAL PRINCIPAL	PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS AUDITED STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1,	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/			ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING (p+q)	NEW INTEREST RATE (r)		
							ANNUAL INTEREST PORTION OF "OLD PAYMENT" AMOUNT* (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT" AMOUNT* (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT" AMOUNT* (=g)	TOTAL "OLD PAYMENT" AMOUNT* (j + k)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/m(1+m) ⁿ) (n)	PRESENT VALUE OF PRINCIPAL "OLD PAYMENT" AMOUNT* (1+m) ^d (o)	PRESENT VALUE OF "OLD PAYMENT" AMOUNT* (p)			PRO RATA PORTION OF OF \$100M (100M x l/6,688,606) (q)	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
138	1951	2001	5	29,496,000	8,959,000	8,959,000	0.030	268.770	1,343.850	8,959,000	10,302.850	0.0671	1,110.620	6,474.913	7,585.533	133.944	7,719.477	0.0671
139	1952	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
140	1953	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
141	1954	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
142	1955	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
143	1956	2001	5	301,000	301,000	301,000	0.030	9,030	45,150	301,000	346,150	0.0671	37,314	217,541	254,855	4,500	259,355	0.0671
144	1957	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
145	1958	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
146	1959	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
147	1960	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
148	1961	2001	5	301,000	301,000	301,000	0.030	9,030	45,150	301,000	346,150	0.0671	37,314	217,541	254,855	4,500	259,355	0.0671
149	1962	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
150	1963	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
151	1964	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
152	1965	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
153	1966	2001	5	301,000	301,000	301,000	0.030	9,030	45,150	301,000	346,150	0.0671	37,314	217,541	254,855	4,500	259,355	0.0671
154	1967	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
155	1967	2017	21	1,352,000	1,352,000	1,352,000	0.030	40,560	851,760	1,352,000	2,203,760	0.0729	429,430	308,484	737,914	20,213	758,128	0.0729
156	1968	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
157	1969	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
158	1970	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
159	1971	2001	5	301,000	301,000	301,000	0.030	9,030	45,150	301,000	346,150	0.0671	37,314	217,541	254,855	4,500	259,355	0.0671
160	1972	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
161	1973	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
162	1974	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
163	1975	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
164	1976	2001	5	301,000	301,000	301,000	0.030	9,030	45,150	301,000	346,150	0.0671	37,314	217,541	254,855	4,500	259,355	0.0671
165	1977	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
166	1978	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
167	1979	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
168	1980	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
169	1981	2001	5	301,000	301,000	301,000	0.030	9,030	45,150	301,000	346,150	0.0671	37,314	217,541	254,855	4,500	259,355	0.0671
170	1982	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
171	1983	2001	5	300,000	300,000	300,000	0.030	9,000	45,000	300,000	345,000	0.0671	37,190	216,818	254,008	4,485	258,493	0.0671
172	1985	2001	5	274,000	274,000	274,000	0.030	8,220	41,100	274,000	315,100	0.0671	33,967	198,027	231,994	4,097	236,091	0.0671
173	1986	2001	5	147,000	147,000	147,000	0.030	4,410	22,050	147,000	169,050	0.0671	18,223	106,241	124,464	2,198	126,662	0.0671
174	1987	2001	5	15,000	15,000	15,000	0.030	0,450	2,250	15,000	17,250	0.0671	1,860	10,841	12,700	0,224	12,925	0.0671
175	1993	2001	5	792,000	42,000	42,000	0.07875	3,308	16,538	42,000	58,538	0.0671	13,667	30,355	44,022	0,628	44,650	0.0671
176	1995	2030	34	23,000	23,000	23,000	0.0786	1,808	61,465	23,000	84,465	0.0715	22,868	2,198	25,066	0,344	25,410	0.0715
177	1995	2000	4	25,000	25,000	24,000	0.0733	1,759	7,037	24,000	31,037	0.0662	6,010	18,572	24,582	0,359	24,941	0.0662
178	1995	2020	24	194,000	194,000	189,000	0.0793	14,988	359,705	189,000	548,705	0.0725	168,191	35,231	203,422	2,826	206,248	0.0725
179	1995	2045	49	265,000	265,000	263,000	0.0786	20,672	1,012,918	263,000	1,275,918	0.0715	279,311	8,919	288,230	3,932	292,162	0.0715
180	1995	2045	49	2,323,000	2,208,000	2,208,000	0.0786	173,549	8,503,891	2,208,000	10,711,891	0.0715	2,344,937	74,883	2,419,820	33,011	2,452,831	0.0715
181	1996	2026	30	82,000	82,000	80,000	0.0666	5,328	159,840	80,000	239,840	0.0715	65,131	10,077	75,208	1,196	76,404	0.0715
182	1996	2031	35	116,000	116,000	114,000	0.0666	7,592	265,734	114,000	379,734	0.0715	96,717	10,167	106,884	1,704	108,588	0.0715
183	1996	2031	35	280,000	280,000	263,000	0.0666	17,516	613,053	263,000	876,053	0.0715	223,129	23,455	246,584	3,932	250,516	0.0715
184	1996	2046	50	449,000	449,000	449,000	0.0666	29,903	1,495,170	449,000	1,944,170	0.0715	404,992	14,211	419,203	6,713	425,916	0.0715
185	1996	2046	50	399,000	399,000	388,000	0.0666	25,841	1,292,040	388,000	1,680,040	0.0715	349,971	12,281	362,251	5,801	368,052	0.0715

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.

2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(i) of the Act.

3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.

4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Cougar

INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	As of September 30, 1996 (Before Refinancing)					REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)	
			ORIGINAL PRINCIPAL	PRINCIPAL OUTSTANDING PER FCRPS AUDITED FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M		NEW PRINCIPAL OUTSTANDING (p+q)	NEW INTEREST RATE (=m)	
							ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h) (i)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d) (j)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g) (k)	TOTAL "OLD PAYMENT AMOUNT" (j + k) (l)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/m(1+m) ⁿ) (n)	PRESENT VALUE OF PRINCIPAL g/(1+m) ^d (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)				
186	1964	18	17,903.000	16,531.000	16,531.000	0.025	413.275	7,438.950	16,531.000	23,969.950	0.0723	4,089.039	4,705.498	8,794.538	247.152	9,041.689	0.0723		
187	1965	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
188	1966	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
189	1967	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
190	1968	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
191	1969	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
192	1970	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
193	1971	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
194	1972	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
195	1973	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
196	1974	18	36.000	35.000	35.000	0.025	0.875	15.750	35.000	50.750	0.0723	8.657	9.963	18.620	0.523	19.143	0.0723		
197	1975	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
198	1976	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
199	1977	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
200	1978	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
201	1979	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
202	1980	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
203	1981	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
204	1982	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
205	1983	18	36.000	36.000	36.000	0.025	0.900	16.200	36.000	52.200	0.0723	8.905	10.247	19.152	0.538	19.690	0.0723		
206	1985	18	2.000	2.000	2.000	0.025	0.050	0.900	2.000	2.900	0.0723	0.495	0.569	1.064	0.030	1.094	0.0723		
207	1986	18	190.000	190.000	190.000	0.025	4.750	85.500	190.000	275.500	0.0723	46.998	54.083	101.081	2.841	103.921	0.0723		
208	1987	18	83.000	83.000	83.000	0.025	2.075	37.350	83.000	120.350	0.0723	20.531	23.626	44.156	1.241	45.397	0.0723		

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Columbia River Juvenile Fish Mitigation

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)		
								"OLD PAYMENT AMOUNTS" 3/			PRESENT VALUE AMOUNTS 4/			ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING	NEW INTEREST RATE	
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS	AUDITED FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g)	TOTAL "OLD PAYMENT AMOUNT" (j + k)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/[m(1+m) ⁿ])	PRESENT VALUE OF PRINCIPAL g/(1+m) ^d	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o)	PRO RATA PORTION OF \$100M (100M x f/6,688,606)	(r)	(= m)
(a)	(b)	(c)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
209	1995	2045	39,282.000	39,282.000	39,017.000	0.0786	3,066.736	150,270.074	39,017.000	189,287.074	0.0715	41,436.781	1,323.236	42,760.017	583.335	43,343.352	0.0715
210	1996	2046	45,071.000	45,071.000	44,653.000	0.0666	2,973.890	148,694.490	44,653.000	193,347.490	0.0715	40,276.397	1,413.324	41,689.722	667.598	42,357.320	0.0715

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Detroit

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)	
				ORIGINAL PRINCIPAL	PRINCIPAL OUTSTANDING PER FCRPS FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1,	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M		NEW PRINCIPAL OUTSTANDING	NEW INTEREST RATE
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(g x h)	(i x d)	(=g)	(j + k)	(m)	(i [(1+m) ⁻¹]/[m(1+m) ⁿ])	g/(1+m) ^d	(n + o)	(100M x f/6,688,606)	(p+q)	(= m)	
211	1953	2003	7	13,402.000	3,947.000	3,947.000	0.025	98.675	690.725	3,947.000	4,637.725	0.0684		534.767	2,483.876	3,018.644	59.011	3,077.655	0.0684
212	1954	2004	8	26,805.000	26,805.000	26,805.000	0.025	670.125	5,361.000	26,805.000	32,166.000	0.0688		4,020.192	15,741.432	19,761.624	400.756	20,162.380	0.0688
213	1955	2004	8	24.000	24.000	24.000	0.025	0.600	4.800	24.000	28.800	0.0688		3.600	14.094	17.694	0.359	18.052	0.0688
214	1956	2004	8	25.000	25.000	25.000	0.025	0.625	5.000	25.000	30.000	0.0688		3.749	14.681	18.431	0.374	18.805	0.0688
215	1957	2004	8	24.000	24.000	24.000	0.025	0.600	4.800	24.000	28.800	0.0688		3.600	14.094	17.694	0.359	18.052	0.0688
216	1958	2004	8	25.000	25.000	25.000	0.025	0.625	5.000	25.000	30.000	0.0688		3.749	14.681	18.431	0.374	18.805	0.0688
217	1959	2004	8	24.000	24.000	24.000	0.025	0.600	4.800	24.000	28.800	0.0688		3.600	14.094	17.694	0.359	18.052	0.0688
218	1960	2004	8	25.000	25.000	25.000	0.025	0.625	5.000	25.000	30.000	0.0688		3.749	14.681	18.431	0.374	18.805	0.0688
219	1961	2004	8	24.000	24.000	24.000	0.025	0.600	4.800	24.000	28.800	0.0688		3.600	14.094	17.694	0.359	18.052	0.0688
220	1962	2004	8	25.000	25.000	25.000	0.025	0.625	5.000	25.000	30.000	0.0688		3.749	14.681	18.431	0.374	18.805	0.0688
221	1963	2004	8	24.000	24.000	24.000	0.025	0.600	4.800	24.000	28.800	0.0688		3.600	14.094	17.694	0.359	18.052	0.0688
222	1964	2004	8	25.000	25.000	25.000	0.025	0.625	5.000	25.000	30.000	0.0688		3.749	14.681	18.431	0.374	18.805	0.0688
223	1965	2004	8	24.000	24.000	24.000	0.025	0.600	4.800	24.000	28.800	0.0688		3.600	14.094	17.694	0.359	18.052	0.0688
224	1966	2004	8	25.000	25.000	25.000	0.025	0.625	5.000	25.000	30.000	0.0688		3.749	14.681	18.431	0.374	18.805	0.0688
225	1967	2004	8	24.000	24.000	24.000	0.025	0.600	4.800	24.000	28.800	0.0688		3.600	14.094	17.694	0.359	18.052	0.0688
226	1968	2004	8	25.000	25.000	25.000	0.025	0.625	5.000	25.000	30.000	0.0688		3.749	14.681	18.431	0.374	18.805	0.0688
227	1969	2004	8	24.000	24.000	24.000	0.025	0.600	4.800	24.000	28.800	0.0688		3.600	14.094	17.694	0.359	18.052	0.0688
228	1970	2004	8	25.000	25.000	25.000	0.025	0.625	5.000	25.000	30.000	0.0688		3.749	14.681	18.431	0.374	18.805	0.0688
229	1971	2004	8	24.000	24.000	24.000	0.025	0.600	4.800	24.000	28.800	0.0688		3.600	14.094	17.694	0.359	18.052	0.0688
230	1972	2004	8	25.000	25.000	25.000	0.025	0.625	5.000	25.000	30.000	0.0688		3.749	14.681	18.431	0.374	18.805	0.0688
231	1973	2004	8	24.000	24.000	24.000	0.025	0.600	4.800	24.000	28.800	0.0688		3.600	14.094	17.694	0.359	18.052	0.0688
232	1974	2004	8	25.000	25.000	25.000	0.025	0.625	5.000	25.000	30.000	0.0688		3.749	14.681	18.431	0.374	18.805	0.0688
233	1975	2004	8	24.000	24.000	24.000	0.025	0.600	4.800	24.000	28.800	0.0688		3.600	14.094	17.694	0.359	18.052	0.0688
234	1976	2004	8	25.000	25.000	25.000	0.025	0.625	5.000	25.000	30.000	0.0688		3.749	14.681	18.431	0.374	18.805	0.0688
235	1977	2004	8	24.000	24.000	24.000	0.025	0.600	4.800	24.000	28.800	0.0688		3.600	14.094	17.694	0.359	18.052	0.0688
236	1978	2004	8	25.000	25.000	25.000	0.025	0.625	5.000	25.000	30.000	0.0688		3.749	14.681	18.431	0.374	18.805	0.0688
237	1979	2004	8	24.000	24.000	24.000	0.025	0.600	4.800	24.000	28.800	0.0688		3.600	14.094	17.694	0.359	18.052	0.0688
238	1980	2004	8	25.000	25.000	25.000	0.025	0.625	5.000	25.000	30.000	0.0688		3.749	14.681	18.431	0.374	18.805	0.0688
239	1981	2004	8	24.000	24.000	24.000	0.025	0.600	4.800	24.000	28.800	0.0688		3.600	14.094	17.694	0.359	18.052	0.0688
240	1982	2004	8	25.000	25.000	25.000	0.025	0.625	5.000	25.000	30.000	0.0688		3.749	14.681	18.431	0.374	18.805	0.0688
241	1983	2004	8	24.000	24.000	24.000	0.025	0.600	4.800	24.000	28.800	0.0688		3.600	14.094	17.694	0.359	18.052	0.0688
242	1985	2004	8	8.000	8.000	8.000	0.025	0.200	1.600	8.000	9.600	0.0688		1.200	4.698	5.898	0.120	6.017	0.0688
243	1987	2004	8	4.000	4.000	4.000	0.025	0.100	0.800	4.000	4.800	0.0688		0.600	2.349	2.949	0.060	3.009	0.0688
244	1995	2045	49	35.000	35.000	35.000	0.0768	2.688	131.712	35.000	166.712	0.0715		36.319	1.187	37.506	0.523	38.030	0.0715
245	1996	2006	10	25.000	25.000	25.000	0.0633	1.583	15.825	25.000	40.825	0.0695		11.141	12.768	23.909	0.374	24.283	0.0695

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments place in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments place in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Dworshak

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)			
								"OLD PAYMENT AMOUNTS" 3/			PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M			
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	PRINCIPAL OUTSTANDING PER FCRPS (REMAINING) FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1,	ASSIGNED INTEREST RATE 2/	ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g)	TOTAL "OLD PAYMENT AMOUNT" (DEBT SERVICE) (j + k)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/m(1+m) ⁿ) (n)	PRESENT VALUE OF PRINCIPAL (o) g/(1+m) ^d	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (p) (n + o)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)	NEW PRINCIPAL OUTSTANDING (r) (p+q)	NEW INTEREST RATE (s) (= m)		
																	ORIGINAL PRINCIPAL	AUDITED
246	1973	2023	27	284,008,000	278,561,000	278,561,000	0.02625	7,312,226	197,430,109	278,561,000	475,991,109	0.0719	86,098,841	42,732,175	128,831,016	4,164,709	132,995,725	0.0719
247	1974	2023	27	1,078,000	1,078,000	1,078,000	0.02625	28,298	764,033	1,078,000	1,842,033	0.0719	333,193	165,369	498,562	16,117	514,679	0.0719
248	1975	2023	27	1,085,000	1,085,000	1,085,000	0.02625	28,481	768,994	1,085,000	1,853,994	0.0719	335,357	166,443	501,799	16,222	518,021	0.0719
249	1976	2023	27	1,085,000	1,085,000	1,085,000	0.02625	28,481	768,994	1,085,000	1,853,994	0.0719	335,357	166,443	501,799	16,222	518,021	0.0719
250	1977	2023	27	1,085,000	1,085,000	1,085,000	0.02625	28,481	768,994	1,085,000	1,853,994	0.0719	335,357	166,443	501,799	16,222	518,021	0.0719
251	1978	2023	27	1,085,000	1,085,000	1,085,000	0.02625	28,481	768,994	1,085,000	1,853,994	0.0719	335,357	166,443	501,799	16,222	518,021	0.0719
252	1979	2023	27	1,085,000	1,085,000	1,085,000	0.02625	28,481	768,994	1,085,000	1,853,994	0.0719	335,357	166,443	501,799	16,222	518,021	0.0719
253	1980	2023	27	1,085,000	1,085,000	1,085,000	0.02625	28,481	768,994	1,085,000	1,853,994	0.0719	335,357	166,443	501,799	16,222	518,021	0.0719
254	1981	2023	27	1,085,000	1,085,000	1,085,000	0.02625	28,481	768,994	1,085,000	1,853,994	0.0719	335,357	166,443	501,799	16,222	518,021	0.0719
255	1982	2023	27	1,085,000	1,085,000	1,085,000	0.02625	28,481	768,994	1,085,000	1,853,994	0.0719	335,357	166,443	501,799	16,222	518,021	0.0719
256	1983	2023	27	1,095,000	1,095,000	1,095,000	0.02625	28,744	776,081	1,095,000	1,871,081	0.0719	338,447	167,977	506,424	16,371	522,795	0.0719
257	1985	2023	27	2,389,000	2,389,000	2,389,000	0.02625	62,711	1,693,204	2,389,000	4,082,204	0.0719	738,402	366,480	1,104,883	35,717	1,140,600	0.0719
258	1986	2023	27	413,000	413,000	413,000	0.02625	10,841	292,714	413,000	705,714	0.0719	127,652	63,356	191,007	6,175	197,182	0.0719
259	1987	2023	27	36,000	11,000	11,000	0.02625	0,289	7,796	11,000	18,796	0.0719	3,400	1,687	5,087	0,164	5,252	0.0719
260	1995	2030	34	200,000	200,000	197,000	0.07860	15,484	526,463	197,000	723,463	0.0715	195,868	18,825	214,693	2,945	217,638	0.0715
261	1995	2045	49	1,055,000	1,055,000	1,046,000	0.07860	82,216	4,028,564	1,046,000	5,074,564	0.0715	1,110,871	35,474	1,146,346	15,639	1,161,984	0.0715
262	1996	2046	50	3,000	3,000	3,000	0.06660	0,200	9,990	3,000	12,990	0.0715	2,706	0,095	2,801	0,045	2,846	0.0715
263	1996	2046	50	4,000	4,000	4,000	0.06660	0,266	13,320	4,000	17,320	0.0715	3,608	0,127	3,735	0,060	3,794	0.0715
264	1996	2031	35	6,000	6,000	6,000	0.06660	0,400	13,966	6,000	19,966	0.0715	5,090	0,535	5,625	0,090	5,715	0.0715
265	1996	2021	25	27,000	27,000	27,000	0.06690	1,806	45,158	27,000	72,158	0.0723	20,621	4,715	25,336	0,404	25,739	0.0723
266	1996	2046	50	50,000	50,000	49,000	0.06660	3,263	163,170	49,000	212,170	0.0715	44,197	1,551	45,748	0,733	46,481	0.0715
267	1996	2011	15	112,000	112,000	111,000	0.06610	7,337	110,057	111,000	221,057	0.0713	66,280	39,505	105,786	1,660	107,445	0.0713
268	1996	2021	25	196,000	196,000	193,000	0.06690	12,912	322,793	193,000	515,793	0.0723	147,401	33,702	181,102	2,886	183,988	0.0723
269	1996	2031	35	219,000	219,000	213,000	0.06660	14,186	496,503	213,000	709,503	0.0715	180,709	18,996	199,705	3,185	202,889	0.0715

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments place in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments place in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Green Peter-Foster

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)			
								"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/			ALLOCATION OF \$100M			
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	PRINCIPAL OUTSTANDING PER FCRPS FINANCIAL STATEMENTS ORIGINAL PRINCIPAL	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h) (i)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d) (j)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g) (k)	TOTAL "OLD PAYMENT AMOUNT" (DEBT SERVICE) (j + k) (l)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/m(1+m) ⁿ) (n)	PRESENT VALUE OF PRINCIPAL g/(1+m) ^d (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)	NEW PRINCIPAL OUTSTANDING (p+q) (r)	NEW INTEREST RATE (= m) (s)		
																	23,472.000	23,472.000
270	1967	21	24,445.000	23,472.000	23,472.000	0.025	586.800	12,322.800	23,472.000	35,794.800	0.0729	6,212.766	5,355.573	11,568.339	350.925	11,919.265	0.0729	
271	1968	22	24,445.000	24,445.000	24,445.000	0.025	611.125	13,444.750	24,445.000	37,889.750	0.0728	6,605.675	5,209.274	11,814.949	365.472	12,180.422	0.0728	
272	1969	22	79.000	79.000	79.000	0.025	1.975	43.450	79.000	122.450	0.0728	21.348	16.835	38.183	1.181	39.364	0.0728	
273	1970	22	80.000	80.000	80.000	0.025	2.000	44.000	80.000	124.000	0.0728	21.618	17.048	38.666	1.196	39.862	0.0728	
274	1971	22	79.000	79.000	79.000	0.025	1.975	43.450	79.000	122.450	0.0728	21.348	16.835	38.183	1.181	39.364	0.0728	
275	1972	22	79.000	79.000	79.000	0.025	1.975	43.450	79.000	122.450	0.0728	21.348	16.835	38.183	1.181	39.364	0.0728	
276	1973	22	79.000	79.000	79.000	0.025	1.975	43.450	79.000	122.450	0.0728	21.348	16.835	38.183	1.181	39.364	0.0728	
277	1974	22	79.000	79.000	79.000	0.025	1.975	43.450	79.000	122.450	0.0728	21.348	16.835	38.183	1.181	39.364	0.0728	
278	1975	22	79.000	79.000	79.000	0.025	1.975	43.450	79.000	122.450	0.0728	21.348	16.835	38.183	1.181	39.364	0.0728	
279	1976	22	79.000	79.000	79.000	0.025	1.975	43.450	79.000	122.450	0.0728	21.348	16.835	38.183	1.181	39.364	0.0728	
280	1977	22	79.000	79.000	79.000	0.025	1.975	43.450	79.000	122.450	0.0728	21.348	16.835	38.183	1.181	39.364	0.0728	
281	1978	22	79.000	79.000	79.000	0.025	1.975	43.450	79.000	122.450	0.0728	21.348	16.835	38.183	1.181	39.364	0.0728	
282	1979	22	79.000	79.000	79.000	0.025	1.975	43.450	79.000	122.450	0.0728	21.348	16.835	38.183	1.181	39.364	0.0728	
283	1980	22	80.000	80.000	80.000	0.025	2.000	44.000	80.000	124.000	0.0728	21.618	17.048	38.666	1.196	39.862	0.0728	
284	1981	22	79.000	79.000	79.000	0.025	1.975	43.450	79.000	122.450	0.0728	21.348	16.835	38.183	1.181	39.364	0.0728	
285	1982	22	79.000	79.000	79.000	0.025	1.975	43.450	79.000	122.450	0.0728	21.348	16.835	38.183	1.181	39.364	0.0728	
286	1983	22	79.000	79.000	79.000	0.025	1.975	43.450	79.000	122.450	0.0728	21.348	16.835	38.183	1.181	39.364	0.0728	
287	1985	22	33.000	33.000	33.000	0.025	0.825	18.150	33.000	51.150	0.0728	8.917	7.032	15.950	0.483	16.443	0.0728	
288	1986	22	6.000	6.000	6.000	0.025	0.150	3.300	6.000	9.300	0.0728	1.521	1.279	2.900	0.090	2.990	0.0728	
289	1987	22	3.000	3.000	3.000	0.025	0.075	1.650	3.000	4.650	0.0728	0.811	0.639	1.450	0.045	1.495	0.0728	
290	1995	24	10.000	10.000	10.000	0.0793	0.793	19.032	10.000	29.032	0.0725	8.899	1.864	10.763	0.150	10.913	0.0725	
291	1995	24	23.000	23.000	22.000	0.0793	1.745	41.870	22.000	63.870	0.0725	19.578	4.101	23.679	0.329	24.008	0.0725	
292	1996	50	27.000	27.000	27.000	0.0666	1.798	89.910	27.000	116.910	0.0715	24.354	0.855	25.208	0.404	25.612	0.0715	

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Hills Creek

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)			
				PRINCIPAL OUTSTANDING PER FCRPS (REMAINING)		PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/			ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING	NEW INTEREST RATE	
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	ORIGINAL PRINCIPAL	AUDITED FINANCIAL STATEMENTS			ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g)	TOTAL "OLD PAYMENT AMOUNT" (DEBT SERVICE) (j + k)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/m(1+m) ⁿ) (n)	PRESENT VALUE OF PRINCIPAL g/(1+m) ^d (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)	(p+q) (r)	(= m) (s)	
(a)	(b)	(c)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	
293	1962	2012	16	17,079,000	15,990,000	15,990,000	0.025	399,750	6,396,000	15,990,000	22,386,000	0.0716	3,736,588	5,288,411	9,024,999	239,063	9,264,062	0.0716
294	1963	2012	16	21,000	21,000	21,000	0.025	0.525	8,400	21,000	29,400	0.0716	4,907	6,945	11,853	0.314	12,167	0.0716
295	1964	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
296	1965	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
297	1966	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
298	1967	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
299	1968	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
300	1969	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
301	1970	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
302	1971	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
303	1972	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
304	1973	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
305	1974	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
306	1975	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
307	1976	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
308	1977	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
309	1978	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
310	1979	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
311	1980	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
312	1981	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
313	1982	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
314	1983	2012	16	22,000	22,000	22,000	0.025	0.550	8,800	22,000	30,800	0.0716	5,141	7,276	12,417	0.329	12,746	0.0716
315	1985	2012	16	11,000	11,000	11,000	0.025	0.275	4,400	11,000	15,400	0.0716	2,571	3,638	6,209	0.164	6,373	0.0716
316	1996	2046	50	29,000	29,000	29,000	0.0666	1,931	96,570	29,000	125,570	0.0715	26,158	0,918	27,075	0.434	27,509	0.0715

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments place in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments place in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Hungry Horse

As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)				
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	ORIGINAL PRINCIPAL	PRINCIPAL OUTSTANDING PER FCRPS FINANCIAL STATEMENTS (f)	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1,	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING (p+q)	NEW INTEREST RATE (=m)	
							ANNUAL INTEREST PORTION OF 'OLD PAYMENT AMOUNT' (g x h) (i)	TOTAL INTEREST PORTION OF 'OLD PAYMENT AMOUNT' (l x d) (j)	PRINCIPAL PORTION OF 'OLD PAYMENT AMOUNT' (=g) (k)	TOTAL 'OLD PAYMENT AMOUNT' (j + k) (l)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/[m(1+m) ⁿ]) (n)	PRESENT VALUE OF PRINCIPAL g/(1+m) ^d (o)	PRESENT VALUE OF 'OLD PAYMENT AMOUNT' (n + o) (p)				PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)
317	1953	2003	7	75,076.000	20,275.000	20,275.000	0.030	608.250	4,257.750	20,275.000	24,532.750	0.0684	3,296.400	12,759.208	16,055.608	303.127	16,358.735	0.0684
318	1954	2003	7	21.000	21.000	21.000	0.030	0.630	4.410	21.000	25.410	0.0684	3.414	13.215	16.630	0.314	16.944	0.0684
319	1955	2003	7	21.000	21.000	21.000	0.030	0.630	4.410	21.000	25.410	0.0684	3.414	13.215	16.630	0.314	16.944	0.0684
320	1956	2003	7	21.000	21.000	21.000	0.030	0.630	4.410	21.000	25.410	0.0684	3.414	13.215	16.630	0.314	16.944	0.0684
321	1957	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
322	1958	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
323	1959	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
324	1960	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
325	1961	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
326	1962	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
327	1963	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
328	1964	2003	7	21.000	21.000	21.000	0.030	0.630	4.410	21.000	25.410	0.0684	3.414	13.215	16.630	0.314	16.944	0.0684
329	1965	2003	7	21.000	21.000	21.000	0.030	0.630	4.410	21.000	25.410	0.0684	3.414	13.215	16.630	0.314	16.944	0.0684
330	1966	2003	7	21.000	21.000	21.000	0.030	0.630	4.410	21.000	25.410	0.0684	3.414	13.215	16.630	0.314	16.944	0.0684
331	1967	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
332	1968	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
333	1969	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
334	1970	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
335	1971	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
336	1972	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
337	1973	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
338	1974	2003	7	21.000	21.000	21.000	0.030	0.630	4.410	21.000	25.410	0.0684	3.414	13.215	16.630	0.314	16.944	0.0684
339	1975	2003	7	21.000	21.000	21.000	0.030	0.630	4.410	21.000	25.410	0.0684	3.414	13.215	16.630	0.314	16.944	0.0684
340	1976	2003	7	12.000	12.000	12.000	0.030	0.360	2.520	12.000	14.520	0.0684	1.951	7.552	9.503	0.179	9.682	0.0684
341	1977	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
342	1978	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
343	1979	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
344	1980	2003	7	22.000	22.000	22.000	0.030	0.660	4.620	22.000	26.620	0.0684	3.577	13.845	17.422	0.329	17.751	0.0684
345	1981	2003	7	22.000	22.000	1,000	0.030	0.030	0.210	1.000	1.210	0.0684	0.163	0.629	0.792	0.015	0.807	0.0684
346	1983	2003	7	15.000	3.000	15.000	0.030	0.450	3.150	15.000	18.150	0.0684	2.439	9.440	11.878	0.224	12.103	0.0684
347	1995	2000	4	160.000	6.000	6.000	0.0733	0.440	1.759	6.000	7.759	0.0662	1.503	4.943	6.146	0.090	6.235	0.0662
348	1995	2030	34	494.000	484.000	485.000	0.0786	38.121	1,296.114	485.000	1,781.114	0.0715	482.213	46.346	528.559	7.251	535.810	0.0715
349	1995	2030	34	1,113.000	1,108.000	1,082.000	0.0786	85.045	2,891.537	1,082.000	3,973.537	0.0715	1,075.783	103.394	1,179.176	16.177	1,195.353	0.0715
350	1995	2045	49	5,610.000	5,610.000	5,572.000	0.0786	437.959	21,460.001	5,572.000	27,032.001	0.0715	5,917.568	188.971	6,106.539	83.306	6,189.844	0.0715
351	1995	2000	4	81.000	81.000	81.000	0.0733	5.937	23.749	81.000	104.749	0.0662	20.285	62.680	82.965	1.211	84.176	0.0662
352	1996	2046	50	16.000	16.000	16.000	0.0666	1.066	53.280	16.000	69.280	0.0715	14.432	0.506	14.938	0.239	15.177	0.0715
353	1996	2046	50	2.000	2.000	2.000	0.0666	0.133	6.660	2.000	8.660	0.0715	1.804	0.063	1.867	0.030	1.897	0.0715

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments place in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments place in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Ice Harbor

INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	As of September 30, 1996 (Before Refinancing)					REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)			
			ORIGINAL PRINCIPAL	PRINCIPAL OUTSTANDING PER FCRPS FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/			PRESENT VALUE AMOUNTS 4/			ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING (p+q)	NEW INTEREST RATE (=m)			
							ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g)	TOTAL "OLD PAYMENT AMOUNT" (j + k)	DISCOUNT RATE	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ^{-t}]/m(1+m) ⁻¹)				PRESENT VALUE OF PRINCIPAL (g/(1+m) ^t)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o)	PRO RATA PORTION OF OF \$100M (100M x l/6,688,606)
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
354	1962	2012	16	91,837.000	76,476.000	76,476.000	0.025	1,911.900	30,590.400	76,476.000	107,066.400	0.0716	17,871.128	25,293.090	43,164.218	1,143.377	44,307.595	0.0716
355	1963	2012	16	79.000	79.000	79.000	0.025	1.975	31.600	79.000	110.600	0.0716	18.461	26.128	44.589	1.181	45.770	0.0716
356	1964	2012	16	79.000	79.000	79.000	0.025	1.975	31.600	79.000	110.600	0.0716	18.461	26.128	44.589	1.181	45.770	0.0716
357	1965	2012	16	80.000	80.000	80.000	0.025	2.000	32.000	80.000	112.000	0.0716	18.695	26.459	45.153	1.196	46.349	0.0716
358	1966	2012	16	79.000	79.000	79.000	0.025	1.975	31.600	79.000	110.600	0.0716	18.461	26.128	44.589	1.181	45.770	0.0716
359	1967	2012	16	79.000	79.000	79.000	0.025	1.975	31.600	79.000	110.600	0.0716	18.461	26.128	44.589	1.181	45.770	0.0716
360	1968	2012	16	80.000	80.000	80.000	0.025	2.000	32.000	80.000	112.000	0.0716	18.695	26.459	45.153	1.196	46.349	0.0716
361	1969	2012	16	79.000	79.000	79.000	0.025	1.975	31.600	79.000	110.600	0.0716	18.461	26.128	44.589	1.181	45.770	0.0716
362	1970	2012	16	79.000	79.000	79.000	0.025	1.975	31.600	79.000	110.600	0.0716	18.461	26.128	44.589	1.181	45.770	0.0716
363	1971	2012	16	80.000	80.000	80.000	0.025	2.000	32.000	80.000	112.000	0.0716	18.695	26.459	45.153	1.196	46.349	0.0716
364	1972	2012	16	79.000	79.000	79.000	0.025	1.975	31.600	79.000	110.600	0.0716	18.461	26.128	44.589	1.181	45.770	0.0716
365	1973	2012	16	79.000	79.000	79.000	0.025	1.975	31.600	79.000	110.600	0.0716	18.461	26.128	44.589	1.181	45.770	0.0716
366	1974	2012	16	80.000	80.000	80.000	0.025	2.000	32.000	80.000	112.000	0.0716	18.695	26.459	45.153	1.196	46.349	0.0716
367	1975	2012	16	79.000	79.000	79.000	0.025	1.975	31.600	79.000	110.600	0.0716	18.461	26.128	44.589	1.181	45.770	0.0716
368	1976	2026	30	38,037.000	38,037.000	38,037.000	0.0325	1,236.203	37,086.075	38,037.000	75,123.075	0.0715	15,111.744	4,791.164	19,902.907	568.684	20,471.591	0.0715
369	1976	2012	16	79.000	79.000	79.000	0.025	1.975	31.600	79.000	110.600	0.0716	18.461	26.128	44.589	1.181	45.770	0.0716
370	1977	2012	16	80.000	80.000	80.000	0.025	2.000	32.000	80.000	112.000	0.0716	18.695	26.459	45.153	1.196	46.349	0.0716
371	1978	2012	16	79.000	79.000	79.000	0.025	1.975	31.600	79.000	110.600	0.0716	18.461	26.128	44.589	1.181	45.770	0.0716
372	1979	2012	16	79.000	79.000	79.000	0.025	1.975	31.600	79.000	110.600	0.0716	18.461	26.128	44.589	1.181	45.770	0.0716
373	1980	2012	16	80.000	80.000	80.000	0.025	2.000	32.000	80.000	112.000	0.0716	18.695	26.459	45.153	1.196	46.349	0.0716
374	1981	2012	16	79.000	79.000	79.000	0.025	1.975	31.600	79.000	110.600	0.0716	18.461	26.128	44.589	1.181	45.770	0.0716
375	1982	2012	16	79.000	79.000	79.000	0.025	1.975	31.600	79.000	110.600	0.0716	18.461	26.128	44.589	1.181	45.770	0.0716
376	1983	2012	16	80.000	80.000	80.000	0.025	2.000	32.000	80.000	112.000	0.0716	18.695	26.459	45.153	1.196	46.349	0.0716
377	1985	2026	30	39.000	39.000	39.000	0.0325	1,268	38.025	39.000	77.025	0.0715	15.494	4.912	20.407	0.583	20.990	0.0715
378	1985	2012	16	71.000	71.000	71.000	0.025	1.775	28.400	71.000	99.400	0.0716	16.591	23.482	40.073	1.062	41.135	0.0716
379	1986	2012	16	236.000	236.000	236.000	0.025	5.900	94.400	236.000	330.400	0.0716	55.149	78.053	133.202	3.528	136.730	0.0716
380	1987	2012	16	6.000	6.000	6.000	0.025	0.150	2.400	6.000	8.400	0.0716	1.402	1.984	3.386	0.090	3.476	0.0716
381	1995	2019	23	79.000	79.000	77.000	0.0795	6.122	140.795	77.000	217.795	0.0727	67.440	15.328	82.768	1.151	83.920	0.0727
382	1995	2019	23	161.000	161.000	157.000	0.0795	12.482	287.075	157.000	444.075	0.0727	137.508	31.254	168.762	2.347	171.109	0.0727
383	1995	2019	23	787.000	787.000	779.000	0.0795	61.931	1,424.402	779.000	2,203.402	0.0727	682.286	155.073	837.359	11.647	849.006	0.0727
384	1996	2031	35	63.000	63.000	62.000	0.0666	5.461	1,171.142	62.000	273.142	0.0715	69.569	7.313	76.882	1.226	78.108	0.0715
385	1996	2041	45	397.000	397.000	391.000	0.0666	26.041	1,171.827	391.000	1,562.827	0.0715	347.923	17.479	365.402	5.846	371.248	0.0715

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: John Day

INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	As of September 30, 1996 (Before Refinancing)					REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)	
			ORIGINAL PRINCIPAL	PRINCIPAL OUTSTANDING PER FCRPS AUDITED FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1,	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/			PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M		NEW PRINCIPAL OUTSTANDING	NEW INTEREST RATE		
							ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g)	TOTAL "OLD PAYMENT AMOUNT" (j + k)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/m(1+m) ⁿ)	PRESENT VALUE OF PRINCIPAL (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o)	PRO RATA PORTION OF OF \$100M (100M x l/6,688,606)			(p+q)	(= m)
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	
386	1968	2018	22	49,089.000	43,521.000	43,521.000	0.025	1,088.025	23,936.550	43,521.000	67,457.550	0.0728	11,760.507	9,274.405	21,034.911	650.674	21,685.585	0.0728	
387	1969	2019	23	196,355.000	196,355.000	196,355.000	0.025	4,908.875	112,904.125	196,355.000	309,259.125	0.0727	54,080.872	39,087.825	93,168.697	2,935.664	96,104.361	0.0727	
388	1970	2020	24	49,089.000	49,089.000	49,089.000	0.025	1,227.225	29,453.400	49,089.000	78,542.400	0.0725	13,771.866	9,150.587	22,922.454	733.920	23,656.373	0.0725	
389	1971	2021	25	73,634.000	73,634.000	73,634.000	0.025	1,840.850	46,021.250	73,634.000	119,655.250	0.0723	21,015.242	12,857.921	33,873.163	1,100.887	34,974.050	0.0723	
390	1972	2022	26	24,545.000	24,545.000	24,545.000	0.025	613.625	15,954.250	24,545.000	40,499.250	0.0721	7,118.073	4,016.478	11,134.551	366.967	11,501.518	0.0721	
391	1985	2022	26	13,850.000	13,850.000	13,850.000	0.025	346.250	9,002.500	13,850.000	22,852.500	0.0721	4,016.513	2,266.377	6,282.890	207.069	6,489.958	0.0721	
392	1986	2022	26	6,886.000	6,886.000	6,886.000	0.025	172.150	4,475.900	6,886.000	11,361.900	0.0721	1,996.946	1,126.806	3,123.753	102.951	3,226.704	0.0721	
393	1987	2022	26	1,506.000	1,506.000	1,506.000	0.025	37.650	978.900	1,506.000	2,484.900	0.0721	436.741	246.438	683.179	22.516	705.695	0.0721	
394	1989	2022	26	65.000	65.000	65.000	0.025	1.625	42.250	65.000	107.250	0.0721	18.850	10.636	29.486	0.972	30.458	0.0721	
395	1990	2022	26	78.000	78.000	78.000	0.025	1.950	50.700	78.000	128.700	0.0721	22.620	12.764	35.384	1.166	36.550	0.0721	
396	1992	2022	26	40.000	40.000	40.000	0.025	1.000	26.000	40.000	66.000	0.0721	11.600	6.545	18.146	0.598	18.744	0.0721	
397	1995	2035	39	20.000	20.000	20.000	0.0786	1.572	61.308	20.000	81.308	0.0715	20.499	1.353	21.852	0.299	22.151	0.0715	
398	1995	2045	49	33.000	33.000	33.000	0.0786	2.594	127.096	33.000	160.096	0.0715	35.047	1.119	36.166	0.493	36.659	0.0715	
399	1995	2035	39	48.000	48.000	47.000	0.0786	3.694	144.074	47.000	191.074	0.0715	48.172	3.180	51.351	0.703	52.054	0.0715	
400	1995	2020	24	73.000	73.000	72.000	0.0793	5.710	137.030	72.000	209.030	0.0725	64.073	13.421	77.494	1.076	78.571	0.0725	
401	1995	2035	39	110.000	110.000	109.000	0.0786	8.567	334.129	109.000	443.129	0.0715	111.717	7.374	119.091	1.630	120.721	0.0715	
402	1995	2045	49	555.000	555.000	547.000	0.0786	42.994	2,106.716	547.000	2,653.716	0.0715	580.924	18.551	599.475	8.178	607.653	0.0715	
403	1995	2045	49	7,056.000	7,056.000	6,889.000	0.0786	541.475	26,532.295	6,889.000	33,421.295	0.0715	7,316.246	233.636	7,549.882	102.996	7,652.878	0.0715	
404	1996	2011	15	250.000	250.000	245.000	0.0661	16.195	242.918	245.000	487.918	0.0713	146.295	87.197	233.491	3.663	237.154	0.0713	
405	1996	2016	20	1,137.000	1,137.000	1,118.000	0.0675	75.465	1,509.300	1,118.000	2,627.300	0.0729	781.770	273.689	1,055.458	16.715	1,072.173	0.0729	

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Libby

INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)	
			ORIGINAL PRINCIPAL	PRINCIPAL OUTSTANDING PER FCRPS FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING	NEW INTEREST RATE	
							ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g)	TOTAL "OLD PAYMENT AMOUNT" (DEBT SERVICE) (j + k)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/m(1+m) ⁿ) (n)	PRESENT VALUE OF PRINCIPAL "OLD PAYMENT" AMOUNT" g/(1+m) ^d (o)	PRESENT VALUE OF PRINCIPAL "OLD PAYMENT" AMOUNT" (n + o) (p)				PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)
406	1975	2025	29	97,805.000	91,299.000	91,299.000	0.03125	2,853.094	82,739.719	91,299.000	174,038.719	0.0716	34,484.100	12,289.029	46,773.130	1,364.993	48,138.123	0.0716
407	1976	2026	30	293,413.000	293,413.000	293,413.000	0.03125	9,169.156	275,074.688	293,413.000	568,487.688	0.0715	112,086.766	36,958.479	149,045.245	4,386.759	153,432.004	0.0715
408	1977	2026	30	2,801.000	2,801.000	2,801.000	0.03125	87.531	2,625.938	2,801.000	5,426.938	0.0715	1,070.011	352.816	1,422.826	41.877	1,464.703	0.0715
409	1978	2026	30	2,801.000	2,801.000	2,801.000	0.03125	87.531	2,625.938	2,801.000	5,426.938	0.0715	1,070.011	352.816	1,422.826	41.877	1,464.703	0.0715
410	1979	2026	30	2,801.000	2,801.000	2,801.000	0.03125	87.531	2,625.938	2,801.000	5,426.938	0.0715	1,070.011	352.816	1,422.826	41.877	1,464.703	0.0715
411	1980	2026	30	2,801.000	2,801.000	2,801.000	0.03125	87.531	2,625.938	2,801.000	5,426.938	0.0715	1,070.011	352.816	1,422.826	41.877	1,464.703	0.0715
412	1981	2026	30	2,801.000	2,801.000	2,801.000	0.03125	87.531	2,625.938	2,801.000	5,426.938	0.0715	1,070.011	352.816	1,422.826	41.877	1,464.703	0.0715
413	1982	2026	30	2,801.000	2,801.000	2,801.000	0.03125	87.531	2,625.938	2,801.000	5,426.938	0.0715	1,070.011	352.816	1,422.826	41.877	1,464.703	0.0715
414	1983	2026	30	2,801.000	2,801.000	2,801.000	0.03125	87.531	2,625.938	2,801.000	5,426.938	0.0715	1,070.011	352.816	1,422.826	41.877	1,464.703	0.0715
415	1985	2026	30	991.000	991.000	991.000	0.03125	30.969	929.063	991.000	1,920.063	0.0715	378.572	124.827	503.399	14.816	518.215	0.0715
416	1986	2026	30	541.000	541.000	541.000	0.03125	16.906	507.188	541.000	1,048.188	0.0715	206.668	68.145	274.812	8.088	282.901	0.0715
417	1987	2026	30	4.000	4.000	4.000	0.03125	0.125	3.750	4.000	7.750	0.0715	1.528	0.504	2.032	0.060	2.092	0.0715
418	1988	2038	42	20,068.000	16,806.000	16,806.000	0.06125	1,029.368	43,233.435	16,806.000	60,039.435	0.0715	13,604.989	924.258	14,529.247	251.263	14,780.510	0.0715
419	1989	2026	30	1.000	1.000	1.000	0.06125	0.061	1.838	1.000	2.838	0.0715	0.749	0.126	0.875	0.015	0.890	0.0715
420	1994	2029	33	284.000	150.000	150.000	0.07125	10.688	352.688	150.000	502.688	0.0715	134.171	15.359	149.529	2.243	151.772	0.0715
421	1995	2030	34	14.000	14.000	14.000	0.07860	1.100	37.414	14.000	51.414	0.0715	13.820	1.338	15.257	0.209	15.467	0.0715
422	1995	2030	34	37.000	37.000	37.000	0.07860	2.908	98.879	37.000	135.879	0.0715	36.787	3.536	40.323	0.553	40.876	0.0715
423	1995	2030	34	87.000	87.000	85.000	0.07860	6.681	227.154	85.000	312.154	0.0715	84.512	8.122	92.634	1.271	93.905	0.0715

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
Generation Function
FCRPS Appropriated Capital Investments
(\$ Thousands)**

Project: Little Goose

INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)	
			ORIGINAL PRINCIPAL	PRINCIPAL OUTSTANDING PER FCRPS AUDITED FINANCIAL STATEMENTS (f)	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1,	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M		NEW PRINCIPAL OUTSTANDING (p+q)	NEW INTEREST RATE (=m)
							ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g)	TOTAL "OLD PAYMENT AMOUNT" (j + k)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/[m(1+m) ⁿ]) (n)	PRESENT VALUE OF PRINCIPAL (g/(1+m) ^d) (o)	PRESENT VALUE OF "OLD PAYMENT" (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)			
424	1970	24	45,227,000	44,202,000	44,202,000	0.025	1,105,050	26,521,200	44,202,000	70,723,200	0.0725	12,400,824	8,239,611	20,640,435	660,855	21,301,290	0.0725	
425	1971	25	90,452,000	90,452,000	90,452,000	0.025	2,261,300	56,532,500	90,452,000	146,984,500	0.0723	25,815,121	15,794,669	41,609,790	1,352,330	42,962,120	0.0723	
426	1972	25	60,000	60,000	60,000	0.025	1,500	37,500	60,000	97,500	0.0723	17,124	10,477	27,601	0.897	28,498	0.0723	
427	1973	25	61,000	61,000	61,000	0.025	1,525	38,125	61,000	99,125	0.0723	17,409	10,652	28,061	0.912	28,973	0.0723	
428	1974	25	60,000	60,000	60,000	0.025	1,500	37,500	60,000	97,500	0.0723	17,124	10,477	27,601	0.897	28,498	0.0723	
429	1975	25	61,000	61,000	61,000	0.025	1,525	39,125	61,000	99,125	0.0723	17,409	10,652	28,061	0.912	28,973	0.0723	
430	1976	25	60,000	60,000	60,000	0.025	1,500	37,500	60,000	97,500	0.0723	17,124	10,477	27,601	0.897	28,498	0.0723	
431	1977	25	61,000	61,000	61,000	0.025	1,525	38,125	61,000	99,125	0.0723	17,409	10,652	28,061	0.912	28,973	0.0723	
432	1978	32	61,245,000	61,245,000	61,245,000	0.055	3,368,475	107,791,200	61,245,000	169,036,200	0.0715	41,942,882	6,719,254	48,662,135	915,662	49,577,797	0.0715	
433	1978	25	60,000	60,000	60,000	0.025	1,500	37,500	60,000	97,500	0.0723	17,124	10,477	27,601	0.897	28,498	0.0723	
434	1979	25	61,000	61,000	61,000	0.025	1,525	38,125	61,000	99,125	0.0723	17,409	10,652	28,061	0.912	28,973	0.0723	
435	1980	25	60,000	60,000	60,000	0.025	1,500	37,500	60,000	97,500	0.0723	17,124	10,477	27,601	0.897	28,498	0.0723	
436	1981	25	61,000	61,000	61,000	0.025	1,525	38,125	61,000	99,125	0.0723	17,409	10,652	28,061	0.912	28,973	0.0723	
437	1982	25	60,000	60,000	60,000	0.025	1,500	37,500	60,000	97,500	0.0723	17,124	10,477	27,601	0.897	28,498	0.0723	
438	1983	25	61,000	61,000	61,000	0.025	1,525	38,125	61,000	99,125	0.0723	17,409	10,652	28,061	0.912	28,973	0.0723	
439	1985	32	58,000	58,000	58,000	0.055	3,190	102,080	58,000	160,080	0.0715	39,721	6,363	46,084	0.867	46,951	0.0715	
440	1985	25	366,000	366,000	366,000	0.025	9,150	228,750	366,000	594,750	0.0723	104,457	63,911	168,368	5,472	173,840	0.0723	
441	1986	25	504,000	504,000	504,000	0.025	12,600	315,000	504,000	819,000	0.0723	143,842	88,008	231,850	7,535	239,386	0.0723	
442	1987	25	12,000	12,000	12,000	0.025	0,300	7,500	12,000	19,500	0.0723	3,425	2,095	5,520	0.179	5,700	0.0723	
443	1995	44	16,000	16,000	15,000	0.0786	1,179	51,876	15,000	66,876	0.0715	15,700	0,719	16,418	0,224	16,642	0.0715	
444	1995	44	409,000	409,000	406,000	0.0786	31,912	1,404,110	406,000	1,810,110	0.0715	424,937	19,448	444,385	6,070	450,455	0.0715	
445	1995	44	681,000	681,000	661,000	0.0786	51,955	2,286,002	661,000	2,947,002	0.0715	691,831	31,663	723,494	9,882	733,376	0.0715	
446	1996	50	11,000	11,000	11,000	0.0666	0,733	36,630	11,000	47,630	0.0715	9,922	0,348	10,270	0,164	10,434	0.0715	
447	1996	50	11,000	11,000	11,000	0.0666	0,733	36,630	11,000	47,630	0.0715	9,922	0,348	10,270	0,164	10,434	0.0715	
448	1996	50	225,000	225,000	222,000	0.0666	14,785	739,260	222,000	961,260	0.0715	200,241	7,027	207,268	3,319	210,587	0.0715	
449	1996	50	260,000	260,000	254,000	0.0666	16,916	845,820	254,000	1,099,820	0.0715	229,105	8,039	237,144	3,798	240,941	0.0715	
450	1996	50	554,000	554,000	548,000	0.0666	36,497	1,824,840	548,000	2,372,840	0.0715	494,289	17,345	511,633	8,193	519,826	0.0715	
451	1996	50	4,309,000	4,309,000	4,121,000	0.0666	274,459	13,722,930	4,121,000	17,843,930	0.0715	3,717,086	130,435	3,847,521	61,612	3,909,133	0.0715	

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments place in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments place in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function**

Project: Lookout Point-Dexter

INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)				
			ORIGINAL PRINCIPAL	PRINCIPAL OUTSTANDING (REMAINING) PER FCRPS AUDITED STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1.	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/			PRESENT VALUE AMOUNTS 4/			ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING	NEW INTEREST RATE			
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(g x h) (i)	(l x d) (j)	(=g) (k)	(j + k) (l)	(m)	(i [(1+m) ⁻¹]/m(1+m) ⁿ) (n)	g/(1+m) ^d (o)	(n + o) (p)	(100M x 1/6,688,606) (q)	(p+q) (r)	(= m) (s)
452	1955	2005	9	44,987.000	39,114.000	39,114.000	0.025	977.850	8,800.650	39,114.000	47,914.650	0.0691	6,395.383	21,437.161	27,832.544	584.786	28,417.330	0.0691
453	1956	2005	9	72.000	72.000	72.000	0.025	1.800	16.200	72.000	88.200	0.0691	11.772	39.461	51.233	1.076	52.310	0.0691
454	1957	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
455	1958	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
456	1959	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
457	1960	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
458	1961	2005	9	71.000	71.000	71.000	0.025	1.775	15.975	71.000	86.975	0.0691	11.609	38.913	50.522	1.062	51.583	0.0691
459	1962	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
460	1963	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
461	1964	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
462	1965	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
463	1966	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
464	1967	2005	9	71.000	71.000	71.000	0.025	1.775	15.975	71.000	86.975	0.0691	11.609	38.913	50.522	1.062	51.583	0.0691
465	1968	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
466	1969	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
467	1970	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
468	1971	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
469	1972	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
470	1973	2005	9	71.000	71.000	71.000	0.025	1.775	15.975	71.000	86.975	0.0691	11.609	38.913	50.522	1.062	51.583	0.0691
471	1974	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
472	1975	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
473	1976	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
474	1977	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
475	1978	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
476	1979	2005	9	71.000	71.000	71.000	0.025	1.775	15.975	71.000	86.975	0.0691	11.609	38.913	50.522	1.062	51.583	0.0691
477	1980	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
478	1981	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
479	1982	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
480	1983	2005	9	70.000	70.000	70.000	0.025	1.750	15.750	70.000	85.750	0.0691	11.445	38.365	49.810	1.047	50.857	0.0691
481	1985	2005	9	72.000	72.000	72.000	0.025	1.800	16.200	72.000	88.200	0.0691	11.772	39.461	51.233	1.076	52.310	0.0691
482	1986	2005	9	58.000	58.000	58.000	0.025	1.450	13.050	58.000	71.050	0.0691	9.483	31.788	41.271	0.867	42.138	0.0691
483	1987	2005	9	12.000	12.000	12.000	0.025	0.300	2.700	12.000	14.700	0.0691	1.962	6.577	8.539	0.179	8.718	0.0691
484	1995	2045	49	30.000	30.000	30.000	0.0786	2.358	115.542	30.000	145.542	0.0715	31.861	1.017	32.878	0.449	33.327	0.0715
485	1995	2045	49	77.000	35.000	35.000	0.0786	2.751	134.799	35.000	169.799	0.0715	37.171	1.187	38.358	0.523	38.881	0.0715

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.

2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments place in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.

3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments place in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.

4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Lost Creek

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)			
								"OLD PAYMENT AMOUNTS" 3/			PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M			
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	PRINCIPAL OUTSTANDING PER FCRPS FINANCIAL STATEMENTS ORIGINAL PRINCIPAL	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1,	ASSIGNED INTEREST RATE 2/	ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h) (i)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d) (j)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g) (k)	TOTAL "OLD PAYMENT AMOUNT" (DEBT SERVICE) (j + k) (l)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/m(1+m) ⁿ) (n)	PRESENT VALUE OF PRINCIPAL g/(1+m) ^d (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)	NEW PRINCIPAL OUTSTANDING (r)	NEW INTEREST RATE (= m) (s)		
																	(a)	(b)
486	1977	2027	31	25,976.000	25,884.000	25,884.000	0.03125	808.875	25,075.125	25,884.000	50,959.125	0.0715	9,983.040	3,042.804	13,025.844	386.986	13,412.831	0.0715
487	1978	2027	31	112.000	112.000	112.000	0.03125	3.500	108.500	112.000	220.500	0.0715	43.197	13.166	56.363	1.674	58.037	0.0715
488	1979	2027	31	115.000	115.000	115.000	0.03125	3.594	111.406	115.000	226.406	0.0715	44.354	13.519	57.873	1.719	59.592	0.0715
489	1980	2027	31	115.000	115.000	115.000	0.03125	3.594	111.406	115.000	226.406	0.0715	44.354	13.519	57.873	1.719	59.592	0.0715
490	1981	2027	31	115.000	115.000	115.000	0.03125	3.594	111.406	115.000	226.406	0.0715	44.354	13.519	57.873	1.719	59.592	0.0715
491	1982	2027	31	115.000	115.000	115.000	0.03125	3.594	111.406	115.000	226.406	0.0715	44.354	13.519	57.873	1.719	59.592	0.0715
492	1983	2027	31	115.000	115.000	115.000	0.03125	3.594	111.406	115.000	226.406	0.0715	44.354	13.519	57.873	1.719	59.592	0.0715
493	1985	2027	31	24.000	24.000	24.000	0.03125	0.750	23.250	24.000	47.250	0.0715	9.256	2.821	12.078	0.359	12.437	0.0715
494	1986	2027	31	12.000	12.000	12.000	0.03125	0.375	11.625	12.000	23.625	0.0715	4.628	1.411	6.039	0.179	6.218	0.0715
495	1987	2027	31	8.000	8.000	8.000	0.03125	0.250	7.750	8.000	15.750	0.0715	3.085	0.940	4.026	0.120	4.146	0.0715
496	1995	2045	49	85.000	85.000	85.000	0.07860	6.681	327.369	85.000	412.369	0.0715	90.272	2.883	93.154	1.271	94.425	0.0715
497	1996	2046	50	26.000	26.000	25.000	0.06660	1.665	83.250	25.000	108.250	0.0715	22.550	0.791	23.341	0.374	23.715	0.0715
498	1996	2031	35	33.000	33.000	33.000	0.06660	2.198	76.923	33.000	109.923	0.0715	27.997	2.943	30.940	0.493	31.434	0.0715

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments place in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(i) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments place in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Lower Granite

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)	
				ORIGINAL PRINCIPAL	AUDITED FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M		NEW PRINCIPAL OUTSTANDING (r)	NEW INTEREST RATE (s)
ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g)	TOTAL "OLD PAYMENT AMOUNT" (j + k)					DISCOUNT RATE (m)	PRESENT VALUE OF INTEREST PAYMENTS (i [(1+m) ⁻¹]/m(1+m) ⁿ)	PRESENT VALUE OF PRINCIPAL g/(1+m) ^d	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o)	PRO RATA PORTION OF \$100M (100M x f/6,688,606)	(q)						
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	
499	1975	2025	29	262,032,000	260,440,000	260,440,000	0.025	6,511,000	188,819,000	260,440,000	449,259,000	0.0716	78,695,619	35,055,748	113,751,367	3,893,786	117,645,153	0.0716	
500	1976	2025	29	1,129,000	1,129,000	1,129,000	0.025	28,225	818,525	1,129,000	1,947,525	0.0716	341,143	151,966	493,109	16,879	509,988	0.0716	
501	1977	2025	29	1,129,000	1,129,000	1,129,000	0.025	28,225	818,525	1,129,000	1,947,525	0.0716	341,143	151,966	493,109	16,879	509,988	0.0716	
502	1978	2028	32	50,168,000	50,168,000	50,168,000	0.055	2,759,240	88,295,680	50,168,000	138,463,680	0.0715	34,356,935	5,503,984	39,860,919	750,052	40,610,971	0.0715	
503	1978	2025	29	1,129,000	1,129,000	1,129,000	0.025	28,225	818,525	1,129,000	1,947,525	0.0716	341,143	151,966	493,109	16,879	509,988	0.0716	
504	1979	2025	29	1,130,000	1,130,000	1,130,000	0.025	28,250	819,250	1,130,000	1,949,250	0.0716	341,445	152,100	493,546	16,894	510,440	0.0716	
505	1980	2025	29	1,129,000	1,129,000	1,129,000	0.025	28,225	818,525	1,129,000	1,947,525	0.0716	341,143	151,966	493,109	16,879	509,988	0.0716	
506	1981	2025	29	1,129,000	1,129,000	1,129,000	0.025	28,225	818,525	1,129,000	1,947,525	0.0716	341,143	151,966	493,109	16,879	509,988	0.0716	
507	1982	2025	29	1,130,000	1,130,000	1,130,000	0.025	28,250	819,250	1,130,000	1,949,250	0.0716	341,445	152,100	493,546	16,894	510,440	0.0716	
508	1983	2025	29	1,129,000	1,129,000	1,129,000	0.025	28,225	818,525	1,129,000	1,947,525	0.0716	341,143	151,966	493,109	16,879	509,988	0.0716	
509	1985	2025	29	726,000	726,000	726,000	0.025	18,150	526,350	726,000	1,252,350	0.0716	219,371	97,721	317,092	10,854	327,946	0.0716	
510	1986	2025	29	476,000	476,000	476,000	0.025	11,900	345,100	476,000	821,100	0.0716	143,830	64,071	207,901	7,117	215,017	0.0716	
511	1987	2025	29	18,000	18,000	18,000	0.025	0,450	13,050	18,000	31,050	0.0716	5,439	2,423	7,862	0,269	8,131	0.0716	
512	1994	2029	33	3,525,000	1,533,000	1,533,000	0.07125	109,226	3,604,466	1,533,000	5,137,466	0.0715	1,371,225	156,964	1,528,189	22,920	1,551,108	0.0715	
513	1995	2017	21	72,000	72,000	71,000	0.08000	5,680	119,280	71,000	190,280	0.0729	60,137	16,200	76,337	1,062	77,399	0.0729	
514	1995	2025	29	88,000	88,000	87,000	0.07860	6,838	198,308	87,000	285,308	0.0716	82,650	11,710	94,361	1,301	95,661	0.0716	
515	1995	2017	21	359,000	359,000	356,000	0.08000	28,480	598,080	356,000	954,080	0.0729	301,533	81,228	382,761	5,322	388,084	0.0729	
516	1995	2017	21	423,000	423,000	420,000	0.08000	33,600	705,600	420,000	1,125,600	0.0729	355,741	95,831	451,572	6,279	457,851	0.0729	
517	1996	2046	50	9,000	9,000	9,000	0.06660	0,599	29,970	9,000	38,970	0.0715	8,118	0,285	8,403	0,135	8,537	0.0715	
518	1996	2031	35	220,000	220,000	216,000	0.06660	14,386	503,496	216,000	719,496	0.0715	183,254	19,263	202,517	3,229	205,747	0.0715	
519	1996	2011	15	266,000	266,000	263,000	0.06610	17,384	260,765	263,000	523,765	0.0713	157,043	93,603	250,646	3,932	254,578	0.0713	
520	1996	2046	50	665,000	665,000	659,000	0.06660	43,889	2,194,470	659,000	2,853,470	0.0715	594,409	20,858	615,267	9,853	625,120	0.0715	

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.

2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.

3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.

