



1 For this rate test period, the Current Revenue Test (discussed in Sections 1.2 and 4.2 of the  
2 Study) shows that projected revenues from current rates are insufficient to recover projected  
3 FCRPS cost requirements. In order to comply with statutory and regulatory requirements, BPA  
4 must therefore develop a plan to satisfy its cost recovery and repayment demonstration  
5 requirements. BPA's plan includes the following:

- 6 • substantial changes in rate design and product pricing (*see* testimony of Moorman and Evans,  
7 WP-96-E-BPA-09; Moorman, *et. al.*, WP-96-E-BPA-11; Moorman, *et. al.*,  
8 WP-96-E-BPA-65; the Transmission Rate Design Study, WP-96-FS-BPA-06; and the  
9 Wholesale Power Rate Development Study, WP-96-FS-BPA-05);
- 10 • very substantial cuts in costs, including certain financing savings (See Section 2.1 and  
11 Appendix A of this Study) ;
- 12 • implementation of a March 1995 fish cost-sharing arrangement with the Administration. *See*  
13 Chapter 5 of this Study; see also Documentation Volume 1 of the Study,  
14 WP-96-FS-BPA-02A, Chapter 14, and Section 2, Testimony of DeWolf, *et. al.*,  
15 WP-96-E-BPA-14. As a part of this arrangement, BPA will credit its annual cash transfers to  
16 Treasury under Section 4(h)(10)(C) of the Pacific Northwest Power Act and, to the extent  
17 necessary, reduce its accumulation of cash reserves, thereby reducing the probability of  
18 meeting its annual Treasury payments relative to the long-term probability standard that BPA  
19 adopted in its 1993 rate filing;
- 20 • implementation of a program related to BPA fish recovery costs, which is being developed by  
21 the affected agencies of the Administration and the Northwest Congressional delegation, with  
22 full approval of the Administration. The program is intended to stabilize funding requirements  
23 for fish and wildlife expenditures and investments, while assuring that 1995 Biological  
24 Opinion and Northwest Power Council's Fish and Wildlife Program initiatives will be fully  
25 funded. It includes establishment of a Fish Cost Contingency Fund (FCCF) consisting of  
26 section 4(h)(10)(C) credits associated with fish and wildlife expenditures that BPA has already

1 funded on behalf of non-power purposes of the dams. BPA is allowed access to these credits  
2 against its payments to Treasury under specific circumstances. See Chapter 2 of this Study,  
3 Testimony of DeWolf, *et. al.*, WP-96-E-BPA-69 and Chapter 14 of Volume 1, Revenue  
4 Requirement Study Documentation, WP-96-FS-BPA-02A.

5  
6 The sufficiency of BPA's plan to satisfy its cost recovery and repayment requirements is  
7 demonstrated by a Revised Revenue Test (discussed in Sections 1.2 and 4.3 of this Study), in  
8 which projected revenues from the proposed rates are shown to recover all costs, including timely  
9 repayment of the Federal investment.

1 I. INTRODUCTION

2  
3 1.1 Purpose of the Revenue Requirement Study

4  
5 The purpose of the Study is to determine the lowest possible level of revenues necessary to  
6 recover, in accordance with sound business principles, the costs associated with the acquisition,  
7 conservation, and transmission of electric power, including amortization of the Federal investment  
8 in the FCRPS (including irrigation assistance) over a reasonable period of years, and all other  
9 costs and expenses incurred by the Administrator pursuant to law. The FCRPS consists of the  
10 portion of the Corps of Engineers (COE) and Bureau of Reclamation (BOR) hydro projects  
11 allocated to power, as well as BPA transmission facilities. This Study is a key element in  
12 determining whether BPA is meeting its statutory obligation to set rates to recover FCRPS costs  
13 within a reasonable period of time. (See Section 5.1, Legal Requirements and Policies.)  
14

15 The revenue requirements determined in this Study are for the rate test period FYs 1997 - 2001.  
16 The cost evaluation period, as defined by the Federal Energy Regulatory Commission (FERC), is  
17 the period extending from the last year for which historical information is available, through the  
18 proposed rate test period. Therefore, the cost evaluation period for this rate filing includes  
19 FYs 1996 - 2001.  
20

21 1.2 Revenue Requirement Study Development

22  
23 To conform with the FERC Order dated January 27, 1984, *United States Department of Energy--*  
24 *Bonneville Power Administration*, 26 FERC 61,096 (1984), revenue requirements must be  
25 determined separately for the generation and transmission functions of the FCRPS for the rate test  
26 period. Each generation and transmission revenue requirement is developed using a cost

1 accounting analysis comprised of two parts. First, a power repayment study is prepared for each  
2 function to determine the projected annual interest expense and amortization payments necessary  
3 to repay the Federal investment within the allowable repayment period. Repayment studies are  
4 conducted for each year of the rate test period, and extend through the repayment period  
5 (50 years for generation, 45 years for transmission). Second, projections of annual operating  
6 expenses of the FCRPS and planned net revenues are functionalized to generation and  
7 transmission. Based on these two steps, revenue requirements are set to reflect the minimum  
8 revenues necessary to fulfill cost recovery requirements and to satisfy the Administrator's  
9 financial objectives.

#### 11 Current Revenue Test

12 To demonstrate the adequacy of current rates for the rate test period, BPA's projected revenues  
13 from current rates (i. e., rates in effect for FY 1996) must be sufficient to meet cost recovery  
14 requirements and BPA's financial objectives. Revenues are projected using current rates for the  
15 generation and transmission functions, and compared with the minimum cash requirements  
16 included in the generation and transmission revenue requirements to determine the sufficiency of  
17 current rates. This constitutes the current revenue test, which is contained in Section 4.2 of this  
18 Study. See Revenue Requirement Study Documentation Volume 1, Chapter 15, for the revenue  
19 forecasts used in the current revenue test.

21 Table 1 is a condensation of the current revenue test, showing generation and transmission cash  
22 flows determined for the FY 1997 - 2001 rate test period. See Tables 5A and B through  
23 9A and B. Projected Cash Requirements represent the minimum cash requirements necessary in  
24 the FY 1997 - 2001 rate period to fulfill BPA's cost recovery requirements and financial  
25 objectives in each function. In this table, revenues projected from current rates are compared to  
26 the functionalized cash requirements to determine the adequacy of existing rates.

1 TABLE 1: PROJECTED COST RECOVERY USING CURRENT RATES (\$000)  
 2

FISCAL YEAR		GENERATION (All Other)	TRANSMISSION (FCRTS)	TOTAL
<b>1997</b>	Projected Revenues From Current Rates	1,471,029	491,030	1,962,059
	Projected Cash Requirement	1,693,869	525,278	2,219,147
	<b>Surplus/(Deficit)</b>	<b>(222,840)</b>	<b>(34,248)</b>	<b>(257,088)</b>
<b>1998</b>	Projected Revenues From Current Rates	2,332,156	489,739	2,821,895
	Projected Cash Requirement	2,654,699	531,088	3,185,787
	<b>Surplus/(Deficit)</b>	<b>(322,543)</b>	<b>(41,349)</b>	<b>(363,892)</b>
<b>1999</b>	Projected Revenues From Current Rates	2,371,483	490,455	2,861,938
	Projected Cash Requirement	2,658,723	542,623	3,201,346
	<b>Surplus/(Deficit)</b>	<b>(287,240)</b>	<b>(52,168)</b>	<b>(339,408)</b>
<b>2000</b>	Projected Revenues From Current Rates	2,359,004	497,694	2,856,698
	Projected Cash Requirement	2,691,517	553,151	3,244,668
	<b>Surplus/(Deficit)</b>	<b>(332,513)</b>	<b>(55,457)</b>	<b>(387,970)</b>
<b>2001</b>	Projected Revenues From Current Rates	2,456,606	505,257	2,961,863
	Projected Cash Requirement	2,688,705	566,307	3,255,012
	<b>Surplus/(Deficit)</b>	<b>(232,099)</b>	<b>(61,050)</b>	<b>(293,149)</b>

3

1 Table 1, in combination with Tables 10 A-B through 14 A-B, and 15 A-C in Section 4.2,  
2 demonstrates that projected revenues at current rates are insufficient to recover costs in both  
3 functions. This projected under-recovery is due to a number of factors, including a de-regulated  
4 electricity market, low gas prices and a West Coast surplus of energy and capacity, all of which  
5 result in an extremely competitive wholesale electricity market which is experiencing the lowest  
6 prices in many years.

7  
8 If projected revenues at current rates are insufficient, Department of Energy (DOE) Revised  
9 Order RA 6120.2, "Power Marketing Administration Financial Reporting" (September 20, 1979),  
10 requires that a plan be developed to satisfy cost recovery and repayment requirements. The plan  
11 may include reductions in costs or an adjustment to rates. The revenue requirements in the  
12 current generation and transmission revenue tests already include very substantial cost reductions.  
13 Thus, rates are being adjusted to meet the RA 6120.2 requirements. As explained in the  
14 Wholesale Power Rates Development Study, WP-96-FS-BPA-05, an increase in power rates or  
15 an extension of current rates through the five-year period to address this under-recovery would be  
16 counter-productive, in that substantial load loss would occur. This would result in a very large  
17 decrease in BPA revenues, and virtually no chance that BPA would recover its costs and be able  
18 to repay Treasury each year during the rate period. Therefore, BPA's plan to satisfy cost  
19 recovery and repayment requirements entails a decrease in power rates and an increase in  
20 transmission rates.

### 21 22 Revised Revenue Test

23 The revised revenue test determines whether revenues projected from proposed rates will meet  
24 cost recovery requirements as well as the Administrator's financial objectives for the rate test  
25 period. The revised revenue test is contained in Section 4.3 of this Study. See the Revenue

1 Requirement Study Documentation, Volume 1, Chapter 15, for the revenue forecast used in the  
 2 revised revenue test.

3  
 4 Table 2 reflects a condensation of the Revised Revenue Test, and shows the projected net  
 5 revenues from BPA's proposed rates for the five-year rate period:

6  
 7 **TABLE 2: PROJECTED NET REVENUES FROM PROPOSED RATES (\$000)**

FISCAL YEAR		GENERATION (All Other)	TRANSMISSION (FCRTS)	TOTAL
<b>1997</b>	Projected Revenues From Proposed Rates	1,757,316	512,148	2,269,464
	Projected Cash Requirement	1,713,891	512,126	2,226,017
	<b>Surplus/(Deficit)</b>	<b>43,425</b>	<b>22</b>	<b>43,447</b>
<b>1998</b>	Projected Revenues From Proposed Rates	2,738,440	533,254	3,271,694
	Projected Cash Requirement	2,691,090	533,240	3,224,330
	<b>Surplus/(Deficit)</b>	<b>47,350</b>	<b>14</b>	<b>47,364</b>
<b>1999</b>	Projected Revenues From Proposed Rates	2,788,200	545,400	3,333,600
	Projected Cash Requirement	2,702,913	545,307	3,248,220
	<b>Surplus/(Deficit)</b>	<b>85,287</b>	<b>93</b>	<b>85,380</b>
<b>2000</b>	Projected Revenues From Proposed Rates	2,841,269	553,736	3,395,005
	Projected Cash Requirement	2,743,683	553,726	3,297,409
	<b>Surplus/(Deficit)</b>	<b>97,586</b>	<b>10</b>	<b>97,596</b>
<b>2001</b>	Projected Revenues From Proposed Rates	2,842,454	549,841	3,392,295
	Projected Cash Requirement	2,749,929	549,696	3,299,625
	<b>Surplus/(Deficit)</b>	<b>92,525</b>	<b>145</b>	<b>92,670</b>

9

1 Table 2, in conjunction with the repayment period demonstration (Tables 21A-21C) included in  
2 Section 4.3, demonstrates that under the proposed rates, revenues are sufficient to recover annual  
3 expenses and satisfy BPA's cash requirements. These cash flows, together with other factors,  
4 produce a substantially higher probability (80%) BPA will meet its Treasury payments on time  
5 and in full over the five-year rate test period than that produced by the current revenue test (zero  
6 percent). Under the cost-sharing arrangement with the Administration related to salmon  
7 restoration (*see* Section 2.1 of the Study), BPA may, to the extent necessary, reduce its  
8 accumulation of cash reserves and, therefore, its repayment probability. Although lower than the  
9 88 percent, five-year equivalent probability standard that BPA adopted as long-term policy in its  
10 1993 rate filing, the 80 percent probability is very high, particularly in light of the imperative that  
11 BPA meet the competition in an increasingly competitive marketplace. *See* Sections 2.1 and 2.2 of  
12 this Study.

13  
14 Annual revenues from proposed rates do not match annual revenue requirements, causing  
15 relatively small cash-flow imbalances among the years of the rate period. As in past rate filings,  
16 revised transmission repayment studies have been conducted to conform to the cash flows  
17 resulting from revenues from proposed rates. Transmission amortization payments have been re-  
18 shaped among rate period years, rescheduling some amortization from the first and fifth years into  
19 the second, third and fourth years.

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The following table shows the amortization payments planned for this rate period, reflecting the re-allocation among years.

Table 3  
 PLANNED AMORTIZATION PAYMENTS TO U.S. TREASURY  
 REVISED REPAYMENT STUDIES  
 (\$000)

Fiscal Year	Generation (All Other)	Transmission (FCRTS)	Total
1997	119,986 1/	110,293	230,279
1998	97,964	129,619	227,583
1999	27,655	135,937	163,592
2000	24,536	139,587	164,123
2001	39,438 2/	123,530	162,968
Total	309,579	638,966	948,545

10 1/ Includes Irrigation Assistance payment of \$25,143.

11 2/ Includes Irrigation Assistance payment of \$10,103.

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**Graphic Presentations**

The next four pages include the following illustrations.

Figure 1 depicts the revenue requirement development process.

Figures 2 and 3 display interest and amortization payments on the Federal investment over the repayment period resulting from the separate power repayment studies for FY 1997 - 2001.

Figure 2 reflects the transmission function of the FCRPS. Figure 3 reflects the generation function.

Figure 4 summarizes major components of revenue requirements for FY 1997 - 2001.

1                   2. SPENDING LEVEL DEVELOPMENT AND FINANCIAL POLICY

2  
3   2.1 Development Process for Spending Levels

4  
5   The process used to develop the spending levels in BPA’s revenue requirement stems from the  
6   Competitiveness Project (Project) which BPA initiated in 1993 in response to fundamental  
7   changes in the electric utility industry. The project was launched because of BPA’s growing  
8   realization that its ability to meet its statutory mandates was threatened by increasing costs,  
9   decreasing revenues, and the possibility of losing customers to the fast-emerging and low-cost  
10   competition. The goal of the Project was to “re-invent” the agency to make it more customer-  
11   focused, cost-conscious, and market-driven.

12  
13   As a part of the Project, BPA developed a Strategic Business Plan. The Business Plan is the  
14   result of a comprehensive effort to integrate long-term strategic plans of BPA’s operating units  
15   with a strategic financial plan, setting the overall strategic direction for both serving BPA’s  
16   customers and meeting BPA’s legal responsibilities. The Business Plan includes new statements  
17   of BPA’s mission, values, and strategic business objectives to guide BPA’s activities. Initial  
18   spending levels were determined as a part of the development of the Business Plan, and included  
19   expense and capital program spending levels for BPA programs and the power portion of the  
20   COE, BOR, and U. S. Fish and Wildlife Service (USFWS) programs, as well as for non-Federal  
21   programs such as the Washington Public Power Supply System (Supply System), for FYs 1994  
22   through 2002. These were developed taking into account the already mounting competitive  
23   pressures and BPA’s cost recovery imperatives.

24  
25   BPA published a draft Business Plan in June 1994 that included preliminary spending levels. BPA  
26   encouraged written comments on all aspects of the draft Business Plan. Meetings to take public

1 comment were held in Couer d'Alene, Seattle and Portland in August and September of 1994.  
2 BPA then set spending level parameters in September 1994, which included reductions from  
3 spending levels released in June 1994, based on public comments and BPA's then-current  
4 assessment of the increasingly competitive marketplace. BPA organizations then developed  
5 budgets based on the lower spending-level parameters.