4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Lower Monumental

INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	As of September 30, 1996 (Before Refinancing)					REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)	
			ORIGINAL PRINCIPAL	PRINCIPAL OUTSTANDING PER FCRPS AUDITED FINANCIAL STATEMENTS (f)	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1,	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M		NEW PRINCIPAL OUTSTANDING (r)	NEW INTEREST RATE (= m)	
							ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h) (i)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d) (j)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g) (k)	TOTAL "OLD PAYMENT AMOUNT" (DEBT SERVICE) (j + k) (l)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/m(1+m) ⁿ) (n)	PRESENT VALUE OF PRINCIPAL (g/(1+m) ^d) (o)	PRESENT VALUE OF "OLD PAYMENT" (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)				
521	1969	2019	23	53,140.000	51,249.000	51,249.000	0.025	1,281.225	29,468.175	51,249.000	80,717.175	0.0727	14,115.203	10,201.991	24,317.194	766.213	25,083.407	0.0727	
522	1970	2020	24	106,281.000	106,281.000	106,281.000	0.025	2,657.025	63,768.600	106,281.000	170,049.600	0.0725	29,817.021	19,811.639	49,628.660	1,588.986	51,217.646	0.0725	
523	1971	2020	24	444.000	444.000	444.000	0.025	11.100	266.400	444.000	710.400	0.0725	124.564	82.765	207.329	6.638	213.967	0.0725	
524	1972	2020	24	444.000	444.000	444.000	0.025	11.100	266.400	444.000	710.400	0.0725	124.564	82.765	207.329	6.638	213.967	0.0725	
525	1973	2020	24	444.000	444.000	444.000	0.025	11.100	266.400	444.000	710.400	0.0725	124.564	82.765	207.329	6.638	213.967	0.0725	
526	1974	2020	24	445.000	445.000	445.000	0.025	11.125	267.000	445.000	712.000	0.0725	124.844	82.952	207.796	6.653	214.449	0.0725	
527	1975	2020	24	444.000	444.000	444.000	0.025	11.100	266.400	444.000	710.400	0.0725	124.564	82.765	207.329	6.638	213.967	0.0725	
528	1976	2020	24	444.000	444.000	444.000	0.025	11.100	266.400	444.000	710.400	0.0725	124.564	82.765	207.329	6.638	213.967	0.0725	
529	1977	2020	24	444.000	444.000	444.000	0.025	11.100	266.400	444.000	710.400	0.0725	124.564	82.765	207.329	6.638	213.967	0.0725	
530	1978	2020	24	445.000	445.000	445.000	0.025	11.125	267.000	445.000	712.000	0.0725	124.844	82.952	207.796	6.653	214.449	0.0725	
531	1979	2029	33	49,385.000	49,385.000	49,385.000	0.05625	2,777.906	91,670.906	49,385.000	141,055.906	0.0715	34,873.790	5,056.538	39,930.328	738.345	40,668.673	0.0715	
532	1979	2020	24	444.000	444.000	444.000	0.025	11.100	266.400	444.000	710.400	0.0725	124.564	82.765	207.329	6.638	213.967	0.0725	
533	1980	2020	24	444.000	444.000	444.000	0.025	11.100	266.400	444.000	710.400	0.0725	124.564	82.765	207.329	6.638	213.967	0.0725	
534	1981	2020	24	444.000	444.000	444.000	0.025	11.100	266.400	444.000	710.400	0.0725	124.564	82.765	207.329	6.638	213.967	0.0725	
535	1982	2020	24	445.000	445.000	445.000	0.025	11.125	267.000	445.000	712.000	0.0725	124.844	82.952	207.796	6.653	214.449	0.0725	
536	1983	2020	24	444.000	444.000	444.000	0.025	11.100	266.400	444.000	710.400	0.0725	124.564	82.765	207.329	6.638	213.967	0.0725	
537	1985	2029	33	311.000	311.000	311.000	0.05625	17.494	577.294	311.000	888.294	0.0715	219.616	31.843	251.460	4.650	256.109	0.0715	
538	1985	2020	24	17.000	17.000	17.000	0.025	0.425	10.200	17.000	27.200	0.0725	4.769	3.169	7.938	0.254	8.192	0.0725	
539	1986	2020	24	274.000	274.000	274.000	0.025	6.850	164.400	274.000	438.400	0.0725	76.870	51.076	127.946	4.097	132.043	0.0725	
540	1987	2020	24	7.000	7.000	7.000	0.025	0.175	4.200	7.000	11.200	0.0725	1.964	1.305	3.269	0.105	3.373	0.0725	
541	1995	2045	49	38.000	38.000	37.000	0.0786	2.908	142.502	37.000	179.502	0.0715	39.295	1.255	40.550	0.553	41.103	0.0715	
542	1995	2045	49	89.000	89.000	89.000	0.0786	6.995	344.775	89.000	431.775	0.0715	94.520	3.018	97.538	1.331	98.869	0.0715	
543	1995	2045	49	572.000	572.000	562.000	0.0786	44.173	2,164.487	562.000	2,726.487	0.0715	596.854	19.060	615.914	8.402	624.317	0.0715	
544	1995	2045	49	1,032.000	1,032.000	1,010.000	0.0786	79.386	3,889.914	1,010.000	4,899.914	0.0715	1,072.639	34.253	1,106.892	15.100	1,121.993	0.0715	
545	1996	2046	50	11.000	11.000	11.000	0.0666	0.733	36.630	11.000	47.630	0.0715	9.922	0.348	10.270	0.164	10.434	0.0715	
546	1996	2021	25	39.000	39.000	39.000	0.0669	2.609	65.228	39.000	104.228	0.0723	29.786	6.810	36.596	0.583	37.179	0.0723	
547	1996	2021	25	54.000	54.000	53.000	0.0669	3.546	88.643	53.000	141.643	0.0723	40.478	9.255	49.733	0.792	50.525	0.0723	
548	1996	2036	40	283.000	283.000	278.000	0.0666	18.515	740.592	278.000	1,018.592	0.0715	242.598	17.553	260.151	4.156	264.308	0.0715	
549	1996	2016	20	713.000	713.000	697.000	0.0675	47.048	940.950	697.000	1,637.950	0.0729	487.382	170.627	658.009	10.421	668.430	0.0729	

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(i) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Lower Snake Fish & Wildlife

INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)	
			ORIGINAL PRINCIPAL	PRINCIPAL OUTSTANDING PER FCRPS AUDITED FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1/	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING	NEW INTEREST RATE	
							ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g)	TOTAL "OLD PAYMENT AMOUNT" (j + k)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/m(1+m) ⁿ)	PRESENT VALUE OF PRINCIPAL (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o)				PRO RATA PORTION OF OF \$100M (100M x f/6,688,606)
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
550	1983	2033	37	31,192.000	10,176.000	10,176.000	0.06875	699.600	25,885.200	10,176.000	36,061.200	0.0715	9,024.581	790.436	9,815.017	152.139	9,967.156	0.0715
551	1985	2035	39	48,944.000	48,944.000	48,944.000	0.06875	3,364.900	131,231.100	48,944.000	180,175.100	0.0715	43,877.552	3,311.346	47,188.898	731.752	47,920.650	0.0715
552	1987	2037	41	74,110.000	74,110.000	74,110.000	0.06875	5,095.063	208,897.563	74,110.000	283,007.563	0.0715	67,060.437	4,367.145	71,427.583	1,108.004	72,535.586	0.0715
553	1988	2038	42	823.000	823.000	823.000	0.06875	56.581	2,376.413	823.000	3,199.413	0.0715	747.826	45.261	793.087	12.305	805.391	0.0715
554	1990	2040	44	1,591.000	1,591.000	1,591.000	0.06875	109.381	4,812.775	1,591.000	6,403.775	0.0715	1,456.528	76.210	1,532.739	23.787	1,556.526	0.0715
555	1991	2041	45	4,509.000	4,509.000	4,509.000	0.06875	309.994	13,949.719	4,509.000	18,458.719	0.0715	4,141.757	201.573	4,343.330	67.413	4,410.743	0.0715
556	1993	2043	47	73,244.000	73,244.000	73,244.000	0.06875	5,035.525	236,689.675	73,244.000	309,933.675	0.0715	67,694.677	2,851.936	70,536.613	1,085.056	71,631.669	0.0715
557	1994	2044	48	4,723.000	4,723.000	4,723.000	0.06875	324.706	15,585.900	4,723.000	20,308.900	0.0715	4,376.317	171.630	4,547.947	70.613	4,618.560	0.0715
558	1995	2045	49	1,956.000	1,956.000	1,946.000	0.07860	152.956	7,494.824	1,946.000	9,440.824	0.0715	2,066.688	65.997	2,132.686	29.094	2,161.780	0.0715
559	1996	2046	50	10,129.000	10,129.000	10,035.000	0.07150	717.503	35,875.125	10,035.000	45,910.125	0.0715	9,717.379	317.621	10,035.000	150.031	10,185.031	0.0715

- 1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
- 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
- 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
- 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: McNary

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)			
				ORIGINAL PRINCIPAL	PRINCIPAL AUDITED PER FCRPS STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1,	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/			PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING	NEW INTEREST RATE	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g)	TOTAL "OLD PAYMENT AMOUNT" (DEBT SERVICE) (j + k)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/m(1+m) ⁿ) (n)	PRESENT VALUE OF PRINCIPAL (g/(1+m) ^d) (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)	(p + q)	(= m)
560	1954	2004	8	92,036.000	47,537.000	47,537.000	0.025	1,188.425	9,507.400	47,537.000	57,044.400	0.0688	7,129.560	27,916.451	35,046.011	710.716	35,756.727	0.0688
561	1955	2005	9	73,629.000	73,629.000	73,629.000	0.025	1,840.725	16,566.525	73,629.000	90,195.525	0.0691	12,038.801	40,353.753	52,392.555	1,100.812	53,493.367	0.0691
562	1956	2006	10	55,222.000	55,222.000	55,222.000	0.025	1,380.550	13,805.500	55,222.000	69,027.500	0.0695	9,718.856	28,203.580	37,922.436	825.613	38,748.049	0.0695
563	1957	2007	11	36,815.000	36,815.000	36,815.000	0.025	920.375	10,124.125	36,815.000	46,939.125	0.0698	6,908.473	17,526.544	24,435.016	550.414	24,985.430	0.0698
564	1958	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
565	1959	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
566	1960	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
567	1961	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
568	1962	2007	11	688.000	688.000	688.000	0.025	17.200	189.200	688.000	877.200	0.0698	129.106	327.537	456.642	10.286	466.929	0.0698
569	1963	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
570	1964	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
571	1965	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
572	1966	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
573	1967	2007	11	688.000	688.000	688.000	0.025	17.200	189.200	688.000	877.200	0.0698	129.106	327.537	456.642	10.286	466.929	0.0698
574	1968	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
575	1969	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
576	1970	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
577	1971	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
578	1972	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
579	1973	2007	11	688.000	688.000	688.000	0.025	17.200	189.200	688.000	877.200	0.0698	129.106	327.537	456.642	10.286	466.929	0.0698
580	1974	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
581	1975	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
582	1976	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
583	1977	2007	11	688.000	688.000	688.000	0.025	17.200	189.200	688.000	877.200	0.0698	129.106	327.537	456.642	10.286	466.929	0.0698
584	1978	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
585	1979	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
586	1980	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
587	1981	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
588	1982	2007	11	688.000	688.000	688.000	0.025	17.200	189.200	688.000	877.200	0.0698	129.106	327.537	456.642	10.286	466.929	0.0698
589	1983	2007	11	689.000	689.000	689.000	0.025	17.225	189.475	689.000	878.475	0.0698	129.293	328.013	457.306	10.301	467.607	0.0698
590	1985	2007	11	820.000	820.000	820.000	0.025	20.500	225.500	820.000	1,045.500	0.0698	153.876	390.378	544.254	12.260	556.514	0.0698
591	1986	2007	11	669.000	669.000	669.000	0.025	16.725	183.975	669.000	852.975	0.0698	125.540	318.491	444.032	10.002	454.034	0.0698
592	1987	2007	11	35.000	35.000	35.000	0.025	0.875	9.625	35.000	44.625	0.0698	6.568	16.662	23.230	0.523	23.754	0.0698
593	1995	2045	49	14.000	14.000	14.000	0.0786	1.100	53.920	14.000	67.920	0.0715	14.868	0.475	15.343	0.209	15.552	0.0715
594	1995	2010	14	473.000	473.000	469.000	0.0789	37.004	518.057	469.000	987.057	0.0709	321.879	179.758	501.637	7.012	508.649	0.0709
595	1996	2011	15	3.000	3.000	3.000	0.0661	0.198	2.975	3.000	5.975	0.0713	1.791	1.068	2.859	0.045	2.904	0.0713
596	1996	2026	30	78.000	78.000	77.000	0.0666	5.128	153.846	77.000	230.846	0.0715	62.689	9.699	72.388	1.151	73.539	0.0715
597	1996	2026	30	292.000	292.000	290.000	0.0666	19.314	579.420	290.000	869.420	0.0715	236.101	36.529	272.629	4.336	276.965	0.0715
598	1996	2046	50	667.000	667.000	653.000	0.0666	43.490	2,174.490	653.000	2,827.490	0.0715	588.997	20.668	609.665	9.763	619.428	0.0715
599	1996	2006	10	839.000	839.000	801.000	0.0633	50.703	507.033	801.000	1,308.033	0.0695	356.943	409.095	766.039	11.976	778.014	0.0695

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(i) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Minidoka

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)			
								"OLD PAYMENT AMOUNTS" 3/			PRESENT VALUE AMOUNTS 4/			ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING	NEW INTEREST RATE		
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	PRINCIPAL OUTSTANDING PER FCRPS (REMAINING)	AUDITED FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1,	ASSIGNED INTEREST RATE 2/	ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g)	TOTAL "OLD PAYMENT AMOUNT" (j + k)	DISCOUNT RATE	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/[m(1+m) ⁿ])	PRESENT VALUE OF PRINCIPAL g/(1+m) ^d	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o)	PRO RATA PORTION OF \$100M (100M x f/6,688,606)	(p+q)	(= m)	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
600	1977	2008	12	108,000	81,000	81,000	0.030	2.430	29.160	81,000	110.160	0.0702	19.280	35.884	55.165	1.211	56.376	0.0702
601	1978	2008	12	108,000	108,000	108,000	0.030	3.240	38.880	108,000	146.880	0.0702	25.707	47.846	73.553	1.615	75.167	0.0702
602	1979	2008	12	108,000	108,000	108,000	0.030	3.240	38.880	108,000	146.880	0.0702	25.707	47.846	73.553	1.615	75.167	0.0702
603	1980	2008	12	108,000	108,000	108,000	0.030	3.240	38.880	108,000	146.880	0.0702	25.707	47.846	73.553	1.615	75.167	0.0702
604	1981	2008	12	108,000	108,000	108,000	0.030	3.240	38.880	108,000	146.880	0.0702	25.707	47.846	73.553	1.615	75.167	0.0702
605	1982	2008	12	108,000	108,000	108,000	0.030	3.240	38.880	108,000	146.880	0.0702	25.707	47.846	73.553	1.615	75.167	0.0702
606	1983	2008	12	94,000	94,000	94,000	0.030	2.820	33.840	94,000	127.840	0.0702	22.375	41.644	64.018	1.405	65.424	0.0702
607	1985	2008	12	30,000	30,000	30,000	0.030	0.900	10.800	30,000	40.800	0.0702	7.141	13.291	20.431	0.449	20.880	0.0702
608	1986	2008	12	30,000	30,000	30,000	0.030	0.900	10.800	30,000	40.800	0.0702	7.141	13.291	20.431	0.449	20.880	0.0702
609	1987	2008	12	23,000	23,000	23,000	0.030	0.690	8.280	23,000	31.280	0.0702	5.475	10.189	15.664	0.344	16.008	0.0702
610	1996	2011	15	56,000	56,000	56,000	0.0661	3.702	55.524	56,000	111.524	0.0713	33.439	19.931	53.369	0.837	54.207	0.0713

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: The Dalles

As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS										As of October 1, 1996 (After Refinancing)				
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	ORIGINAL PRINCIPAL	PRINCIPAL OUTSTANDING PER FCRPS (REMAINING) FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1,	ASSIGNED INTEREST RATE 2/	"OLD PAYMENT AMOUNTS" 3/				PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)	NEW PRINCIPAL OUTSTANDING (p+q) (r)	NEW INTEREST RATE (= m) (s)	
							ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h) (i)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d) (j)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g) (k)	TOTAL "OLD PAYMENT AMOUNT" (j + k) (l)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/m(1+m) ⁿ) (n)	PRESENT VALUE OF PRINCIPAL AMOUNT" g/(1+m) ^d (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o) (p)				
611	1958	2008	12	63,634.000	51,785.000	51,785.000	0.025	1,294.625	15,535.500	51,785.000	67,320.500	0.0702	10,271.849	22,941.648	33,213.497	774.227	33,987.724	0.0702
612	1959	2009	13	63,632.000	63,632.000	63,632.000	0.025	1,590.800	20,680.400	63,632.000	84,312.400	0.0706	13,250.253	26,213.286	39,463.539	951.349	40,414.888	0.0706
613	1960	2010	14	63,634.000	63,634.000	63,634.000	0.025	1,590.850	22,271.900	63,634.000	85,905.900	0.0709	13,837.947	24,389.582	38,227.529	951.379	39,178.908	0.0709
614	1961	2011	15	15,908.000	15,908.000	15,908.000	0.025	397.700	5,965.500	15,908.000	21,873.500	0.0713	3,592.662	5,661.728	9,254.390	237.837	9,492.227	0.0713
615	1962	2011	15	94.000	94.000	94.000	0.025	2.350	35.250	94.000	129.250	0.0713	21.229	33.455	54.684	1.405	56.089	0.0713
616	1963	2011	15	95.000	95.000	95.000	0.025	2.375	35.625	95.000	130.625	0.0713	21.455	33.811	55.266	1.420	56.686	0.0713
617	1964	2011	15	95.000	95.000	95.000	0.025	2.375	35.625	95.000	130.625	0.0713	21.455	33.811	55.266	1.420	56.686	0.0713
618	1965	2011	15	94.000	94.000	94.000	0.025	2.350	35.250	94.000	129.250	0.0713	21.229	33.455	54.684	1.405	56.089	0.0713
619	1966	2011	15	95.000	95.000	95.000	0.025	2.375	35.625	95.000	130.625	0.0713	21.455	33.811	55.266	1.420	56.686	0.0713
620	1967	2011	15	95.000	95.000	95.000	0.025	2.375	35.625	95.000	130.625	0.0713	21.455	33.811	55.266	1.420	56.686	0.0713
621	1968	2011	15	94.000	94.000	94.000	0.025	2.350	35.250	94.000	129.250	0.0713	21.229	33.455	54.684	1.405	56.089	0.0713
622	1969	2011	15	95.000	95.000	95.000	0.025	2.375	35.625	95.000	130.625	0.0713	21.455	33.811	55.266	1.420	56.686	0.0713
623	1970	2011	15	95.000	95.000	95.000	0.025	2.375	35.625	95.000	130.625	0.0713	21.455	33.811	55.266	1.420	56.686	0.0713
624	1971	2011	15	94.000	94.000	94.000	0.025	2.350	35.250	94.000	129.250	0.0713	21.229	33.455	54.684	1.405	56.089	0.0713
625	1972	2011	15	95.000	95.000	95.000	0.025	2.375	35.625	95.000	130.625	0.0713	21.455	33.811	55.266	1.420	56.686	0.0713
626	1973	2023	27	40,990.000	40,990.000	40,990.000	0.03125	1,280.938	34,585.313	40,990.000	75,575.313	0.0719	15,082.580	6,288.001	21,370.581	612.833	21,983.414	0.0719
627	1973	2011	15	95.000	95.000	95.000	0.025	2.375	35.625	95.000	130.625	0.0713	21.455	33.811	55.266	1.420	56.686	0.0713
628	1974	2024	28	13,663.000	13,663.000	13,663.000	0.03125	426.969	11,955.125	13,663.000	25,618.125	0.0717	5,098.238	1,965.602	7,063.840	204.273	7,268.113	0.0717
629	1974	2011	15	94.000	94.000	94.000	0.025	2.350	35.250	94.000	129.250	0.0713	21.229	33.455	54.684	1.405	56.089	0.0713
630	1975	2011	15	95.000	95.000	95.000	0.025	2.375	35.625	95.000	130.625	0.0713	21.455	33.811	55.266	1.420	56.686	0.0713
631	1976	2011	15	95.000	95.000	95.000	0.025	2.375	35.625	95.000	130.625	0.0713	21.455	33.811	55.266	1.420	56.686	0.0713
632	1977	2011	15	94.000	94.000	94.000	0.025	2.350	35.250	94.000	129.250	0.0713	21.229	33.455	54.684	1.405	56.089	0.0713
633	1978	2011	15	95.000	95.000	95.000	0.025	2.375	35.625	95.000	130.625	0.0713	21.455	33.811	55.266	1.420	56.686	0.0713
634	1979	2011	15	95.000	95.000	95.000	0.025	2.375	35.625	95.000	130.625	0.0713	21.455	33.811	55.266	1.420	56.686	0.0713
635	1980	2011	15	94.000	94.000	94.000	0.025	2.350	35.250	94.000	129.250	0.0713	21.229	33.455	54.684	1.405	56.089	0.0713
636	1981	2011	15	95.000	95.000	95.000	0.025	2.375	35.625	95.000	130.625	0.0713	21.455	33.811	55.266	1.420	56.686	0.0713
637	1982	2011	15	95.000	95.000	95.000	0.025	2.375	35.625	95.000	130.625	0.0713	21.455	33.811	55.266	1.420	56.686	0.0713
638	1983	2011	15	94.000	94.000	94.000	0.025	2.350	35.250	94.000	129.250	0.0713	21.229	33.455	54.684	1.405	56.089	0.0713
639	1985	2011	15	160.000	160.000	160.000	0.025	4.000	60.000	160.000	220.000	0.0713	36.134	56.945	93.079	2.392	95.471	0.0713
640	1986	2011	15	159.000	159.000	159.000	0.025	3.975	59.625	159.000	218.625	0.0713	35.909	56.589	92.497	2.377	94.875	0.0713
641	1987	2011	15	2,374.000	2,374.000	2,374.000	0.025	59.350	890.250	2,374.000	3,264.250	0.0713	536.144	844.917	1,381.061	35.493	1,416.554	0.0713
642	1996	2008	12	204.000	204.000	202.000	0.0644	13.009	156.106	202.000	358.106	0.0702	103.215	89.489	192.704	3.020	195.724	0.0702
643	1996	2011	15	478.000	478.000	472.000	0.0661	31.199	467.988	472.000	939.988	0.0713	281.841	167.987	449.828	7.057	456.885	0.0713
644	1996	2046	50	2,138.000	2,138.000	2,099.000	0.0666	139.793	6,989.670	2,099.000	9,088.670	0.0715	1,893.269	66.436	1,959.705	31.382	1,991.087	0.0715

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(ii) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Yakima-Chandler

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)			
								"OLD PAYMENT AMOUNTS" 3/			PRESENT VALUE AMOUNTS 4/				ALLOCATION OF \$100M			
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996) (d) 5/	PRINCIPAL OUTSTANDING PER FCRPS AUDITED FINANCIAL STATEMENTS ORIGINAL PRINCIPAL	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1, 2/	ASSIGNED INTEREST RATE	ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h) (i)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d) (j)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g) (k)	TOTAL "OLD PAYMENT AMOUNT" (DEBT SERVICE) (j + k) (l)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/[m(1+m) ⁿ]) (n)	PRESENT VALUE OF PRINCIPAL AMOUNT" g/(1+m) ^d (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o) (p)	PRO RATA PORTION OF OF \$100M (100M x f/6,688,606) (q)	NEW PRINCIPAL OUTSTANDING (r)	NEW INTEREST RATE (= m) (s)		
																	(e)	(f)
645	1956	2022	26	1,287,000	412,000	412,000	0.025	10.300	267.800	412,000	679.800	0.0721	119.480	67.419	186.899	6.160	193.059	0.0721
646	1959	2022	26	3,000	3,000	3,000	0.025	0.075	1.950	3,000	4.950	0.0721	0.870	0.491	1.361	0.045	1.406	0.0721
647	1960	2022	26	2,000	2,000	2,000	0.025	0.050	1,300	2,000	3,300	0.0721	0.580	0.327	0.907	0.030	0.937	0.0721
648	1959	2022	26	2,000	2,000	2,000	0.025	0.050	1,300	2,000	3,300	0.0721	0.580	0.327	0.907	0.030	0.937	0.0721
649	1986	2022	26	971,000	971,000	971,000	0.025	24.275	631.150	971,000	1,602.150	0.0721	281.591	158.892	440.483	14.517	455.000	0.0721

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.
 2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments placed in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(i) of the Act.
 3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments placed in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.
 4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.
 5/ The investments at the Yakima-Chandler project have a 66 year useful life, set by legislation.

**Implementation of BPA Appropriations Refinancing Act
Change in Principal Outstanding and Interest Rates Due to Refinancing
FCRPS Appropriated Capital Investments
Generation Function
(\$ Thousands)**

Project: Yakima-Rosa

				As of September 30, 1996 (Before Refinancing)				REFINANCING CALCULATIONS							As of October 1, 1996 (After Refinancing)			
								"OLD PAYMENT AMOUNTS" 3/			PRESENT VALUE AMOUNTS 4/			ALLOCATION OF \$100M	NEW PRINCIPAL OUTSTANDING	NEW INTEREST RATE		
INVESTMENT IN-SERVICE YEAR	END OF REPAYMENT PERIOD	REMAINING REPAYMENT PERIOD (c - 1996)	PRINCIPAL OUTSTANDING PER FCRPS (REMAINING)	AUDITED FINANCIAL STATEMENTS	PRINCIPAL TO BE REFINANCED (AFTER IDC ADJUSTMENT) 1,	ASSIGNED INTEREST RATE 2/	ANNUAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (g x h)	TOTAL INTEREST PORTION OF "OLD PAYMENT AMOUNT" (l x d)	PRINCIPAL PORTION OF "OLD PAYMENT AMOUNT" (=g)	TOTAL "OLD PAYMENT AMOUNT" (DEBT SERVICE) (j + k)	DISCOUNT RATE (m)	PRESENT VALUE OF TOTAL INTEREST PAYMENTS (i [(1+m) ⁻¹]/[m(1+m) ⁿ]) (n)	PRESENT VALUE OF PRINCIPAL (g/(1+m) ^d) (o)	PRESENT VALUE OF "OLD PAYMENT AMOUNT" (n + o) (p)	PRO RATA PORTION OF \$100M (100M x f/6,688,606) (q)	(r)	(= m) (s)	
650	1958	2008	12	1,194,000	766,000	766,000	0.030	22,980	275,760	766,000	1,041,760	0.0702	182,329	339,351	521,680	11,452	533.132	0.0702
651	1985	2008	12	99,000	99,000	99,000	0.030	2,970	35,640	99,000	134,640	0.0702	23,565	43,859	67,423	1,480	68.903	0.0702
652	1986	2008	12	9,000	9,000	9,000	0.030	0,270	3,240	9,000	12,240	0.0702	2,142	3,987	6,129	0,135	6,264	0.0702
653	1987	2008	12	3,000	3,000	3,000	0.030	0,090	1,080	3,000	4,080	0.0702	0,714	1,329	2,043	0,045	2,088	0.0702

1/ This differs from the "Principal Outstanding" (column f) only for investment going into service in FYs 1995 and 1996. See Section 4, Step 2A, for explanation and calculation of IDC adjustment on investments going into service in FYs 1995 and 1996.

2/ For purposes of calculating the new principal amounts, the Act "locks in" interest rates assigned prior to September 30, 1994. For investments place in service in FYs 1995 and 1996, the interest rates are re-set using the prevailing Treasury yield curve called for in subsection (b)(3)(B)(i) of the Act.

3/ "Old payment amounts" is defined in section (b)(3) of the Act. It means, for an old capital investment, the nominal interest and principal that would have been paid to the Treasury if the Act had not been enacted, assuming the principal were repaid in full on the repayment date. For investments place in service in FYs 1995 and 1996, interest rates are set and IDC is calculated using the prevailing Treasury yield curve.

4/ Present values are calculated using the Treasury yield curve as the source of discounted rates (Section (b)(1)(A)). The net present value is determined by first calculating the present value of the stream of annual interest payments as if they were an annuity. The principal is discounted assuming it would be repaid in full in the year it is due. The present value of the annual interest payments and the present value of the principal are then summed.

**BPA Appropriations Refinancing Act
Comparison of Forecast Yield Curve
to Actual Yield Curve used in Refinancing Transaction
(Used in determining New Principal amounts and assigning
interest rates to New Principal Amounts)**

Fiscal Year	Estimated Yield Curve ^{1/}	Actual Yield Curve	Difference
1997	5.330%	5.920%	0.590%
1998	5.450%	6.330%	0.880%
1999	5.580%	6.510%	0.930%
2000	5.690%	6.620%	0.930%
2001	5.810%	6.710%	0.900%
2002	5.880%	6.790%	0.910%
2003	5.950%	6.840%	0.890%
2004	6.000%	6.880%	0.880%
2005	6.050%	6.910%	0.860%
2006	6.110%	6.950%	0.840%
2007	6.130%	6.980%	0.850%
2008	6.150%	7.020%	0.870%
2009	5.160%	7.060%	1.900%
2010	6.180%	7.090%	0.910%
2011	6.200%	7.130%	0.930%
2012	6.220%	7.160%	0.940%
2013	6.240%	7.200%	0.960%
2014	6.260%	7.230%	0.970%
2015	6.280%	7.270%	0.990%
2016	6.300%	7.290%	0.990%
2017	6.320%	7.290%	0.970%
2018	6.340%	7.280%	0.940%
2019	6.360%	7.270%	0.910%
2020	6.380%	7.250%	0.870%
2021	6.390%	7.230%	0.840%
2022	6.410%	7.210%	0.800%
2023	6.430%	7.190%	0.760%
2024	6.450%	7.170%	0.720%
2025	6.470%	7.160%	0.690%
2026	6.490%	7.150%	0.660%
2027	6.490%	7.150%	0.660%
2028	6.490%	7.150%	0.660%
2029	6.490%	7.150%	0.660%
2030	6.490%	7.150%	0.660%
2031	6.490%	7.150%	0.660%
2032	6.490%	7.150%	0.660%
2033	6.490%	7.150%	0.660%
2034	6.490%	7.150%	0.660%
2035	6.490%	7.150%	0.660%
2036	6.490%	7.150%	0.660%
2037	6.490%	7.150%	0.660%
2038	6.490%	7.150%	0.660%
2039	6.490%	7.150%	0.660%
2040	6.490%	7.150%	0.660%
2041	6.490%	7.150%	0.660%
2042	6.490%	7.150%	0.660%
2043	6.490%	7.150%	0.660%
2044	6.490%	7.150%	0.660%
2045	6.490%	7.150%	0.660%
2046	6.490%	7.150%	0.660%
2047	6.490%	7.150%	0.660%

^{1/} Yield curve (WEFA, 4th quarter, 1995) used in repayment studies for 1996 Final Rate Proposal.

CHAPTER 9
CAPITALIZED CONTRACTS AND OTHER LONG-TERM
RESOURCE ACQUISITION OBLIGATIONS

I. 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. The data documented here is the same data used in Issues '98.

II. Methodology

To determine debt service streams for Energy Northwest (formerly the Washington Public Power Supply System) Nuclear Projects WNP-1, WNP-2, and WNP-3, a bond model specifically developed for Energy Northwest debt is used, and streams are based on the amount of Energy Northwest debt outstanding. BPA's Contracting Resources staff verifies model results. The debt service streams reflect all Energy Northwest 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. The data used in the repayment study is shown in the attached tables.

For Cowlitz Falls the debt service stream input into the repayment model is \$1 million higher per year through the rate period than shown on Table 10. This is due to the inclusion of the estimated debt service stream for a projected \$12 million in additional costs to complete fish facilities.

Table 11 reflects debt service for the Northern Wasco project. After the bond issuance, BPA decided to cancel its participation in the project. The debt service will be paid from the

construction fund until it is exhausted in 2011. The debt service in the repayment study is zero from 1999 to 2011. From 2012 to 2025, the repayment study reflects the data on Table 11.

Table 4

FY 1998.Q2 FORECAST OF WNP-1 NET DEBT SERVICE REQUIREMENTS

Forecast Prepared April 2, 1998

Forecast Period FY 1998 - 2017

Payment Date (Fiscal Year)	(a)	(b)	(c)	(d)	(e)	(f)	(c-d+e-f)		
	Principal	Interest	Total 1/ Gross Debt Service	Investment Income 2/	R&C Funding Requiremen	Reserve Free-ups	BPA Net Debt Service	Constructio Free-ups	BPA Net Debt Service
							(w/o) CC Fund		(w) CC Fund
1997 3/	52,430,000	140,012,000	192,442,000	12,196,000	86,000	1,818,739	175,017,479	60,154,750	114,862,729
1998 4/	63,802,500	126,242,816	190,045,316	8,785,500	-424,250	604,140	180,887,176	1,332,750	179,554,426
1999 5/	75,767,500	125,793,205	201,560,705	8,902,311	514,496	0	194,295,390	0	194,295,390
2000	80,381,250	121,132,215	201,513,465	8,998,070	-4,724	120,635	193,500,286	0	193,500,286
2001	83,100,000	116,107,078	199,207,078	8,677,390	-230,639	667,377	190,692,923	0	190,692,923
2002	77,296,250	110,830,874	188,127,124	8,188,266	-1,107,995	2,130,678	177,703,935	0	177,703,935
2003	73,137,500	106,149,656	179,287,156	7,699,228	-883,997	3,825,359	167,856,073	0	167,856,073
2004	79,723,750	102,022,641	181,746,391	7,559,871	245,924	771,413	174,623,280	0	174,623,280
2005	78,122,500	97,438,695	175,561,195	7,317,710	-618,520	671,109	167,910,356	0	167,910,356
2006	92,520,000	93,006,652	185,526,652	7,486,095	996,546	0	179,991,603	0	179,991,603
2007	98,016,250	87,466,295	185,482,545	7,463,660	-4,411	156,106	178,810,868	0	178,810,868
2008	103,525,000	81,366,461	184,891,461	7,403,034	-59,108	1,343,590	177,036,728	0	177,036,728
2009	108,023,750	74,937,267	182,961,017	7,253,272	-193,044	2,625,814	173,839,887	0	173,839,887
2010	118,791,250	68,619,546	187,410,796	7,291,282	444,978	0	181,515,492	0	181,515,492
2011	138,115,000	62,007,456	200,122,456	7,539,575	1,271,166	2,587,260	192,217,787	0	192,217,787
2012	147,530,000	54,342,841	201,872,841	7,365,730	175,038	7,761,780	187,871,369	0	187,871,369
2013	159,870,000	46,319,620	206,189,620	7,327,916	431,678	0	200,244,382	0	200,244,382
2014	168,276,250	37,833,682	206,109,932	7,344,086	-7,969	2,394,170	197,314,707	0	197,314,707
2015	176,682,946	28,815,314	205,498,260	7,160,648	-61,167	7,679,927	191,547,518	0	191,547,518
2016	186,869,642	19,019,273	205,888,915	6,115,103	39,065	10,187,196	190,576,681	0	190,576,681
2017	152,016,161	8,288,160	160,304,321	2,676,380	785,018	26,084,825	133,041,384	0	133,041,384
2018	0	0	0	0	0	0	0	0	0
Total	2,261,567,499	1,567,739,747	3,829,307,246	148,555,129	1,308,085	69,611,379	3,631,477,823	1,332,750	3,630,145,073

1/ Gross debt service reflects 1972A variable rate refunding issued April 1, 1998.

2/ Interest rate assumptions based on WEFA CY 1997 Fourth Quarter Long Term Economic Outlook, Volume 1, Trend Growth Scenario.

3/ Reflects Supply System FY 1998 budget prepared April 24, 1997 and BPA cash management staff estimates.

4/ Principal and interest expense adjusted to reflect impact of anticipated Supply System budget amendment on BPA debt service expense. Adjustments to gross debt service reflect Supply System FY 1999 Budget prepared March 9, 1998. Columns may not add because of additional budget adjustments.

5/ Principal and interest expense reflect BPA long term WNP debt service forecast. Adjustments to gross debt service reflect Supply System FY 1999 Long Term Statement of Funding Requirements prepared March 24, 1998.

Table 5

1998.Q2 FORECAST OF WNP-2 NET DEBT SERVICE REQUIREMENT¹

Forecast Prepared April 2, 1998

Forecast Period FY 1998 - 2012

Assumes No Financing of WNP-2 Capital Additions

	(a)	(b)	(c)	(d)	(e)	(f)	(c-d+e-f)
Payment Date (Fiscal Year)	Principal	Interest	Total 1/ Gross Debt Service	Investment Income 2/	R&C Funding Requirement	Reserve Free-ups	BPA Net Debt Service
1997 3/	70,098,750	148,477,000	218,575,750	15,693,250	313,250	8,231,423	194,308,323 3/
1998 4/	92,862,500	130,556,970	223,419,470	14,796,750	-33,000	4,188,350	204,207,870
1999 5/	144,160,000	131,507,269	275,667,269	14,589,020	1,491,839	0	263,044,587
2000	151,617,500	123,778,927	275,396,427	15,479,713	-27,084	0	260,339,380
2001	158,122,500	114,990,878	273,113,378	15,000,239	-228,305	0	258,541,084
2002	111,368,750	105,607,554	216,976,304	13,302,468	-5,613,707	1,456,380	197,441,749
2003	157,321,013	102,323,012	259,644,026	13,896,342	4,266,772	5,790,656	244,980,049
2004	153,791,765	105,654,148	259,445,913	13,110,398	-19,811	13,449,051	233,624,152
2005	128,301,428	104,009,093	232,310,521	11,085,089	-2,713,539	31,463,586	187,825,058
2006	147,300,878	89,124,070	236,424,949	9,930,401	411,443	15,650,918	211,976,323
2007	175,450,356	77,888,342	253,338,698	9,601,575	1,691,375	11,762,044	234,400,704
2008	196,148,913	60,224,466	256,373,378	9,458,816	303,468	0	247,998,030
2009	200,293,896	55,131,628	255,425,524	9,400,661	-94,785	0	246,710,077
2010	201,050,282	47,481,424	248,531,706	9,237,075	-689,382	526,434	238,858,814
2011	221,416,420	34,620,470	256,036,890	7,886,097	750,518	17,683,489	231,997,823
2012	273,468,750	15,072,441	288,541,191	4,649,600	12,868,470	48,312,559	249,032,501
2013	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0
Total	2,512,674,951	1,297,970,693	3,810,645,644	171,424,244	12,364,271	150,283,466	3,510,978,204

1/ Gross debt service reflects 1972A variable rate refunding issued April 1, 1998.

2/ Interest rate assumptions based on WEFA CY 1997 Fourth Quarter Long Term Economic Outlook, Volume 1, Trend Growth Scenario.

3/ Reflects Supply System FY 1998 budget prepared April 24, 1997 and BPA cash management staff estimates.

4/ Principal and interest expense adjusted to reflect impact of anticipated Supply System budget amendment on BPA debt service expense. Adjustments to gross debt service reflect Supply System FY 1999 Budget prepared March 9, 1998. Columns may not add because of additional budget adjustments.

5/ Principal and interest expense reflect BPA long term WNP debt service forecast. Adjustments to gross debt service reflect Supply System FY 1999 Long Term Statement of Funding Requirements prepared March 24, 1998.

Table 6

1998.Q2 FORECAST OF WNP-3 NET DEBT SERVICE REQUIREMENTS

Forecast Prepared April 2, 1998

Forecast Period FY 1998 - 2018

	(a)	(b)	(c)	(d)	(e)	(f)	(c-d+e-f)
Payment Date Fiscal Year	Principal	Interest	Total 1/ Gross Debt Service	Investment Income 2/	R&C Funding Requirement	Reserve Free-ups	BPA Net Debt Service
1997 3/	36,470,000	94,891,198	131,361,198	8,104,000	-1,233,000	581,209	121,268,484
1998 4/	45,518,750	88,443,880	133,962,630	7,597,250	-195,500	454,992	126,663,888
1999 5/	72,478,750	87,342,908	159,821,658	7,539,850	1,775,518	0	155,071,576
2000	75,917,440	84,412,201	160,329,641	8,124,395	49,918	0	153,278,413
2001	75,826,660	84,771,711	160,598,371	7,851,871	25,897	25,469	153,766,927
2002	78,857,253	81,665,394	160,522,646	7,700,407	-8,549	76,406	153,719,534
2003	75,870,423	83,891,886	159,762,308	7,494,799	-77,083	154,250	152,993,176
2004	63,600,993	92,672,908	156,273,901	7,176,646	-349,952	462,750	149,232,303
2005	64,701,458	90,982,406	155,683,864	7,079,985	-60,218	0	149,479,911
2006	64,087,948	89,949,752	154,037,700	6,965,988	-165,853	0	147,836,359
2007	60,595,859	89,891,311	150,487,170	6,812,061	-356,377	0	144,247,482
2008	62,432,893	88,187,368	150,620,261	6,754,642	11,908	229,751	144,575,775
2009	64,765,128	86,020,868	150,785,996	6,623,178	15,057	3,087,835	142,018,041
2010	71,136,294	81,678,052	152,814,347	6,386,563	201,268	7,195,744	140,361,308
2011	88,202,340	72,627,138	160,829,478	6,441,081	799,841	0	156,116,238
2012	97,637,571	70,703,699	168,341,270	6,601,747	749,408	0	163,416,931
2013	96,297,502	72,327,922	168,625,424	6,526,511	26,515	1,660,700	161,392,728
2014	106,124,869	62,694,656	168,819,525	6,456,428	17,424	4,982,100	158,326,421
2015	130,318,706	38,720,831	169,039,536	6,592,053	19,887	0	163,395,370
2016	129,082,118	33,567,473	162,649,591	6,505,395	-641,235	0	156,430,961
2017	130,225,305	26,253,186	156,478,491	5,549,426	-619,497	13,607,194	137,630,373
2018	131,337,081	16,433,106	147,770,187	2,842,411	4,052,984	40,821,583	108,855,177
Total	1,785,015,340	1,523,238,655	3,308,253,995	141,622,688	5,271,361	72,758,774	3,118,808,893

1/ Gross debt service reflects 1972A variable rate refunding issued April 1, 1998.

2/ Interest rate assumptions based on WEFA CY 1997 Fourth Quarter Long Term Economic Outlook, Volume 1, Trend Growth Scenario.

3/ Reflects Supply System FY 1998 budget prepared April 24, 1997 and BPA cash management staff estimates.

4/ Principal and interest expense adjusted to reflect impact of anticipated Supply System budget amendment on BPA debt service expense. Adjustments to gross debt service reflect Supply System FY 1999 Budget prepared March 9, 1998. Columns may not add because of additional budget adjustments.

5/ Principal and interest expense reflect BPA long term WNP debt service forecast. Adjustments to gross debt service reflect Supply System FY 1999 Long Term Statement of Funding Requirements prepared March 24, 1998.

Table 7
EWEB's SHARE OF TROJAN PROJECTED NET DEBT SERVICE STREAM
BPA FY 1999 - 2009

Payment Date	Principal	Interest	Total Gross Debt Service	Investment Income 1/	Reserve Account Freeups	Total Net Debt Service
1999	5,542,500	5,014,631	10,557,131	628,950	0	9,928,181
2000	5,871,250	4,689,615	10,560,865	638,663	0	9,922,203
2001	6,213,750	4,343,211	10,556,961	620,813	0	9,936,149
2002	6,581,250	3,976,600	10,557,850	610,313	0	9,947,538
2003	6,967,500	3,588,306	10,555,806	601,913	0	9,953,894
2004	7,380,000	3,177,224	10,557,224	593,250	0	9,963,974
2005	7,818,750	2,741,804	10,560,554	571,463	0	9,989,092
2006	8,278,750	2,280,498	10,559,248	549,938	0	10,009,311
2007	8,766,250	1,792,051	10,558,301	544,950	0	10,013,351
2008	9,283,750	1,274,843	10,558,593	549,675	0	10,008,918
2009	9,831,250	727,101	10,558,351	557,550	10,500,000	-499,199
2010	0	0	0	0	0	0
Total	82,535,000	33,605,884	116,140,884	6,467,475	10,500,000	99,173,409

1/ Reflects earnings on Debt Service Reserve Funds. Interest rate assumptions based on WEFA 1995 Third Quarter Long Term Economic Outlook, Volume 1, Trend Growth Scenario.

Table 8
EWEB CONSERVATION PROJECTED NET DEBT SERVICE STREAM
BPA FY 1999 - 2000

Payment Date (Fiscal Year)	Principal	Interest	Total Gross Debt Service	Investment Income	Reserve Account Freeups	Total Net Debt Service
1999	1,690,000	231,240	1,921,240	0	0	1,921,240
2000	1,800,000	119,700	1,919,700	0	0	1,919,700
Total	3,490,000	350,940	3,840,940	0	0	3,840,940

Table 9
IDAHO FALLS PROJECTED NET DEBT SERVICE STREAM
BPA FY 1999 - 2014

Payment Date (Fiscal Year)	Principal	Interest 1/	Total 1/ Gross Debt Service	Investment Income 2/	Reserve Account Freeups	Total Net Debt Service
1999	1,080,000	3,017,069	4,097,069	242,146	0	3,854,923
2000	1,185,000	2,910,021	4,095,021	245,885	0	3,849,136
2001	1,300,000	2,738,908	4,038,908	239,013	0	3,799,895
2002	1,420,000	2,554,835	3,974,835	234,971	0	3,739,864
2003	1,560,000	2,408,965	3,968,965	231,737	0	3,737,228
2004	1,725,000	2,247,900	3,972,900	228,402	0	3,744,498
2005	1,905,000	2,069,280	3,974,280	220,013	0	3,754,267
2006	2,095,000	1,875,797	3,970,797	211,726	0	3,759,071
2007	2,310,000	1,666,416	3,976,416	209,806	0	3,766,610
2008	2,525,000	1,437,120	3,962,120	211,625	0	3,750,495
2009	2,775,000	1,185,413	3,960,413	214,657	0	3,745,756
2010	2,795,000	933,766	3,728,766	217,588	0	3,511,178
2011	3,055,000	670,597	3,725,597	218,295	0	3,507,302
2012	3,335,000	383,236	3,718,236	217,386	0	3,500,850
2013	3,650,000	68,894	3,718,894	214,354	4,042,507	-537,967
2014	0	0	0	0	0	0
Total	32,715,000	26,168,217	58,883,217	3,357,605	4,042,507	51,483,105

- 1/ Reflects July 23, 1991, Memorandum of Understanding between Bonneville and the City of Idaho Falls to reduce BPA's debt service obligation.
- 2/ Reflects projected earnings from the Debt Service Reserve Fund, and Repair and Replacement Reserve Fund investments. Interest rates based on WEFA 1995 Third Quarter Long Term Economic Outlook, Volume 1, Trend Growth Scenario.

Table 10
COWLITZ FALLS PROJECTED NET DEBT SERVICE STREAM 1/
BPA FY 1999 - 2024

Payment Date (Fiscal Year)	Principal	Interest	Total 1/ Gross Debt Service	Investment Income	Reserve Account Freeups	Total Net Debt Service
1999	3,260,000	9,794,064	13,054,064	875,326	0	12,178,738
2000	3,445,000	9,606,774	13,051,774	875,326	0	12,176,448
2001	3,650,000	9,405,031	13,055,031	875,326	0	12,179,705
2002	3,865,000	9,187,693	13,052,693	875,326	0	12,177,367
2003	4,050,000	9,004,105	13,054,105	875,326	0	12,178,779
2004	4,245,000	8,806,668	13,051,668	875,326	0	12,176,342
2005	4,460,000	8,594,418	13,054,418	875,326	0	12,179,092
2006	4,690,000	8,365,843	13,055,843	875,326	0	12,180,517
2007	4,930,000	8,121,963	13,051,963	875,326	0	12,176,637
2008	5,190,000	7,863,138	13,053,138	875,326	0	12,177,812
2009	5,465,000	7,584,175	13,049,175	875,326	0	12,173,849
2010	5,765,000	7,283,600	13,048,600	875,326	0	12,173,274
2011	6,085,000	6,966,525	13,051,525	875,326	0	12,176,199
2012	6,425,000	6,631,850	13,056,850	875,326	0	12,181,524
2013	6,775,000	6,278,475	13,053,475	875,326	0	12,178,149
2014	7,150,000	5,905,850	13,055,850	875,326	0	12,180,524
2015	7,540,000	5,512,600	13,052,600	875,326	0	12,177,274
2016	7,950,000	5,097,900	13,047,900	875,326	0	12,172,574
2017	8,395,000	4,660,650	13,055,650	875,326	0	12,180,324
2018	8,855,000	4,198,925	13,053,925	875,326	0	12,178,599
2019	9,340,000	3,711,900	13,051,900	875,326	0	12,176,574
2020	9,855,000	3,198,200	13,053,200	875,326	0	12,177,874
2021	10,395,000	2,656,175	13,051,175	875,326	0	12,175,849
2022	10,970,000	2,084,450	13,054,450	875,326	0	12,179,124
2023	11,985,000	1,481,100	13,466,100	875,326	0	12,590,774
2024	12,700,000	762,000	13,462,000	875,326	13,466,550	-879,876
2025	0	0	0	0	0	0
Total	177,435,000	162,764,072	340,199,072	22,758,476	13,466,550	303,974,046

1/ Reflects 1993 refunding of 1991 Cowlitz Falls Hydroelectric Project Revenue Bonds.

Table 11
Northern Wasco Projected Net Debt Service Stream
BPA FY 1999 - 2025

Payment Date (Fiscal Year)	Principal	Interest	Total Gross Debt Service	Investment Income	Reserve Account Freeups	Total 1/ Net Debt Service
1999	628,750	1,596,965	2,225,715	0	0	2,225,715
2000	653,750	1,571,815	2,225,565	0	0	2,225,565
2001	682,500	1,544,428	2,226,928	0	0	2,226,928
2002	708,750	1,515,421	2,224,171	0	0	2,224,171
2003	741,250	1,483,959	2,225,209	0	0	2,225,209
2004	776,250	1,450,603	2,226,853	0	0	2,226,853
2005	811,250	1,414,494	2,225,744	0	0	2,225,744
2006	850,000	1,376,058	2,226,058	0	0	2,226,058
2007	890,000	1,335,683	2,225,683	0	0	2,225,683
2008	933,750	1,291,720	2,225,470	0	0	2,225,470
2009	982,500	1,244,324	2,226,824	0	0	2,226,824
2010	1,032,500	1,194,216	2,226,716	0	0	2,226,716
2011	1,082,500	1,141,559	2,224,059	0	0	2,224,059
2012	1,136,250	1,086,351	2,222,601	0	0	2,222,601
2013	1,195,000	1,028,403	2,223,403	0	0	2,223,403
2014	1,258,750	966,550	2,225,300	0	0	2,225,300
2015	1,323,750	901,095	2,224,845	0	0	2,224,845
2016	1,392,500	832,260	2,224,760	0	0	2,224,760
2017	1,466,250	759,850	2,226,100	0	0	2,226,100
2018	1,541,250	683,605	2,224,855	0	0	2,224,855
2019	1,620,000	603,460	2,223,460	0	0	2,223,460
2020	1,703,750	519,220	2,222,970	0	0	2,222,970
2021	1,792,500	430,625	2,223,125	0	0	2,223,125
2022	1,886,250	337,415	2,223,665	0	0	2,223,665
2023	1,985,000	239,330	2,224,330	0	0	2,224,330
2024	528,750	27,495	556,245	0	0	556,245
2025	0	0	0	0	0	0
Total	29,603,750	26,576,901	56,180,651	0	0	56,180,651

1/ Construction funds will be used to satisfy debt service obligation through BPA fiscal year 2011.

Table 12
EMERALD PROJECTED NET DET SERVICE STREAM
BPA FY 1999 - 2010

Pay Date	Principal	Interest	Gross Debt Service	Investment Income	Reserve Account Freeups	Total Net Debt Service
1999	125,528	127,812	253,340	0	0	253,340
2000	134,084	119,256	253,340	0	0	253,340
2001	143,275	110,064	253,340	0	0	253,340
2002	153,072	100,267	253,340	0	0	253,340
2003	163,541	89,799	253,340	0	0	253,340
2004	174,728	78,611	253,340	0	0	253,340
2005	186,683	66,656	253,340	0	0	253,340
2006	199,459	53,880	253,340	0	0	253,340
2007	213,112	40,228	253,340	0	0	253,340
2008	227,702	25,637	253,340	0	0	253,340
2009	234,748	10,044	244,793	0	0	244,793
2010	24,913	217	25,129	0	0	25,129
Total	1,980,846	822,471	2,803,317	0	0	2,803,317

Table 13
CONSERVATION AND RENEWABLE ENERGY SYSTEM PROJECTED
NET DEBT SERVICE STREAM
BPA FY 1999 - 2014

Payment Date (Fiscal Year)	Principal	Interest	Total Gross Debt Service	Investment Income	Reserve Account Freeups	Total Net Debt Service
1999	1,255,000	2,098,660	3,353,660	0	0	3,353,660
2000	1,320,000	2,035,282	3,355,282	0	0	3,355,282
2001	1,390,000	1,965,982	3,355,982	0	0	3,355,982
2002	1,465,000	1,891,617	3,356,617	0	0	3,356,617
2003	1,545,000	1,811,775	3,356,775	0	0	3,356,775
2004	1,630,000	1,726,027	3,356,027	0	0	3,356,027
2005	1,720,000	1,633,932	3,353,932	0	0	3,353,932
2006	1,820,000	1,535,032	3,355,032	0	0	3,355,032
2007	1,925,000	1,428,562	3,353,562	0	0	3,353,562
2008	2,040,000	1,313,062	3,353,062	0	0	3,353,062
2009	2,165,000	1,190,662	3,355,662	0	0	3,355,662
2010	2,300,000	1,056,432	3,356,432	0	0	3,356,432
2011	2,445,000	911,532	3,356,532	0	0	3,356,532
2012	2,600,000	756,275	3,356,275	0	0	3,356,275
2013	2,775,000	577,525	3,352,525	0	0	3,352,525
2014	2,960,000	397,150	3,357,150	0	0	3,357,150
2015	3,150,000	204,750	3,354,750	0	0	3,354,750
Total	34,505,000	22,534,257	57,039,257	0	0	57,039,257

Table 14
TACOMA PROJECTED NET DEBT SERVICE STREAM
BPA FY 1999-2015

Payment Date (Fiscal Year)	Principal	Interest	Total Gross Debt Service	Investment Income	Reserve Account Freeups	Total Net Debt Service
1999	695,000	1,267,179	1,962,179	0	0	1,962,179
2000	735,000	1,227,782	1,962,782	0	0	1,962,782
2001	775,000	1,185,295	1,960,295	0	0	1,960,295
2002	822,500	1,139,547	1,962,047	0	0	1,962,047
2003	872,500	1,090,159	1,962,659	0	0	1,962,659
2004	926,250	1,036,847	1,963,097	0	0	1,963,097
2005	981,250	979,359	1,960,609	0	0	1,960,609
2006	1,043,750	917,317	1,961,067	0	0	1,961,067
2007	1,112,500	850,174	1,962,674	0	0	1,962,674
2008	1,182,500	777,564	1,960,064	0	0	1,960,064
2009	1,260,000	699,065	1,959,065	0	0	1,959,065
2010	1,347,500	614,471	1,961,971	0	0	1,961,971
2011	1,437,500	523,959	1,961,459	0	0	1,961,459
2012	1,531,250	427,475	1,958,725	0	0	1,958,725
2013	1,637,500	323,866	1,961,366	0	0	1,961,366
2014	1,747,500	212,355	1,959,855	0	0	1,959,855
2015	1,868,750	93,019	1,961,769	0	0	1,961,769
Total	19,976,250	13,365,431	33,341,681	0	0	33,341,681

CHAPTER 10

IRRIGATION ASSISTANCE

I. 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.

Background

In an effort to encourage settlement of the arid and semiarid lands of the Western United States, the 1902 Reclamation Act created the Reclamation 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 Reclamation 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 Reclamation'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. Reclamation 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 Reclamation formalize this repayment responsibility in irrigation contracts.

II. 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.

The limitations are:

- 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.

Reclamation 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 1998. 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 \$25,143 thousand in 1997. A payment of \$16,650 thousand is due in 2001. Payments totaling \$739 thousand are due during the 2002-2006 rate period.

Columbia Basin

In the 1996 Final Rate Proposal, the FCRPS repayment study data provided by Reclamation was changed to reflect an adjustment to the irrigation assistance scheduled for payment for the Columbia Basin project, as follows.

The original Reclamation plan for the Columbia Basin irrigation project included development of 1,095,000 acres. To date, Reclamation has developed approximately half of the projected project acreage. There was some doubt whether the second half of the project would be developed. Therefore, in 1988 BPA's independent audit firm recommended an adjustment to BPA's financial statements. This adjustment reflected the fact that some of the equipment and plant installed and in use for the first half of the project were projected to be also used by new irrigators in the second half of the project. Therefore, a portion of those costs was assigned to

the future irrigators of the second half of the project. If the second half was not developed, those costs would likely be reassigned to the first half, and would be deemed beyond the irrigators' ability to pay. In addition, they would also be included in BPA's irrigation assistance amounts for the first half. Therefore, the auditors recommended that the financial statements reflect an increase of approximately \$67 million to the irrigation assistance on the first half of the project. This \$67 million represents the auditors' estimate of the portion of the cost of the installed plant and equipment that is allocated to the currently undeveloped second half of the project.

BPA pro-rated the \$67 million over the existing Columbia Basin project. This adjustment was made to the repayment study data in the 1996 Final Rate Proposal, since Reclamation was still considering development of the second half of the Columbia Basin project. However, updated irrigation assistance data provided by Reclamation in August 1998, included only the currently developed acreage ("first half"), as reflected by the repayment study.

Boise Project

The irrigation assistance data provided by Reclamation for the Boise project reflects unsold space, in the Cascade and Deadwood reservoirs, as a source of future revenues. Previously, Reclamation proposed to sell 380,000 acre-feet of conservation pool space in these reservoirs to the State of Idaho. The Memorandum of Agreement (MOA) between Reclamation and the State of Idaho was never signed due to the State's objection to language in the MOA that pertained to endangered species issues. Reclamation no longer considers the storage space to be available for sale, and instead, is using the space to store water to address salmon issues. Although the current data does not reflect this change, the Reclamation anticipates some future adjustment in the irrigation assistance data. BPA is including the unadjusted data, provided by Reclamation, in the revenue requirement study since BPA has no basis to project revised costs.



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-3324
WTR-4.00

AUG 28 1998

Mr. Tom Thompson
Manager of Financial Operations, CR-2
Department of Energy
Bonneville Power Administration
PO Box 3621
Portland OR 97208-3621

Subject: Federal Columbia River Power System, Assistance To Authorized Reclamation
Irrigation Projects in the Pacific Northwest, Fiscal Year 1997

Dear Mr. Thompson:

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. 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 the latest Reclamation cost data for fiscal year 1997.

The data furnished for fiscal year 1997 contains several noteworthy details. As shown, data for the Boise Project reflects that irrigation assistance was due and paid by the Bonneville Power Administration (BPA) in 1997. Public Law 105-9, April 14, 1997, titled the Oroville-Tonasket Claim Settlement And Conveyance Act, transferred title of the irrigation works of the Oroville-Tonasket Project to the Oroville-Tonasket Irrigation District. Section 5 (c) of the Act provided that the transfer of title shall not affect the timing and amount of the irrigation assistance obligation of BPA as determined by the Secretary of the Interior. And finally, data for the Columbia Basin Project reflects the current developed platted acreage (558,106 acres). Although the project is authorized to serve over a million acres, Reclamation is currently not requesting Congressional appropriations for construction of the "second half" of the project. Should conditions change, the "second half" of the project could be added to the list.

Also, as you are aware, Reclamation is currently engaged in a reallocation study of the costs of the Columbia Basin Project. The reallocation, an interim allocation, will reflect the current developed acreage, inclusion of the Third Powerplant, Pump/Generators, and will also reflect changes in operational aspects of the project. The reallocation will be completed in fiscal year 1999.

Four authorized projects are excluded from the list. These projects are: The Salmon Falls Division of the Upper Snake River Project; the Rogue River Basin Project, Merlin Division; the Walla Walla Project, Touchet Division; and the Yakima Project, Kennewick Division Extension. If these projects become active in the future, they will be rescheduled and added to the list.

If you have any questions about this data, please call Al Reiners at (208) 378-5344.

Sincerely,



for Steven R. Clark
Acting Regional Director

Enclosures

cc: Bonneville Power Administration
3550 Americana Terrace Ste 360
Boise ID 83702

TABLE 1. --SUMMARY OF FINANCIAL ASSISTANCE TO IRRIGATION - FY 1997
 FEDERAL COLUMBIA RIVER POWER SYSTEM (FCRPS)
 Authorized Projects, Thru Sept. 30, 1997

PROJECT	FISCAL YEAR DUE	Assistance Required		
		AMOUNT (\$1,000)	CUMULATIVE (\$1,000)	
BOISE	1997	24,999	24,999	paid
PALISADES	2001	16,560	41,559	
AVONDALE	2004	184	41,743	
DALTON GARDENS	2004	208	41,951	
RATHDRUM PRAIRIE, HAYDEN LAKE	2004	347	42,298	
MANN CREEK	2008	2,950	45,248	
COLUMBIA BASIN	2009	5,702	50,950	
SPOKANE VALLEY	2009	2,007	52,957	
COLUMBIA BASIN	2012	811	53,768	
COLUMBIA BASIN	2013	49,796	103,564	
COLUMBIA BASIN	2014	48,554	152,118	
COLUMBIA BASIN	2015	54,101	206,219	
COLUMBIA BASIN	2016	64,264	270,483	
COLUMBIA BASIN	2017	60,457	330,940	
CHIEF JOSEPH DAM, GREATER WENATCHEE	2017	1,071	332,011	
YAKIMA, ROZA	2017	718	332,729	
COLUMBIA BASIN	2018	24,267	356,996	
CHIEF JOSEPH DAM, FOSTER CREEK	2018	680	357,676	
YAKIMA, ROZA	2018	513	358,189	
COLUMBIA BASIN	2019	61,343	419,532	
CHIEF JOSEPH DAM, FOSTER CREEK	2019	1,125	420,657	
MICHAUD FLATS	2019	2,079	422,736	
MICHAUD-FORT HALL	2019	2,079	424,815	
YAKIMA, ROZA	2019	375	425,190	
COLUMBIA BASIN	2020	34,108	459,298	
CROOKED RIVER	2020	2,635	461,933	
COLUMBIA BASIN	2021	15,436	477,369	
YAKIMA, ROZA	2021	1,390	478,759	
COLUMBIA BASIN	2022	15,416	494,175	
YAKIMA, ROZA	2022	415	494,590	
COLUMBIA BASIN	2023	9,663	504,253	
COLUMBIA BASIN	2024	14,088	518,341	
CHIEF JOSEPH DAM, GREATER WENATCHEE	2024	1,943	520,284	
YAKIMA, KENNEWICK	2024	5,041	525,325	
COLUMBIA BASIN	2025	17,104	542,429	
CROOKED RIVER EXT	2025	1,184	543,613	
CHIEF JOSEPH DAM, WHITESTONE COULEE UNIT	2026	3,810	547,423	
COLUMBIA BASIN	2026	11,994	559,417	
CHIEF JOSEPH DAM, GREATER WENATCHEE	2026	953	560,370	
YAKIMA, ROZA	2026	2,119	562,489	
COLUMBIA BASIN	2027	8,171	570,660	
LOWER TETON	2027	17,793	588,453	
COLUMBIA BASIN	2028	14,159	602,612	
THE DALLES	2028	4,204	606,816	
BAKER	2029	4,092	610,908	
LOWER TETON	2029	9,705	620,613	
RATHDRUM PRAIRIE, EAST GREENACRES	2030	2,432	623,045	
COLUMBIA BASIN	2031	15,606	638,651	
COLUMBIA BASIN	2035	12,038	650,689	
CHIEF JOSEPH DAM, WHITESTONE COULEE UNIT	2036	3,660	654,349	
CHIEF JOSEPH DAM, MANSON UNIT	2036	16,163	670,512	
TUALATIN	2036	9,986	680,498	
RATHDRUM PRAIRIE, EAST GREENACRES	2037	4,720	685,218	
COLUMBIA BASIN	2037	22,069	707,287	
TUALATIN	2039	15,619	722,906	
LOWER TETON	2041	5,931	728,837	
CHIEF JOSEPH DAM, OROVILLE TONASKET	2042	73,699	802,536	
LOWER TETON	2042	6,470	809,006	
LOWER TETON	2043	7,009	816,015	
LOWER TETON	2044	7,009	823,024	
COLUMBIA BASIN	2045	26,329	849,353	

Table 2 -- Irrigation Assistance -- Fiscal Year 1997
(All Projects Except Columbia Basin Project)

Project	Irrigated Acres	Initial Testing Year Calendar Year	Development Period Calendar Year	Water Users Repayment Period Calendar Year	Total Irrigation Allocation (\$1,000)	Irrigation Assistance Required From FCRPS (\$1,000)	Year Assistance Is Due Fiscal Year
In Service as of Sept. 30, 1997							
Boise Project	390,126	--	--	--	69,455	24,999	Pd in 1997
Palisades	528,397	--	--	1961-2000	26,287	16,560	2001
Avondale	922	--	--	1964-2003	573	184	2004
Dalton Gardens	944	--	--	1964-2003	564	208	2004
Rathdrum Prairie, Hayden Lake	5,010	--	None	1964-2003	1,730	347	2004
Mann Creek Project	5,110	1967	None	1968-2007	3,763	2,950	2008
Spokane Valley Project	7,241	1966-68	None	1969-2008	5,132	2,007	2009
Yakima Project, Roza Division							
Block 1	9,292	--	--	1942-2016	--	718	2017
Block 2	6,628	--	--	1943-2017	--	513	2018
Block 3	4,858	--	--	1944-2018	--	375	2019
Block 4	17,976	--	--	1946-2020	--	1,390	2021
Blocks 5 & 6	5,362	--	--	1947-2021	--	415	2022
Block 7	27,395	--	--	1951-2025	--	2,119	2026
Total	71,511				24,519	5,530	
Chief Joseph Dam Project							
Greater Wenatchee Division							
Block 1 East Unit	--	1963	1964-66	1967-2016	--	1,071	2017
Blocks 2&3 East & Howard Flat	--	1963	1964-73	1974-2023	--	1,943	2024
Block 4 Brays Landing	--	1965	1966-75	1976-2025	--	953	2026
Total	7,104				8,664	3,967	
Chief Joseph Dam Project							
Foster Creek Division							
Bridgeport Bar Dist.	--	1957	1958-67	1968-2017	780	680	2018
Brewster Flat Dist.	--	1958	1959-68	1969-2018	2,591	1,125	2019
Total	2,854				3,371	1,805	
Michaud Flats Project	11,000	1958	1959-68	1969-2018	5,009	2,079	2019
Michaud-Fort Hall	--	--	--	--	--	2,079	2019
Crooked River Project	20,410	--	1963-69	1970-2019	5,524	2,635	2020
Yakima Project, Kennewick Div.	19,171	1957	1958-67	1958-2023	11,798	5,041	2024
Crooked River Project							
Crooked River Extension	2,890	1967	1968-74	1975-2024	1,684	1,184	2025

Table 2 (continued)

Project	Irrigated Acres	Initial Testing Year Calendar Year	Development Period Calendar Year	Water Users Repayment Period Calendar Year	Total Irrigation Allocation (\$1,000)	Irrigation Assistance Required From FCRPS (\$1,000)	Year Assistance Is Due Fiscal Year
The Dalles Project Western Division	5,420	1965	1968-77	1978-2007	6,824	4,204	2028
Baker Project, Upper Division	18,000	1968	1969-78	1979-2028	5,451	4,092	2029
Chief Joseph Dam Project Chelan Division, Manson Unit	6,055	1975	1976-85	1986-2035	18,823	16,163	2036
Rathdrum Prairie Project East Greenacres Unit							
Block 2	1,780	1976	1977-79	1980-2029	--	2,432	2030
Block 2	3,530	1976	1977-86	1987-2036	--	4,720	2037
Total	5,310				8,211	7,152	
Chief Joseph Dam Project Whitestone Coulee Unit							
Block 1	1,270	1975	None	1976-2025	4,274	3,810	2026
Block 2	1,220	1975	1976-85	1986-2035	4,106	3,660	2036
Total	2,490				8,380	7,470	
Tualatin Project							
Block 1	6,670	1975	1976-85	1986-2035	--	9,986	2036
Block 2	10,330	1978	1979-88	1989-2038	--	15,619	2039
Total	17,000				31,479	25,605	
Chief Joseph Dam Project 1/ Oroville-Tonasket Unit Ext.	10,000	1987	--	1992-2041	86,054	1/ 73,699	2041
Teton Basin Project Lower Teton Division 2/							
Block 1	--	1976	None	1977-2026	--	2/ 17,793	
Block 2	--	1978	None	1979-2028	--	9,705	2027
Block 3	--	1980	1981-90	1991-2040	--	5,931	2029
Block 4	--	1981	1982-91	1992-2041	--	6,470	2041
Block 5	--	1982	1983-92	1993-2042	--	7,009	2042
Block 6	--	1983	1984-93	1994-2043	--	7,009	2043
Total	148,210				74,720	53,917	2044

1/ Public Law 105-9, April 14, 1997, transferred title of the project irrigation works to the Oroville Tonasket Irrigation District. Per Section 5(c), the amount or timing of the irrigation assistance obligation by BPA is not changed.

2/ Due to the failure of Teton Dam, all construction work on the project has been terminated. Data reflect the project as scoped prior to failure. The final determination of project cost repayment has not been made.

CHAPTER 11

REPLACEMENTS PROJECTED AFTER THE COST EVALUATION PERIOD

I. Introduction

This chapter documents the process used to project the amount of additional capital investment necessary to maintain an existing project at its current operating level after the Cost Evaluation Period. Replacement forecasts are included in repayment studies per RA6120.2.

II. 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, FYs 2002 through 2006, is based on the amount of investment in the generating projects for the COE and Reclamation through the end of the cost evaluation period.

The data received from the COE and Reclamation are expressed in constant year dollars. The COE estimates its replacement costs for each piece of equipment by project, and by expected service life (*see* Cost of Engineers Estimated Long-Term Replacements by Average 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 Reclamation estimates its replacements' costs by project and by expected service life to create a single figure for each service life category (*see* Reclamation tables entitled INDEXED ANNUAL REPLACEMENT COSTS BY SERVICE LIFE GROUPS). The Reclamation'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 Reclamation'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. Reclamation 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 Reclamation are to begin. The table entitled **WEIGHTED AVERAGE, CALCULATION OF IN-SERVICE DATE FOR COE/Reclamation PROJECTS** shows a method that estimates when a replacement will start. 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.