6  
7 The Business Plan called for a fundamental change in BPA's approach to determining spending  
8 levels. Previously, BPA's practice was to develop budgets "from the bottom up," in that each  
9 organization would develop its own budget, then organizational budgets would be compiled into a  
10 total budget. Now the approach is strategic, where the factors driving spending levels are the  
11 market pressures and objectives affecting product design and pricing, and cost recovery and  
12 financial objective imperatives. This new "top down," strategic approach to budgeting calls for  
13 BPA senior managers to determine broad spending ceilings for each year taking into account the  
14 marketplace, statutory and contractual requirements, other program imperatives, and financial  
15 policy considerations. It also involves a new approach to capital budgeting, wherein capital  
16 decision-making is done by reviewing all projects through a portfolio approach using BPA-wide  
17 fiscal ranking criteria as well as separate non-fiscal criteria. This top-down budgeting process  
18 yields less detail than the method of developing organizational budgets, with the new approach  
19 detailed program and organization budgets are to be developed just prior to each operating year.

20  
21 On January 12, 1995, a public briefing was held to address Business Plan issues and to  
22 communicate proposed spending levels, including some additional cost reductions. At this  
23 meeting BPA executives provided clarification and encouraged discussion and input on the draft  
24 Business Plan and spending levels. In addition to providing additional data, BPA executives  
25 identified people at BPA who could provide further detail on the budget and answer follow-up  
26 questions on spending levels. Finally, attendees at the meeting were encouraged to contact BPA

1 Account Executives to obtain additional information on the Business Plan and spending levels,  
2 and to provide the Account Executives with any further comments and recommendations on the  
3 spending plans.

4  
5 After the January 12 briefing, BPA announced that it planned to reduce the expenses presented at  
6 the briefing by \$40 million. Subsequently, due to increasing market pressures, BPA determined  
7 that further cost reductions were essential. It was decided that expenses needed to be reduced  
8 from the January 12 estimates by an average of \$250 million per year for FYs 1996-2000.

9 Additionally, FY 2001 revenue requirements were to be reduced by \$350 million. BPA then  
10 engaged in its new, strategic, top-down budget process to establish spending ceilings for  
11 programs and organizations, and to begin specifying where the cuts would fall. Because the  
12 budget process was not completed before the 1996 Initial Rate Proposal, the Revenue  
13 Requirement Study for the Initial Proposal included the total expense cuts in each function as an  
14 “undistributed reduction,” that is, a lump-sum expense decrease in revenue requirements for each  
15 year. The undistributed reduction averaged \$298 million per year. In August 1995, BPA’s  
16 budget process identified major specific program and organizational cuts for all but \$13.7 million  
17 per year of the targeted average reduction of \$298 million per year. The August 1995 spending  
18 level process was the basis for the 1996 Supplemental Proposal (December 1995) revenue  
19 requirements, which included a \$13.7 million undistributed reduction in each year.

20  
21 In January 1996, despite the cost reductions previously identified, BPA forecasted a potential gap  
22 of up to \$200 million per year between projected revenues and the projected expenses included in  
23 the supplemental rate proposal. To ensure that rates would be competitive and costs would be  
24 recovered, BPA determined that it would have to reduce spending levels even further. In  
25 March 1996, BPA revised spending levels to further reduce operating program expenses by about  
26 \$70 million, capital outlays by about \$40 million, and overhead costs by about \$25 million from

1 supplemental proposal levels. Then, in April, BPA determined that it was prudent to reduce  
2 transmission system development and replacements investments by an additional \$75 million over  
3 the rate period, or an average of \$15 million in each year.

4  
5 In addition to reducing operating expenses significantly, BPA has taken other actions to close the  
6 potential gap. These result in financing savings, having the effect of lowering revenue  
7 requirements or increasing revenues. These actions include:

8  
9 (1) Accessing excess funds in the Supply System WNP-1 Construction Fund to cover a portion  
10 of net billing requirements in FY 1997. Funds in excess of expected site restoration costs will be  
11 used to cover a portion of net billing requirements that BPA would otherwise pay from current  
12 revenues. This use of the Construction Fund, which will be reflected in future WNP-1 Supply  
13 System budgets, is expected to produce \$72 million in savings in 1997 in the generation function.

14  
15 (2) Applying updated interest rate forecasts based on projections of a continuing decline in  
16 Treasury yield curves. (See Chapter 7, Revenue Requirement Study Documentation Volume 1,  
17 WP-96-FS-BPA-02A.) The new forecasts reduce projected interest expense on long-term BPA  
18 borrowing and appropriations repayment obligations in both functions, and on a small amount of  
19 non-Federal debt for WNP-2 capital additions. This is expected to produce total average savings  
20 of \$5-6 million in each year.

21  
22 (3) Consolidating Supply System Trustees. The Supply System has re-negotiated its trustee  
23 contracts for WNP-1, -2, and -3, and has consolidated the trustee functions under one trustee.  
24 Estimated savings are \$5 million over five years in generation.

1 (4) Reducing the amount of revenue financing for BPA transmission investments from \$150  
2 million to \$75 million for the rate period, an average of \$15 million per year, rather than the \$30  
3 million per year as proposed in the initial and supplemental rate proposals.  
4

#### 5 Fish Cost Stabilization and Funding Agreements

6 These revenue increases, cost reductions, and financing savings are essential ingredients in BPA's  
7 ability to meet its competitiveness challenge. In addition, BPA and the Administration have  
8 forged agreements that help stabilize fish recovery costs and funding. These agreements are  
9 embodied in testimony by Alice Rivlin, Director of the Office of Management and Budget, before  
10 the Subcommittee on energy and Water, Senate Appropriations Committee, on March 15, 1995,  
11 and in a letter dated October 24, 1995 from OMB Director Alice Rivlin to Senator Mark Hatfield,  
12 Chairman, Senate Committee on Appropriations. (See Chapter 5 of this Study, and Chapter 14,  
13 Revenue Requirement Study Documentation Volume 1, WP-96-FS-BPA-02A.) The intent of the  
14 agreements is to ensure stable funding for fish recovery measures, give some relief to BPA from  
15 costs that were rapidly escalating due to salmon recovery initiatives, including the 1995 Biological  
16 Opinion issued by the National Marine Fisheries Service (NMFS), as well as provide greater  
17 financial certainty to BPA and its customers. In addition to the BPA cost-cutting provision, these  
18 arrangements call for the following:  
19

- 20 • BPA is to reduce its costs by \$30-\$40 million per year. In fact, this cost reduction  
21 requirement is more than satisfied by the cost reductions BPA has made.
- 22 • Beginning in FY 1995 BPA will receive annual credits against BPA's cash transfers to  
23 Treasury under Section 4(h)(10)(C) of the Pacific Northwest Power Act on a permanent basis  
24 for BPA's fish and wildlife expenditures. See Revenue Requirement Study Documentation,  
25 Volume 1, Section 5.2.1. BPA is also allowed credits for purchase power costs related to its  
26 fish and wildlife programs through FY 2001. These 4(h)(10)(C) credits are estimated to total

1 about \$60 million annually in this rate period. *See* Revenue Requirement Study  
2 Documentation, Volume 1, Chapter 14; DeWolf, *et al.*, WP-96-E-BPA-14, at 3, 4, and  
3 DeWolf, *et al.*, WP-96-E-BPA-69, at 2-7.

- 4 • BPA may, to the extent necessary, reduce its accumulation of cash reserves, which reduce its  
5 probability of meeting annual payments to Treasury relative to the long-term probability  
6 standard that BPA adopted in the 1993 rate case. *See* DeWolf, *et al.*, WP-96-E-BPA-14, at  
7 3, 4, and DeWolf, *et al.*, WP-96-E-BPA-69, at 2-7.
- 8 • an interagency agreement will be finalized to provide a clear, technical plan for fish recovery,  
9 including a stable, multi-year budget for BPA that supports activities required of BPA for the  
10 next six years, and holds BPA's costs for fish recovery at an average of \$435 million per year  
11 during that time (this has been clarified to mean an average of \$252 million per year for direct  
12 fish and wildlife expenditures, plus whatever it costs to implement the hydro operations called  
13 for under the 1995 Biological Opinion, expected to range between \$90 million and \$280  
14 million per year, depending on water supplies and power market conditions) over the next six  
15 years. The interagency agreement has not yet been finalized, but this Final Proposal reflects  
16 the projected results; and
- 17 • a BPA Fish Cost Contingency Fund (FCCF) is to be established, consisting of unused credits  
18 available to BPA under section 4(h)(10)(C) for fish and wildlife expenditures that BPA has  
19 already made on behalf of non-power purposes of the dams. The agreement allows BPA to  
20 access the FCCF under specific conditions, for use against its cash transfers to the  
21 U.S. Treasury. BPA estimates the amount of the FCCF to be \$325 million, and projects on a  
22 probabilistic basis credits received from the FCCF of about \$23.5 million per year on average,  
23 for a total of \$118 million during the 5-year rate period. As with prospective 4(h)(10)(C)  
24 credits, these amounts are treated as an increase in power revenues in BPA's final proposal.

1 See Chapters 13 and 14, Revenue Requirement Study Documentation Volume 1,  
2 WP-96-FS-BPA-02A, Section 5.2.8 of the Wholesale Power Rates Development Study,  
3 WP-96-FS-BPA-05, Testimony of DeWolf, *et al.*, WP-96-E-BPA-69, and Testimony of Arnold,  
4 *et al.*, WP-96-E-BPA-71.

5  
6 The net effect of these cost cutting, financing savings, and arrangements with the Administration  
7 is a reduction in revenue requirements of an average of \$54 million per year in total from levels in  
8 the supplemental proposal. The changes in expense levels are shown as an attachment to a letter  
9 from the Administrator dated June 3, 1996, in Appendix A to this Study.

10  
11 The Energy and Water Development Appropriation Act of 1996, passed in November 1995,  
12 directs BPA to pay exchange benefits of \$145 million in FY 1997, which is an expense increase of  
13 \$78.6 million over what would have resulted from the final proposal. See Section 4.3 of this  
14 Study. It also prescribes the manner in which the payment is to be distributed among utilities  
15 participating in the residential exchange program. BPA has conducted a separate interpretative  
16 rulemaking process to determine the proper method for allocating residential exchange benefits  
17 for FY 1997 in accordance with the Appropriation Act of 1996. This Act also allows BPA to  
18 market surplus Federal power abandoned by regional customers or generated during hydrosystem  
19 operations, or purchased, primarily for the benefit of fish and wildlife without regional call back  
20 provisions and without the prohibition on resale of Federal power by private entities not in the  
21 business of selling power in the retail market. Sales or exchanges of surplus power which are  
22 surplus for reasons other than the above reasons will continue to be subject to the regional call  
23 provisions and the prohibition on resale of Federal power. In addition, the legislation authorizes  
24 the Corps of Engineers to procure goods through BPA using the authorities available to the  
25 Administrator, and provides the Administrator with the authority to use targeted voluntary  
26 separation incentives to reduce BPA staffing levels.

1  
2 In October 1994, Congress passed legislation that enables implementation of a Settlement  
3 Agreement between the Colville Tribes and the Federal government. *See* Chapter 5 of this Study.  
4 The agreement calls for BPA to make annual payments to the Colville Tribes in settlement of a  
5 lawsuit over the Colvilles' claim for a portion of revenues from Grand Coulee Dam. The annual  
6 payments begin at \$15.25 million in 1996. Future payments are tied to BPA's average prices and  
7 annual Grand Coulee generation.

## 8 9 2.2 Financial Risk Mitigation and Capital Funding Policies

10  
11 Prior to the 1993 rate case, BPA worked with its customers and other interested parties to  
12 develop BPA's 10-Year Financial Plan (Plan). The purposes of the Plan were to identify long-  
13 term financial issues facing BPA and to develop strategies that address the issues and enhance  
14 BPA's long-term rate predictability and competitiveness. In the *Administrator's Final Record of*  
15 *Decision for the 1993 Rate Case*, WP-93-A-02, BPA stated:

16  
17 "Final determination of the financial risk mitigation and capital funding policies  
18 included in the Financial Plan in this rate case will establish precedent that BPA  
19 shall adhere to in future rate cases, absent a determination by the Administrator  
20 that the policies should be modified to meet BPA's changing operating  
21 environment."

### 22 23 Risk Mitigation

24 The long-term policy BPA adopted in its 1993 Final Rate Proposal calls for rates to be set to  
25 maintain financial reserves sufficient to achieve a 95 percent probability of meeting Treasury  
26 payments in full and on time for each 2-year rate period. *See* WP-93-A-02 at page 72. This

1 95 percent, 2-year standard is equivalent to an 88 percent probability of making all five Treasury  
2 payments in a 5-year period ( $.975^5 = .88$ ,  $.975^2 = .95$ ). See Arnold, *et al.*, WP-96-E-BPA-15,  
3 at 3, and Revenue Requirement Study Documentation Volume 1, WP-96-FS-BPA-02A,  
4 Chapter 13.

5  
6 The 1993 Final Rate Proposal provided for long-term implementation of an Interim Rate  
7 Adjustment (IRA) and for program cost deferrals in the event that financial reserves at the end of  
8 the first year of a 2-year rate period were projected to fall below a specified trigger point. Since  
9 the completion of the 1993 rate case, the market for electric power has changed dramatically. See  
10 Testimony of Moorman and Evans, WP-96-E-BPA-09, and Norman and Oliver,  
11 WP-96-E-BPA-10. As the marketplace has become increasingly competitive, BPA has sought to  
12 minimize costs (See Section 2.1 of this Study; see also Testimony of Moorman and Evans,  
13 WP-96-E-BPA-09), reduce rates (see Testimony of Moorman and Evans, WP-96-E-BPA-09, and  
14 Moorman, Buchanan and Kitchen, WP-96-E-BPA-11) and otherwise meet the competition by  
15 offering re-designed rate products including five-year rate products that ensure rate stability and  
16 predictability. *Id.* BPA has determined that an Interim Rate Adjustment is not consistent with its  
17 goal of setting rates at competitive price levels that are stable and predictable over a multi-year  
18 (five-year) period. Therefore the 1996 Final Proposal does not include an Interim Rate  
19 Adjustment. Similarly, a program cost deferral has not been included as a potential cost  
20 adjustment because BPA has already made very substantial cost cuts for the rate period and, in  
21 the judgment of the Administrator, additional cost cuts or deferrals for the rate period cannot be  
22 achieved with certainty.

23  
24 The Tool Kit Model is used to determine the probability of making all of the scheduled Treasury  
25 payments during the five-year rate period. The model indicates that \$101 million per year of cash  
26 flows would be needed to achieve an 88% Treasury payment probability (as noted, an 88%

1 probability for a five-year rate period is judged to be equivalent to the 95% probability standard  
2 for a two year rate period). This \$101 million amount is not shown to be recovered in either the  
3 current or revised revenue tests. Revenue at current rates (*see* current revenue test Tables 10A  
4 and 10B through 14A and 14B) would yield virtually no chance that BPA would meet its  
5 Treasury payments in full and on time over the five-year rate period.

6  
7 The Tool Kit Model determined that the cash flows set forth in the Revised Revenue Test  
8 (averaging \$73 million per year) would result in an 80% Treasury payment probability. This  
9 lower probability is consistent with competitive pressures and the sustainable revenues analysis,  
10 and with the cost-sharing arrangement with the Administration that acknowledges that BPA may  
11 need to reduce its accumulation of financial reserves.

12  
13 The Tool Kit also models the BPA Fish Cost Contingency Fund (FCCF) which makes 4(h)(10)(C)  
14 credits from prior years available to BPA in years when adverse water conditions cause shortfalls  
15 in nonfirm power revenues and additions to power purchases above a threshold value. Such  
16 credits will be taken against BPA's annual cash transfers to Treasury. *See* Chapter 13, Revenue  
17 Requirement Study Documentation, Volume 1, WP-96-FS-BPA-02A for further discussion of the  
18 Tool Kit Model and the BPA Fish Cost Contingency Fund.

### 19 20 Capital Funding

21 FCRPS capital investments are intended to address the region's demand for power, provide  
22 responsive transmission services, and help in restoring and enhancing fish runs. They include  
23 BPA transmission, energy conservation, and fish and wildlife capital programs, COE and BOR  
24 capital investments, and third party resource investments for which debt is backed by BPA  
25 (capitalized contracts). Current FCRPS capital investment outlay projections are \$2.360 billion

1 for the FY 1997-2001 rate period and \$4.797 billion for the FY 1993 - FY 2001 period (*see*  
2 Table 4 following).

### 3 4 Application of Capital Funding Policy

5 This Study reflects the capital funding policies in the 10-Year Financial Plan as refined in BPA's  
6 Strategic Business Plan. Four sources of capital are projected to fund projected FCRPS capital  
7 investments during the rate period:

- 8
- 9 1. Bonds issued by BPA to the U.S. Treasury;
- 10 2. Federal appropriations;
- 11 3. Non-Federal (third party) debt, both tax-exempt and taxable; and
- 12 4. Current revenues.
- 13

### 14 Bonds Issued to the Treasury

15 This source of capital will be used to finance BPA capital program investments and COE and  
16 BOR investments that BPA agrees to direct-fund under P.L. 102-486 during the FYs 1997-2001  
17 rate period. For the five years, this includes a projected \$1,363 million in investments, consisting  
18 of transmission programs (\$854 million), fish and wildlife improvement (\$135 million), and  
19 conservation and generating resource investments (\$374 million).

20

21 Interest rates on bonds issued by BPA to the Treasury are set at market interest rates comparable  
22 to securities issued by U.S. Government corporations. Interest rates on bonds projected to be  
23 issued are included in Chapter 7 of the Revenue Requirement Documentation, Volume 1,  
24 WP-96-FS-BPA-02A.

1 Reliance on this source of capital is not risk-free. Because of growing Federal deficit pressures,  
2 there have been repeated efforts during the Federal budget process to reduce BPA's reliance on  
3 debt, in particular, BPA's annual use of its authority to borrow from the U.S. Treasury. A recent  
4 General Accounting Office (GAO) report criticized Bonneville's "policy of using debt financing  
5 for substantially all its capital programs" as "risky and leaving little flexibility for meeting future  
6 challenges." GAO pointed out that "Bonneville is more heavily leveraged than other utilities" and  
7 "that over fifty percent of BPA's revenues went toward debt servicing costs in 1993." House and  
8 Senate Appropriations Committees have indicated that they expect that a portion of BPA's capital  
9 investment will be funded from revenues and that Bonneville seek third party financing of capital  
10 projects to the extent feasible.

11  
12 BPA's authority to borrow from the U. S. Treasury is legislatively capped in total at \$3.75 billion  
13 of bonds outstanding. Of this total, \$2.50 billion is for transmission and other Federal capital  
14 investment purposes, including fish and wildlife and conservation and renewable resource  
15 purposes (cap 1). The remaining portion, \$1.25 billion, is reserved for conservation and  
16 renewable resource purposes (cap 2).

17  
18 At the end of FY 1995, \$2.74 billion of the total \$3.75 billion cap had been obligated. Legislation  
19 would be required to increase BPA's authority to borrow, whether the increase takes the form of  
20 authority to borrow from Treasury or authority to borrow in the open market. Under current  
21 "scoring" law and practice, Congress and the Executive Branch would treat such legislation as  
22 adding to the Federal deficit. Deficit reduction pressures at the national level are currently such  
23 that a legislative proposal would likely fail if it were advanced in the near term. Indeed,  
24 principally for this reason, the draft Strategic Business Plan stated that "asking for a legislative  
25 increase in borrowing authority to cover post-2001 capital needs will be considered as a last  
26 resort." Thus, BPA is taking measures which will extend the availability of current authority to

1 borrow to at least FY 2001. These measures include: substantial cuts in BPA's capital program  
2 investments; use of third party sources of capital to the extent feasible; a shift of bonds and  
3 amortization from cap 1 to cap 2 if allowable and prudent; and use of \$15 million per year in  
4 current revenues to fund BPA capital investments. Borrowing assumptions in repayment studies  
5 and cash flows in revenue requirements reflect use of current revenues for BPA transmission  
6 investments. *See* Testimony of DeWolf, *et. al.*, WP-96-E-BPA-69. The borrowing assumptions  
7 in repayment studies do not require or assume that BPA's existing borrowing authority will be  
8 increased.

#### 9 10 11 Federal Appropriations

12 This Study reflects continued reliance on this funding source to finance all COE and BOR capital  
13 investments of the FCRPS that are not direct-funded by BPA. Such investments are projected to  
14 total \$834 million during the rate period, including \$538 million in COE investments to meet  
15 requirements of the NMFS 1995 Biological Opinion on the operation of the FCRPS and Juvenile  
16 Transportation Program.

17  
18 The interest rate forecast for appropriated capital investments expected to be placed in service is  
19 found in Chapter 7, Documentation, Volume 1 WP-96-FS-BPA-02A. Interest During  
20 Construction estimates for COE 1995 Biological Opinion investments are addressed, in part, in  
21 Chapter 14, Documentation Volume 1, WP-96-FS-BPA-02A. Practices for assigning interest  
22 rates to new appropriations investment and for determining interest during construction are  
23 changed by the Bonneville Appropriations Refinancing Act. Each new capital investment will  
24 now be assigned a rate from the Treasury yield curve rate prevailing in the month prior to the  
25 beginning of the fiscal year in which the new investment is placed in service. In determining  
26 interest during construction for new capital investments, for each fiscal year of construction the

1 prevailing Treasury one-year rate is applied to the sum of (1) the cumulative expenditures made,  
2 and (2) interest during construction that has accrued prior to the end of the subject fiscal year.  
3 See Section 3.2 and Chapter 5 of this Study; and Revenue Requirement Study Documentation  
4 Volume 1, WP-96-FS-BPA-02A, Chapter 9.

### 6 Third-Party Debt

7 Third-party debt differs from Treasury debt in that entities other than BPA or Treasury issue the  
8 debt. BPA serves as guarantor or security for bonds that the third-party issues, resulting in wider  
9 market access and potentially more favorable interest rates for the seller. Examples of  
10 acquisitions financed in this way include the Washington Public Power Supply System WNP-1, -2,  
11 and -3, and the Lewis County PUD Hydroelectric project (Cowlitz Falls). This study includes  
12 \$53.1 million in projected WNP-2 additions and replacements and new resource acquisitions to be  
13 financed by the Supply System during the cost evaluation period.

### 15 Current Revenues

16 Consistent with direction in BPA's Strategic Business Plan, BPA will use current revenues to  
17 fund \$15 million of its transmission capital program investments in each year of the rate period.  
18 zBPA plans to reduce its annual request for access to its \$3.75 borrowing authority by this  
19 amount. The use of current revenues to fund a portion of BPA's capital program delays the need  
20 to access remaining available borrowing authority. In addition, this Study includes the use of  
21 BPA current revenues to fund projected WNP-2 assets with estimated service lives of 10 years or  
22 less. These expenditures include items such as fuel, capital equipment, and spare parts. Such  
23 expenditures total a projected \$110.1 million during the rate period.



1 Appropriations are scheduled to be repaid within the expected useful life of the associated facility,  
2 or 50 years, whichever is less. BPA transmission facilities funded by appropriations have an  
3 expected average useful life of 45 years. COE or BOR facilities funded by appropriations are  
4 scheduled to be repaid by the 50th year after the associated facility is placed in service if  
5 functionalized to generation, and by the 45th year if functionalized to transmission. COE and  
6 BOR replacements that are funded by appropriations and placed in service in 1994 or later have  
7 repayment periods that are set at the weighted average service life of all replacements going into  
8 service at that project in that year. *See* Testimony of DeWolf, *et. al.*, WP-96-E-BPA-14.

9  
10 Bonds issued by BPA to the U.S. Treasury may include 3- to 45-year terms, taking into account  
11 the estimated average service lives for investments and prudent financing and cash management  
12 factors. Most bonds are issued with a provision that allows the bond to be called after a certain  
13 time, typically 5 years. Bonds may also be issued with no early call provision. BPA conservation  
14 bonds are issued with maturities not to exceed 20 years, consistent with the period over which  
15 BPA amortizes these capital investments. Bonds to finance fish and wildlife and environmental  
16 capital investments are issued with maturities not to exceed 15 years, the same period over which  
17 BPA amortizes these capital investments. Bonds are issued to finance BPA transmission  
18 investments, conservation, and fish and wildlife programs, and direct-funded COE and BOR  
19 investments, and are repaid within the provisions of each bond agreement with the U. S. Treasury.  
20 Early retirement of eligible bonds requires that BPA pay a bond premium to the U. S. Treasury.  
21 *See* Revenue Requirement Study Documentation, Volume 1, Chapter 8.

22  
23 Based on these parameters, the repayment study projects interest expense and establishes a  
24 schedule of planned amortization payments by determining the lowest levelized debt service  
25 stream necessary to repay all FCRPS investments and obligations within the required repayment  
26 period. The results of this process are combined with the operating expenses expected to be

1 incurred during the cost evaluation period and any planned net revenues to determine the  
2 revenues that need to be recovered through rates.

3  
4 Further discussion of the repayment program and repayment program tables is included in this  
5 Study at Appendix B and in Chapter 3, Revenue Requirement Study Documentation, Volume 2,  
6 WP-96-FS-BPA-02B.

### 7 8 3.2 Bonneville Appropriations Refinancing Act

9  
10 In April 1996, Congress passed and President Clinton signed legislation, entitled “The Bonneville  
11 Appropriations Refinancing Act” (the Act), to refinance BPA’s outstanding repayment obligations  
12 on appropriations. This Act calls for resetting the unpaid principal of FCRPS appropriations and  
13 reassigning interest rates. New principal amounts are established at the beginning of FY 1997, at  
14 the present value of the principal and annual interest payments BPA would make to the U. S.  
15 Treasury for these obligations in the absence of the Act, plus \$100 million. BPA’s outstanding  
16 repayment obligations on appropriations at the end of FY 1996 are estimated to be \$6.8 billion .  
17 The estimated new principal amount is \$4.6 billion. The average interest rate on the existing  
18 obligations is estimated to be 3.5 percent. Interest rates on the new principal amounts will be  
19 reassigned at prevailing Treasury yield curve interest rates at the time of the transaction, October  
20 1, 1996. Current estimates are that the rate will average about 6.3 percent.

21  
22 The Act also restricts prepayment of the new principal to \$100 million in the FY 1997-2001  
23 period. Other repayment terms and conditions remain unaffected. The Act also specifies that  
24 BPA’s credits against its annual payments to Treasury related to its payments to the Confederated  
25 Tribes of the Colville Reservation will be \$15.86 million in FY 1997, \$16.49 million in FY 1998,  
26 \$17.15 million in FY 1999, \$17.84 million in FY 2000, and \$18.55 in FY 2001, and \$4.6 million

1 in each succeeding fiscal year. The legislation includes a provision directing BPA to offer a  
2 contractual commitment to its customers that the appropriations repayment obligation will not be  
3 increased in the future.

4  
5 Interest rate assignment practices for new appropriated capital investments and for determining  
6 interest during construction have changed due to the enactment of the Bonneville Appropriations  
7 Refinancing Act. Each new capital investments will now be assigned a rate from the Treasury  
8 yield curve prevailing for the fiscal year in which the new investment is placed in service. In  
9 determining interest during construction for new appropriated capital investments, the Treasury  
10 one-year rate is applied to the sum of the cumulative expenditures made and the interest during  
11 construction that has accrued prior to the end of the subject fiscal year. See Chapter 5 of this  
12 Study, and Chapter 9, Revenue Requirement Study Documentation Volume 1, WP-96-FS-BPA-  
13 02A.

14

1 4. FY 1996 REVENUE REQUIREMENTS

2  
3 Section 4.1 describes the cost accounting formats used in developing revenue requirements for  
4 FY 1997 - 2001. Section 4.1.1 provides a line-by-line description of the Functionalized Revenue  
5 Requirement Table, and Section 4.1.2 provides a line-by-line description of the Functionalized  
6 Cash Flow Table.

7  
8 4.1 Revenue Requirement Format

9  
10 For each year of a rate approval period, BPA prepares two tables that reflect the process by which  
11 functionalized revenue requirements are determined. The Functionalized Revenue Requirement  
12 Table includes projections of Total Expenses of the FCRPS, Cash Available to Mitigate Risk, and,  
13 if necessary, a Minimum Required Net Revenues component. The Functionalized Cash Flow  
14 Table shows the analysis used to determine the Minimum Required Net Revenues.

15  
16 Revenue requirements for FY 1997 are shown on Tables 5A and 5B, for FY 1998 on Tables 6A  
17 and 6B, for FY 1999 on Tables 7A and 7B, for FY 2000 on Tables 8A and 8B, and for FY 2001  
18 on Tables 9A and 9B.

19  
20 The Functionalized Revenue Requirement table (Tables 5A-9A) displays the components of  
21 BPA's revenue requirements for the generation and transmission functions. The major revenue  
22 requirement components include Total Operating Expenses (Line 19), Net Interest Expense (Line  
23 26), Minimum Required Net Revenues (Line 29), and Planned Net Revenues for Risk (Line 30).  
24 The sum of these four major components is Total Revenue Requirements.

1 The Total Operating Expenses and Net Interest Expense are obtained directly from several  
2 sources and are included as part of revenue requirements. The Minimum Required Net Revenues  
3 result from an analysis of the Functionalized Cash Flow (Tables 5B-9B). Minimum Required Net  
4 Revenues (Line 29) may be necessary to ensure that revenue requirements are sufficient to cover  
5 all cash requirements, including annual amortization of the Federal investment as determined in  
6 the power repayment studies and any revenue financing of new capital investments.

7  
8 The analysis performed in the Functionalized Cash Flow takes into account annual cash inflows  
9 and outflows by function. Cash Provided by Current Operations (Line 8), which includes  
10 Noncash Expenses (Lines 4 and 5), the Capitalization Adjustment (line 6), and Capacity  
11 Ownership Accrual Revenues (line 7), must be sufficient to compensate for the difference between  
12 Cash Used for Capital Investments (Line 14) and Cash From Treasury Borrowing and  
13 Appropriations (Line 21). If sufficient cash is not provided, Minimum Required Net Revenues  
14 must be included in revenue requirements to accommodate the shortfall. This determination is  
15 made separately for generation and transmission. The Minimum Required Net Revenues shown  
16 on the Functionalized Cash Flow is then incorporated in Functionalized Revenue Requirement  
17 table (Line 29).

18  
19 Transmission revenue requirements for each of FYs 1997-2001 include Minimum Required Net  
20 Revenues components to ensure coverage of annual cash requirements.

21  
22 4.1.1 Functionalized Revenue Requirements. Below is a line-by-line description of each of the  
23 components in the Functionalized Revenue Requirement Tables (Table 5A-9A). Documentation,  
24 Volume 1 for the Revenue Requirement Study, WP-96-FS-BPA-02A, provides additional  
25 information on the development and use of the data contained in the tables.

1 Operation (Line 2)

2 Operation represents FCRPS system operation expenses incurred by the COE, BOR, USFWS,  
3 and BPA. Specific BPA operation expenses include generation expenses, large thermal oversight  
4 and legal services, transmission system development, system operations, power scheduling  
5 (including PNCA Interchange), power marketing, and the Pacific Northwest Power Planning  
6 Council.

7  
8 This line also includes payments to the Confederated Tribes of the Colville Reservation as called  
9 for under the Colville Settlement Act. These payments are functionalized to generation. *See*  
10 Chapter 4, Documentation, Volume 1, WP-96-FS-BPA-02A. Treasury credits resulting from  
11 these payments are also called for in the legislation. The amount of the credits for each year were  
12 specified in the Bonneville Appropriations Refinancing Act, which amended the Colville  
13 legislation in this respect. The credits are shown as revenues in the revenue forecast. *See* Section  
14 5.1.3 of this Study; Revenue Requirement Study Documentation Volume 1, Chapter 9; and  
15 Wholesale Power Rates Development Study, WP-96-FS-BPA-05.

16  
17 Maintenance (Line 3)

18 Maintenance represents FCRPS system maintenance expenses incurred by the COE, BOR,  
19 USFWS, and BPA. The specific BPA expenses included in this line item are BPA's System  
20 Maintenance and Environment programs. *See* Chapter 4, Documentation, Volume 1,  
21 WP-96-FS-BPA-02A.

22  
23 Undistributed Expense Reductions (Line 4)

24 In earlier proposals, undistributed expense reduction reflected anticipated spending level cuts.  
25 Such cuts have not yet been quantified by program. The reductions are functionalized prorata  
26 based on total BPA and other entities' controllable Operations and Maintenance expenses.

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Short-Term Power Purchases (Line 6)

Short-term purchases of power and off-system storage services are made to provide operational flexibility, displace higher cost purchases, and serve the First Quartile of DSI load. The amount of power purchased reflects the projected operation of FCRPS. See Chapters 4 and 15, Documentation, Volume 1, WP-96-FS-BPA-02A, and Wholesale Power Rates Development Study, WP-96-FS-BPA-05.