COE - CENPD - Long Term Replacements By Average Service Life
 FY '97 Budget Call
 1 October 1996 Price Levels
 (\$ Thousands)

PROJECT	5	7	8	10	12	15	20	25	30	35	40	45	50
Albeni Falls Dam	\$0	\$0	\$0	\$1	\$115	\$51	\$815	\$2,220	\$0	\$7,483	\$5,607	\$0	\$2,083
Bonneville Lock & Dam	56400	24000	3500	88	127	2249	542	2283		84155	56582	974	18805
Bonneville Peaking Mod	0	0	0	0	0	0	0	12	0	13	0	50,600	260
Bonneville 2d Power House	0	0	0	0	0	969	0	3,718	0	61,262	54,755	838	11,868
Chief Joseph Dam	0	0	0	38	0	1,245	1,903	3,658	0	50,103	24,128	0	10,185
Chief Joseph Additional Units	0	0	0	0	0	178	618	288	0	60,808	38,856	0	10,743
Cougar Lake	0	0	2	3	0	0	38	62	117	0	2,249	1,325	0
Detroit Big City Regulating	0	0	0	0	0	20,500	40,000	181	0	2,182	1,309	0	493
Detroit Lake	0	2	4	28	21	15	259	93	541	0	11,245	4,274	0
Dworshak Dam & Res.	0	15	33	160	47	2,562	2,978	6,430	0	10,811	8,719	0	1,523
Green Peter Foster Lake	0	0	0	0	0	0	692	60	140	0	1,468	1,488	0
Green Peter Lake	0	0	16	12	19	0	847	117	388	0	3,349	1,731	0
Hills Creek Lake	0	0	0	0	0	0	0	1	301	0	1,538	487	0
Ice Harbor Lock & Dam	11,800	22,500	6,100	11,800	4,200	728	1,266	1,381	315	14,874	10,102	147	3,430
Ice Harbor Add. Gen. Units	0	0	0	0	0	0	170	37	0	6,632	3,779	24	1,085
John Day Lock & Dam	0	24	4	0	38	138	1,738	568	3,097	471	40,342	25,149	0
Libby Dam	0	60	0	60	0	1,654	581	2,293	0	9,143	13,658	0	2,913
Libby Add. Units	0	0	0	0	0	181	0	244	0	8,815	8,889	0	5,300
Little Goose Lock & Dam	0	20	36	10	2,000	25,700	26,300	832	211	10,968	9,198	0	3,109
Little Goose Add. Units	0	0	0	907	0	0	169	33	0	8,551	7,668	110	1,488
Lookout Dexter Regulating	0	0	0	0	0	0	66	30	0	0	1,868	2,023	0
Lookout Point Lake	0	0	13	5	95	34	379	385	469	0	9,317	4,668	0
Lost Creek Lake	0	0	1	0	4	0	33	65	143	15	1,352	1,055	0
Lower Granite Lock & Dam	0	21	28	777	18	15,200	31,200	181	583	7,381	6,156	0	1,380
Lower Granite Add. Units	0	0	0	0	0	273	273	102	0	8,693	6,751	0	1,441
Lower Monumental Lock & Dam	0	20	39	10	2,000	25,700	26,300	744	215	8,980	9,200	0	3,591
Lower Monumental Add. Units	0	0	0	0	0	0	270	35	0	8,280	5,997	98	1,458
McNary Lock and Dam	0	25	62	51,000	25,000	18,500	1,078	797	0	55,110	28,277	0	17,553
The Dalles Lock & Dam	0	38	41	62	1	8	1,107	1,089	2,236	0	61,250	38,872	0
The Dalles Add. Units	0	0	0	0	1,510	1,708	197	0	16,883	13,653	0	5,072	0
Totals	\$68,300	\$48,725	\$9,868	\$64,968	\$35,178	\$117,531	\$139,002	\$26,728	\$25,619	\$407,688	\$423,958	\$138,933	\$96,825

LONG RANGE REPLACEMENTS
 FY 2002 THROUGH 2057
 (\$ THOUSANDS)
 AVERAGE SERVICE LIFE
 FY 1996 DOLLARS

Project	10	15	20	25	30	35	40	45	50
Boise	--	11	123	1,886	57	849	700	667	6,881
Columbia Basin	--	738	4,094	39,434	1,828	34,612	38,092	40,430	123,136
Columbia Third Powerplant	--	998	4,796	43,274	2,052	47,919	167,304	52,187	101,648
Hungry Horse	--	410	616	9,375	414	2,920	5,357	5,884	40,342
Minidoka	--	75	243	1,716	61	2,692	5,525	5,354	4,148
Palisades	14	111	82	2,051	77	647	1,433	3,507	6,223
Yakima-Kennewick	52	22	77	823	53	418	413	675	2,884
Yakima-Roza	--	2	7	93	4	48	109	184	322
Total	66	2,367	10,038	98,652	4,546	90,105	218,933	108,888	285,584

**WEIGHTED AVERAGE
CALCULATION OF IN-SERVICE DATE
FOR COPRS/BUREAU PROJECTS**

(1) PROJECT	(2) IN-SERVICE FY	(3) UNITS	(4) TOTAL (2) X(3)	(5) WTD AVG (4)/(3)	
Albeni Falls	1955	3	5865	1955	
Boise	1912	3	5736		
	1926	2	3852		
	1951	2	3902		
		7	13490	1927	
Bonneville	1938	2	3876		
	1941	3	5823		
	1942	1	1942		
	1943	3	5829		
	1944	1	1944		
		10	19414	1941	
Added Units	1981	2	3962		
	1982	5	9910		
	1983	1	1983		
		8	15855	1982	
Betterment	1977	1	1977	1977	
Chief Joseph	1955	3	5865		
	1956	2	3912		
	1957	6	11742		
	1958	5	9790		
		16	31309	1957	
Added Units	1977	2	3954		
	1978	5	9890		
	1979	4	7916		
		11	21760	1978	
Columbia Basin	1941	1	1941		
	1942	2	3884		
	1943	1	1943		
	1944	2	3888		
	1948	3	5844		
	1949	3	5847		
	1950	2	3900		
	1951	4	7804		
			18	35051	1947
	Added Units	1975	1	1975	
1976		1	1976		
1977		1	1977		
1978		1	1978		
1980		2	3960		
		6	11866	1978	
Added Units (P/G)	1973	2	3946		
	1983	2	3966		
	1984	2	3968		
		6	11880	1980	

**WEIGHTED AVERAGE
CALCULATION OF IN-SERVICE DATE
FOR COPRS/BUREAU PROJECTS**

(1) PROJECT	(2) IN-SERVICE FY	(3) UNITS	(4) TOTAL (2) X(3)	(5) WTD AVG (4)/(3)
Cougar	1964	2	3928	1964
Detroit	1954	1	1954	
	1953	1	1953	
		2	3907	1954
Big Cliff	1954	1	1954	1954
Dworshak	1973	3	5919	1973
Green Peter	1967	2	3934	1967
Foster	1968	2	3936	1968
Hills Creek	1962	2	3924	1962
Hungary Horse	1953	4	7812	1953
Ice Harbor Added Units	1962	3	5886	1962
	1976	3	5928	1976
John Day	1968	2	3936	
	1969	8	15752	
	1970	2	3940	
	1971	3	5913	
	1972	1	1972	
		16	31513	1970
Libby Added Units	1975	1	1975	
	1976	3	5928	
		4	7903	1976
	1985	1	1985	1985
Little Goose Added Units	1970	1	1970	
	1971	2	3942	
		3	5912	1971
	1978	3	5934	1978
Lookout Point	1955	3	5865	1955
Dexter	1955	1	1955	1955
Lost Creek	1977	2	3954	1977
Lower Granite Added Units	1975	3	5925	1975
	1978	3	5934	1978
Lower Monumental Added Units	1969	2	3938	
	1970	1	1970	
	1979	3	5937	1979
	1969	3	5908	1969

**WEIGHTED AVERAGE
CALCULATION OF IN-SERVICE DATE
FOR COPRS/BUREAU PROJECTS**

(1) PROJECT	(2) IN-SERVICE FY	(3) UNITS	(4) TOTAL (2) X(3)	(5) WTD AVG (4)/(3)
Lower Snake	1983	4	7932	1983
McNary	1954	5	9770	1955
	1955	4	7820	
	1956	3	5868	
	1957	2	3914	
		14	27372	
Minidoka	1909	1	1909	1917
	1910	2	3820	
	1911	2	3822	
	1927	1	1927	
	1942	1	1942	
	7	13420		
Palisades	1957	3	5871	1957
	1958	1	1958	
		4	7829	
The Dalles	1957	1	1957	1959
	1958	4	7832	
	1959	4	7836	
	1960	4	7840	
	1961	1	1961	
	14	27426		
Added Units	1973	6	11838	1973
	1974	2	3948	
		8	15786	
Yakima-Chandler	1956	2	3912	1956
Yakima-Roza	1958	1	1958	1958

**COE-BOR REPLACEMENTS
FY 2002**

CORPS-BUREAU REPLACEMENTS

INSERVICE DATE	PROJECT	ORIGINAL PRINCIPAL	CURRENT PRINCIPAL	DATE	INTEREST RATE
6 2015	ALBE X	1	1	2025 R	.05941
6 2015	ALBE X	59	59	2030 R	.06002
6 2015	ALBE X	134	134	2027 R	.05966
6 2015	ALBE X	948	948	2035 R	.06062
6 2025	ALBE X	1	1	2035 R	.05941
6 2025	ALBE X	8703	8703	2060 R	.06184
6 2027	ALBE X	134	134	2039 R	.05966
6 2030	ALBE X	2582	2582	2055 R	.06123
6 2030	ALBE X	59	59	2045 R	.06002
6 2035	ALBE X	1	1	2045 R	.05941
6 2035	ALBE X	651	651	2075 R	.06184
6 2035	ALBE X	948	948	2055 R	.06062
6 2039	ALBE X	134	134	2051 R	.05966
6 2045	ALBE X	59	59	2060 R	.06002
6 2045	ALBE X	1	1	2055 R	.05941
6 2051	ALBE X	134	134	2063 R	.05966
6 2017	BOIS X	776	776	2062 R	.06184
6 2017	BOIS X	66	66	2047 R	.06184
6 2017	BOIS X	13	13	2032 R	.06002
6 2027	BOIS X	143	143	2047 R	.06062
6 2027	BOIS X	21934	21934	2052 R	.06123
6 2027	BOIS X	8003	8003	2077 R	.06184
6 2032	BOIS X	13	13	2047 R	.06002
6 2032	BOIS X	987	987	2067 R	.06184
6 2047	BOIS X	143	143	2067 R	.06062
6 2047	BOIS X	66	66	2077 R	.06184
6 2047	BOIS X	814	814	2087 R	.06184
6 2047	BOIS X	13	13	2062 R	.06002
6 2052	BOIS X	21934	21934	2077 R	.06123
6 2011	BONN X	65593	65593	2016 R	.05797
6 2011	BONN X	27912	27912	2018 R	.05860
6 2011	BONN X	74612	74612	2046 R	.06184
6 2011	BONN X	114	114	2021 R	.05941
6 2012	BONN X	15	15	2047 R	.06184
6 2012	BONN X	1127	1127	2027 R	.06002
6 2013	BONN X	4071	4071	2021 R	.05887
6 2013	BONN X	148	148	2025 R	.05966
6 2016	BONN X	65593	65593	2021 R	.05797
6 2016	BONN X	2616	2616	2031 R	.06002
6 2016	BONN X	2632	2632	2041 R	.06123
6 2017	BONN X	71248	71248	2052 R	.06184
6 2018	BONN X	27912	27912	2025 R	.05860
6 2021	BONN X	65593	65593	2026 R	.05797
6 2021	BONN X	630	630	2041 R	.06062
6 2021	BONN X	65782	65782	2061 R	.06184
6 2021	BONN X	114	114	2031 R	.05941
6 2021	BONN X	4071	4071	2029 R	.05887
6 2022	BONN X	63680	63680	2062 R	.06184
6 2022	BONN X	58848	58848	2067 R	.06184
6 2025	BONN X	27912	27912	2032 R	.05860
6 2025	BONN X	148	148	2037 R	.05966
6 2026	BONN X	65593	65593	2031 R	.05797
6 2027	BONN X	302	302	2077 R	.06184
6 2027	BONN X	14	14	2052 R	.06123
6 2027	BONN X	975	975	2072 R	.06184
6 2027	BONN X	1127	1127	2042 R	.06002
6 2029	BONN X	4071	4071	2037 R	.05887
6 2031	BONN X	114	114	2041 R	.05941
6 2031	BONN X	65593	65593	2036 R	.05797
6 2031	BONN X	2616	2616	2046 R	.06002
6 2031	BONN X	1133	1133	2076 R	.06184
6 2032	BONN X	13802	13802	2082 R	.06184
6 2032	BONN X	27912	27912	2039 R	.05860
6 2032	BONN X	4324	4324	2057 R	.06123
6 2036	BONN X	65593	65593	2041 R	.05797
6 2037	BONN X	4071	4071	2045 R	.05887
6 2037	BONN X	148	148	2049 R	.05966
6 2039	BONN X	27912	27912	2046 R	.05860
6 2041	BONN X	2632	2632	2066 R	.06123
6 2041	BONN X	630	630	2061 R	.06062
6 2041	BONN X	114	114	2051 R	.05941
6 2041	BONN X	65593	65593	2046 R	.05797
6 2041	BONN X	21870	21870	2091 R	.06184
6 2042	BONN X	1127	1127	2057 R	.06002
6 2045	BONN X	4071	4071	2053 R	.05887
6 2046	BONN X	65593	65593	2051 R	.05797
6 2046	BONN X	2616	2616	2061 R	.06002
6 2046	BONN X	74612	74612	2081 R	.06184
6 2046	BONN X	27912	27912	2053 R	.05860
6 2047	BONN X	15	15	2082 R	.06184
6 2049	BONN X	148	148	2061 R	.05966
6 2051	BONN X	65593	65593	2056 R	.05797
6 2051	BONN X	114	114	2061 R	.05941
6 2052	BONN X	14	14	2077 R	.06123
6 2052	BONN X	71248	71248	2087 R	.06184
6 2013	CHIE X	70717	70717	2048 R	.06184
6 2017	CHIE X	42	42	2027 R	.05941
6 2017	CHIE X	2213	2213	2037 R	.06062
6 2017	CHIE X	1448	1448	2032 R	.06002
6 2018	CHIE X	719	719	2038 R	.06062
6 2018	CHIE X	45190	45190	2058 R	.06184
6 2023	CHIE X	205	205	2038 R	.06002
6 2027	CHIE X	42	42	2037 R	.05941
6 2027	CHIE X	58270	58270	2062 R	.06184
6 2028	CHIE X	347	347	2053 R	.06123
6 2028	CHIE X	12498	12498	2078 R	.06184
6 2032	CHIE X	4254	4254	2057 R	.06123
6 2032	CHIE X	1448	1448	2047 R	.06002
6 2037	CHIE X	42	42	2047 R	.05941

6	2037	CHIE X	2213	2213	2057 R	.06062
6	2037	CHIE X	28059	28059	2077 R	.06184
6	2038	CHIE X	205	205	2053 R	.06002
6	2038	CHIE X	719	719	2058 R	.06062
6	2047	CHIE X	1448	1448	2062 R	.06002
6	2047	CHIE X	42	42	2057 R	.05941
6	2048	CHIE X	70717	70717	2083 R	.06184
6	2013	COLU X	55730	55730	2048 R	.06184
6	2017	COLU X	40254	40254	2052 R	.06184
6	2018	COLU X	5578	5578	2038 R	.06062
6	2018	COLU X	194575	194575	2058 R	.06184
6	2022	COLU X	45862	45862	2047 R	.06123
6	2022	COLU X	858	858	2037 R	.06002
6	2023	COLU X	1161	1161	2038 R	.06002
6	2023	COLU X	60693	60693	2068 R	.06184
6	2027	COLU X	4761	4761	2047 R	.06062
6	2027	COLU X	44301	44301	2067 R	.06184
6	2028	COLU X	50328	50328	2053 R	.06123
6	2028	COLU X	118217	118217	2078 R	.06184
6	2037	COLU X	47020	47020	2082 R	.06184
6	2037	COLU X	2126	2126	2067 R	.06184
6	2037	COLU X	858	858	2052 R	.06002
6	2038	COLU X	1161	1161	2053 R	.06002
6	2038	COLU X	5578	5578	2058 R	.06062
6	2038	COLU X	2386	2386	2068 R	.06184
6	2047	COLU X	45862	45862	2072 R	.06123
6	2047	COLU X	143207	143207	2097 R	.06184
6	2047	COLU X	4761	4761	2067 R	.06062
6	2048	COLU X	55730	55730	2083 R	.06184
6	2052	COLU X	858	858	2067 R	.06002
6	2052	COLU X	40254	40254	2087 R	.06184
6	2012	COUG X	3	3	2020 R	.05887
6	2013	COUG X	2	2	2020 R	.05860
6	2014	COUG X	136	136	2039 R	.06123
6	2020	COUG X	2	2	2027 R	.05860
6	2020	COUG X	3	3	2028 R	.05887
6	2024	COUG X	72	72	2044 R	.06062
6	2024	COUG X	44	44	2039 R	.06002
6	2027	COUG X	2	2	2034 R	.05860
6	2028	COUG X	3	3	2036 R	.05887
6	2034	COUG X	2	2	2041 R	.05860
6	2034	COUG X	2616	2616	2069 R	.06184
6	2036	COUG X	3	3	2044 R	.05887
6	2039	COUG X	136	136	2064 R	.06123
6	2039	COUG X	44	44	2054 R	.06002
6	2041	COUG X	2	2	2048 R	.05860
6	2044	COUG X	1541	1541	2084 R	.06184
6	2044	COUG X	3	3	2052 R	.05887
6	2044	COUG X	72	72	2064 R	.06062
6	2048	COUG X	2	2	2055 R	.05860
6	2052	COUG X	3	3	2060 R	.05887
6	2014	DETR X	629	629	2044 R	.06184
6	2014	DETR X	301	301	2034 R	.06062
6	2014	DETR X	17	17	2029 R	.06002
6	2014	DETR X	33	33	2024 R	.05941
6	2014	DETR X	4652	4652	2034 R	.06062
6	2014	DETR X	23842	23842	2029 R	.06002
6	2014	DETR X	24	24	2026 R	.05966
6	2017	DETR X	2	2	2024 R	.05860
6	2018	DETR X	5	5	2026 R	.05887
6	2024	DETR X	2538	2538	2059 R	.06184
6	2024	DETR X	33	33	2034 R	.05941
6	2024	DETR X	2	2	2031 R	.05860
6	2026	DETR X	5	5	2034 R	.05887
6	2026	DETR X	24	24	2038 R	.05966
6	2029	DETR X	108	108	2054 R	.06123
6	2029	DETR X	17	17	2044 R	.06002
6	2029	DETR X	23842	23842	2044 R	.06002
6	2029	DETR X	211	211	2054 R	.06123
6	2031	DETR X	2	2	2038 R	.05860
6	2034	DETR X	1522	1522	2074 R	.06184
6	2034	DETR X	13078	13078	2074 R	.06184
6	2034	DETR X	33	33	2044 R	.05941
6	2034	DETR X	4652	4652	2054 R	.06062
6	2034	DETR X	301	301	2054 R	.06062
6	2034	DETR X	5	5	2042 R	.05887
6	2038	DETR X	24	24	2050 R	.05966
6	2038	DETR X	2	2	2045 R	.05860
6	2041	DETR X	573	573	2091 R	.06184
6	2042	DETR X	5	5	2050 R	.05887
6	2044	DETR X	4971	4971	2089 R	.06184
6	2044	DETR X	17	17	2059 R	.06002
6	2044	DETR X	33	33	2054 R	.05941
6	2044	DETR X	23842	23842	2059 R	.06002
6	2044	DETR X	629	629	2074 R	.06184
6	2045	DETR X	2	2	2052 R	.05860
6	2050	DETR X	24	24	2062 R	.05966
6	2050	DETR X	5	5	2058 R	.05887
6	2052	DETR X	2	2	2059 R	.05860
6	2013	DWOR X	38	38	2021 R	.05887
6	2013	DWOR X	7814	7814	2053 R	.06184
6	2013	DWOR X	3463	3463	2033 R	.06062
6	2013	DWOR X	186	186	2023 R	.05941
6	2015	DWOR X	17	17	2022 R	.05860
6	2018	DWOR X	2968	2968	2033 R	.06002
6	2021	DWOR X	38	38	2029 R	.05887
6	2021	DWOR X	55	55	2033 R	.05966
6	2022	DWOR X	17	17	2029 R	.05860
6	2023	DWOR X	1771	1771	2073 R	.06184
6	2023	DWOR X	186	186	2033 R	.05941
6	2023	DWOR X	7478	7478	2048 R	.06123
6	2029	DWOR X	17	17	2036 R	.05860
6	2029	DWOR X	38	38	2037 R	.05887
6	2033	DWOR X	3463	3463	2053 R	.06062

6	2033	DWOR X	2968	2968	2048 R	.06002
6	2033	DWOR X	55	55	2045 R	.05966
6	2033	DWOR X	186	186	2043 R	.05941
6	2036	DWOR X	17	17	2043 R	.05860
6	2037	DWOR X	38	38	2045 R	.05887
6	2043	DWOR X	186	186	2053 R	.05941
6	2043	DWOR X	17	17	2050 R	.05860
6	2043	DWOR X	12573	12573	2078 R	.06184
6	2045	DWOR X	38	38	2053 R	.05887
6	2045	DWOR X	55	55	2057 R	.05966
6	2048	DWOR X	7478	7478	2073 R	.06123
6	2048	DWOR X	2968	2968	2063 R	.06002
6	2050	DWOR X	17	17	2057 R	.05860
6	2012	GREE X	2013	2013	2057 R	.06184
6	2013	GREE X	1731	1731	2058 R	.06184
6	2015	GREE X	14	14	2023 R	.05887
6	2016	GREE X	17	17	2023 R	.05860
6	2017	GREE X	136	136	2042 R	.06123
6	2017	GREE X	22	22	2027 R	.05941
6	2018	GREE X	70	70	2043 R	.06123
6	2023	GREE X	14	14	2031 R	.05887
6	2023	GREE X	17	17	2030 R	.05860
6	2027	GREE X	451	451	2057 R	.06184
6	2027	GREE X	22	22	2037 R	.05941
6	2027	GREE X	985	985	2047 R	.06062
6	2028	GREE X	163	163	2058 R	.06184
6	2028	GREE X	805	805	2048 R	.06062
6	2030	GREE X	17	17	2037 R	.05860
6	2031	GREE X	14	14	2039 R	.05887
6	2037	GREE X	22	22	2047 R	.05941
6	2037	GREE X	17	17	2044 R	.05860
6	2039	GREE X	14	14	2047 R	.05887
6	2042	GREE X	136	136	2067 R	.06123
6	2043	GREE X	70	70	2068 R	.06123
6	2044	GREE X	17	17	2051 R	.05860
6	2047	GREE X	3895	3895	2087 R	.06184
6	2047	GREE X	14	14	2055 R	.05887
6	2047	GREE X	985	985	2067 R	.06062
6	2047	GREE X	22	22	2057 R	.05941
6	2048	GREE X	805	805	2068 R	.06062
6	2048	GREE X	17081	17081	2088 R	.06184
6	2051	GREE X	17	17	2058 R	.05860
6	2012	HILL X	1	1	2037 R	.06123
6	2022	HILL X	350	350	2052 R	.06184
6	2037	HILL X	1	1	2062 R	.06123
6	2042	HILL X	1789	1789	2082 R	.06184
6	2052	HILL X	566	566	2097 R	.06184
6	2052	HILL X	350	350	2082 R	.06184
6	2013	HUNG X	477	477	2028 R	.06002
6	2013	HUNG X	716	716	2033 R	.06062
6	2013	HUNG X	481	481	2043 R	.06184
6	2023	HUNG X	3396	3396	2058 R	.06184
6	2028	HUNG X	477	477	2043 R	.06002
6	2028	HUNG X	10903	10903	2053 R	.06123
6	2033	HUNG X	716	716	2053 R	.06062
6	2033	HUNG X	6230	6230	2073 R	.06184
6	2043	HUNG X	481	481	2073 R	.06184
6	2043	HUNG X	6843	6843	2088 R	.06184
6	2043	HUNG X	477	477	2058 R	.06002
6	2011	ICEH X	6550	6550	2046 R	.06184
6	2011	ICEH X	26168	26168	2018 R	.05860
6	2012	ICEH X	3989	3989	2062 R	.06184
6	2012	ICEH X	1606	1606	2037 R	.06123
6	2012	ICEH X	13840	13840	2017 R	.05797
6	2012	ICEH X	13491	13491	2022 R	.05941
6	2016	ICEH X	4395	4395	2056 R	.06184
6	2016	ICEH X	198	198	2036 R	.06062
6	2017	ICEH X	13840	13840	2022 R	.05797
6	2018	ICEH X	7094	7094	2026 R	.05887
6	2018	ICEH X	26168	26168	2025 R	.05860
6	2021	ICEH X	28	28	2066 R	.06184
6	2022	ICEH X	4885	4885	2034 R	.05966
6	2022	ICEH X	13491	13491	2032 R	.05941
6	2022	ICEH X	13840	13840	2027 R	.05797
6	2022	ICEH X	1472	1472	2042 R	.06062
6	2022	ICEH X	366	366	2052 R	.06184
6	2025	ICEH X	26168	26168	2032 R	.05860
6	2026	ICEH X	7094	7094	2034 R	.05887
6	2026	ICEH X	1262	1262	2076 R	.06184
6	2026	ICEH X	43	43	2051 R	.06123
6	2027	ICEH X	13840	13840	2032 R	.05797
6	2032	ICEH X	17066	17066	2067 R	.06184
6	2032	ICEH X	26168	26168	2039 R	.05860
6	2032	ICEH X	13840	13840	2037 R	.05797
6	2032	ICEH X	13491	13491	2042 R	.05941
6	2034	ICEH X	7094	7094	2042 R	.05887
6	2034	ICEH X	4885	4885	2046 R	.05966
6	2036	ICEH X	198	198	2056 R	.06062
6	2037	ICEH X	1606	1606	2062 R	.06123
6	2037	ICEH X	13840	13840	2042 R	.05797
6	2039	ICEH X	26168	26168	2046 R	.05860
6	2042	ICEH X	11749	11749	2082 R	.06184
6	2042	ICEH X	7094	7094	2050 R	.05887
6	2042	ICEH X	13840	13840	2047 R	.05797
6	2042	ICEH X	13491	13491	2052 R	.05941
6	2042	ICEH X	1472	1472	2062 R	.06062
6	2046	ICEH X	4885	4885	2058 R	.05966
6	2046	ICEH X	6550	6550	2081 R	.06184
6	2046	ICEH X	26168	26168	2053 R	.05860
6	2047	ICEH X	13840	13840	2052 R	.05797
6	2050	ICEH X	7094	7094	2058 R	.05887
6	2051	ICEH X	43	43	2076 R	.06123
6	2052	ICEH X	13491	13491	2062 R	.05941
6	2052	ICEH X	366	366	2082 R	.06184

6	2052	ICEH X	13840	13840	2057 R	.05797
6	2052	ICEH X	202	202	2097 R	.06184
6	2012	JOHN X	28	28	2019 R	.05860
6	2015	JOHN X	29248	29248	2060 R	.06184
6	2015	JOHN X	2019	2019	2030 R	.06002
6	2015	JOHN X	160	160	2030 R	.06002
6	2018	JOHN X	44	44	2030 R	.05966
6	2018	JOHN X	5	5	2026 R	.05887
6	2019	JOHN X	28	28	2026 R	.05860
6	2020	JOHN X	658	658	2045 R	.06123
6	2026	JOHN X	28	28	2033 R	.05860
6	2026	JOHN X	5	5	2034 R	.05887
6	2030	JOHN X	44	44	2042 R	.05966
6	2030	JOHN X	2019	2019	2045 R	.06002
6	2030	JOHN X	2019	2019	2050 R	.06062
6	2030	JOHN X	160	160	2045 R	.06002
6	2030	JOHN X	3602	3602	2060 R	.06184
6	2033	JOHN X	28	28	2040 R	.05860
6	2034	JOHN X	5	5	2042 R	.05887
6	2040	JOHN X	28	28	2047 R	.05860
6	2040	JOHN X	548	548	2075 R	.06184
6	2042	JOHN X	5	5	2050 R	.05887
6	2042	JOHN X	44	44	2054 R	.05966
6	2045	JOHN X	2019	2019	2060 R	.06002
6	2045	JOHN X	658	658	2070 R	.06123
6	2045	JOHN X	160	160	2060 R	.06002
6	2047	JOHN X	28	28	2054 R	.05860
6	2050	JOHN X	5	5	2058 R	.05887
6	2050	JOHN X	46918	46918	2090 R	.06184
6	2050	JOHN X	2019	2019	2070 R	.06062
6	2011	LIBB X	70	70	2018 R	.05860
6	2011	LIBB X	10633	10633	2046 R	.06184
6	2015	LIBB X	211	211	2030 R	.06002
6	2016	LIBB X	15884	15884	2056 R	.06184
6	2016	LIBB X	70	70	2026 R	.05941
6	2016	LIBB X	676	676	2036 R	.06062
6	2018	LIBB X	70	70	2025 R	.05860
6	2020	LIBB X	7926	7926	2055 R	.06184
6	2021	LIBB X	1924	1924	2036 R	.06002
6	2025	LIBB X	70	70	2032 R	.05860
6	2025	LIBB X	7989	7989	2065 R	.06184
6	2026	LIBB X	2667	2667	2051 R	.06123
6	2026	LIBB X	3388	3388	2076 R	.06184
6	2026	LIBB X	70	70	2036 R	.05941
6	2030	LIBB X	211	211	2045 R	.06002
6	2032	LIBB X	70	70	2039 R	.05860
6	2035	LIBB X	284	284	2060 R	.06123
6	2035	LIBB X	6164	6164	2085 R	.06184
6	2036	LIBB X	70	70	2046 R	.05941
6	2036	LIBB X	1924	1924	2051 R	.06002
6	2036	LIBB X	676	676	2056 R	.06062
6	2039	LIBB X	70	70	2046 R	.05860
6	2045	LIBB X	211	211	2060 R	.06002
6	2046	LIBB X	70	70	2053 R	.05860
6	2046	LIBB X	10633	10633	2081 R	.06184
6	2046	LIBB X	70	70	2056 R	.05941
6	2051	LIBB X	2667	2667	2076 R	.06123
6	2051	LIBB X	1924	1924	2066 R	.06002
6	2011	LITT X	41	41	2019 R	.05887
6	2011	LITT X	12	12	2021 R	.05941
6	2011	LITT X	10695	10695	2051 R	.06184
6	2011	LITT X	30587	30587	2031 R	.06062
6	2013	LITT X	9945	9945	2048 R	.06184
6	2013	LITT X	23	23	2020 R	.05860
6	2016	LITT X	31052	31052	2031 R	.06002
6	2018	LITT X	197	197	2038 R	.06062
6	2018	LITT X	8918	8918	2058 R	.06184
6	2018	LITT X	1055	1055	2028 R	.05941
6	2019	LITT X	2326	2326	2031 R	.05966
6	2019	LITT X	41	41	2027 R	.05887
6	2020	LITT X	23	23	2027 R	.05860
6	2021	LITT X	12	12	2031 R	.05941
6	2021	LITT X	991	991	2046 R	.06123
6	2021	LITT X	3616	3616	2071 R	.06184
6	2023	LITT X	128	128	2068 R	.06184
6	2027	LITT X	23	23	2034 R	.05860
6	2027	LITT X	41	41	2035 R	.05887
6	2028	LITT X	38	38	2053 R	.06123
6	2028	LITT X	1731	1731	2078 R	.06184
6	2028	LITT X	1055	1055	2038 R	.05941
6	2031	LITT X	245	245	2061 R	.06184
6	2031	LITT X	30587	30587	2051 R	.06062
6	2031	LITT X	12	12	2041 R	.05941
6	2031	LITT X	2326	2326	2043 R	.05966
6	2031	LITT X	31052	31052	2046 R	.06002
6	2034	LITT X	23	23	2041 R	.05860
6	2035	LITT X	41	41	2043 R	.05887
6	2038	LITT X	1055	1055	2048 R	.05941
6	2038	LITT X	197	197	2058 R	.06062
6	2041	LITT X	23	23	2048 R	.05860
6	2041	LITT X	12	12	2051 R	.05941
6	2041	LITT X	12744	12744	2076 R	.06184
6	2043	LITT X	2326	2326	2055 R	.05966
6	2043	LITT X	41	41	2051 R	.05887
6	2046	LITT X	31052	31052	2061 R	.06002
6	2046	LITT X	991	991	2071 R	.06123
6	2048	LITT X	23	23	2055 R	.05860
6	2048	LITT X	1055	1055	2058 R	.05941
6	2048	LITT X	9945	9945	2083 R	.06184
6	2051	LITT X	41	41	2059 R	.05887
6	2051	LITT X	12	12	2061 R	.05941
6	2051	LITT X	30587	30587	2071 R	.06062
6	2051	LITT X	10695	10695	2091 R	.06184
6	2011	LOOK X	6	6	2019 R	.05887

6	2011	LOOK X	15	15	2018 R	.05860
6	2015	LOOK X	77	77	2035 R	.06062
6	2015	LOOK X	110	110	2025 R	.05941
6	2015	LOOK X	448	448	2035 R	.06062
6	2015	LOOK X	441	441	2030 R	.06002
6	2015	LOOK X	40	40	2027 R	.05966
6	2018	LOOK X	15	15	2025 R	.05860
6	2019	LOOK X	6	6	2027 R	.05887
6	2025	LOOK X	15	15	2032 R	.05860
6	2025	LOOK X	110	110	2035 R	.05941
6	2027	LOOK X	6	6	2035 R	.05887
6	2027	LOOK X	40	40	2039 R	.05966
6	2030	LOOK X	35	35	2055 R	.06123
6	2030	LOOK X	441	441	2045 R	.06002
6	2030	LOOK X	545	545	2055 R	.06123
6	2032	LOOK X	15	15	2039 R	.05860
6	2035	LOOK X	77	77	2055 R	.06062
6	2035	LOOK X	6	6	2043 R	.05887
6	2035	LOOK X	10836	10836	2075 R	.06184
6	2035	LOOK X	448	448	2055 R	.06062
6	2035	LOOK X	2161	2161	2075 R	.06184
6	2035	LOOK X	110	110	2045 R	.05941
6	2039	LOOK X	15	15	2046 R	.05860
6	2039	LOOK X	40	40	2051 R	.05966
6	2043	LOOK X	6	6	2051 R	.05887
6	2045	LOOK X	5661	5661	2090 R	.06184
6	2045	LOOK X	2353	2353	2090 R	.06184
6	2045	LOOK X	110	110	2055 R	.05941
6	2045	LOOK X	441	441	2060 R	.06002
6	2046	LOOK X	15	15	2053 R	.05860
6	2051	LOOK X	6	6	2059 R	.05887
6	2051	LOOK X	40	40	2063 R	.05966
6	2012	LOST X	17	17	2047 R	.06184
6	2013	LOST X	5	5	2025 R	.05966
6	2017	LOST X	1	1	2025 R	.05887
6	2017	LOST X	1572	1572	2057 R	.06184
6	2017	LOST X	38	38	2037 R	.06062
6	2022	LOST X	1227	1227	2067 R	.06184
6	2025	LOST X	5	5	2037 R	.05966
6	2025	LOST X	1	1	2033 R	.05887
6	2027	LOST X	588	588	2077 R	.06184
6	2027	LOST X	76	76	2052 R	.06123
6	2033	LOST X	1	1	2041 R	.05887
6	2037	LOST X	5	5	2049 R	.05966
6	2037	LOST X	38	38	2057 R	.06062
6	2037	LOST X	166	166	2067 R	.06184
6	2041	LOST X	1	1	2049 R	.05887
6	2047	LOST X	17	17	2082 R	.06184
6	2049	LOST X	5	5	2061 R	.05966
6	2049	LOST X	1	1	2057 R	.05887
6	2052	LOST X	76	76	2077 R	.06123
6	2011	LOWG X	21	21	2023 R	.05966
6	2013	LOWG X	10110	10110	2048 R	.06184
6	2015	LOWG X	7159	7159	2055 R	.06184
6	2015	LOWG X	904	904	2025 R	.05941
6	2015	LOWG X	36286	36286	2035 R	.06062
6	2015	LOWG X	33	33	2023 R	.05887
6	2017	LOWG X	24	24	2024 R	.05860
6	2018	LOWG X	7851	7851	2058 R	.06184
6	2018	LOWG X	317	317	2038 R	.06062
6	2020	LOWG X	17678	17678	2035 R	.06002
6	2023	LOWG X	33	33	2031 R	.05887
6	2023	LOWG X	317	317	2038 R	.06002
6	2023	LOWG X	21	21	2035 R	.05966
6	2024	LOWG X	24	24	2031 R	.05860
6	2025	LOWG X	904	904	2035 R	.05941
6	2025	LOWG X	211	211	2050 R	.06123
6	2025	LOWG X	1605	1605	2075 R	.06184
6	2028	LOWG X	119	119	2053 R	.06123
6	2028	LOWG X	1676	1676	2078 R	.06184
6	2031	LOWG X	24	24	2038 R	.05860
6	2031	LOWG X	33	33	2039 R	.05887
6	2035	LOWG X	21	21	2047 R	.05966
6	2035	LOWG X	904	904	2045 R	.05941
6	2035	LOWG X	678	678	2065 R	.06184
6	2035	LOWG X	17678	17678	2050 R	.06002
6	2035	LOWG X	36286	36286	2055 R	.06062
6	2038	LOWG X	317	317	2053 R	.06002
6	2038	LOWG X	24	24	2045 R	.05860
6	2038	LOWG X	317	317	2058 R	.06062
6	2039	LOWG X	33	33	2047 R	.05887
6	2045	LOWG X	904	904	2055 R	.05941
6	2045	LOWG X	8584	8584	2080 R	.06184
6	2045	LOWG X	24	24	2052 R	.05860
6	2047	LOWG X	21	21	2059 R	.05966
6	2047	LOWG X	33	33	2055 R	.05887
6	2048	LOWG X	10110	10110	2083 R	.06184
6	2050	LOWG X	17678	17678	2065 R	.06002
6	2050	LOWG X	211	211	2075 R	.06123
6	2052	LOWG X	24	24	2059 R	.05860
6	2011	LOWM X	23	23	2018 R	.05860
6	2014	LOWM X	29889	29889	2029 R	.06002
6	2014	LOWM X	9606	9606	2049 R	.06184
6	2017	LOWM X	2326	2326	2029 R	.05966
6	2017	LOWM X	45	45	2025 R	.05887
6	2018	LOWM X	23	23	2025 R	.05860
6	2019	LOWM X	865	865	2044 R	.06123
6	2019	LOWM X	314	314	2039 R	.06062
6	2019	LOWM X	12	12	2029 R	.05941
6	2019	LOWM X	4176	4176	2069 R	.06184
6	2019	LOWM X	6975	6975	2059 R	.06184
6	2024	LOWM X	114	114	2069 R	.06184
6	2025	LOWM X	23	23	2032 R	.05860
6	2025	LOWM X	45	45	2033 R	.05887

6	2029	LOWM X	12	12	2039 R	.05941
6	2029	LOWM X	41	41	2054 R	.06123
6	2029	LOWM X	2326	2326	2041 R	.05966
6	2029	LOWM X	1696	1696	2079 R	.06184
6	2029	LOWM X	250	250	2059 R	.06184
6	2029	LOWM X	30587	30587	2049 R	.06062
6	2029	LOWM X	29889	29889	2044 R	.06002
6	2032	LOWM X	23	23	2039 R	.05860
6	2033	LOWM X	45	45	2041 R	.05887
6	2039	LOWM X	12	12	2049 R	.05941
6	2039	LOWM X	23	23	2046 R	.05860
6	2039	LOWM X	10444	10444	2074 R	.06184
6	2039	LOWM X	314	314	2059 R	.06062
6	2041	LOWM X	2326	2326	2053 R	.05966
6	2041	LOWM X	45	45	2049 R	.05887
6	2044	LOWM X	29889	29889	2059 R	.06002
6	2044	LOWM X	865	865	2069 R	.06123
6	2046	LOWM X	23	23	2053 R	.05860
6	2049	LOWM X	10700	10700	2089 R	.06184
6	2049	LOWM X	30587	30587	2069 R	.06062
6	2049	LOWM X	45	45	2057 R	.05887
6	2049	LOWM X	9606	9606	2084 R	.06184
6	2049	LOWM X	12	12	2059 R	.05941
6	2011	LSFW X	578	578	2018 R	.05860
6	2013	LSFW X	2246	2246	2043 R	.06184
6	2013	LSFW X	1137	1137	2028 R	.06002
6	2013	LSFW X	49	49	2018 R	.05797
6	2013	LSFW X	1053	1053	2023 R	.05941
6	2015	LSFW X	110	110	2023 R	.05887
6	2018	LSFW X	578	578	2025 R	.05860
6	2018	LSFW X	1155	1155	2053 R	.06184
6	2018	LSFW X	49	49	2023 R	.05797
6	2019	LSFW X	528	528	2031 R	.05966
6	2023	LSFW X	1053	1053	2033 R	.05941
6	2023	LSFW X	5288	5288	2043 R	.06062
6	2023	LSFW X	7283	7283	2063 R	.06184
6	2023	LSFW X	49	49	2028 R	.05797
6	2023	LSFW X	110	110	2031 R	.05887
6	2025	LSFW X	578	578	2032 R	.05860
6	2028	LSFW X	1087	1087	2073 R	.06184
6	2028	LSFW X	49	49	2033 R	.05797
6	2028	LSFW X	1137	1137	2043 R	.06002
6	2031	LSFW X	110	110	2039 R	.05887
6	2031	LSFW X	528	528	2043 R	.05966
6	2032	LSFW X	578	578	2039 R	.05860
6	2033	LSFW X	49	49	2038 R	.05797
6	2033	LSFW X	1022	1022	2058 R	.06123
6	2033	LSFW X	16991	16991	2083 R	.06184
6	2033	LSFW X	1053	1053	2043 R	.05941
6	2038	LSFW X	49	49	2043 R	.05797
6	2039	LSFW X	578	578	2046 R	.05860
6	2039	LSFW X	110	110	2047 R	.05887
6	2043	LSFW X	5288	5288	2063 R	.06062
6	2043	LSFW X	2246	2246	2073 R	.06184
6	2043	LSFW X	1053	1053	2053 R	.05941
6	2043	LSFW X	528	528	2055 R	.05966
6	2043	LSFW X	1137	1137	2058 R	.06002
6	2043	LSFW X	49	49	2048 R	.05797
6	2046	LSFW X	578	578	2053 R	.05860
6	2047	LSFW X	110	110	2055 R	.05887
6	2048	LSFW X	49	49	2053 R	.05797
6	2011	MCNA X	29	29	2018 R	.05860
6	2011	MCNA X	60	60	2019 R	.05887
6	2015	MCNA X	1254	1254	2035 R	.06062
6	2015	MCNA X	21516	21516	2030 R	.06002
6	2015	MCNA X	29075	29075	2027 R	.05966
6	2015	MCNA X	59313	59313	2025 R	.05941
6	2018	MCNA X	29	29	2025 R	.05860
6	2019	MCNA X	60	60	2027 R	.05887
6	2025	MCNA X	64093	64093	2060 R	.06184
6	2025	MCNA X	59313	59313	2035 R	.05941
6	2025	MCNA X	29	29	2032 R	.05860
6	2027	MCNA X	29075	29075	2039 R	.05966
6	2027	MCNA X	60	60	2035 R	.05887
6	2030	MCNA X	927	927	2055 R	.06123
6	2030	MCNA X	21516	21516	2045 R	.06002
6	2032	MCNA X	29	29	2039 R	.05860
6	2035	MCNA X	1254	1254	2055 R	.06062
6	2035	MCNA X	59313	59313	2045 R	.05941
6	2035	MCNA X	32886	32886	2075 R	.06184
6	2035	MCNA X	60	60	2043 R	.05887
6	2039	MCNA X	29	29	2046 R	.05860
6	2039	MCNA X	29075	29075	2051 R	.05966
6	2043	MCNA X	60	60	2051 R	.05887
6	2045	MCNA X	59313	59313	2055 R	.05941
6	2045	MCNA X	21516	21516	2060 R	.06002
6	2046	MCNA X	29	29	2053 R	.05860
6	2051	MCNA X	60	60	2059 R	.05887
6	2051	MCNA X	29075	29075	2063 R	.05966
6	2017	MINI X	283	283	2037 R	.06062
6	2017	MINI X	16	16	2027 R	.05941
6	2017	MINI X	129	129	2032 R	.06002
6	2017	MINI X	4866	4866	2067 R	.06184
6	2017	MINI X	95	95	2037 R	.06062
6	2017	MINI X	90	90	2047 R	.06184
6	2017	MINI X	1996	1996	2042 R	.06123
6	2022	MINI X	87	87	2037 R	.06002
6	2022	MINI X	3131	3131	2057 R	.06184
6	2027	MINI X	752	752	2062 R	.06184
6	2027	MINI X	16	16	2037 R	.05941
6	2032	MINI X	129	129	2047 R	.06002
6	2032	MINI X	2385	2385	2057 R	.06123
6	2037	MINI X	1667	1667	2077 R	.06184
6	2037	MINI X	71	71	2067 R	.06184

6	2037	MINI X	16	16	2047 R	.05941
6	2037	MINI X	95	95	2057 R	.06062
6	2037	MINI X	87	87	2052 R	.06002
6	2037	MINI X	6426	6426	2077 R	.06184
6	2037	MINI X	283	283	2057 R	.06062
6	2042	MINI X	1996	1996	2067 R	.06123
6	2047	MINI X	129	129	2062 R	.06002
6	2047	MINI X	16	16	2057 R	.05941
6	2047	MINI X	90	90	2077 R	.06184
6	2047	MINI X	4079	4079	2092 R	.06184
6	2052	MINI X	87	87	2067 R	.06002
6	2052	MINI X	6227	6227	2097 R	.06184
6	2013	THED X	229	229	2033 R	.06062
6	2014	THED X	44	44	2019 R	.05797
6	2015	THED X	72	72	2023 R	.05887
6	2015	THED X	48	48	2022 R	.05860
6	2018	THED X	5899	5899	2063 R	.06184
6	2018	THED X	1986	1986	2033 R	.06002
6	2019	THED X	1287	1287	2034 R	.06002
6	2019	THED X	44	44	2024 R	.05797
6	2019	THED X	1267	1267	2039 R	.06062
6	2019	THED X	1	1	2029 R	.05941
6	2019	THED X	9	9	2031 R	.05966
6	2021	THED X	1756	1756	2033 R	.05966
6	2022	THED X	48	48	2029 R	.05860
6	2023	THED X	72	72	2031 R	.05887
6	2024	THED X	44	44	2029 R	.05797
6	2029	THED X	71234	71234	2064 R	.06184
6	2029	THED X	48	48	2036 R	.05860
6	2029	THED X	44	44	2034 R	.05797
6	2029	THED X	1	1	2039 R	.05941
6	2031	THED X	72	72	2039 R	.05887
6	2031	THED X	9	9	2043 R	.05966
6	2033	THED X	1756	1756	2045 R	.05966
6	2033	THED X	19635	19635	2063 R	.06184
6	2033	THED X	229	229	2053 R	.06062
6	2033	THED X	1986	1986	2048 R	.06002
6	2034	THED X	44	44	2039 R	.05797
6	2034	THED X	1287	1287	2049 R	.06002
6	2034	THED X	2600	2600	2059 R	.06123
6	2036	THED X	48	48	2043 R	.05860
6	2039	THED X	44	44	2044 R	.05797
6	2039	THED X	44976	44976	2079 R	.06184
6	2039	THED X	1267	1267	2059 R	.06062
6	2039	THED X	1	1	2049 R	.05941
6	2039	THED X	72	72	2047 R	.05887
6	2043	THED X	48	48	2050 R	.05860
6	2043	THED X	9	9	2055 R	.05966
6	2043	THED X	15878	15878	2078 R	.06184
6	2044	THED X	44	44	2049 R	.05797
6	2045	THED X	1756	1756	2057 R	.05966
6	2047	THED X	72	72	2055 R	.05887
6	2048	THED X	1986	1986	2063 R	.06002
6	2049	THED X	1	1	2059 R	.05941
6	2049	THED X	44	44	2054 R	.05797
6	2049	THED X	1287	1287	2064 R	.06002
6	2050	THED X	48	48	2057 R	.05860
6	2016	YAKC X	60	60	2026 R	.05941
6	2016	YAKC X	26	26	2031 R	.06002
6	2016	YAKC X	62	62	2046 R	.06184
6	2016	YAKC X	90	90	2036 R	.06062
6	2026	YAKC X	60	60	2036 R	.05941
6	2026	YAKC X	486	486	2061 R	.06184
6	2031	YAKC X	26	26	2046 R	.06002
6	2031	YAKC X	957	957	2056 R	.06123
6	2036	YAKC X	480	480	2076 R	.06184
6	2036	YAKC X	90	90	2056 R	.06062
6	2036	YAKC X	60	60	2046 R	.05941
6	2046	YAKC X	26	26	2061 R	.06002
6	2046	YAKC X	60	60	2056 R	.05941
6	2046	YAKC X	785	785	2091 R	.06184
6	2046	YAKC X	62	62	2076 R	.06184
6	2018	YAKR X	2	2	2033 R	.06002
6	2018	YAKR X	5	5	2048 R	.06184
6	2018	YAKR X	8	8	2038 R	.06062
6	2028	YAKR X	56	56	2063 R	.06184
6	2033	YAKR X	2	2	2048 R	.06002
6	2033	YAKR X	108	108	2058 R	.06123
6	2038	YAKR X	127	127	2078 R	.06184
6	2038	YAKR X	8	8	2058 R	.06062
6	2048	YAKR X	5	5	2078 R	.06184
6	2048	YAKR X	2	2	2063 R	.06002
6	2048	YAKR X	214	214	2093 R	.06184

**COE-BOR REPLACEMENTS
FY 2003**

CORPS-BUREAU REPLACEMENTS

INSERVICE		ORIGINAL		CURRENT		DATE		INTEREST	
DATE	PROJECT	PRINCIPAL	PRINCIPAL	PRINCIPAL	PRINCIPAL	DUE	DUE	RATE	RATE
6	2015	ALBE X	1	1	1	2025 R		.05747	
6	2015	ALBE X	61	61	61	2030 R		.05809	
6	2015	ALBE X	137	137	137	2027 R		.05772	
6	2015	ALBE X	973	973	973	2035 R		.05870	
6	2025	ALBE X	1	1	1	2035 R		.05747	
6	2025	ALBE X	8935	8935	8935	2060 R		.05993	
6	2027	ALBE X	137	137	137	2039 R		.05772	
6	2030	ALBE X	2651	2651	2651	2055 R		.05932	
6	2030	ALBE X	61	61	61	2045 R		.05809	
6	2035	ALBE X	1	1	1	2045 R		.05747	
6	2035	ALBE X	669	669	669	2075 R		.05993	
6	2035	ALBE X	973	973	973	2055 R		.05870	
6	2039	ALBE X	137	137	137	2051 R		.05772	
6	2045	ALBE X	61	61	61	2060 R		.05809	
6	2045	ALBE X	1	1	1	2055 R		.05747	
6	2051	ALBE X	137	137	137	2063 R		.05772	
6	2017	BOIS X	796	796	796	2062 R		.05993	
6	2017	BOIS X	68	68	68	2047 R		.05993	
6	2017	BOIS X	13	13	13	2032 R		.05809	
6	2027	BOIS X	147	147	147	2047 R		.05870	
6	2027	BOIS X	22519	22519	22519	2052 R		.05932	
6	2027	BOIS X	8216	8216	8216	2077 R		.05993	
6	2032	BOIS X	13	13	13	2047 R		.05809	
6	2032	BOIS X	1014	1014	1014	2067 R		.05993	
6	2047	BOIS X	147	147	147	2067 R		.05870	
6	2047	BOIS X	68	68	68	2077 R		.05993	
6	2047	BOIS X	836	836	836	2087 R		.05993	
6	2047	BOIS X	13	13	13	2062 R		.05809	
6	2052	BOIS X	22519	22519	22519	2077 R		.05932	
6	2011	BONN X	67342	67342	67342	2016 R		.05642	
6	2011	BONN X	28656	28656	28656	2018 R		.05696	
6	2011	BONN X	76601	76601	76601	2046 R		.05993	
6	2011	BONN X	117	117	117	2021 R		.05747	
6	2012	BONN X	16	16	16	2047 R		.05993	
6	2012	BONN X	1157	1157	1157	2027 R		.05809	
6	2013	BONN X	4179	4179	4179	2021 R		.05713	
6	2013	BONN X	152	152	152	2025 R		.05772	
6	2016	BONN X	67342	67342	67342	2021 R		.05642	
6	2016	BONN X	2685	2685	2685	2031 R		.05809	
6	2016	BONN X	2702	2702	2702	2041 R		.05932	
6	2017	BONN X	73147	73147	73147	2052 R		.05993	
6	2018	BONN X	28656	28656	28656	2025 R		.05696	
6	2021	BONN X	67342	67342	67342	2026 R		.05642	
6	2021	BONN X	647	647	647	2041 R		.05870	
6	2021	BONN X	67535	67535	67535	2061 R		.05993	
6	2021	BONN X	117	117	117	2031 R		.05747	
6	2021	BONN X	4179	4179	4179	2029 R		.05713	
6	2022	BONN X	65377	65377	65377	2062 R		.05993	
6	2022	BONN X	60416	60416	60416	2067 R		.05993	
6	2025	BONN X	28656	28656	28656	2032 R		.05696	
6	2025	BONN X	152	152	152	2037 R		.05772	
6	2026	BONN X	67342	67342	67342	2031 R		.05642	
6	2027	BONN X	310	310	310	2077 R		.05993	
6	2027	BONN X	14	14	14	2052 R		.05932	
6	2027	BONN X	1001	1001	1001	2072 R		.05993	
6	2027	BONN X	1157	1157	1157	2042 R		.05809	
6	2029	BONN X	4179	4179	4179	2037 R		.05713	
6	2031	BONN X	117	117	117	2041 R		.05747	
6	2031	BONN X	67342	67342	67342	2036 R		.05642	
6	2031	BONN X	2685	2685	2685	2046 R		.05809	
6	2031	BONN X	1163	1163	1163	2076 R		.05993	
6	2032	BONN X	14170	14170	14170	2082 R		.05993	
6	2032	BONN X	28656	28656	28656	2039 R		.05696	
6	2032	BONN X	4439	4439	4439	2057 R		.05932	
6	2036	BONN X	67342	67342	67342	2041 R		.05642	
6	2037	BONN X	4179	4179	4179	2045 R		.05713	
6	2037	BONN X	152	152	152	2049 R		.05772	
6	2039	BONN X	28656	28656	28656	2046 R		.05696	
6	2041	BONN X	2702	2702	2702	2066 R		.05932	
6	2041	BONN X	647	647	647	2061 R		.05870	
6	2041	BONN X	117	117	117	2051 R		.05747	
6	2041	BONN X	67342	67342	67342	2046 R		.05642	
6	2041	BONN X	22453	22453	22453	2091 R		.05993	
6	2042	BONN X	1157	1157	1157	2057 R		.05809	
6	2045	BONN X	4179	4179	4179	2053 R		.05713	
6	2046	BONN X	67342	67342	67342	2051 R		.05642	
6	2046	BONN X	2685	2685	2685	2061 R		.05809	
6	2046	BONN X	76601	76601	76601	2081 R		.05993	
6	2046	BONN X	28656	28656	28656	2053 R		.05696	
6	2047	BONN X	16	16	16	2082 R		.05993	
6	2049	BONN X	152	152	152	2061 R		.05772	
6	2051	BONN X	67342	67342	67342	2056 R		.05642	
6	2051	BONN X	117	117	117	2061 R		.05747	
6	2052	BONN X	14	14	14	2077 R		.05932	
6	2052	BONN X	73147	73147	73147	2087 R		.05993	
6	2053	BONN X	28656	28656	28656	2060 R		.05696	
6	2053	BONN X	4179	4179	4179	2061 R		.05713	
6	2013	CHIE X	72602	72602	72602	2048 R		.05993	
6	2017	CHIE X	43	43	43	2027 R		.05747	
6	2017	CHIE X	2272	2272	2272	2037 R		.05870	
6	2017	CHIE X	1487	1487	1487	2032 R		.05809	
6	2018	CHIE X	738	738	738	2038 R		.05870	
6	2018	CHIE X	46394	46394	46394	2058 R		.05993	
6	2023	CHIE X	210	210	210	2038 R		.05809	
6	2027	CHIE X	43	43	43	2037 R		.05747	
6	2027	CHIE X	59823	59823	59823	2062 R		.05993	
6	2028	CHIE X	356	356	356	2053 R		.05932	
6	2028	CHIE X	12831	12831	12831	2078 R		.05993	

6	2032	CHIE X	4368	4368	2057 R	.05932
6	2032	CHIE X	1487	1487	2047 R	.05809
6	2037	CHIE X	43	43	2047 R	.05747
6	2037	CHIE X	2272	2272	2057 R	.05870
6	2037	CHIE X	28806	28806	2077 R	.05993
6	2038	CHIE X	210	210	2053 R	.05809
6	2038	CHIE X	738	738	2058 R	.05870
6	2047	CHIE X	1487	1487	2062 R	.05809
6	2047	CHIE X	43	43	2057 R	.05747
6	2048	CHIE X	72602	72602	2083 R	.05993
6	2053	CHIE X	356	356	2078 R	.05932
6	2053	CHIE X	210	210	2068 R	.05809
6	2013	COLU X	57215	57215	2048 R	.05993
6	2017	COLU X	41327	41327	2052 R	.05993
6	2018	COLU X	5726	5726	2038 R	.05870
6	2018	COLU X	199761	199761	2058 R	.05993
6	2022	COLU X	47084	47084	2047 R	.05932
6	2022	COLU X	881	881	2037 R	.05809
6	2023	COLU X	1192	1192	2038 R	.05809
6	2023	COLU X	62311	62311	2068 R	.05993
6	2027	COLU X	4888	4888	2047 R	.05870
6	2027	COLU X	45482	45482	2067 R	.05993
6	2028	COLU X	51669	51669	2053 R	.05932
6	2028	COLU X	121368	121368	2078 R	.05993
6	2037	COLU X	48273	48273	2082 R	.05993
6	2037	COLU X	2183	2183	2067 R	.05993
6	2037	COLU X	881	881	2052 R	.05809
6	2038	COLU X	1192	1192	2053 R	.05809
6	2038	COLU X	5726	5726	2058 R	.05870
6	2038	COLU X	2450	2450	2068 R	.05993
6	2047	COLU X	47084	47084	2072 R	.05932
6	2047	COLU X	147024	147024	2097 R	.05993
6	2047	COLU X	4888	4888	2067 R	.05870
6	2048	COLU X	57215	57215	2083 R	.05993
6	2052	COLU X	881	881	2067 R	.05809
6	2052	COLU X	41327	41327	2087 R	.05993
6	2053	COLU X	1192	1192	2068 R	.05809
6	2053	COLU X	51669	51669	2078 R	.05932
6	2012	COUG X	4	4	2020 R	.05713
6	2013	COUG X	2	2	2020 R	.05696
6	2014	COUG X	140	140	2039 R	.05932
6	2020	COUG X	2	2	2027 R	.05696
6	2020	COUG X	4	4	2028 R	.05713
6	2024	COUG X	74	74	2044 R	.05870
6	2024	COUG X	45	45	2039 R	.05809
6	2027	COUG X	2	2	2034 R	.05696
6	2028	COUG X	4	4	2036 R	.05713
6	2034	COUG X	2	2	2041 R	.05696
6	2034	COUG X	2685	2685	2069 R	.05993
6	2036	COUG X	4	4	2044 R	.05713
6	2039	COUG X	140	140	2064 R	.05932
6	2039	COUG X	45	45	2054 R	.05809
6	2041	COUG X	2	2	2048 R	.05696
6	2044	COUG X	1582	1582	2084 R	.05993
6	2044	COUG X	4	4	2052 R	.05713
6	2044	COUG X	74	74	2064 R	.05870
6	2048	COUG X	2	2	2055 R	.05696
6	2052	COUG X	4	4	2060 R	.05713
6	2014	DETR X	646	646	2044 R	.05993
6	2014	DETR X	309	309	2034 R	.05870
6	2014	DETR X	18	18	2029 R	.05809
6	2014	DETR X	33	33	2024 R	.05747
6	2014	DETR X	4776	4776	2034 R	.05870
6	2014	DETR X	24477	24477	2029 R	.05809
6	2014	DETR X	25	25	2026 R	.05772
6	2017	DETR X	2	2	2024 R	.05696
6	2018	DETR X	5	5	2026 R	.05713
6	2024	DETR X	2605	2605	2059 R	.05993
6	2024	DETR X	33	33	2034 R	.05747
6	2024	DETR X	2	2	2031 R	.05696
6	2026	DETR X	5	5	2034 R	.05713
6	2026	DETR X	25	25	2038 R	.05772
6	2029	DETR X	111	111	2054 R	.05932
6	2029	DETR X	18	18	2044 R	.05809
6	2029	DETR X	24477	24477	2044 R	.05809
6	2029	DETR X	216	216	2054 R	.05932
6	2031	DETR X	2	2	2038 R	.05696
6	2034	DETR X	1563	1563	2074 R	.05993
6	2034	DETR X	13427	13427	2074 R	.05993
6	2034	DETR X	33	33	2044 R	.05747
6	2034	DETR X	4776	4776	2054 R	.05870
6	2034	DETR X	309	309	2054 R	.05870
6	2034	DETR X	5	5	2042 R	.05713
6	2038	DETR X	25	25	2050 R	.05772
6	2038	DETR X	2	2	2045 R	.05696
6	2041	DETR X	589	589	2091 R	.05993
6	2042	DETR X	5	5	2050 R	.05713
6	2044	DETR X	5103	5103	2089 R	.05993
6	2044	DETR X	18	18	2059 R	.05809
6	2044	DETR X	33	33	2054 R	.05747
6	2044	DETR X	24477	24477	2059 R	.05809
6	2044	DETR X	646	646	2074 R	.05993
6	2045	DETR X	2	2	2052 R	.05696
6	2050	DETR X	25	25	2062 R	.05772
6	2050	DETR X	5	5	2058 R	.05713
6	2052	DETR X	2	2	2059 R	.05696
6	2013	DWOR X	39	39	2021 R	.05713
6	2013	DWOR X	8022	8022	2053 R	.05993
6	2013	DWOR X	3556	3556	2033 R	.05870
6	2013	DWOR X	191	191	2023 R	.05747
6	2015	DWOR X	18	18	2022 R	.05696
6	2018	DWOR X	3047	3047	2033 R	.05809
6	2021	DWOR X	39	39	2029 R	.05713
6	2021	DWOR X	56	56	2033 R	.05772

6	2022	DWOR X	18	18	2029 R	.05696
6	2023	DWOR X	1818	1818	2073 R	.05993
6	2023	DWOR X	191	191	2033 R	.05747
6	2023	DWOR X	7677	7677	2048 R	.05932
6	2029	DWOR X	18	18	2036 R	.05696
6	2029	DWOR X	39	39	2037 R	.05713
6	2033	DWOR X	3556	3556	2053 R	.05870
6	2033	DWOR X	3047	3047	2048 R	.05809
6	2033	DWOR X	56	56	2045 R	.05772
6	2033	DWOR X	191	191	2043 R	.05747
6	2036	DWOR X	18	18	2043 R	.05696
6	2037	DWOR X	39	39	2045 R	.05713
6	2043	DWOR X	191	191	2053 R	.05747
6	2043	DWOR X	18	18	2050 R	.05696
6	2043	DWOR X	12908	12908	2078 R	.05993
6	2045	DWOR X	39	39	2053 R	.05713
6	2045	DWOR X	56	56	2057 R	.05772
6	2048	DWOR X	7677	7677	2073 R	.05932
6	2048	DWOR X	3047	3047	2063 R	.05809
6	2050	DWOR X	18	18	2057 R	.05696
6	2053	DWOR X	3556	3556	2073 R	.05870
6	2053	DWOR X	39	39	2061 R	.05713
6	2053	DWOR X	8022	8022	2093 R	.05993
6	2053	DWOR X	191	191	2063 R	.05747
6	2012	GREE X	2067	2067	2057 R	.05993
6	2013	GREE X	1777	1777	2058 R	.05993
6	2015	GREE X	14	14	2023 R	.05713
6	2016	GREE X	18	18	2023 R	.05696
6	2017	GREE X	140	140	2042 R	.05932
6	2017	GREE X	23	23	2027 R	.05747
6	2018	GREE X	72	72	2043 R	.05932
6	2023	GREE X	14	14	2031 R	.05713
6	2023	GREE X	18	18	2030 R	.05696
6	2027	GREE X	463	463	2057 R	.05993
6	2027	GREE X	23	23	2037 R	.05747
6	2027	GREE X	1011	1011	2047 R	.05870
6	2028	GREE X	167	167	2058 R	.05993
6	2028	GREE X	826	826	2048 R	.05870
6	2030	GREE X	18	18	2037 R	.05696
6	2031	GREE X	14	14	2039 R	.05713
6	2037	GREE X	23	23	2047 R	.05747
6	2037	GREE X	18	18	2044 R	.05696
6	2039	GREE X	14	14	2047 R	.05713
6	2042	GREE X	140	140	2067 R	.05932
6	2043	GREE X	72	72	2068 R	.05932
6	2044	GREE X	18	18	2051 R	.05696
6	2047	GREE X	3999	3999	2087 R	.05993
6	2047	GREE X	14	14	2055 R	.05713
6	2047	GREE X	1011	1011	2067 R	.05870
6	2047	GREE X	23	23	2057 R	.05747
6	2048	GREE X	826	826	2068 R	.05870
6	2048	GREE X	17536	17536	2088 R	.05993
6	2051	GREE X	18	18	2058 R	.05696
6	2012	HILL X	1	1	2037 R	.05932
6	2022	HILL X	359	359	2052 R	.05993
6	2037	HILL X	1	1	2062 R	.05932
6	2042	HILL X	1836	1836	2082 R	.05993
6	2052	HILL X	581	581	2097 R	.05993
6	2052	HILL X	359	359	2082 R	.05993
6	2013	HUNG X	490	490	2028 R	.05809
6	2013	HUNG X	736	736	2033 R	.05870
6	2013	HUNG X	494	494	2043 R	.05993
6	2023	HUNG X	3486	3486	2058 R	.05993
6	2028	HUNG X	490	490	2043 R	.05809
6	2028	HUNG X	11194	11194	2053 R	.05932
6	2033	HUNG X	736	736	2053 R	.05870
6	2033	HUNG X	6396	6396	2073 R	.05993
6	2043	HUNG X	494	494	2073 R	.05993
6	2043	HUNG X	7025	7025	2088 R	.05993
6	2043	HUNG X	490	490	2058 R	.05809
6	2053	HUNG X	736	736	2073 R	.05870
6	2053	HUNG X	11194	11194	2078 R	.05932
6	2053	HUNG X	48168	48168	2103 R	.05993
6	2011	ICEH X	6725	6725	2046 R	.05993
6	2011	ICEH X	26865	26865	2018 R	.05696
6	2012	ICEH X	4095	4095	2062 R	.05993
6	2012	ICEH X	1649	1649	2037 R	.05932
6	2012	ICEH X	14209	14209	2017 R	.05642
6	2012	ICEH X	13850	13850	2022 R	.05747
6	2016	ICEH X	4512	4512	2056 R	.05993
6	2016	ICEH X	203	203	2036 R	.05870
6	2017	ICEH X	14209	14209	2022 R	.05642
6	2018	ICEH X	7283	7283	2026 R	.05713
6	2018	ICEH X	26865	26865	2025 R	.05696
6	2021	ICEH X	29	29	2066 R	.05993
6	2022	ICEH X	5015	5015	2034 R	.05772
6	2022	ICEH X	13850	13850	2032 R	.05747
6	2022	ICEH X	14209	14209	2027 R	.05642
6	2022	ICEH X	1512	1512	2042 R	.05870
6	2022	ICEH X	376	376	2052 R	.05993
6	2025	ICEH X	26865	26865	2032 R	.05696
6	2026	ICEH X	7283	7283	2034 R	.05713
6	2026	ICEH X	1295	1295	2076 R	.05993
6	2026	ICEH X	44	44	2051 R	.05932
6	2027	ICEH X	14209	14209	2032 R	.05642
6	2032	ICEH X	17521	17521	2067 R	.05993
6	2032	ICEH X	26865	26865	2039 R	.05696
6	2032	ICEH X	14209	14209	2037 R	.05642
6	2032	ICEH X	13850	13850	2042 R	.05747
6	2034	ICEH X	7283	7283	2042 R	.05713
6	2034	ICEH X	5015	5015	2046 R	.05772
6	2036	ICEH X	203	203	2056 R	.05870
6	2037	ICEH X	1649	1649	2062 R	.05932
6	2037	ICEH X	14209	14209	2042 R	.05642

6	2039	ICEH X	26865	26865	2046 R	.05696
6	2042	ICEH X	12062	12062	2082 R	.05993
6	2042	ICEH X	7283	7283	2050 R	.05713
6	2042	ICEH X	14209	14209	2047 R	.05642
6	2042	ICEH X	13850	13850	2052 R	.05747
6	2042	ICEH X	1512	1512	2062 R	.05870
6	2046	ICEH X	5015	5015	2058 R	.05772
6	2046	ICEH X	6725	6725	2081 R	.05993
6	2046	ICEH X	26865	26865	2053 R	.05696
6	2047	ICEH X	14209	14209	2052 R	.05642
6	2050	ICEH X	7283	7283	2058 R	.05713
6	2051	ICEH X	44	44	2076 R	.05932
6	2052	ICEH X	13850	13850	2062 R	.05747
6	2052	ICEH X	376	376	2082 R	.05993
6	2052	ICEH X	14209	14209	2057 R	.05642
6	2052	ICEH X	208	208	2097 R	.05993
6	2053	ICEH X	26865	26865	2060 R	.05696
6	2012	JOHN X	29	29	2019 R	.05696
6	2015	JOHN X	30028	30028	2060 R	.05993
6	2015	JOHN X	2073	2073	2030 R	.05809
6	2015	JOHN X	165	165	2030 R	.05809
6	2018	JOHN X	45	45	2030 R	.05772
6	2018	JOHN X	5	5	2026 R	.05713
6	2019	JOHN X	29	29	2026 R	.05696
6	2020	JOHN X	676	676	2045 R	.05932
6	2026	JOHN X	29	29	2033 R	.05696
6	2026	JOHN X	5	5	2034 R	.05713
6	2030	JOHN X	45	45	2042 R	.05772
6	2030	JOHN X	2073	2073	2045 R	.05809
6	2030	JOHN X	2073	2073	2050 R	.05870
6	2030	JOHN X	165	165	2045 R	.05809
6	2030	JOHN X	3698	3698	2060 R	.05993
6	2033	JOHN X	29	29	2040 R	.05696
6	2034	JOHN X	5	5	2042 R	.05713
6	2040	JOHN X	29	29	2047 R	.05696
6	2040	JOHN X	562	562	2075 R	.05993
6	2042	JOHN X	5	5	2050 R	.05713
6	2042	JOHN X	45	45	2054 R	.05772
6	2045	JOHN X	2073	2073	2060 R	.05809
6	2045	JOHN X	676	676	2070 R	.05932
6	2045	JOHN X	165	165	2060 R	.05809
6	2047	JOHN X	29	29	2054 R	.05696
6	2050	JOHN X	5	5	2058 R	.05713
6	2050	JOHN X	48168	48168	2090 R	.05993
6	2050	JOHN X	2073	2073	2070 R	.05870
6	2011	LIBB X	72	72	2018 R	.05696
6	2011	LIBB X	10917	10917	2046 R	.05993
6	2015	LIBB X	216	216	2030 R	.05809
6	2016	LIBB X	16308	16308	2056 R	.05993
6	2016	LIBB X	72	72	2026 R	.05747
6	2016	LIBB X	694	694	2036 R	.05870
6	2018	LIBB X	72	72	2025 R	.05696
6	2020	LIBB X	8137	8137	2055 R	.05993
6	2021	LIBB X	1975	1975	2036 R	.05809
6	2025	LIBB X	72	72	2032 R	.05696
6	2025	LIBB X	8202	8202	2065 R	.05993
6	2026	LIBB X	2738	2738	2051 R	.05932
6	2026	LIBB X	3478	3478	2076 R	.05993
6	2026	LIBB X	72	72	2036 R	.05747
6	2030	LIBB X	216	216	2045 R	.05809
6	2032	LIBB X	72	72	2039 R	.05696
6	2035	LIBB X	291	291	2060 R	.05932
6	2035	LIBB X	6328	6328	2085 R	.05993
6	2036	LIBB X	72	72	2046 R	.05747
6	2036	LIBB X	1975	1975	2051 R	.05809
6	2036	LIBB X	694	694	2056 R	.05870
6	2039	LIBB X	72	72	2046 R	.05696
6	2045	LIBB X	216	216	2060 R	.05809
6	2046	LIBB X	72	72	2053 R	.05696
6	2046	LIBB X	10917	10917	2081 R	.05993
6	2046	LIBB X	72	72	2056 R	.05747
6	2051	LIBB X	2738	2738	2076 R	.05932
6	2051	LIBB X	1975	1975	2066 R	.05809
6	2053	LIBB X	72	72	2060 R	.05696
6	2011	LITT X	42	42	2019 R	.05713
6	2011	LITT X	12	12	2021 R	.05747
6	2011	LITT X	10980	10980	2051 R	.05993
6	2011	LITT X	31402	31402	2031 R	.05870
6	2013	LITT X	10210	10210	2048 R	.05993
6	2013	LITT X	24	24	2020 R	.05696
6	2016	LITT X	31880	31880	2031 R	.05809
6	2018	LITT X	202	202	2038 R	.05870
6	2018	LITT X	9156	9156	2058 R	.05993
6	2018	LITT X	1083	1083	2028 R	.05747
6	2019	LITT X	2388	2388	2031 R	.05772
6	2019	LITT X	42	42	2027 R	.05713
6	2020	LITT X	24	24	2027 R	.05696
6	2021	LITT X	12	12	2031 R	.05747
6	2021	LITT X	1017	1017	2046 R	.05932
6	2021	LITT X	3712	3712	2071 R	.05993
6	2023	LITT X	131	131	2068 R	.05993
6	2027	LITT X	24	24	2034 R	.05696
6	2027	LITT X	42	42	2035 R	.05713
6	2028	LITT X	39	39	2053 R	.05932
6	2028	LITT X	1777	1777	2078 R	.05993
6	2028	LITT X	1083	1083	2038 R	.05747
6	2031	LITT X	252	252	2061 R	.05993
6	2031	LITT X	31402	31402	2051 R	.05870
6	2031	LITT X	12	12	2041 R	.05747
6	2031	LITT X	2388	2388	2043 R	.05772
6	2031	LITT X	31880	31880	2046 R	.05809
6	2034	LITT X	24	24	2041 R	.05696
6	2035	LITT X	42	42	2043 R	.05713
6	2038	LITT X	1083	1083	2048 R	.05747

6	2038	LITT X	202	202	2058 R	.05870
6	2041	LITT X	24	24	2048 R	.05696
6	2041	LITT X	12	12	2051 R	.05747
6	2041	LITT X	13084	13084	2076 R	.05993
6	2043	LITT X	2388	2388	2055 R	.05772
6	2043	LITT X	42	42	2051 R	.05713
6	2046	LITT X	31880	31880	2061 R	.05809
6	2046	LITT X	1017	1017	2071 R	.05932
6	2048	LITT X	24	24	2055 R	.05696
6	2048	LITT X	1083	1083	2058 R	.05747
6	2048	LITT X	10210	10210	2083 R	.05993
6	2051	LITT X	42	42	2059 R	.05713
6	2051	LITT X	12	12	2061 R	.05747
6	2051	LITT X	31402	31402	2071 R	.05870
6	2051	LITT X	10980	10980	2091 R	.05993
6	2053	LITT X	39	39	2078 R	.05932
6	2011	LOOK X	6	6	2019 R	.05713
6	2011	LOOK X	16	16	2018 R	.05696
6	2015	LOOK X	79	79	2035 R	.05870
6	2015	LOOK X	113	113	2025 R	.05747
6	2015	LOOK X	460	460	2035 R	.05870
6	2015	LOOK X	453	453	2030 R	.05809
6	2015	LOOK X	41	41	2027 R	.05772
6	2018	LOOK X	16	16	2025 R	.05696
6	2019	LOOK X	6	6	2027 R	.05713
6	2025	LOOK X	16	16	2032 R	.05696
6	2025	LOOK X	113	113	2035 R	.05747
6	2027	LOOK X	6	6	2035 R	.05713
6	2027	LOOK X	41	41	2039 R	.05772
6	2030	LOOK X	36	36	2055 R	.05932
6	2030	LOOK X	453	453	2045 R	.05809
6	2030	LOOK X	560	560	2055 R	.05932
6	2032	LOOK X	16	16	2039 R	.05696
6	2035	LOOK X	79	79	2055 R	.05870
6	2035	LOOK X	6	6	2043 R	.05713
6	2035	LOOK X	11125	11125	2075 R	.05993
6	2035	LOOK X	460	460	2055 R	.05870
6	2035	LOOK X	2218	2218	2075 R	.05993
6	2035	LOOK X	113	113	2045 R	.05747
6	2039	LOOK X	16	16	2046 R	.05696
6	2039	LOOK X	41	41	2051 R	.05772
6	2043	LOOK X	6	6	2051 R	.05713
6	2045	LOOK X	5812	5812	2090 R	.05993
6	2045	LOOK X	2415	2415	2090 R	.05993
6	2045	LOOK X	113	113	2055 R	.05747
6	2045	LOOK X	453	453	2060 R	.05809
6	2046	LOOK X	16	16	2053 R	.05696
6	2051	LOOK X	6	6	2059 R	.05713
6	2051	LOOK X	41	41	2063 R	.05772
6	2053	LOOK X	16	16	2060 R	.05696
6	2012	LOST X	18	18	2047 R	.05993
6	2013	LOST X	5	5	2025 R	.05772
6	2017	LOST X	1	1	2025 R	.05713
6	2017	LOST X	1614	1614	2057 R	.05993
6	2017	LOST X	39	39	2037 R	.05870
6	2022	LOST X	1260	1260	2067 R	.05993
6	2025	LOST X	5	5	2037 R	.05772
6	2025	LOST X	1	1	2033 R	.05713
6	2027	LOST X	604	604	2077 R	.05993
6	2027	LOST X	78	78	2052 R	.05932
6	2033	LOST X	1	1	2041 R	.05713
6	2037	LOST X	5	5	2049 R	.05772
6	2037	LOST X	39	39	2057 R	.05870
6	2037	LOST X	171	171	2067 R	.05993
6	2041	LOST X	1	1	2049 R	.05713
6	2047	LOST X	18	18	2082 R	.05993
6	2049	LOST X	5	5	2061 R	.05772
6	2049	LOST X	1	1	2057 R	.05713
6	2052	LOST X	78	78	2077 R	.05932
6	2011	LOWG X	21	21	2023 R	.05772
6	2013	LOWG X	10379	10379	2048 R	.05993
6	2015	LOWG X	7350	7350	2055 R	.05993
6	2015	LOWG X	928	928	2025 R	.05747
6	2015	LOWG X	37253	37253	2035 R	.05870
6	2015	LOWG X	33	33	2023 R	.05713
6	2017	LOWG X	25	25	2024 R	.05696
6	2018	LOWG X	8061	8061	2058 R	.05993
6	2018	LOWG X	326	326	2038 R	.05870
6	2020	LOWG X	18149	18149	2035 R	.05809
6	2023	LOWG X	33	33	2031 R	.05713
6	2023	LOWG X	326	326	2038 R	.05809
6	2023	LOWG X	21	21	2035 R	.05772
6	2024	LOWG X	25	25	2031 R	.05696
6	2025	LOWG X	928	928	2035 R	.05747
6	2025	LOWG X	216	216	2050 R	.05932
6	2025	LOWG X	1648	1648	2075 R	.05993
6	2028	LOWG X	122	122	2053 R	.05932
6	2028	LOWG X	1721	1721	2078 R	.05993
6	2031	LOWG X	25	25	2038 R	.05696
6	2031	LOWG X	33	33	2039 R	.05713
6	2035	LOWG X	21	21	2047 R	.05772
6	2035	LOWG X	928	928	2045 R	.05747
6	2035	LOWG X	696	696	2065 R	.05993
6	2035	LOWG X	18149	18149	2050 R	.05809
6	2035	LOWG X	37253	37253	2055 R	.05870
6	2038	LOWG X	326	326	2053 R	.05809
6	2038	LOWG X	25	25	2045 R	.05696
6	2038	LOWG X	326	326	2058 R	.05870
6	2039	LOWG X	33	33	2047 R	.05713
6	2045	LOWG X	928	928	2055 R	.05747
6	2045	LOWG X	8813	8813	2080 R	.05993
6	2045	LOWG X	25	25	2052 R	.05696
6	2047	LOWG X	21	21	2059 R	.05772
6	2047	LOWG X	33	33	2055 R	.05713