Long-Term Power Purchases (Line 7)

Long-term power purchases are acquisitions of cost-effective resources intended to meet BPA's load obligations. These long-term commitments include the Idaho Falls and Cowlitz Falls hydroelectric projects, the billing credits and competitive acquisitions programs, and other resources such as geothermal resource development. See Chapter 4, Documentation, Volume 1, WP-96-FS-BPA-02A.

Trojan (Line 8)

Through net-billing arrangements, BPA has acquired Eugene Water and Electric Board's (EWEB) 30 percent ownership share of the now-terminated Trojan Nuclear Project. BPA's cost includes EWEB's share of Trojan phasedown, decommissioning costs, EWEB's debt service, and other Trojan-related costs. EWEB's other Trojan-related costs include contributions in lieu of taxes and EWEB's direct costs. See Chapters 4 and 10, Documentation, Volume 1, WP-96-FS-BPA-02A.

WNP-1, 2, and 3 (Lines 9, 10, & 11)

Through project and net-billing agreements with the Supply System and BPA preference customer participants, and through exchange agreements with IOUs, BPA has acquired 100 percent of the

1 capability of WNP-1 and -2 and 70 percent of the capability of WNP-3. Under a settlement  
2 agreement, BPA has certain rights to and obligations for the IOUs' 30 percent share of WNP-3.

3  
4 BPA is obligated to fund all cash requirements associated with its share of these projects. These  
5 cash requirements include debt service and legal costs for WNP-1; debt service, operating,  
6 decommissioning, and capital costs for WNP-2; and debt service, 70 percent of preservation, and  
7 IOU settlement costs for WNP-3. IOU settlement costs for WNP-3 include the remaining 30  
8 percent of preservation costs for that project. For FY 1997, excess funds in the WNP-1  
9 Construction Fund will be used to cover an estimated \$72 million of net billing requirements that  
10 BPA would otherwise pay from current revenues.

11  
12 Debt service costs include interest on outstanding Supply System bonds, retirement of bonds  
13 according to schedules in each bond issue, and a reserve and contingency amount equal to 10  
14 percent of the annual interest and retirement of bonds, less investment income on various  
15 accounts (Bond Fund Reserve Account, Bond Fund Interest Account, Reserve and Contingency  
16 Fund, Bond Fund Principal Account, and Revenue Fund), and transfer of any prior year's surplus  
17 reserve and contingency. *See* Chapters 4 and 10, Documentation, Volume 1,  
18 WP-96-FS-BPA-02A.

19  
20 EWEB Conservation Financing (Line 12)

21 BPA entered into an agreement to make periodic payments of specific amounts to EWEB for  
22 revenue bonds issued to finance conservation programs. The cost of this financing commitment is  
23 covered by BPA's Marketing, Conservation and Production function costs through the cost  
24 evaluation period. Since this represents a long-term BPA obligation, the projected cost of this  
25 agreement is included in repayment studies through the life of the utility's power purchase  
26 contract. *See* Chapters 4 and 10, Documentation, Volume 1, WP-96-FS-BPA-02A.

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Residential Exchange Program (Line 13)

Under the Residential Exchange Program, as provided in Section 5(c) of the Northwest Conservation and Electric Power Planning Act (Northwest Power Act), 16 U.S.C. § 839c(c), BPA purchases power from a participating utility at the utility's Average System Cost (ASC). BPA then sells an equivalent amount of power to the utility at BPA's applicable Priority Firm rate. The Residential Exchange Program provides regional utilities' residential and small farm customers with benefits of the Federal power system. The exchange of power is not a conventional power transaction. No power is actually transferred to or from BPA under the Program; rather, participating utilities receive benefit payments from BPA that represent the difference between "selling high" to BPA and "buying low" from BPA. BPA's rate development methodology is based on the gross costs of the program. See Chapter 4, Documentation Volume 1, WP-96-FS-BPA-02A.

Fish & Wildlife (Line 14)

BPA funds projects designed to accomplish measures in the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program and the 1995 NMFS Biological Opinion, and to be consistent with the fish cost stabilization agreement. This line item includes the expense portion of BPA's Fish and Wildlife Program, including staff costs and operating expenses for fish and wildlife activities. See Chapters 4 and 14, Documentation, Volume 1, WP-96-FS-BPA-02A.

Amortization of Fish & Wildlife (Line 15)

Amortization of Fish & Wildlife is the annual expense associated with the write-off of BPA investments funded through the capital portion of the Fish and Wildlife Program. The annual write-off is calculated using the straight-line method of depreciation over an expected average life of 15 years. See Chapters 4 and 5, Documentation, Volume 1, WP-96-FS-BPA-02A.

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Conservation (Line 16)

The Northwest Power Act requires BPA to treat cost-effective conservation as an electric power resource in planning to meet the Administrator's obligations to serve loads. This line item includes the conservation expense portion of residential, commercial, and industrial programs; BPA-funded programs undertaken by public agencies and other customers; and program development. This line also includes annual amounts for a long-term obligation to acquire conservation from Tacoma/Fort Lewis. The payment stream associated with this resource acquisition is included in repayment studies through the projected life of the contract. BPA is currently “reinventing” its conservation program, which includes investing in market transformation initiatives. It is also beginning an Energy Services Business, including the Demand Side Management Product Line, which is expected to provide offsetting revenues. *See* Chapters 4 and 10, Documentation, Volume 1, WP-96-FS-BPA-02A.

Amortization of Conservation (Line 17)

Amortization of Conservation is the annual expense associated with the write-off of BPA’s investments in energy conservation measures. The annual conservation write-off is calculated using the straight-line method of depreciation over an expected life of 20 years. *See* Chapters 4 and 5, Documentation, Volume 1, WP-96-FS-BPA-02A.

Federal Projects Depreciation (Line 18)

Depreciation is the annual capital recovery expense associated with FCRPS plant in service. BOR and COE (including Lower Snake River Fish & Wildlife Compensation Plan) plant is depreciated using the straight-line method of calculation using the expected average service life of each project. BPA plant is also depreciated according to the straight-line method using the expected

1 average service life for various categories of capital investment. *See* Chapters 4 and 5,  
2 Documentation, Volume 1, WP-96-FS-BPA-02A.

3  
4 Total Operating Expenses (Line 19)

5 Total Operating Expenses is the sum of the above expenses (Lines 2 through 18).

6  
7 Interest on Appropriated Funds (Line 22)

8 Interest on Appropriated Funds includes interest on BPA, COE, and BOR appropriations as  
9 determined in the power repayment studies. This line reflects an increase in interest expense as a  
10 result of the projected implementation of the Bonneville Appropriations Refinancing Act. *See*  
11 Chapters 4, 6 and 9, Documentation, Volume 1, WP-96-FS-BPA-02A.

12  
13 Interest on Long-Term Debt (Line 23)

14 Interest on long-term debt includes interest on bonds that BPA issues to the U.S. Treasury to  
15 fund BPA's capital programs related to transmission, conservation, and fish and wildlife, and to  
16 fund BOR investments under the Energy Policy Act of 1992 (Pub. L. 102-486, 1992 U.S. Code  
17 Cong. & Admin. News, 106 Stat. 2776). Such interest expense is determined in the power  
18 repayment studies. Any projected payments of bond premiums are also included in this line item.  
19 In addition, this line item includes an offsetting interest income credit as determined in the power  
20 repayment studies. Interest income is computed within the power repayment studies on funds  
21 required to be collected throughout each year for payments of amortization and interest on BPA,  
22 COE, and BOR appropriations, bonds BPA issued to U.S. Treasury, and COE and BOR O&M.  
23 A further explanation of the calculation of the interest credit computed within the power  
24 repayment studies is included in Appendix B. *See* also Chapters 4 and 6, Documentation,  
25 Volume 1, WP-96-FS-BPA-02A.

1 Interest Credit on Cash Reserves (Line 24)

2 Interest income credit is also computed on BPA's projected year-end cash balances in the BPA  
3 fund that carry over into the next year. It is credited against bond interest. *See* Chapter 6,  
4 Documentation, Volume 1, WP-96-FS-BPA-02A.

5  
6 Capitalization Adjustment (Line 25)

7 Implementation of the Bonneville Appropriations Refinancing Act entails a change in  
8 capitalization on BPA's financial statements. Outstanding appropriations are reduced as a result  
9 of the refinancing, by \$1,846 million in the generation function and \$337 million in the  
10 transmission function, for a total of \$2,183 million. The reduction is recognized annually over the  
11 remaining repayment period of the refinanced appropriations. The annual recognition of this  
12 adjustment is based on the increase in annual interest expense resulting from implementation of  
13 the Act, as shown in current generation and transmission repayment studies for the year of the  
14 refinancing transaction (1997). The capitalization adjustment is included on the income statement  
15 as a non-cash, contra-expense. *See* Chapter 9, Documentation Volume 1, WP-96-FS-BPA-02A.

16  
17 Allowance for Funds Used During Construction (AFUDC) (Line 26)

18 AFUDC is a credit against interest costs on long-term debt (Line 22). This reduction to interest  
19 costs reflects an estimate of interest on the funds used during the construction period of facilities  
20 that have yet to be placed in service. AFUDC is capitalized along with other construction costs  
21 and is recovered through rates over the expected service life of the related plant as part of the  
22 depreciation expense after the facilities are placed in service. AFUDC is calculated outside the  
23 repayment studies. *See* Chapter 4, Documentation, Volume 1, WP-96-FS-BPA-02A.

1 Net Interest Expense (Line 27)

2 Net Interest Expense is computed as the sum of Interest on Appropriated Funds (Line 22),  
3 Interest on Long-Term Debt (Line 23), Interest Credit on Cash Reserves (Line 24), capitalization  
4 adjustment (Line 25), and AFUDC (Line 26).

5  
6 Total Expenses (Line 28)

7 Total Expenses are the sum of Total Operating Expenses (Line 19) and Net Interest Expense  
8 (Line 27).

9  
10 Minimum Required Net Revenues (Line 30)

11 Minimum Required Net Revenues is an input from Line 2 of the Functionalized Cash Flow tables  
12 (Tables 5B-9B). An explanation of the method used for determining the Minimum Required Net  
13 Revenues is included in Section 4.1.2.

14  
15 Planned Net Revenues for Risk (Line 31)

16 Planned Net Revenues for Risk are the amount of net revenues to be included in rates for financial  
17 risk mitigation. Planned net revenues for risk of \$13 million per year (in addition to starting  
18 reserves and the cash flow when non-cash expenses exceed amortization payments) are available  
19 to mitigate risk in each of FYs 1997-2001. This additional cash requirement is functionalized to  
20 generation.

21  
22 Total Revenue Requirement (Line 32)

23 Total Revenue Requirement is the sum of Total Expenses (Line 28), Minimum Required Net  
24 Revenues (Line 29), and Planned Net Revenues for Risk (Line 30).

25

1 4.1.2. Functionalized Cash Flows). Below is a line-by-line description of each of the components  
2 in the Functionalized Cash Flow Table(Tables 5B-9B). Documentation, Volumes 1 and 2,  
3 WP-96-FS-BPA-02A and WP-96-FS-BPA-02B, provide additional information related to the use  
4 and development of the data contained in the table.

5  
6 Minimum Required Net Revenues (Line 2)

7 Determination of this line is a result of annual cash inflows and outflows shown on the  
8 Functionalized Cash Flow table. Minimum Required Net Revenues may be necessary so that the  
9 cash provided from operations will be sufficient to cover the planned amortization payments in  
10 each of the two functions and the planned revenue financing of capital investments in transmission  
11 (the difference between Lines 14 and 21) without causing a decrease in Net Position (Line 21).

12 The Minimum Required Net Revenues amount determined in the Functionalized Statement of  
13 Cash Flows is then incorporated in the Functionalized Revenue Requirements (Line 29).

14 Minimum Required Net Revenues may be required in either or both generation and transmission  
15 revenue requirements to ensure that cost recovery criteria are met. In transmission, minimum  
16 required net revenues reflect \$15 million per year for revenue financing of BPA transmission  
17 investments.

18  
19 Depreciation (Line 4)

20 Depreciation is taken from the Functionalized Revenue Requirement tables (Tables 5A-9A,  
21 Line 18). It is included in computing Cash Provided By Operations (Line 8) because it is a  
22 noncash expense of the FCRPS.

1 Amortization of Conservation/Fish and Wildlife Investment (Line 5)

2 Amortization of Conservation and Fish and Wildlife Investment is taken from the Functionalized  
3 Revenue Requirement (Tables 5A-9A, Lines 15 and 17). Similar to Depreciation (Line 4), it is a  
4 noncash expense of the FCRPS used in determining Cash Provided By Operations (Line 8).

5  
6 Capitalization Adjustment (Line 6)

7 Capitalization Adjustment is taken from the Functionalized Revenue Requirement (Tables 5A-9A,  
8 Line 25). It is a non-cash, contra-expense. See Chapter 9, Documentation Volume 1,  
9 WP-96-FS-BPA-02A.

10  
11 Capacity Ownership Accrual Revenues (Line 7)

12 BPA accounts for the AC Intertie non-Federal capacity ownership lump-sum payments received in  
13 FY 1995 as unearned revenues that are recognized as annual accrued revenues over the estimated  
14 average service life of BPA's transmission system (straight-line over 45 years). The annual  
15 accrual revenues, which are part of the total revenues recovering the FCRTS revenue  
16 requirement, are included here as a non-cash adjustment to cash from current operations.

17  
18 Cash Provided By Current Operations (Line 8)

19 Cash Provided By Current Operations, the sum of Lines 2, 4, 5, 6 and 7, is the projected cash  
20 available for the year to satisfy cash requirements.

21  
22 Investment in Utility Plant (Line 11)

23 Investment in Utility Plant represents the annual increase in additions to plant-in-service for COE,  
24 and BOR, and for BPA construction work-in-progress. See Chapter 5, Documentation,  
25 Volume 1, WP-96-FS-BPA-02A.

1 Investment in Conservation (Line 12)

2 Investment in Conservation represents the annual increase in capital expenditures associated with  
3 BPA's Marketing, Conservation and Production function. *See* Chapter 5, Documentation,  
4 Volume 1, WP-96-FS-BPA-02A.

5  
6 Investment in Fish & Wildlife (Line 13)

7 Investment in Fish & Wildlife represents the annual increase in BPA's capital expenditures to fund  
8 projects designed to comply with the Northwest Power Planning Council's Columbia River Basin  
9 Fish & Wildlife Program and the NMFS 1995 Biological Opinion, and be consistent with the fish  
10 cost stabilization agreement. *See* Chapter 5, Documentation, Volume 1, WP-96-FS-BPA-02A.

11  
12 Cash Used for Capital Investments (Line 14)

13 Cash Used for Capital Investments is the sum of Lines 11, 12 and 13.

14  
15 Increase in Long-Term Debt (Line 16)

16 Increase in Long-Term Debt reflects the new bonds issued by BPA to the U.S. Treasury to fund  
17 its transmission, conservation, and fish & wildlife capital programs and to direct fund BOR and  
18 COE investments under the Energy Policy Act of 1992. Also included in this amount are any  
19 notes issued to the U.S. Treasury. *See* Chapter 8, Documentation, Volume 1,  
20 WP-96-FS-BPA-02A.

21  
22 Repayment of Long-Term Debt (Line 17)

23 Repayment of Long-Term Debt is BPA's planned repayment of outstanding bonds issued by BPA  
24 to the U.S. Treasury as determined in the separate generation and transmission repayment studies.  
25 *See* Documentation, Volume 2, WP-96-FS-BPA-02B.

1 Increase in Congressional Capital Appropriations (Line 18)

2 These figures represent Congressional appropriations projected to be received during the year for  
3 COE and BOR capital projects. *See* Chapter 5, Documentation, Volume 1,  
4 WP-96-FS-BPA-02A.

5  
6 Repayment of Capital Appropriations (Line 19)

7 Repayment of Capital Appropriations represents projected amortization of outstanding BPA,  
8 COE, and BOR appropriations as determined in the separate generation and transmission  
9 repayment studies. The principal amount reflects the projected implementation of the Bonneville  
10 Appropriations Refinancing Act, resulting in a reduction in the principal. *See* Documentation,  
11 Volume 2, WP-96-FS-BPA-02B.