6	2048	LOWG X	10379	10379	2083 R	.05993
6	2050	LOWG X	18149	18149	2065 R	.05809
6	2050	LOWG X	216	216	2075 R	.05932
6	2052	LOWG X	25	25	2059 R	.05696
6	2053	LOWG X	326	326	2068 R	.05809
6	2053	LOWG X	122	122	2078 R	.05932
6	2011	LOWM X	24	24	2018 R	.05696
6	2014	LOWM X	30686	30686	2029 R	.05809
6	2014	LOWM X	9862	9862	2049 R	.05993
6	2017	LOWM X	2388	2388	2029 R	.05772
6	2017	LOWM X	47	47	2025 R	.05713
6	2018	LOWM X	24	24	2025 R	.05696
6	2019	LOWM X	888	888	2044 R	.05932
6	2019	LOWM X	322	322	2039 R	.05870
6	2019	LOWM X	12	12	2029 R	.05747
6	2019	LOWM X	4288	4288	2069 R	.05993
6	2019	LOWM X	7160	7160	2059 R	.05993
6	2024	LOWM X	117	117	2069 R	.05993
6	2025	LOWM X	24	24	2032 R	.05696
6	2025	LOWM X	47	47	2033 R	.05713
6	2029	LOWM X	12	12	2039 R	.05747
6	2029	LOWM X	42	42	2054 R	.05932
6	2029	LOWM X	2388	2388	2041 R	.05772
6	2029	LOWM X	1741	1741	2079 R	.05993
6	2029	LOWM X	257	257	2059 R	.05993
6	2029	LOWM X	31402	31402	2049 R	.05870
6	2029	LOWM X	30686	30686	2044 R	.05809
6	2032	LOWM X	24	24	2039 R	.05696
6	2033	LOWM X	47	47	2041 R	.05713
6	2039	LOWM X	12	12	2049 R	.05747
6	2039	LOWM X	24	24	2046 R	.05696
6	2039	LOWM X	10722	10722	2074 R	.05993
6	2039	LOWM X	322	322	2059 R	.05870
6	2041	LOWM X	2388	2388	2053 R	.05772
6	2041	LOWM X	47	47	2049 R	.05713
6	2044	LOWM X	30686	30686	2059 R	.05809
6	2044	LOWM X	888	888	2069 R	.05932
6	2046	LOWM X	24	24	2053 R	.05696
6	2049	LOWM X	10985	10985	2089 R	.05993
6	2049	LOWM X	31402	31402	2069 R	.05870
6	2049	LOWM X	47	47	2057 R	.05713
6	2049	LOWM X	9862	9862	2084 R	.05993
6	2049	LOWM X	12	12	2059 R	.05747
6	2053	LOWM X	2388	2388	2065 R	.05772
6	2053	LOWM X	24	24	2060 R	.05696
6	2011	LSFW X	593	593	2018 R	.05696
6	2013	LSFW X	2306	2306	2043 R	.05993
6	2013	LSFW X	1168	1168	2028 R	.05809
6	2013	LSFW X	50	50	2018 R	.05642
6	2013	LSFW X	1081	1081	2023 R	.05747
6	2015	LSFW X	113	113	2023 R	.05713
6	2018	LSFW X	593	593	2025 R	.05696
6	2018	LSFW X	1186	1186	2053 R	.05993
6	2018	LSFW X	50	50	2023 R	.05642
6	2019	LSFW X	542	542	2031 R	.05772
6	2023	LSFW X	1081	1081	2033 R	.05747
6	2023	LSFW X	5429	5429	2043 R	.05870
6	2023	LSFW X	7477	7477	2063 R	.05993
6	2023	LSFW X	50	50	2028 R	.05642
6	2023	LSFW X	113	113	2031 R	.05713
6	2025	LSFW X	593	593	2032 R	.05696
6	2028	LSFW X	1116	1116	2073 R	.05993
6	2028	LSFW X	50	50	2033 R	.05642
6	2028	LSFW X	1168	1168	2043 R	.05809
6	2031	LSFW X	113	113	2039 R	.05713
6	2031	LSFW X	542	542	2043 R	.05772
6	2032	LSFW X	593	593	2039 R	.05696
6	2033	LSFW X	50	50	2038 R	.05642
6	2033	LSFW X	1050	1050	2058 R	.05932
6	2033	LSFW X	17444	17444	2083 R	.05993
6	2033	LSFW X	1081	1081	2043 R	.05747
6	2038	LSFW X	50	50	2043 R	.05642
6	2039	LSFW X	593	593	2046 R	.05696
6	2039	LSFW X	113	113	2047 R	.05713
6	2043	LSFW X	5429	5429	2063 R	.05870
6	2043	LSFW X	2306	2306	2073 R	.05993
6	2043	LSFW X	1081	1081	2053 R	.05747
6	2043	LSFW X	542	542	2055 R	.05772
6	2043	LSFW X	1168	1168	2058 R	.05809
6	2043	LSFW X	50	50	2048 R	.05642
6	2046	LSFW X	593	593	2053 R	.05696
6	2047	LSFW X	113	113	2055 R	.05713
6	2048	LSFW X	50	50	2053 R	.05642
6	2053	LSFW X	1081	1081	2063 R	.05747
6	2053	LSFW X	593	593	2060 R	.05696
6	2053	LSFW X	50	50	2058 R	.05642
6	2053	LSFW X	1186	1186	2088 R	.05993
6	2011	MCNA X	30	30	2018 R	.05696
6	2011	MCNA X	62	62	2019 R	.05713
6	2015	MCNA X	1287	1287	2035 R	.05870
6	2015	MCNA X	22089	22089	2030 R	.05809
6	2015	MCNA X	29850	29850	2027 R	.05772
6	2015	MCNA X	60894	60894	2025 R	.05747
6	2018	MCNA X	30	30	2025 R	.05696
6	2019	MCNA X	62	62	2027 R	.05713
6	2025	MCNA X	65801	65801	2060 R	.05993
6	2025	MCNA X	60894	60894	2035 R	.05747
6	2025	MCNA X	30	30	2032 R	.05696
6	2027	MCNA X	29850	29850	2039 R	.05772
6	2027	MCNA X	62	62	2035 R	.05713
6	2030	MCNA X	952	952	2055 R	.05932
6	2030	MCNA X	22089	22089	2045 R	.05809
6	2032	MCNA X	30	30	2039 R	.05696
6	2035	MCNA X	1287	1287	2055 R	.05870

6	2035	MCNA X	60894	60894	2045 R	.05747
6	2035	MCNA X	33763	33763	2075 R	.05993
6	2035	MCNA X	62	62	2043 R	.05713
6	2039	MCNA X	30	30	2046 R	.05696
6	2039	MCNA X	29850	29850	2051 R	.05772
6	2043	MCNA X	62	62	2051 R	.05713
6	2045	MCNA X	60894	60894	2055 R	.05747
6	2045	MCNA X	22089	22089	2060 R	.05809
6	2046	MCNA X	30	30	2053 R	.05696
6	2051	MCNA X	62	62	2059 R	.05713
6	2051	MCNA X	29850	29850	2063 R	.05772
6	2053	MCNA X	30	30	2060 R	.05696
6	2017	MINI X	290	290	2037 R	.05870
6	2017	MINI X	17	17	2027 R	.05747
6	2017	MINI X	133	133	2032 R	.05809
6	2017	MINI X	4996	4996	2067 R	.05993
6	2017	MINI X	98	98	2037 R	.05870
6	2017	MINI X	92	92	2047 R	.05993
6	2017	MINI X	2049	2049	2042 R	.05932
6	2022	MINI X	90	90	2037 R	.05809
6	2022	MINI X	3214	3214	2057 R	.05993
6	2027	MINI X	773	773	2062 R	.05993
6	2027	MINI X	17	17	2037 R	.05747
6	2032	MINI X	133	133	2047 R	.05809
6	2032	MINI X	2449	2449	2057 R	.05932
6	2037	MINI X	1711	1711	2077 R	.05993
6	2037	MINI X	73	73	2067 R	.05993
6	2037	MINI X	17	17	2047 R	.05747
6	2037	MINI X	98	98	2057 R	.05870
6	2037	MINI X	90	90	2052 R	.05809
6	2037	MINI X	6597	6597	2077 R	.05993
6	2037	MINI X	290	290	2057 R	.05870
6	2042	MINI X	2049	2049	2067 R	.05932
6	2047	MINI X	133	133	2062 R	.05809
6	2047	MINI X	17	17	2057 R	.05747
6	2047	MINI X	92	92	2077 R	.05993
6	2047	MINI X	4187	4187	2092 R	.05993
6	2052	MINI X	90	90	2067 R	.05809
6	2052	MINI X	6393	6393	2097 R	.05993
6	2013	THED X	235	235	2033 R	.05870
6	2014	THED X	45	45	2019 R	.05642
6	2015	THED X	74	74	2023 R	.05713
6	2015	THED X	49	49	2022 R	.05696
6	2018	THED X	6056	6056	2063 R	.05993
6	2018	THED X	2039	2039	2033 R	.05809
6	2019	THED X	1322	1322	2034 R	.05809
6	2019	THED X	45	45	2024 R	.05642
6	2019	THED X	1300	1300	2039 R	.05870
6	2019	THED X	1	1	2029 R	.05747
6	2019	THED X	10	10	2031 R	.05772
6	2021	THED X	1803	1803	2033 R	.05772
6	2022	THED X	49	49	2029 R	.05696
6	2023	THED X	74	74	2031 R	.05713
6	2024	THED X	45	45	2029 R	.05642
6	2029	THED X	73133	73133	2064 R	.05993
6	2029	THED X	49	49	2036 R	.05696
6	2029	THED X	45	45	2034 R	.05642
6	2029	THED X	1	1	2039 R	.05747
6	2031	THED X	74	74	2039 R	.05713
6	2031	THED X	10	10	2043 R	.05772
6	2033	THED X	1803	1803	2045 R	.05772
6	2033	THED X	20158	20158	2063 R	.05993
6	2033	THED X	235	235	2053 R	.05870
6	2033	THED X	2039	2039	2048 R	.05809
6	2034	THED X	45	45	2039 R	.05642
6	2034	THED X	1322	1322	2049 R	.05809
6	2034	THED X	2670	2670	2059 R	.05932
6	2036	THED X	49	49	2043 R	.05696
6	2039	THED X	45	45	2044 R	.05642
6	2039	THED X	46174	46174	2079 R	.05993
6	2039	THED X	1300	1300	2059 R	.05870
6	2039	THED X	1	1	2049 R	.05747
6	2039	THED X	74	74	2047 R	.05713
6	2043	THED X	49	49	2050 R	.05696
6	2043	THED X	10	10	2055 R	.05772
6	2043	THED X	16302	16302	2078 R	.05993
6	2044	THED X	45	45	2049 R	.05642
6	2045	THED X	1803	1803	2057 R	.05772
6	2047	THED X	74	74	2055 R	.05713
6	2048	THED X	2039	2039	2063 R	.05809
6	2049	THED X	1	1	2059 R	.05747
6	2049	THED X	45	45	2054 R	.05642
6	2049	THED X	1322	1322	2064 R	.05809
6	2050	THED X	49	49	2057 R	.05696
6	2053	THED X	235	235	2073 R	.05870
6	2016	YAKC X	62	62	2026 R	.05747
6	2016	YAKC X	26	26	2031 R	.05809
6	2016	YAKC X	63	63	2046 R	.05993
6	2016	YAKC X	92	92	2036 R	.05870
6	2026	YAKC X	62	62	2036 R	.05747
6	2026	YAKC X	499	499	2061 R	.05993
6	2031	YAKC X	26	26	2046 R	.05809
6	2031	YAKC X	983	983	2056 R	.05932
6	2036	YAKC X	493	493	2076 R	.05993
6	2036	YAKC X	92	92	2056 R	.05870
6	2036	YAKC X	62	62	2046 R	.05747
6	2046	YAKC X	26	26	2061 R	.05809
6	2046	YAKC X	62	62	2056 R	.05747
6	2046	YAKC X	806	806	2091 R	.05993
6	2046	YAKC X	63	63	2076 R	.05993
6	2018	YAKR X	2	2	2033 R	.05809
6	2018	YAKR X	5	5	2048 R	.05993
6	2018	YAKR X	8	8	2038 R	.05870
6	2028	YAKR X	57	57	2063 R	.05993

6	2033	YAKR X	2	2	2048 R	.05809
6	2033	YAKR X	111	111	2058 R	.05932
6	2038	YAKR X	130	130	2078 R	.05993
6	2038	YAKR X	8	8	2058 R	.05870
6	2048	YAKR X	5	5	2078 R	.05993
6	2048	YAKR X	2	2	2063 R	.05809
6	2048	YAKR X	220	220	2093 R	.05993

**COE-BOR REPLACEMENTS
FY 2004**

CORPS-BUREAU REPLACEMENTS

INSERVICE DATE	PROJECT	ORIGINAL PRINCIPAL	CURRENT PRINCIPAL	DATE DUE	INTEREST RATE
6 2015	ALBE X	1	1	2025 R	.05726
6 2015	ALBE X	63	63	2030 R	.05794
6 2015	ALBE X	141	141	2027 R	.05753
6 2015	ALBE X	1000	1000	2035 R	.05861
6 2025	ALBE X	1	1	2035 R	.05726
6 2025	ALBE X	9182	9182	2060 R	.05996
6 2027	ALBE X	141	141	2039 R	.05753
6 2030	ALBE X	2724	2724	2055 R	.05928
6 2030	ALBE X	63	63	2045 R	.05794
6 2035	ALBE X	1	1	2045 R	.05726
6 2035	ALBE X	687	687	2075 R	.05996
6 2035	ALBE X	1000	1000	2055 R	.05861
6 2039	ALBE X	141	141	2051 R	.05753
6 2045	ALBE X	63	63	2060 R	.05794
6 2045	ALBE X	1	1	2055 R	.05726
6 2051	ALBE X	141	141	2063 R	.05753
6 2017	BOIS X	818	818	2062 R	.05996
6 2017	BOIS X	70	70	2047 R	.05996
6 2017	BOIS X	13	13	2032 R	.05794
6 2027	BOIS X	151	151	2047 R	.05861
6 2027	BOIS X	23141	23141	2052 R	.05928
6 2027	BOIS X	8443	8443	2077 R	.05996
6 2032	BOIS X	13	13	2047 R	.05794
6 2032	BOIS X	1042	1042	2067 R	.05996
6 2047	BOIS X	151	151	2067 R	.05861
6 2047	BOIS X	70	70	2077 R	.05996
6 2047	BOIS X	859	859	2087 R	.05996
6 2047	BOIS X	13	13	2062 R	.05794
6 2052	BOIS X	23141	23141	2077 R	.05928
6 2011	BONN X	69203	69203	2016 R	.05616
6 2011	BONN X	29448	29448	2018 R	.05678
6 2011	BONN X	78718	78718	2046 R	.05996
6 2011	BONN X	120	120	2021 R	.05726
6 2012	BONN X	16	16	2047 R	.05996
6 2012	BONN X	1189	1189	2027 R	.05794
6 2013	BONN X	4295	4295	2021 R	.05694
6 2013	BONN X	156	156	2025 R	.05753
6 2016	BONN X	69203	69203	2021 R	.05616
6 2016	BONN X	2760	2760	2031 R	.05794
6 2016	BONN X	2777	2777	2041 R	.05928
6 2017	BONN X	75168	75168	2052 R	.05996
6 2018	BONN X	29448	29448	2025 R	.05678
6 2021	BONN X	69203	69203	2026 R	.05616
6 2021	BONN X	665	665	2041 R	.05861
6 2021	BONN X	69402	69402	2061 R	.05996
6 2021	BONN X	120	120	2031 R	.05726
6 2021	BONN X	4295	4295	2029 R	.05694
6 2022	BONN X	67184	67184	2062 R	.05996
6 2022	BONN X	62086	62086	2067 R	.05996
6 2025	BONN X	29448	29448	2032 R	.05678
6 2025	BONN X	156	156	2037 R	.05753
6 2026	BONN X	69203	69203	2031 R	.05616
6 2027	BONN X	319	319	2077 R	.05996
6 2027	BONN X	15	15	2052 R	.05928
6 2027	BONN X	1028	1028	2072 R	.05996
6 2027	BONN X	1189	1189	2042 R	.05794
6 2029	BONN X	4295	4295	2037 R	.05694
6 2031	BONN X	120	120	2041 R	.05726
6 2031	BONN X	69203	69203	2036 R	.05616
6 2031	BONN X	2760	2760	2046 R	.05794
6 2031	BONN X	1195	1195	2076 R	.05996
6 2032	BONN X	14562	14562	2082 R	.05996
6 2032	BONN X	29448	29448	2039 R	.05678
6 2032	BONN X	4562	4562	2057 R	.05928
6 2036	BONN X	69203	69203	2041 R	.05616
6 2037	BONN X	4295	4295	2045 R	.05694
6 2037	BONN X	156	156	2049 R	.05753
6 2039	BONN X	29448	29448	2046 R	.05678
6 2041	BONN X	2777	2777	2066 R	.05928
6 2041	BONN X	665	665	2061 R	.05861
6 2041	BONN X	120	120	2051 R	.05726
6 2041	BONN X	69203	69203	2046 R	.05616
6 2041	BONN X	23074	23074	2091 R	.05996
6 2042	BONN X	1189	1189	2057 R	.05794
6 2045	BONN X	4295	4295	2053 R	.05694
6 2046	BONN X	69203	69203	2051 R	.05616
6 2046	BONN X	2760	2760	2061 R	.05794
6 2046	BONN X	78718	78718	2081 R	.05996
6 2046	BONN X	29448	29448	2053 R	.05678
6 2047	BONN X	16	16	2082 R	.05996
6 2049	BONN X	156	156	2061 R	.05753
6 2051	BONN X	69203	69203	2056 R	.05616
6 2051	BONN X	120	120	2061 R	.05726
6 2052	BONN X	15	15	2077 R	.05928
6 2052	BONN X	75168	75168	2087 R	.05996
6 2053	BONN X	29448	29448	2060 R	.05678
6 2053	BONN X	4295	4295	2061 R	.05694
6 2013	CHIE X	74609	74609	2048 R	.05996
6 2017	CHIE X	44	44	2027 R	.05726
6 2017	CHIE X	2335	2335	2037 R	.05861
6 2017	CHIE X	1528	1528	2032 R	.05794
6 2018	CHIE X	758	758	2038 R	.05861
6 2018	CHIE X	47676	47676	2058 R	.05996
6 2023	CHIE X	216	216	2038 R	.05794
6 2027	CHIE X	44	44	2037 R	.05726
6 2027	CHIE X	61476	61476	2062 R	.05996
6 2028	CHIE X	366	366	2053 R	.05928

6	2028	CHIE X	13185	13185	2078 R	.05996
6	2032	CHIE X	4488	4488	2057 R	.05928
6	2032	CHIE X	1528	1528	2047 R	.05794
6	2037	CHIE X	44	44	2047 R	.05726
6	2037	CHIE X	2335	2335	2057 R	.05861
6	2037	CHIE X	29603	29603	2077 R	.05996
6	2038	CHIE X	216	216	2053 R	.05794
6	2038	CHIE X	758	758	2058 R	.05861
6	2047	CHIE X	1528	1528	2062 R	.05794
6	2047	CHIE X	44	44	2057 R	.05726
6	2048	CHIE X	74609	74609	2083 R	.05996
6	2053	CHIE X	366	366	2078 R	.05928
6	2053	CHIE X	216	216	2068 R	.05794
6	2013	COLU X	58797	58797	2048 R	.05996
6	2017	COLU X	42469	42469	2052 R	.05996
6	2018	COLU X	5885	5885	2038 R	.05861
6	2018	COLU X	205282	205282	2058 R	.05996
6	2022	COLU X	48386	48386	2047 R	.05928
6	2022	COLU X	906	906	2037 R	.05794
6	2023	COLU X	1225	1225	2038 R	.05794
6	2023	COLU X	64033	64033	2068 R	.05996
6	2027	COLU X	5023	5023	2047 R	.05861
6	2027	COLU X	46739	46739	2067 R	.05996
6	2028	COLU X	53097	53097	2053 R	.05928
6	2028	COLU X	124722	124722	2078 R	.05996
6	2037	COLU X	49608	49608	2082 R	.05996
6	2037	COLU X	2243	2243	2067 R	.05996
6	2037	COLU X	906	906	2052 R	.05794
6	2038	COLU X	1225	1225	2053 R	.05794
6	2038	COLU X	5885	5885	2058 R	.05861
6	2038	COLU X	2518	2518	2068 R	.05996
6	2047	COLU X	48386	48386	2072 R	.05928
6	2047	COLU X	151088	151088	2097 R	.05996
6	2047	COLU X	5023	5023	2067 R	.05861
6	2048	COLU X	58797	58797	2083 R	.05996
6	2052	COLU X	906	906	2067 R	.05794
6	2052	COLU X	42469	42469	2087 R	.05996
6	2053	COLU X	1225	1225	2068 R	.05794
6	2053	COLU X	53097	53097	2078 R	.05928
6	2012	COUG X	4	4	2020 R	.05694
6	2013	COUG X	2	2	2020 R	.05678
6	2014	COUG X	144	144	2039 R	.05928
6	2020	COUG X	2	2	2027 R	.05678
6	2020	COUG X	4	4	2028 R	.05694
6	2024	COUG X	76	76	2044 R	.05861
6	2024	COUG X	47	47	2039 R	.05794
6	2027	COUG X	2	2	2034 R	.05678
6	2028	COUG X	4	4	2036 R	.05694
6	2034	COUG X	2	2	2041 R	.05678
6	2034	COUG X	2760	2760	2069 R	.05996
6	2036	COUG X	4	4	2044 R	.05694
6	2039	COUG X	144	144	2064 R	.05928
6	2039	COUG X	47	47	2054 R	.05794
6	2041	COUG X	2	2	2048 R	.05678
6	2044	COUG X	1626	1626	2084 R	.05996
6	2044	COUG X	4	4	2052 R	.05694
6	2044	COUG X	76	76	2064 R	.05861
6	2048	COUG X	2	2	2055 R	.05678
6	2052	COUG X	4	4	2060 R	.05694
6	2054	COUG X	47	47	2069 R	.05794
6	2014	DETR X	664	664	2044 R	.05996
6	2014	DETR X	318	318	2034 R	.05861
6	2014	DETR X	18	18	2029 R	.05794
6	2014	DETR X	34	34	2024 R	.05726
6	2014	DETR X	4908	4908	2034 R	.05861
6	2014	DETR X	25154	25154	2029 R	.05794
6	2014	DETR X	26	26	2026 R	.05753
6	2017	DETR X	2	2	2024 R	.05678
6	2018	DETR X	5	5	2026 R	.05694
6	2024	DETR X	2677	2677	2059 R	.05996
6	2024	DETR X	34	34	2034 R	.05726
6	2024	DETR X	2	2	2031 R	.05678
6	2026	DETR X	5	5	2034 R	.05694
6	2026	DETR X	26	26	2038 R	.05753
6	2029	DETR X	114	114	2054 R	.05928
6	2029	DETR X	18	18	2044 R	.05794
6	2029	DETR X	25154	25154	2044 R	.05794
6	2029	DETR X	222	222	2054 R	.05928
6	2031	DETR X	2	2	2038 R	.05678
6	2034	DETR X	1606	1606	2074 R	.05996
6	2034	DETR X	13798	13798	2074 R	.05996
6	2034	DETR X	34	34	2044 R	.05726
6	2034	DETR X	4908	4908	2054 R	.05861
6	2034	DETR X	318	318	2054 R	.05861
6	2034	DETR X	5	5	2042 R	.05694
6	2038	DETR X	26	26	2050 R	.05753
6	2038	DETR X	2	2	2045 R	.05678
6	2041	DETR X	605	605	2091 R	.05996
6	2042	DETR X	5	5	2050 R	.05694
6	2044	DETR X	5244	5244	2089 R	.05996
6	2044	DETR X	18	18	2059 R	.05794
6	2044	DETR X	34	34	2054 R	.05726
6	2044	DETR X	25154	25154	2059 R	.05794
6	2044	DETR X	664	664	2074 R	.05996
6	2045	DETR X	2	2	2052 R	.05678
6	2050	DETR X	26	26	2062 R	.05753
6	2050	DETR X	5	5	2058 R	.05694
6	2052	DETR X	2	2	2059 R	.05678
6	2054	DETR X	222	222	2079 R	.05928
6	2054	DETR X	34	34	2064 R	.05726
6	2054	DETR X	4908	4908	2074 R	.05861
6	2054	DETR X	318	318	2074 R	.05861
6	2054	DETR X	114	114	2079 R	.05928
6	2013	DWOR X	40	40	2021 R	.05694

6	2013	DWOR X	8244	8244	2053 R	.05996
6	2013	DWOR X	3654	3654	2033 R	.05861
6	2013	DWOR X	196	196	2023 R	.05726
6	2015	DWOR X	18	18	2022 R	.05678
6	2018	DWOR X	3131	3131	2033 R	.05794
6	2021	DWOR X	40	40	2029 R	.05694
6	2021	DWOR X	58	58	2033 R	.05753
6	2022	DWOR X	18	18	2029 R	.05678
6	2023	DWOR X	1869	1869	2073 R	.05996
6	2023	DWOR X	196	196	2033 R	.05726
6	2023	DWOR X	7890	7890	2048 R	.05928
6	2029	DWOR X	18	18	2036 R	.05678
6	2029	DWOR X	40	40	2037 R	.05694
6	2033	DWOR X	3654	3654	2053 R	.05861
6	2033	DWOR X	3131	3131	2048 R	.05794
6	2033	DWOR X	58	58	2045 R	.05753
6	2033	DWOR X	196	196	2043 R	.05726
6	2036	DWOR X	18	18	2043 R	.05678
6	2037	DWOR X	40	40	2045 R	.05694
6	2043	DWOR X	196	196	2053 R	.05726
6	2043	DWOR X	18	18	2050 R	.05678
6	2043	DWOR X	13265	13265	2078 R	.05996
6	2045	DWOR X	40	40	2053 R	.05694
6	2045	DWOR X	58	58	2057 R	.05753
6	2048	DWOR X	7890	7890	2073 R	.05928
6	2048	DWOR X	3131	3131	2063 R	.05794
6	2050	DWOR X	18	18	2057 R	.05678
6	2053	DWOR X	3654	3654	2073 R	.05861
6	2053	DWOR X	40	40	2061 R	.05694
6	2053	DWOR X	8244	8244	2093 R	.05996
6	2053	DWOR X	196	196	2063 R	.05726
6	2012	GREE X	2124	2124	2057 R	.05996
6	2013	GREE X	1826	1826	2058 R	.05996
6	2015	GREE X	15	15	2023 R	.05694
6	2016	GREE X	18	18	2023 R	.05678
6	2017	GREE X	144	144	2042 R	.05928
6	2017	GREE X	23	23	2027 R	.05726
6	2018	GREE X	74	74	2043 R	.05928
6	2023	GREE X	15	15	2031 R	.05694
6	2023	GREE X	18	18	2030 R	.05678
6	2027	GREE X	476	476	2057 R	.05996
6	2027	GREE X	23	23	2037 R	.05726
6	2027	GREE X	1039	1039	2047 R	.05861
6	2028	GREE X	172	172	2058 R	.05996
6	2028	GREE X	849	849	2048 R	.05861
6	2030	GREE X	18	18	2037 R	.05678
6	2031	GREE X	15	15	2039 R	.05694
6	2037	GREE X	23	23	2047 R	.05726
6	2037	GREE X	18	18	2044 R	.05678
6	2039	GREE X	15	15	2047 R	.05694
6	2042	GREE X	144	144	2067 R	.05928
6	2043	GREE X	74	74	2068 R	.05928
6	2044	GREE X	18	18	2051 R	.05678
6	2047	GREE X	4109	4109	2087 R	.05996
6	2047	GREE X	15	15	2055 R	.05694
6	2047	GREE X	1039	1039	2067 R	.05861
6	2047	GREE X	23	23	2057 R	.05726
6	2048	GREE X	849	849	2068 R	.05861
6	2048	GREE X	18021	18021	2088 R	.05996
6	2051	GREE X	18	18	2058 R	.05678
6	2012	HILL X	1	1	2037 R	.05928
6	2022	HILL X	369	369	2052 R	.05996
6	2037	HILL X	1	1	2062 R	.05928
6	2042	HILL X	1887	1887	2082 R	.05996
6	2052	HILL X	598	598	2097 R	.05996
6	2052	HILL X	369	369	2082 R	.05996
6	2013	HUNG X	503	503	2028 R	.05794
6	2013	HUNG X	756	756	2033 R	.05861
6	2013	HUNG X	508	508	2043 R	.05996
6	2023	HUNG X	3583	3583	2058 R	.05996
6	2028	HUNG X	503	503	2043 R	.05794
6	2028	HUNG X	11503	11503	2053 R	.05928
6	2033	HUNG X	756	756	2053 R	.05861
6	2033	HUNG X	6573	6573	2073 R	.05996
6	2043	HUNG X	508	508	2073 R	.05996
6	2043	HUNG X	7220	7220	2088 R	.05996
6	2043	HUNG X	503	503	2058 R	.05794
6	2053	HUNG X	756	756	2073 R	.05861
6	2053	HUNG X	11503	11503	2078 R	.05928
6	2053	HUNG X	49500	49500	2103 R	.05996
6	2011	ICEH X	6910	6910	2046 R	.05996
6	2011	ICEH X	27608	27608	2018 R	.05678
6	2012	ICEH X	4209	4209	2062 R	.05996
6	2012	ICEH X	1694	1694	2037 R	.05928
6	2012	ICEH X	14601	14601	2017 R	.05616
6	2012	ICEH X	14233	14233	2022 R	.05726
6	2016	ICEH X	4637	4637	2056 R	.05996
6	2016	ICEH X	209	209	2036 R	.05861
6	2017	ICEH X	14601	14601	2022 R	.05616
6	2018	ICEH X	7485	7485	2026 R	.05694
6	2018	ICEH X	27608	27608	2025 R	.05678
6	2021	ICEH X	29	29	2066 R	.05996
6	2022	ICEH X	5153	5153	2034 R	.05753
6	2022	ICEH X	14233	14233	2032 R	.05726
6	2022	ICEH X	14601	14601	2027 R	.05616
6	2022	ICEH X	1553	1553	2042 R	.05861
6	2022	ICEH X	387	387	2052 R	.05996
6	2025	ICEH X	27608	27608	2032 R	.05678
6	2026	ICEH X	7485	7485	2034 R	.05694
6	2026	ICEH X	1331	1331	2076 R	.05996
6	2026	ICEH X	45	45	2051 R	.05928
6	2027	ICEH X	14601	14601	2032 R	.05616
6	2032	ICEH X	18005	18005	2067 R	.05996
6	2032	ICEH X	27608	27608	2039 R	.05678

6	2032	ICEH X	14601	14601	2037 R	.05616
6	2032	ICEH X	14233	14233	2042 R	.05726
6	2034	ICEH X	7485	7485	2042 R	.05694
6	2034	ICEH X	5153	5153	2046 R	.05753
6	2036	ICEH X	209	209	2056 R	.05861
6	2037	ICEH X	1694	1694	2062 R	.05928
6	2037	ICEH X	14601	14601	2042 R	.05616
6	2039	ICEH X	27608	27608	2046 R	.05678
6	2042	ICEH X	12395	12395	2082 R	.05996
6	2042	ICEH X	7485	7485	2050 R	.05694
6	2042	ICEH X	14601	14601	2047 R	.05616
6	2042	ICEH X	14233	14233	2052 R	.05726
6	2042	ICEH X	1553	1553	2062 R	.05861
6	2046	ICEH X	5153	5153	2058 R	.05753
6	2046	ICEH X	6910	6910	2081 R	.05996
6	2046	ICEH X	27608	27608	2053 R	.05678
6	2047	ICEH X	14601	14601	2052 R	.05616
6	2050	ICEH X	7485	7485	2058 R	.05694
6	2051	ICEH X	45	45	2076 R	.05928
6	2052	ICEH X	14233	14233	2062 R	.05726
6	2052	ICEH X	387	387	2082 R	.05996
6	2052	ICEH X	14601	14601	2057 R	.05616
6	2052	ICEH X	213	213	2097 R	.05996
6	2053	ICEH X	27608	27608	2060 R	.05678
6	2012	JOHN X	29	29	2019 R	.05678
6	2015	JOHN X	30858	30858	2060 R	.05996
6	2015	JOHN X	2130	2130	2030 R	.05794
6	2015	JOHN X	169	169	2030 R	.05794
6	2018	JOHN X	47	47	2030 R	.05753
6	2018	JOHN X	5	5	2026 R	.05694
6	2019	JOHN X	29	29	2026 R	.05678
6	2020	JOHN X	694	694	2045 R	.05928
6	2026	JOHN X	29	29	2033 R	.05678
6	2026	JOHN X	5	5	2034 R	.05694
6	2030	JOHN X	47	47	2042 R	.05753
6	2030	JOHN X	2130	2130	2045 R	.05794
6	2030	JOHN X	2130	2130	2050 R	.05861
6	2030	JOHN X	169	169	2045 R	.05794
6	2030	JOHN X	3800	3800	2060 R	.05996
6	2033	JOHN X	29	29	2040 R	.05678
6	2034	JOHN X	5	5	2042 R	.05694
6	2040	JOHN X	29	29	2047 R	.05678
6	2040	JOHN X	578	578	2075 R	.05996
6	2042	JOHN X	5	5	2050 R	.05694
6	2042	JOHN X	47	47	2054 R	.05753
6	2045	JOHN X	2130	2130	2060 R	.05794
6	2045	JOHN X	694	694	2070 R	.05928
6	2045	JOHN X	169	169	2060 R	.05794
6	2047	JOHN X	29	29	2054 R	.05678
6	2050	JOHN X	5	5	2058 R	.05694
6	2050	JOHN X	49500	49500	2090 R	.05996
6	2050	JOHN X	2130	2130	2070 R	.05861
6	2054	JOHN X	29	29	2061 R	.05678
6	2054	JOHN X	47	47	2066 R	.05753
6	2011	LIBB X	74	74	2018 R	.05678
6	2011	LIBB X	11218	11218	2046 R	.05996
6	2015	LIBB X	222	222	2030 R	.05794
6	2016	LIBB X	16758	16758	2056 R	.05996
6	2016	LIBB X	74	74	2026 R	.05726
6	2016	LIBB X	713	713	2036 R	.05861
6	2018	LIBB X	74	74	2025 R	.05678
6	2020	LIBB X	8362	8362	2055 R	.05996
6	2021	LIBB X	2029	2029	2036 R	.05794
6	2025	LIBB X	74	74	2032 R	.05678
6	2025	LIBB X	8428	8428	2065 R	.05996
6	2026	LIBB X	2814	2814	2051 R	.05928
6	2026	LIBB X	3574	3574	2076 R	.05996
6	2026	LIBB X	74	74	2036 R	.05726
6	2030	LIBB X	222	222	2045 R	.05794
6	2032	LIBB X	74	74	2039 R	.05678
6	2035	LIBB X	299	299	2060 R	.05928
6	2035	LIBB X	6503	6503	2085 R	.05996
6	2036	LIBB X	74	74	2046 R	.05726
6	2036	LIBB X	2029	2029	2051 R	.05794
6	2036	LIBB X	713	713	2056 R	.05861
6	2039	LIBB X	74	74	2046 R	.05678
6	2045	LIBB X	222	222	2060 R	.05794
6	2046	LIBB X	74	74	2053 R	.05678
6	2046	LIBB X	11218	11218	2081 R	.05996
6	2046	LIBB X	74	74	2056 R	.05726
6	2051	LIBB X	2814	2814	2076 R	.05928
6	2051	LIBB X	2029	2029	2066 R	.05794
6	2053	LIBB X	74	74	2060 R	.05678
6	2011	LITT X	43	43	2019 R	.05694
6	2011	LITT X	12	12	2021 R	.05726
6	2011	LITT X	11283	11283	2051 R	.05996
6	2011	LITT X	32270	32270	2031 R	.05861
6	2013	LITT X	10492	10492	2048 R	.05996
6	2013	LITT X	25	25	2020 R	.05678
6	2016	LITT X	32761	32761	2031 R	.05794
6	2018	LITT X	207	207	2038 R	.05861
6	2018	LITT X	9409	9409	2058 R	.05996
6	2018	LITT X	1113	1113	2028 R	.05726
6	2019	LITT X	2454	2454	2031 R	.05753
6	2019	LITT X	43	43	2027 R	.05694
6	2020	LITT X	25	25	2027 R	.05678
6	2021	LITT X	12	12	2031 R	.05726
6	2021	LITT X	1045	1045	2046 R	.05928
6	2021	LITT X	3815	3815	2071 R	.05996
6	2023	LITT X	135	135	2068 R	.05996
6	2027	LITT X	25	25	2034 R	.05678
6	2027	LITT X	43	43	2035 R	.05694
6	2028	LITT X	40	40	2053 R	.05928
6	2028	LITT X	1826	1826	2078 R	.05996

6	2028	LITT X	1113	1113	2038 R	.05726
6	2031	LITT X	259	259	2061 R	.05996
6	2031	LITT X	32270	32270	2051 R	.05861
6	2031	LITT X	12	12	2041 R	.05726
6	2031	LITT X	2454	2454	2043 R	.05753
6	2031	LITT X	32761	32761	2046 R	.05794
6	2034	LITT X	25	25	2041 R	.05678
6	2035	LITT X	43	43	2043 R	.05694
6	2038	LITT X	1113	1113	2048 R	.05726
6	2038	LITT X	207	207	2058 R	.05861
6	2041	LITT X	25	25	2048 R	.05678
6	2041	LITT X	12	12	2051 R	.05726
6	2041	LITT X	13445	13445	2076 R	.05996
6	2043	LITT X	2454	2454	2055 R	.05753
6	2043	LITT X	43	43	2051 R	.05694
6	2046	LITT X	32761	32761	2061 R	.05794
6	2046	LITT X	1045	1045	2071 R	.05928
6	2048	LITT X	25	25	2055 R	.05678
6	2048	LITT X	1113	1113	2058 R	.05726
6	2048	LITT X	10492	10492	2083 R	.05996
6	2051	LITT X	43	43	2059 R	.05694
6	2051	LITT X	12	12	2061 R	.05726
6	2051	LITT X	32270	32270	2071 R	.05861
6	2051	LITT X	11283	11283	2091 R	.05996
6	2053	LITT X	40	40	2078 R	.05928
6	2011	LOOK X	6	6	2019 R	.05694
6	2011	LOOK X	16	16	2018 R	.05678
6	2015	LOOK X	81	81	2035 R	.05861
6	2015	LOOK X	117	117	2025 R	.05726
6	2015	LOOK X	472	472	2035 R	.05861
6	2015	LOOK X	465	465	2030 R	.05794
6	2015	LOOK X	42	42	2027 R	.05753
6	2018	LOOK X	16	16	2025 R	.05678
6	2019	LOOK X	6	6	2027 R	.05694
6	2025	LOOK X	16	16	2032 R	.05678
6	2025	LOOK X	117	117	2035 R	.05726
6	2027	LOOK X	6	6	2035 R	.05694
6	2027	LOOK X	42	42	2039 R	.05753
6	2030	LOOK X	37	37	2055 R	.05928
6	2030	LOOK X	465	465	2045 R	.05794
6	2030	LOOK X	575	575	2055 R	.05928
6	2032	LOOK X	16	16	2039 R	.05678
6	2035	LOOK X	81	81	2055 R	.05861
6	2035	LOOK X	6	6	2043 R	.05694
6	2035	LOOK X	11432	11432	2075 R	.05996
6	2035	LOOK X	472	472	2055 R	.05861
6	2035	LOOK X	2280	2280	2075 R	.05996
6	2035	LOOK X	117	117	2045 R	.05726
6	2039	LOOK X	16	16	2046 R	.05678
6	2039	LOOK X	42	42	2051 R	.05753
6	2043	LOOK X	6	6	2051 R	.05694
6	2045	LOOK X	5973	5973	2090 R	.05996
6	2045	LOOK X	2482	2482	2090 R	.05996
6	2045	LOOK X	117	117	2055 R	.05726
6	2045	LOOK X	465	465	2060 R	.05794
6	2046	LOOK X	16	16	2053 R	.05678
6	2051	LOOK X	6	6	2059 R	.05694
6	2051	LOOK X	42	42	2063 R	.05753
6	2053	LOOK X	16	16	2060 R	.05678
6	2012	LOST X	18	18	2047 R	.05996
6	2013	LOST X	5	5	2025 R	.05753
6	2017	LOST X	1	1	2025 R	.05694
6	2017	LOST X	1659	1659	2057 R	.05996
6	2017	LOST X	40	40	2037 R	.05861
6	2022	LOST X	1294	1294	2067 R	.05996
6	2025	LOST X	5	5	2037 R	.05753
6	2025	LOST X	1	1	2033 R	.05694
6	2027	LOST X	621	621	2077 R	.05996
6	2027	LOST X	80	80	2052 R	.05928
6	2033	LOST X	1	1	2041 R	.05694
6	2037	LOST X	5	5	2049 R	.05753
6	2037	LOST X	40	40	2057 R	.05861
6	2037	LOST X	175	175	2067 R	.05996
6	2041	LOST X	1	1	2049 R	.05694
6	2047	LOST X	18	18	2082 R	.05996
6	2049	LOST X	5	5	2061 R	.05753
6	2049	LOST X	1	1	2057 R	.05694
6	2052	LOST X	80	80	2077 R	.05928
6	2011	LOWG X	22	22	2023 R	.05753
6	2013	LOWG X	10666	10666	2048 R	.05996
6	2015	LOWG X	7553	7553	2055 R	.05996
6	2015	LOWG X	953	953	2025 R	.05726
6	2015	LOWG X	38282	38282	2035 R	.05861
6	2015	LOWG X	34	34	2023 R	.05694
6	2017	LOWG X	26	26	2024 R	.05678
6	2018	LOWG X	8283	8283	2058 R	.05996
6	2018	LOWG X	335	335	2038 R	.05861
6	2020	LOWG X	18650	18650	2035 R	.05794
6	2023	LOWG X	34	34	2031 R	.05694
6	2023	LOWG X	335	335	2038 R	.05794
6	2023	LOWG X	22	22	2035 R	.05753
6	2024	LOWG X	26	26	2031 R	.05678
6	2025	LOWG X	953	953	2035 R	.05726
6	2025	LOWG X	222	222	2050 R	.05928
6	2025	LOWG X	1693	1693	2075 R	.05996
6	2028	LOWG X	125	125	2053 R	.05928
6	2028	LOWG X	1768	1768	2078 R	.05996
6	2031	LOWG X	26	26	2038 R	.05678
6	2031	LOWG X	34	34	2039 R	.05694
6	2035	LOWG X	22	22	2047 R	.05753
6	2035	LOWG X	953	953	2045 R	.05726
6	2035	LOWG X	715	715	2065 R	.05996
6	2035	LOWG X	18650	18650	2050 R	.05794
6	2035	LOWG X	38282	38282	2055 R	.05861

6	2038	LOWG X	335	335	2053 R	.05794
6	2038	LOWG X	26	26	2045 R	.05678
6	2038	LOWG X	335	335	2058 R	.05861
6	2039	LOWG X	34	34	2047 R	.05694
6	2045	LOWG X	953	953	2055 R	.05726
6	2045	LOWG X	9056	9056	2080 R	.05996
6	2045	LOWG X	26	26	2052 R	.05678
6	2047	LOWG X	22	22	2059 R	.05753
6	2047	LOWG X	34	34	2055 R	.05694
6	2048	LOWG X	10666	10666	2083 R	.05996
6	2050	LOWG X	18650	18650	2065 R	.05794
6	2050	LOWG X	222	222	2075 R	.05928
6	2052	LOWG X	26	26	2059 R	.05678
6	2053	LOWG X	335	335	2068 R	.05794
6	2053	LOWG X	125	125	2078 R	.05928
6	2011	LOWM X	25	25	2018 R	.05678
6	2014	LOWM X	31534	31534	2029 R	.05794
6	2014	LOWM X	10135	10135	2049 R	.05996
6	2017	LOWM X	2454	2454	2029 R	.05753
6	2017	LOWM X	48	48	2025 R	.05694
6	2018	LOWM X	25	25	2025 R	.05678
6	2019	LOWM X	913	913	2044 R	.05928
6	2019	LOWM X	331	331	2039 R	.05861
6	2019	LOWM X	12	12	2029 R	.05726
6	2019	LOWM X	4406	4406	2069 R	.05996
6	2019	LOWM X	7358	7358	2059 R	.05996
6	2024	LOWM X	120	120	2069 R	.05996
6	2025	LOWM X	25	25	2032 R	.05678
6	2025	LOWM X	48	48	2033 R	.05694
6	2029	LOWM X	12	12	2039 R	.05726
6	2029	LOWM X	43	43	2054 R	.05928
6	2029	LOWM X	2454	2454	2041 R	.05753
6	2029	LOWM X	1789	1789	2079 R	.05996
6	2029	LOWM X	264	264	2059 R	.05996
6	2029	LOWM X	32270	32270	2049 R	.05861
6	2029	LOWM X	31534	31534	2044 R	.05794
6	2032	LOWM X	25	25	2039 R	.05678
6	2033	LOWM X	48	48	2041 R	.05694
6	2039	LOWM X	12	12	2049 R	.05726
6	2039	LOWM X	25	25	2046 R	.05678
6	2039	LOWM X	11018	11018	2074 R	.05996
6	2039	LOWM X	331	331	2059 R	.05861
6	2041	LOWM X	2454	2454	2053 R	.05753
6	2041	LOWM X	48	48	2049 R	.05694
6	2044	LOWM X	31534	31534	2059 R	.05794
6	2044	LOWM X	913	913	2069 R	.05928
6	2046	LOWM X	25	25	2053 R	.05678
6	2049	LOWM X	11288	11288	2089 R	.05996
6	2049	LOWM X	32270	32270	2069 R	.05861
6	2049	LOWM X	48	48	2057 R	.05694
6	2049	LOWM X	10135	10135	2084 R	.05996
6	2049	LOWM X	12	12	2059 R	.05726
6	2053	LOWM X	2454	2454	2065 R	.05753
6	2053	LOWM X	25	25	2060 R	.05678
6	2054	LOWM X	43	43	2079 R	.05928
6	2011	LSFW X	610	610	2018 R	.05678
6	2013	LSFW X	2369	2369	2043 R	.05996
6	2013	LSFW X	1200	1200	2028 R	.05794
6	2013	LSFW X	52	52	2018 R	.05616
6	2013	LSFW X	1110	1110	2023 R	.05726
6	2015	LSFW X	117	117	2023 R	.05694
6	2018	LSFW X	610	610	2025 R	.05678
6	2018	LSFW X	1218	1218	2053 R	.05996
6	2018	LSFW X	52	52	2023 R	.05616
6	2019	LSFW X	557	557	2031 R	.05753
6	2023	LSFW X	1110	1110	2033 R	.05726
6	2023	LSFW X	5579	5579	2043 R	.05861
6	2023	LSFW X	7683	7683	2063 R	.05996
6	2023	LSFW X	52	52	2028 R	.05616
6	2023	LSFW X	117	117	2031 R	.05694
6	2025	LSFW X	610	610	2032 R	.05678
6	2028	LSFW X	1147	1147	2073 R	.05996
6	2028	LSFW X	52	52	2033 R	.05616
6	2028	LSFW X	1200	1200	2043 R	.05794
6	2031	LSFW X	117	117	2039 R	.05694
6	2031	LSFW X	557	557	2043 R	.05753
6	2032	LSFW X	610	610	2039 R	.05678
6	2033	LSFW X	52	52	2038 R	.05616
6	2033	LSFW X	1079	1079	2058 R	.05928
6	2033	LSFW X	17926	17926	2083 R	.05996
6	2033	LSFW X	1110	1110	2043 R	.05726
6	2038	LSFW X	52	52	2043 R	.05616
6	2039	LSFW X	610	610	2046 R	.05678
6	2039	LSFW X	117	117	2047 R	.05694
6	2043	LSFW X	5579	5579	2063 R	.05861
6	2043	LSFW X	2369	2369	2073 R	.05996
6	2043	LSFW X	1110	1110	2053 R	.05726
6	2043	LSFW X	557	557	2055 R	.05753
6	2043	LSFW X	1200	1200	2058 R	.05794
6	2043	LSFW X	52	52	2048 R	.05616
6	2046	LSFW X	610	610	2053 R	.05678
6	2047	LSFW X	117	117	2055 R	.05694
6	2048	LSFW X	52	52	2053 R	.05616
6	2053	LSFW X	1110	1110	2063 R	.05726
6	2053	LSFW X	610	610	2060 R	.05678
6	2053	LSFW X	52	52	2058 R	.05616
6	2053	LSFW X	1218	1218	2088 R	.05996
6	2011	MCNA X	31	31	2018 R	.05678
6	2011	MCNA X	64	64	2019 R	.05694
6	2015	MCNA X	1323	1323	2035 R	.05861
6	2015	MCNA X	22700	22700	2030 R	.05794
6	2015	MCNA X	30675	30675	2027 R	.05753
6	2015	MCNA X	62577	62577	2025 R	.05726
6	2018	MCNA X	31	31	2025 R	.05678

6	2019	MCNA X	64	64	2027 R	.05694
6	2025	MCNA X	67620	67620	2060 R	.05996
6	2025	MCNA X	62577	62577	2035 R	.05726
6	2025	MCNA X	31	31	2032 R	.05678
6	2027	MCNA X	30675	30675	2039 R	.05753
6	2027	MCNA X	64	64	2035 R	.05694
6	2030	MCNA X	978	978	2055 R	.05928
6	2030	MCNA X	22700	22700	2045 R	.05794
6	2032	MCNA X	31	31	2039 R	.05678
6	2035	MCNA X	1323	1323	2055 R	.05861
6	2035	MCNA X	62577	62577	2045 R	.05726
6	2035	MCNA X	34696	34696	2075 R	.05996
6	2035	MCNA X	64	64	2043 R	.05694
6	2039	MCNA X	31	31	2046 R	.05678
6	2039	MCNA X	30675	30675	2051 R	.05753
6	2043	MCNA X	64	64	2051 R	.05694
6	2045	MCNA X	62577	62577	2055 R	.05726
6	2045	MCNA X	22700	22700	2060 R	.05794
6	2046	MCNA X	31	31	2053 R	.05678
6	2051	MCNA X	64	64	2059 R	.05694
6	2051	MCNA X	30675	30675	2063 R	.05753
6	2053	MCNA X	31	31	2060 R	.05678
6	2017	MINI X	298	298	2037 R	.05861
6	2017	MINI X	17	17	2027 R	.05726
6	2017	MINI X	136	136	2032 R	.05794
6	2017	MINI X	5134	5134	2067 R	.05996
6	2017	MINI X	101	101	2037 R	.05861
6	2017	MINI X	94	94	2047 R	.05996
6	2017	MINI X	2106	2106	2042 R	.05928
6	2022	MINI X	92	92	2037 R	.05794
6	2022	MINI X	3303	3303	2057 R	.05996
6	2027	MINI X	794	794	2062 R	.05996
6	2027	MINI X	17	17	2037 R	.05726
6	2032	MINI X	136	136	2047 R	.05794
6	2032	MINI X	2517	2517	2057 R	.05928
6	2037	MINI X	1758	1758	2077 R	.05996
6	2037	MINI X	75	75	2067 R	.05996
6	2037	MINI X	17	17	2047 R	.05726
6	2037	MINI X	101	101	2057 R	.05861
6	2037	MINI X	92	92	2052 R	.05794
6	2037	MINI X	6779	6779	2077 R	.05996
6	2037	MINI X	298	298	2057 R	.05861
6	2042	MINI X	2106	2106	2067 R	.05928
6	2047	MINI X	136	136	2062 R	.05794
6	2047	MINI X	17	17	2057 R	.05726
6	2047	MINI X	94	94	2077 R	.05996
6	2047	MINI X	4303	4303	2092 R	.05996
6	2052	MINI X	92	92	2067 R	.05794
6	2052	MINI X	6569	6569	2097 R	.05996
6	2013	THED X	242	242	2033 R	.05861
6	2014	THED X	47	47	2019 R	.05616
6	2015	THED X	76	76	2023 R	.05694
6	2015	THED X	50	50	2022 R	.05678
6	2018	THED X	6223	6223	2063 R	.05996
6	2018	THED X	2096	2096	2033 R	.05794
6	2019	THED X	1358	1358	2034 R	.05794
6	2019	THED X	47	47	2024 R	.05616
6	2019	THED X	1336	1336	2039 R	.05861
6	2019	THED X	1	1	2029 R	.05726
6	2019	THED X	10	10	2031 R	.05753
6	2021	THED X	1853	1853	2033 R	.05753
6	2022	THED X	50	50	2029 R	.05678
6	2023	THED X	76	76	2031 R	.05694
6	2024	THED X	47	47	2029 R	.05616
6	2029	THED X	75154	75154	2064 R	.05996
6	2029	THED X	50	50	2036 R	.05678
6	2029	THED X	47	47	2034 R	.05616
6	2029	THED X	1	1	2039 R	.05726
6	2031	THED X	76	76	2039 R	.05694
6	2031	THED X	10	10	2043 R	.05753
6	2033	THED X	1853	1853	2045 R	.05753
6	2033	THED X	20715	20715	2063 R	.05996
6	2033	THED X	242	242	2053 R	.05861
6	2033	THED X	2096	2096	2048 R	.05794
6	2034	THED X	47	47	2039 R	.05616
6	2034	THED X	1358	1358	2049 R	.05794
6	2034	THED X	2744	2744	2059 R	.05928
6	2036	THED X	50	50	2043 R	.05678
6	2039	THED X	47	47	2044 R	.05616
6	2039	THED X	47451	47451	2079 R	.05996
6	2039	THED X	1336	1336	2059 R	.05861
6	2039	THED X	1	1	2049 R	.05726
6	2039	THED X	76	76	2047 R	.05694
6	2043	THED X	50	50	2050 R	.05678
6	2043	THED X	10	10	2055 R	.05753
6	2043	THED X	16752	16752	2078 R	.05996
6	2044	THED X	47	47	2049 R	.05616
6	2045	THED X	1853	1853	2057 R	.05753
6	2047	THED X	76	76	2055 R	.05694
6	2048	THED X	2096	2096	2063 R	.05794
6	2049	THED X	1	1	2059 R	.05726
6	2049	THED X	47	47	2054 R	.05616
6	2049	THED X	1358	1358	2064 R	.05794
6	2050	THED X	50	50	2057 R	.05678
6	2053	THED X	242	242	2073 R	.05861
6	2054	THED X	47	47	2059 R	.05616
6	2016	YAKC X	64	64	2026 R	.05726
6	2016	YAKC X	27	27	2031 R	.05794
6	2016	YAKC X	65	65	2046 R	.05996
6	2016	YAKC X	94	94	2036 R	.05861
6	2026	YAKC X	64	64	2036 R	.05726
6	2026	YAKC X	513	513	2061 R	.05996
6	2031	YAKC X	27	27	2046 R	.05794
6	2031	YAKC X	1010	1010	2056 R	.05928

6	2036	YAKC X	507	507	2076 R	.05996
6	2036	YAKC X	94	94	2056 R	.05861
6	2036	YAKC X	64	64	2046 R	.05726
6	2046	YAKC X	27	27	2061 R	.05794
6	2046	YAKC X	64	64	2056 R	.05726
6	2046	YAKC X	828	828	2091 R	.05996
6	2046	YAKC X	65	65	2076 R	.05996
6	2018	YAKR X	2	2	2033 R	.05794
6	2018	YAKR X	5	5	2048 R	.05996
6	2018	YAKR X	9	9	2038 R	.05861
6	2028	YAKR X	59	59	2063 R	.05996
6	2033	YAKR X	2	2	2048 R	.05794
6	2033	YAKR X	114	114	2058 R	.05928
6	2038	YAKR X	134	134	2078 R	.05996
6	2038	YAKR X	9	9	2058 R	.05861
6	2048	YAKR X	5	5	2078 R	.05996
6	2048	YAKR X	2	2	2063 R	.05794
6	2048	YAKR X	226	226	2093 R	.05996

**COE-BOR REPLACEMENTS
FY 2005**

CORPS-BUREAU REPLACEMENTS

INSERVICE DATE	PROJECT	ORIGINAL PRINCIPAL	CURRENT PRINCIPAL	DATE DUE	INTEREST RATE
6 2015	ALBE X	1	1	2025 R	.05674
6 2015	ALBE X	51	51	2030 R	.05752
6 2015	ALBE X	115	115	2027 R	.05705
6 2015	ALBE X	815	815	2035 R	.05829
6 2025	ALBE X	1	1	2035 R	.05674
6 2025	ALBE X	7483	7483	2060 R	.05984
6 2027	ALBE X	115	115	2039 R	.05705
6 2030	ALBE X	2220	2220	2055 R	.05906
6 2030	ALBE X	51	51	2045 R	.05752
6 2035	ALBE X	1	1	2045 R	.05674
6 2035	ALBE X	560	560	2075 R	.05984
6 2035	ALBE X	815	815	2055 R	.05829
6 2039	ALBE X	115	115	2051 R	.05705
6 2045	ALBE X	51	51	2060 R	.05752
6 2045	ALBE X	1	1	2055 R	.05674
6 2051	ALBE X	115	115	2063 R	.05705
6 2055	ALBE X	1	1	2065 R	.05674
6 2055	ALBE X	2220	2220	2080 R	.05906
6 2055	ALBE X	815	815	2075 R	.05829
6 2017	BOIS X	667	667	2062 R	.05984
6 2017	BOIS X	57	57	2047 R	.05984
6 2017	BOIS X	11	11	2032 R	.05752
6 2027	BOIS X	123	123	2047 R	.05829
6 2027	BOIS X	18860	18860	2052 R	.05906
6 2027	BOIS X	6881	6881	2077 R	.05984
6 2032	BOIS X	11	11	2047 R	.05752
6 2032	BOIS X	849	849	2067 R	.05984
6 2047	BOIS X	123	123	2067 R	.05829
6 2047	BOIS X	57	57	2077 R	.05984
6 2047	BOIS X	700	700	2087 R	.05984
6 2047	BOIS X	11	11	2062 R	.05752
6 2052	BOIS X	18860	18860	2077 R	.05906
6 2011	BONN X	56400	56400	2016 R	.05559
6 2011	BONN X	24000	24000	2018 R	.05624
6 2011	BONN X	64155	64155	2046 R	.05984
6 2011	BONN X	98	98	2021 R	.05674
6 2012	BONN X	13	13	2047 R	.05984
6 2012	BONN X	969	969	2027 R	.05752
6 2013	BONN X	3500	3500	2021 R	.05641
6 2013	BONN X	127	127	2025 R	.05705
6 2016	BONN X	56400	56400	2021 R	.05559
6 2016	BONN X	2249	2249	2031 R	.05752
6 2016	BONN X	2263	2263	2041 R	.05906
6 2017	BONN X	61262	61262	2052 R	.05984
6 2018	BONN X	24000	24000	2025 R	.05624
6 2021	BONN X	56400	56400	2026 R	.05559
6 2021	BONN X	542	542	2041 R	.05829
6 2021	BONN X	56562	56562	2061 R	.05984
6 2021	BONN X	98	98	2031 R	.05674
6 2021	BONN X	3500	3500	2029 R	.05641
6 2022	BONN X	54755	54755	2062 R	.05984
6 2022	BONN X	50600	50600	2067 R	.05984
6 2025	BONN X	24000	24000	2032 R	.05624
6 2025	BONN X	127	127	2037 R	.05705
6 2026	BONN X	56400	56400	2031 R	.05559
6 2027	BONN X	260	260	2077 R	.05984
6 2027	BONN X	12	12	2052 R	.05906
6 2027	BONN X	838	838	2072 R	.05984
6 2027	BONN X	969	969	2042 R	.05752
6 2029	BONN X	3500	3500	2037 R	.05641
6 2031	BONN X	98	98	2041 R	.05674
6 2031	BONN X	56400	56400	2036 R	.05559
6 2031	BONN X	2249	2249	2046 R	.05752
6 2031	BONN X	974	974	2076 R	.05984
6 2032	BONN X	11868	11868	2082 R	.05984
6 2032	BONN X	24000	24000	2039 R	.05624
6 2032	BONN X	3718	3718	2057 R	.05906
6 2036	BONN X	56400	56400	2041 R	.05559
6 2037	BONN X	3500	3500	2045 R	.05641
6 2037	BONN X	127	127	2049 R	.05705
6 2039	BONN X	24000	24000	2046 R	.05624
6 2041	BONN X	2263	2263	2066 R	.05906
6 2041	BONN X	542	542	2061 R	.05829
6 2041	BONN X	98	98	2051 R	.05674
6 2041	BONN X	56400	56400	2046 R	.05559
6 2041	BONN X	18805	18805	2091 R	.05984
6 2042	BONN X	969	969	2057 R	.05752
6 2045	BONN X	3500	3500	2053 R	.05641
6 2046	BONN X	56400	56400	2051 R	.05559
6 2046	BONN X	2249	2249	2061 R	.05752
6 2046	BONN X	64155	64155	2081 R	.05984
6 2046	BONN X	24000	24000	2053 R	.05624
6 2047	BONN X	13	13	2082 R	.05984
6 2049	BONN X	127	127	2061 R	.05705
6 2051	BONN X	56400	56400	2056 R	.05559
6 2051	BONN X	98	98	2061 R	.05674
6 2052	BONN X	12	12	2077 R	.05906
6 2052	BONN X	61262	61262	2087 R	.05984
6 2053	BONN X	24000	24000	2060 R	.05624
6 2053	BONN X	3500	3500	2061 R	.05641
6 2013	CHIE X	60806	60806	2048 R	.05984
6 2017	CHIE X	36	36	2027 R	.05674
6 2017	CHIE X	1903	1903	2037 R	.05829
6 2017	CHIE X	1245	1245	2032 R	.05752
6 2018	CHIE X	618	618	2038 R	.05829
6 2018	CHIE X	38856	38856	2058 R	.05984
6 2023	CHIE X	176	176	2038 R	.05752

6	2032	CHIE X					
6	2027	CHIE X	36	36	2037 R	.05674	
6	2027	CHIE X	50103	50103	2062 R	.05984	
6	2028	CHIE X	298	298	2053 R	.05906	
6	2028	CHIE X	10746	10746	2078 R	.05984	
6	2032	CHIE X	3658	3658	2057 R	.05906	
6	2032	CHIE X	1245	1245	2047 R	.05752	
6	2037	CHIE X	36	36	2047 R	.05674	
6	2037	CHIE X	1903	1903	2057 R	.05829	
6	2037	CHIE X	24126	24126	2077 R	.05984	
6	2038	CHIE X	176	176	2053 R	.05752	
6	2038	CHIE X	618	618	2058 R	.05829	
6	2047	CHIE X	1245	1245	2062 R	.05752	
6	2047	CHIE X	36	36	2057 R	.05674	
6	2048	CHIE X	60806	60806	2083 R	.05984	
6	2053	CHIE X	298	298	2078 R	.05906	
6	2053	CHIE X	176	176	2068 R	.05752	
6	2013	COLU X	47919	47919	2048 R	.05984	
6	2017	COLU X	34612	34612	2052 R	.05984	
6	2018	COLU X	4796	4796	2038 R	.05829	
6	2018	COLU X	167304	167304	2058 R	.05984	
6	2022	COLU X	39434	39434	2047 R	.05906	
6	2022	COLU X	738	738	2037 R	.05752	
6	2023	COLU X	998	998	2038 R	.05752	
6	2023	COLU X	52187	52187	2068 R	.05984	
6	2027	COLU X	4094	4094	2047 R	.05829	
6	2027	COLU X	38092	38092	2067 R	.05984	
6	2028	COLU X	43274	43274	2053 R	.05906	
6	2028	COLU X	101648	101648	2078 R	.05984	
6	2037	COLU X	40430	40430	2082 R	.05984	
6	2037	COLU X	1828	1828	2067 R	.05984	
6	2037	COLU X	738	738	2052 R	.05752	
6	2038	COLU X	998	998	2053 R	.05752	
6	2038	COLU X	4796	4796	2058 R	.05829	
6	2038	COLU X	2052	2052	2068 R	.05984	
6	2047	COLU X	39434	39434	2072 R	.05906	
6	2047	COLU X	123136	123136	2097 R	.05984	
6	2047	COLU X	4094	4094	2067 R	.05829	
6	2048	COLU X	47919	47919	2083 R	.05984	
6	2052	COLU X	738	738	2067 R	.05752	
6	2052	COLU X	34612	34612	2087 R	.05984	
6	2053	COLU X	998	998	2068 R	.05752	
6	2053	COLU X	43274	43274	2078 R	.05906	
6	2012	COUG X	3	3	2020 R	.05641	
6	2013	COUG X	2	2	2020 R	.05624	
6	2014	COUG X	117	117	2039 R	.05906	
6	2020	COUG X	2	2	2027 R	.05624	
6	2020	COUG X	3	3	2028 R	.05641	
6	2024	COUG X	62	62	2044 R	.05829	
6	2024	COUG X	38	38	2039 R	.05752	
6	2027	COUG X	2	2	2034 R	.05624	
6	2028	COUG X	3	3	2036 R	.05641	
6	2034	COUG X	2	2	2041 R	.05624	
6	2034	COUG X	2249	2249	2069 R	.05984	
6	2036	COUG X	3	3	2044 R	.05641	
6	2039	COUG X	117	117	2064 R	.05906	
6	2039	COUG X	38	38	2054 R	.05752	
6	2041	COUG X	2	2	2048 R	.05624	
6	2044	COUG X	1325	1325	2084 R	.05984	
6	2044	COUG X	3	3	2052 R	.05641	
6	2044	COUG X	62	62	2064 R	.05829	
6	2048	COUG X	2	2	2055 R	.05624	
6	2052	COUG X	3	3	2060 R	.05641	
6	2054	COUG X	38	38	2069 R	.05752	
6	2055	COUG X	2	2	2062 R	.05624	
6	2014	DETR X	541	541	2044 R	.05984	
6	2014	DETR X	259	259	2034 R	.05829	
6	2014	DETR X	15	15	2029 R	.05752	
6	2014	DETR X	28	28	2024 R	.05674	
6	2014	DETR X	4000	4000	2034 R	.05829	
6	2014	DETR X	20500	20500	2029 R	.05752	
6	2014	DETR X	21	21	2026 R	.05705	
6	2017	DETR X	2	2	2024 R	.05624	
6	2018	DETR X	4	4	2026 R	.05641	
6	2024	DETR X	2182	2182	2059 R	.05984	
6	2024	DETR X	28	28	2034 R	.05674	
6	2024	DETR X	2	2	2031 R	.05624	
6	2026	DETR X	4	4	2034 R	.05641	
6	2026	DETR X	21	21	2038 R	.05705	
6	2029	DETR X	93	93	2054 R	.05906	
6	2029	DETR X	15	15	2044 R	.05752	
6	2029	DETR X	20500	20500	2044 R	.05752	
6	2029	DETR X	181	181	2054 R	.05906	
6	2031	DETR X	2	2	2038 R	.05624	
6	2034	DETR X	1309	1309	2074 R	.05984	
6	2034	DETR X	11245	11245	2074 R	.05984	
6	2034	DETR X	28	28	2044 R	.05674	
6	2034	DETR X	4000	4000	2054 R	.05829	
6	2034	DETR X	259	259	2054 R	.05829	
6	2034	DETR X	4	4	2042 R	.05641	
6	2038	DETR X	21	21	2050 R	.05705	
6	2038	DETR X	2	2	2045 R	.05624	
6	2041	DETR X	493	493	2091 R	.05984	
6	2042	DETR X	4	4	2050 R	.05641	
6	2044	DETR X	4274	4274	2089 R	.05984	
6	2044	DETR X	15	15	2059 R	.05752	
6	2044	DETR X	28	28	2054 R	.05674	
6	2044	DETR X	20500	20500	2059 R	.05752	
6	2044	DETR X	541	541	2074 R	.05984	
6	2045	DETR X	2	2	2052 R	.05624	
6	2050	DETR X	21	21	2062 R	.05705	
6	2050	DETR X	4	4	2058 R	.05641	
6	2052	DETR X	2	2	2059 R	.05624	
6	2054	DETR X	181	181	2079 R	.05906	
6	2054	DETR X	28	28	2064 R	.05674	

6	2054	DETR X	4000	4000	2074 R	.05829
6	2054	DETR X	259	259	2074 R	.05829
6	2054	DETR X	93	93	2079 R	.05906
6	2013	DWOR X	33	33	2021 R	.05641
6	2013	DWOR X	6719	6719	2053 R	.05984
6	2013	DWOR X	2978	2978	2033 R	.05829
6	2013	DWOR X	160	160	2023 R	.05674
6	2015	DWOR X	15	15	2022 R	.05624
6	2018	DWOR X	2552	2552	2033 R	.05752
6	2021	DWOR X	33	33	2029 R	.05641
6	2021	DWOR X	47	47	2033 R	.05705
6	2022	DWOR X	15	15	2029 R	.05624
6	2023	DWOR X	1523	1523	2073 R	.05984
6	2023	DWOR X	160	160	2033 R	.05674
6	2023	DWOR X	6430	6430	2048 R	.05906
6	2029	DWOR X	15	15	2036 R	.05624
6	2029	DWOR X	33	33	2037 R	.05641
6	2033	DWOR X	2978	2978	2053 R	.05829
6	2033	DWOR X	2552	2552	2048 R	.05752
6	2033	DWOR X	47	47	2045 R	.05705
6	2033	DWOR X	160	160	2043 R	.05674
6	2036	DWOR X	15	15	2043 R	.05624
6	2037	DWOR X	33	33	2045 R	.05641
6	2043	DWOR X	160	160	2053 R	.05674
6	2043	DWOR X	15	15	2050 R	.05624
6	2043	DWOR X	10811	10811	2078 R	.05984
6	2045	DWOR X	33	33	2053 R	.05641
6	2045	DWOR X	47	47	2057 R	.05705
6	2048	DWOR X	6430	6430	2073 R	.05906
6	2048	DWOR X	2552	2552	2063 R	.05752
6	2050	DWOR X	15	15	2057 R	.05624
6	2053	DWOR X	2978	2978	2073 R	.05829
6	2053	DWOR X	33	33	2061 R	.05641
6	2053	DWOR X	6719	6719	2093 R	.05984
6	2053	DWOR X	160	160	2063 R	.05674
6	2012	GREE X	1731	1731	2057 R	.05984
6	2013	GREE X	1488	1488	2058 R	.05984
6	2015	GREE X	12	12	2023 R	.05641
6	2016	GREE X	15	15	2023 R	.05624
6	2017	GREE X	117	117	2042 R	.05906
6	2017	GREE X	19	19	2027 R	.05674
6	2018	GREE X	60	60	2043 R	.05906
6	2023	GREE X	12	12	2031 R	.05641
6	2023	GREE X	15	15	2030 R	.05624
6	2027	GREE X	388	388	2057 R	.05984
6	2027	GREE X	19	19	2037 R	.05674
6	2027	GREE X	847	847	2047 R	.05829
6	2028	GREE X	140	140	2058 R	.05984
6	2028	GREE X	692	692	2048 R	.05829
6	2030	GREE X	15	15	2037 R	.05624
6	2031	GREE X	12	12	2039 R	.05641
6	2037	GREE X	19	19	2047 R	.05674
6	2037	GREE X	15	15	2044 R	.05624
6	2039	GREE X	12	12	2047 R	.05641
6	2042	GREE X	117	117	2067 R	.05906
6	2043	GREE X	60	60	2068 R	.05906
6	2044	GREE X	15	15	2051 R	.05624
6	2047	GREE X	3349	3349	2087 R	.05984
6	2047	GREE X	12	12	2055 R	.05641
6	2047	GREE X	847	847	2067 R	.05829
6	2047	GREE X	19	19	2057 R	.05674
6	2048	GREE X	692	692	2068 R	.05829
6	2048	GREE X	14687	14687	2088 R	.05984
6	2051	GREE X	15	15	2058 R	.05624
6	2055	GREE X	12	12	2063 R	.05641
6	2012	HILL X	1	1	2037 R	.05906
6	2022	HILL X	301	301	2052 R	.05984
6	2037	HILL X	1	1	2062 R	.05906
6	2042	HILL X	1538	1538	2082 R	.05984
6	2052	HILL X	487	487	2097 R	.05984
6	2052	HILL X	301	301	2082 R	.05984
6	2013	HUNG X	410	410	2028 R	.05752
6	2013	HUNG X	616	616	2033 R	.05829
6	2013	HUNG X	414	414	2043 R	.05984
6	2023	HUNG X	2920	2920	2058 R	.05984
6	2028	HUNG X	410	410	2043 R	.05752
6	2028	HUNG X	9375	9375	2053 R	.05906
6	2033	HUNG X	616	616	2053 R	.05829
6	2033	HUNG X	5357	5357	2073 R	.05984
6	2043	HUNG X	414	414	2073 R	.05984
6	2043	HUNG X	5884	5884	2088 R	.05984
6	2043	HUNG X	410	410	2058 R	.05752
6	2053	HUNG X	616	616	2073 R	.05829
6	2053	HUNG X	9375	9375	2078 R	.05906
6	2053	HUNG X	40342	40342	2103 R	.05984
6	2011	ICEH X	5632	5632	2046 R	.05984
6	2011	ICEH X	22500	22500	2018 R	.05624
6	2012	ICEH X	3430	3430	2062 R	.05984
6	2012	ICEH X	1381	1381	2037 R	.05906
6	2012	ICEH X	11900	11900	2017 R	.05559
6	2012	ICEH X	11600	11600	2022 R	.05674
6	2016	ICEH X	3779	3779	2056 R	.05984
6	2016	ICEH X	170	170	2036 R	.05829
6	2017	ICEH X	11900	11900	2022 R	.05559
6	2018	ICEH X	6100	6100	2026 R	.05641
6	2018	ICEH X	22500	22500	2025 R	.05624
6	2021	ICEH X	24	24	2066 R	.05984
6	2022	ICEH X	4200	4200	2034 R	.05705
6	2022	ICEH X	11600	11600	2032 R	.05674
6	2022	ICEH X	11900	11900	2027 R	.05559
6	2022	ICEH X	1266	1266	2042 R	.05829
6	2022	ICEH X	315	315	2052 R	.05984
6	2025	ICEH X	22500	22500	2032 R	.05624
6	2026	ICEH X	6100	6100	2034 R	.05641

6	2026	ICEH X	1085	1085	2076 R	.05984
6	2026	ICEH X	37	37	2051 R	.05906
6	2027	ICEH X	11900	11900	2032 R	.05559
6	2032	ICEH X	14674	14674	2067 R	.05984
6	2032	ICEH X	22500	22500	2039 R	.05624
6	2032	ICEH X	11900	11900	2037 R	.05559
6	2032	ICEH X	11600	11600	2042 R	.05674
6	2034	ICEH X	6100	6100	2042 R	.05641
6	2034	ICEH X	4200	4200	2046 R	.05705
6	2036	ICEH X	170	170	2056 R	.05829
6	2037	ICEH X	1381	1381	2062 R	.05906
6	2037	ICEH X	11900	11900	2042 R	.05559
6	2039	ICEH X	22500	22500	2046 R	.05624
6	2042	ICEH X	10102	10102	2082 R	.05984
6	2042	ICEH X	6100	6100	2050 R	.05641
6	2042	ICEH X	11900	11900	2047 R	.05559
6	2042	ICEH X	11600	11600	2052 R	.05674
6	2042	ICEH X	1266	1266	2062 R	.05829
6	2046	ICEH X	4200	4200	2058 R	.05705
6	2046	ICEH X	5632	5632	2081 R	.05984
6	2046	ICEH X	22500	22500	2053 R	.05624
6	2047	ICEH X	11900	11900	2052 R	.05559
6	2050	ICEH X	6100	6100	2058 R	.05641
6	2051	ICEH X	37	37	2076 R	.05906
6	2052	ICEH X	11600	11600	2062 R	.05674
6	2052	ICEH X	315	315	2082 R	.05984
6	2052	ICEH X	11900	11900	2057 R	.05559
6	2052	ICEH X	174	174	2097 R	.05984
6	2053	ICEH X	22500	22500	2060 R	.05624
6	2012	JOHN X	24	24	2019 R	.05624
6	2015	JOHN X	25149	25149	2060 R	.05984
6	2015	JOHN X	1736	1736	2030 R	.05752
6	2015	JOHN X	138	138	2030 R	.05752
6	2018	JOHN X	38	38	2030 R	.05705
6	2018	JOHN X	4	4	2026 R	.05641
6	2019	JOHN X	24	24	2026 R	.05624
6	2020	JOHN X	566	566	2045 R	.05906
6	2026	JOHN X	24	24	2033 R	.05624
6	2026	JOHN X	4	4	2034 R	.05641
6	2030	JOHN X	38	38	2042 R	.05705
6	2030	JOHN X	1736	1736	2045 R	.05752
6	2030	JOHN X	1736	1736	2050 R	.05829
6	2030	JOHN X	138	138	2045 R	.05752
6	2030	JOHN X	3097	3097	2060 R	.05984
6	2033	JOHN X	24	24	2040 R	.05624
6	2034	JOHN X	4	4	2042 R	.05641
6	2040	JOHN X	24	24	2047 R	.05624
6	2040	JOHN X	471	471	2075 R	.05984
6	2042	JOHN X	4	4	2050 R	.05641
6	2042	JOHN X	38	38	2054 R	.05705
6	2045	JOHN X	1736	1736	2060 R	.05752
6	2045	JOHN X	566	566	2070 R	.05906
6	2045	JOHN X	138	138	2060 R	.05752
6	2047	JOHN X	24	24	2054 R	.05624
6	2050	JOHN X	4	4	2058 R	.05641
6	2050	JOHN X	40342	40342	2090 R	.05984
6	2050	JOHN X	1736	1736	2070 R	.05829
6	2054	JOHN X	24	24	2061 R	.05624
6	2054	JOHN X	38	38	2066 R	.05705
6	2011	LIBB X	60	60	2018 R	.05624
6	2011	LIBB X	9143	9143	2046 R	.05984
6	2015	LIBB X	181	181	2030 R	.05752
6	2016	LIBB X	13658	13658	2056 R	.05984
6	2016	LIBB X	60	60	2026 R	.05674
6	2016	LIBB X	581	581	2036 R	.05829
6	2018	LIBB X	60	60	2025 R	.05624
6	2020	LIBB X	6815	6815	2055 R	.05984
6	2021	LIBB X	1654	1654	2036 R	.05752
6	2025	LIBB X	60	60	2032 R	.05624
6	2025	LIBB X	6869	6869	2065 R	.05984
6	2026	LIBB X	2293	2293	2051 R	.05906
6	2026	LIBB X	2913	2913	2076 R	.05984
6	2026	LIBB X	60	60	2036 R	.05674
6	2030	LIBB X	181	181	2045 R	.05752
6	2032	LIBB X	60	60	2039 R	.05624
6	2035	LIBB X	244	244	2060 R	.05906
6	2035	LIBB X	5300	5300	2085 R	.05984
6	2036	LIBB X	60	60	2046 R	.05674
6	2036	LIBB X	1654	1654	2051 R	.05752
6	2036	LIBB X	581	581	2056 R	.05829
6	2039	LIBB X	60	60	2046 R	.05624
6	2045	LIBB X	181	181	2060 R	.05752
6	2046	LIBB X	60	60	2053 R	.05624
6	2046	LIBB X	9143	9143	2081 R	.05984
6	2046	LIBB X	60	60	2056 R	.05674
6	2051	LIBB X	2293	2293	2076 R	.05906
6	2051	LIBB X	1654	1654	2066 R	.05752
6	2053	LIBB X	60	60	2060 R	.05624
6	2055	LIBB X	6815	6815	2090 R	.05984
6	2011	LITT X	35	35	2019 R	.05641
6	2011	LITT X	10	10	2021 R	.05674
6	2011	LITT X	9196	9196	2051 R	.05984
6	2011	LITT X	26300	26300	2031 R	.05829
6	2013	LITT X	8551	8551	2048 R	.05984
6	2013	LITT X	20	20	2020 R	.05624
6	2016	LITT X	26700	26700	2031 R	.05752
6	2018	LITT X	169	169	2038 R	.05829
6	2018	LITT X	7668	7668	2058 R	.05984
6	2018	LITT X	907	907	2028 R	.05674
6	2019	LITT X	2000	2000	2031 R	.05705
6	2019	LITT X	35	35	2027 R	.05641
6	2020	LITT X	20	20	2027 R	.05624
6	2021	LITT X	10	10	2031 R	.05674
6	2021	LITT X	852	852	2046 R	.05906

6	2021	LITT X	3109	3109	2071 R	.05984
6	2023	LITT X	110	110	2068 R	.05984
6	2027	LITT X	20	20	2034 R	.05624
6	2027	LITT X	35	35	2035 R	.05641
6	2028	LITT X	33	33	2053 R	.05906
6	2028	LITT X	1488	1488	2078 R	.05984
6	2028	LITT X	907	907	2038 R	.05674
6	2031	LITT X	211	211	2061 R	.05984
6	2031	LITT X	26300	26300	2051 R	.05829
6	2031	LITT X	10	10	2041 R	.05674
6	2031	LITT X	2000	2000	2043 R	.05705
6	2031	LITT X	26700	26700	2046 R	.05752
6	2034	LITT X	20	20	2041 R	.05624
6	2035	LITT X	35	35	2043 R	.05641
6	2038	LITT X	907	907	2048 R	.05674
6	2038	LITT X	169	169	2058 R	.05829
6	2041	LITT X	20	20	2048 R	.05624
6	2041	LITT X	10	10	2051 R	.05674
6	2041	LITT X	10958	10958	2076 R	.05984
6	2043	LITT X	2000	2000	2055 R	.05705
6	2043	LITT X	35	35	2051 R	.05641
6	2046	LITT X	26700	26700	2061 R	.05752
6	2046	LITT X	852	852	2071 R	.05906
6	2048	LITT X	20	20	2055 R	.05624
6	2048	LITT X	907	907	2058 R	.05674
6	2048	LITT X	8551	8551	2083 R	.05984
6	2051	LITT X	35	35	2059 R	.05641
6	2051	LITT X	10	10	2061 R	.05674
6	2051	LITT X	26300	26300	2071 R	.05829
6	2051	LITT X	9196	9196	2091 R	.05984
6	2053	LITT X	33	33	2078 R	.05906
6	2055	LITT X	20	20	2062 R	.05624
6	2055	LITT X	2000	2000	2067 R	.05705
6	2011	LOOK X	5	5	2019 R	.05641
6	2011	LOOK X	13	13	2018 R	.05624
6	2015	LOOK X	66	66	2035 R	.05829
6	2015	LOOK X	95	95	2025 R	.05674
6	2015	LOOK X	385	385	2035 R	.05829
6	2015	LOOK X	379	379	2030 R	.05752
6	2015	LOOK X	34	34	2027 R	.05705
6	2018	LOOK X	13	13	2025 R	.05624
6	2019	LOOK X	5	5	2027 R	.05641
6	2025	LOOK X	13	13	2032 R	.05624
6	2025	LOOK X	95	95	2035 R	.05674
6	2027	LOOK X	5	5	2035 R	.05641
6	2027	LOOK X	34	34	2039 R	.05705
6	2030	LOOK X	30	30	2055 R	.05906
6	2030	LOOK X	379	379	2045 R	.05752
6	2030	LOOK X	469	469	2055 R	.05906
6	2032	LOOK X	13	13	2039 R	.05624
6	2035	LOOK X	66	66	2055 R	.05829
6	2035	LOOK X	5	5	2043 R	.05641
6	2035	LOOK X	9317	9317	2075 R	.05984
6	2035	LOOK X	385	385	2055 R	.05829
6	2035	LOOK X	1858	1858	2075 R	.05984
6	2035	LOOK X	95	95	2045 R	.05674
6	2039	LOOK X	13	13	2046 R	.05624
6	2039	LOOK X	34	34	2051 R	.05705
6	2043	LOOK X	5	5	2051 R	.05641
6	2045	LOOK X	4868	4868	2090 R	.05984
6	2045	LOOK X	2023	2023	2090 R	.05984
6	2045	LOOK X	95	95	2055 R	.05674
6	2045	LOOK X	379	379	2060 R	.05752
6	2046	LOOK X	13	13	2053 R	.05624
6	2051	LOOK X	5	5	2059 R	.05641
6	2051	LOOK X	34	34	2063 R	.05705
6	2053	LOOK X	13	13	2060 R	.05624
6	2055	LOOK X	469	469	2080 R	.05906
6	2055	LOOK X	385	385	2075 R	.05829
6	2055	LOOK X	30	30	2080 R	.05906
6	2055	LOOK X	66	66	2075 R	.05829
6	2055	LOOK X	95	95	2065 R	.05674
6	2012	LOST X	15	15	2047 R	.05984
6	2013	LOST X	4	4	2025 R	.05705
6	2017	LOST X	1	1	2025 R	.05641
6	2017	LOST X	1352	1352	2057 R	.05984
6	2017	LOST X	33	33	2037 R	.05829
6	2022	LOST X	1055	1055	2067 R	.05984
6	2025	LOST X	4	4	2037 R	.05705
6	2025	LOST X	1	1	2033 R	.05641
6	2027	LOST X	506	506	2077 R	.05984
6	2027	LOST X	65	65	2052 R	.05906
6	2033	LOST X	1	1	2041 R	.05641
6	2037	LOST X	4	4	2049 R	.05705
6	2037	LOST X	33	33	2057 R	.05829
6	2037	LOST X	143	143	2067 R	.05984
6	2041	LOST X	1	1	2049 R	.05641
6	2047	LOST X	15	15	2082 R	.05984
6	2049	LOST X	4	4	2061 R	.05705
6	2049	LOST X	1	1	2057 R	.05641
6	2052	LOST X	65	65	2077 R	.05906
6	2011	LOWG X	18	18	2023 R	.05705
6	2013	LOWG X	8693	8693	2048 R	.05984
6	2015	LOWG X	6156	6156	2055 R	.05984
6	2015	LOWG X	777	777	2025 R	.05674
6	2015	LOWG X	31200	31200	2035 R	.05829
6	2015	LOWG X	28	28	2023 R	.05641
6	2017	LOWG X	21	21	2024 R	.05624
6	2018	LOWG X	6751	6751	2058 R	.05984
6	2018	LOWG X	273	273	2038 R	.05829
6	2020	LOWG X	15200	15200	2035 R	.05752
6	2023	LOWG X	28	28	2031 R	.05641
6	2023	LOWG X	273	273	2038 R	.05752
6	2023	LOWG X	18	18	2035 R	.05705

6	2024	LOWG X	21	21	2031 R	.05624
6	2025	LOWG X	777	777	2035 R	.05674
6	2025	LOWG X	181	181	2050 R	.05906
6	2025	LOWG X	1380	1380	2075 R	.05984
6	2028	LOWG X	102	102	2053 R	.05906
6	2028	LOWG X	1441	1441	2078 R	.05984
6	2031	LOWG X	21	21	2038 R	.05624
6	2031	LOWG X	28	28	2039 R	.05641
6	2035	LOWG X	18	18	2047 R	.05705
6	2035	LOWG X	777	777	2045 R	.05674
6	2035	LOWG X	583	583	2065 R	.05984
6	2035	LOWG X	15200	15200	2050 R	.05752
6	2035	LOWG X	31200	31200	2055 R	.05829
6	2038	LOWG X	273	273	2053 R	.05752
6	2038	LOWG X	21	21	2045 R	.05624
6	2038	LOWG X	273	273	2058 R	.05829
6	2039	LOWG X	28	28	2047 R	.05641
6	2045	LOWG X	777	777	2055 R	.05674
6	2045	LOWG X	7381	7381	2080 R	.05984
6	2045	LOWG X	21	21	2052 R	.05624
6	2047	LOWG X	18	18	2059 R	.05705
6	2047	LOWG X	28	28	2055 R	.05641
6	2048	LOWG X	8693	8693	2083 R	.05984
6	2050	LOWG X	15200	15200	2065 R	.05752
6	2050	LOWG X	181	181	2075 R	.05906
6	2052	LOWG X	21	21	2059 R	.05624
6	2053	LOWG X	273	273	2068 R	.05752
6	2053	LOWG X	102	102	2078 R	.05906
6	2055	LOWG X	28	28	2063 R	.05641
6	2055	LOWG X	31200	31200	2075 R	.05829
6	2055	LOWG X	777	777	2065 R	.05674
6	2055	LOWG X	6156	6156	2095 R	.05984
6	2011	LOWM X	20	20	2018 R	.05624
6	2014	LOWM X	25700	25700	2029 R	.05752
6	2014	LOWM X	8260	8260	2049 R	.05984
6	2017	LOWM X	2000	2000	2029 R	.05705
6	2017	LOWM X	39	39	2025 R	.05641
6	2018	LOWM X	20	20	2025 R	.05624
6	2019	LOWM X	744	744	2044 R	.05906
6	2019	LOWM X	270	270	2039 R	.05829
6	2019	LOWM X	10	10	2029 R	.05674
6	2019	LOWM X	3591	3591	2069 R	.05984
6	2019	LOWM X	5997	5997	2059 R	.05984
6	2024	LOWM X	98	98	2069 R	.05984
6	2025	LOWM X	20	20	2032 R	.05624
6	2025	LOWM X	39	39	2033 R	.05641
6	2029	LOWM X	10	10	2039 R	.05674
6	2029	LOWM X	35	35	2054 R	.05906
6	2029	LOWM X	2000	2000	2041 R	.05705
6	2029	LOWM X	1458	1458	2079 R	.05984
6	2029	LOWM X	215	215	2059 R	.05984
6	2029	LOWM X	26300	26300	2049 R	.05829
6	2029	LOWM X	25700	25700	2044 R	.05752
6	2032	LOWM X	20	20	2039 R	.05624
6	2033	LOWM X	39	39	2041 R	.05641
6	2039	LOWM X	10	10	2049 R	.05674
6	2039	LOWM X	20	20	2046 R	.05624
6	2039	LOWM X	8980	8980	2074 R	.05984
6	2039	LOWM X	270	270	2059 R	.05829
6	2041	LOWM X	2000	2000	2053 R	.05705
6	2041	LOWM X	39	39	2049 R	.05641
6	2044	LOWM X	25700	25700	2059 R	.05752
6	2044	LOWM X	744	744	2069 R	.05906
6	2046	LOWM X	20	20	2053 R	.05624
6	2049	LOWM X	9200	9200	2089 R	.05984
6	2049	LOWM X	26300	26300	2069 R	.05829
6	2049	LOWM X	39	39	2057 R	.05641
6	2049	LOWM X	8260	8260	2084 R	.05984
6	2049	LOWM X	10	10	2059 R	.05674
6	2053	LOWM X	2000	2000	2065 R	.05705
6	2053	LOWM X	20	20	2060 R	.05624
6	2054	LOWM X	35	35	2079 R	.05906
6	2011	LSFW X	497	497	2018 R	.05624
6	2013	LSFW X	1931	1931	2043 R	.05984
6	2013	LSFW X	978	978	2028 R	.05752
6	2013	LSFW X	42	42	2018 R	.05559
6	2013	LSFW X	905	905	2023 R	.05674
6	2015	LSFW X	95	95	2023 R	.05641
6	2018	LSFW X	497	497	2025 R	.05624
6	2018	LSFW X	993	993	2053 R	.05984
6	2018	LSFW X	42	42	2023 R	.05559
6	2019	LSFW X	454	454	2031 R	.05705
6	2023	LSFW X	905	905	2033 R	.05674
6	2023	LSFW X	4547	4547	2043 R	.05829
6	2023	LSFW X	6262	6262	2063 R	.05984
6	2023	LSFW X	42	42	2028 R	.05559
6	2023	LSFW X	95	95	2031 R	.05641
6	2025	LSFW X	497	497	2032 R	.05624
6	2028	LSFW X	935	935	2073 R	.05984
6	2028	LSFW X	42	42	2033 R	.05559
6	2028	LSFW X	978	978	2043 R	.05752
6	2031	LSFW X	95	95	2039 R	.05641
6	2031	LSFW X	454	454	2043 R	.05705
6	2032	LSFW X	497	497	2039 R	.05624
6	2033	LSFW X	42	42	2038 R	.05559
6	2033	LSFW X	879	879	2058 R	.05906
6	2033	LSFW X	14610	14610	2083 R	.05984
6	2033	LSFW X	905	905	2043 R	.05674
6	2038	LSFW X	42	42	2043 R	.05559
6	2039	LSFW X	497	497	2046 R	.05624
6	2039	LSFW X	95	95	2047 R	.05641
6	2043	LSFW X	4547	4547	2063 R	.05829
6	2043	LSFW X	1931	1931	2073 R	.05984
6	2043	LSFW X	905	905	2053 R	.05674

6	2043	LSFW X	454	454	2055 R	.05705
6	2043	LSFW X	978	978	2058 R	.05752
6	2043	LSFW X	42	42	2048 R	.05559
6	2046	LSFW X	497	497	2053 R	.05624
6	2047	LSFW X	95	95	2055 R	.05641
6	2048	LSFW X	42	42	2053 R	.05559
6	2053	LSFW X	905	905	2063 R	.05674
6	2053	LSFW X	497	497	2060 R	.05624
6	2053	LSFW X	42	42	2058 R	.05559
6	2053	LSFW X	993	993	2088 R	.05984
6	2055	LSFW X	454	454	2067 R	.05705
6	2055	LSFW X	95	95	2063 R	.05641
6	2011	MCNA X	25	25	2018 R	.05624
6	2011	MCNA X	52	52	2019 R	.05641
6	2015	MCNA X	1078	1078	2035 R	.05829
6	2015	MCNA X	18500	18500	2030 R	.05752
6	2015	MCNA X	25000	25000	2027 R	.05705
6	2015	MCNA X	51000	51000	2025 R	.05674
6	2018	MCNA X	25	25	2025 R	.05624
6	2019	MCNA X	52	52	2027 R	.05641
6	2025	MCNA X	55110	55110	2060 R	.05984
6	2025	MCNA X	51000	51000	2035 R	.05674
6	2025	MCNA X	25	25	2032 R	.05624
6	2027	MCNA X	25000	25000	2039 R	.05705
6	2027	MCNA X	52	52	2035 R	.05641
6	2030	MCNA X	797	797	2055 R	.05906
6	2030	MCNA X	18500	18500	2045 R	.05752
6	2032	MCNA X	25	25	2039 R	.05624
6	2035	MCNA X	1078	1078	2055 R	.05829
6	2035	MCNA X	51000	51000	2045 R	.05674
6	2035	MCNA X	28277	28277	2075 R	.05984
6	2035	MCNA X	52	52	2043 R	.05641
6	2039	MCNA X	25	25	2046 R	.05624
6	2039	MCNA X	25000	25000	2051 R	.05705
6	2043	MCNA X	52	52	2051 R	.05641
6	2045	MCNA X	51000	51000	2055 R	.05674
6	2045	MCNA X	18500	18500	2060 R	.05752
6	2046	MCNA X	25	25	2053 R	.05624
6	2051	MCNA X	52	52	2059 R	.05641
6	2051	MCNA X	25000	25000	2063 R	.05705
6	2053	MCNA X	25	25	2060 R	.05624
6	2055	MCNA X	1078	1078	2075 R	.05829
6	2055	MCNA X	797	797	2080 R	.05906
6	2055	MCNA X	17553	17553	2105 R	.05984
6	2055	MCNA X	51000	51000	2065 R	.05674
6	2017	MINI X	243	243	2037 R	.05829
6	2017	MINI X	14	14	2027 R	.05674
6	2017	MINI X	111	111	2032 R	.05752
6	2017	MINI X	4184	4184	2067 R	.05984
6	2017	MINI X	82	82	2037 R	.05829
6	2017	MINI X	77	77	2047 R	.05984
6	2017	MINI X	1716	1716	2042 R	.05906
6	2022	MINI X	75	75	2037 R	.05752
6	2022	MINI X	2692	2692	2057 R	.05984
6	2027	MINI X	647	647	2062 R	.05984
6	2027	MINI X	14	14	2037 R	.05674
6	2032	MINI X	111	111	2047 R	.05752
6	2032	MINI X	2051	2051	2057 R	.05906
6	2037	MINI X	1433	1433	2077 R	.05984
6	2037	MINI X	61	61	2067 R	.05984
6	2037	MINI X	14	14	2047 R	.05674
6	2037	MINI X	82	82	2057 R	.05829
6	2037	MINI X	75	75	2052 R	.05752
6	2037	MINI X	5525	5525	2077 R	.05984
6	2037	MINI X	243	243	2057 R	.05829
6	2042	MINI X	1716	1716	2067 R	.05906
6	2047	MINI X	111	111	2062 R	.05752
6	2047	MINI X	14	14	2057 R	.05674
6	2047	MINI X	77	77	2077 R	.05984
6	2047	MINI X	3507	3507	2092 R	.05984
6	2052	MINI X	75	75	2067 R	.05752
6	2052	MINI X	5354	5354	2097 R	.05984
6	2013	THED X	197	197	2033 R	.05829
6	2014	THED X	38	38	2019 R	.05559
6	2015	THED X	62	62	2023 R	.05641
6	2015	THED X	41	41	2022 R	.05624
6	2018	THED X	5072	5072	2063 R	.05984
6	2018	THED X	1708	1708	2033 R	.05752
6	2019	THED X	1107	1107	2034 R	.05752
6	2019	THED X	38	38	2024 R	.05559
6	2019	THED X	1089	1089	2039 R	.05829
6	2019	THED X	1	1	2029 R	.05674
6	2019	THED X	8	8	2031 R	.05705
6	2021	THED X	1510	1510	2033 R	.05705
6	2022	THED X	41	41	2029 R	.05624
6	2023	THED X	62	62	2031 R	.05641
6	2024	THED X	38	38	2029 R	.05559
6	2029	THED X	61250	61250	2064 R	.05984
6	2029	THED X	41	41	2036 R	.05624
6	2029	THED X	38	38	2034 R	.05559
6	2029	THED X	1	1	2039 R	.05674
6	2031	THED X	62	62	2039 R	.05641
6	2031	THED X	8	8	2043 R	.05705
6	2033	THED X	1510	1510	2045 R	.05705
6	2033	THED X	16883	16883	2063 R	.05984
6	2033	THED X	197	197	2053 R	.05829
6	2033	THED X	1708	1708	2048 R	.05752
6	2034	THED X	38	38	2039 R	.05559
6	2034	THED X	1107	1107	2049 R	.05752
6	2034	THED X	2236	2236	2059 R	.05906
6	2036	THED X	41	41	2043 R	.05624
6	2039	THED X	38	38	2044 R	.05559
6	2039	THED X	38672	38672	2079 R	.05984
6	2039	THED X	1089	1089	2059 R	.05829

6	2039	THED X	1	1	2049 R	.05674
6	2039	THED X	62	62	2047 R	.05641
6	2043	THED X	41	41	2050 R	.05624
6	2043	THED X	8	8	2055 R	.05705
6	2043	THED X	13653	13653	2078 R	.05984
6	2044	THED X	38	38	2049 R	.05559
6	2045	THED X	1510	1510	2057 R	.05705
6	2047	THED X	62	62	2055 R	.05641
6	2048	THED X	1708	1708	2063 R	.05752
6	2049	THED X	1	1	2059 R	.05674
6	2049	THED X	38	38	2054 R	.05559
6	2049	THED X	1107	1107	2064 R	.05752
6	2050	THED X	41	41	2057 R	.05624
6	2053	THED X	197	197	2073 R	.05829
6	2054	THED X	38	38	2059 R	.05559
6	2055	THED X	8	8	2067 R	.05705
6	2055	THED X	62	62	2063 R	.05641
6	2016	YAKC X	52	52	2026 R	.05674
6	2016	YAKC X	22	22	2031 R	.05752
6	2016	YAKC X	53	53	2046 R	.05984
6	2016	YAKC X	77	77	2036 R	.05829
6	2026	YAKC X	52	52	2036 R	.05674
6	2026	YAKC X	418	418	2061 R	.05984
6	2031	YAKC X	22	22	2046 R	.05752
6	2031	YAKC X	823	823	2056 R	.05906
6	2036	YAKC X	413	413	2076 R	.05984
6	2036	YAKC X	77	77	2056 R	.05829
6	2036	YAKC X	52	52	2046 R	.05674
6	2046	YAKC X	22	22	2061 R	.05752
6	2046	YAKC X	52	52	2056 R	.05674
6	2046	YAKC X	675	675	2091 R	.05984
6	2046	YAKC X	53	53	2076 R	.05984
6	2018	YAKR X	2	2	2033 R	.05752
6	2018	YAKR X	4	4	2048 R	.05984
6	2018	YAKR X	7	7	2038 R	.05829
6	2028	YAKR X	48	48	2063 R	.05984
6	2033	YAKR X	2	2	2048 R	.05752
6	2033	YAKR X	93	93	2058 R	.05906
6	2038	YAKR X	109	109	2078 R	.05984
6	2038	YAKR X	7	7	2058 R	.05829
6	2048	YAKR X	4	4	2078 R	.05984
6	2048	YAKR X	2	2	2063 R	.05752

**COE-BOR REPLACEMENTS
FY 2006**

CORPS-BUREAU REPLACEMENTS

INSERVICE		ORIGINAL		CURRENT		DATE	INTEREST
DATE	PROJECT	PRINCIPAL	PRINCIPAL	PRINCIPAL	PRINCIPAL	DUE	RATE
6	2015	ALBE X	1	1	1	2025 R	.05607
6	2015	ALBE X	66	66	66	2030 R	.05692
6	2015	ALBE X	148	148	148	2027 R	.05641
6	2015	ALBE X	1052	1052	1052	2035 R	.05778
6	2025	ALBE X	1	1	1	2035 R	.05607
6	2025	ALBE X	9661	9661	9661	2060 R	.05949
6	2027	ALBE X	148	148	148	2039 R	.05641
6	2030	ALBE X	2866	2866	2866	2055 R	.05864
6	2030	ALBE X	66	66	66	2045 R	.05692
6	2035	ALBE X	1	1	1	2045 R	.05607
6	2035	ALBE X	723	723	723	2075 R	.05949
6	2035	ALBE X	1052	1052	1052	2055 R	.05778
6	2039	ALBE X	148	148	148	2051 R	.05641
6	2045	ALBE X	66	66	66	2060 R	.05692
6	2045	ALBE X	1	1	1	2055 R	.05607
6	2051	ALBE X	148	148	148	2063 R	.05641
6	2055	ALBE X	1	1	1	2065 R	.05607
6	2055	ALBE X	2866	2866	2866	2080 R	.05864
6	2055	ALBE X	1052	1052	1052	2075 R	.05778
6	2017	BOIS X	861	861	861	2062 R	.05949
6	2017	BOIS X	74	74	74	2047 R	.05949
6	2017	BOIS X	14	14	14	2032 R	.05692
6	2027	BOIS X	159	159	159	2047 R	.05778
6	2027	BOIS X	24348	24348	24348	2052 R	.05864
6	2027	BOIS X	8883	8883	8883	2077 R	.05949
6	2032	BOIS X	14	14	14	2047 R	.05692
6	2032	BOIS X	1096	1096	1096	2067 R	.05949
6	2047	BOIS X	159	159	159	2067 R	.05778
6	2047	BOIS X	74	74	74	2077 R	.05949
6	2047	BOIS X	904	904	904	2087 R	.05949
6	2047	BOIS X	14	14	14	2062 R	.05692
6	2052	BOIS X	24348	24348	24348	2077 R	.05864
6	2011	BONN X	72812	72812	72812	2016 R	.05488
6	2011	BONN X	30984	30984	30984	2018 R	.05554
6	2011	BONN X	82824	82824	82824	2046 R	.05949
6	2011	BONN X	127	127	127	2021 R	.05607
6	2012	BONN X	17	17	17	2047 R	.05949
6	2012	BONN X	1251	1251	1251	2027 R	.05692
6	2013	BONN X	4519	4519	4519	2021 R	.05571
6	2013	BONN X	164	164	164	2025 R	.05641
6	2016	BONN X	72812	72812	72812	2021 R	.05488
6	2016	BONN X	2903	2903	2903	2031 R	.05692
6	2016	BONN X	2922	2922	2922	2041 R	.05864
6	2017	BONN X	79089	79089	79089	2052 R	.05949
6	2018	BONN X	30984	30984	30984	2025 R	.05554
6	2021	BONN X	72812	72812	72812	2026 R	.05488
6	2021	BONN X	700	700	700	2041 R	.05778
6	2021	BONN X	73022	73022	73022	2061 R	.05949
6	2021	BONN X	127	127	127	2031 R	.05607
6	2021	BONN X	4519	4519	4519	2029 R	.05571
6	2022	BONN X	70689	70689	70689	2062 R	.05949
6	2022	BONN X	65325	65325	65325	2067 R	.05949
6	2025	BONN X	30984	30984	30984	2032 R	.05554
6	2025	BONN X	164	164	164	2037 R	.05641
6	2026	BONN X	72812	72812	72812	2031 R	.05488
6	2027	BONN X	336	336	336	2077 R	.05949
6	2027	BONN X	15	15	15	2052 R	.05864
6	2027	BONN X	1082	1082	1082	2072 R	.05949
6	2027	BONN X	1251	1251	1251	2042 R	.05692
6	2029	BONN X	4519	4519	4519	2037 R	.05571
6	2031	BONN X	127	127	127	2041 R	.05607
6	2031	BONN X	72812	72812	72812	2036 R	.05488
6	2031	BONN X	2903	2903	2903	2046 R	.05692
6	2031	BONN X	1257	1257	1257	2076 R	.05949
6	2032	BONN X	15322	15322	15322	2082 R	.05949
6	2032	BONN X	30984	30984	30984	2039 R	.05554
6	2032	BONN X	4800	4800	4800	2057 R	.05864
6	2036	BONN X	72812	72812	72812	2041 R	.05488
6	2037	BONN X	4519	4519	4519	2045 R	.05571
6	2037	BONN X	164	164	164	2049 R	.05641
6	2039	BONN X	30984	30984	30984	2046 R	.05554
6	2041	BONN X	2922	2922	2922	2066 R	.05864
6	2041	BONN X	700	700	700	2061 R	.05778
6	2041	BONN X	127	127	127	2051 R	.05607
6	2041	BONN X	72812	72812	72812	2046 R	.05488
6	2041	BONN X	24277	24277	24277	2091 R	.05949
6	2042	BONN X	1251	1251	1251	2057 R	.05692
6	2045	BONN X	4519	4519	4519	2053 R	.05571
6	2046	BONN X	72812	72812	72812	2051 R	.05488
6	2046	BONN X	2903	2903	2903	2061 R	.05692
6	2046	BONN X	82824	82824	82824	2081 R	.05949
6	2046	BONN X	30984	30984	30984	2053 R	.05554
6	2047	BONN X	17	17	17	2082 R	.05949
6	2049	BONN X	164	164	164	2061 R	.05641
6	2051	BONN X	72812	72812	72812	2056 R	.05488
6	2051	BONN X	127	127	127	2061 R	.05607
6	2052	BONN X	15	15	15	2077 R	.05864
6	2052	BONN X	79089	79089	79089	2087 R	.05949
6	2053	BONN X	30984	30984	30984	2060 R	.05554
6	2053	BONN X	4519	4519	4519	2061 R	.05571
6	2056	BONN X	72812	72812	72812	2061 R	.05488
6	2013	CHIE X	78501	78501	78501	2048 R	.05949
6	2017	CHIE X	46	46	46	2027 R	.05607
6	2017	CHIE X	2457	2457	2457	2037 R	.05778
6	2017	CHIE X	1607	1607	1607	2032 R	.05692
6	2018	CHIE X	798	798	798	2038 R	.05778
6	2018	CHIE X	50163	50163	50163	2058 R	.05949
6	2023	CHIE X	227	227	227	2038 R	.05692

6	2032	CHIE X					
6	2027	CHIE X	46	46	2037 R	.05607	
6	2027	CHIE X	64683	64683	2062 R	.05949	
6	2028	CHIE X	385	385	2053 R	.05864	
6	2028	CHIE X	13873	13873	2078 R	.05949	
6	2032	CHIE X	4722	4722	2057 R	.05864	
6	2032	CHIE X	1607	1607	2047 R	.05692	
6	2037	CHIE X	46	46	2047 R	.05607	
6	2037	CHIE X	2457	2457	2057 R	.05778	
6	2037	CHIE X	31147	31147	2077 R	.05949	
6	2038	CHIE X	227	227	2053 R	.05692	
6	2038	CHIE X	798	798	2058 R	.05778	
6	2047	CHIE X	1607	1607	2062 R	.05692	
6	2047	CHIE X	46	46	2057 R	.05607	
6	2048	CHIE X	78501	78501	2083 R	.05949	
6	2053	CHIE X	385	385	2078 R	.05864	
6	2053	CHIE X	227	227	2068 R	.05692	
6	2013	COLU X	61863	61863	2048 R	.05949	
6	2017	COLU X	44684	44684	2052 R	.05949	
6	2018	COLU X	6192	6192	2038 R	.05778	
6	2018	COLU X	215990	215990	2058 R	.05949	
6	2022	COLU X	50909	50909	2047 R	.05864	
6	2022	COLU X	953	953	2037 R	.05692	
6	2023	COLU X	1288	1288	2038 R	.05692	
6	2023	COLU X	67373	67373	2068 R	.05949	
6	2027	COLU X	5285	5285	2047 R	.05778	
6	2027	COLU X	49177	49177	2067 R	.05949	
6	2028	COLU X	55867	55867	2053 R	.05864	
6	2028	COLU X	131228	131228	2078 R	.05949	
6	2037	COLU X	52195	52195	2082 R	.05949	
6	2037	COLU X	2360	2360	2067 R	.05949	
6	2037	COLU X	953	953	2052 R	.05692	
6	2038	COLU X	1288	1288	2053 R	.05692	
6	2038	COLU X	6192	6192	2058 R	.05778	
6	2038	COLU X	2649	2649	2068 R	.05949	
6	2047	COLU X	50909	50909	2072 R	.05864	
6	2047	COLU X	158969	158969	2097 R	.05949	
6	2047	COLU X	5285	5285	2067 R	.05778	
6	2048	COLU X	61863	61863	2083 R	.05949	
6	2052	COLU X	953	953	2067 R	.05692	
6	2052	COLU X	44684	44684	2087 R	.05949	
6	2053	COLU X	1288	1288	2068 R	.05692	
6	2053	COLU X	55867	55867	2078 R	.05864	
6	2012	COUG X	4	4	2020 R	.05571	
6	2013	COUG X	3	3	2020 R	.05554	
6	2014	COUG X	151	151	2039 R	.05864	
6	2020	COUG X	3	3	2027 R	.05554	
6	2020	COUG X	4	4	2028 R	.05571	
6	2024	COUG X	80	80	2044 R	.05778	
6	2024	COUG X	49	49	2039 R	.05692	
6	2027	COUG X	3	3	2034 R	.05554	
6	2028	COUG X	4	4	2036 R	.05571	
6	2034	COUG X	3	3	2041 R	.05554	
6	2034	COUG X	2903	2903	2069 R	.05949	
6	2036	COUG X	4	4	2044 R	.05571	
6	2039	COUG X	151	151	2064 R	.05864	
6	2039	COUG X	49	49	2054 R	.05692	
6	2041	COUG X	3	3	2048 R	.05554	
6	2044	COUG X	1711	1711	2084 R	.05949	
6	2044	COUG X	4	4	2052 R	.05571	
6	2044	COUG X	80	80	2064 R	.05778	
6	2048	COUG X	3	3	2055 R	.05554	
6	2052	COUG X	4	4	2060 R	.05571	
6	2054	COUG X	49	49	2069 R	.05692	
6	2055	COUG X	3	3	2062 R	.05554	
6	2014	DETR X	698	698	2044 R	.05949	
6	2014	DETR X	334	334	2034 R	.05778	
6	2014	DETR X	19	19	2029 R	.05692	
6	2014	DETR X	36	36	2024 R	.05607	
6	2014	DETR X	5164	5164	2034 R	.05778	
6	2014	DETR X	26466	26466	2029 R	.05692	
6	2014	DETR X	27	27	2026 R	.05641	
6	2017	DETR X	3	3	2024 R	.05554	
6	2018	DETR X	5	5	2026 R	.05571	
6	2024	DETR X	2817	2817	2059 R	.05949	
6	2024	DETR X	36	36	2034 R	.05607	
6	2024	DETR X	3	3	2031 R	.05554	
6	2026	DETR X	5	5	2034 R	.05571	
6	2026	DETR X	27	27	2038 R	.05641	
6	2029	DETR X	120	120	2054 R	.05864	
6	2029	DETR X	19	19	2044 R	.05692	
6	2029	DETR X	26466	26466	2044 R	.05692	
6	2029	DETR X	234	234	2054 R	.05864	
6	2031	DETR X	3	3	2038 R	.05554	
6	2034	DETR X	1690	1690	2074 R	.05949	
6	2034	DETR X	14517	14517	2074 R	.05949	
6	2034	DETR X	36	36	2044 R	.05607	
6	2034	DETR X	5164	5164	2054 R	.05778	
6	2034	DETR X	334	334	2054 R	.05778	
6	2034	DETR X	5	5	2042 R	.05571	
6	2038	DETR X	27	27	2050 R	.05641	
6	2038	DETR X	3	3	2045 R	.05554	
6	2041	DETR X	636	636	2091 R	.05949	
6	2042	DETR X	5	5	2050 R	.05571	
6	2044	DETR X	5518	5518	2089 R	.05949	
6	2044	DETR X	19	19	2059 R	.05692	
6	2044	DETR X	36	36	2054 R	.05607	
6	2044	DETR X	26466	26466	2059 R	.05692	
6	2044	DETR X	698	698	2074 R	.05949	
6	2045	DETR X	3	3	2052 R	.05554	
6	2050	DETR X	27	27	2062 R	.05641	
6	2050	DETR X	5	5	2058 R	.05571	
6	2052	DETR X	3	3	2059 R	.05554	
6	2054	DETR X	234	234	2079 R	.05864	
6	2054	DETR X	36	36	2064 R	.05607	

6	2054	DETR X	5164	5164	2074 R	.05778
6	2054	DETR X	334	334	2074 R	.05778
6	2054	DETR X	120	120	2079 R	.05864
6	2013	DWOR X	43	43	2021 R	.05571
6	2013	DWOR X	8674	8674	2053 R	.05949
6	2013	DWOR X	3845	3845	2033 R	.05778
6	2013	DWOR X	207	207	2023 R	.05607
6	2015	DWOR X	19	19	2022 R	.05554
6	2018	DWOR X	3295	3295	2033 R	.05692
6	2021	DWOR X	43	43	2029 R	.05571
6	2021	DWOR X	61	61	2033 R	.05641
6	2022	DWOR X	19	19	2029 R	.05554
6	2023	DWOR X	1966	1966	2073 R	.05949
6	2023	DWOR X	207	207	2033 R	.05607
6	2023	DWOR X	8301	8301	2048 R	.05864
6	2029	DWOR X	19	19	2036 R	.05554
6	2029	DWOR X	43	43	2037 R	.05571
6	2033	DWOR X	3845	3845	2053 R	.05778
6	2033	DWOR X	3295	3295	2048 R	.05692
6	2033	DWOR X	61	61	2045 R	.05641
6	2033	DWOR X	207	207	2043 R	.05607
6	2036	DWOR X	19	19	2043 R	.05554
6	2037	DWOR X	43	43	2045 R	.05571
6	2043	DWOR X	207	207	2053 R	.05607
6	2043	DWOR X	19	19	2050 R	.05554
6	2043	DWOR X	13957	13957	2078 R	.05949
6	2045	DWOR X	43	43	2053 R	.05571
6	2045	DWOR X	61	61	2057 R	.05641
6	2048	DWOR X	8301	8301	2073 R	.05864
6	2048	DWOR X	3295	3295	2063 R	.05692
6	2050	DWOR X	19	19	2057 R	.05554
6	2053	DWOR X	3845	3845	2073 R	.05778
6	2053	DWOR X	43	43	2061 R	.05571
6	2053	DWOR X	8674	8674	2093 R	.05949
6	2053	DWOR X	207	207	2063 R	.05607
6	2012	GREE X	2235	2235	2057 R	.05949
6	2013	GREE X	1921	1921	2058 R	.05949
6	2015	GREE X	15	15	2023 R	.05571
6	2016	GREE X	19	19	2023 R	.05554
6	2017	GREE X	151	151	2042 R	.05864
6	2017	GREE X	25	25	2027 R	.05607
6	2018	GREE X	77	77	2043 R	.05864
6	2023	GREE X	15	15	2031 R	.05571
6	2023	GREE X	19	19	2030 R	.05554
6	2027	GREE X	501	501	2057 R	.05949
6	2027	GREE X	25	25	2037 R	.05607
6	2027	GREE X	1093	1093	2047 R	.05778
6	2028	GREE X	181	181	2058 R	.05949
6	2028	GREE X	893	893	2048 R	.05778
6	2030	GREE X	19	19	2037 R	.05554
6	2031	GREE X	15	15	2039 R	.05571
6	2037	GREE X	25	25	2047 R	.05607
6	2037	GREE X	19	19	2044 R	.05554
6	2039	GREE X	15	15	2047 R	.05571
6	2042	GREE X	151	151	2067 R	.05864
6	2043	GREE X	77	77	2068 R	.05864
6	2044	GREE X	19	19	2051 R	.05554
6	2047	GREE X	4324	4324	2087 R	.05949
6	2047	GREE X	15	15	2055 R	.05571
6	2047	GREE X	1093	1093	2067 R	.05778
6	2047	GREE X	25	25	2057 R	.05607
6	2048	GREE X	893	893	2068 R	.05778
6	2048	GREE X	18961	18961	2088 R	.05949
6	2051	GREE X	19	19	2058 R	.05554
6	2055	GREE X	15	15	2063 R	.05571
6	2012	HILL X	1	1	2037 R	.05864
6	2022	HILL X	389	389	2052 R	.05949
6	2037	HILL X	1	1	2062 R	.05864
6	2042	HILL X	1986	1986	2082 R	.05949
6	2052	HILL X	629	629	2097 R	.05949
6	2052	HILL X	389	389	2082 R	.05949
6	2013	HUNG X	529	529	2028 R	.05692
6	2013	HUNG X	795	795	2033 R	.05778
6	2013	HUNG X	534	534	2043 R	.05949
6	2023	HUNG X	3770	3770	2058 R	.05949
6	2028	HUNG X	529	529	2043 R	.05692
6	2028	HUNG X	12103	12103	2053 R	.05864
6	2033	HUNG X	795	795	2053 R	.05778
6	2033	HUNG X	6916	6916	2073 R	.05949
6	2043	HUNG X	534	534	2073 R	.05949
6	2043	HUNG X	7596	7596	2088 R	.05949
6	2043	HUNG X	529	529	2058 R	.05692
6	2053	HUNG X	795	795	2073 R	.05778
6	2053	HUNG X	12103	12103	2078 R	.05864
6	2053	HUNG X	52082	52082	2103 R	.05949
6	2011	ICEH X	7271	7271	2046 R	.05949
6	2011	ICEH X	29048	29048	2018 R	.05554
6	2012	ICEH X	4428	4428	2062 R	.05949
6	2012	ICEH X	1783	1783	2037 R	.05864
6	2012	ICEH X	15363	15363	2017 R	.05488
6	2012	ICEH X	14976	14976	2022 R	.05607
6	2016	ICEH X	4879	4879	2056 R	.05949
6	2016	ICEH X	219	219	2036 R	.05778
6	2017	ICEH X	15363	15363	2022 R	.05488
6	2018	ICEH X	7875	7875	2026 R	.05571
6	2018	ICEH X	29048	29048	2025 R	.05554
6	2021	ICEH X	31	31	2066 R	.05949
6	2022	ICEH X	5422	5422	2034 R	.05641
6	2022	ICEH X	14976	14976	2032 R	.05607
6	2022	ICEH X	15363	15363	2027 R	.05488
6	2022	ICEH X	1634	1634	2042 R	.05778
6	2022	ICEH X	407	407	2052 R	.05949
6	2025	ICEH X	29048	29048	2032 R	.05554
6	2026	ICEH X	7875	7875	2034 R	.05571

6	2026	ICEH X	1401	1401	2076 R	.05949
6	2026	ICEH X	48	48	2051 R	.05864
6	2027	ICEH X	15363	15363	2032 R	.05488
6	2032	ICEH X	18944	18944	2067 R	.05949
6	2032	ICEH X	29048	29048	2039 R	.05554
6	2032	ICEH X	15363	15363	2037 R	.05488
6	2032	ICEH X	14976	14976	2042 R	.05607
6	2034	ICEH X	7875	7875	2042 R	.05571
6	2034	ICEH X	5422	5422	2046 R	.05641
6	2036	ICEH X	219	219	2056 R	.05778
6	2037	ICEH X	1783	1783	2062 R	.05864
6	2037	ICEH X	15363	15363	2042 R	.05488
6	2039	ICEH X	29048	29048	2046 R	.05554
6	2042	ICEH X	13042	13042	2082 R	.05949
6	2042	ICEH X	7875	7875	2050 R	.05571
6	2042	ICEH X	15363	15363	2047 R	.05488
6	2042	ICEH X	14976	14976	2052 R	.05607
6	2042	ICEH X	1634	1634	2062 R	.05778
6	2046	ICEH X	5422	5422	2058 R	.05641
6	2046	ICEH X	7271	7271	2081 R	.05949
6	2046	ICEH X	29048	29048	2053 R	.05554
6	2047	ICEH X	15363	15363	2052 R	.05488
6	2050	ICEH X	7875	7875	2058 R	.05571
6	2051	ICEH X	48	48	2076 R	.05864
6	2052	ICEH X	14976	14976	2062 R	.05607
6	2052	ICEH X	407	407	2082 R	.05949
6	2052	ICEH X	15363	15363	2057 R	.05488
6	2052	ICEH X	225	225	2097 R	.05949
6	2053	ICEH X	29048	29048	2060 R	.05554
6	2056	ICEH X	219	219	2076 R	.05778
6	2056	ICEH X	4879	4879	2096 R	.05949
6	2012	JOHN X	31	31	2019 R	.05554
6	2015	JOHN X	32467	32467	2060 R	.05949
6	2015	JOHN X	2241	2241	2030 R	.05692
6	2015	JOHN X	178	178	2030 R	.05692
6	2018	JOHN X	49	49	2030 R	.05641
6	2018	JOHN X	5	5	2026 R	.05571
6	2019	JOHN X	31	31	2026 R	.05554
6	2020	JOHN X	731	731	2045 R	.05864
6	2026	JOHN X	31	31	2033 R	.05554
6	2026	JOHN X	5	5	2034 R	.05571
6	2030	JOHN X	49	49	2042 R	.05641
6	2030	JOHN X	2241	2241	2045 R	.05692
6	2030	JOHN X	2241	2241	2050 R	.05778
6	2030	JOHN X	178	178	2045 R	.05692
6	2030	JOHN X	3998	3998	2060 R	.05949
6	2033	JOHN X	31	31	2040 R	.05554
6	2034	JOHN X	5	5	2042 R	.05571
6	2040	JOHN X	31	31	2047 R	.05554
6	2040	JOHN X	608	608	2075 R	.05949
6	2042	JOHN X	5	5	2050 R	.05571
6	2042	JOHN X	49	49	2054 R	.05641
6	2045	JOHN X	2241	2241	2060 R	.05692
6	2045	JOHN X	731	731	2070 R	.05864
6	2045	JOHN X	178	178	2060 R	.05692
6	2047	JOHN X	31	31	2054 R	.05554
6	2050	JOHN X	5	5	2058 R	.05571
6	2050	JOHN X	52082	52082	2090 R	.05949
6	2050	JOHN X	2241	2241	2070 R	.05778
6	2054	JOHN X	31	31	2061 R	.05554
6	2054	JOHN X	49	49	2066 R	.05641
6	2011	LIBB X	77	77	2018 R	.05554
6	2011	LIBB X	11804	11804	2046 R	.05949
6	2015	LIBB X	234	234	2030 R	.05692
6	2016	LIBB X	17632	17632	2056 R	.05949
6	2016	LIBB X	77	77	2026 R	.05607
6	2016	LIBB X	750	750	2036 R	.05778
6	2018	LIBB X	77	77	2025 R	.05554
6	2020	LIBB X	8798	8798	2055 R	.05949
6	2021	LIBB X	2135	2135	2036 R	.05692
6	2025	LIBB X	77	77	2032 R	.05554
6	2025	LIBB X	8868	8868	2065 R	.05949
6	2026	LIBB X	2960	2960	2051 R	.05864
6	2026	LIBB X	3761	3761	2076 R	.05949
6	2026	LIBB X	77	77	2036 R	.05607
6	2030	LIBB X	234	234	2045 R	.05692
6	2032	LIBB X	77	77	2039 R	.05554
6	2035	LIBB X	315	315	2060 R	.05864
6	2035	LIBB X	6842	6842	2085 R	.05949
6	2036	LIBB X	77	77	2046 R	.05607
6	2036	LIBB X	2135	2135	2051 R	.05692
6	2036	LIBB X	750	750	2056 R	.05778
6	2039	LIBB X	77	77	2046 R	.05554
6	2045	LIBB X	234	234	2060 R	.05692
6	2046	LIBB X	77	77	2053 R	.05554
6	2046	LIBB X	11804	11804	2081 R	.05949
6	2046	LIBB X	77	77	2056 R	.05607
6	2051	LIBB X	2960	2960	2076 R	.05864
6	2051	LIBB X	2135	2135	2066 R	.05692
6	2053	LIBB X	77	77	2060 R	.05554
6	2055	LIBB X	8798	8798	2090 R	.05949
6	2056	LIBB X	17632	17632	2096 R	.05949
6	2056	LIBB X	750	750	2076 R	.05778
6	2056	LIBB X	77	77	2066 R	.05607
6	2011	LITT X	45	45	2019 R	.05571
6	2011	LITT X	13	13	2021 R	.05607
6	2011	LITT X	11872	11872	2051 R	.05949
6	2011	LITT X	33953	33953	2031 R	.05778
6	2013	LITT X	11039	11039	2048 R	.05949
6	2013	LITT X	26	26	2020 R	.05554
6	2016	LITT X	34470	34470	2031 R	.05692
6	2018	LITT X	218	218	2038 R	.05778
6	2018	LITT X	9899	9899	2058 R	.05949
6	2018	LITT X	1171	1171	2028 R	.05607

6	2019	LITT X	2582	2582	2031 R	.05641
6	2019	LITT X	45	45	2027 R	.05571
6	2020	LITT X	26	26	2027 R	.05554
6	2021	LITT X	13	13	2031 R	.05607
6	2021	LITT X	1100	1100	2046 R	.05864
6	2021	LITT X	4014	4014	2071 R	.05949
6	2023	LITT X	142	142	2068 R	.05949
6	2027	LITT X	26	26	2034 R	.05554
6	2027	LITT X	45	45	2035 R	.05571
6	2028	LITT X	43	43	2053 R	.05864
6	2028	LITT X	1921	1921	2078 R	.05949
6	2028	LITT X	1171	1171	2038 R	.05607
6	2031	LITT X	272	272	2061 R	.05949
6	2031	LITT X	33953	33953	2051 R	.05778
6	2031	LITT X	13	13	2041 R	.05607
6	2031	LITT X	2582	2582	2043 R	.05641
6	2031	LITT X	34470	34470	2046 R	.05692
6	2034	LITT X	26	26	2041 R	.05554
6	2035	LITT X	45	45	2043 R	.05571
6	2038	LITT X	1171	1171	2048 R	.05607
6	2038	LITT X	218	218	2058 R	.05778
6	2041	LITT X	26	26	2048 R	.05554
6	2041	LITT X	13	13	2051 R	.05607
6	2041	LITT X	14147	14147	2076 R	.05949
6	2043	LITT X	2582	2582	2055 R	.05641
6	2043	LITT X	45	45	2051 R	.05571
6	2046	LITT X	34470	34470	2061 R	.05692
6	2046	LITT X	1100	1100	2071 R	.05864
6	2048	LITT X	26	26	2055 R	.05554
6	2048	LITT X	1171	1171	2058 R	.05607
6	2048	LITT X	11039	11039	2083 R	.05949
6	2051	LITT X	45	45	2059 R	.05571
6	2051	LITT X	13	13	2061 R	.05607
6	2051	LITT X	33953	33953	2071 R	.05778
6	2051	LITT X	11872	11872	2091 R	.05949
6	2053	LITT X	43	43	2078 R	.05864
6	2055	LITT X	26	26	2062 R	.05554
6	2055	LITT X	2582	2582	2067 R	.05641
6	2011	LOOK X	6	6	2019 R	.05571
6	2011	LOOK X	17	17	2018 R	.05554
6	2015	LOOK X	85	85	2035 R	.05778
6	2015	LOOK X	123	123	2025 R	.05607
6	2015	LOOK X	497	497	2035 R	.05778
6	2015	LOOK X	489	489	2030 R	.05692
6	2015	LOOK X	44	44	2027 R	.05641
6	2018	LOOK X	17	17	2025 R	.05554
6	2019	LOOK X	6	6	2027 R	.05571
6	2025	LOOK X	17	17	2032 R	.05554
6	2025	LOOK X	123	123	2035 R	.05607
6	2027	LOOK X	6	6	2035 R	.05571
6	2027	LOOK X	44	44	2039 R	.05641
6	2030	LOOK X	39	39	2055 R	.05864
6	2030	LOOK X	489	489	2045 R	.05692
6	2030	LOOK X	605	605	2055 R	.05864
6	2032	LOOK X	17	17	2039 R	.05554
6	2035	LOOK X	85	85	2055 R	.05778
6	2035	LOOK X	6	6	2043 R	.05571
6	2035	LOOK X	12028	12028	2075 R	.05949
6	2035	LOOK X	497	497	2055 R	.05778
6	2035	LOOK X	2399	2399	2075 R	.05949
6	2035	LOOK X	123	123	2045 R	.05607
6	2039	LOOK X	17	17	2046 R	.05554
6	2039	LOOK X	44	44	2051 R	.05641
6	2043	LOOK X	6	6	2051 R	.05571
6	2045	LOOK X	6285	6285	2090 R	.05949
6	2045	LOOK X	2612	2612	2090 R	.05949
6	2045	LOOK X	123	123	2055 R	.05607
6	2045	LOOK X	489	489	2060 R	.05692
6	2046	LOOK X	17	17	2053 R	.05554
6	2051	LOOK X	6	6	2059 R	.05571
6	2051	LOOK X	44	44	2063 R	.05641
6	2053	LOOK X	17	17	2060 R	.05554
6	2055	LOOK X	605	605	2080 R	.05864
6	2055	LOOK X	497	497	2075 R	.05778
6	2055	LOOK X	39	39	2080 R	.05864
6	2055	LOOK X	85	85	2075 R	.05778
6	2055	LOOK X	123	123	2065 R	.05607
6	2012	LOST X	19	19	2047 R	.05949
6	2013	LOST X	5	5	2025 R	.05641
6	2017	LOST X	1	1	2025 R	.05571
6	2017	LOST X	1745	1745	2057 R	.05949
6	2017	LOST X	43	43	2037 R	.05778
6	2022	LOST X	1362	1362	2067 R	.05949
6	2025	LOST X	5	5	2037 R	.05641
6	2025	LOST X	1	1	2033 R	.05571
6	2027	LOST X	653	653	2077 R	.05949
6	2027	LOST X	84	84	2052 R	.05864
6	2033	LOST X	1	1	2041 R	.05571
6	2037	LOST X	5	5	2049 R	.05641
6	2037	LOST X	43	43	2057 R	.05778
6	2037	LOST X	185	185	2067 R	.05949
6	2041	LOST X	1	1	2049 R	.05571
6	2047	LOST X	19	19	2082 R	.05949
6	2049	LOST X	5	5	2061 R	.05641
6	2049	LOST X	1	1	2057 R	.05571
6	2052	LOST X	84	84	2077 R	.05864
6	2011	LOWG X	23	23	2023 R	.05641
6	2013	LOWG X	11223	11223	2048 R	.05949
6	2015	LOWG X	7947	7947	2055 R	.05949
6	2015	LOWG X	1003	1003	2025 R	.05607
6	2015	LOWG X	40279	40279	2035 R	.05778
6	2015	LOWG X	36	36	2023 R	.05571
6	2017	LOWG X	27	27	2024 R	.05554
6	2018	LOWG X	8716	8716	2058 R	.05949

6	2018	LOWG X	352	352	2038 R	.05778
6	2020	LOWG X	19623	19623	2035 R	.05692
6	2023	LOWG X	36	36	2031 R	.05571
6	2023	LOWG X	352	352	2038 R	.05692
6	2023	LOWG X	23	23	2035 R	.05641
6	2024	LOWG X	27	27	2031 R	.05554
6	2025	LOWG X	1003	1003	2035 R	.05607
6	2025	LOWG X	234	234	2050 R	.05864
6	2025	LOWG X	1782	1782	2075 R	.05949
6	2028	LOWG X	132	132	2053 R	.05864
6	2028	LOWG X	1860	1860	2078 R	.05949
6	2031	LOWG X	27	27	2038 R	.05554
6	2031	LOWG X	36	36	2039 R	.05571
6	2035	LOWG X	23	23	2047 R	.05641
6	2035	LOWG X	1003	1003	2045 R	.05607
6	2035	LOWG X	753	753	2065 R	.05949
6	2035	LOWG X	19623	19623	2050 R	.05692
6	2035	LOWG X	40279	40279	2055 R	.05778
6	2038	LOWG X	352	352	2053 R	.05692
6	2038	LOWG X	27	27	2045 R	.05554
6	2038	LOWG X	352	352	2058 R	.05778
6	2039	LOWG X	36	36	2047 R	.05571
6	2045	LOWG X	1003	1003	2055 R	.05607
6	2045	LOWG X	9529	9529	2080 R	.05949
6	2045	LOWG X	27	27	2052 R	.05554
6	2047	LOWG X	23	23	2059 R	.05641
6	2047	LOWG X	36	36	2055 R	.05571
6	2048	LOWG X	11223	11223	2083 R	.05949
6	2050	LOWG X	19623	19623	2065 R	.05692
6	2050	LOWG X	234	234	2075 R	.05864
6	2052	LOWG X	27	27	2059 R	.05554
6	2053	LOWG X	352	352	2068 R	.05692
6	2053	LOWG X	132	132	2078 R	.05864
6	2055	LOWG X	36	36	2063 R	.05571
6	2055	LOWG X	40279	40279	2075 R	.05778
6	2055	LOWG X	1003	1003	2065 R	.05607
6	2055	LOWG X	7947	7947	2095 R	.05949
6	2011	LOWM X	26	26	2018 R	.05554
6	2014	LOWM X	33179	33179	2029 R	.05692
6	2014	LOWM X	10664	10664	2049 R	.05949
6	2017	LOWM X	2582	2582	2029 R	.05641
6	2017	LOWM X	50	50	2025 R	.05571
6	2018	LOWM X	26	26	2025 R	.05554
6	2019	LOWM X	961	961	2044 R	.05864
6	2019	LOWM X	349	349	2039 R	.05778
6	2019	LOWM X	13	13	2029 R	.05607
6	2019	LOWM X	4636	4636	2069 R	.05949
6	2019	LOWM X	7742	7742	2059 R	.05949
6	2024	LOWM X	127	127	2069 R	.05949
6	2025	LOWM X	26	26	2032 R	.05554
6	2025	LOWM X	50	50	2033 R	.05571
6	2029	LOWM X	13	13	2039 R	.05607
6	2029	LOWM X	45	45	2054 R	.05864
6	2029	LOWM X	2582	2582	2041 R	.05641
6	2029	LOWM X	1882	1882	2079 R	.05949
6	2029	LOWM X	278	278	2059 R	.05949
6	2029	LOWM X	33953	33953	2049 R	.05778
6	2029	LOWM X	33179	33179	2044 R	.05692
6	2032	LOWM X	26	26	2039 R	.05554
6	2033	LOWM X	50	50	2041 R	.05571
6	2039	LOWM X	13	13	2049 R	.05607
6	2039	LOWM X	26	26	2046 R	.05554
6	2039	LOWM X	11593	11593	2074 R	.05949
6	2039	LOWM X	349	349	2059 R	.05778
6	2041	LOWM X	2582	2582	2053 R	.05641
6	2041	LOWM X	50	50	2049 R	.05571
6	2044	LOWM X	33179	33179	2059 R	.05692
6	2044	LOWM X	961	961	2069 R	.05864
6	2046	LOWM X	26	26	2053 R	.05554
6	2049	LOWM X	11877	11877	2089 R	.05949
6	2049	LOWM X	33953	33953	2069 R	.05778
6	2049	LOWM X	50	50	2057 R	.05571
6	2049	LOWM X	10664	10664	2084 R	.05949
6	2049	LOWM X	13	13	2059 R	.05607
6	2053	LOWM X	2582	2582	2065 R	.05641
6	2053	LOWM X	26	26	2060 R	.05554
6	2054	LOWM X	45	45	2079 R	.05864
6	2011	LSFW X	642	642	2018 R	.05554
6	2013	LSFW X	2493	2493	2043 R	.05949
6	2013	LSFW X	1263	1263	2028 R	.05692
6	2013	LSFW X	54	54	2018 R	.05488
6	2013	LSFW X	1168	1168	2023 R	.05607
6	2015	LSFW X	123	123	2023 R	.05571
6	2018	LSFW X	642	642	2025 R	.05554
6	2018	LSFW X	1282	1282	2053 R	.05949
6	2018	LSFW X	54	54	2023 R	.05488
6	2019	LSFW X	586	586	2031 R	.05641
6	2023	LSFW X	1168	1168	2033 R	.05607
6	2023	LSFW X	5870	5870	2043 R	.05778
6	2023	LSFW X	8084	8084	2063 R	.05949
6	2023	LSFW X	54	54	2028 R	.05488
6	2023	LSFW X	123	123	2031 R	.05571
6	2025	LSFW X	642	642	2032 R	.05554
6	2028	LSFW X	1207	1207	2073 R	.05949
6	2028	LSFW X	54	54	2033 R	.05488
6	2028	LSFW X	1263	1263	2043 R	.05692
6	2031	LSFW X	123	123	2039 R	.05571
6	2031	LSFW X	586	586	2043 R	.05641
6	2032	LSFW X	642	642	2039 R	.05554
6	2033	LSFW X	54	54	2038 R	.05488
6	2033	LSFW X	1135	1135	2058 R	.05864
6	2033	LSFW X	18862	18862	2083 R	.05949
6	2033	LSFW X	1168	1168	2043 R	.05607
6	2038	LSFW X	54	54	2043 R	.05488

6	2039	LSFW X	642	642	2046 R	.05554
6	2039	LSFW X	123	123	2047 R	.05571
6	2043	LSFW X	5870	5870	2063 R	.05778
6	2043	LSFW X	2493	2493	2073 R	.05949
6	2043	LSFW X	1168	1168	2053 R	.05607
6	2043	LSFW X	586	586	2055 R	.05641
6	2043	LSFW X	1263	1263	2058 R	.05692
6	2043	LSFW X	54	54	2048 R	.05488
6	2046	LSFW X	642	642	2053 R	.05554
6	2047	LSFW X	123	123	2055 R	.05571
6	2048	LSFW X	54	54	2053 R	.05488
6	2053	LSFW X	1168	1168	2063 R	.05607
6	2053	LSFW X	642	642	2060 R	.05554
6	2053	LSFW X	54	54	2058 R	.05488
6	2053	LSFW X	1282	1282	2088 R	.05949
6	2055	LSFW X	586	586	2067 R	.05641
6	2055	LSFW X	123	123	2063 R	.05571
6	2011	MCNA X	32	32	2018 R	.05554
6	2011	MCNA X	67	67	2019 R	.05571
6	2015	MCNA X	1392	1392	2035 R	.05778
6	2015	MCNA X	23884	23884	2030 R	.05692
6	2015	MCNA X	32275	32275	2027 R	.05641
6	2015	MCNA X	65841	65841	2025 R	.05607
6	2018	MCNA X	32	32	2025 R	.05554
6	2019	MCNA X	67	67	2027 R	.05571
6	2025	MCNA X	71147	71147	2060 R	.05949
6	2025	MCNA X	65841	65841	2035 R	.05607
6	2025	MCNA X	32	32	2032 R	.05554
6	2027	MCNA X	32275	32275	2039 R	.05641
6	2027	MCNA X	67	67	2035 R	.05571
6	2030	MCNA X	1029	1029	2055 R	.05864
6	2030	MCNA X	23884	23884	2045 R	.05692
6	2032	MCNA X	32	32	2039 R	.05554
6	2035	MCNA X	1392	1392	2055 R	.05778
6	2035	MCNA X	65841	65841	2045 R	.05607
6	2035	MCNA X	36506	36506	2075 R	.05949
6	2035	MCNA X	67	67	2043 R	.05571
6	2039	MCNA X	32	32	2046 R	.05554
6	2039	MCNA X	32275	32275	2051 R	.05641
6	2043	MCNA X	67	67	2051 R	.05571
6	2045	MCNA X	65841	65841	2055 R	.05607
6	2045	MCNA X	23884	23884	2060 R	.05692
6	2046	MCNA X	32	32	2053 R	.05554
6	2051	MCNA X	67	67	2059 R	.05571
6	2051	MCNA X	32275	32275	2063 R	.05641
6	2053	MCNA X	32	32	2060 R	.05554
6	2055	MCNA X	1392	1392	2075 R	.05778
6	2055	MCNA X	1029	1029	2080 R	.05864
6	2055	MCNA X	22661	22661	2105 R	.05949
6	2055	MCNA X	65841	65841	2065 R	.05607
6	2017	MINI X	314	314	2037 R	.05778
6	2017	MINI X	18	18	2027 R	.05607
6	2017	MINI X	143	143	2032 R	.05692
6	2017	MINI X	5402	5402	2067 R	.05949
6	2017	MINI X	106	106	2037 R	.05778
6	2017	MINI X	99	99	2047 R	.05949
6	2017	MINI X	2215	2215	2042 R	.05864
6	2022	MINI X	97	97	2037 R	.05692
6	2022	MINI X	3475	3475	2057 R	.05949
6	2027	MINI X	835	835	2062 R	.05949
6	2027	MINI X	18	18	2037 R	.05607
6	2032	MINI X	143	143	2047 R	.05692
6	2032	MINI X	2648	2648	2057 R	.05864
6	2037	MINI X	1850	1850	2077 R	.05949
6	2037	MINI X	79	79	2067 R	.05949
6	2037	MINI X	18	18	2047 R	.05607
6	2037	MINI X	106	106	2057 R	.05778
6	2037	MINI X	97	97	2052 R	.05692
6	2037	MINI X	7133	7133	2077 R	.05949
6	2037	MINI X	314	314	2057 R	.05778
6	2042	MINI X	2215	2215	2067 R	.05864
6	2047	MINI X	143	143	2062 R	.05692
6	2047	MINI X	18	18	2057 R	.05607
6	2047	MINI X	99	99	2077 R	.05949
6	2047	MINI X	4528	4528	2092 R	.05949
6	2052	MINI X	97	97	2067 R	.05692
6	2052	MINI X	6912	6912	2097 R	.05949
6	2013	THED X	254	254	2033 R	.05778
6	2014	THED X	49	49	2019 R	.05488
6	2015	THED X	80	80	2023 R	.05571
6	2015	THED X	53	53	2022 R	.05554
6	2018	THED X	6548	6548	2063 R	.05949
6	2018	THED X	2205	2205	2033 R	.05692
6	2019	THED X	1429	1429	2034 R	.05692
6	2019	THED X	49	49	2024 R	.05488
6	2019	THED X	1406	1406	2039 R	.05778
6	2019	THED X	1	1	2029 R	.05607
6	2019	THED X	10	10	2031 R	.05641
6	2021	THED X	1949	1949	2033 R	.05641
6	2022	THED X	53	53	2029 R	.05554
6	2023	THED X	80	80	2031 R	.05571
6	2024	THED X	49	49	2029 R	.05488
6	2029	THED X	79074	79074	2064 R	.05949
6	2029	THED X	53	53	2036 R	.05554
6	2029	THED X	49	49	2034 R	.05488
6	2029	THED X	1	1	2039 R	.05607
6	2031	THED X	80	80	2039 R	.05571
6	2031	THED X	10	10	2043 R	.05641
6	2033	THED X	1949	1949	2045 R	.05641
6	2033	THED X	21796	21796	2063 R	.05949
6	2033	THED X	254	254	2053 R	.05778
6	2033	THED X	2205	2205	2048 R	.05692
6	2034	THED X	49	49	2039 R	.05488
6	2034	THED X	1429	1429	2049 R	.05692

6	2034	THED X	2887	2887	2059 R	.05864
6	2036	THED X	53	53	2043 R	.05554
6	2039	THED X	49	49	2044 R	.05488
6	2039	THED X	49926	49926	2079 R	.05949
6	2039	THED X	1406	1406	2059 R	.05778
6	2039	THED X	1	1	2049 R	.05607
6	2039	THED X	80	80	2047 R	.05571
6	2043	THED X	53	53	2050 R	.05554
6	2043	THED X	10	10	2055 R	.05641
6	2043	THED X	17626	17626	2078 R	.05949
6	2044	THED X	49	49	2049 R	.05488
6	2045	THED X	1949	1949	2057 R	.05641
6	2047	THED X	80	80	2055 R	.05571
6	2048	THED X	2205	2205	2063 R	.05692
6	2049	THED X	1	1	2059 R	.05607
6	2049	THED X	49	49	2054 R	.05488
6	2049	THED X	1429	1429	2064 R	.05692
6	2050	THED X	53	53	2057 R	.05554
6	2053	THED X	254	254	2073 R	.05778
6	2054	THED X	49	49	2059 R	.05488
6	2055	THED X	10	10	2067 R	.05641
6	2055	THED X	80	80	2063 R	.05571
6	2016	YAKC X	67	67	2026 R	.05607
6	2016	YAKC X	28	28	2031 R	.05692
6	2016	YAKC X	68	68	2046 R	.05949
6	2016	YAKC X	99	99	2036 R	.05778
6	2026	YAKC X	67	67	2036 R	.05607
6	2026	YAKC X	540	540	2061 R	.05949
6	2031	YAKC X	28	28	2046 R	.05692
6	2031	YAKC X	1062	1062	2056 R	.05864
6	2036	YAKC X	533	533	2076 R	.05949
6	2036	YAKC X	99	99	2056 R	.05778
6	2036	YAKC X	67	67	2046 R	.05607
6	2046	YAKC X	28	28	2061 R	.05692
6	2046	YAKC X	67	67	2056 R	.05607
6	2046	YAKC X	871	871	2091 R	.05949
6	2046	YAKC X	68	68	2076 R	.05949
6	2056	YAKC X	67	67	2066 R	.05607
6	2056	YAKC X	99	99	2076 R	.05778
6	2056	YAKC X	1062	1062	2081 R	.05864
6	2056	YAKC X	3723	3723	2106 R	.05949
6	2018	YAKR X	3	3	2033 R	.05692
6	2018	YAKR X	5	5	2048 R	.05949
6	2018	YAKR X	9	9	2038 R	.05778
6	2028	YAKR X	62	62	2063 R	.05949
6	2033	YAKR X	3	3	2048 R	.05692
6	2033	YAKR X	120	120	2058 R	.05864
6	2038	YAKR X	141	141	2078 R	.05949
6	2038	YAKR X	9	9	2058 R	.05778
6	2048	YAKR X	5	5	2078 R	.05949
6	2048	YAKR X	3	3	2063 R	.05692
6	2048	YAKR X	238	238	2093 R	.05949

CHAPTER 12

RISK MITIGATION AND TREASURY PAYMENT PROBABILITY

I. Introduction

BPA has updated and expanded its risk analysis methodology to encompass a wider array of risks than had been addressed in prior rate cases. In BPA's 1993, 1995 and 1996 rate cases, two models were used to assess the risks associated with recovering costs in the revenue requirement. The Short Term Risk Evaluation and Analysis Model (STREAM) was used to quantify operating risk, while the Risk Mitigation ToolKit model (ToolKit) was employed to evaluate BPA's probability of making Treasury payment in full and on time during the rate period.