12  
13 Payment of Irrigation Assistance (Line 20)

14 This is the payment of appropriated capital construction costs of BOR irrigation facilities that  
15 have been determined to be beyond the ability of the irrigators to pay and allocated to power  
16 revenues for repayments. *See* Chapter 11, Documentation, Volume 1, WP-96-FS-BPA-02A.

17  
18 Cash From Treasury Borrowing and Appropriations (Line 21)

19 The sum of Lines 16 through 20, this is the net cash flow resulting from increases in cash from  
20 new long-term debt and capital appropriations and decreases in cash from repayment of long-term  
21 debt and capital appropriations.

22  
23 Annual Increase (Decrease) in Net Position (Line 22)

24 This line item reflects the overall increase (decrease) in net cash flow (revenues less cash  
25 requirements) for the year analyzed and is the sum of Lines 8, 14, and 21. Revenue requirements  
26 are set to meet all projected annual cash flow requirements included on the Functionalized Cash

1 Flow Table. A decrease shown in this line would indicate that annual revenues would not be  
2 sufficient to cover the year's cash requirements. In such cases, Minimum Required Net Revenues  
3 are incorporated as the amount of the decrease in Net Position. *See* discussion above of  
4 Minimum Required Net Revenues (Line 2).

5  
6 Planned Net Revenues For Risk (Line 23)

7 This line reflects the planned net revenues included in revenue requirements to meet BPA's risk  
8 mitigation objectives (from Tables 5A-9A, Line 30.)

9  
10 Total Annual Increase (Decrease) in Cash (Line 24)

11 This line, the sum of Annual Increase (Decrease) in Net Position (Line 22) and Planned Net  
12 Revenues For Risk (Line 23), is the total annual cash that is available to add to BPA's cash  
13 reserves.

14  
15 4.2 Current Revenue Test

16 Consistent with RA 6120.2, the continuing adequacy of existing rates must be tested annually.  
17 The current revenue test determines whether the revenues expected from current rates can meet  
18 cost recovery requirements. The current revenue test was conducted using the base case forecast  
19 of revenues under current rates. *See* revenue forecast in the Revenue Requirement Study  
20 Documentation, Volume 1, Chapter 15. The results of the current revenue test demonstrate that  
21 current rates do not provide sufficient revenues to meet revenue requirements determined for the  
22 rate test period, FYs 1997-2001.

23  
24 The demonstration that revenues from current rates are inadequate to recover total planned cash  
25 requirements in FYs 1997-2001 is shown on Tables 10A and B through 14 A -B. Tables 10A-

1 14A, which present pro forma income statements for each year, include projected Revenues from  
2 Current Rates (Line 1) to determine projected Net Revenues (Line 29).

3  
4 Tables 10B-14B present Functionalized Cash Flow statements that test the sufficiency of the  
5 resulting Net Revenues from Tables 10A-14A (Line 29) for making the planned annual  
6 amortization payments and covering revenue financing requirements. This is demonstrated by the  
7 Annual Increase in Net Position (Line 21). As explained in Section 4.1.2, the Net Position must  
8 be at least zero to demonstrate the adequacy of projected revenues to make planned amortization  
9 payments to the U.S. Treasury. For FY 1997-2001, the revenues projected from current rates do  
10 not satisfy planned cash requirements for amortization payments and revenue financing over the  
11 five-year period, and the cash available for risk mitigation results in virtually no chance that all  
12 annual Treasury payments will be met on time and in full over the five-year rate test period.

13  
14 Repayment Test of Current Revenues

15 Tables 15A, 15B, and 15C are used to demonstrate whether projected revenues from current rates  
16 are adequate to meet the cost recovery criteria of RA 6120.2 over the repayment period.  
17 Table 15A provides this demonstration for the generation function and Table 15B for the  
18 transmission function. Table 15C is a summary for the combined system (generation and  
19 transmission). The data are presented in a format consistent with the annual current revenue tests  
20 (Tables 10A-14A and 10B-14B) and separate accounting analyses. The focal point of these tables  
21 is the Net Position (Column K), which is the amount of funds provided by revenues that remain  
22 after meeting annual expenses requiring cash, revenue financing requirements in the rate period,  
23 and repayment of the Federal investment. Thus, if the Net Position is zero or greater in each year  
24 of the rate approval period through the repayment study period, the projected revenues  
25 demonstrate BPA's ability to repay the Federal investment in the FCRPS within the repayment  
26 period.

1  
2 The mechanical operations of Tables 15A, 15B, and 15C are as follows: Revenues (Column A)  
3 less Operation and Maintenance Expenses (Column B) less Purchase and Exchange Power  
4 (Column C) less Depreciation, which in Generation includes the write-off of Conservation and  
5 Fish & Wildlife investment (Column D), less Net Interest Expense (Column E) results in annual  
6 Net Revenues (Column F). The Noncash Expenses (Column G) are period expenses that do not  
7 require cash--depreciation expense, conservation and fish and wildlife write-offs, the capitalization  
8 adjustment, and, in generation in certain historical years, the write-off of net-billing advances. For  
9 Transmission, Table 15B, this column includes an adjustment for Capacity Ownership Accrual  
10 (non-cash) revenues in the rate period and repayment period. Noncash Expenses are added back  
11 to the Net Revenues to present the Funds From Operation (Column H) that are available for  
12 repayment of the Federal investment. The amortization of the Federal investment in the FCRPS  
13 (Column I) and amortization of Irrigation Assistance obligations (Column J) are then subtracted.  
14 The resulting Net Position (Column K) demonstrates these revenues are inadequate to satisfy the  
15 requirements of RA 6120.2.

16  
17 The historical data on these tables are functionalized for the period covered by the separate  
18 accounting analysis (FYs 1978-95), and combined cumulative data are presented for the prior  
19 years. Functionalized data have been taken from BPA's separate accounting analysis. The rate  
20 test period data have been developed specifically for this rate proposal. The repayment period  
21 data are presented consistent with the requirements of RA 6120.2.

22

1 4.3 Revised Revenue Test

2  
3 Consistent with RA 6120.2, the adequacy of proposed rates must be demonstrated. The revised  
4 revenue test determines whether the revenues projected from proposed rates will meet cost  
5 recovery requirements as well as the Administrator's risk mitigation policy for the rate approval  
6 period. The revised revenue test was conducted using the base case forecast of revenues under  
7 proposed rates. *See* Revenue Requirement Study Documentation, Volume 1, Chapter 15. The  
8 results of the revised revenue test demonstrate that proposed rates are adequate to fulfill the basic  
9 cost recovery requirements for the rate approval period, FYs 1997-2001.

10  
11 In the rate test period, the demonstration of the adequacy of proposed rates is shown on Tables  
12 16A-20A and 16B-20B for FYs 1997-2001. Tables 16A-20A present pro forma income  
13 statements for each year.

14  
15 For FY 1997, Residential Exchange (Line 14) costs have been determined by the Energy and  
16 Water Development Appropriation Act of 1996 (November 1995). This Act directs BPA to pay  
17 exchange benefits of \$145 million in FY 1997. The amount in the revised revenue test is  
18 \$160 million. BPA conducted an interpretive rulemaking process on the allocation of FY 1997  
19 benefits and determined that the Puget Sound Power & Light Periodic Rate Adjustment  
20 Mechanism (PRAM) true-up payments exceeding \$8.4 million (\$12.6 million) are to be paid in  
21 addition to the legislated benefits. *See* Bonneville Power Administration Interpretive Rulemaking:  
22 FY 1997 Residential Exchange Benefit Allocation Record of Decision. Also included in the \$160  
23 million are the implementation costs of the Residential Exchange Program. Consistent with the  
24 intent of the Act, the legislated benefits were not used in determining the generation revenue  
25 requirement so that benefits for the remaining years of the five-year rate period would not be  
26 affected by the legislation. *See* Section 5.1.4.1 of the Study.

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Tables 16B-20B, Functionalized Cash Flow statements, test the sufficiency of the resulting Net Revenues from Tables 16A-20A (Line 28) for making the planned annual amortization payments, covering revenue financing requirements, and achieving the Administrator’s financial objectives. This is demonstrated by the Annual Increase in Net Position (Line 21). As explained in Section 4.2.2, the Net Position (Line 21) must be at least zero to demonstrate the adequacy of the projected revenues to cover all cash requirements.

Repayment Test at Proposed Rates

Tables 21A, 21B, and 21C are used to demonstrate whether projected revenues from proposed rates are adequate to meet the cost recovery criteria of RA 6120.2 over the repayment period. Table 21A provides this demonstration for the generation function and Table 21B for the transmission function. Table 21C is a summary for the combined system (generation and transmission). The data are presented in a format consistent with the revised revenue tests (Tables 16A-20A and 16B-20B) and separate accounting analyses. The focal point of these tables is the Net Position (Column K), which is the amount of funds provided by revenues that remain after meeting annual expenses requiring cash, revenue financing requirements for the rate period, and repayment of the Federal investment. Thus, if the Net Position is zero or greater in each year of the rate approval period through the repayment period, the projected revenues demonstrate BPA's ability to repay the Federal investment in the FCRPS within the allowable time. As shown in Column K, the resulting Net Position is at least zero for each year of the rate approval period and in each year of the repayment period in each function.

The historical data on these tables are functionalized for the period covered by the separate accounting analysis (FYs 1978-94), and combined cumulative data are presented for the prior years. Functionalized data have been taken from BPA's separate accounting analysis. The rate

- 1 test period data have been developed specifically for this rate filing. The repayment period data
- 2 are presented consistent with the requirements of RA 6120.2.

## 5. REVENUE REQUIREMENT LEGAL REQUIREMENTS AND POLICIES

The Bonneville Power Administration (BPA) was created in 1937 to market and transmit the power produced by the Bonneville Dam on the Columbia River. Since then Congress has expanded BPA's authority to sell at wholesale the power produced at a total of 29 Federal dams, and to acquire non-Federal power and conservation resources sufficient to meet the needs of its customers. The dams and the Federal transmission system are known as the Federal Columbia River Power System (FCRPS). The Federal transmission system is also called the Federal Columbia River Transmission System (FCRTS). Revenues from the sale of power and transmission services are used to recover BPA's expenses and to repay the Federal investment in the FCRPS.

The development of BPA's rates, in general, and its generation and transmission revenue requirements, in particular, are guided by BPA's organic statutes, as well as other statutes that also apply to BPA. This chapter briefly describes the main statutory provisions that provide the framework for determining BPA's generation and transmission revenue requirements, and for allocating the FCRPS costs among the various users of these facilities. This chapter also describes repayment policies that have been established through administrative interpretation of BPA's statutory requirements as they relate to the development of BPA's revenue requirements.

### 5.1. Statutory Provisions Related to the Development of BPA's Revenue Requirements

BPA's revenue requirements are governed by four main legislative acts, as amended: the Bonneville Project Act of 1937, Pub. L. No. 75-329, 50 Stat. 731; the Flood Control Act of 1944, Pub. L. No. 78-534, 58 Stat. 890, as amended 1977; the Federal Columbia River Transmission System Act (Transmission System Act) of 1974, Pub. L. No. 93-454, 88 Stat. 1376; and the

1 Pacific Northwest Electric Power Planning and Conservation (Northwest Power Act) of 1980,  
2 Pub. L. No. 96-501, 94 Stat. 2697. Other statutory provisions that guide the development of  
3 BPA's revenue requirements include the Energy Policy Act(EPA '92) of 1992, Pub. L. No. 102-  
4 486. 106 Stat/ 2776; the Colville Settlement Act of 1994, Pub. L. No. 102-497, 106 Stat. 3255;  
5 the Energy and Water Development Appropriations Act of 1996, Pub. L. No. 104-46. 109 Stat.  
6 402; the Omnibus Consolidated Rescissions and Appropriations Act of 1996, Pub. L. No. 104-  
7 134, \_\_\_ Stat. \_\_\_.and EPA '92, also contains additional ratemaking requirements for  
8 transmission rates to be applied in connection with transmission access ordered by the Federal  
9 Energy Regulatory Commission. 16 U.S.C. §§ 824i, 824j, 824k, and 824l. These statutory  
10 requirements are discussed below.

11  
12 5.1.1. General Legal Requirements Governing the Federal Columbia River Power System

13 Revenue Requirement. FCRPS revenue requirements must be developed to ensure that revenue  
14 levels are sufficient to fully recover all costs. This requirement was first set forth in Section 7 of  
15 the Bonneville Project Act, 16 U.S.C. § 832f (amended 1977):

16  
17 *Rate schedules shall be drawn having regard to the recovery (upon the basis of*  
18 *the application of such rate schedules to the capacity of the electric facilities of*  
19 *Bonneville project) of the cost of producing and transmitting such electric energy,*  
20 *including the amortization of the capital investment over a reasonable period of*  
21 *years.*

22  
23 Section 5 of the Flood Control Act, 16 U.S.C. § 825s (amended 1977), which applies to the  
24 marketing of power from all COE projects, further provides that electric energy be marketed:

25  
26 *. . . in such manner as to encourage the most widespread use thereof at the lowest*  
27 *possible rates to consumers consistent with sound business principles . . . .*

1 Virtually the same language is contained in Section 9 of the Transmission System Act,  
2 16 U.S.C. § 838g (amended 1977). This Act placed BPA on a "self-financing" basis by  
3 establishing the BPA Fund and authorizing the use of revenues from the sale of electric power,  
4 wheeling charges, and revenue bond proceeds to finance BPA programs. 16 U.S.C. § 838i(a).  
5 Section 9 of the Transmission System Act, 16 U.S.C. § 838g, provides, among other things, that  
6 rates be set:

7  
8 *. . . at levels to produce such additional revenues as may be required, in the*  
9 *aggregate with all other revenues of the Administrator, to pay when due the*  
10 *principal of, premiums, discounts, and expenses in connection with the issuance*  
11 *of and interest on all bonds issued and outstanding pursuant to [this Act,] and*  
12 *amounts required to establish and maintain reserve and other funds and accounts*  
13 *established in connection therewith.*

14  
15 Additional guidelines are provided in Section 7 of the Northwest Power Act, 16 U.S.C. § 839e.  
16 Section 7(a)(1), 16 U.S.C. § 839e(a)(1), provides, in part:

17  
18 *The Administrator shall establish, and periodically review and revise, rates for*  
19 *the sale and disposition of electric energy and capacity and for the transmission*  
20 *of non-Federal power. Such rates shall be established and, as appropriate,*  
21 *revised to recover, in accordance with sound business principles, the costs*  
22 *associated with the acquisition, conservation, and transmission of electric power,*  
23 *including the amortization of the Federal investment in the Federal Columbia*  
24 *River Power System (including irrigation costs required to be repaid out of power*  
25 *revenues) over a reasonable period of years and the other costs and expenses*  
26 *incurred by the Administrator pursuant to this Act and other provisions of law.*  
27 *Such rates shall be established in accordance with Sections 9 and 10 of the*  
28 *Federal Columbia River Transmission System Act (16 U.S.C. § 838), Section 5 of*  
29 *the Flood Control Act of 1944, and the provisions of this Chapter.*

30  
31 Section 7(a)(2), 16 U.S.C. § 839e(a)(2), provides:

32  
33 *Rates established under this section shall become effective only, except in the*  
34 *case of interim rules as provided in subsection (i)(6), upon confirmation and*

1 *approval by the Federal Energy Regulatory Commission upon a finding by the*  
2 *Commission, that such rates --*

3 (A) *are sufficient to assure repayment of the Federal investment in the*  
4 *Federal Columbia River Power System over a reasonable number*  
5 *of years after first meeting the Administrator's other costs,*

6 (B) *are based upon the Administrator's total system costs, and*

7 (C) *insofar as transmission rates are concerned, equitably allocate the*  
8 *costs of the Federal transmission system between Federal and non-*  
9 *Federal power utilizing such system.*

10  
11 Additional provisions of Section 7 provide specific ratemaking directives.

12  
13 The Northwest Power Act further extended BPA's borrowing authority by providing additional  
14 authority to sell bonds to the U.S. Treasury to finance BPA's new conservation and renewable  
15 resource programs. 16 U.S.C. § 838i. The Energy Policy Act of 1992 clarified BPA's authority to  
16 provide funds directly and up-front to the COE and BOR to fund hydroelectric generation  
17 additions, improvements, and replacements, as well as operations and maintenance expenses, at  
18 Federal projects of the FCRPS. Pub. L. 102-486, 1992 U.S. Code Cong. & Admin. News (106  
19 Stat.) 2776.