For the 2002 Rate Case, a more robust model, RiskMod, has replaced STREAM. Additionally, a new Non-Operating Risk Model (NORM) has been developed to address a separate set of risks stemming from uncertainties in planned expenses and in the policy environment. Documentation for both RiskMod and NORM is contained in the Risk Analysis Study and Documentation, WP-02-FS-BPA-03 and WP-02-FS-BPA-03A (*see* also the testimony of Conger, Lovell, Steele, and Wagner, WP-02-E-BPA-15). These two models provide input to the ToolKit model, which has been modified and improved since the 1996 rate case. Documentation for the ToolKit is included in the pages that follow.

II. Treasury Payment Probability Standard

In the face of operating and non-operating risks, BPA seeks to maintain a high probability of recovering all costs on schedule. Payments to Treasury rank lowest on BPA's priority of payments. For this reason, Treasury Payment Probability (TPP) is the key measure of the agency's ability to recover its costs on time and in full. A TPP

standard of 95% was adopted as a long-term policy in the 1993 Rate Case. This standard means that there is a 95% probability that planned Treasury payments will be recovered in full and on time over a two-year rate period, i.e., making two payments in a row within a two-year rate period. For the 1996 Rate Case, a comparable standard was established for the five-year rate period, FYs 1997-2001. For a five-year period, the appropriate TPP standard would be a probability that all of the scheduled payments in the rate period, five in this case, would be made on time. The 95% TPP standard implies that there is an 88% probability of making all five payments in a five-year period ($.95^{5/2} = .88$).

Thus, an 88% probability of full Treasury payment during a five-year rate period is comparable to a 95% Treasury probability standard for a two-year rate period. BPA is adopting the 88% probability standard for this rate proposal. Table 1 below summarizes these comparable probabilities.

Table 1: Equivalent 2-Year and 5-Year Probability Standards

Treasury Payment probability	Explanation	Formula for computation
95.0%	Long-term financial policy probability of making both Treasury payments in full and on time during a 2-year rate period	N/A
88.0%	Payment probability for 5-year rate period - probability of making all five Treasury payments.	$95\%^{5/2}$

The ToolKit model is used to test the effectiveness of various risk mitigation measures in meeting this standard, and to determine the amount of cash flow that rates must generate to achieve the standard.

III. Risk Mitigation Tools

Using the ToolKit model, analysts can assess the impacts of various risk mitigation tools on Treasury Payment Probability. Specifically, ToolKit allows users to evaluate the effects of each of the following tools on TPP:

- ***FY 2002 Start of Year Financial Reserves Functionalized to Generation:*** In concept, BPA financial reserves consist of cash in the BPA Fund and any deferred borrowing balance. “Deferred borrowing balance” refers to capital expenditures that will be funded by borrowing from Treasury, but have been temporarily financed with revenues. Financial reserves include working capital. Estimates of start-of-year reserves in this rate proposal reflect cash flows functionalized to generation. Cash flows functionalized to transmission are excluded. In this modeling, all reserves are projected as cash in the BPA Fund, with no reserves reflecting a deferred borrowing balance.
- ***Cost Recovery Adjustment Clause (CRAC):*** In this Power Rate Case, BPA’s proposal includes CRAC, an automatic, temporary upward adjustment to posted power prices if actual accumulated net revenues (AANR) fall substantially below a threshold level. The CRAC applies to the Priority Firm Power [(Preference (PF) excluding Slice), Exchange Program, and Exchange Subscription], Industrial Firm Power (IP-02) including under the IP TAC and Cost-based index rate, Residential Load (RL-02) including the financial portion of any Residential Exchange Settlement under this rate schedule, and New Resources Firm Power (NR-02) rate schedules, as well as Subscription purchases under FPS. The CRAC does not apply to pre-Subscription rates or Slice purchases. The CRAC will trigger, beginning in April of

each year, if the actual accumulated net revenues for the prior fiscal year (FYs 2001-2005) fall below the CRAC Threshold. *See* Appendix 1.

- ***Fish Cost Contingency Fund (FCCF) credits:*** Section 4(h)(10)(C) of the Northwest Power Act directs the Administrator to take credits for fish and wildlife expenditures made by BPA equal to the fraction of the projects' costs allocated to purposes other than power. The Fish Cost Contingency Fund (FCCF) is comprised of credits that BPA earned since enactment of the Northwest Power Act in 1980 and prior to 1995, when BPA began claiming these credits annually. This fund, the balance of which is \$325.2 million, was designed to provide protection against certain operating risks associated with the use of the hydrosystem, and can be accessed when the impacts of court-ordered changes to hydro operations, adverse water conditions, or natural disasters exceed certain established thresholds. The effects of the FCCF have been modeled in RiskMod, and are treated as part of the inputs for ToolKit. *See* Risk Analysis Study and Documentation, WP-02-FS-BPA-03 and WP-02-FS-BPA-03A. *See* also Appendix 3.
- ***Planned Net Revenues for Risk (PNRR):*** PNRR is a component of the revenue requirement that is added to expenses. PNRR increases expected cash flows for risk mitigation purposes. Because of the significant downside to the operating and non-operating risks that BPA faces, it is necessary to include these additional revenues in the rate calculation to ensure an 88% probability that the generation function makes all of its Treasury payments in full and on time over the five-year rate period.

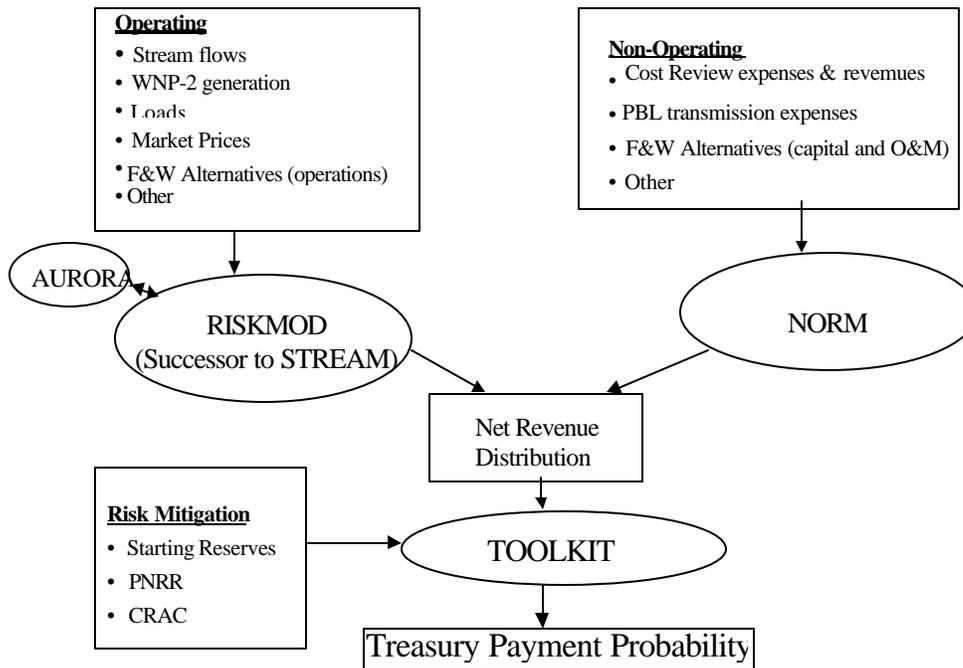
IV. ToolKit and Generation Risk Mitigation Modeling

As depicted in Figure 1, the ToolKit model utilizes outputs of both RiskMod and NORM in developing an estimate of Treasury Payment Probability.

RiskMod and NORM are Monte Carlo models written in Excel (Microsoft Corp.) and @Risk (Palisade Corp). ToolKit is written in Excel and Excel's Visual Basic for Applications (VBA). Specifically, ToolKit receives two streams of net revenues and sums these to arrive at a distribution that reflects both operating and non-operating risks. RiskMod produces the stream of net revenues reflecting operating risk, whereas NORM produces the stream of net revenues reflecting non-operating risks. *See Risk Analysis Study and Documentation, WP-02-FS-BPA-03 and, WP- 02- FS- BPA- 03A.*

An older version of the ToolKit model, written in Excel without VBA, is used to produce 300 individual starting reserve values for the FY2002-2006 rate period, which are replicated 13 times (for the 13 Fish and Wildlife Alternatives) for a total of 3,900. These values reflect the uncertainty around projections of the financial results of the generation function over the next three years. This version of ToolKit was first calibrated to FY1999 actual reserves and then used to produce a distribution of net revenues for the remaining years of the current rate period (FY2000-FY2001), using the output of the STREAM model used in the 1996 Rate Case, and a current rate period version of NORM used to assess the potential impact of two non-operating risks in FY2001. These are the risks associated with the use of the 1996 Fish and Wildlife Memorandum of Agreement carry-forward balance (*see DeWolf et al.*, WP-02-E-BPA-40, at 24) and the uncertainty over the status of the Residential Exchange in the final quarter of FY2001. STREAM is documented in the 1996 Final Proposal Wholesale Power Rates Development Study and Documentation, WP-96-FS-BPA-05 and WP-96-FS-BPA-05A.

Figure 1: BPA Financial Risk Modeling System



For purposes of this rate proposal, BPA has used a distribution consisting of 19,500 observations (of cash flows) representing 3,900 five-year rate period games that cover the full spectrum of operating and non-operating risks. Each five-year period begins with a particular ending reserve balance from the current rate period (FY2001) followed by cash flows for the FY2002-2006 rate period. The games covered the variability in each of the 13 Fish and Wildlife Alternatives, each with different annual costs and net revenue distributions. These Alternatives are listed in Table 2 and are described in Chapter 13 of this Volume. Three hundred equally weighted games were run for each of the 13 Alternatives. BPA has incorporated both the “unadjusted” or “expedited” schedules and the “adjusted” schedules for the five Snake River drawdown alternatives into the ToolKit analysis by assigning a weight of 90% to the adjusted and 10% to the unadjusted schedules. Therefore, the set of 300 games for each of alternatives 7, 8, 9, 12, and 13 comprise 270 games from the adjusted schedule runs of RiskMod and 30 games from the

unadjusted schedule runs. The costs for these Fish and Wildlife Alternatives are detailed in Chapter 13.

Table 2: Summary of Fish and Wildlife Alternatives Modeled in ToolKit

<i>Alt #</i>	<i>Alternative Name</i>
1	In-River Migration (low option)
2	In-River Migration (high option) with Clean Water Act (CWA)
3	Expanded Transport
4	Expanded Transport Low Option
5	Transportation Plus
6	Transportation Plus and CWA
7u	Two Snake River Dams to Natural River
7a	Two Snake River Dams to Natural River - Adj. Sch
8u	Four Snake River Dams to Natural River
8a	Four Snake River Dams to Natural River - Adj Sch
9u	Snake River and John Day (JDA) Dams to Natural River
9a	Snake River and JDA Dams to Natural River – Adj Sch
10	John Day Dam to Natural River
11	John Day Dam to Spillway Crest
12u	Snake River Dams to Natural River and JDA Dam to Spillway Crest
12a	Snake River Dams to Natural River and JDA Dam to Spillway Crest - Adj Sch
13u	Snake River and JDA Dams to Natural River (high option) plus CWA
13a	Snake River and JDA Dams to Natural River (high option) plus CWA - Adj Sch

V. Discussion of ToolKit Model Operation

The ToolKit is a computer spreadsheet model that calculates sequential year-end financial reserve balances for a number of different games. It is used to determine the

probability of paying Treasury in full and on time during the rate period. The ToolKit is also used to determine the amount of planned net revenues for risk that would be included in generation revenue requirements to achieve the 88% TPP goal. In doing so, ToolKit takes into account the impact of such risk mitigation tools as starting financial reserves and the Cost Recovery Adjustment Clause (CRAC). Inputs to the spreadsheet include the RiskMod and NORM distributions of net revenue deviations, the distribution of FY2002 starting reserves, and CRAC. In addition, the model uses information concerning the amounts of annual U.S. Treasury interest and amortization that are planned during the rate period.

A. Minimum financial reserve level

An assumption about the working capital component of financial reserves must be made to run the ToolKit model and evaluate the probability of BPA making its Treasury payments in full and on time in all five years of the rate period. A \$100 million working capital reserve for the generation function was determined to be the minimum level, of which up to \$50 million may be provided by a note that BPA may issue to the U.S. Treasury. A Treasury deferral is deemed to occur whenever the balance of financial reserves falls below a \$50 million trigger point at the end of any year. (A missed payment occurs even if the amount of the miss is very small. Most of the misses being modeled are limited to missed principal payments, not interest payments.) Therefore, the ToolKit counts the number of U.S. Treasury deferrals that occur based on this trigger point.

B. Risk Mitigation Tools

1. Modeling Starting Financial Reserves

As noted, the ToolKit was used to evaluate the Treasury Payment Probability for 3,900 five-year rate period games. For each five-year scenario, the FY2002 start-of-year financial reserve balance was derived from the results of a separate run of an earlier version of the ToolKit for FY1996-2001 through a probabilistic process. This probabilistic process consisted of running the ToolKit using a two-year distribution of STREAM and NORM outputs that represents the remainder of the current rate period (FY2000-2001). See this distribution at Attachment 1. The ToolKit runs for the current rate period were calibrated to a FY1999 ending reserve balance of \$665.6 million for power, compiled from audited actuals following BPA's Fourth Quarter Review for FY1999. FY2002 starting reserve balances in the 3,900 games ranged from \$468 million to \$1320 million and averaged \$842.3 million. See the output from this ToolKit run at Attachment 2. See Attachment 4 for a graphical representation of historical reserve levels.

2. Modeling the Cost Recovery Adjustment Clause

Another mechanism BPA used to develop its 2002 Rate Proposal to meet its TPP standard is an adjustment clause that allows BPA to temporarily increase power rates when actual accumulated net revenues fall below a particular threshold level. Because the measurement of TPP in ToolKit is reserves-based, not accumulated net revenues-based, the annual thresholds for triggering CRAC as modeled in ToolKit are based on reserves. (The conversion of the CRAC Threshold from reserves to accumulated net revenues is described in detail in Appendix 1).

The CRAC is capped, so that a pre-established maximum of additional revenues can be recouped through a temporary rate increase if ending reserves for the previous fiscal year

fall below the threshold. The ToolKit applies this threshold test each year of the rate period. In the rate case modeling, the ToolKit determines whether or not reserves at the end of the previous year fell below the threshold, and then assumes that additional revenues are obtained starting part way through the year because of a rate increase under the CRAC. The amount of revenue collected is equal to the difference between the threshold and ending reserves or the cap for that year, whichever is less. Because a rate increase under the CRAC will not take effect until April following the fiscal year in which the threshold was crossed (it will take several months to obtain audited end-of-year financial reports, hold a public process, adjust BPA’s billing rates and then begin receiving adjusted revenues), ToolKit divides the additional revenues equally between the two years that follow the shortfall. Whereas PNRR deals with the risk of not meeting the Treasury repayment standard by increasing rates up-front to build up reserves, CRAC is contingent, and raises rates only in cases where financial conditions have deteriorated significantly and reserves have actually fallen. Table 3 shows the annual thresholds and revenue cap values used in the ToolKit.

Table 3: CRAC Thresholds and Revenue Caps as Modeled in ToolKit
(\$ in millions)

Fiscal Year	CRAC Threshold (Reserve Equivalent to AANR)	Revenue Cap for CRAC
FY2002	300	125
FY2003	300	135
FY2004	500	150
FY2005	500	150
FY2006	500	175

Table 4 summarizes the CRAC statistics associated with the ToolKit run used to develop this rate Proposal. For each year in the FY2002-FY2006 Rate Period, ToolKit calculates (1) the number of times reserves fell below the \$300 million threshold, (2) the likelihood of CRAC triggering, (3) the average size of revenues recovered when CRAC was triggered, (4) the average size of CRAC revenues (i.e., total CRAC revenues divided by the total number of games), and (5) the number of times the full annual amount available from CRAC was actually recovered.

Table 4: Summary of CRAC Modeled in ToolKit

<i>Fiscal Year</i>	(1) Number of CRAC Accesses (out of 3900)	(2) Likelihood of CRAC Triggering	(3) Average CRAC per Access (million \$)	(4) Average CRAC per Year (million \$)	(5) Number of Times CRAC Limit Reached
2002	0	0	N/A	0.0	0
2003	24	0.6%	57.8	0.4	2
2004	528	13.5%	108.1	14.6	265
2005	739	18.9%	113.6	21.5	397
2006	836	21.4%	154.6	33.1	707
5-yr Total	2127	N/A	N/A	69.7	1371
5-yr Average	425.4	10.9%	127.7	13.9	274.2

3. Modeling Planned Net Revenues for Risk

PNRR is determined using the ToolKit in several steps. First, a set of net revenues based upon a preliminary estimate of rates is passed from RiskMod and NORM to the ToolKit model. The rates upon which these initial estimates of net revenues are based would be sufficient to meet the revenue requirement under average conditions, but do not across the range of risks that BPA must address. As a result, the first ToolKit run yields a Treasury Payment Probability of less than 88%. Next, the analyst operating ToolKit manually inserts a trial PNRR value that is added to the starting reserves of each of the years modeled in the 3,900 games and determines the impact on PNRR. The analyst

performs this iterative process until determining exactly which PNRR value results in a TPP of 88%. This resulting PNRR value is then incorporated into the revenue requirement. RiskMod performs a final check by generating 3,900 net revenue games based on the final set of rates. The check is used to verify that these rates yield an 88% TPP.

C. Implications of Treasury payment deferrals

As previously stated, the ToolKit model calculates the likelihood of missed Treasury payments (called “deferrals” here) that occur during the five-year rate period. A deferral is deemed to occur if the balance of financial reserves is less than \$50 million minimum working capital at the end of the fiscal year. The ToolKit counts the number of deferrals that occur for each of the fiscal years in the 3,900 games that are modeled. Additionally, the ToolKit counts the number of games in which a Treasury deferral occurs in any one of the years during the rate period. The TPP is the frequency among the 3,900 games in which there are no deferrals in the five-year period – that is, it is the probability of making all five payments. It is a measure of the “whole rate period”.

The logic used in this proposal evaluates Treasury Payment Probability over a five-year rate period, FY2002-2006. The financial reserve balance is not re-initialized during the rate period; in each scenario, the balance of financial reserves at the end of each year is carried over as the starting balance of the subsequent year. If the ending balance in any year is less than \$50 million, a missed Treasury payment is deemed to occur, equal to \$50 million minus the ending balance. If the missed Treasury payment is no larger than the scheduled amortization payment, then amortization equal to the size of the missed payment is deferred. If the missed payment is larger than the scheduled amortization,

then the entire amortization is deferred, and part or all of the planned interest payment is also deferred.

The model assumes that amortization payments that are missed are not brought current during the five-year rate period. If an amortization payment is missed, the amounts scheduled to be repaid in subsequent years of the rate period are not increased. Rather, the modeling assumes that the repayment schedule will be revised to take into account any misses at such time as repayment studies are run and rates are set for the post-FY2006 era. However, any amount of planned interest payments to Treasury that is not paid on time is treated as a priority for payment in the next year. For modeling purposes, this deferred interest expense is paid before the next year's Treasury payment evaluation.

VI. Risk Mitigation ToolKit Results

Ending reserve balances for each year are shown below in Table 5 based on rates that include a PNRR of \$98 million. Also shown are the number of rate periods out of 3,900 games in which at least one year contained a Treasury deferral, and the corresponding probability per year of making that year's Treasury payment. *See* Attachment 3 for the ToolKit output.

Table 5: ToolKit results

Fiscal Year	Average Ending Reserves Balance (in millions)	Treasury Deferrals	Treasury payment probability (3900 games)
FY 2002	948.4	2	100%
FY 2003	1044.2	80	98%
FY 2004	1125.0	178	95%
FY 2005	1190.3	323	92%
FY 2006	1268.2	311	92%
FY 2002 to FY 2006 rate period		^{1/}	88% ¹

^{1/} For the FY2002 to FY2006 rate period, 3,900 games were modeled. There were one or more Treasury deferrals in 468 of the games modeled, which equates to an 88.0% probability of making all Treasury payments in full and on time during the rate period.

The distribution of ending reserve values produced by the ToolKit is presented in Table 6, grouped by percentile. *See* Attachment 2 for the ToolKit output. The maximum reserves for any given year is the value associated with the 100th percentile. For all years, the minimum reserve level is the \$50 million floor that triggers a Treasury deferral. This distribution is also depicted graphically in Figure 2. (Note: This table does NOT reflect the operation of the Dividend Distribution Clause, and thus overstates the values for the higher percentiles significantly.)

Table 6: Distribution of Ending Reserves Grouped by Percentile (in million \$)

Number of Games At or Above Reserves Level	Percentile	2001	2002	2003	2004	2005	2006
1	100th	1320	2214	2791	3666	4144	4542
390	90th	1090	1339	1638	1940	2267	2546
780	80th	1004	1191	1439	1657	1886	2102
1170	70th	926	1089	1286	1472	1614	1759
1560	60th	886	1024	1187	1303	1380	1491
1950	50th	841	946	1067	1139	1130	1170
2340	40th	800	857	934	970	921	866
2730	30th	749	770	793	770	711	605
3120	20th	678	706	632	503	446	347
3510	10th	601	568	435	319	122	122
3900	0th	468	50	50	50	50	50

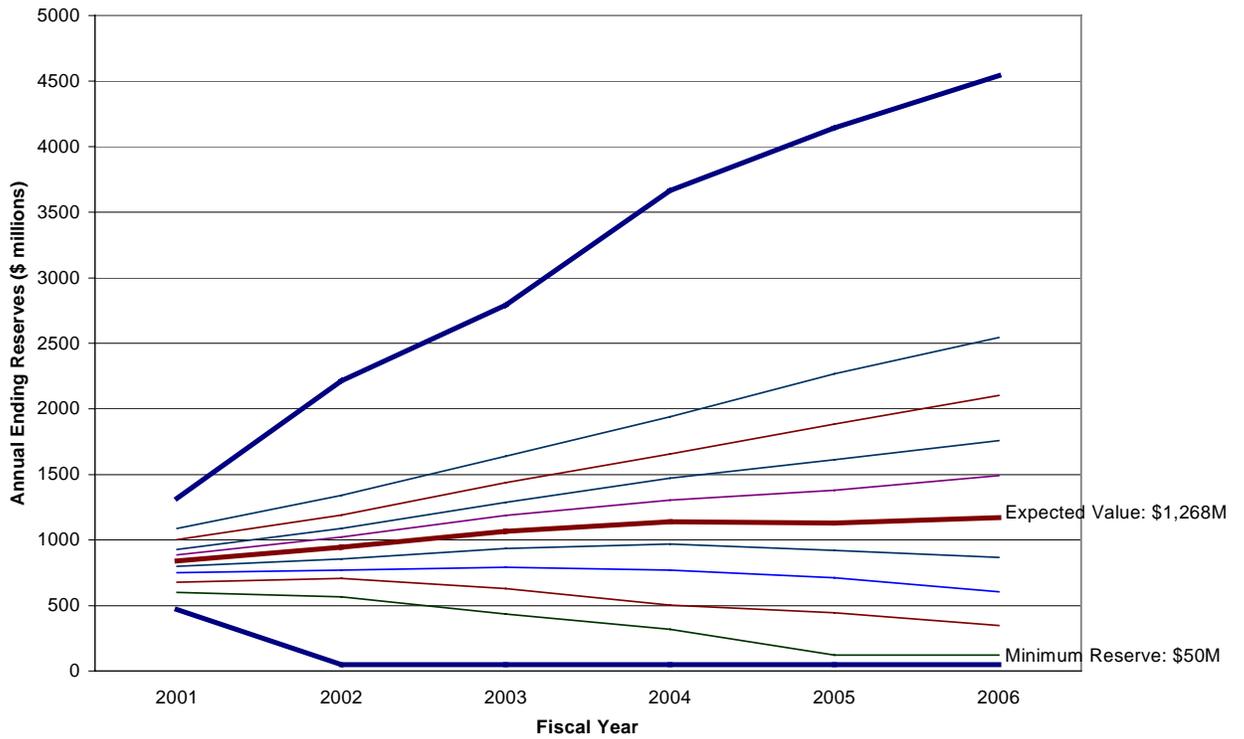


Figure 2: Distribution of Ending Reserves (in million \$)

Appendix 1: Cost Recovery Adjustment Clause

Appendix 2: Dividend Distribution Clause

Appendix 3: Fish Cost Contingency Fund

Attachment 1: STREAM and NORM outputs for FYs 1996-2001 (\$ in millions)

Attachment 2: Current rate period ToolKit output (FYs 2000-2001)

Attachment 3: ToolKit output (FYs 2002-2006)

Attachment 4: BPA Year End Financial Reserves

Appendix 1: The Cost Recovery Adjustment Clause

In this Power Rate Case, BPA's proposal includes a Cost Recovery Adjustment Clause (CRAC), a temporary upward adjustment to posted power prices if actual accumulated net revenues (AANR) fall below a pre-determined threshold level. *See Lovell et al.*, WP-02-E-BPA-14.

The CRAC applies to power customers under these firm power rate schedules: Priority Firm Power [(Preference [PF excluding Slice], Exchange Program, and Exchange Subscription), Industrial Firm Power (IP-02) including under the IP TAC and Cost-based index rates, Residential Load (RL-02) including the financial portion of any Residential Exchange Settlement under this rate schedule, New Resources Firm Power (NR-02), and Subscription purchases under FPS. The CRAC does not apply to pre-Subscription rates or Slice purchases.

If AANR at the end of any fiscal year 2001-2005 falls below the CRAC Threshold applicable to that fiscal year, the CRAC will trigger beginning the following April. If the CRAC triggers in any of the fiscal years 2002-2005, rates will be increased for a 12-month period, through March of the following year. If the CRAC triggers in FY2006, rates will be increased for a six-month period, through September 2006. The trigger is based on actual accumulated net revenues (AANR), which is actual generation function net revenues, as accumulated since 1999, at the end of the fiscal years 2001-2005. Net revenues for any given fiscal year are accrued revenues less accrued expenses, including non-cash expenses such as depreciation, in accordance with Generally Accepted Accounting Practices. Only generation function revenues and expenses, which is to say accrued revenues and accrued expenses that are associated with the production, acquisition, marketing, and conservation of electric power, will be included in the determinations under the CRAC. Accrued revenues and expenses of the transmission

function are excluded. BPA’s independent auditing firm will confirm the determination of the AANR.

The CRAC has usually been described as having a trigger level based on reserves. Because accumulated net revenues are 1) a more common financial yardstick, 2) audited as part of BPA’s regular financial accounting practices, and 3) better able to be separated into power and transmission portions, BPA is defining the CRAC Threshold (the “trigger point” for invoking a rate increase under the CRAC) in terms of actual accumulated net revenues (AANR). A series of five accumulated net revenue CRAC Thresholds is calibrated based on a \$300 million reserves threshold for the first two years and \$500 million in the last three. The “translation” from reserves to AANR is as follows.

Calculation of the CRAC Threshold as Accumulated Net Revenues

(1) Fiscal Year	(2) Projected Ending Reserves	(3) CRAC Threshold as Reserve Level	(4) Maximum Planned Recovery Amount	(5) Differential (2)-(3)	(6) Projected Accumulated Net Revenues	(7) CRAC Threshold as Accumulated Net Revenues (6-5)	(8) Rounded Threshold as Accumulated Net Revenues
FY2001	880	300	125	580	207	-373	-350
FY2002	1020	300	135	720	326	-394	-350
FY2003	1172	500	150	672	421	-251	-250
FY2004	1298	500	150	798	513	-285	-250
FY2005	1401	500	175	901	634	-267	-250

Another way to describe the reserve trigger point is to say that the CRAC will trigger when reserves fall below the 2002 Rate Case projection of reserves by more than a particular amount. This amount for each of the ending balances of reserves for fiscal years 2001 and 2002 is equal to the projected reserve level less \$300 million, and less \$500

million for fiscal years 2003 through 2005. In order to set an accumulated net revenue threshold that is equivalent to the \$300/\$500 million figure for reserves, we subtracted the amounts mentioned in the previous sentence from the rate case projection of accumulated net revenues for that year. For each of the five years, the following calculations are made:

$$\text{“threshold differential”} = \text{projected reserve level} - \$300/\$500 \text{ million}$$

To obtain equivalence, we require that

$$\text{“threshold differential”} = \text{projected ANR} - \text{CRAC Threshold (in ANR)}$$

which implies that

$$\text{CRAC Threshold} = \text{projected ANR} - \text{“threshold differential”}$$

If AANR is less than the CRAC threshold, the CRAC will trigger. The Revenue Amount is the amount of additional revenue that an increase in rates under CRAC is intended to generate during the period that the rate increase is in effect. The Revenue Amount is determined as follows:

Revenue Amount for CRAC triggering during any of fiscal years 2002-2005 equals the lower of

$$\text{(CRAC Threshold} - \text{AANR)}$$

or

Maximum Planned Recovery Amount

Revenue Amount for CRAC triggering during FY 2006 equals the lower of

$$\text{(CRAC Threshold} - \text{AANR) divided by 2;}$$

or

$$\$87.5 \text{ million } (\$175 \text{ million divided by 2)}$$

The Maximum Planned Recovery Amount is the maximum annual amount planned to be recovered through the CRAC. Rate increases under the CRAC take effect on April 1 following the end of a fiscal year in which the AANR falls below the CRAC Threshold. Annual values are shown in the table above.

Once the Revenue Amount is derived, that amount will be converted to the CRAC Percentage. The CRAC Percentage means the percentage increase, in each of the covered rates, that will be made to generate the additional CRAC revenues.

The CRAC Percentage will be determined by the following formula:

CRAC Percentage equals Revenue Amount

Divided by

CRAC Revenue Basis

CRAC Revenue Basis is the total generation revenue for the loads subject to CRAC, plus any Slice loads, for the fiscal year in which the CRAC implementation begins, based on the then most current revenue forecast.

The CRAC Percentage increases each non-Slice customer's total charge for energy, demand, and load variance.

CRAC Adjustment Timing

In January of each year of the rate period, when generation actual accumulated net revenues for the prior fiscal year become available, the Administrator will determine

whether the AANR at the end of the preceding fiscal year fell below the CRAC Threshold, triggering the CRAC. If the AANR is below the CRAC Threshold, the Administrator will propose, in January, to increase applicable rates effective in the following April. Any adjustment would be applied to power deliveries beginning April 1. Any such increase in fiscal years 2002-2005 would remain in effect through March of the following year. During the final fiscal year of the rate period (2006), the rate increase would remain in effect through September 2006.

Notification Process

Each quarter, BPA will post on its electronic information access (World Wide Web) site preliminary, unaudited year-to-date aggregate financial results for generation, including accumulated net revenues. By no later than August 31 of each year, BPA will post on its Web site a forecast of AANR attributable to the generation function for the fiscal year ending September 30. BPA will also post on its Web site the unaudited AANR by no later than December 1 of each year.

Actions to Mitigate Need for a CRAC

If actual accumulated net revenues at the end of a fiscal year are within \$150 million of the CRAC Threshold for the subsequent year, BPA will prepare and post on its Web site an analysis of the causes of BPA's financial decline compared to the rate case plan, and propose a prioritized list of potential actions to avert or mitigate the need for a CRAC. BPA will conduct a public comment period on these actions to avert or reduce a potential CRAC rate adjustment.

BPA will provide the following notifications relating to a CRAC trigger:

BPA will notify all customers and rate case parties on or about January 15, in each of the fiscal years 2002-2006, if the AANR fell below the CRAC Threshold for that fiscal year and the extent to which BPA intends to adjust rates under the CRAC. (If the December unaudited AANR report for the generation function indicated that the CRAC Threshold might be met, and the audited actuals show that it has not triggered, customers will be notified.) Notification will include the audited AANR for the prior fiscal year, the calculation of the Revenue Amount, and the estimated CRAC Percentage. The notice will also describe the data and assumptions relied upon by BPA. The notice will also contain the tentative schedule for the remainder of the CRAC implementation process.

- Around February 1 of any of the fiscal years 2002-2006, in which the AANR falls below the CRAC Threshold, BPA staff will conduct a public forum to explain the AANR result, the calculation of the Revenue Amount, and the CRAC Percentage and to demonstrate that the CRAC is being implemented in accordance with the General Rate Schedule Provisions (GRSP).
- Around March 1 of any of the fiscal years 2002-2006, in which the AANR falls below the CRAC Threshold, the BPA Administrator will notify customers to whom the CRAC applies, of the final calculation of the adjustment and the resulting rate increase (as a percentage) applicable to each rate schedule.

Appendix 2: The Dividend Distribution Clause (DDC)

The DDC provides for dividends to be distributed to specific power customers in the event that certain conditions are met. The DDC applies to power customers under these firm power rate schedules: Priority Firm Power [Preference (PF excluding Slice), Exchange Program, and Exchange Subscription], Industrial Firm Power (IP-02) including under the IP TAC and Cost-based index rates, Residential Load (RL-02) including the financial portion of any Residential Exchange settlement under this rate schedule, and New Resources Firm Power (NR-02), as well as Subscription purchases under FPS. The DDC does not apply to pre-Subscription rates or Slice purchases.

The DDC does not apportion, or establish criteria for apportioning dividends to customers under the above firm power rate schedules, other than to qualifying customers participating in the C&R Discount, or to other customers and stakeholders.

“Stakeholders” are groups that have a fundamental policy or financial interest in BPA’s generation function. These groups include, but are not limited to, customers subject to the posted firm power rate schedules cited above.

The DDC process will be implemented, if AANR for the end of any of the fiscal years 2001-2005 are above the DDC Threshold.

The DDC Threshold is the minimum level of AANR that must be realized before a dividend distribution is considered. The DDC Threshold is \$250 million for the end of fiscal years 2001, 2002, 2003, 2004, and 2005. This is roughly the equivalent of \$950 million in cash reserves.

DDC Amount is the aggregate amount that is available to be distributed to customers and stakeholders. The DDC Amount may be equal to zero and will be determined by the following formula:

DDC Amount equals the lower of:

AANR – DDC Threshold;

or

Cash in excess of that needed to meet the Treasury Payment Probability (TPP) Standard, based on the Five-Year Forecast

TPP Standard is an 88% probability that all planned payments to the U.S. Treasury are paid on time and in full over the five-year forecast period (or equivalent, replacement financial criterion). The five-year forecast is the forecast of accrued revenues and expenses, and the risk analysis and assessment of TPP, for the current year and subsequent four years that the Administrator prepares and subjects to public review and comment, if the DDC Threshold has been met.

Once the DDC Amount is established, the amount allocated to power customers (the Power Customer DDC Amount) will be determined according to a plan to be adopted in a subsequent public process conducted by BPA (see below). The Power Customer DDC Amount applies to all power customer rates subject to the DDC, as defined above. The Power Customer DDC Amount will be converted to a percentage (the Power Customer DDC Percentage), which will be applied to the power customer rates to arrive at the amount to be rebated on power bills for each of the included power customers.

The Power Customer DDC Percentage will be determined by the following formula:

Power Customer DDC Percentage equals:

Power Customer DDC Amount

Divided by the

DDC Revenue Basis,

Where DDC Revenue Basis is the total generation revenue for the fiscal year in which the DDC implementation begins, as forecasted in the then most current revenue forecast for the loads subject to the DDC.

Each covered power customer will receive a rebate equal to the Power Customer DDC Percentage applied to their total charge for energy, demand and load variance. For any customer or stakeholder entitled to a dividend, who is not a power customer, the Administrator will convert the DDC Percentage to a dollar figure.

The first \$15 million of the DDC Amount, if the DDC Amount exceeds \$15 million, or the entire DDC Amount if it equals \$15 million or less, will be allocated to qualifying power customers participating in the Conservation and Renewables Discount. Conservation and Renewable (C and R) Discount is a rate mechanism designed to encourage incremental conservation and renewable resource development by BPA's power purchasers under PF, IP, RL and NR rate schedules. *See* WPRDS, WP-02-FS-BPA-05, Ch. 2.9.

BPA intends to conduct a separate public consultation process to be concluded prior to September 30, 2001, to develop the criteria for allocating any remaining DDC Amount (exceeding the \$15 million for the C and R Discount) among stakeholders.

Timing and Notification of DDC process

BPA will make available on its web site, by August 31 of each year, a forecast of end-of-fiscal-year accumulated net revenues attributable to the generation function. By December of each year, BPA will post the unaudited actual accumulated net revenues.

On or about January 15 of each year of the rate period (FY2002-2006), the Administrator will determine whether the AANR exceeds the DDC Threshold. If the AANR exceeds the DDC Threshold, (1) customers and rate case parties will be so notified, and (2) the Administrator will prepare a five-year forecast. The TPP from the five-year forecast is compared to the TPP Standard, which is at least an 88 percent probability that all planned payments to Treasury are paid on time and in full over the five-year forecast period.

On or about the first week in March, the Administrator will make the five-year forecast publicly available and will propose to distribute or not distribute dividends.

During March, the Administrator will conduct a public consultation process on the forecast and the proposal. On or about the second week in April of any of the fiscal years 2002-2006, in which the AANR exceeds the DDC Threshold, the Administrator will notify customers to which the DDC applies of the decision on the proposal, taking into account comments received. Notification will include the final calculation of the DDC

Amount, the allocation of the DDC Amount, and, if applicable, the resulting levels of Power Customer DDC Percentage applicable to each rate schedule.

Appendix 3: The Fish Cost Contingency Fund

FCCF Background

A key risk mitigation tool is the BPA Fish Cost Contingency Fund (FCCF) that is comprised of fish and wildlife expenditures BPA made between 1980 and 1994 on behalf of non-power-related purposes. Section 4(h)(10)(C) of the Northwest Power Act directs the Administrator to take credits for a fraction of fish and wildlife expenditures equal to the fraction of the projects' costs allocated to purposes other than power. *See Risk Analysis Study, WP-02-FS-BPA-03, Ch. 1.* The FCCF is a "fund" comprised of section 4(h)(10)(C) credits that BPA earned since enactment of the Northwest Power Act in 1980 and prior to 1995 when BPA began claiming these credits annually. As certified by BPA to Treasury on February 27, 1997, this fund contains \$325.2 million, none of which has been used to date.

The FCCF was designed to provide protection against certain risks associated with the use of the hydrosystem. The terms of a Memorandum of Agreement (MOA) dated September 13, 1996, allowed BPA to draw against this fund under three different conditions described below for the FY1996-2001 period. *See letter from Director of OMB Alice Rivlin to Sen. Hatfield of Oregon in Attachment 11, Chapter 13.*

These terms of access to the FCCF have been extended to the FY2002-2006 rate period per the Administrator's commitments on the Fish and Wildlife Funding Principles. *See Attachment 1 to Chapter 13 of this Volume.*

The first access condition relates to the risk that the MOA may be modified by court actions that result in higher costs. BPA will be able to draw upon the FCCF in the amount that annual costs as ordered by courts exceed the annual amount set out in the 1996 MOA. Any increased costs of this nature will be estimated using the same methodology currently used to calculate the annual amount of 4(h)(10)(C) credits BPA receives. While this type of access to the FCCF does indeed reduce the risk that BPA's expenditures for its fish and wildlife programs will rise unexpectedly, this is not a risk that BPA has explicitly modeled and assessed quantitatively. Therefore, this variety of risk mitigation has no impact on BPA's quantitative risk assessments (e.g., the calculation of the Treasury Payment Probability). Since the MOA expires at the end of FY2001, the meaning of this access condition may become undefined and moot by then.

The second access condition relates to the risk that adverse hydro conditions will increase BPA's power purchase costs or decrease its nonfirm revenue. Access to the FCCF, under this part of the MOA, serves as an effective risk mitigation tool. This tool is modeled by RiskMod and is an input to ToolKit. It increases the probability that BPA will make all of its Treasury payments on time and in full. This second type of access is described in sections below.

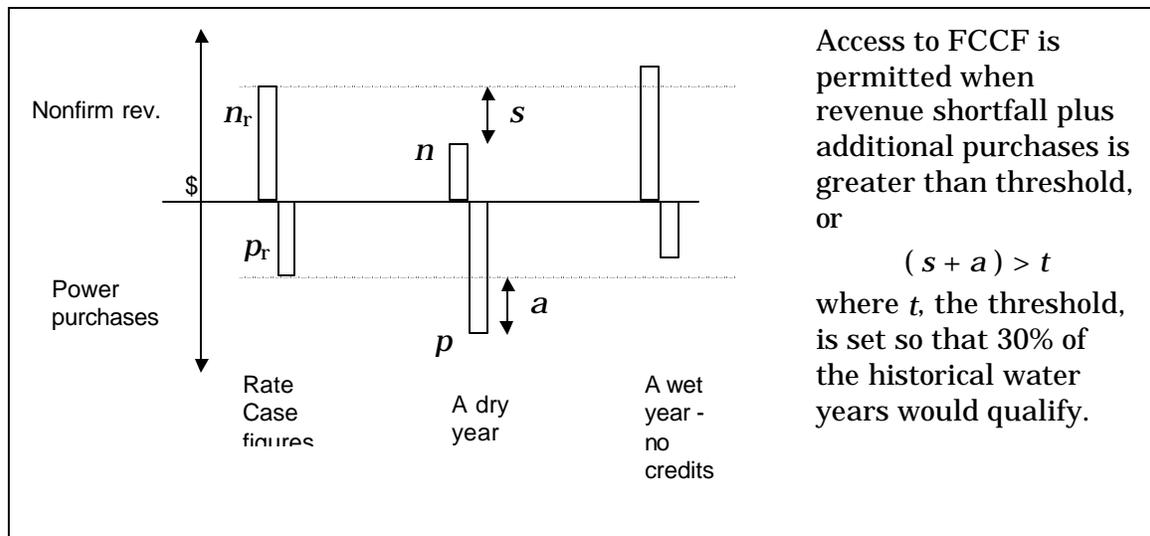
The third and final access condition relates to the risk that natural disasters will adversely affect hydro operations. The fund may be accessed if the President declares a natural disaster or by a joint declaration of fishery emergencies by the Secretaries of Commerce and Interior, as specified in the MOA:

“The specific threshold levels will be determined in a manner that will be predicted to make this funding available 25 to 30 percent of the time during the six year period of this agreement. Use of credits from the Fund shall be made upon application by BPA, with appropriate documentation that these conditions have been met, certified by the Department of Energy, and concurred by the Department of Treasury and the Office of Management and Budget.”

Overview of the Fish Cost Contingency Fund

The accompanying figure illustrates how the determination of the size of the annual benefit, if any, was determined for the FY1996-2001 period under the conditions laid out in Ms. Rivlin’s letter. For rate setting purposes, the same methodology is extended to the FY2002-2006 period.

As depicted in the following graph, BPA will be permitted to draw credits from the FCCF when any nonfirm shortfall, s , plus any additions to power purchases, a , that are due to adverse hydro conditions exceed a threshold, t . There will be a different threshold t for each year. Ms. Rivlin’s letter specified that the thresholds will be determined so that this access is to be available 25% - 30% of the time. BPA will determine these thresholds so that retrospective benefits are available in 30% of the years in a 3,900-scenario, five-year RiskMod output distribution, as described in the Calculation of the Threshold section below. Due to the possibility of exhausting the FCCF, this procedure results in an expected frequency of access of around 27 or 28 percent.



Key:

- n_r forecasted nonfirm revenue for Year Y
- p_r forecasted power purchases for Year Y
- n nonfirm revenues for Year Y when actual hydro conditions modeled
- s shortfalls in nonfirm revenues = $n_r - n$
- p power purchases for Year Y when actual hydro conditions modeled
- a additional power purchases = $p - p_r$

Preparation of Parameters

A hydro regulation study is run using the RiskMod model. Part of the output of this study comprises surpluses and deficits for each of the 50 water years for each of FY's 2002 through 2006. These surpluses and deficits will then be converted into dollar estimates of nonfirm revenues and power purchases using the pricing logic in RiskMod. These results will be averaged over the 50 water years. The data and code for RiskMod will be preserved through the end of the rate period for Annual Determination use.

Calculation of the Threshold

Five sets of 50 annual amounts of nonfirm revenues and power purchases is produced from the RiskMod study described in the Preparation stage above, one set for each of the five study years (FY2002 through FY2006). For each fiscal year, and for each of the 50

water years, a “pseudo-net revenue” is calculated by subtracting the power purchase expense from the nonfirm revenue. The FCCF threshold for each fiscal year is then set equal to the 16th-lowest pseudo-net revenue of the 50 for that fiscal year. Thus, 15 of the 50 water years (i.e., 30% of them) have pseudo-net revenues below this threshold, and qualify for FCCF credit.

This is a simpler way to calculate the thresholds than was described in the 1996 Rate Case, but it produces the same result. In the 1996 Rate case, the total deviations were sorted, with the 16th-worst adopted as the threshold against which the later actual deviations were compared. The total deviation is the net revenue shortfall, $n_r - n$, plus the power purchase increment, $p - p_r$. Thus, the total deviation is

$$n_r - n + p - p_r = (n_r - p_r) - (n - p).$$

Since $(n_r - p_r)$ is the average over the 50 water years, it is a constant, and does not affect the sorting. Accordingly, adopting the 16th-worst pseudo-net revenue as the pseudo-net revenue threshold will yield exactly the same results as using the 16th-worst total deviation as the deviation threshold.

Annual Determination of Benefits

As each hydro season nears its end, the actual monthly flows for that year are input into RiskMod, using estimates for those months that remain in the year. All other RiskMod data and all the RiskMod code used in the Preparation stage will be used in this stage also. The resulting nonfirm revenues and power purchases resulting will be compared to the base numbers calculated in Preparation. Any differences will be due solely to hydro conditions, since all other data will be the same. The nonfirm revenue less the power

purchases, the “pseudo-net revenue”, will be compared against the threshold. Any amount, by which the pseudo-net revenue underruns the threshold, will be available to BPA at the end of that year, as a credit against the scheduled payment to Treasury.

After the end of the fiscal year, when actual flow data is available for all 12 months, a true-up calculation will be made if the first estimate was off by more than \$1.0 million. BPA will submit to Treasury a statement of the year-end balance of the Fish Cost Contingency Fund.

Calculation of Treasury Payment Probability

The RiskMod model used by BPA (along with NORM) to develop inputs for estimating the probability of Treasury payments uses the same set of 50 water years that Hydrosim uses. In each year of its simulations, RiskMod prints out the water year it is using. The calculations of the FCCF and section 4(h)(10)(C) credits are made in RiskMod, and the net revenue values passed to ToolKit contain an adjustment for the credit and no further modeling of FCCF or 4(h)(10)(C) credits is needed.

Net Rev Deviations based upon Final 1996				
STREAM Analysis dated 5-13-96				
NORM updated 12-01-99				
	Net Rev	RISKMOD	NORM	
WaterYear	Deviations	Values	Values	Fiscal Yr.
1929	-310.1	-310.1	0	1996
1930	-205.2	-205.2	0	1997
1931	-220.9	-220.9	0	1998
1932	-116	-116	0	1999
1933	48.5	48.5	0	2000
1934	206.585	236.9	-30.315	2001
1930	-357.1	-357.1	0	1996
1931	-242.9	-242.9	0	1997
1932	-148.6	-148.6	0	1998
1933	-46	-46	0	1999
1934	193.8	193.8	0	2000
1935	-50.515	-20.2	-30.315	2001
1931	-341.5	-341.5	0	1996
1932	-120.9	-120.9	0	1997
1933	72.4	72.4	0	1998
1934	283.9	283.9	0	1999
1935	50.3	50.3	0	2000
1936	-155.015	-145.4	-9.615	2001
1932	-90.9	-90.9	0	1996
1933	75.5	75.5	0	1997
1934	183.5	183.5	0	1998
1935	-3.4	-3.4	0	1999
1936	-179	-179	0	2000
1937	-348.315	-348	-0.315	2001
1933	28	28	0	1996
1934	134.7	134.7	0	1997
1935	-24.4	-24.4	0	1998
1936	-183.2	-183.2	0	1999
1937	-286.8	-286.8	0	2000
1938	2.085	2.4	-0.315	2001
1934	253.1	253.1	0	1996
1935	32.5	32.5	0	1997
1936	-96.1	-96.1	0	1998
1937	-270.3	-270.3	0	1999
1938	43.9	43.9	0	2000
1939	-145.015	-114.7	-30.315	2001
1935	25.3	25.3	0	1996
1936	-130.7	-130.7	0	1997
1937	-229.2	-229.2	0	1998
1938	29.2	29.2	0	1999
1939	-169.6	-169.6	0	2000
1940	-92.015	-102.4	10.385	2001
1936	-235.5	-235.5	0	1996
1937	-212.5	-212.5	0	1997
1938	22.5	22.5	0	1998
1939	-130.9	-130.9	0	1999
1940	-83.6	-83.6	0	2000

1941	-202.315	-172	-30.315	2001
1937	-236.6	-236.6	0	1996
1938	32.1	32.1	0	1997
1939	-161.3	-161.3	0	1998
1940	-92.5	-92.5	0	1999
1941	-169.7	-169.7	0	2000
1942	1.985	41.6	-39.615	2001
1938	-72	-72	0	1996
1939	-167.5	-167.5	0	1997
1940	-102.2	-102.2	0	1998
1941	-170.8	-170.8	0	1999
1942	8.2	8.2	0	2000
1943	81.185	91.5	-10.315	2001
1939	-223	-223	0	1996
1940	-76.7	-76.7	0	1997
1941	-176.9	-176.9	0	1998
1942	-3.6	-3.6	0	1999
1943	-12.2	-12.2	0	2000
1944	-308.115	-288.5	-19.615	2001
1940	-211.4	-211.4	0	1996
1941	-164.2	-164.2	0	1997
1942	-79.7	-79.7	0	1998
1943	-36.4	-36.4	0	1999
1944	-279.7	-279.7	0	2000
1945	-257.315	-257	-0.315	2001
1941	-173.5	-173.5	0	1996
1942	-18.1	-18.1	0	1997
1943	-10.3	-10.3	0	1998
1944	-260.5	-260.5	0	1999
1945	-285.3	-285.3	0	2000
1946	-86.615	-86.3	-0.315	2001
1942	112.9	112.9	0	1996
1943	46	46	0	1997
1944	-208.2	-208.2	0	1998
1945	-199.6	-199.6	0	1999
1946	71	71	0	2000
1947	168.785	158.4	10.385	2001
1943	185.1	185.1	0	1996
1944	-182.8	-182.8	0	1997
1945	-179.2	-179.2	0	1998
1946	28.9	28.9	0	1999
1947	112.6	112.6	0	2000
1948	106.985	107.3	-0.315	2001
1944	-301.4	-301.4	0	1996
1945	-172.8	-172.8	0	1997
1946	18.8	18.8	0	1998
1947	95.5	95.5	0	1999
1948	148.1	148.1	0	2000
1949	-61.915	-51.6	-10.315	2001
1945	-230.3	-230.3	0	1996
1946	1.6	1.6	0	1997
1947	89.7	89.7	0	1998

1948	64.1	64.1	0	1999
1949	-86.8	-86.8	0	2000
1950	93.285	82.9	10.385	2001
1946	-28.7	-28.7	0	1996
1947	72.3	72.3	0	1997
1948	137.3	137.3	0	1998
1949	-41.1	-41.1	0	1999
1950	40.7	40.7	0	2000
1951	152.785	163.1	-10.315	2001
1947	3.7	3.7	0	1996
1948	101.3	101.3	0	1997
1949	-29.1	-29.1	0	1998
1950	61.4	61.4	0	1999
1951	224.9	224.9	0	2000
1952	86.885	66.5	20.385	2001
1948	78.9	78.9	0	1996
1949	-58.8	-58.8	0	1997
1950	72.9	72.9	0	1998
1951	229.3	229.3	0	1999
1952	136.2	136.2	0	2000
1953	-62.215	-31.9	-30.315	2001
1949	-91.1	-91.1	0	1996
1950	6	6	0	1997
1951	197.8	197.8	0	1998
1952	114.9	114.9	0	1999
1953	-43.3	-43.3	0	2000
1954	102.585	112.2	-9.615	2001
1950	130.9	130.9	0	1996
1951	181.8	181.8	0	1997
1952	65.6	65.6	0	1998
1953	-41	-41	0	1999
1954	56.7	56.7	0	2000
1955	-21.215	-31.6	10.385	2001
1951	239.4	239.4	0	1996
1952	99.1	99.1	0	1997
1953	-2.4	-2.4	0	1998
1954	108.2	108.2	0	1999
1955	-40.4	-40.4	0	2000
1956	247.785	278.1	-30.315	2001
1952	176.6	176.6	0	1996
1953	-16.7	-16.7	0	1997
1954	107.8	107.8	0	1998
1955	-8.3	-8.3	0	1999
1956	233.7	233.7	0	2000
1957	28.585	38.9	-10.315	2001
1953	44.4	44.4	0	1996
1954	112.2	112.2	0	1997
1955	58.6	58.6	0	1998
1956	247.8	247.8	0	1999
1957	33.3	33.3	0	2000
1958	10.885	21.2	-10.315	2001
1954	33	33	0	1996

1955	-51.2	-51.2	0	1997
1956	244.1	244.1	0	1998
1957	52.7	52.7	0	1999
1958	8.9	8.9	0	2000
1959	189.285	189.6	-0.315	2001
1955	-57.9	-57.9	0	1996
1956	62.4	62.4	0	1997
1957	-92.3	-92.3	0	1998
1958	-92.4	-92.4	0	1999
1959	84.5	84.5	0	2000
1960	144.785	145.1	-0.315	2001
1956	69.8	69.8	0	1996
1957	5.2	5.2	0	1997
1958	-10.5	-10.5	0	1998
1959	162.4	162.4	0	1999
1960	127.8	127.8	0	2000
1961	-83.015	-63.4	-19.615	2001
1957	-64.4	-64.4	0	1996
1958	-52.6	-52.6	0	1997
1959	144.8	144.8	0	1998
1960	187	187	0	1999
1961	22.8	22.8	0	2000
1962	-8.315	1.3	-9.615	2001
1958	68.6	68.6	0	1996
1959	139.9	139.9	0	1997
1960	99.9	99.9	0	1998
1961	-53.2	-53.2	0	1999
1962	-66	-66	0	2000
1963	17.285	17.6	-0.315	2001
1959	33.8	33.8	0	1996
1960	114.2	114.2	0	1997
1961	-6.3	-6.3	0	1998
1962	-94.9	-94.9	0	1999
1963	39.6	39.6	0	2000
1964	-68.915	-79.3	10.385	2001
1960	139.7	139.7	0	1996
1961	-27.9	-27.9	0	1997
1962	-83.1	-83.1	0	1998
1963	-5.9	-5.9	0	1999
1964	-161.6	-161.6	0	2000
1965	109.785	119.4	-9.615	2001
1961	-44.1	-44.1	0	1996
1962	26.2	26.2	0	1997
1963	92.5	92.5	0	1998
1964	1.4	1.4	0	1999
1965	279.1	279.1	0	2000
1966	26.185	26.5	-0.315	2001
1962	-21.5	-21.5	0	1996
1963	63.8	63.8	0	1997
1964	38.1	38.1	0	1998
1965	284.5	284.5	0	1999
1966	51.1	51.1	0	2000

1967	64.285	94.6	-30.315	2001
1963	87.2	87.2	0	1996
1964	-57.9	-57.9	0	1997
1965	147.4	147.4	0	1998
1966	-11.4	-11.4	0	1999
1967	21.5	21.5	0	2000
1968	23.985	54.3	-30.315	2001
1964	-52.6	-52.6	0	1996
1965	232.4	232.4	0	1997
1966	18.9	18.9	0	1998
1967	70.4	70.4	0	1999
1968	125.5	125.5	0	2000
1969	242.585	242.9	-0.315	2001
1965	165.4	165.4	0	1996
1966	-4.9	-4.9	0	1997
1967	-27	-27	0	1998
1968	1.3	1.3	0	1999
1969	165.7	165.7	0	2000
1970	-12.815	-33.2	20.385	2001
1966	-128.2	-128.2	0	1996
1967	-34.9	-34.9	0	1997
1968	-31.2	-31.2	0	1998
1969	45.4	45.4	0	1999
1970	-117.8	-117.8	0	2000
1971	18.385	28	-9.615	2001
1967	46	46	0	1996
1968	62.9	62.9	0	1997
1969	136	136	0	1998
1970	-9.8	-9.8	0	1999
1971	215.5	215.5	0	2000
1972	245.885	255.5	-9.615	2001
1968	-30.4	-30.4	0	1996
1969	107	107	0	1997
1970	-65.1	-65.1	0	1998
1971	87.4	87.4	0	1999
1972	54.7	54.7	0	2000
1973	-211.915	-211.6	-0.315	2001
1969	91	91	0	1996
1970	-24.6	-24.6	0	1997
1971	131.9	131.9	0	1998
1972	185.5	185.5	0	1999
1973	-111.1	-111.1	0	2000
1974	317.585	347.9	-30.315	2001
1970	-12.4	-12.4	0	1996
1971	120.6	120.6	0	1997
1972	234.9	234.9	0	1998
1973	-82.9	-82.9	0	1999
1974	260.3	260.3	0	2000
1975	27.085	16.7	10.385	2001
1971	65.2	65.2	0	1996
1972	189.2	189.2	0	1997
1973	-72	-72	0	1998

1974	292.3	292.3	0	1999
1975	63.8	63.8	0	2000
1976	329.885	369.5	-39.615	2001
1972	8.8	8.8	0	1996
1973	-163.4	-163.4	0	1997
1974	156.9	156.9	0	1998
1975	-78.2	-78.2	0	1999
1976	192.4	192.4	0	2000
1977	-337.815	-307.5	-30.315	2001
1973	-107.3	-107.3	0	1996
1974	142.5	142.5	0	1997
1975	-23.8	-23.8	0	1998
1976	179.2	179.2	0	1999
1977	-329.7	-329.7	0	2000
1978	-57.715	-57.4	-0.315	2001
1974	175.3	175.3	0	1996
1975	-75.5	-75.5	0	1997
1976	162.6	162.6	0	1998
1977	-322.3	-322.3	0	1999
1978	-103.3	-103.3	0	2000
1929	-274.915	-265.3	-9.615	2001
1975	-49.6	-49.6	0	1996
1976	291.4	291.4	0	1997
1977	-210.9	-210.9	0	1998
1978	-2.1	-2.1	0	1999
1929	-215.8	-215.8	0	2000
1930	-265.215	-264.9	-0.315	2001
1976	274.2	274.2	0	1996
1977	-217.2	-217.2	0	1997
1978	-65.7	-65.7	0	1998
1929	-219.6	-219.6	0	1999
1930	-270.7	-270.7	0	2000
1931	-328.615	-318.3	-10.315	2001
1977	-333.1	-333.1	0	1996
1978	-20	-20	0	1997
1929	-195.6	-195.6	0	1998
1930	-230.9	-230.9	0	1999
1931	-271.8	-271.8	0	2000
1932	-224.815	-194.5	-30.315	2001
1978	-88.7	-88.7	0	1996
1929	-207.5	-207.5	0	1997
1930	-195.5	-195.5	0	1998
1931	-246.2	-246.2	0	1999
1932	-145.2	-145.2	0	2000
1933	56.285	86.6	-30.315	2001
1929	-323.2	-323.2	0	1996
1930	-248.8	-248.8	0	1997
1931	-299.8	-299.8	0	1998
1932	-169.2	-169.2	0	1999
1933	-44.6	-44.6	0	2000
1934	89.685	109.3	-19.615	2001
1930	-215	-215	0	1996

1931	-291.3	-291.3	0	1997
1932	-178.6	-178.6	0	1998
1933	-64.6	-64.6	0	1999
1934	87.7	87.7	0	2000
1935	-92.415	-92.1	-0.315	2001
1931	-298.6	-298.6	0	1996
1932	-181	-181	0	1997
1933	-23	-23	0	1998
1934	142.3	142.3	0	1999
1935	-51.4	-51.4	0	2000
1936	-252.515	-232.9	-19.615	2001
1932	-247	-247	0	1996
1933	72.6	72.6	0	1997
1934	167.5	167.5	0	1998
1935	21.2	21.2	0	1999
1936	-191.1	-191.1	0	2000
1937	-295.715	-296.1	0.385	2001
1933	110.2	110.2	0	1996
1934	195.5	195.5	0	1997
1935	43	43	0	1998
1936	-166.2	-166.2	0	1999
1937	-290.8	-290.8	0	2000
1938	-41.415	-41.1	-0.315	2001
1934	151.7	151.7	0	1996
1935	-74.1	-74.1	0	1997
1936	-145.8	-145.8	0	1998
1937	-264.3	-264.3	0	1999
1938	-11.6	-11.6	0	2000
1939	-186.515	-186.2	-0.315	2001
1935	-30.6	-30.6	0	1996
1936	-174.2	-174.2	0	1997
1937	-261.3	-261.3	0	1998
1938	-52.7	-52.7	0	1999
1939	-172.8	-172.8	0	2000
1940	-135.015	-134.7	-0.315	2001
1936	-206.7	-206.7	0	1996
1937	-229.8	-229.8	0	1997
1938	-29.3	-29.3	0	1998
1939	-186	-186	0	1999
1940	-86.3	-86.3	0	2000
1941	-231.015	-200.7	-30.315	2001
1937	-256.7	-256.7	0	1996
1938	-52.8	-52.8	0	1997
1939	-186.5	-186.5	0	1998
1940	-163.9	-163.9	0	1999
1941	-219.3	-219.3	0	2000
1942	-44.915	-35.3	-9.615	2001
1938	-61	-61	0	1996
1939	-94.7	-94.7	0	1997
1940	-105.8	-105.8	0	1998
1941	-168.1	-168.1	0	1999
1942	59.9	59.9	0	2000

1943	50.685	51	-0.315	2001
1939	-80.6	-80.6	0	1996
1940	-83.4	-83.4	0	1997
1941	-152.3	-152.3	0	1998
1942	17.2	17.2	0	1999
1943	66.9	66.9	0	2000
1944	-289.515	-269.9	-19.615	2001
1940	-210.7	-210.7	0	1996
1941	-195.5	-195.5	0	1997
1942	-59.3	-59.3	0	1998
1943	-32.2	-32.2	0	1999
1944	-266.1	-266.1	0	2000
1945	-299.215	-268.9	-30.315	2001
1941	-231.4	-231.4	0	1996
1942	-6.7	-6.7	0	1997
1943	-12.9	-12.9	0	1998
1944	-308.3	-308.3	0	1999
1945	-264.6	-264.6	0	2000
1946	-109.615	-90	-19.615	2001
1942	41.4	41.4	0	1996
1943	30.2	30.2	0	1997
1944	-270.2	-270.2	0	1998
1945	-249.4	-249.4	0	1999
1946	-63.7	-63.7	0	2000
1947	29.785	40.1	-10.315	2001
1943	74.4	74.4	0	1996
1944	-201.2	-201.2	0	1997
1945	-270	-270	0	1998
1946	-19.1	-19.1	0	1999
1947	42.3	42.3	0	2000
1948	71.485	61.1	10.385	2001
1944	-267.5	-267.5	0	1996
1945	-177.9	-177.9	0	1997
1946	5.4	5.4	0	1998
1947	74.6	74.6	0	1999
1948	159.8	159.8	0	2000
1949	-32.315	-32	-0.315	2001
1945	-183.7	-183.7	0	1996
1946	26.9	26.9	0	1997
1947	86.2	86.2	0	1998
1948	120.7	120.7	0	1999
1949	-28.3	-28.3	0	2000
1950	118.485	118.8	-0.315	2001
1946	55.4	55.4	0	1996
1947	117.2	117.2	0	1997
1948	115.8	115.8	0	1998
1949	-54	-54	0	1999
1950	101.3	101.3	0	2000
1951	246.885	236.5	10.385	2001
1947	75.6	75.6	0	1996
1948	21.9	21.9	0	1997
1949	-89.9	-89.9	0	1998

1950	-34.3	-34.3	0	1999
1951	133.3	133.3	0	2000
1952	69.685	80	-10.315	2001
1948	156.6	156.6	0	1996
1949	-61.1	-61.1	0	1997
1950	-17.2	-17.2	0	1998
1951	126.2	126.2	0	1999
1952	61.8	61.8	0	2000
1953	-68.915	-38.6	-30.315	2001
1949	-64.7	-64.7	0	1996
1950	59.2	59.2	0	1997
1951	203.6	203.6	0	1998
1952	109	109	0	1999
1953	0.2	0.2	0	2000
1954	188.485	178.1	10.385	2001
1950	26.6	26.6	0	1996
1951	133.8	133.8	0	1997
1952	107.9	107.9	0	1998
1953	11.3	11.3	0	1999
1954	140.3	140.3	0	2000
1955	-29.615	-30	0.385	2001
1951	262.8	262.8	0	1996
1952	150.3	150.3	0	1997
1953	12.5	12.5	0	1998
1954	123.6	123.6	0	1999
1955	0	0	0	2000
1956	253.885	254.2	-0.315	2001
1952	207.7	207.7	0	1996
1953	-37.7	-37.7	0	1997
1954	75.7	75.7	0	1998
1955	-45.2	-45.2	0	1999
1956	223.7	223.7	0	2000
1957	-15.615	-5.3	-10.315	2001
1953	-103.1	-103.1	0	1996
1954	40	40	0	1997
1955	-97.6	-97.6	0	1998
1956	151.8	151.8	0	1999
1957	-14.5	-14.5	0	2000
1958	-39.915	-39.6	-0.315	2001
1954	74.1	74.1	0	1996
1955	-139.7	-139.7	0	1997
1956	60.7	60.7	0	1998
1957	-22.6	-22.6	0	1999
1958	-75.2	-75.2	0	2000
1959	100.585	120.2	-19.615	2001
1955	-42.6	-42.6	0	1996
1956	123.7	123.7	0	1997
1957	-49.8	-49.8	0	1998
1958	-87.3	-87.3	0	1999
1959	69.1	69.1	0	2000
1960	11.185	20.8	-9.615	2001
1956	176.8	176.8	0	1996

1957	-43.2	-43.2	0	1997
1958	-64.8	-64.8	0	1998
1959	88.6	88.6	0	1999
1960	85.5	85.5	0	2000
1961	-49.415	-49.8	0.385	2001
1957	91.9	91.9	0	1996
1958	-4.1	-4.1	0	1997
1959	125.2	125.2	0	1998
1960	199.7	199.7	0	1999
1961	-5.3	-5.3	0	2000
1962	27.985	17.6	10.385	2001
1958	20.2	20.2	0	1996
1959	210.5	210.5	0	1997
1960	238.7	238.7	0	1998
1961	19.3	19.3	0	1999
1962	5.3	5.3	0	2000
1963	116.085	126.4	-10.315	2001
1959	225.2	225.2	0	1996
1960	162.1	162.1	0	1997
1961	12.2	12.2	0	1998
1962	-50.8	-50.8	0	1999
1963	87	87	0	2000
1964	-25.915	-25.6	-0.315	2001
1960	103.2	103.2	0	1996
1961	-41.8	-41.8	0	1997
1962	-78.7	-78.7	0	1998
1963	4.2	4.2	0	1999
1964	-97.3	-97.3	0	2000
1965	149.885	149.5	0.385	2001
1961	-4.4	-4.4	0	1996
1962	-101.6	-101.6	0	1997
1963	-35.6	-35.6	0	1998
1964	-81	-81	0	1999
1965	101.2	101.2	0	2000
1966	-85.715	-66.1	-19.615	2001
1962	-76.2	-76.2	0	1996
1963	-36.4	-36.4	0	1997
1964	-152.9	-152.9	0	1998
1965	56.6	56.6	0	1999
1966	-76.6	-76.6	0	2000
1967	-82.515	-33.6	-48.915	2001
1963	72.4	72.4	0	1996
1964	-35	-35	0	1997
1965	145.2	145.2	0	1998
1966	-24.4	-24.4	0	1999
1967	14.5	14.5	0	2000
1968	50.985	51.3	-0.315	2001
1964	-6.3	-6.3	0	1996
1965	195.2	195.2	0	1997
1966	-19.2	-19.2	0	1998
1967	-7.9	-7.9	0	1999
1968	-7.1	-7.1	0	2000

1969	109.185	98.8	10.385	2001
1965	175.3	175.3	0	1996
1966	45.8	45.8	0	1997
1967	23.4	23.4	0	1998
1968	79.1	79.1	0	1999
1969	179	179	0	2000
1970	-84.915	-56	-28.915	2001
1966	32.2	32.2	0	1996
1967	-52.8	-52.8	0	1997
1968	2.2	2.2	0	1998
1969	70.7	70.7	0	1999
1970	-92.6	-92.6	0	2000
1971	129.185	118.8	10.385	2001
1967	32.3	32.3	0	1996
1968	26.5	26.5	0	1997
1969	67.6	67.6	0	1998
1970	-121.5	-121.5	0	1999
1971	21.2	21.2	0	2000
1972	-15.315	-5.7	-9.615	2001
1968	124.4	124.4	0	1996
1969	55.9	55.9	0	1997
1970	-150.6	-150.6	0	1998
1971	-1.1	-1.1	0	1999
1972	91.4	91.4	0	2000
1973	-200.915	-200.6	-0.315	2001
1969	130.7	130.7	0	1996
1970	-19.2	-19.2	0	1997
1971	68.9	68.9	0	1998
1972	116.7	116.7	0	1999
1973	-153.1	-153.1	0	2000
1974	186.885	187.2	-0.315	2001
1970	-91.7	-91.7	0	1996
1971	67.9	67.9	0	1997
1972	105.2	105.2	0	1998
1973	-121.2	-121.2	0	1999
1974	249.1	249.1	0	2000
1975	5.185	5.5	-0.315	2001
1971	17.2	17.2	0	1996
1972	116.7	116.7	0	1997
1973	-113.3	-113.3	0	1998
1974	244	244	0	1999
1975	-5.6	-5.6	0	2000
1976	237.985	247.6	-9.615	2001
1972	122.4	122.4	0	1996
1973	-173.5	-173.5	0	1997
1974	94.6	94.6	0	1998
1975	-83.5	-83.5	0	1999
1976	144.5	144.5	0	2000
1977	-378.815	-389.2	10.385	2001
1973	-207.5	-207.5	0	1996
1974	156.4	156.4	0	1997
1975	-38	-38	0	1998

1976	253.8	253.8	0	1999
1977	-286.4	-286.4	0	2000
1978	-75.315	-95.7	20.385	2001
1974	188.6	188.6	0	1996
1975	-5.7	-5.7	0	1997
1976	211.1	211.1	0	1998
1977	-262.5	-262.5	0	1999
1978	-115.1	-115.1	0	2000
1929	-291.815	-281.5	-10.315	2001
1975	110.5	110.5	0	1996
1976	228	228	0	1997
1977	-237.5	-237.5	0	1998
1978	51.9	51.9	0	1999
1929	-216.8	-216.8	0	2000
1930	-261.215	-260.9	-0.315	2001
1976	121.9	121.9	0	1996
1977	-249.5	-249.5	0	1997
1978	-60.3	-60.3	0	1998
1929	-214.8	-214.8	0	1999
1930	-282.2	-282.2	0	2000
1931	-310.215	-279.9	-30.315	2001
1977	-234.8	-234.8	0	1996
1978	-41.7	-41.7	0	1997
1929	-175.1	-175.1	0	1998
1930	-230.7	-230.7	0	1999
1931	-266.2	-266.2	0	2000
1932	-98.515	-88.2	-10.315	2001
1978	-29.3	-29.3	0	1996
1929	-177.2	-177.2	0	1997
1930	-208.5	-208.5	0	1998
1931	-284.9	-284.9	0	1999
1932	-161.3	-161.3	0	2000
1933	78.585	108.9	-30.315	2001
1929	-267.1	-267.1	0	1996
1930	-215.4	-215.4	0	1997
1931	-205.9	-205.9	0	1998
1932	-177.1	-177.1	0	1999
1933	58.4	58.4	0	2000
1934	157.785	158.1	-0.315	2001
1930	-287.2	-287.2	0	1996
1931	-210.9	-210.9	0	1997
1932	-110.2	-110.2	0	1998
1933	110.9	110.9	0	1999
1934	205.9	205.9	0	2000
1935	-24.615	-5.7	-18.915	2001
1931	-225.7	-225.7	0	1996
1932	-108.1	-108.1	0	1997
1933	27	27	0	1998
1934	210.8	210.8	0	1999
1935	8.1	8.1	0	2000
1936	-203.615	-193.3	-10.315	2001
1932	-145.1	-145.1	0	1996

1933	-52.4	-52.4	0	1997
1934	12	12	0	1998
1935	-120.6	-120.6	0	1999
1936	-251	-251	0	2000
1937	-414.615	-415	0.385	2001
1933	15	15	0	1996
1934	222.8	222.8	0	1997
1935	55.4	55.4	0	1998
1936	-173.5	-173.5	0	1999
1937	-296.3	-296.3	0	2000
1938	-58.215	-27.9	-30.315	2001
1934	182.6	182.6	0	1996
1935	26.6	26.6	0	1997
1936	-101.8	-101.8	0	1998
1937	-315.1	-315.1	0	1999
1938	-2.4	-2.4	0	2000
1939	-143.515	-143.2	-0.315	2001
1935	-34.2	-34.2	0	1996
1936	-114.4	-114.4	0	1997
1937	-226.7	-226.7	0	1998
1938	-72.9	-72.9	0	1999
1939	-182.9	-182.9	0	2000
1940	-230.915	-230.6	-0.315	2001
1936	-131.5	-131.5	0	1996
1937	-247.3	-247.3	0	1997
1938	-54.5	-54.5	0	1998
1939	-233.2	-233.2	0	1999
1940	-158.7	-158.7	0	2000
1941	-290.415	-280.1	-10.315	2001
1937	-287.1	-287.1	0	1996
1938	-38.5	-38.5	0	1997
1939	-169.9	-169.9	0	1998
1940	-127.5	-127.5	0	1999
1941	-182.8	-182.8	0	2000
1942	70.285	59.9	10.385	2001
1938	-66	-66	0	1996
1939	-146.9	-146.9	0	1997
1940	-79	-79	0	1998
1941	-170.2	-170.2	0	1999
1942	42.3	42.3	0	2000
1943	70.785	71.1	-0.315	2001
1939	-188.9	-188.9	0	1996
1940	-112.4	-112.4	0	1997
1941	-198.3	-198.3	0	1998
1942	-77.6	-77.6	0	1999
1943	-50.2	-50.2	0	2000
1944	-332.515	-332.2	-0.315	2001
1940	-120.1	-120.1	0	1996
1941	-133.5	-133.5	0	1997
1942	71	71	0	1998
1943	33.5	33.5	0	1999
1944	-243.6	-243.6	0	2000

1945	-228.615	-228.3	-0.315	2001
1941	-160.3	-160.3	0	1996
1942	-5.1	-5.1	0	1997
1943	12.2	12.2	0	1998
1944	-243.5	-243.5	0	1999
1945	-221	-221	0	2000
1946	-70.815	-21.9	-48.915	2001
1942	136.3	136.3	0	1996
1943	-79.4	-79.4	0	1997
1944	-267.2	-267.2	0	1998
1945	-253.7	-253.7	0	1999
1946	-78.1	-78.1	0	2000
1947	15.185	45.5	-30.315	2001
1943	-4.9	-4.9	0	1996
1944	-214.2	-214.2	0	1997
1945	-190.7	-190.7	0	1998
1946	-89.8	-89.8	0	1999
1947	63.8	63.8	0	2000
1948	54.185	73.8	-19.615	2001
1944	-279.1	-279.1	0	1996
1945	-205.8	-205.8	0	1997
1946	-7.6	-7.6	0	1998
1947	24.8	24.8	0	1999
1948	81.4	81.4	0	2000
1949	-25.215	-35.6	10.385	2001
1945	-158.1	-158.1	0	1996
1946	28.2	28.2	0	1997
1947	81	81	0	1998
1948	113.5	113.5	0	1999
1949	-79.3	-79.3	0	2000
1950	-1.115	-1.5	0.385	2001
1946	26.3	26.3	0	1996
1947	62.7	62.7	0	1997
1948	66.8	66.8	0	1998
1949	-36.7	-36.7	0	1999
1950	120.6	120.6	0	2000
1951	287.685	297.3	-9.615	2001
1947	4.4	4.4	0	1996
1948	52.5	52.5	0	1997
1949	-63.4	-63.4	0	1998
1950	-42.9	-42.9	0	1999
1951	116.9	116.9	0	2000
1952	49.985	29.6	20.385	2001
1948	98.2	98.2	0	1996
1949	-43.9	-43.9	0	1997
1950	-21.8	-21.8	0	1998
1951	148.7	148.7	0	1999
1952	77.9	77.9	0	2000
1953	-83.315	-103.7	20.385	2001
1949	-129.8	-129.8	0	1996
1950	81.2	81.2	0	1997
1951	223.2	223.2	0	1998

1952	83.6	83.6	0	1999
1953	-51.4	-51.4	0	2000
1954	108.885	109.2	-0.315	2001
1950	12.4	12.4	0	1996
1951	131.7	131.7	0	1997
1952	34.3	34.3	0	1998
1953	-71.6	-71.6	0	1999
1954	31.4	31.4	0	2000
1955	-106.815	-96.5	-10.315	2001
1951	130.2	130.2	0	1996
1952	93	93	0	1997
1953	-62.6	-62.6	0	1998
1954	32.5	32.5	0	1999
1955	-49.3	-49.3	0	2000
1956	162.085	162.4	-0.315	2001
1952	-61.3	-61.3	0	1996
1953	-82.1	-82.1	0	1997
1954	39.7	39.7	0	1998
1955	-40.6	-40.6	0	1999
1956	159.5	159.5	0	2000
1957	-76.215	-75.9	-0.315	2001
1953	2.5	2.5	0	1996
1954	10.5	10.5	0	1997
1955	-146.6	-146.6	0	1998
1956	43.1	43.1	0	1999
1957	-100	-100	0	2000
1958	-173.515	-143.2	-30.315	2001
1954	1	1	0	1996
1955	-61.5	-61.5	0	1997
1956	116.3	116.3	0	1998
1957	-43.1	-43.1	0	1999
1958	-103.5	-103.5	0	2000
1959	137.185	137.5	-0.315	2001
1955	-36.7	-36.7	0	1996
1956	134	134	0	1997
1957	-54.5	-54.5	0	1998
1958	16.3	16.3	0	1999
1959	172.7	172.7	0	2000
1960	134.185	164.5	-30.315	2001
1956	61.9	61.9	0	1996
1957	-67.7	-67.7	0	1997
1958	-113.4	-113.4	0	1998
1959	24.8	24.8	0	1999
1960	85.3	85.3	0	2000
1961	-51.515	-41.9	-9.615	2001
1957	47	47	0	1996
1958	-75.4	-75.4	0	1997
1959	138.9	138.9	0	1998
1960	78.8	78.8	0	1999
1961	-24.9	-24.9	0	2000
1962	-70.515	-70.2	-0.315	2001
1958	19.6	19.6	0	1996

1959	48.6	48.6	0	1997
1960	47.7	47.7	0	1998
1961	-63.9	-63.9	0	1999
1962	-60.9	-60.9	0	2000
1963	11.185	11.5	-0.315	2001
1959	87.7	87.7	0	1996
1960	49.1	49.1	0	1997
1961	-67.4	-67.4	0	1998
1962	-91.4	-91.4	0	1999
1963	33.5	33.5	0	2000
1964	-79.115	-68.8	-10.315	2001
1960	101.4	101.4	0	1996
1961	12.2	12.2	0	1997
1962	19.4	19.4	0	1998
1963	59.1	59.1	0	1999
1964	-10	-10	0	2000
1965	229.285	229.6	-0.315	2001
1961	0.2	0.2	0	1996
1962	-25.7	-25.7	0	1997
1963	10	10	0	1998
1964	-83.5	-83.5	0	1999
1965	168.3	168.3	0	2000
1966	-107.115	-106.8	-0.315	2001
1962	-34.4	-34.4	0	1996
1963	43.7	43.7	0	1997
1964	-30.6	-30.6	0	1998
1965	216.7	216.7	0	1999
1966	14.5	14.5	0	2000
1967	8.685	28.3	-19.615	2001
1963	-23.6	-23.6	0	1996
1964	-63	-63	0	1997
1965	225.5	225.5	0	1998
1966	11.4	11.4	0	1999
1967	30.6	30.6	0	2000
1968	96.185	96.5	-0.315	2001
1964	-133.3	-133.3	0	1996
1965	194.5	194.5	0	1997
1966	43.7	43.7	0	1998
1967	49.2	49.2	0	1999
1968	87.2	87.2	0	2000
1969	210.785	241.1	-30.315	2001
1965	134.3	134.3	0	1996
1966	-92.4	-92.4	0	1997
1967	-12	-12	0	1998
1968	15.3	15.3	0	1999
1969	83.5	83.5	0	2000
1970	-162.415	-132.1	-30.315	2001
1966	-65.2	-65.2	0	1996
1967	-13.4	-13.4	0	1997
1968	92.5	92.5	0	1998
1969	173.3	173.3	0	1999
1970	-50.7	-50.7	0	2000

1971	147.785	148.1	-0.315	2001
1967	-77.9	-77.9	0	1996
1968	30.6	30.6	0	1997
1969	120.4	120.4	0	1998
1970	-34.9	-34.9	0	1999
1971	180.8	180.8	0	2000
1972	230.285	230.6	-0.315	2001
1968	22.3	22.3	0	1996
1969	68.4	68.4	0	1997
1970	-72.8	-72.8	0	1998
1971	132.1	132.1	0	1999
1972	144.8	144.8	0	2000
1973	-175.515	-145.2	-30.315	2001
1969	243.3	243.3	0	1996
1970	-47.5	-47.5	0	1997
1971	144.1	144.1	0	1998
1972	267	267	0	1999
1973	-65.7	-65.7	0	2000
1974	372.185	372.5	-0.315	2001
1970	69.7	69.7	0	1996
1971	79.1	79.1	0	1997
1972	105.4	105.4	0	1998
1973	-124.7	-124.7	0	1999
1974	179.3	179.3	0	2000
1975	-64.815	-54.5	-10.315	2001
1971	48.4	48.4	0	1996
1972	145.1	145.1	0	1997
1973	-71.9	-71.9	0	1998
1974	272	272	0	1999
1975	61.7	61.7	0	2000
1976	355.485	335.1	20.385	2001
1972	206.1	206.1	0	1996
1973	-98.5	-98.5	0	1997
1974	194.5	194.5	0	1998
1975	-15.7	-15.7	0	1999
1976	260	260	0	2000
1977	-315.815	-285.5	-30.315	2001
1973	-195.4	-195.4	0	1996
1974	162.6	162.6	0	1997
1975	12	12	0	1998
1976	261.3	261.3	0	1999
1977	-290	-290	0	2000
1978	-67.915	-19	-48.915	2001
1974	256.6	256.6	0	1996
1975	-41.9	-41.9	0	1997
1976	120.6	120.6	0	1998
1977	-303.7	-303.7	0	1999
1978	-73.8	-73.8	0	2000
1929	-266.715	-266.4	-0.315	2001
1975	-22.7	-22.7	0	1996
1976	160.1	160.1	0	1997
1977	-267.9	-267.9	0	1998

1978	-62.5	-62.5	0	1999
1929	-293.6	-293.6	0	2000
1930	-309.915	-270.3	-39.615	2001
1976	233.6	233.6	0	1996
1977	-261.6	-261.6	0	1997
1978	-93.4	-93.4	0	1998
1929	-267.5	-267.5	0	1999
1930	-284	-284	0	2000
1931	-344.215	-334.6	-9.615	2001
1977	-363	-363	0	1996
1978	-52.8	-52.8	0	1997
1929	-184.1	-184.1	0	1998
1930	-224.5	-224.5	0	1999
1931	-290.8	-290.8	0	2000
1932	-124.915	-135.3	10.385	2001
1978	49.3	49.3	0	1996
1929	-161.5	-161.5	0	1997
1930	-201.2	-201.2	0	1998
1931	-267.8	-267.8	0	1999
1932	-144.4	-144.4	0	2000
1933	48.885	58.5	-9.615	2001
1929	-238.8	-238.8	0	1996
1930	-227.2	-227.2	0	1997
1931	-252.5	-252.5	0	1998
1932	-140.5	-140.5	0	1999
1933	45.5	45.5	0	2000
1934	197.485	197.8	-0.315	2001
1930	-413.2	-413.2	0	1996
1931	-225.4	-225.4	0	1997
1932	-213.2	-213.2	0	1998
1933	-34.6	-34.6	0	1999
1934	147.9	147.9	0	2000
1935	-111.215	-110.9	-0.315	2001
1931	-362.2	-362.2	0	1996
1932	-159.4	-159.4	0	1997
1933	-4	-4	0	1998
1934	113.5	113.5	0	1999
1935	-65.8	-65.8	0	2000
1936	-200.915	-200.6	-0.315	2001
1932	-148.1	-148.1	0	1996
1933	11.1	11.1	0	1997
1934	126.2	126.2	0	1998
1935	-40.6	-40.6	0	1999
1936	-189.1	-189.1	0	2000
1937	-336.815	-327.2	-9.615	2001
1933	76.4	76.4	0	1996
1934	106.8	106.8	0	1997
1935	-71.4	-71.4	0	1998
1936	-196.5	-196.5	0	1999
1937	-306.9	-306.9	0	2000
1938	-44.015	-34.4	-9.615	2001
1934	246.1	246.1	0	1996

1935	-2.6	-2.6	0	1997
1936	-141.3	-141.3	0	1998
1937	-300.7	-300.7	0	1999
1938	-2.4	-2.4	0	2000
1939	-159.015	-158.7	-0.315	2001
1935	-34.7	-34.7	0	1996
1936	-138.8	-138.8	0	1997
1937	-232.9	-232.9	0	1998
1938	-12.6	-12.6	0	1999
1939	-146.3	-146.3	0	2000
1940	-100.515	-100.2	-0.315	2001
1936	-290.8	-290.8	0	1996
1937	-285.9	-285.9	0	1997
1938	-46.8	-46.8	0	1998
1939	-175.4	-175.4	0	1999
1940	-183.2	-183.2	0	2000
1941	-254.615	-254.3	-0.315	2001
1937	-263.5	-263.5	0	1996
1938	-7.6	-7.6	0	1997
1939	-168	-168	0	1998
1940	-126.4	-126.4	0	1999
1941	-190	-190	0	2000
1942	-74.015	-34.4	-39.615	2001
1938	-41.4	-41.4	0	1996
1939	-112.3	-112.3	0	1997
1940	-125.5	-125.5	0	1998
1941	-153.9	-153.9	0	1999
1942	100	100	0	2000
1943	87.785	98.1	-10.315	2001
1939	-160.6	-160.6	0	1996
1940	-60.9	-60.9	0	1997
1941	-143.3	-143.3	0	1998
1942	4.6	4.6	0	1999
1943	41.9	41.9	0	2000
1944	-342.315	-323.4	-18.915	2001
1940	-181	-181	0	1996
1941	-198.4	-198.4	0	1997
1942	-87.4	-87.4	0	1998
1943	-61.9	-61.9	0	1999
1944	-278	-278	0	2000
1945	-263.615	-263.3	-0.315	2001
1941	-220.7	-220.7	0	1996
1942	0.6	0.6	0	1997
1943	31.7	31.7	0	1998
1944	-238.2	-238.2	0	1999
1945	-237.5	-237.5	0	2000
1946	-7.115	2.5	-9.615	2001
1942	114.3	114.3	0	1996
1943	8.6	8.6	0	1997
1944	-235.2	-235.2	0	1998
1945	-209.5	-209.5	0	1999
1946	49.7	49.7	0	2000

1947	81.985	101.6	-19.615	2001
1943	-18.1	-18.1	0	1996
1944	-284	-284	0	1997
1945	-266.6	-266.6	0	1998
1946	-78.2	-78.2	0	1999
1947	-19.1	-19.1	0	2000
1948	18.785	19.1	-0.315	2001
1944	-320.8	-320.8	0	1996
1945	-205.7	-205.7	0	1997
1946	4.9	4.9	0	1998
1947	77.8	77.8	0	1999
1948	145.7	145.7	0	2000
1949	-26.015	-15.7	-10.315	2001
1945	-164.8	-164.8	0	1996
1946	1.3	1.3	0	1997
1947	129	129	0	1998
1948	105.6	105.6	0	1999
1949	-50.1	-50.1	0	2000
1950	33.485	63.8	-30.315	2001
1946	38.7	38.7	0	1996
1947	42.9	42.9	0	1997
1948	150.8	150.8	0	1998
1949	-9.4	-9.4	0	1999
1950	142.8	142.8	0	2000
1951	304.685	305	-0.315	2001
1947	39.6	39.6	0	1996
1948	85.5	85.5	0	1997
1949	-43.8	-43.8	0	1998
1950	29.9	29.9	0	1999
1951	227.3	227.3	0	2000
1952	117.385	117.7	-0.315	2001
1948	111.3	111.3	0	1996
1949	-27.1	-27.1	0	1997
1950	37.6	37.6	0	1998
1951	164.7	164.7	0	1999
1952	104.3	104.3	0	2000
1953	-29.715	0.6	-30.315	2001
1949	-70.3	-70.3	0	1996
1950	46.1	46.1	0	1997
1951	196.9	196.9	0	1998
1952	26.5	26.5	0	1999
1953	-120.8	-120.8	0	2000
1954	13.985	14.3	-0.315	2001
1950	36.5	36.5	0	1996
1951	191.8	191.8	0	1997
1952	75.3	75.3	0	1998
1953	-29.6	-29.6	0	1999
1954	113.3	113.3	0	2000
1955	-27.515	-17.2	-10.315	2001
1951	172.8	172.8	0	1996
1952	30.7	30.7	0	1997
1953	-105	-105	0	1998

1954	65.6	65.6	0	1999
1955	-65.3	-65.3	0	2000
1956	113.985	123.6	-9.615	2001
1952	82.6	82.6	0	1996
1953	-81.8	-81.8	0	1997
1954	-11.2	-11.2	0	1998
1955	-66	-66	0	1999
1956	190.2	190.2	0	2000
1957	-41.815	-41.5	-0.315	2001
1953	68.2	68.2	0	1996
1954	159.3	159.3	0	1997
1955	-22.2	-22.2	0	1998
1956	257.8	257.8	0	1999
1957	9.5	9.5	0	2000
1958	-11.915	7.7	-19.615	2001
1954	-74.4	-74.4	0	1996
1955	-58	-58	0	1997
1956	138.5	138.5	0	1998
1957	-22.5	-22.5	0	1999
1958	-61	-61	0	2000
1959	158.985	159.3	-0.315	2001
1955	-110.6	-110.6	0	1996
1956	117.6	117.6	0	1997
1957	-37.8	-37.8	0	1998
1958	-12.3	-12.3	0	1999
1959	175.4	175.4	0	2000
1960	185.285	184.9	0.385	2001
1956	150.6	150.6	0	1996
1957	-51.2	-51.2	0	1997
1958	-161.7	-161.7	0	1998
1959	157.2	157.2	0	1999
1960	172.3	172.3	0	2000
1961	-67.615	-28	-39.615	2001
1957	-28.5	-28.5	0	1996
1958	-22.2	-22.2	0	1997
1959	166.2	166.2	0	1998
1960	221.5	221.5	0	1999
1961	16.9	16.9	0	2000
1962	-63.215	-32.9	-30.315	2001
1958	-112.6	-112.6	0	1996
1959	115.9	115.9	0	1997
1960	149.2	149.2	0	1998
1961	43.8	43.8	0	1999
1962	5.6	5.6	0	2000
1963	54.485	54.8	-0.315	2001
1959	91.5	91.5	0	1996
1960	146.2	146.2	0	1997
1961	47.8	47.8	0	1998
1962	8.6	8.6	0	1999
1963	99.9	99.9	0	2000
1964	-68.415	-58.1	-10.315	2001
1960	205.2	205.2	0	1996

1961	14.8	14.8	0	1997
1962	16.3	16.3	0	1998
1963	93.1	93.1	0	1999
1964	10.7	10.7	0	2000
1965	292.285	292.6	-0.315	2001
1961	-57.1	-57.1	0	1996
1962	-101.4	-101.4	0	1997
1963	-32	-32	0	1998
1964	-81.7	-81.7	0	1999
1965	121.6	121.6	0	2000
1966	-84.115	-74.5	-9.615	2001
1962	-33.4	-33.4	0	1996
1963	60.2	60.2	0	1997
1964	-17.8	-17.8	0	1998
1965	242.4	242.4	0	1999
1966	-13.8	-13.8	0	2000
1967	-3.815	26.5	-30.315	2001
1963	110.9	110.9	0	1996
1964	-79.2	-79.2	0	1997
1965	233.3	233.3	0	1998
1966	-20.7	-20.7	0	1999
1967	55	55	0	2000
1968	58.985	69.3	-10.315	2001
1964	-111.5	-111.5	0	1996
1965	60.4	60.4	0	1997
1966	-43.4	-43.4	0	1998
1967	6.7	6.7	0	1999
1968	53.6	53.6	0	2000
1969	166.185	166.5	-0.315	2001
1965	157.3	157.3	0	1996
1966	8.3	8.3	0	1997
1967	31.9	31.9	0	1998
1968	74.7	74.7	0	1999
1969	160.1	160.1	0	2000
1970	-38.215	-18.6	-19.615	2001
1966	-5.4	-5.4	0	1996
1967	16.6	16.6	0	1997
1968	56.7	56.7	0	1998
1969	94.4	94.4	0	1999
1970	-92.9	-92.9	0	2000
1971	65.685	85.3	-19.615	2001
1967	20.4	20.4	0	1996
1968	76.1	76.1	0	1997
1969	150.7	150.7	0	1998
1970	-36.3	-36.3	0	1999
1971	133.9	133.9	0	2000
1972	211.485	211.8	-0.315	2001
1968	185	185	0	1996
1969	162.9	162.9	0	1997
1970	-58.9	-58.9	0	1998
1971	111.1	111.1	0	1999
1972	196	196	0	2000

1973	-173.715	-143.4	-30.315	2001
1969	101.7	101.7	0	1996
1970	-112.1	-112.1	0	1997
1971	87.2	87.2	0	1998
1972	43.4	43.4	0	1999
1973	-158.2	-158.2	0	2000
1974	111.185	111.5	-0.315	2001
1970	-115.2	-115.2	0	1996
1971	-2.6	-2.6	0	1997
1972	116.5	116.5	0	1998
1973	-126.7	-126.7	0	1999
1974	266.9	266.9	0	2000
1975	-12.115	-11.8	-0.315	2001
1971	74.5	74.5	0	1996
1972	143.6	143.6	0	1997
1973	-116.5	-116.5	0	1998
1974	168.5	168.5	0	1999
1975	-2	-2	0	2000
1976	234.585	244.9	-10.315	2001
1972	60.6	60.6	0	1996
1973	-99.2	-99.2	0	1997
1974	191.2	191.2	0	1998
1975	14.7	14.7	0	1999
1976	294.1	294.1	0	2000
1977	-276.515	-286.9	10.385	2001
1973	-135.4	-135.4	0	1996
1974	229.6	229.6	0	1997
1975	34.2	34.2	0	1998
1976	253	253	0	1999
1977	-278.6	-278.6	0	2000
1978	-21.415	-21.8	0.385	2001
1974	146.4	146.4	0	1996
1975	23.6	23.6	0	1997
1976	300.6	300.6	0	1998
1977	-241.1	-241.1	0	1999
1978	-1.2	-1.2	0	2000
1929	-232.215	-231.9	-0.315	2001
1975	-31.7	-31.7	0	1996
1976	175.2	175.2	0	1997
1977	-225.3	-225.3	0	1998
1978	8	8	0	1999
1929	-243.6	-243.6	0	2000
1930	-269.815	-269.5	-0.315	2001
1976	165.7	165.7	0	1996
1977	-216.8	-216.8	0	1997
1978	-32.4	-32.4	0	1998
1929	-215.5	-215.5	0	1999
1930	-262.4	-262.4	0	2000
1931	-301.915	-301.6	-0.315	2001
1977	-265.6	-265.6	0	1996
1978	-25.2	-25.2	0	1997
1929	-194.1	-194.1	0	1998

1930	-256.8	-256.8	0	1999
1931	-278.9	-278.9	0	2000
1932	-133.615	-144	10.385	2001
1978	108.7	108.7	0	1996
1929	-191.6	-191.6	0	1997
1930	-251	-251	0	1998
1931	-286.5	-286.5	0	1999
1932	-164.2	-164.2	0	2000
1933	35.485	35.8	-0.315	2001
1929	-305.6	-305.6	0	1996
1930	-216	-216	0	1997
1931	-272.6	-272.6	0	1998
1932	-178	-178	0	1999
1933	-41.6	-41.6	0	2000
1934	51.285	80.2	-28.915	2001
1930	-352.9	-352.9	0	1996
1931	-274	-274	0	1997
1932	-204.2	-204.2	0	1998
1933	-91.4	-91.4	0	1999
1934	95	95	0	2000
1935	-116.915	-107.3	-9.615	2001
1931	-319.8	-319.8	0	1996
1932	-107.1	-107.1	0	1997
1933	18.6	18.6	0	1998
1934	185	185	0	1999
1935	-7.8	-7.8	0	2000
1936	-195.315	-195	-0.315	2001
1932	-168.9	-168.9	0	1996
1933	-24.4	-24.4	0	1997
1934	92.2	92.2	0	1998
1935	-69.2	-69.2	0	1999
1936	-211.1	-211.1	0	2000
1937	-332.315	-332	-0.315	2001
1933	-26	-26	0	1996
1934	202.1	202.1	0	1997
1935	26.2	26.2	0	1998
1936	-172.7	-172.7	0	1999
1937	-297.3	-297.3	0	2000
1938	-10.215	-0.6	-9.615	2001
1934	298.9	298.9	0	1996
1935	-6.7	-6.7	0	1997
1936	-105.3	-105.3	0	1998
1937	-246.1	-246.1	0	1999
1938	79.9	79.9	0	2000
1939	-183.315	-164.4	-18.915	2001
1935	-108.4	-108.4	0	1996
1936	-192.3	-192.3	0	1997
1937	-257.6	-257.6	0	1998
1938	-46.3	-46.3	0	1999
1939	-253.4	-253.4	0	2000
1940	-150.215	-149.9	-0.315	2001
1936	-283.4	-283.4	0	1996

1937	-229	-229	0	1997
1938	-30.4	-30.4	0	1998
1939	-154.2	-154.2	0	1999
1940	-103.9	-103.9	0	2000
1941	-183.815	-173.5	-10.315	2001
1937	-244.8	-244.8	0	1996
1938	20	20	0	1997
1939	-91.8	-91.8	0	1998
1940	-76.2	-76.2	0	1999
1941	-165.7	-165.7	0	2000
1942	79.085	68.7	10.385	2001
1938	-31.1	-31.1	0	1996
1939	-153.7	-153.7	0	1997
1940	-23.9	-23.9	0	1998
1941	-164.8	-164.8	0	1999
1942	94.3	94.3	0	2000
1943	120.285	130.6	-10.315	2001
1939	-134.1	-134.1	0	1996
1940	-114.9	-114.9	0	1997
1941	-182.9	-182.9	0	1998
1942	-34.7	-34.7	0	1999
1943	5.4	5.4	0	2000
1944	-290.115	-300.5	10.385	2001
1940	-26	-26	0	1996
1941	-178.2	-178.2	0	1997
1942	15.7	15.7	0	1998
1943	16.8	16.8	0	1999
1944	-265.9	-265.9	0	2000
1945	-224.815	-214.5	-10.315	2001
1941	-228.1	-228.1	0	1996
1942	-30	-30	0	1997
1943	-16.1	-16.1	0	1998
1944	-275.6	-275.6	0	1999
1945	-259.1	-259.1	0	2000
1946	-78.515	-48.2	-30.315	2001
1942	15.6	15.6	0	1996
1943	52.8	52.8	0	1997
1944	-219.5	-219.5	0	1998
1945	-225.9	-225.9	0	1999
1946	-30.5	-30.5	0	2000
1947	-4.815	5.5	-10.315	2001
1943	119.5	119.5	0	1996
1944	-234.2	-234.2	0	1997
1945	-229.8	-229.8	0	1998
1946	-78.2	-78.2	0	1999
1947	9.6	9.6	0	2000
1948	97.585	97.9	-0.315	2001
1944	-316.1	-316.1	0	1996
1945	-235.9	-235.9	0	1997
1946	-80.1	-80.1	0	1998
1947	26	26	0	1999
1948	53	53	0	2000

1949	-72.615	-83	10.385	2001
1945	-265.4	-265.4	0	1996
1946	-23.6	-23.6	0	1997
1947	110.1	110.1	0	1998
1948	170.1	170.1	0	1999
1949	-26.9	-26.9	0	2000
1950	94.285	94.6	-0.315	2001
1946	138.4	138.4	0	1996
1947	40.9	40.9	0	1997
1948	118.4	118.4	0	1998
1949	-25.8	-25.8	0	1999
1950	21.7	21.7	0	2000
1951	139.685	188.6	-48.915	2001
1947	127	127	0	1996
1948	85.9	85.9	0	1997
1949	-49.6	-49.6	0	1998
1950	67.8	67.8	0	1999
1951	221.2	221.2	0	2000
1952	70.285	70.6	-0.315	2001
1948	260.8	260.8	0	1996
1949	-0.6	-0.6	0	1997
1950	104.6	104.6	0	1998
1951	308.4	308.4	0	1999
1952	117	117	0	2000
1953	47.285	47.6	-0.315	2001
1949	-58	-58	0	1996
1950	61.8	61.8	0	1997
1951	211.4	211.4	0	1998
1952	57.4	57.4	0	1999
1953	-78	-78	0	2000
1954	2.485	32.8	-30.315	2001
1950	-97.6	-97.6	0	1996
1951	124	124	0	1997
1952	41.6	41.6	0	1998
1953	-81.6	-81.6	0	1999
1954	69.7	69.7	0	2000
1955	-45.415	-45.1	-0.315	2001
1951	171.5	171.5	0	1996
1952	25.9	25.9	0	1997
1953	-112.9	-112.9	0	1998
1954	41.2	41.2	0	1999
1955	-139.6	-139.6	0	2000
1956	129.585	129.9	-0.315	2001
1952	32	32	0	1996
1953	-25.5	-25.5	0	1997
1954	46.6	46.6	0	1998
1955	-70.9	-70.9	0	1999
1956	164.1	164.1	0	2000
1957	-47.115	-46.8	-0.315	2001
1953	-110.2	-110.2	0	1996
1954	72.8	72.8	0	1997
1955	-56.4	-56.4	0	1998

1956	228.2	228.2	0	1999
1957	47.7	47.7	0	2000
1958	2.085	2.4	-0.315	2001
1954	80.1	80.1	0	1996
1955	-73.5	-73.5	0	1997
1956	88.5	88.5	0	1998
1957	-127.3	-127.3	0	1999
1958	-116.3	-116.3	0	2000
1959	113.085	123.4	-10.315	2001
1955	-35.1	-35.1	0	1996
1956	120.6	120.6	0	1997
1957	-0.5	-0.5	0	1998
1958	-1.7	-1.7	0	1999
1959	154.5	154.5	0	2000
1960	170.585	180.2	-9.615	2001
1956	105.3	105.3	0	1996
1957	-4.7	-4.7	0	1997
1958	-55	-55	0	1998
1959	121.4	121.4	0	1999
1960	206.4	206.4	0	2000
1961	-9.315	30.3	-39.615	2001
1957	-55.3	-55.3	0	1996
1958	27	27	0	1997
1959	242.4	242.4	0	1998
1960	300.1	300.1	0	1999
1961	37.5	37.5	0	2000
1962	-17.415	-7.1	-10.315	2001
1958	13.2	13.2	0	1996
1959	122.8	122.8	0	1997
1960	119.9	119.9	0	1998
1961	-42.9	-42.9	0	1999
1962	-79.9	-79.9	0	2000
1963	-28.915	-29.3	0.385	2001
1959	180.7	180.7	0	1996
1960	160.9	160.9	0	1997
1961	31.8	31.8	0	1998
1962	2.3	2.3	0	1999
1963	64.7	64.7	0	2000
1964	-106.515	-76.2	-30.315	2001
1960	138.9	138.9	0	1996
1961	11.1	11.1	0	1997
1962	11.4	11.4	0	1998
1963	45.1	45.1	0	1999
1964	-68.6	-68.6	0	2000
1965	83.885	114.2	-30.315	2001
1961	3.6	3.6	0	1996
1962	-36.1	-36.1	0	1997
1963	93.4	93.4	0	1998
1964	40.1	40.1	0	1999
1965	315.3	315.3	0	2000
1966	30.285	30.6	-0.315	2001
1962	-200.8	-200.8	0	1996

1963	66.6	66.6	0	1997
1964	-20	-20	0	1998
1965	268.1	268.1	0	1999
1966	10.2	10.2	0	2000
1967	83.385	93	-9.615	2001
1963	110.3	110.3	0	1996
1964	-12	-12	0	1997
1965	224.7	224.7	0	1998
1966	35.8	35.8	0	1999
1967	22.4	22.4	0	2000
1968	55.585	75.2	-19.615	2001
1964	-136.2	-136.2	0	1996
1965	141	141	0	1997
1966	-23.4	-23.4	0	1998
1967	-0.8	-0.8	0	1999
1968	55.8	55.8	0	2000
1969	142.485	182.1	-39.615	2001
1965	289.9	289.9	0	1996
1966	-57.7	-57.7	0	1997
1967	-26.1	-26.1	0	1998
1968	50.1	50.1	0	1999
1969	130	130	0	2000
1970	-24.415	-24.1	-0.315	2001
1966	-73.2	-73.2	0	1996
1967	5.8	5.8	0	1997
1968	15	15	0	1998
1969	23.3	23.3	0	1999
1970	-162.7	-162.7	0	2000
1971	49.985	69.6	-19.615	2001
1967	0	0	0	1996
1968	1.7	1.7	0	1997
1969	65	65	0	1998
1970	-85.1	-85.1	0	1999
1971	74.7	74.7	0	2000
1972	102.885	103.2	-0.315	2001
1968	93.5	93.5	0	1996
1969	-14.3	-14.3	0	1997
1970	-102.8	-102.8	0	1998
1971	125.4	125.4	0	1999
1972	176	176	0	2000
1973	-157.215	-126.9	-30.315	2001
1969	90.4	90.4	0	1996
1970	-50.2	-50.2	0	1997
1971	71.5	71.5	0	1998
1972	109.9	109.9	0	1999
1973	-138.7	-138.7	0	2000
1974	221.985	222.3	-0.315	2001
1970	2.5	2.5	0	1996
1971	160	160	0	1997
1972	200.5	200.5	0	1998
1973	-117.5	-117.5	0	1999
1974	299.1	299.1	0	2000

1975	59.385	89.7	-30.315	2001
1971	99.9	99.9	0	1996
1972	190.1	190.1	0	1997
1973	-66.7	-66.7	0	1998
1974	282.6	282.6	0	1999
1975	41.8	41.8	0	2000
1976	274.785	285.1	-10.315	2001
1972	119.1	119.1	0	1996
1973	-105	-105	0	1997
1974	272.7	272.7	0	1998
1975	59.5	59.5	0	1999
1976	308.7	308.7	0	2000
1977	-321.215	-310.9	-10.315	2001
1973	-158.9	-158.9	0	1996
1974	142.6	142.6	0	1997
1975	-31.8	-31.8	0	1998
1976	189.7	189.7	0	1999
1977	-343.3	-343.3	0	2000
1978	-64.315	-34	-30.315	2001
1974	158.5	158.5	0	1996
1975	-9.9	-9.9	0	1997
1976	228.3	228.3	0	1998
1977	-256.6	-256.6	0	1999
1978	-15.3	-15.3	0	2000
1929	-245.815	-266.2	20.385	2001
1975	24.4	24.4	0	1996
1976	62.1	62.1	0	1997
1977	-330.2	-330.2	0	1998
1978	-96.8	-96.8	0	1999
1929	-261.6	-261.6	0	2000
1930	-319.515	-289.2	-30.315	2001
1976	181.3	181.3	0	1996
1977	-220.7	-220.7	0	1997
1978	-9.6	-9.6	0	1998
1929	-211.6	-211.6	0	1999
1930	-267.9	-267.9	0	2000
1931	-297.015	-277.4	-19.615	2001
1977	-347.3	-347.3	0	1996
1978	22.3	22.3	0	1997
1929	-265.2	-265.2	0	1998
1930	-227.4	-227.4	0	1999
1931	-290.6	-290.6	0	2000
1932	-159.515	-159.9	0.385	2001
1978	47.4	47.4	0	1996
1929	-160	-160	0	1997
1930	-200.3	-200.3	0	1998
1931	-231.5	-231.5	0	1999
1932	-98.3	-98.3	0	2000
1933	91.185	121.5	-30.315	2001
1929	-256.5	-256.5	0	1996
1930	-262.3	-262.3	0	1997
1931	-276.4	-276.4	0	1998

1932	-169.1	-169.1	0	1999
1933	-40.1	-40.1	0	2000
1934	155.785	166.1	-10.315	2001
1930	-338.4	-338.4	0	1996
1931	-188.1	-188.1	0	1997
1932	-60.9	-60.9	0	1998
1933	120.8	120.8	0	1999
1934	274	274	0	2000
1935	-17.515	12.8	-30.315	2001
1931	-298.5	-298.5	0	1996
1932	-174.5	-174.5	0	1997
1933	-34.2	-34.2	0	1998
1934	145.3	145.3	0	1999
1935	-52.3	-52.3	0	2000
1936	-198.615	-188.3	-10.315	2001
1932	-104.9	-104.9	0	1996
1933	-50.9	-50.9	0	1997
1934	129.6	129.6	0	1998
1935	-34.7	-34.7	0	1999
1936	-196.5	-196.5	0	2000
1937	-376.715	-337.1	-39.615	2001
1933	-64.6	-64.6	0	1996
1934	189.2	189.2	0	1997
1935	11.8	11.8	0	1998
1936	-135.9	-135.9	0	1999
1937	-282.9	-282.9	0	2000
1938	-9.015	1.3	-10.315	2001
1934	195.5	195.5	0	1996
1935	-62.8	-62.8	0	1997
1936	-198.9	-198.9	0	1998
1937	-304	-304	0	1999
1938	-63	-63	0	2000
1939	-228.515	-218.2	-10.315	2001
1935	-61.6	-61.6	0	1996
1936	-163.9	-163.9	0	1997
1937	-259.1	-259.1	0	1998
1938	-54.2	-54.2	0	1999
1939	-161.6	-161.6	0	2000
1940	-225.715	-225.4	-0.315	2001
1936	-239.8	-239.8	0	1996
1937	-258.9	-258.9	0	1997
1938	-62.2	-62.2	0	1998
1939	-148	-148	0	1999
1940	-118.5	-118.5	0	2000
1941	-200.415	-200.1	-0.315	2001
1937	-305.5	-305.5	0	1996
1938	22.2	22.2	0	1997
1939	-151.5	-151.5	0	1998
1940	-94.5	-94.5	0	1999
1941	-200.5	-200.5	0	2000
1942	13.185	43.5	-30.315	2001
1938	-29.9	-29.9	0	1996

1939	-137.3	-137.3	0	1997
1940	-57.9	-57.9	0	1998
1941	-196.1	-196.1	0	1999
1942	26.3	26.3	0	2000
1943	48.585	78.9	-30.315	2001
1939	-143.6	-143.6	0	1996
1940	-93.5	-93.5	0	1997
1941	-125	-125	0	1998
1942	45.3	45.3	0	1999
1943	116.9	116.9	0	2000
1944	-267.415	-238.5	-28.915	2001
1940	-65.9	-65.9	0	1996
1941	-157.8	-157.8	0	1997
1942	24.3	24.3	0	1998
1943	58	58	0	1999
1944	-257.6	-257.6	0	2000
1945	-262.415	-232.1	-30.315	2001
1941	-85.8	-85.8	0	1996
1942	10.9	10.9	0	1997
1943	17	17	0	1998
1944	-250.7	-250.7	0	1999
1945	-218.8	-218.8	0	2000
1946	19.285	48.2	-28.915	2001
1942	64.2	64.2	0	1996
1943	0.8	0.8	0	1997
1944	-228	-228	0	1998
1945	-262	-262	0	1999
1946	-8.4	-8.4	0	2000
1947	95.285	114.9	-19.615	2001
1943	106.3	106.3	0	1996
1944	-192.8	-192.8	0	1997
1945	-218.2	-218.2	0	1998
1946	-84.2	-84.2	0	1999
1947	-8.5	-8.5	0	2000
1948	-13.815	-13.5	-0.315	2001
1944	-302.6	-302.6	0	1996
1945	-183.8	-183.8	0	1997
1946	14.4	14.4	0	1998
1947	128.9	128.9	0	1999
1948	136	136	0	2000
1949	-77.515	-47.2	-30.315	2001
1945	-181.7	-181.7	0	1996
1946	-10.7	-10.7	0	1997
1947	52.9	52.9	0	1998
1948	80.9	80.9	0	1999
1949	-65.9	-65.9	0	2000
1950	48.085	48.4	-0.315	2001
1946	-60.4	-60.4	0	1996
1947	-2.4	-2.4	0	1997
1948	55.4	55.4	0	1998
1949	-97	-97	0	1999
1950	21.1	21.1	0	2000

1951	216.485	206.1	10.385	2001
1947	16.2	16.2	0	1996
1948	89.4	89.4	0	1997
1949	-35.2	-35.2	0	1998
1950	17.4	17.4	0	1999
1951	138.1	138.1	0	2000
1952	58.285	68.6	-10.315	2001
1948	44.7	44.7	0	1996
1949	-85.5	-85.5	0	1997
1950	-3.9	-3.9	0	1998
1951	90.5	90.5	0	1999
1952	-5.9	-5.9	0	2000
1953	-127.115	-116.8	-10.315	2001
1949	18.2	18.2	0	1996
1950	74.1	74.1	0	1997
1951	166.5	166.5	0	1998
1952	101.9	101.9	0	1999
1953	-36	-36	0	2000
1954	40.985	69.9	-28.915	2001
1950	108	108	0	1996
1951	230	230	0	1997
1952	81.5	81.5	0	1998
1953	-15.2	-15.2	0	1999
1954	123.3	123.3	0	2000
1955	-56.915	-47.3	-9.615	2001
1951	253.8	253.8	0	1996
1952	75	75	0	1997
1953	-38.9	-38.9	0	1998
1954	73.8	73.8	0	1999
1955	-86.3	-86.3	0	2000
1956	113.385	142.3	-28.915	2001
1952	17.7	17.7	0	1996
1953	-31.8	-31.8	0	1997
1954	69.9	69.9	0	1998
1955	-76.6	-76.6	0	1999
1956	161.9	161.9	0	2000
1957	-55.415	-55.1	-0.315	2001
1953	77.4	77.4	0	1996
1954	34.9	34.9	0	1997
1955	-144.9	-144.9	0	1998
1956	149.4	149.4	0	1999
1957	-15.2	-15.2	0	2000
1958	-132.615	-93	-39.615	2001
1954	46.9	46.9	0	1996
1955	-116.3	-116.3	0	1997
1956	40.4	40.4	0	1998
1957	-68.3	-68.3	0	1999
1958	-100.8	-100.8	0	2000
1959	125.085	114.7	10.385	2001
1955	-85	-85	0	1996
1956	67.8	67.8	0	1997
1957	-62.7	-62.7	0	1998

1958	-108.1	-108.1	0	1999
1959	67.3	67.3	0	2000
1960	151.185	151.5	-0.315	2001
1956	103.4	103.4	0	1996
1957	-17.3	-17.3	0	1997
1958	-76.3	-76.3	0	1998
1959	141.1	141.1	0	1999
1960	118.2	118.2	0	2000
1961	-61.915	-42.3	-19.615	2001
1957	-46.6	-46.6	0	1996
1958	3.8	3.8	0	1997
1959	115.3	115.3	0	1998
1960	57.4	57.4	0	1999
1961	-36.1	-36.1	0	2000
1962	-32.815	-22.5	-10.315	2001
1958	2.6	2.6	0	1996
1959	78.5	78.5	0	1997
1960	74.7	74.7	0	1998
1961	-65.3	-65.3	0	1999
1962	-56.8	-56.8	0	2000
1963	5.485	15.8	-10.315	2001
1959	232.3	232.3	0	1996
1960	184.1	184.1	0	1997
1961	-25.2	-25.2	0	1998
1962	-37.1	-37.1	0	1999
1963	16.1	16.1	0	2000
1964	-50.215	-50.6	0.385	2001
1960	218.4	218.4	0	1996
1961	-54	-54	0	1997
1962	-134.1	-134.1	0	1998
1963	-52.2	-52.2	0	1999
1964	-146	-146	0	2000
1965	23.785	13.4	10.385	2001
1961	-89.2	-89.2	0	1996
1962	-32.3	-32.3	0	1997
1963	91	91	0	1998
1964	-5.8	-5.8	0	1999
1965	247.2	247.2	0	2000
1966	-9.815	-9.5	-0.315	2001
1962	-149.1	-149.1	0	1996
1963	39.6	39.6	0	1997
1964	-64.6	-64.6	0	1998
1965	150.7	150.7	0	1999
1966	4.1	4.1	0	2000
1967	-30.815	-0.5	-30.315	2001
1963	24	24	0	1996
1964	19.8	19.8	0	1997
1965	278.9	278.9	0	1998
1966	48.6	48.6	0	1999
1967	94	94	0	2000
1968	154.785	174.4	-19.615	2001
1964	-70.6	-70.6	0	1996

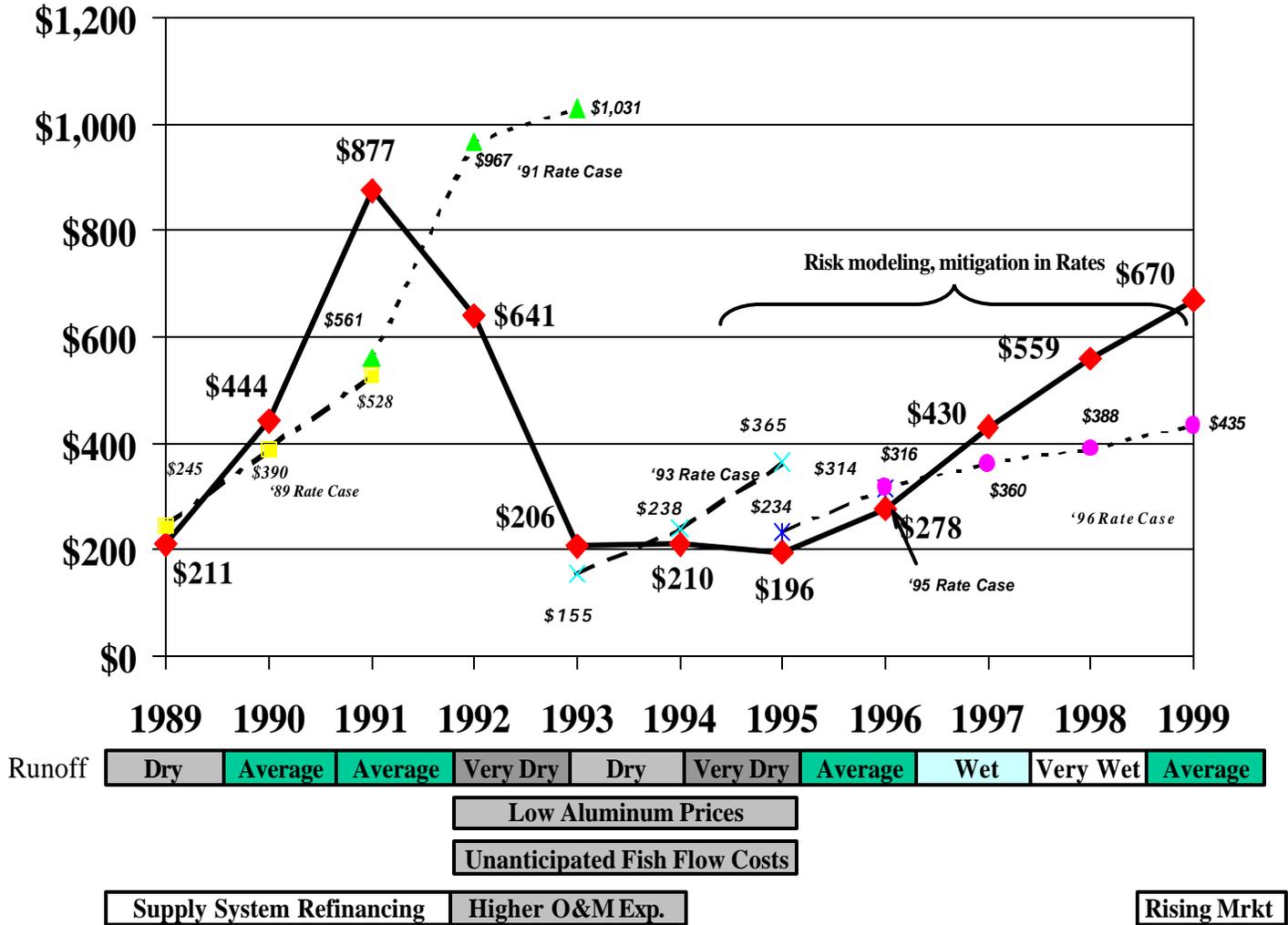
1965	205.7	205.7	0	1997
1966	-5.7	-5.7	0	1998
1967	-24.9	-24.9	0	1999
1968	-27.4	-27.4	0	2000
1969	32.285	32.6	-0.315	2001
1965	-2.5	-2.5	0	1996
1966	-127	-127	0	1997
1967	-94.5	-94.5	0	1998
1968	-69.1	-69.1	0	1999
1969	2.8	2.8	0	2000
1970	-170.515	-160.9	-9.615	2001
1966	-18	-18	0	1996
1967	-23.2	-23.2	0	1997
1968	79.7	79.7	0	1998
1969	135.3	135.3	0	1999
1970	-46.7	-46.7	0	2000
1971	135.785	166.1	-30.315	2001
1967	62.4	62.4	0	1996
1968	20.1	20.1	0	1997
1969	36.8	36.8	0	1998
1970	-127	-127	0	1999
1971	37.3	37.3	0	2000
1972	55.285	74.9	-19.615	2001
1968	19.9	19.9	0	1996
1969	78.9	78.9	0	1997
1970	-101	-101	0	1998
1971	80.4	80.4	0	1999
1972	75.1	75.1	0	2000
1973	-231.815	-212.2	-19.615	2001
1969	93.9	93.9	0	1996
1970	-116.8	-116.8	0	1997
1971	53	53	0	1998
1972	43.6	43.6	0	1999
1973	-160.6	-160.6	0	2000
1974	104.185	134.5	-30.315	2001
1970	-134.5	-134.5	0	1996
1971	130.5	130.5	0	1997
1972	193.5	193.5	0	1998
1973	-92.7	-92.7	0	1999
1974	260.2	260.2	0	2000
1975	76.785	66.4	10.385	2001
1971	90.2	90.2	0	1996
1972	128.6	128.6	0	1997
1973	-154.1	-154.1	0	1998
1974	221.2	221.2	0	1999
1975	10.5	10.5	0	2000
1976	288.985	268.6	20.385	2001
1972	250.9	250.9	0	1996
1973	-145.4	-145.4	0	1997
1974	55.6	55.6	0	1998
1975	-68.5	-68.5	0	1999
1976	181.6	181.6	0	2000

1977	-358.115	-327.8	-30.315	2001
1973	-39.1	-39.1	0	1996
1974	98.5	98.5	0	1997
1975	-93.6	-93.6	0	1998
1976	81.8	81.8	0	1999
1977	-325.2	-325.2	0	2000
1978	-57.115	-67.5	10.385	2001
1974	240.3	240.3	0	1996
1975	-44.2	-44.2	0	1997
1976	208.8	208.8	0	1998
1977	-304.6	-304.6	0	1999
1978	-75.2	-75.2	0	2000
1929	-332.315	-283.4	-48.915	2001
1975	39.2	39.2	0	1996
1976	179.2	179.2	0	1997
1977	-252.1	-252.1	0	1998
1978	-0.2	-0.2	0	1999
1929	-221.7	-221.7	0	2000
1930	-310.315	-261.4	-48.915	2001
1976	232.8	232.8	0	1996
1977	-177.8	-177.8	0	1997
1978	-19.8	-19.8	0	1998
1929	-222.4	-222.4	0	1999
1930	-306.2	-306.2	0	2000
1931	-283.315	-283.7	0.385	2001
1977	-231.6	-231.6	0	1996
1978	-74	-74	0	1997
1929	-250.3	-250.3	0	1998
1930	-272.9	-272.9	0	1999
1931	-292.2	-292.2	0	2000
1932	-164.615	-175	10.385	2001
1978	-85.3	-85.3	0	1996
1929	-216.1	-216.1	0	1997
1930	-256.3	-256.3	0	1998
1931	-306.9	-306.9	0	1999
1932	-203.9	-203.9	0	2000
1933	-62.715	-63.1	0.385	2001

Initial Reserves Balance (Year 0)		165.7	Net Rev Deviations based upon Final 1996					Updated 2/11/00						
Initial Balance of 4(H)(10)(C) FCCF		325	STREAM Analysis dated 5-13-96											
Interest earned on FCCF? (1=yes)		0	1	Allow access to FCCF?			Adjustments to cash							
Frequency of 4(H)(10)(C) FCCF		2%	1	Allow access to 4h10c??			2-year equiv.	Flex.	FCCF	4h10c				
Additional contingent 4(H)(10)(C) Credit		0	FY96 1-year probability of		N/A	N/A	esc	0	0.0	0.0				
Interest rate from Treasury		6.70%	4-year probability of		100.0%	100.0%	flat	0	0.0	0.0				
Rebate Threshold		8000	Use adjustments? (1=yes)		0				0.0	0.0				
Total expected rebates (5-year)		\$0	"cumulative probability": probability of making all payments in								0.0	0.0		
Total expected missed Tr. payments (5-yr)		\$0	years 1 thru 2, 1 thru 3, 1 thru 4, or 1 thru 5								0.0	-38.8		
Plus one std. dev. (0.0)		\$0	Ave. size of deferrals (per deferral)			\$0			-34.5	-39.8				
Maximum amount missed		0												
Customer Line of Credit		Size = \$ -	Int % = 6.70%											
Kit Yr	Fiscal Yr	Proba-bilistic?	deferrals	prob.	cumulative deferrals	probab.	Sched Amort	Sched Interest	Cash for Risk	Acc to Cash Adj	Adjmt to Cash	STREAM Mean	Interest Credit	Ave End Bal
Year 0	FY 96	0	0	100.0%			290.0	407.1	39.85	0	0.0	-6.7	20.6	196.7
Year 1	FY 97	0	0	100.0%			233.1	426.6	199.8	0	-10.1	-18.5	24.4	380.7
Year 2	FY 98	0	0	100.0%			227.6	470.9	180.0	0	1.8	-19.7	32.3	560.7
Year 3	FY 99	0	0	100.0%	0	100.0%	163.6	473.5	85.1		25.1	-21.3	45.1	665.6
Year 4	FY 2000	1	0	100.0%	0	100.0%	164.1	489.6	116.9		-38.8	-19.3	46.0	762.3
Year 5	FY 2001	1	0	100.0%	0	100.0%	163.0	521.7	97.5		-74.3	-30.2	40.6	842.3
		5-yr Ave.	0	100.0%			190	476	136	0.00	-19.26	-21.8	37.7	
		5-yr Total	0				951	2,382	679		-96.30		188	

ToolKit v. 1.3, (1-12-2000)				Study title: Final Proposal								
Time of run: 1:35:15 PM on 3/3/00				5 -yr TPP = 88.0%								
Inputs		Riskmod file:	Z:\ToolKit\Riskmod 02-06\RM_MIX_merge_022400_Subscription2.xls									
		NORM file:	Z:\ToolKit\NORM 02-06\NORM for final 99RC\NORM_MixProb_022300_outputs_99RC_Final.xls									
		Prior TK file:	Z:\ToolKit\ToolKit 99-01\TK_021100_01Base_wSTREAM_JR.xls									
Start in TK Year	Stop in TK Year	Random St. Rsrv.	St. Rsrv. Balance	Access FCCF?	Random St. FCCF	St. FCCF Balance	Access 4h10C?	CRAC Lim/Total		Tx Surch. Lim/Total	Tx Surch. Threshold	
2	6	TRUE	\$400	FALSE	TRUE	\$162.5	FALSE	\$2,000		\$0	\$300	
Start TPP in TK Yr	"Small" Def. Size	FishRisk in RM?	No. of Iterations	CRAC 1st-Year %	Debug Level	<input checked="" type="checkbox"/> Make Reserves Graph <input type="checkbox"/> AutoPrint this page		<input type="checkbox"/> AutoPrint Reserves Graph <input type="checkbox"/> Use Adjustable CRAC				
2	\$20	TRUE	3900	50%	3							
ToolKit Year	Fiscal Year	Probabilistic?	Treasury Int. Rate	Amort Sched	Interest Sched	Interest Cr. Sched	CRAC Threshold	CRAC Lim/Year	Tx Surch. Lim/Year	Div. Dist. Threshold	Div. Dist. Lim/Year	
1	2001	TRUE	7.39%	163.0	521.7	65.4		50	0			
2	2002	TRUE	6.82%	107.4	315.5	61.0	300	125	0	0	2000	
3	2003	TRUE	6.78%	73.0	323.0	67.5	300	135	0	0	2000	
4	2004	TRUE	6.92%	93.0	334.4	75.0	500	150	0	0	2000	
5	2005	TRUE	6.90%	148.1	345.3	79.8	500	150	0	0	2000	
6	2006	TRUE	6.90%	128.5	348.3	84.7	500	175	0	0	2000	
ToolKit Year	Fiscal Year	Internal Cash Flow	Acc. To Cash Adj.	Other Cash Flow	Add'l Adjust. 1	Add'l Adjust. 2	Add'l PNRR 1	Add'l PNRR 2	(extra column)	Ave Rsrvs Strt Bal		
1	2001	190.6	0.0				0	0		842.3		
2	2002	21.6	0.0		0.0	0	0	0		FCCF Strt Bal		
3	2003	57.7	0.0		0.0	0	0	0		n / a		
4	2004	33.6	0.0		0.0	0	0	0				
5	2005	0.0	0.0		0.0	0	0	0				
6	2006	0.0	0.0		0.0	0	0	0				
Outputs												
ToolKit Year	Fiscal Year	No. of Deferrals	"Small" Deferrals	1-year Probab.	Cumul. Deferrals	Cumul. Probab.	Ave. Def. per Year	Ave. Def. per Year	Ave. End. Reserves	On-the-Fly Adjustmt.		
0.0	0.0	0.0	-	1.0	n / a	n / a	n / a	0.0	0.0			
2	2002	2	-	100%	2	100%	40.2	0.0	948.4	(1.0)		
3	2003	80	9	98%	80	98%	199.7	4.1	1044.2	(1.0)		
4	2004	178	11	95%	203	95%	294.3	13.4	1125.0	(1.0)		
5	2005	323	15	92%	377	90%	290.8	24.1	1190.3	(1.0)		
6	2006	311	11	92%	468	88%	297.5	23.7	1268.2	(1.0)		
5 -yr Total		894	46	n / a	n / a	n / a	n / a	65.4	n / a	(5.0)		
5 -yr Ave.		178.8	9	n / a	n / a	n / a	285.1	13.1	n / a	(1.0)		
ToolKit Year	Fiscal Year	CRAC Accesses	Av. CRAC per Acc.	Av. CRAC per Year	CRAC Ann. Lim Rchd	CRAC Tot. Lim Rchd	Tx Surch. Accesses	Av. Tx S. per Acc.	Av. Tx S. per Year	TxS Ann. Lim Rchd	TxS Total Lim Rchd	
0.0	0.0	0	n / a	0.0	0	0	n / a	n / a	n / a	n / a	n / a	
2	2002	0	n / a	0.0	0	0	n / a	n / a	n / a	n / a	n / a	
3	2003	24	57.8	0.4	2	0	n / a	n / a	n / a	n / a	n / a	
4	2004	528	108.1	14.6	265	0	n / a	n / a	n / a	n / a	n / a	
5	2005	739	113.6	21.5	397	0	n / a	n / a	n / a	n / a	n / a	
6	2006	836	154.6	33.1	707	0	n / a	n / a	n / a	n / a	n / a	
5 -yr Total		2127	n / a	69.7	1371	0	n / a	n / a	n / a	n / a	n / a	
5 -yr Ave.		425.4	127.7	13.9	274.2	n / a	n / a	n / a	n / a	n / a	n / a	
ToolKit Year	Fiscal Year	Riskmod Inputs	NORM Inputs	Risk IP Totals	No. of DivDists	Ave. DvD. per DvD.	Ave. DvD. per Year	Interest Credit	FCCF Credit	FCCF Use %	4h10C Credit	
0.0	0.0	0.0	0.0	0.0	n / a	n / a	n / a	0.0	n / a	n / a	n / a	
2	2002	96.2	-10.2	86.0	n / a	n / a	n / a	60.5	n / a	n / a	n / a	
3	2003	48.3	-12.0	36.3	n / a	n / a	n / a	66.0	n / a	n / a	n / a	
4	2004	45.5	-11.9	33.6	n / a	n / a	n / a	71.5	n / a	n / a	n / a	
5	2005	51.4	-11.9	39.4	n / a	n / a	n / a	74.3	n / a	n / a	n / a	
6	2006	44.5	-12.0	32.5	n / a	n / a	n / a	77.6	n / a	n / a	n / a	
5 -yr Total		285.8	-58.0	227.8	n / a	n / a	n / a	350.0	n / a	n / a	n / a	
5 -yr Ave.		57.2	-11.6	45.6	n / a	n / a	n / a	70.0	n / a	n / a	n / a	

BPA Year End Financial Reserves



- Financial reserves comprise cash in BPA Fund and cash equivalents in form of a deferred borrowing balance
- Reserves are BPA's principal means of mitigating risk

CHAPTER 13

FISH AND WILDLIFE RECOVERY COSTS

I. Introduction

This chapter describes the implementation of the Fish and Wildlife Funding Principles (Principles) in the repayment study and in expense components of revenue requirements.

For convenience, the Fish and Wildlife Funding Principles are included as Attachment 1. Attachments 3 and 4 summarize BPA's approach to implementing the Principles in this rate proposal.

II. Range and Categories of Fish and Wildlife Costs

The Principles include an estimated range of fish and wildlife costs for the 13 Alternatives of \$438 to \$721 million annually, FYs 2002-2006. The range in this rate proposal is estimated at \$430 to \$810 million per year. As explained in the testimony of DeWolf *et al.*, WP-02-E-BPA-13, and DeWolf *et al.*, WP-02-E-BPA-39, the change in the range is attributable to an updated market price forecast. BPA assumed the associated generation effect for each of the 13 Alternatives, and updated the 20 mill market price assumption used in the Principles to the same price forecasts used elsewhere in this rate proposal. The range includes four categories:

1. Fish and wildlife O&M costs of COE, Reclamation, and USFWS for the Lower Snake River Hatcheries, and the NWPPC;
2. Expenses for recovery of capital, in particular, depreciation and interest expenses for historical and projected fish and wildlife investment of COE, Reclamation, and BPA;
3. BPA fish and wildlife O&M;

4. Operational impacts, in particular, short-term replacement power purchases and an estimate of foregone revenues due to limitations on system operations for fish mitigation.

The last category -- operational impacts -- is addressed in the Risk Analysis Study and Documentation for Risk Analysis Study, WP-02-FS-BPA-03 and WP-02-FS-BPA-03A.

A work group set up under the auspices of the 3 Sovereigns (now the Columbia Basin Forum) identified a list of individual actions or measures for each of the 13 Fish and Wildlife Alternatives, and used its professional judgement to estimate the time required for implementation, including design, engineering and construction. These amounts, along with estimates of when the investments will actually be completed, were used to determine the amount and timing of COE's and Reclamation's plant-in-service totals by year, for each of the 13 Fish and Wildlife Alternatives.

Attachment 5 describes the 13 system configuration alternatives (13 Fish and Wildlife Alternatives) referred to in the Principles. The costs of the 13 Alternatives are reflected in revenue requirements by including a weighted average of capital investment projections in repayment studies, and by including a weighted average or average of O&M and capital recovery expense estimates in the revenue requirement. In addition, the costs of the 13 Alternatives are reflected in the PNRR component of revenue requirements. *See* testimony of Conger *et al.*, WP-02-E-BPA-15, and also Risk Analysis Study, WP-02-FS-BPA-03.