20  
21 Other statutory provisions concerning the repayment of power costs and the establishment of  
22 power rate levels are found in the Reclamation Project Act of 1939 (codified as amended in  
23 scattered sections of 43 U.S.C.), Pub. L. 89-448, 80 Stat. 200, Act of June 14, 1966, authorizing  
24 construction of the Grand Coulee Dam Third Powerhouse; and Pub. L. 89-561, 80 Stat. 707, Act  
25 of September 7, 1966, which partially amended Pub. L. 89-448;

26  
27 The Northwest Power Act expanded BPA's responsibilities in the region and required changes in  
28 the process and substance of BPA's rate development activities. The costs associated with the  
29 programs and other requirements of the Northwest Power Act are included in the Revenue  
30 Requirement Study.

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5.1.2. Energy Policy Act of 1992. In EPA'92, Congress approved amendments to the Federal Power Act that allow FERC to order access to transmitting utilities' systems, including access to the Federal Columbia River Transmission System, in specified circumstances. In both the Act and its legislative history, Congress made clear that it intended for BPA's rates for Commission-ordered transmission access to be considered separately from the process to obtain the transmission access order itself, including terms and conditions.

EPA'92 provisions specifically applicable to the FCRTS do not change prior law governing the establishment and approval of BPA's transmission rates. The EPA'92 states, in part:

- (1) The Commission shall have authority pursuant to section 824i of this title, section 824j of this title, this section, and section 824l of this title to (A) order the Administrator of the Bonneville Power Administration to provide transmission service and (B) establish the terms and conditions of such service. In applying such sections to the Federal Columbia River Transmission System, the Commission shall assure that--*
- (i) the provisions of otherwise applicable Federal laws shall continue in full force and effect and shall continue to be applicable to the system; and*
  - (ii) the rates for the transmission of electric power on the system shall be governed only by such otherwise applicable provisions of law and not by any provision of section 824i of this title, 824j of this title, this section, or section 824l of this title, except that no rate for the transmission of power on the system shall be unjust, unreasonable, or unduly discriminatory or preferential, as determined by the Commission.*

16 U.S.C. § 824k(i)(1).

The Joint Explanatory Statement of the Committee of Conference reiterates congressional intent to leave prior law governing the establishment and approval of BPA's transmission rates intact:

1           *Rates for transmission services provided by BPA under an order issued under*  
2           *section 211 are to be established by BPA and reviewed by the FERC through the*  
3           *same process and using the same statutory requirements as are applicable to all*  
4           *other transmission rates established by BPA, with the additional requirement that*  
5           *such rates for transmission services must also be just and reasonable and not*  
6           *unduly discriminatory or preferential as determined by the FERC, taking into*  
7           *account BPA's other statutory authorities and responsibilities.*

8  
9 H.R. Conf. Rep. No. 1018, 102d Cong., 2d Sess. 381 (1992), *reprinted in* 1992  
10 U.S.C.C.A.N. 2472, 2480.

11  
12 Thus, the Administrator must determine that BPA's rates promote widespread use of BPA power  
13 and are the lowest possible rates consistent with sound business principles and that the rates are  
14 sufficient to repay the Federal investment in the Federal Columbia River Power System, are based  
15 upon the Administrator's total system costs, and, for transmission rates, equitably allocate the  
16 costs of the Federal transmission system between Federal and non-Federal power utilizing the  
17 system. 16 U.S.C. § 839e(a)(2). In the case of BPA's transmission rates, which are not for  
18 Commission-ordered transmission access, the Commission reviews the rates for compliance with  
19 the cost recovery, repayment and equitable allocation standards. In the case of transmission rates  
20 to be applied for Commission-ordered transmission access, if any, all of the preceding standards  
21 apply, except that the rates shall not be unjust, unreasonable, unduly discriminatory or  
22 preferential.

23  
24 5.1.3. Colville Settlement Act. This Act, enacted in October, 1994, serves to implement a  
25 Settlement Agreement between the Confederated Tribes of the Colville Reservation and the  
26 Federal government. This Act (and the underlying Settlement Agreement) imposes specific duties  
27 on BPA involving annual payments to the Colville Tribes, the Settlement Agreement having  
28 resolved the Colvilles' claims for a portion of revenues from Grand Coulee Dam. BPA's annual  
29 payments to the Colvilles begin at \$15.25 million annually in 1996 (representing payments for the  
30 1995 year). Future payments will be tied to both BPA's average prices and the amount of annual  
31 generation from Grand Coulee Dam. Under the Bonneville Appropriations Refinancing Act, BPA

1 will receive annual credits from the U. S. Treasury against payments due the Treasury, in order to  
2 defray a portion of the costs of making payments to the Colvilles. The credits are in the following  
3 amounts: \$15.86 million in FY 1997; \$16.49 million in FY 1998; \$17.15 million in FY 1999;  
4 \$17.84 million in FY 2000; \$18.55 million in FY 2001; and \$4.6 million in each succeeding fiscal  
5 year.

6  
7 5.1.4. Energy and Water Development Appropriation Act of 1996. The Energy and Water  
8 Development Appropriation Act of 1996 amends certain provisions of the Bonneville Project Act  
9 and the Pacific Northwest Electric Power Planning and Conservation Act. Energy and Water  
10 Development Appropriations Act § 508, 109 Stat. at 419-421. These amendments remove  
11 certain restrictions on BPA sales to permit BPA to market excess Federal power created by (1) a  
12 customer's decision to remove load from BPA; or (2) Federal system resource operations  
13 primarily for the benefit of fish and wildlife. The legislation also (1) authorizes the Corps of  
14 Engineers to procure goods through BPA using the authorities available to the Administrator; (2)  
15 establishes the amount of benefits that BPA pays to utilities participating in the residential  
16 exchange program in FY 1997 at \$145 million; and (3) provides the Administrator with the  
17 authority to use targeted voluntary employee separation incentives.  
18

19 5.1.4.1. Residential Exchange Payments. The Energy and Water Development Appropriation Act  
20 of 1996 directs BPA to pay exchange benefits of \$145 million in FY 1997, and prescribes the  
21 manner in which the payment is to be distributed among utilities participating in the residential  
22 exchange. However, the Act distinguishes the development of rates in accordance with section 7  
23 of the Northwest Power Act from the prescribed payment of \$145 million in FY 1997. Therefore,  
24 there is no specific manner in which the \$145 million must be incorporated in the development of  
25 BPA's rates. The legislation provides:

26  
27 *Notwithstanding the establishment, confirmation and approval of rates pursuant*  
28 *to 16 U.S.C. 839e, and notwithstanding the provisions of 16 U.S.C. 839c(c), the*

1 *cost benefits of eligible utilities' total purchase and exchange sales under 16*  
2 *U.S.C. 839c(c)(1) shall be \$145,000,000 for Fiscal Year 1997, and the net*  
3 *benefits paid to each eligible electric utility shall be \$145,000,000 multiplied by*  
4 *the percentage of the total of such net benefits paid by the Administrator to such*  
5 *utility for Fiscal Year 1995.*

6  
7 *Id.* at 109 Stat. 420-21.

8  
9 Additional direction regarding the incorporating the \$145 million payment in BPA's rates is found  
10 in the legislative history. The Committee of Conference Report provides that

11  
12 *[i]n order to maintain a sound financial position, the conferees urge, to the extent*  
13 *practicable, BPA to take such actions as are necessary to assure the proposed*  
14 *rate[s] for public utilities and direct services [sic] industries are not increased*  
15 *from the initial proposal.*

16  
17 H.R. Conf. Rep. No. 104-293, 104th Cong., 1st Sess. 95 (1995).

18  
19 In addition, in floor statements, Senator Hatfield stated that the additional benefits to BPA's  
20 residential exchange customers that are incorporated in the \$145 million payment in FY 1997 will  
21 not be recovered from these customers. Cong. Rec. S16393, (daily ed. October 31, 1995).

22  
23 BPA has conducted a separate interpretative rulemaking process to determine the proper method  
24 for allocating residential exchange benefits for FY 1997 in accordance with the Appropriation Act  
25 of 1996. BPA's Record of Decision adopting all allocation method was released concurrently  
26 with the 1996 rate case Draft Record of Decision.

27  
28 5.1.5. The Bonneville Power Administration Appropriations Refinancing Act. Since the early  
29 1980's subsidy criticisms have been directed at the relatively low interest rates applicable to many  
30 of the FCRPS investments funded by appropriations. The Bonneville Power Administration  
31 Appropriations Refinancing Act (Refinancing Act), part of the Omnibus Consolidated Rescissions

1 and Appropriations Act of 1996, Pub. L. No. 104-134, \_\_\_ Stat. \_\_\_), enacted in April 1996, is  
2 intended to resolve these criticisms in a way that benefits the taxpayer while minimizing the  
3 impact on BPA’s power and transmission rates. See copy of Act and supporting legislative report  
4 language in the Revenue Requirement Study Documentation Volume 1, Chapter 9. The  
5 Refinancing Act requires that unpaid principal on FCRPS appropriations (old capital investments)  
6 at the end of FY 1996 be reset at the present value of the principal and annual interest payments  
7 BPA would make to the U.S. Treasury for these obligations absent the Refinancing Act, plus  
8 \$100 million. The Refinancing Act states that, effective October 1, 1996,

- 9  
10 . . . *an old capital investment has a new principal amount that is the sum of*  
11 (A) *the present value of the old payment amounts for the old capital*  
12 *investment, calculated using a discount rate equal to the Treasury*  
13 *rate of the old investment, and*  
14 (B) *an amount equal to \$100,000,000 multiplied by a fraction*  
15 *whose numerator is the principal amount of the old payment amounts*  
16 *for the old capital investment and whose denominator is the sum of*  
17 *the principal amounts of the old payment amounts for all old capital*  
18 *investments.*

19 *Id.* at §3201(b). “Old capital investments” and “old payment amounts” are defined terms in the  
20 Refinancing Act. In addition, the Refinancing Act specifies that the new principal amounts of the  
21 old capital investments be assigned new interest rates from the Treasury yield curve prevailing at  
22 the time of the refinancing transaction. The Refinancing Act states that

23  
24 . . . *the unpaid balance on the new principle amount . . . an old capital*  
25 *investment . . . bears interest annually at the Treasury rate for the old capital*  
26 *investment until the earlier of the date that the new principal amount is repaid or*  
27 *the repayment date for the new principal amount.*

28 *Id.* at §3201(e)(6)(A).

29  
30 “Treasury rate” is a defined term in the Act.  
31

1 The Refinancing Act restricts prepayment of the new principal to \$100 million during the first five  
2 years after the effective date of the financing. The Act also specifies that repayment periods (due  
3 dates) on the new principal amounts may not be earlier than determined prior to the refinancing.

4  
5 The Refinancing Act also specifies that the prevailing Treasury yield curve will be used to  
6 calculate interest during construction (IDC) and to assign interest rates to new capital investments  
7 funded by appropriations. New capital investments are defined as capital investments funded by  
8 appropriations for a project placed in service after September 30, 1996. The IDC in each fiscal  
9 year of construction for new capital investments is the prevailing one-year Treasury rate. The  
10 Refinancing Act states that

11  
12 *The principal amounts of new capital investment includes interest in each fiscal*  
13 *year of construction . . . at a rate equal to the one-year [Treasury] rate for the*  
14 *fiscal year on the sum of*

15 *(A) construction expenditures that were made from the date construction*  
16 *commenced through the end of the fiscal year, and*

17 *(B) accrued interest during construction.*

18 *Id.* at §3201(f)(1).

19 After the plant is completed, the principal amount is assigned an interest rate based on the  
20 Treasury yield curve prevailing in the year in which the plant is placed in service. The Refinancing  
21 Act states that

22  
23 *. . . the principal amount of a new capital investment bears the interest at the*  
24 *Treasury rate for the new capital investment from the date the related project,*  
25 *facility, or separable unit or feature is placed in service until the earlier of the*  
26 *date of the new capital investment is repaid or the repayment date for the new*  
27 *capital investment.*

28 *Id.* at §3201(g). The Treasury rate for new capital investments prescribed by the Act is the rate

29  
30 *determined by the Secretary of the Treasury, taking into consideration prevailing*  
31 *market yields during the month preceding the beginning of the fiscal year in*  
32 *which the [new investment] . . . is placed in service, in outstanding interest-*  
33 *bearing obligations of the United States with periods to maturity comparable to*

1           *the period between the beginning of the fiscal year and the repayment date for the*  
2           *new capital investment.*

3 *Id.* at §3201(a)(6)(B).

4 The Act also directs the Administrator to offer to include in or amend power, transmission, or  
5 related service contracts provisions that assurance that the Government would not increase the  
6 repayment obligations in the future. The Act also amends the Colville Settlement Act to modify  
7 the amount and timing of credits that BPA takes against its annual cash transfers to Treasury.

8  
9 5.2.    Statutory Provisions Related to the Allocation of Federal Columbia River Power System  
10 Costs Between Different Users of the System.

11  
12 The individual generating projects within the FCRPS, the individual dams, are multi-purpose,  
13 serving such purposes as navigation, irrigation, flood control, and other miscellaneous purposes,  
14 in addition to power production. The general allocation of costs among the various purposes of  
15 projects that also provide power resources to the FCRPS has been historically established under  
16 statutory authority. The total costs of Federal multipurpose dams are allocated to such different  
17 purposes as electricity production, navigation, flood control, irrigation and fish and wildlife. In  
18 addition, the Federal transmission system is used to transmit Federal power and non-Federal  
19 power. The total costs of the Federal transmission system are allocated, pursuant to statute, to  
20 these two users of the Federal transmission system. The statutory guidelines for allocating the  
21 costs of the FCRPS are discussed below.

22  
23 5.2.1. General Cost Allocation Among The Multiple Purposes Of Federal Projects. As indicated  
24 in the Bonneville Project Act, 16 U.S.C. § 832, and various other acts applicable to individual  
25 projects within the FCRPS, the individual projects (dams) are multi-purpose, serving such  
26 purposes as navigation, irrigation, flood control, and other miscellaneous purposes, in addition to  
27 power production. The general allocation of costs among the various purposes of projects that

1 also provide power resources to the FCRPS has been historically established under statutory  
2 authority. For example, Section 7 of the Bonneville Project Act, 16 U.S.C. § 832f, required that  
3 BPA's rates be based, inter alia, on “*an allocation of costs made by the [Federal Power*  
4 *Commission,]*” and that as concerned the costs of the Bonneville Project, that

5  
6 *“the [Federal Power Commission] may allocate to the costs of electric facilities*  
7 *such a share of the cost of facilities having joint value for the production of*  
8 *electric energy and other purposes as the power development may fairly bear as*  
9 *compared with other purposes.”*  
10

11 Similar allocations among other projects have been performed by the Secretary of the Interior  
12 (under the authority of 43 U.S.C. § 485h(a)-(b)), for those projects constructed under various  
13 Reclamation laws, and by the Secretary of the Army for projects constructed by the COE. (The  
14 latter being approved by the Federal Power Commission based on studies performed by the  
15 Secretary of the Army.) Thus, these cost allocations assign various costs to BPA to be recovered  
16 from the “power production function” of the various projects, and include, as noted in Section 7  
17 of the Bonneville Project Act, both the specific costs assignable solely to the power production  
18 function, and the “power production share” of joint costs assigned to multiple purposes of an  
19 individual project. The authority for allocating fish and wildlife costs to the various project  
20 functions is granted to the BPA Administrator, consultation with the COE and BOR, under  
21 section 4(h)(10)(C) of the Northwest Power Act. 16 U.S.C. § 839b(h)(10)(C).  
22

23 The specific cost of each feature of a multipurpose dam is allocated to the purpose it serves. For  
24 example, the costs of powerhouses, penstocks, and other specific power-related facilities are  
25 allocated to power, whereas the costs of navigation locks are allocated to navigation. The joint-  
26 use costs that remain unallocated after the specific costs have been allocated are divided among  
27 the various purposes served. The joint-use formulas take into account the relative benefits  
28 provided by each function to assure that such allocations are made in an equitable manner.  
29

1 5.2.1.1. Section 4(h)(10)(C) Credit. Section 4(h)(10)(A) of the Northwest Power Act  
2 provides for the Administrator to use

3  
4 *the Bonneville Power Administration fund and the authorities available to the*  
5 *Administrator [under the Northwest Power Act] and other laws administered by*  
6 *the Administrator to protect, mitigate, and enhance fish and wildlife to the extent*  
7 *affected by any hydroelectric project of the Columbia River and its tributaries . . .*  
8

9 16 U.S.C. §839b(h)(10)(A). Section 4(h)(10)(C) of the Act instructs the Administrator as to the  
10 allocation of the costs of such expenditures made under Section 4(h)(10)(A), providing

11  
12 *The amounts expended by the Administrator for each activity pursuant to this*  
13 *subsection shall be allocated as appropriate by the Administrator, in consultation*  
14 *with the Corps of Engineers and the Water And Power Resources Service, among*  
15 *the various hydroelectric projects of the Federal Columbia River Power System*  
16 *[FCRPS]. Amounts so allocated shall be allocated to the various project*  
17 *purposes in accordance with existing accounting procedures for the [FCRPS.]*  
18

19 16 U.S.C. §839b(h)(10)(C).  
20

21 5.2.1.2. Application Of Cost Allocation Factors and Section 4(h)(10)(C).

22 Section 4(h)(10)(C) of the Northwest Power Act provides for the Administrator to expend funds  
23 for the purposes of protecting, mitigating, and enhancing fish and wildlife to the extent affected by  
24 the development and operation of any Federal hydroelectric project. Section 4(h)(10)(C) directs  
25 the Administrator to make an appropriate allocation of those expenditures among project  
26 purposes. The allocation to project purposes under section 4(h)(10)(C) of the costs of the  
27 comprehensive fish and wildlife measures funded by the Administrator under section 4(h)(10)(A) is  
28 intended to implement the principle that electric power consumers bear no greater share of the  
29 costs of fish and wildlife mitigation than the power portion of the project purposes.  
30

31 5.2.1.3 Determination And Application of the Section 4(h)(10)(C) “Credit”. The  
32 legislative history of section 4(h)(10)(C) serves to illustrate how the expenditures by the

1 Administrator for protection, mitigation, and enhancement of fish and wildlife at individual  
2 Federal projects in excess of the portion allocable to electric consumers is to be treated as a credit  
3 for electric consumers. The Interior Committee Report states -

4  
5 *The allocation of particular costs to individual projects and among different*  
6 *project purposes, as is required by existing law, is preserved in this subparagraph*  
7 *to avoid establishing any precedent of a different allocation result. Thus, power,*  
8 *irrigation, navigation, recreation, and other project purposes will continue to*  
9 *bear only their established shares of the total costs attributable to the protection*  
10 *and mitigation measures. All expenditures by BPA are to be made on a*  
11 *reimbursable basis vis-à-vis other project purposes, although BPA will have the*  
12 *flexibility to treat expenditures in excess of its allocated share as being payments*  
13 *for other project costs for which BPA is responsible under existing law.*  
14

15 H.R. Rep. No. 976, 96th Cong., 2d Sess., pt. 2 at 45 (1980), reprinted in 1980 U.S.C.C.A.N.  
16 5989, 6011 (emphasis added.)

17  
18 Thus, the expenditures for those fish and wildlife protection, mitigation, and enhancement  
19 measures that are not allocable to the power functions of FCRPS projects (or “electric power  
20 consumers” as described in § 4(h)(8)(B)) are treated as payments for “other project costs.” This  
21 avoids allocating expenditures to BPA’s ratepayers (“the electric power consumers”) beyond the  
22 power function’s “share.” Thus the Administrator’s expenditures on behalf of “non power  
23 purposes” are recouped by BPA’s ratepayers when these amounts are “credited” against other  
24 obligations allocable to the power function.”

25  
26 BPA’s initial funding of all the costs for fish and wildlife avoids the need for funding the non-  
27 power portion of these costs through the annual appropriations process. So that BPA’s  
28 ratepayers do not carry an unfair burden, by paying more than electric power’s share of the cost  
29 of fish and wildlife measures, Congress directed BPA to recoup the mitigation costs that it incurs  
30 on behalf of non-power project purposes. BPA is not obligated to reimburse the Treasury for the  
31 non-power portion of the fish and wildlife costs. Instead, this portion of the costs is regarded as

1 having been applied towards other project costs recovered through BPA's rates and payable to  
2 the Treasury. Thus BPA receives a credit against its cash transfers to Treasury for expenditures  
3 attributable to other project purposes. The cost sharing arrangements with the Administration  
4 implement the section 4(h)(10)(C) directives.

5  
6 5.2.2. Administration's Agreement Recognizing 4(h)(10)(C) Credits due to BPA. Against a  
7 backdrop of competitive pressure to reduce rates, the need to recover costs, and the specter of  
8 increasing fish mitigation costs under the Northwest Power Act and Endangered Species Act, the  
9 Administration announced a series of arrangements that included steps to implement section  
10 4(h)(10)(C).

11  
12 5.2.3. March 1995 4(h)(10)(C) Agreement between the Administration and BPA. In  
13 March 1995, the Administration and BPA announced an arrangement designed to improve BPA's  
14 ability to recover the costs related to salmon recovery initiatives under the Endangered Species  
15 Act and fish and wildlife mitigation under the Northwest Power Act. Under the arrangement the  
16 U.S. Treasury and taxpayers share the risk of and responsibility for fish and wildlife recovery and  
17 mitigation costs. This cost sharing arrangement is outlined in testimony by OMB Director Alice  
18 Rivlin before the Subcommittee on Energy and Water, Senate Appropriations Committee in  
19 March 1995, as follows (a complete copy of the testimony is attached to Chapter 14 of the  
20 Revenue Requirement Documentation Volume 1):  
21

22 *"Now, I want to address the 1995 Biological Opinion, which primarily affects*  
23 *hydrogeneration and the BPA, in more detail. We expect the amount of*  
24 *additional costs to BPA to be about \$140 million in fiscal 1996. This figure*  
25 *includes \$42 million of direct program expenses, \$54 million of replacement*  
26 *power purchase, and \$54 million of foregone revenues. We expect these costs to*  
27 *rise to \$200 million by fiscal 2001.*

28  
29 *Last month, the Administration agreed to help defray the costs of the 1995*  
30 *Biological Opinion. We have completed our analysis of program costs and*

1 options that were being discussed by all the Federal agencies involved in  
2 developing the opinion. I am pleased to announce that we have reached a  
3 conclusion, which we believe will substantially assist the region in meeting these  
4 costs.

5  
6 On average, our decisions will provide Federal credits to the region of about \$60  
7 million per year for each of the next two years. Assuming average levels of water  
8 availability, it will yield a total credit of more than \$200 million over the next five  
9 years. Based on these actions, BPA believes the incremental costs of the 1995  
10 Biological Opinion can be covered without a further increase in its recently-  
11 announced five percent rate increase.

12  
13 The specifics of how incremental salmon recovery costs will be covered are as  
14 follows:

- 15 • About \$30-\$40 million a year will be derived through administrative and other  
16 cost savings which BPA can achieve.
- 17  
18 • Beginning in fiscal 1995, annual credits on a permanent basis under section  
19 4(h)(10)(c) of the Northwest Power Act will be provided for BPA's direct Fish and  
20 Wildlife expenses. These credits will amount to about \$25-\$35 million a year.
- 21  
22 • In each of fiscal 1995 and 1996, section (4)(h)(10)(c) credits for BPA's power-  
23 purchase costs related to its fish and wildlife programs will also be available. We  
24 believe this is appropriate due to the immediacy of the program requirements and  
25 the time it will take BPA to implement its cost savings and other programs. We  
26 expect this action to result in about \$30 million for each of these two years.
- 27  
28 • Finally, to the extent necessary, BPA will reduce its build-up of cash reserves.  
29 This may make it more likely that BPA will have to reschedule a portion of its  
30 annual Treasury payment in future years. If such an event occurs, BPA will  
31 reschedule its debt consistent with existing Treasury policy.

32  
33 The Administration believes these actions will make a major contribution toward  
34 our shared goal of achieving healthy salmon stocks in the Columbia Basin and  
35 maintaining a stable power system in the region.”

36  
37 The Federal cost-sharing takes two forms: (1) annual credits beginning in FY 1995 against BPA's  
38 cash transfers to Treasury under section 4(h)(10)(C) of the Northwest Power Act, and (2) if  
39 necessary, reduction of BPA's accumulation of cash reserves, which is to say, a reduction in the  
40 probability of meeting its annual payments to Treasury relative to the long-term probability  
41 standard that BPA adopted in the 1993 rate filing. The arrangement also called for BPA to

1 reduce its overall costs by \$30 to \$40 million per year. The Administration expected that BPA  
2 would proceed with its 1995 rate case without having to increase rates for FY 1996 more than  
3 proposed.

4  
5 5.2.4. October 1995 4(h)(10)(C) Agreement between the Administration and BPA. In an  
6 October 24, 1995, letter to Senator Hatfield, Chairman, Senate Committee on Appropriations,  
7 OMB Director Rivlin outlined additional Administration actions intended to ensure stable funding  
8 for fish mitigation measures and reduce financial uncertainty to BPA and its customers. The letter  
9 “reiterates and extends” the commitments contained in Ms. Rivlin’s March, 1995 testimony before  
10 the Senate Subcommittee on Energy and Water. ( A copy of the letter is attached to Chapter 14  
11 of the Revenue Requirement Documentation, Volume 1, WP-96-FS-BPA-02A.) The letter also  
12 describes a “program”, for the period FY 1996-2001, that is intended to provide greater financial  
13 certainty to BPA and its customers for fish and wildlife obligations, while ensuring stable funding  
14 at levels needed to implement the 1995 Biological Opinion and other objectives under the  
15 Endangered Species Act, and the Council’s Fish and Wildlife Program initiatives under the  
16 Northwest Power Act. The objectives of the Administration’s program are:

17  
18 *to provide a clear technical plan (“Plan”) with a stable, multi-year budget for*  
19 *BPA to finance the implementation of its fish and wildlife obligations under the*  
20 *Northwest Power Act and the Endangered Species Act, based upon the draft plan*  
21 *of the BPA, the National Marine Fisheries Services (NMFS), and the Chairman of*  
22 *the Northwest Power Planning Council (NPPC) dated September 19, 1995. The*  
23 *final Plan will be developed as an interagency agreement among the affected*  
24 *agencies; BPA, NMFS, Corps of Engineers, and the Department of the Interior,*  
25 *in consultation with the NPCC (sic) and the Tribes.*

26  
27 *The Plan must meet several key requirements; it must be adequate to support*  
28 *activities required of BPA over the next six years under the 1995 Biological*  
29 *Opinion and the Northwest Power Council’s Fish and Wildlife Program; it must*  
30 *include scientific monitoring and evaluation components; including using an*  
31 *independent scientific peer review panel; it must be adequate to accommodate*  
32 *any additional listings that may occur over the six year period of the agreement;*  
33 *and the Plan must hold BPA’s costs to a level that is projected to average no*

1            *more than \$435 million per year over the next six years, when assuming average*  
2            *water conditions and other circumstances (i.e., normal fluctuations in water*  
3            *runoff and flow levels and variations in business conditions will be*  
4            *accommodated by BPA, effectively adjusting this “cap” up or down in any given*  
5            *year).*

6  
7            In addition, the letter commits the Administration to:

8  
9            *[E]stablish a BPA Fish Cost Contingency Fund consisting of credits to be used by*  
10           *BPA against fish and wildlife costs under certain conditions. The beginning*  
11           *credit balance in this fund shall be the amount of all reimbursements available,*  
12           *but not used under provision (4) (h) (10) (c) of the Northwest Power Act of 1980*  
13           *from the date of enactment to the present. This amount is estimated by BPA to be*  
14           *approximately \$325 million. BPA shall certify to the Secretary of the Treasury,*  
15           *with appropriate documentation, the total amount of all such reimbursement*  
16           *credits which are eligible during that period, but which have not been used.*

17  
18           BPA then may use the credits from the Fish Cost Contingency Fund to defray fish and other  
19           water-related costs during the next six years (FYs 1995-2001):

20  
21           *(a) for incremental costs resulting from court action which requires changes*  
22           *or additional activities that increase the net annual costs to BPA of the fish and*  
23           *wildlife Plan above the target spending levels . . . [which average \$435 million*  
24           *per year over the next six years]; and*

25  
26           *(b) for additional costs stemming from adverse water conditions, specifically,*  
27           *for the amount by which additional power purchases and shortfalls in non-firm*  
28           *power revenues, combined, exceed a percentage of the sum of those two projected*  
29           *annual levels for the 1996-2001 in BPA’s final rate case. The specific threshold*  
30           *levels will be determined in a manner that will be predicted to make this funding*  
31           *available 25 to 30 percent of the time during the six year period of this*  
32           *agreement. Use of credits from the Fund shall be made upon application by BPA,*  
33           *with appropriate documentation, that these conditions have been met, certified by*  
34           *the Department of Energy and concurred in by the Department of Treasury and*  
35           *the Office of Management and Budget.*

1 5.2.5. Equitable Allocation of Transmission Costs. The Transmission System Act and the  
2 Northwest Power Act recognize that the transmission system is used both for transmitting Federal  
3 power marketed by BPA and for wheeling power for non-Federal users. The Northwest Power  
4 Act in Section 7(a)(2)(C) requires that transmission rates "equitably allocate the costs of the  
5 Federal transmission system between Federal and non-Federal power utilizing such system."  
6 16 U.S.C. § 839e(a)(2)(C). See also Transmission System Act §10, 16 U.S.C. § 838h.

7  
8 In an order dated January 27, 1984, United States Department of Energy - Bonneville Power  
9 Administration, 26 FERC ¶ 61,096 (1984), the Federal Energy Regulatory (FERC) set forth a  
10 number of requirements that would enable it to determine whether transmission costs have been  
11 equitably allocated as required by the Northwest Power Act and the Transmission System Act.  
12 FERC directed the development of separate repayment studies for the generation and transmission  
13 functions of the FCRPS.

14  
15 Consistent with FERC's direction, the Revenue Requirement Study incorporates separate  
16 repayment studies for the generation and transmission functions of the FCRPS for FYs 1997  
17 through 2001.

18  
19 5.3. Repayment Requirements and Policies.

20  
21 The statutes do not include specific directives for the repayment of the FCRPS investments. The  
22 details of the repayment policy have been established through administrative interpretation of the  
23 basic statutory requirements, with Congressional sanction.

24  
25 There have been a number of changes in BPA's repayment policy over the years concurrent with  
26 expansion of the FCRPS and changing conditions. In general, current repayment criteria were

1 first approved by the Secretary of the Interior on April 3, 1963. These criteria were refined and  
2 detailed in the material submitted to the Secretary and the Federal Power Commission (the  
3 predecessor agency to the Federal Energy Regulatory Commission) in support of BPA's rate filing  
4 in September 1965.

5  
6 The repayment policy was presented to Congress for its consideration for the authorization of the  
7 Grand Coulee Dam Third Powerhouse in June 1966. The underlying theory of repayment was  
8 discussed in the House of Representatives' Report related to this authorization, H.R. Rep.  
9 No. 1409, 89th Cong., 2nd Sess. 9-10 (1966). As stated in that report:

10  
11 *Accordingly, in a repayment study there is no annual schedule of capital*  
12 *repayment. The test of the sufficiency of revenues is whether the capital*  
13 *investment can be repaid within the overall repayment period established for each*  
14 *power project, each increment of investment in the transmission system, and each*  
15 *block of irrigation assistance. Hence, repayment may proceed at a faster or*  
16 *slower pace from year to year as conditions change.*

17  
18 *This approach to repayment scheduling has the effect of averaging the year-to-*  
19 *year variations in costs and revenues over the repayment period. This results in a*  
20 *uniform cost per unit of power sold, and permits the maintenance of stable rates*  
21 *for extended periods. It also facilitates the orderly marketing of power and*  
22 *permits Bonneville Power Administration's customers, which include both electric*  
23 *utilities and electro-process industries, to plan for the future with assurance.*

24  
25 The Secretary of the Interior issued a statement of power policy on September 30, 1970, setting  
26 forth general principles that reaffirmed the repayment policy as previously developed. The most  
27 pertinent of these principles are set forth in the Department of the Interior Manual, Part 730,  
28 Chapter 1:

29  
30 A. *Hydroelectric power, although not a primary objective, will be*  
31 *proposed to the Congress and supported for inclusion in multiple-purpose*  
32 *Federal projects when . . . it is capable of repaying its share of the*

1                   *Federal investment, including operating and maintenance costs and*  
2                   *interest, in accordance with the law.*

3  
4           B.       *Electric power generated at Federal projects will be marketed at*  
5                   *the lowest rates consistent with sound financial management. Rates for*  
6                   *the sale of Federal electric power will be reviewed periodically to assure*  
7                   *their sufficiency to repay operating and maintenance costs and the capital*  
8                   *investment within 50 years with interest that more accurately reflects the*  
9                   *cost of money.*

10  
11 To achieve a greater degree of uniformity in a repayment policy for all Department of Interior  
12 power marketing agencies, the Deputy Assistant Secretary issued a memo on August 2, 1972,  
13 outlining: (1) a uniform definition of the commencement of the repayment period for a particular  
14 project; (2) the method for including future replacement costs in repayment studies; and (3) a  
15 provision that the investment or obligation bearing the highest interest rate shall be amortized  
16 first, to the extent possible, while still complying with the repayment period established for each  
17 increment of investment.