A. Treatment of Capital Investments – COE/Reclamation

COE and Reclamation capital recovery expenses (depreciation and interest) and the repayment schedule reflect an annual average of the projected plant-in-service levels of the 13 Fish and Wildlife Alternatives, including "adjusted" and "unadjusted" schedules for breach alternatives involving the Lower Snake River projects.

COE and Reclamation capital investments in fish and wildlife recovery are assumed to be financed by Congressional appropriations. Attachment 6 displays the estimated annual amounts of capital appropriations that would be required to complete each of the 13 Fish and Wildlife Alternatives on an unadjusted schedule basis.

Repayment Obligation Assumptions for Breach Alternatives

For Alternatives involving breach, cost estimates in the Alternatives assume that BPA recovers:

- debt service on existing repayment obligations;
- debt service on capital appropriations necessitated by breaching; and
- costs of replacement power purchases required because of lost generation capacity.

The estimates also assume that there is no change in the allocation of costs to project purposes (now 91% power at the four Lower Snake projects), even in the event of a breach. These assumptions are made for rate-setting purposes only. If dam breaching is chosen, Congress would presumably address BPA's repayment obligation and allocations to project purposes. Repayment obligations related to COE and Reclamation investments are not transferred to BPA until the investment is placed in service. Interest and depreciation expense related to COE and Reclamation investments do not begin until the investment is placed in service.

Avoided Capital Investment

In addition to estimating the amount of capital required for each of the 13 Alternatives, estimates of avoided capital investment were incorporated in project plant-in-service estimates. "Avoided capital investments" are estimates of capital investment that will not be done at the powerhouses if dams are breached. The adjustments are shown in Attachment 7.

Schedules

Five of the 13 Fish and Wildlife Alternatives involve breaching two or more COE dams on the Lower Snake River. Implementation of any of these five Alternatives would require authorization and a level of appropriations that are out of the ordinary. There is a significant possibility that "unadjusted" schedules for Alternatives involving dam breaching could not be met.

Consequently, a second "adjusted" schedule was developed for these five Alternatives based on standard appropriations process timing, resulting in two different schedules for each of the five Lower Snake River breaching Alternatives. The adjusted schedule assumes the same amount of time spent for design, engineering, and construction, but factors in additional time that will likely be necessary to accommodate the authorization and appropriations processes. The adjusted and unadjusted schedules do not affect BPA direct program costs.

Interest During Construction

Once the amount and timing of investment was estimated, interest during construction (IDC) was calculated and added to the plant-in-service totals. IDC was calculated on the basis of:

- an estimate of the 1-year U.S. Treasury rate specified in the BPA Appropriations Refinancing Act; and
- the balance of Construction Work-in-Progress (CWIP) based on the amount of funding required and the time needed to complete the project.

Attachment 7 displays the COE and Reclamation plant-in-service estimates by Alternative. These estimates include IDC and the impact of avoided capital investment.

Weighting of the Alternatives

After the COE's and Reclamation's plant-in-service was calculated for each Alternative, the 13 Alternatives were summed by year, aligned by adjusted and unadjusted schedules, and then averaged by year, as described below.

The Principles specify that Bonneville will assume that the 13 Fish and Wildlife Alternatives are equally likely to occur. Accordingly, costs within each Alternative are given a 1/13th weighting, or a 7.69% probability. The adjusted schedule includes all the same activities at each dam as the unadjusted schedule, but assumes the work could not begin as quickly and would come into service at a later date. Within the five Lower Snake River breaching Alternatives, the unadjusted schedule is given a 10% probability (7.69% X 10% = 0.769%), and the adjusted schedule is given a 90% probability (7.69% X 90% = 6.92%). The adjusted and unadjusted schedule weighting is not addressed in the Principles, but the 10 percent/90 percent weighting was used in the analyses done during the development of the Principles. *See* Revenue Requirement Study, WP-02-FS-BPA-02, Table 4.

Projected interest rates on COE/Reclamation appropriations can be found in Table 5A in Chapter 6 of this Volume. Due dates are assigned commensurate with the expected service lives of the investments (50 years). These investments are in the Repayment

Study as Columbia River Fish Mitigation/Bypass (CRFB). *See* Documentation for Revenue Requirement Study, WP-02-FS-BPA-02B, Volume 2.

A depreciation model calculates depreciation expense based on historical and forecasted plant amounts using the straight-line method. COE and Reclamation fish and wildlife assets are depreciated over their weighted average expected service life (50 years).

Treatment of Capital Investments - BPA

BPA capital investments in fish and wildlife recovery are assumed to be financed by bonds issued to the U.S. Treasury. Investments include investments in tributary passage, habitat construction, and supplementation construction. The final rate proposal reflects an average of \$35 million per year of this type of investment. *See* Revenue Requirement Study, WP-02-FS-BPA-02, Table 4.

The amortization expense related to BPA's fish and wildlife capital investments begins in the year that the capital expenditure is made. Such investments are amortized (written off) over a 15-year period. Calculation of depreciation and amortization (accounting) is discussed in general in Chapter 5 of this Volume.

These projected obligations are entered into the repayment study with periods to maturity of 15 years, and assigned the corresponding interest rate from the projected yield curve. Interest rates assigned to the bonds can be found in Table 5 in Chapter 6 of this Volume.

B. BPA Fish and Wildlife O&M Expenses

BPA fish and wildlife O&M expenses are the non-capital expenditures for fish and wildlife activities funded directly by BPA to implement measures of the NWPPC's Fish and Wildlife Program and the NMFS's and USFWS's Biological Opinions. As specified

in Principle #2, these O&M costs are assumed to have an equal probability of falling anywhere within the range of \$100 million to \$179 million. The point estimates included in the revenue requirement are the annual midpoints between the low and the high cost Alternatives. Attachment 9 includes the calculation of these midpoints.

C. Other Entities' O&M Expenses

This category includes the fish and wildlife portion of the NWPPC's budget and the fish and wildlife related O&M expenses of the COE, Reclamation and USFWS for the Lower Snake Hatcheries. Attachment 8 displays the projected expenses for these items. BPA has direct funding agreements with the COE and Reclamation for O&M expenses. O&M related to fish and wildlife is included in the total agreed amount, but is not specified in the agreements. An estimate of the level of the fish and wildlife-related O&M expense was derived from a weighted average of the 13 Fish and Wildlife Alternatives, which appears on page 2 of Attachment 9. The avoided O&M is an estimate of the reduction in O&M expense for the project that would occur if the dam is breached.

III. List of Attachments

1. Fish and Wildlife Funding Principles
2. Vice President Gore's Press Release
3. How BPA's Subscription Strategy Implements the Fish and Wildlife Funding Principles
4. Implementation of Fish and Wildlife Funding Principles in Initial Rate Proposal
5. System Configuration Alternatives

6. Average Annual Costs for 13 Fish and Wildlife Alternatives – Unadjusted Schedule
7. Capital Appropriations Required for each System Configuration Alternative
8. Plant-In-Service Weightings
9. Fish & Wildlife O&M (2 pages – Direct Program, COE Summary, Other Agencies on 1st page, and Detail on COE O&M on 2nd page)
10. FCRPS Allocation Joint Plant Costs to Power
11. Alice Rivlin Letter on Section 4(h)(10)(C) Credits

FISH AND WILDLIFE FUNDING PRINCIPLES
FOR BONNEVILLE POWER ADMINISTRATION RATES AND CONTRACTS

September 16, 1998

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Preamble

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The purpose of these principles is to conclude the fish and wildlife funding process in which Bonneville has been engaged with various interests in the Region, and provide a set of guidelines for structuring Bonneville's subscription and power rate processes. The principles are intended to "keep the options open" for future fish and wildlife decisions that are anticipated to be made in late 1999 on reconfiguration of the hydrosystem and in early 2000 on the Northwest Power Planning Council's Fish and Wildlife Program.

The agreement resulting from these principles is significantly different from the last Bonneville Fish and Wildlife Budget Memorandum of Agreement. Bonneville and the other participants are not establishing a budget for the 2002-2006 period, and Bonneville will not be picking a single number for the rate case.

These principles will ensure that Bonneville's rates and power contracts give a very high probability of meeting all post-2001 financial obligations, including the future fish and wildlife budget commitment, and that all these obligations can be met without creating a new contract and rate "cliff" at the end of the next 5-year rate period in 2006. Bonneville anticipates that after 1999 its fish and wildlife budget commitment for the post-2001 period will be set out in a budget agreement that, among other things, addresses accountability and provides that funds carried forward under the agreement will remain available for expenditure for the benefit of fish and wildlife.

Bonneville's contracts and rates historically have been set in a manner that assumes there is a low, but not zero probability that it will be unable to cover its costs. Continuing this approach, in such circumstances (e.g. low markets, low water, etc.) all of Bonneville's costs will be reviewed, recognizing that fish and wildlife obligations are one of its highest priorities. Guided by the principles below, Bonneville's goal is to reduce the chances of its being unable to cover its costs to an acceptably low level. Bonneville commits to use these principles and financial mechanisms to achieve this goal. These principles have been reviewed by the Office of Management and Budget and are consistent with the Administration's principles and priorities.

Principles

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Bonneville will proceed with its power rate case and contracts for its subscription products for the period 2002-2006 using the following principles:

1. Bonneville will meet all of its fish and wildlife obligations once they have been established, including its trust and treaty responsibilities.
2. Bonneville will take into account the full range of potential fish and wildlife costs.
 - Bonneville will use the full range of potential fish and wildlife costs and financial impacts during the 2002-2006 rate period (currently estimated at \$438 million to \$721 million) for planning purposes. This range is based upon the current calculation of the 5 year average financial impact on Bonneville of thirteen long-term alternatives being evaluated in the Region for configuration of the Federal Columbia River Power System and an estimated range of costs for implementing the Northwest Power Planning Council's Fish and Wildlife Program to protect, mitigate, and enhance fish and wildlife on the Columbia River and its tributaries.
 - In setting its rates Bonneville will incorporate the range of \$438 million to \$721 million in its revenue requirement using a method that calculates probabilities across a range of costs in the same manner as Bonneville treats other cost and revenue uncertainties in its rate setting. Because of the uncertainties of the decisions on fish and wildlife at this time, Bonneville will conduct an analysis that assumes that all 13 system configuration alternatives are equally likely to occur. For the direct program, Bonneville will assume that costs have an equal probability of falling anywhere within the current range of \$100M - \$179M.
3. Bonneville will demonstrate a high probability of Treasury payment in full and on time over the 5-year rate period.
 - A 100 percent probability of Treasury payment is not achievable, but BPA's new rates must be designed to maintain or improve Treasury payment probability, even in view of the range of fish costs.
 - Bonneville will demonstrate a probability of Treasury payment in full and on time over the 5-year rate period at least equal to the 80 percent level established in the last rate case and will seek to achieve an 88 percent level.
4. Given the range of potential fish and wildlife costs, Bonneville will design rates and contracts which will position Bonneville to achieve similarly high Treasury payment probability for the post-2006 period by building financial reserve levels and through other mechanisms.

5. Bonneville will minimize rate impacts on Pacific Northwest power and transmission customers.

- Bonneville's goal is to avoid a wholesale rate increase for requirements customers (including small farm and residential customers of investor owned utilities) by seeking an additional cost reduction of \$130 million in internally manageable costs that are not fish and wildlife costs.

6. Bonneville will adopt rates and contract strategies that are easy to implement and administer.

7. Bonneville will adopt an approach that is flexible in order to respond to a variety of different fish and wildlife cost scenarios.

- To create financial flexibility and to avoid another contract "cliff" in 2006, Bonneville's goal will be to have 35% to 45% of its total post-2001 power sales, including secondary sales, in contract terms of 3 years or less, in short-term surplus sales, and/or in cost-based indexed sales.
- All sales to requirements customers will be renewable at cost-based rates which will reflect changes in Bonneville's costs subsequent to those reflected in the initial subscription rate.

8. Bonneville will use a combination of the following mechanisms to achieve principles 1-7. The specific mix and design of these mechanisms will be determined in the rate case and subscription process, but the mix chosen will meet the above principles:

- Implementing prudent additional cost-reduction efforts to reduce internally manageable costs before exercising any contingent stranded cost recovery mechanism
- Use of Bonneville's existing authorities if needed to implement stranded costs recovery on the transmission system, while simultaneously seeking more robust authorities legislatively.
- Selling subscription products on staggered contract terms - some shorter than 5 years (see Principle 6) and some for longer than 5 years.
- A cost recovery adjustment clause (CRAC) in power contracts for subscription customers.
- An option fee from some customers in return for increased price predictability after the initial contract period.
- Cost-based indexed pricing for some of its products.
- Using reserve balances carried into the 2002-2006 rate period from the prior period.

Administration Commitments

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- The Administration will extend the availability of section 4(h)(10)(C) credits for Bonneville's costs related to its fish and wildlife programs for the period 2002-2006 on the same terms as established for the 1995-2001 period.
- The Administration will confirm continued access through 2006 to any funds remaining in the Fish Cost Contingency Fund on September 30, 2001 on the same terms as those established for the period 1995-2001.
- The Administration commits to support Bonneville in its Cost Review and revenue enhancement objectives.

THE WHITE HOUSE**Office of the Vice President**

For Immediate Release
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**VICE PRESIDENT GORE ANNOUNCES NEW PRINCIPLES TO MAINTAIN
LOW-COST POWER AND SALMON RESTORATION IN THE PACIFIC NORTHWEST**

Washington, DC – Vice President Gore announced today that a new set of principles will enable the Bonneville Power Administration (BPA) to continue providing low-cost power in the Pacific Northwest while committing necessary funding for salmon restoration in the Columbia River Basin.

The new BPA principles will be used by the agency as it sets new power rates and begins negotiating new power contracts in the coming months. The guidelines anticipate that between 2001 and 2006, BPA will commit from \$438 million to \$721 million a year to fish and wildlife efforts.

“These principles represent another major step by this Administration to ensure the health of both the economy and the environment of the Pacific Northwest,” said the Vice President, who met September 13 in Seattle with local business, environmental and government leaders to discuss coastal salmon issues.

“We are working closely with all parties to develop a long-term strategy to restore the region’s precious salmon runs,” the Vice President said. “Today’s announcement is an important interim step that protects the needs of power users while bolstering salmon restoration efforts. It also ensures that BPA will continue meeting its obligations to the U.S. Treasury.”

BPA, a federal agency under the U.S. Department of Energy, operates 29 hydroelectric dams in the Columbia River basin and markets wholesale electrical power to more than 130 utilities in Washington, Oregon, Idaho and Montana.

Federal decisions on potential changes in management of the Columbia and Snake River dams to aid threatened and endangered salmon are due in late 1999. BPA, however, must establish new rates and begin contracting for the sale of power before that date.

The BPA guidelines, building on an interagency funding agreement announced by the Vice President in October 1995, are designed to ensure that BPA’s new power contracts preserve all options for salmon restoration now under review. They were developed in consultation with the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, the U.S. Bureau of Reclamation, the Environmental Protection Agency, and the U.S. Army Corps of Engineers.

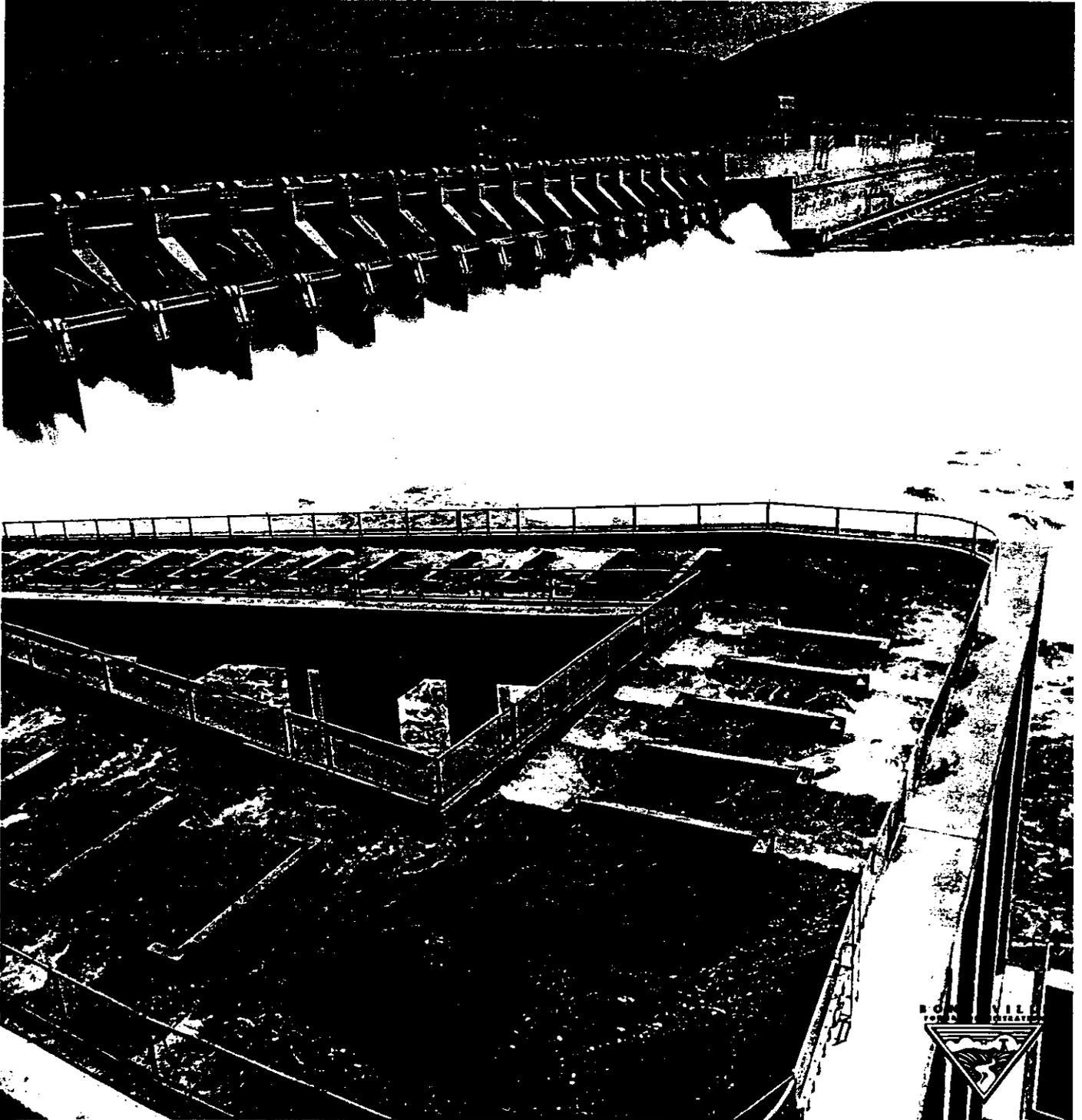
“The principles address the needs we heard during nine months of meetings with federal, state and tribal fish agencies and the public,” said BPA Administrator Judi Johansen. “Since we don’t yet know what the costs will be, we plan to take into account the full range of salmon recovery measures now under consideration.”

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At the same time, BPA aims to hold wholesale power rates stable and below prevailing market levels between 2001 and 2006. "Our plan includes new power marketing tools that we believe will give us the flexibility to meet fish obligations while keeping power rates stable," Johansen said.

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HOW BPA'S SUBSCRIPTION STRATEGY IMPLEMENTS THE FISH AND WILDLIFE FUNDING PRINCIPLES



This document explains how BPA intends to implement the fish and wildlife funding principles in Subscription. The complete principles are available in a separate document, "Fish and Wildlife Funding Principles for Bonneville Power Administration Rates and Contracts" dated September 16, 1998.

1. *Bonneville will meet all of its fish and wildlife obligations once they have been established, including its trust and treaty responsibilities:*

This principle addresses implementation once the obligations have been established. BPA is fully committed to meeting these principles in the subscription process and rate case.

2. *Bonneville will take into account the full range of potential fish and wildlife costs:*

BPA is continuing to use the full range of 13 system configuration alternatives with equal weighting of each. Costs for the alternatives continue to range between \$438 million and \$721 million annually for the 2002-2006 period. In its initial rate proposal scheduled to be released in April 1999, BPA will propose rates that will cover all of its costs including for fish and wildlife.

3. *Bonneville will demonstrate a high probability of Treasury payment in full and on time over the 5-year rate period:*

BPA believes it is on track to achieve an 88 percent Treasury Payment Probability for the 2002-2006 rate period. The final determination of this will be made in the upcoming rate case. By law, if BPA does not have enough revenues to meet all of its obligations, it defers its annual payments to the U.S. Treasury in favor of meeting its nonfederal obligations. These obligations include debt service on Supply System bonds and funding for the region's fish and wildlife programs other than amounts included in the repayments to the U.S. Treasury. Thus, the probability that BPA will make

its annual payment to the Treasury on time and in full is a crucial measure of BPA's financial health and of its ability to cover all of its costs.

4. *Given the range of potential fish and wildlife costs, Bonneville will design rates and contracts which will position Bonneville to achieve similarly high Treasury payment probability for the post-2006 period by building financial reserve levels and through other mechanisms:*

The Final Strategy addresses this topic in a number of ways. First, it exposes all Subscription customers to a cost recovery adjustment clause (CRAC) and, as a last resort, the wires charge cost recovery mechanism, to limit how far reserves could drop in bad years.

Second, it no longer includes the special nonfirm secondary product for the DSIs. This change will allow BPA to preserve more of its secondary energy for sales at market prices which, if as many believe, are higher than BPA's cost-based rates, will assist BPA in building its reserves.

Third, BPA will be including in its rates, flexibility so that BPA and a customer can negotiate indexed cost-based rates. This will allow BPA to negotiate prices indexed to market, but which BPA believes under expected market conditions would provide equivalent revenues to the fixed cost-based rate. If market prices end up higher than we had anticipated, this would help build BPA reserves to deal with cost uncertainties.

Fourth, in response to many comments from regional parties about the danger of reserves getting too high, BPA is including in the Strategy the concept of providing a dividend to customers and other regional beneficiaries. But the Strategy is clear that the dividend will not be provided unless the fish and wildlife funding uncertainties have been resolved and BPA is confident that the higher reserves are not necessary to deal with its cost recovery risks.

Finally, BPA is offering an incentive for customers to commit to purchasing cost-based power beyond 2006, in order to make BPA less reliant on high financial reserves as the only mechanism to assure recovery of its post-2006 costs.

5. *Bonneville will minimize rate impacts on Pacific Northwest power and transmission customers:*

BPA is committed to maintaining stable rates through 2006. We believe we can avoid rate increases through a creative and businesslike response to markets and additional aggressive cost reduction. BPA is committed to achieving the cost management targets of the Cost Review Board.

6. *Bonneville will adopt rates and contract strategies that are easy to implement and administer:*

BPA intends to bilaterally negotiate contracts with its customers guided by a framework of standard provisions and standard products. This is intended to assure that the contracts can be administered in an administratively efficient manner.

7. *Bonneville will adopt an approach that is flexible in order to respond to a variety of different fish and wildlife cost scenarios. To create financial flexibility and to avoid another contract "cliff" in 2006, Bonneville's goal will be to have 35% to 45% of its total post-2001 power sales, including secondary sales, in contract terms of 3 years or less, in short-term surplus sales, and/or in cost-based indexed sales:*

The product development in the subscription proposal is on track to meet this goal. We intend to publish a cost-based rate that is stair-stepped, i.e., the fixed rate for the first three years will very likely be lower than the last two years. This means that a customer who signs up for only three years will have the lower rate for three years and no

requirement to buy from BPA at the higher rate in the last two years. In addition, BPA will accept all retail access load lost risk for any customer signing up for only three years. Finally, we will be offering contracts and products that will encourage customers to diversify their purchases from BPA, e.g., some purchases for 3, some for 5 and some for 10 years. We believe this approach will help avoid another cliff at the end of FY2006 and will achieve the 35 percent to 45 percent goal.

8. *Bonneville will use a combination of the following mechanisms to achieve principles 1-7:*

- *Implementing prudent additional cost-reduction efforts to reduce internally manageable costs before exercising any contingent stranded cost recovery mechanism:* As stated earlier, the proposal assumes \$130 million in cost reductions, which BPA is actively working to capture.
- *Use of Bonneville's existing authorities if needed to implement stranded costs recovery on the transmission system, while simultaneously seeking more robust authorities legislatively:* The proposal assumes no use of transmission revenues to cover power costs, but does state that contracts will preserve Bonneville's existing rights to implement a wires charge.
- *Selling subscription products on staggered contract terms – some shorter than 5 years (see Principle 6) and some for longer than 5 years.* As stated above, this product has been developed and will be offered.
- *A cost recovery adjustment clause (CRAC) in power contracts for subscription customers:* The implementation of the cost recovery adjustment clause (CRAC) described in our Subscription Strategy assumes a \$100 million fund instead of the \$50 million CRAC that was used in developing the fish and wildlife funding principles. This, in addition

to our intent to contractually protect our option to implement a wires charge, if necessary, substantially strengthens protections for future fish and wildlife funding.

- *An option fee from some customers in return for increased price predictability after the initial contract period:* Public utility customer comments were adamantly opposed to the use of tiered rates and option fees. We foresaw protracted legal battles over both, and very limited revenue benefits if we prevailed. We also now see the greatest cost uncertainties existing in the post-2006 period. These facts have caused us to move toward an

incentive for customers to make 10-year commitments to buy power at cost, in place of option fees and tiered rates.

- *Cost-based indexed pricing for some of its products:* This product is included in the Subscription Strategy.
- *Using reserve balances carried into the 2002-2006 rate period from the prior period:* The levels of projected reserves at the end of 2001 are now projected at somewhat higher than the \$500 million estimated at the time the fish funding principles were developed.

Bonneville Power Administration

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**HOW BPA IS IMPLEMENTING THE FISH AND WILDLIFE FUNDING PRINCIPLES
FINAL RATE PROPOSAL**

Principle	Rate Case Implementation
<p>1. Bonneville will meet all of its fish and wildlife obligations once they have been established, including its trust and treaty responsibilities.</p>	<p>As a Federal agency, BPA shares the government’s trust responsibility to Indian Tribes. BPA fulfills its trust responsibility by working with the PNW region’s tribes in the manner prescribed by DOE and BPA policies and by fully complying with the laws governing its activities. BPA is implementing Principle No. 1 by ensuring that rates and risk mitigation measures are sufficient to recover the costs of future decisions on system reconfiguration and associated operations. This is accomplished by: incorporating the full range of 13 system reconfiguration alternatives in its revenue requirement, revenue forecast, and risk management strategy without prejudice of one alternative over another; by identifying and modeling all significant risks, and by adopting a very high standard for recovering costs on time and in full; and by designing risk mitigation measures that meet the standard.</p> <p>Payments to Treasury are the lowest priority in BPA’s priority of payments. For this reason, Treasury payment probability (TPP) is used to measure the agency’s ability to meet its payment obligations timely. BPA is setting rates to achieve an 88 percent probability that all Treasury payments will be made on time and in full over the 5-year rate period. To achieve this 88 percent standard, BPA is adopting a robust set of risk mitigation tools. The Cost Recovery Adjustment Clause (CRAC) is designed to adjust rates upwards if fish costs, market prices, hydro conditions or other risk factors cause net revenues to underrun the rate case plan significantly. In addition, other risk mitigation tools vary by the level of expenditures (4(h)(10)(C) credits) or hydro conditions (FCCF). Further, BPA is including planned net revenues for risk of approximately \$98 million/year which will help to build reserves. The proposed Targeted Adjustment Charge (TAC) for some new loads also provides some protection to reserve levels.</p> <p>Approximately 40 percent of fish and wildlife recovery costs take the form of payments to Treasury (debt service on capital investments). (The remaining 60 percent – power purchases and O&M – are higher priority expenses for which there is virtually no risk to funding availability.) Bonneville does <i>not fund</i> capital investments for fish and wildlife. Rather, BPA <i>repays</i> Treasury for monies that have already been appropriated and expended. A missed Treasury payment does not imply a shortfall in the <i>funding</i> of fish and wildlife programs or measures.</p>

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<p>2. Bonneville will take into account the full range of potential fish and wildlife costs.</p> <p>BPA will use the full range of potential fish and wildlife costs, based on current calculation of 5-year average financial impact on BPA of 13 long-term alternatives which were evaluated in the region for configuration of the FCRPS, and an estimated range of costs for implementing the NW Power Planning Council's Fish and Wildlife Program.</p> <p>BPA will incorporate the full range in its revenue requirement using a method that calculates probabilities across a range of costs in the same manner as Bonneville treats other cost and revenue uncertainties in its rate setting. Because of the uncertainties of the decisions on fish and wildlife at this time, Bonneville will assume that all 13 system configuration alternatives are equally likely to occur. For BPA “direct</p>	<p>Bonneville is incorporating the full range of 13 system reconfiguration alternatives (Alternatives) in its revenue requirement, revenue forecast, and risk management strategy. All 13 Alternatives are modeled to be equally likely to occur. (Five of the 13 Alternatives have two schedule variants – adjusted and unadjusted. The values for the adjusted schedule receive 90% of the weight for those Alternatives.)</p> <p>BPA develops its revenue requirement for the generation function in two phases. The first phase does not determine actual rate levels, and does not treat all 13 Alternatives probabilistically. The final rate setting takes place in the second phase in which there is no single number for fish and wildlife costs, but rather a probabilistic range.</p> <p>Phase 1 - Deterministic: A revenue requirement must show costs as point estimates, not as ranges. To fulfill the fish and wildlife funding principles, the revenue requirement incorporates point estimates representing an equal weighting of the 13 Alternatives for capital investment and other entities' O&M costs, as follows:</p> <ul style="list-style-type: none"> • For Corps and Reclamation BPA capital investments costs, expenses (depreciation and interest) and the repayment schedule reflect an annual average of the plant-in-service projections in the 13 alternatives; • For other entities' (Corps, Reclamation, USFWS Lower Snake River Compensation Plan, fish and wildlife portion of Regional Council) O&M, the revenue requirement is based on an equal weighting of the 13 alternatives; • As specified in the Principles, BPA Fish and Wildlife Program ("direct program") O&M costs are assumed to have an equal probability of falling anywhere within the current range of \$100 million to \$179 million. The point estimates included in the revenue requirement are the annual mid-points between the low and the high cost Alternatives; • For operations impacts, the short-term power purchases and foregone revenues reflect the 1998 Biological Opinion. <p>Phase 2 – Probabilistic: The following risk modeling then takes place:</p> <ul style="list-style-type: none"> • The Non-Operating Risk Model (NORM) models the probability that the capital investment and O&M costs of the 13 Alternatives, both higher and lower than the average, are equally likely to occur; • For BPA "direct program" O&M, a "uniform" distribution from \$100M to \$179 M (five year average) is

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<p>program” O&M, Bonneville will assume that these costs have an equal probability of falling anywhere within the range of \$100M to \$179M.</p>	<p>sampled repeatedly in NORM, again in conformance with the Principles;</p> <ul style="list-style-type: none"> • The RiskMod models the probability that the operational costs (including short-term power purchases) of the 13 Alternatives are equally likely. <p>To mitigate the risks, the ToolKit Model models key risk mitigation tools (Cost Recovery Adjustment Clause [CRAC], Fish Cost Contingency Fund [FCCF], etc.) to then produce an amount of planned net revenue for risk (PNRR). The PNRR is then added to the revenue requirement so that rates are set to generate the revenue needed to achieve the U.S. Treasury payment probability goal. The risk mitigation strategy is designed to achieve an 88% probability that all 5 years’ payments to Treasury are met in full and on time.</p>
<p>3. Bonneville will demonstrate a high probability of U.S. Treasury payment in full and on time over the 5-year rate period.</p> <p>Probability that all costs, including annual payments to Treasury, will be paid on time and in full in the FY 2002-2006 rate period will be at least 80%, and the goal is 88%.</p>	<p>The risk management strategy includes a number of risk mitigation tools: starting financial reserves, planned net revenues for risk, a CRAC that allows a temporary rise in rates as frequently as every year of the 5-year period, and continuation of FCCF credits. Taken together, the risk mitigation tools are being designed to achieve an 88 percent probability that all costs, including planned payments to Treasury, can be paid on time and in full over the FY 2002-2006 rate period.</p> <p>The risk analysis in this rate case is more sophisticated than that used in previous rate proposals: the STREAM model, which models operational risk has been replaced with the more sophisticated RiskMod model; and the Non-Operating Risk Model (NORM) has been introduced. NORM addresses the uncertainties in non-operational risks, such as forecasted expense levels, which have not previously been modeled.</p>
<p>4. Given the range of potential fish and wildlife costs, Bonneville will design rates and contracts which will position Bonneville to achieve similarly high U.S. Treasury payment probability for the post-2006 period by building financial</p>	<p>BPA’s rate proposal includes many features that help to assure that BPA will be in a position to achieve a TPP of 80 to 88% for the post-2006 period:</p> <ul style="list-style-type: none"> • BPA’s risk analysis for this rate case is the most comprehensive rate case risk analysis ever; • CRAC: BPA is proposing a Cost Recovery Adjustment Mechanism that can temporarily increase rates if Actual Accumulated Net Revenues (AANR) fall below thresholds published in the ROD (AANR tracks cash reserves closely); • Slice: BPA is making power available through Slice contracts – Slice customers will accept an unlimited

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<p>reserve levels and through other mechanisms .</p>	<p>proportional share of the generation system’s financial risks (e.g., low water, high power purchase expenses, or high fish & wildlife expenses);</p> <ul style="list-style-type: none"> • 3-year contracts: BPA is making some of its power available through 3-year contracts. If expenses risk during the time of those contracts, the power freed up at expiration can be re-sold at higher rates (market prices permitting); • Indexed sales: BPA will continue to offer rates that allow a customer to chose prices indexed to market. Under expected market conditions, this should provide equivalent revenues to the fixed • cost-based rate. If market prices are higher than anticipated, this would help build BPA reserves to deal with cost uncertainties, or could help offset the additional operational costs of expensive F&W programs; • BPA has explicitly modeled each of the 13 Fish & Wildlife Alternatives that emerged from the Three Sovereigns process, an intensive, regional, multi-party exploration of options for enhancing threatened and endangered fish stocks. <p>The results of these mechanisms are an unprecedentedly high TPP and unprecedentedly high projections of ending 2006 reserves.</p> <ul style="list-style-type: none"> • The expected value of ending 2006 reserves is nearly \$1 billion dollars. If the effect of the Dividend Distribution Clause (DDC) is ignored, the figure is about \$1.2 billion. This is overstated, because the DDC test will be invoked if reserves reach \$950 million. However, the DDC test (a five-year forward-looking TPP analysis) will ensure that no dividends will be distributed if they are needed to maintain an 88% TPP. For example, if reserves increase beyond the TPP test threshold but a regional fish plan is in place that requires very large expenditures by BPA in the next five years, the dividend may be reduced or eliminated. • The 88% TPP proposed in this rate case is the highest ever achieved by BPA, and it has been achieved with very conservative assumptions: <ol style="list-style-type: none"> 1. The rate proposal assumes that even if some Federal dams are breached, BPA’s repayment obligations for the breached dams would remain unchanged – but this may not be the case; 2. The rate proposal includes Fish & Wildlife Alternatives that require annual levels of Congressional appropriations far beyond any Congress has heretofore approved – this may not be politically feasible; 3. The rate proposal assumes that BPA would be required to provide essentially all of the funding for the region’s F&W plan – but this may not be the case; 4. The rate case assumes that Congress will not grant any additional flexibilities for BPA’s Treasury payment obligations even if Congress authorizes the most expensive F&W plan – but Congress might

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Principle	Rate Case Implementation
	permit additional flexibility.
<p>5. Bonneville will minimize rate impacts on Pacific Northwest power and transmission customers.</p>	<p>BPA's proposal avoids a wholesale rate increase for requirements customers. <i>See</i> Testimony of Burns and Elizalde, WP-02-E-BPA-08. Rate changes due to CRAC are capped. <i>See</i> Revenue Requirement Study Documentation, WP-02-FS-BPA-02A, Ch. 12. The rate proposal makes no assumption that a transmission surcharge mechanism is available to pay costs of the generation function. BPA's proposal includes other types of rate mitigation, including a load variance charge and a mitigating demand charge. <i>See</i> WPRDS, WP-02-FS-BPA-05.</p>
<p>6. Bonneville will adopt rates and contract strategies that are easy to implement and administer</p>	<p>BPA intends to bilaterally negotiate short, efficient contracts with its customers guided by a framework of standard provisions and standard products. This is intended to assure that the contracts can be administered efficiently.</p>
<p>7. Bonneville will adopt an approach that is flexible in order to respond to a variety of different fish and wildlife cost scenarios.</p> <p>To create financial flexibility and to avoid another contract "cliff" in FY 2006, Bonneville's goal will be to have 35% to 45% of its total post-2001 power sales, including secondary sales, in contract terms of 3 years or less, in short-term surplus sales, and/or in cost-based indexed sales.</p>	<p>Product development is on track to meet this goal. BPA's rate proposal includes a cost-based rate that is stair-stepped, i.e., the fixed rate for the first three years will be lower than the last two years. This means that a customer who signs up for only three years will have the lower rate for three years and no requirement to buy from BPA at the higher rate in the last two years. In addition, BPA will accept all retail access load loss risk for any customer signing up for only three years. We will be offering contracts and products that will encourage customers to diversify the length of their purchases from BPA, e.g., some purchases for 3, 5, and up to 10 years. Any purchases beyond 5 years will be at prices that will be set in a subsequent rate case. In addition, BPA will continue to participate in monthly and daily/hourly sales of secondary energy. Finally, BPA will be offering index-based rates that will vary with changes in market prices. This approach will help avoid another cliff at the end of FY 2006 and is designed to achieve the 35 percent to 45 percent goal. Since BPA established this goal in 1998, the gap between BPA's cost-based price and market prices for power has grown. This phenomenon, along with increased discussion of limiting customers to purchases as short as 5 years, has increased the interest by customers in signing 10-year contracts. This also will help BPA avoid a revenue cliff at the end of FY 2006.</p>

System Configuration Alternatives

Fish and Wildlife Future Costs Workgroup

April 24, 1998

The workgroup developed cost estimates for several system configuration alternatives because a single plan for post FY 2001 mainstem construction activities will not be available until late 1999. The workgroup used as a starting point the system configuration alternatives that are being evaluated in the Plan for Analyzing and Testing Hypotheses (PATH) process and Corps of Engineers' Lower Snake River Feasibility study. The PATH and Corps' system configuration alternatives included a description of some but not all of the mainstem capital investment activities that are likely to be implemented under each alternative. The workgroup had to develop a more detailed dam-by-dam description of all of the mainstem capital investment activities that would be implemented under each system configuration alternative in order to estimate future capital investment costs. Since there is no unified plan and a common set of objectives and strategies on how any of these alternatives would be implemented, we attempted to reach a consensus on which activities were a priority and would reasonably be expected to be implemented in the future using the existing plans as guidance.

The workgroup reached a consensus on many but not all of the capital investment activities for implementation under the various alternatives. In some cases there were different views on whether a particular capital investment was necessary and in other cases workgroup members supported different time schedules for implementation of an action. The workgroup identified a range of actions for those cases where there were different views and these are reflected in the 13 system configuration alternatives. Four alternatives (in-river migration high option with Clean Water Act, expanded transportation low option, transportation plus and Clean Water Act, and five dam drawdown (high option) plus Clean Water Act) were developed or modified recently by individual members of the workgroup and have not been reviewed in detail by the entire workgroup. The workgroup also identified capital investment actions for other federal dams not affected by or included in the mainstem system configuration alternatives such as adult passage around the Middle Fork Willamette River dams.

The following describes the capital investment actions for each system configuration alternative and the capital investment actions identified for the other dams.

1) *In-river migration (low option)*: In this alternative all salmon and steelhead would migrate in the river, and the Snake and Columbia River dams would be modified to maximize passage survival. The juvenile bypass system at Lower Granite Dam would be improved and surface bypass (at the spillway, at the powerhouse without dewatering, or both) would be implemented at Lower Granite and Little Goose dams if it is found to be effective. Surface bypass would not be expected to be installed at Lower Monumental and Ice Harbor dams between 2002-2007 because of concerns about timing but spillway modifications (weirs etc.) would be implemented. Various surface bypass/spillway prototype tests and/or modifications would be implemented at lower Columbia River dams including: 1) engineered spillway prototype tests at McNary Dam; 2) a surface bypass prototype test in one skeleton bay at John Day Dam; and 3) spillway modifications (weirs, etc.) at The Dalles Dam. Spill would be relied upon for juvenile passage at The Dalles Dam and no screen bypass system would be installed. The sluiceway outfall would be relocated at The Dalles Dam. Fish guidance into the refurbished Bonneville powerhouse bypass systems would be enhanced, either by installing extended turbine intake screens or adding a surface collection facility. Gas abatement measures (additional deflectors and/or raised tailraces) would be implemented at Chief Joseph and all mainstem Columbia and Snake River dams except The Dalles Dam. The estimated cost of these gas abatement measures would be treated as a placeholder with implementation depending on future work. At Grand Coulee Dam progress to reduce gas supersaturation would be made through feasibility studies, engineering, and design work but no modifications would be implemented at the dam. Additional gas abatement measures would be implemented at Grand Coulee and other dams after FY 2007 to make progress toward compliance with state water quality standards and the Clean Water Act.

A number of adult passage improvements would be made at the mainstem dams. Fish ladder water temperature control would be evaluated and a prototype test would be conducted at either Lower Granite, Lower Monumental, or Ice Harbor dams, and at John Day Dam. Fish ladder entrance modifications would occur at all four Snake River dams to improve adult passage. Emergency auxiliary water supplies would be increased at all four Snake River dams and at John Day, The Dalles, and Bonneville dams. Current auxiliary water supplies would be enhanced at Lower Granite, Little Goose, and Lower Monumental dams. Adult channel dewatering capability would be improved at The Dalles Dam. Studies evaluating the need for north and south fishway exit modifications and to determine whether measures were needed to restrain pollution in the north fishway would be conducted at John Day Dam. In addition, the adult fishway conduit would be reconfigured in the north shore fishway at John Day Dam. At Bonneville Dam measures would be taken to reduce adult fallback and to modify the Bonneville II sluiceway trashracks. Adult PIT tag detectors would be installed at Bonneville, McNary, Ice Harbor, and Lower Granite dams. A regional fish passage engineering research facility to improve the implementation efficiency and biological effectiveness of new or potential fish bypass structures also would be developed under this option. A generic study of attraction flow criteria and a study of lamprey passage would also be included under this option.

2) *In-river migration (high option) with Clean Water Act*: Under this option, no dams would be drawn down and the goal would be to maximize in-river passage of juvenile fish. This option starts with baseline measures under Option 1 (In-river low option) and adds measures to bring dams into compliance with Clean Water Act water quality standards for total dissolved gas and temperature by 2008. Under this option, all mainstem federal dams including Dworshak, Grand Coulee and Chief Joseph, would be configured with full gas abatement structures to achieve the 110% total dissolved gas standard under all but the highest flow conditions (10 year 7 day flood event). State-of-the-art structural measures for temperature control would be fully implemented at all federal dams to reduce mainstem temperatures, along with operational measures, to the 68 degrees F. standard. Modifications would include installation of surface bypass systems, installation of screened bypass systems without transportation, and significant structural improvements for adult passage. Under this option, funds would be available for passage and production compensation in the Willamette River system and production compensation in the Snake River Basin.

3) *Expanded transportation*: All salmon and steelhead that are collected are barged. There would be no surface collectors at Lower Granite, Little Goose, Lower Monumental, and McNary dams. Surface bypass spillway prototype tests would not be implemented at McNary Dam. The juvenile bypass system at Lower Granite Dam would be improved. No additional barges would be constructed beyond the new barges that will be used in 1998. The other juvenile and adult passage and gas abatement actions/studies included under option (1) would be implemented under this option.

4) *Expanded transportation (low option)*: All salmon and steelhead that are collected are barged. There would be no surface collectors at Lower Granite, Little Goose, Lower Monumental and McNary dams. Surface bypass spillway prototype tests would not be implemented at McNary Dam. The juvenile bypass system at Lower Granite Dam would be improved. Additional barges would be constructed for use in 2005. Capital investments in auxiliary water systems, fish ladder entrance modifications and gas abatement would not be pursued, except gas abatement activities would be implemented at Bonneville Dam. Extended screens at John Day and Bonneville dams would not be implemented. The downstream migrant facilities at Bonneville Dam would not be installed. Sluiceway relocation at The Dalles Dam would not be implemented.

5) *Transportation plus*: All salmon and steelhead that are collected would be barged. The juvenile bypass system would be improved at Lower Granite Dam. Surface collection technology would be added to Lower Granite, Little Goose, and McNary dams to increase the number of fish collected. No surface collection would be added at Lower Monumental Dam but extended length screens would be installed. Additional barges would be built to allow for direct loading at all collector projects and to reduce transport densities. All other juvenile and adult passage actions/studies and gas abatement measures included in option (1) would be implemented under this option.

6) Transportation plus and Clean Water Act: The goal of this option is to configure system dams to collect and barge transport as many juvenile fish as possible. This alternative begins with baseline measures under Option 5 (Transportation Plus) and adds 1) structural measures to bring all federal dams into compliance with temperature standards of the Clean Water Act by 2008 and 2) structural measures to bring all federal dams into compliance with dissolved gas standards of the Clean Water Act by 2008. These measures would be identical to those described under the In-river with Clean Water Act Option (Option 2). Additional adult passage measures, similar to those in Option 2, were also included to this alternative.

7) Two Snake River dams to natural river: The earthen embankments at the two upriver dams (Lower Granite and Little Goose) would be removed during a phased approach to drawing the lower Snake River dams down to a natural river condition. Later, after evaluating this first phase, the decision could be made to draw down Lower Monumental and Ice Harbor dams. All other juvenile and adult passage actions/studies and gas abatement measures included in option (1) would be implemented at the remaining dams.

8) Four Snake River dams to natural river: The earthen embankments at the four lower Snake River dams would be removed to create natural river conditions. Gas abatement measures described under option (1) would be implemented at McNary, John Day and Bonneville dams. All other juvenile and adult passage actions/studies described under option (1) would be implemented at McNary, John Day, The Dalles, and Bonneville dams.

9) Snake River and John Day dams to natural river: The five dams would be modified to provide for natural river conditions. Gas abatement would be limited to extending flow deflectors at Bonneville Dam, installation of flow deflectors at Chief Joseph Dam, and feasibility studies, engineering and design work at Grand Coulee Dam. All other juvenile and adult passage actions/studies described under option (1) would be implemented at McNary, The Dalles, and Bonneville dams.

10) John Day Dam to natural river: John Day Dam would be modified to create natural river conditions. It is assumed that fish transportation would no longer be available. The juvenile and adult passage actions/studies described in option (1) would be implemented at all dams except John Day Dam. Gas abatement measures at all dams except McNary Dam would be the same as option (1). No gas abatement measures would be implemented at McNary Dam because the river would be free flowing below the project.

11) John Day Dam to spillway crest: John Day Dam would be drawn down to spillway crest. Other dams would not be removed but would be modified to improve juvenile and adult passage. The juvenile and adult fish passage facilities at John Day Dam would have to be modified to provide for safe and effective passage with spillway crest drawdown. Assuming that there is no transportation, all of the juvenile and adult passage and gas abatement actions/studies identified under option (1) would be implemented at all of the dams except John Day Dam.

12) Snake River dams to natural river and John Day Dam to spillway crest: John Day Dam would be drawn down to spillway crest and the four Snake River dams would be modified to provide for natural river conditions. The juvenile and adult fish passage facilities at John day Dam would have to be modified to provide for safe and effective passage with spillway crest drawdown. Gas abatement measures described under option (1) would be included at Bonneville and Chief Joseph dams. All of the remaining juvenile and adult passage actions/studies identified under option (1) would be implemented at McNary, The Dalles, and Bonneville dams.

13) Snake River and John Day dams to natural river (high option) plus Clean Water Act: This option features: 1) natural river drawdowns of the four lower Snake River dams by 2008, 2) natural river or spillway crest drawdown of John Day Dam by 2008, and 3) advancement of spill, surface bypass, and adult passage measures at mainstem dams that would remain in the system. This option includes system configuration measures previously described in Option 2 (In-river with Clean Water Act) that would 1) achieve Clean Water Act standards for total dissolved gas and temperature by 2008 and, 2) implement adult passage measures that would reduce delay

and prespawning mortality. Production and passage measures for the Willamette River projects and the Snake River Basin as described in Option 2 would remain the same.

Other hydrosystem capital investments: The workgroup recommended implementation of the following projects at dams not on the mainstem Columbia and Snake Rivers:

- 1) Willamette River temperature control (Cougar and Blue River projects) - This project will enable selective withdrawal of water from various levels in the reservoirs which will result in more desirable temperatures in the McKenzie River to benefit fish resources.
- 2) Adult passage around Middle Fork Willamette dams (Dexter, Lookout Point, and Hills Creek projects) - This project would establish a self-sustaining run of spring chinook salmon in the upper reaches of the subbasin.
- 3) South Santiam fishery restoration - This project would restore fish passage above Green Peter Dam by using floating juvenile surface collectors in the upper arms of the reservoir and by correcting the water temperature in the adult fish ladder.

These measures are included in the cost estimates for all of the alternatives.

Average Annual Costs for 13 Fish and Wildlife Alternatives
Unadjusted Schedule
(\$ millions)

Alternatives	Other Entities' O&M	BPA Fish & Wildlife O&M*	Capital Recovery Expenses	Operational Impacts	Total
1. In-River Migration (low option)	49.3	178.8	141.6	180.0	549.7
2. In-River Migration (high option) with CWA	51.3	178.8	184.4	161.7	576.3
3. Expanded Transport	52.5	178.8	139.0	175.5	545.8
4. Expanded Transport (low option)	53.0	109.4	124.0	143.8	430.1
5. Transportation Plus	53.7	178.8	142.7	180.0	555.2
6. Transportation Plus and CWA	53.8	178.8	152.8	180.0	565.4
7. Two Snake River Dams to Natural River	45.2	178.8	152.2	267.9	644.1
8. Four Snake River Dams to Natural River	43.9	178.8	151.0	302.7	676.3
9. Snake River and JDA Dams to Natural River	43.9	178.8	145.4	305.5	673.5
10. John Day Dam to Natural River	51.2	178.8	136.0	180.0	546.0
11. John Day Dam to Spillway Crest	52.8	178.8	141.4	180.0	553.0
12. Snake River Dams to Natural River and JDA Dam to Spillway Crest	43.9	178.8	150.8	305.6	679.1
13. Snake River and JDA Dams to Natural River (high option) + CWA	39.3	178.8	165.4	397.4	780.9

* Point estimates for BPA fish and wildlife O&M in revenue requirements verage \$139.4 million/year as specified in Principle No. 2.

Capital Appropriations Required For 13 Alternative System Configurations

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	FY 02-06 Average	FY 07-11 Average	Total Approp.
Corps of Engineers Fish Recovery															
Unadjusted Schedule															
In-River Migration (low option)	119.1	149.4	196.0	162.7	94.0	70.6	59.0	27.2	16.8	0.0	0.0	0.0	134.5	20.6	894.9
In-River Migration (high option) with CWA **	214.9	289.8	452.1	747.4	1,232.4	883.5	516.2	353.0	0.0	0.0	0.0	0.0	721.0	173.8	4,689.3
Expanded Transport	127.0	125.1	140.3	134.6	86.6	65.5	59.0	27.2	16.8	0.0	0.0	0.0	110.4	20.6	782.2
Expanded Transport (low option)	63.2	67.4	83.6	95.3	60.9	32.5	16.8	0.0	0.0	0.0	0.0	0.0	67.9	3.4	419.6
Transportation Plus	127.0	149.4	198.9	179.8	102.6	70.6	59.0	27.2	16.8	0.0	0.0	0.0	140.3	20.6	931.3
Transportation Plus and CWA	132.5	173.6	338.0	676.0	1,153.3	855.6	532.0	363.9	16.8	0.0	0.0	0.0	639.3	182.5	4,241.7
Two Snake River Dams to Natural River	180.3	268.2	235.9	193.2	85.2	65.5	59.0	27.2	16.8	0.0	0.0	0.0	169.6	20.6	1,131.3
Four Snake River Dams to Natural River	176.7	258.0	305.8	346.5	171.9	122.4	59.0	27.2	16.8	0.0	0.0	0.0	240.9	20.6	1,484.3
Snake River and JDA Dams to Natural River	164.4	209.9	237.9	305.9	349.3	499.6	303.7	178.4	16.8	0.0	0.0	0.0	320.5	99.8	2,266.0
John Day Dam to Natural River	106.9	101.3	128.2	122.2	271.4	447.7	303.7	178.4	16.8	0.0	0.0	0.0	214.2	99.8	1,676.6
John Day Dam to Spillway Crest	119.1	149.4	192.5	155.6	89.4	181.7	176.5	269.1	328.3	256.6	132.2	68.1	153.7	232.5	2,118.4
Snake River Dams to Natural River and JDA Dam to Spillway Crest	176.7	258.0	302.3	339.3	167.3	233.5	176.5	269.1	328.3	256.6	132.2	68.1	260.1	232.5	2,707.8
Snake River and JDA Dams to Natural River (high option) plus CWA **	214.2	270.7	325.3	680.3	1,026.9	755.6	410.8	282.9	0.0	0.0	0.0	0.0	611.8	138.7	3,966.8
Adjusted Schedule															
Two Snake River Dams to Natural River - Adj. Sch.	103.8	110.6	134.4	214.1	257.4	176.3	127.5	27.2	16.8	0.0	0.0	0.0	178.6	34.3	1,168.2
Four Snake River Dams to Natural River - Adj. Sch.	100.2	100.4	123.2	200.2	236.4	255.4	310.2	144.8	89.5	0.0	0.0	0.0	183.1	108.9	1,560.4
Snake River and JDA Dams to Natural River - Adj. Sch.	87.9	52.4	55.4	159.6	413.9	632.6	554.9	296.0	89.5	0.0	0.0	0.0	262.8	188.1	2,342.1
Snake River Dams to Natural River and JDA to Spillway Crest - Adj. Sch.	100.2	100.4	119.7	193.1	231.8	366.5	427.6	386.7	400.9	256.6	132.2	68.1	202.3	320.8	2,783.9
Snake River and JDA Dams to Natural River (high option) plus CWA - Adj. Sch. **	137.7	113.2	142.7	534.0	1,089.1	886.1	662.0	400.5	75.4	2.9	0.0	0.0	553.0	228.2	4,043.5
Other Entities' Capital Appropriations															
Bureau Appropriations (based on In-River (hi & CWA))	5.5	3.4	173.9	179.1	393.6	304.0	163.1	154.6	0.0	0.0	0.0	0.0	210.8	63.5	1,377.1
LSRCP Appropriations (based on In-River (hi & CWA))	16.1	16.5	17.0	17.6	18.1	18.6	0.0	0.0	0.0	0.0	0.0	0.0	17.6	0.0	103.9

**PLANT-IN-SERVICE CALCULATIONS FOR THE 13 SYSTEM CONFIGURATION ALTERNATIVES
(INCLUDING ADJUSTED AND UNADJUSTED SCHEDULES FOR FIVE OF THE ALTERNATIVES)**

Plant-in-Service	Weighting												FYs 02-	FYs 02-
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	06 ave.	12 ave.
1 In-River Migration (low option)	7.69%	105	50	280	46	145	23	0	119	0	0	0	125	70
2 In-River Migration (high option) with CWA **	7.69%	168	67	299	542	274	23	3803	0	0	0	0	270	471
3 Expanded Transport	7.69%	118	50	201	46	94	23	0	119	0	0	0	102	59
4 Expanded Transport (low option)	7.69%	90	23	97	56	40	23	0	0	0	0	0	61	30
5 Transportation Plus	7.69%	118	50	263	83	145	23	0	119	0	0	0	132	73
6 Transportation Plus and CWA	7.69%	130	50	320	129	208	23	3687	119	0	0	0	168	424
7 Two Snake River Dams to Natural River														
Gross Fish Investment		77	47	619	39	94	23	0	119	0	0	0		
Avoided Capital Investment in Power Houses		0	0	0	0	0	0	-8	-8	-20	-17	-18		
Net Investment	0.77%	77	47	619	39	94	23	-8	111	-20	-17	-18	175	86
7a Two Snake River Dams to Natural River - Adj. Sch.														
Gross Fish Investment		77	47	195	39	94	486	0	119	0	0	0		
Avoided Capital Investment in Power Houses		0	0	0	0	0	0	-8	-8	-20	-17	-18		
Net Investment	6.92%	77	47	195	39	94	486	-8	111	-20	-17	-18	90	90
8 Four Snake River Dams to Natural River														
Gross Fish Investment		77	38	601	38	461	23	-1	119	0	0	0		
Avoided Capital Investment in Power Houses		-13	-9	-5	-5	-5	-2	-14	-16	-33	-25	-24		
Net Investment	0.77%	64	29	596	33	456	21	-15	103	-33	-25	-24	236	110
8a Four Snake River Dams to Natural River - Adj. Sch.														
Gross Fish Investment		77	38	177	38	56	486	-1	561	0	0	0		
Avoided Capital Investment in Power Houses		-13	-9	-5	-5	-5	-2	-14	-16	-33	-25	-24		
Net Investment	6.92%	64	29	172	33	51	484	-15	545	-33	-25	-24	70	117
9 Snake River and JDA Dams to Natural River														
Gross Fish Investment		72	38	480	29	444	23	825	119	0	0	0		
Avoided Capital Investment in Power Houses		-13	-9	-5	-5	-5	-2	-14	-16	-33	-25	-24		
Net Investment	0.77%	59	29	475	24	439	21	811	103	-33	-25	-24	205	171
9a Snake River and JDA Dams to Natural River - Adj. Sch.														
Gross Fish Investment		72	38	56	29	39	486	825	561	0	0	0		
Avoided Capital Investment in Power Houses		-13	-9	-5	-5	-5	-2	-14	-16	-33	-25	-24		
Net Investment	6.92%	59	29	51	24	34	484	811	545	-33	-25	-24	39	178
10 John Day Dam to Natural River	7.69%	100	50	159	36	128	23	827	119	0	0	0	95	131
11 John Day Dam to Spillway Crest	7.69%	105	50	280	46	128	23	0	119	0	0	1149	122	173
12 Snake Riv. Dams to Nat. River & JDA Dam to Spillway Crest														
Gross Fish Investment		77	38	601	38	444	23	-1	119	0	0	1150		
Avoided Capital Investment in Power Houses		-13	-9	-5	-5	-5	-2	-14	-16	-33	-25	-24		
Net Investment	0.77%	64	29	596	33	439	21	-15	103	-33	-25	1126	233	213
12a Snake Riv. Dams to Nat. River & JDA to Spillway Crest - Adj. Sch.														
Gross Fish Investment		77	38	177	38	39	486	-1	561	0	0	1150		
Avoided Capital Investment in Power Houses		-13	-9	-5	-5	-5	-2	-14	-16	-33	-25	-24		
Net Investment	6.92%	64	29	172	33	34	484	-15	545	-33	-25	1126	67	220
13 Snake Riv. & JDA Dams to Nat. Riv. (high option) + CWA **														
Gross Fish Investment		258	66	505	76	513	23	3061	0	0	0	0		
Avoided Capital Investment in Power Houses		-13	-9	-5	-5	-5	-2	-14	-16	-33	-25	-24		
Net Investment	0.77%	245	57	500	71	508	21	3047	-16	-33	-25	-24	276	396
13a Snake Riv. & JDA Dams to Nat. Riv. (high option) + CWA - Adj. Sch. **														
Gross Fish Investment		258	66	81	76	103	486	3061	442	5	0	0		
Avoided Capital Investment in Power Houses		-13	-9	-5	-5	-5	-2	-14	-16	-33	-25	-24		
Net Investment	6.92%	245	57	76	71	98	484	3047	426	-28	-25	-24	109	403
Weighted Plant in Service - reflected in rate case studies	100%	111	45	214	91	126	183	933	208	-11	-9	168	117	187

** this alternative involves increased flow augmentation. Cost for acquiring the additional water was not included in this analysis.

BPA FISH & WILDLIFE O&M

Principle #2 specifies that, for rate setting purposes, BPA F&W O&M is the mid-point between the low and high estimates.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Low level	100	100	100	100	100	103	106	109	113	116
High Level	163	176	180	186	189	195	200	206	213	219
Total	263	276	280	286	289	298	306	316	325	335
Annual Mid-point (Reflected in Revenue Requirements)	132	138	140	143	144	149	153	158	163	167
2002-2006 average					139					
2007-2011 average										158
2002-2011 average										149

OTHER ENTITIES' OPERATIONS AND MAINTENANCE EXPENSE

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	average 2002-2006
COE O&M¹	26	27	28	30	31	29	30	31	31	32	33	28
Other Agencies:												
<i>BOR (power share)</i>	4	5	3	3	3	3	3	3	3	3	3	4
<i>USFWS</i>	15	16	17	18	19	20	21	22	22	23	24	17
<i>NWPPC</i>	3	3	3	3	3	4	4	4	4	4	4	3
sub totals:	22	24	24	24	26	27	28	29	29	30	31	24
Total of Other Entities' O&M	48.1	51.0	51.5	54.3	56.6	56.1	57.3	59.1	60.9	62.7	64.2	24.0

¹Weighted average of 13 system configuration alternatives. See worksheet titled Corps of Engineers O&M expenses for the 13 System Configuration Alternatives.

**CORPS OF ENGINEERS OPERATIONS AND MAINTENANCE EXPENSES FOR THE 13 SYSTEM CONFIGURATION ALTERNATIVES
(INCLUDING ADJUSTED AND UNADJUSTED SCHEDULES FOR FIVE OF THE ALTERNATIVES)**

		Weighting	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Fys 02-06 Ave.
1	In-River Migration (low option)	7.69%	23	24	25	26	27	29	30	31	31	32	33	25
2	In-River Migration (high option) with CWA **	7.69%	23	25	26	31	32	33	35	36	37	38	39	27
3	Expanded Transport	7.69%	26	28	29	30	30	32	33	34	35	36	37	28
4	Expanded Transport (low option)	7.69%	26	27	28	31	32	34	35	36	37	38	39	29
5	Transportation Plus	7.69%	26	28	29	32	34	35	36	37	38	40	41	30
6	Transportation Plus and CWA	7.69%	26	28	29	32	34	35	36	37	38	40	41	30
7	Two Snake River Dams to Natural River													
	Gross O&M		26	27	27	32	33	34	36	37	38	39	40	29
	Avoided O&M		0	0	4	8	8	8	9	9	9	9	10	4
	Net	0.77%	26	27	23	24	25	26	27	28	29	29	30	25
7a	Two Snake River Dams to Natural River - Adj. Sch.													
	Gross O&M		26	27	28	31	32	30	36	37	38	39	40	29
	Avoided O&M		0	0	0	0	0	4	9	9	9	9	10	0
	Net	6.92%	26	27	28	31	32	26	27	28	29	29	30	29
8	Four Snake River Dams to Natural River													
	Gross O&M		26	27	27	32	35	42	43	44	46	47	48	30
	Avoided O&M		0	0	4	8	13	18	18	19	19	20	20	5
	Net	0.77%	26	27	23	24	23	24	25	26	26	27	28	25
8a	Four Snake River Dams to Natural River - Adj. Sch.													
	Gross O&M		26	27	28	31	32	28	33	39	46	47	48	29
	Avoided O&M		0	0	0	0	0	4	9	14	19	20	20	0
	Net	6.92%	26	27	28	31	32	24	25	26	26	27	28	29
9	Snake River and JDA Dams to Natural River													
	Gross O&M		26	27	27	32	35	42	47	55	57	59	61	30
	Avoided O&M		0	0	4	8	13	18	25	32	33	34	35	5
	Net	0.77%	26	27	23	24	23	24	23	23	24	25	26	25
9a	Snake River and JDA Dams to Natural River - Adj. Sch.													
	Gross O&M		26	27	28	31	32	28	37	51	57	59	61	29
	Avoided O&M		0	0	0	0	0	4	15	27	33	34	35	0
	Net	6.92%	26	27	28	31	32	24	23	23	24	25	26	29
10	John Day Dam to Natural River													
	Gross O&M		26	28	29	26	27	29	34	35	36	37	38	27
	Avoided O&M		0	0	0	0	0	0	6	7	7	7	7	0
	Net	7.69%	26	28	29	26	27	29	27	28	29	30	31	27
11	John Day Dam to Spillway Crest	7.69%	26	28	29	30	31	33	34	35	36	37	34	29
12	Snake River Dams to Natural River and JDA Dam to Spillway Crest													
	Gross O&M		26	27	27	32	35	42	43	44	46	47	48	30
	Avoided O&M		0	0	4	8	13	18	18	19	19	20	20	5
	Net	0.77%	26	27	23	24	23	24	25	26	26	27	28	25
12a	Snake River Dams to Natural River and JDA to Spillway Crest - Adj. Sch.													
	Gross O&M		26	27	28	31	32	28	33	39	46	47	48	29
	Avoided O&M		0	0	0	0	0	4	9	14	19	20	20	0
	Net	6.92%	26	27	28	31	32	24	25	26	26	27	28	29
13	Snake River and JDA Dams to Natural River (high option) + CWA **													
	Gross O&M		19	20	24	29	33	39	44	52	54	55	57	25
	Avoided O&M		0	0	4	8	13	18	25	32	33	34	35	5
	Net	0.77%	19	20	20	21	20	21	19	20	21	22	22	20
13a	Snake Riv. and JDA Dams to Nat. Riv. (high option) + CWA - Adj. Sch. **													
	Gross O&M		26	27	28	31	32	25	34	47	54	56	57	29
	Avoided O&M		0	0	0	0	0	4	15	27	33	34	35	0
	Net	6.92%	26	27	28	31	32	21	19	20	21	22	22	29
		100.00%												
COE O&M			26	27	28	30	31	29	30	31	31	32	33	28

FCRPS
Percent of Joint Costs Allocated to Power
Plant Costs

Project

BOR Projects

Boise	8.7
Columbia Basin	43.2
Hungry Horse	70.0
Minidoka - Palisades	1.4
Yakima	22.9

COE Projects

Albeni	97.5
Bonneville I	50.0
Bonneville II	100.0
Chief Joseph	100.0
Cougar	23.0
Detroit - Big Cliff	40.5
Dworshak	87.4
Green Peter - Foster	49.5
Hills Creek	24.5
Ice Harbor	78.6
John Day	77.5
Libby	78.0
Little Goose	93.3
Lookout Point - Dexter	31.0
Lost Creek	5.5
Lower Granite	98.4
Lower Monumental	94.1
McNary	81.3
The Dalles	74.0



THE DIRECTOR

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

October 24, 1995

Honorable Mark Hatfield
Chairman
Committee on Appropriations
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

As you know, the Administration has been working with members of the Northwest delegation, on a bipartisan basis, in an attempt to develop solutions to the difficult Bonneville Power Administration (BPA) and salmon-related issues facing the region. Over the past 18 months, we have taken action twice to utilize provisions of the Northwest Power Act to reduce the financial burden on BPA associated with efforts to restore salmon runs in the Columbia River Basin.

In more recent months, the Northwest delegation and others in the region, such as the Northwest Power Council, have cooperated to develop solutions that provide greater financial certainty to BPA and its customers relating to its fish and wildlife obligations, while simultaneously assuring that the 1995 Biological Opinion and the Northwest Power Council's Fish and Wildlife Program will be implemented in a way which helps assure recovery of the dwindling salmon runs. As a result of these discussions, the delegation and the Administration have developed a program which we believe will achieve these twin objectives.

The program consists of the following elements:

- The objective of the program is to provide a clear technical plan ("Plan") with a stable, multi-year budget for BPA to finance the implementation of its fish and wildlife obligations under the Northwest Power Act and the Endangered Species Act, based upon the draft plan of the BPA, the National Marine Fisheries Service (NMFS), and the Chairman

of the Northwest Power Planning Council (NPPC) dated September 19, 1995. The final Plan will be developed as an interagency agreement among the affected agencies: BPA, NMFS, Corps of Engineers, and the Department of the Interior, in consultation with the NPCC and the Tribes.

The Plan must meet several key requirements: it must be adequate to support activities required of BPA over the next six years under the 1995 Biological Opinion and the Northwest Power Council's Fish and Wildlife Program; it must include scientific monitoring and evaluation components; including using an independent scientific peer review panel; it must be adequate to accommodate any additional listings that may occur over the six year period of the agreement; and the Plan must hold BPA's costs to a level that is projected to average no more than \$435 million per year over the next six years, when assuming average water conditions and other circumstances (i.e., normal fluctuations in water runoff and flow levels and variations in business conditions will be accommodated by BPA, effectively adjusting this "cap" up or down in any given year).

The Administration will establish a BPA Fish Cost Contingency Fund consisting of credits to be used by BPA against fish and wildlife costs under certain conditions. The beginning credit balance in this fund shall be the amount of all reimbursements available, but not used, under provision (4)(h)(10)(c) of the Northwest Power Act of 1980 from the date of enactment to the present. This amount is estimated by BPA to be approximately \$325 million. BPA shall certify to the Secretary of the Treasury, with appropriate documentation, the total amount of all such reimbursement credits which are eligible during that period, but which have not been used.

Credits may be used from the BPA Fish Cost Contingency Fund, to the extent that credit balances are available, to defray fish and other water-related costs during the next six years (fiscal years 1996-2001) as follows: (a) for incremental costs resulting from court action which requires changes or additional activities that increase the net annual costs to BPA of the fish and wildlife Plan above the target spending level described earlier; and (b) for additional costs

stemming from adverse water conditions, specifically, for the amount by which additional power purchases and shortfalls in non-firm power revenues, combined, exceed a percentage of the sum of those two projected annual levels for 1996-2001 in BPA's final rate case. The specific threshold levels will be determined in a manner that will be predicted to make this funding available 25 to 30 percent of the time during the six year period of this agreement. Use of credits from the Fund shall be made upon application by BPA, with appropriate documentation, that these conditions have been met, certified by the Department of Energy and concurred in by the Department of Treasury and the Office of Management and Budget.

The program reiterates and extends the commitments articulated by the Administration in my testimony before the Senate Energy and Water Subcommittee on March 15, 1995. That commitment to provide cost-sharing assistance to the region for salmon recovery costs had two primary elements: (a) "Beginning in fiscal 1995, annual credits on a permanent basis under section 4(h)(10)(c) of the Northwest Power Act will be provided for BPA's direct Fish and Wildlife expenses. These credits will amount to about \$25 - \$35 million a year."; and (b) "In each of fiscal 1995 and 1996, section 4(h)(10)(c) credits for BPA's power-purchase costs related to its fish and wildlife programs will also be available. We expect this action to result in about \$30 million for each of these two years." As part of the program that we are willing to commit to today, we will extend the availability of section 4(h)(10)(c) credits for BPA's power-purchase costs related to its fish and wildlife programs to the other years of this agreement, fiscal years 1997-2001.

Finally, all of us involved, in Congress, in the Administration, and in the region, have sought means of achieving a greater degree of certainty and stability over the next six years of this program. As you and the Vice President indicated yesterday, in lieu of sufficiency language, the Administration has reached agreement with you and other key Members of Congress to provide a source of emergency fish recovery funding, in the event that BPA's \$435 million average annual budget is not adequate to meet the needs of the fish recovery program.

We look forward to working with you to ensure that a balanced approach to restore Northwest salmon runs is achieved.

Sincerely,

A handwritten signature in black ink, appearing to read "Alice M. Rivlin". The signature is fluid and cursive, with a large loop at the end.

Alice M. Rivlin
Director