18  
19 A further clarification of the repayment policy was outlined in a joint memo of January 7, 1974,  
20 from the Assistant Secretary for the Bureau of Reclamation and Assistant Secretary for Energy  
21 and Minerals. This memo states that in addition to meeting the overall objective of repaying the  
22 Federal investment or obligations within the prescribed repayment periods, revenues shall be  
23 adequate, except in unusual circumstances, to repay annually all costs for operation and  
24 maintenance, purchased power, and interest.

25  
26 On March 22, 1976, the Department of Interior issued Chapter 4 of Part 730 of the Departmental  
27 Manual to codify financial reporting requirements for the Department of the Interior's power  
28 marketing agencies. Included therein are standard policies and procedures for preparing power  
29 system repayment studies.

1 BPA and other former Department of Interior power marketing agencies were transferred to the  
2 newly established DOE on October 1, 1977. See Department of Energy Organization Act,  
3 42 U.S.C. § 7101 et seq (1994.) The DOE has adopted the policies set forth in Part 730 of the  
4 Department of the Interior Manual by issuing Interim Management Directive No. 1701 on  
5 September 28, 1977, which subsequently was replaced by RA 6120.2 on September 20, 1979, as  
6 amended on October 1, 1983.

7  
8 The repayment policy outlined in RA 6120.2, paragraph 12, provides that BPA's total revenues  
9 from all sources must be sufficient to at least:

- 10
- 11 1. Pay all annual costs of operating and maintaining the Federal power system;
- 12 2. Pay the cost each fiscal year of obtaining power through purchase and exchange
- 13 agreements, the costs for transmission services, and other costs during the year in
- 14 which such costs are incurred;
- 15 3. Pay interest each year on the unamortized portion of the commercial power
- 16 investment financed with appropriated funds at the interest rates established for
- 17 each generating project and for each annual increment of such investment in the
- 18 BPA transmission system, except that recovery of annual interest expense may be
- 19 deferred in unusual circumstances for short periods of time;
- 20 4. Pay when due the interest and amortization portion on outstanding bonds sold to
- 21 the U.S. Treasury;
- 22 5. Repay:
- 23 a. each dollar of power investments and obligations in the FCRPS generating
- 24 projects within 50 years after the projects become revenue producing
- 25 (50 years has been deemed a "reasonable period" as intended by Congress,

1                   except for the Yakima-Chandler Project, which has a legislated  
2                   amortization period of 66 years);

3           b.       each annual increment of transmission financed by Federal investments  
4                   and obligations within the average service life of such transmission facilities  
5                   (currently 45 years) or within a maximum of 50 years, whichever is less  
6                   (BPA has interpreted RA 6120.2 to require repayment of bonds sold to  
7                   finance conservation to be within the average service lives of these  
8                   projects, currently estimated to be 20 years, and for fish and wildlife  
9                   facilities to be 15 years);

10           c.       the federally financed amount of each replacement within its service life  
11                   up to a maximum of 50 years; and

12           6.       As required by Pub. L. No. 89-448, repay the portion of construction costs at  
13                   Federal reclamation projects that is beyond the repayment ability of the irrigators,  
14                   and which is assigned for repayment from commercial power revenues, within the  
15                   same overall period available to the irrigation water users for making their  
16                   payments on construction costs.

17   The typical repayment period for appropriated capital investments is 50 years from the year in  
18   which the plant is placed in service. The Refinancing Act overrides provisions in RA 6120.2  
19   related to determining interest during construction and assigning interest rates to Federal  
20   investments financed by appropriations. This Act also contains provisions on repayment periods  
21   (due dates) for these investments. The Refinancing Act is discussed in section 5.1.5. of this Study.

22  
23   Irrigation costs are repaid without interest. Pub. L. No. 89-448 authorizes the payment of  
24   irrigation costs from revenues of the entire power system. This is consistent with the so-called  
25   "Basin Account" concept. Pub. L. No. 89-561, approved on September 7, 1966, amended

1 Pub. L. No. 89-448 to provide several limitations on the repayment of irrigation costs from  
2 power revenues. These limitations are:

- 3 1. the irrigation costs are to be paid from "net revenues" of the power system,  
4 with net revenues defined as those revenues over and above the amount needed to  
5 cover power costs and previously authorized irrigation payments;
- 6 2. the construction of new Federal irrigation projects will be scheduled, i.e.,  
7 deferred, if necessary, so that the repayment of the irrigation costs from power  
8 revenues will not require an increase in the BPA power rate level; and
- 9 3. the total amount of irrigation costs to be repaid from power revenues shall  
10 not average more than \$30 million per year in any period of 20 consecutive years.

11  
12 In addition, other sections within RA 6120.2 require that any outstanding deferred interest  
13 payments must be repaid before any planned amortization payments are made. Also, repayments  
14 are to be made by amortizing those Federal investments and obligations bearing the highest  
15 interest rate first, to the extent possible, while still completing repayment of each increment of  
16 Federal investment and obligation within its prescribed repayment period.

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**APPENDIX A**

**LETTER FROM THE ADMINISTRATOR  
JUNE 3, 1996  
ON BPA COST-CUTTING INITIATIVES**

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## **Appendix B**

### **The Repayment Program**



1 1,700 specific investments for generation and approximately 500 specific investments for  
2 transmission. The project name, amount of principal, interest rate, in-service date, due date, and  
3 the nature of the investment are described for each investment.

4

5 (2) revenues available for interest and amortization<sub>i</sub> -

6  
7 
$$\text{interest expense}_i = \sum_{j=1}^m \text{amortization payment}_{ij}, \quad i=1,2,\dots,n,$$
  
8  
9

10 where m is the total number of Federal investments.

11

12

#### 13 1.4. Computation of Principal Payments Given Due Dates

14 The amortization payments on each investment must total the investment's principal on or before  
15 its due date (equation 3):

16

17  
18 (3) 
$$\sum_{i=1}^n \text{payment}_{ij} \leq \text{principal}_j, \quad j=1,2,\dots,m.$$
  
19  
20  
21

#### 22 1.5. Ordering of Payments According to Highest Interest First Constraint

23

24 The process described above yields one set of equations in which the payments are summed by  
25 year and another set of equations in which the payments are summed by investment. Taken  
26 together, however, these two sets of equations have no unique solution. RA 6120.2 suggests an  
27 approach to a unique solution with the requirement that "[t]o the extent possible, while still  
28 complying with the repayment periods established for each increment of investment and unless  
29 otherwise indicated by legislation, amortization of the investment will be accompanied by  
30 application to the highest interest-bearing investment first."

31

32 A new equation can be obtained for each year by adding together equation 2 for that year and all  
33 earlier years. This equation sums all amortization payments made on any investment that comes

1 due in those years. This equation can be simplified by substituting the principal of each such  
 2 investment for the sum of the amortization payments on that investment as given by equation 3.  
 3 The resulting equation (equation 4 below) indicates that for any year the sum of amortization  
 4 payments on investments that are not due by that year cannot exceed the sum of the revenues  
 5 available for interest and amortization less the accumulated interest expense and the accumulated  
 6 principal of all investments that are due in, or prior to, that year.

7

8

9 (4)

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14

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16

$$\sum_{i=1}^k \text{revenues available for interest and amortization}_i - \sum_{i=1}^k \text{interest expense}_i - \sum_{\text{due}} \text{principal}_j = \sum_{\substack{\text{not due} \\ i=1}}^k \sum_{\text{due}} \text{payment}_{ij}, \quad k=1,2,\dots,n.$$

17 The term "due" refers to Federal investments or obligations due to be repaid in or prior to the  
 18 year k, and "not due" refers to Federal investments or obligations not due to be repaid by the  
 19 year k.

20

21 For each year in the repayment study, the right side of equation 4 represents the amount of the  
 22 accumulated amortization payments on Federal investments or obligations that are not due. The  
 23 left side of the equation represents the accumulated revenues available for making these payments  
 24 on the Federal investments or obligations. These amortization payments will first be made on the  
 25 highest interest bearing Federal investments or obligations in compliance with RA 6120.2. If for  
 26 some future year this amount is evaluated as being zero or negative, then this equation implies  
 27 that amortization payments can be made only on highest interest bearing Federal investments or  
 28 obligations that come due on or before that year.

29

30

31

1    1.6. Iteration Towards A Solution

2

3    Equations 2 through 4 do not permit a direct solution. Although the revenues and the Federal  
4    investments or obligation that are due are known for all years, an amortization payment made in  
5    the current year will affect interest expense in future years. That is, interest expense will no  
6    longer have to be paid on the portion of the Federal investment or obligations that has been  
7    amortized. This problem is solved using an iterative approach.

8

9    The program initially assumes no future interest expense in evaluating the left side of the fourth  
10   set of equations. Consequently, the net revenues available for payments on Federal investments  
11   and obligations that are not due, but bear the highest interest rates, will be excessive. As  
12   payments are determined for each successive year, and the interest expense of a given year is  
13   calculated, they are used in the fourth set of equations for all later years. The fourth set of  
14   equations is thus modified, and the revenues available for payments on "not due" highest interest  
15   rate bearing Federal investments or obligations are reduced. Therefore, the amortization of a  
16   Federal investment or obligation on its due date, in order to satisfy equation 3, may violate  
17   equation 2. Equation 2 may be violated when a negative balance occurs. A negative balance will  
18   result when revenues available for interest and amortization are less than interest expense plus any  
19   amortization payments that are due. As a result, a second iteration is necessary.

20

21   In the second iteration, the interest expense developed in the first iteration is used in the fourth set  
22   of equations for future years. Since amortization payments on "not due" highest interest rate  
23   bearing Federal investments or obligations were excessive in the first iteration, the interest  
24   expense developed in the first iteration will be less than the true interest expense. These  
25   estimates, however, are more accurate than an estimate of zero interest expense and, as a result,  
26   the negative balances will be reduced.

27

1 If revenues are sufficient to recover a given set of annual expenses and to repay with interest  
2 BPA's long-term Federal obligations, then the interest expenses of successive iterations will  
3 converge and the negative balances will be reduced to zero and thus yield a solution. Under these  
4 conditions all four equations will be satisfied.

5

6 If revenues are insufficient, then compliance with the fourth set of equations will force  
7 amortization payments on the highest interest rate bearing obligations to be delayed. This will  
8 cause an increase in interest expense, leaving less revenue available to amortize high interest  
9 obligations. The interest expense from successive iterations will diverge, and the negative  
10 balances will start increasing. Under these conditions no solution is possible given available  
11 revenues.

12

13 BPA does not deliberately plan to defer annual expenses in the future. Therefore, if revenues  
14 were insufficient to cover annual expenses for any year of the repayment period, the program  
15 decides that no solution is possible at that revenue level.

16

17



1                                   3.    TREATMENT OF BONDS ISSUED TO U.S. TREASURY

2

3    BPA's current long-term bonds issued to the U.S. Treasury consist of term bonds and callable

4    bonds. The term bonds cannot be prepaid, so their amortization and the revenues required

5    therefore are excluded from the above calculations. The remaining bonds are callable bonds and

6    have provisions that allow for early redemption before the maturity date--5 years after the date of

7    the issuance on some older bonds and longer periods on some of the more recently issued bonds.

8    In addition, a premium must be paid if a bond is repaid before its due date. The premium that

9    must be paid decreases with the age of the bond. This premium affects the repayment process in

10   two ways.

11

12   First, such premiums must be included with the payments of equation 2 and consequently affect

13   the fourth set of equations. The premium that is paid on any Federal bond is considered to be due

14   when the Federal bond is due. The premiums of one iteration are accumulated by due year and

15   included in the fourth set of equations for the following iteration. When each premium is paid in

16   the following iteration, it is used to modify the fourth set of equations and is also accumulated in

17   case another iteration is necessary.

18

19   Second, the decrease in the premium that must be paid also affects the highest interest selection

20   process. This effect is equivalent, in total, to a fixed premium and a reduced interest rate. This

21   reduced effective interest rate enters into the comparison with other Federal investments and

22   obligations to determine which should be repaid first.

23

24   See Table 22, Application of Amortization.

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4. INTEREST INCOME

BPA is authorized by applicable legislation and RA 6120.2 to calculate interest income as a credit to interest expense. An interest income credit is computed within the repayment program based on the average cash balance of funds required to be collected for return to the U.S. Treasury in that year. The program assumes that the cash accumulates at a uniform rate throughout the year, except for interest paid on bonds issued to the U.S. Treasury at mid-year. At the end of the year the cash balance together with the interest credit earned thereon is used for payment of interest expense, amortization of the Federal investment, payment of bond premiums, and payment of Corps and Bureau O&M.

5. FLOW CHARTS

The following pages contain flow charts associated with the repayment study program. The first chart shows the binary search process. The second chart shows the test for sufficiency. The third chart shows the application of revenues. See Chapter 5, Documentation Volume 2 of the Study, WP-96-FS-BPA-02B.









1 critical year is defined as the last year of the repayment period during which the optimization of  
2 interest and amortization requires that the annual costs, interest, and amortization equal the  
3 minimum revenue level; this is made manifest by amortization payments approaching zero or  
4 retiring only obligations which could not be prepaid and are due.) Unamortized Federal  
5 generation investments or obligations, shown in column G, are determined by subtracting  
6 amortization and discretionary amortization from the cumulative amount of Federal generation  
7 investments or obligation for each year. Columns H, I, and J show a similar calculation of  
8 predetermined amortization payments and the unamortized amount of irrigation assistance for  
9 each year of the repayment period. Irrigation assistance is assigned 100 percent to generation.

10  
11 Tables 23B-27B display the repayment program results for the transmission component of the  
12 FCRPS. Columns A through G illustrate the same procedures and data requirements as discussed  
13 in Tables 23B-27A, except that Tables 23B-27B encompass only transmission Federal  
14 investments or obligations. Historical transmission data are addressed in Documentation, Volume  
15 1 of the Study, WP-96-FS-BPA-02A, Chapter 9. Future transmission investments through the  
16 cost evaluation period are documented in Chapter 2. Transmission system replacements are  
17 documented in Chapter 12.

18  
19 Tables 23C-27C display planned principal payments by fiscal year for the Federal investment and  
20 obligations of the FCRPS. Shown on these tables are the principal payments associated with the  
21 appropriations of BPA, the Corps, and the Bureau, and BPA bonds. These principal payments are  
22 segregated between the transmission and generation related Federal investments and obligations  
23 of the FCRPS.

24  
25 Tables 23D-27D show the component of the capitalized contractual obligations associated with  
26 payment of principal. Included is the stream of payments associated with a long-term, relatively

1 fixed, energy resource acquisition contract that will not be capitalized. The capitalized  
2 contractual obligations are 100 percent generation related. Tables 23E-27E show the scheduled  
3 interest payments for the Federal investment and obligations of the FCRPS in the same manner as  
4 the principal payments in Tables 23-28C discussed above. Using the same format as Tables 23D-  
5 27D, Tables 23F-27F detail the component of capitalized contractual obligations associated with  
6 the payment of interest expense on these bonds.

7  
8 Tables 23G-27G provide a summary of all principal and interest payments associated with all  
9 FCRPS investments and obligations. Columns B, C, and D represent the principal portion of the  
10 transmission, conservation and generation, and capitalized contractual obligations. Column E is  
11 the total principal payment. Columns F, G, and H represent the interest portion of the  
12 transmission, conservation and generation, and capitalized contractual obligations. Column I is  
13 the total interest payment.

14  
15 Tables 23H-27H compare the schedule of unamortized Federal investments and obligations  
16 resulting from the power repayment studies to the Federal investment and obligations that are due  
17 and must be paid for each year of the repayment period. Columns B and D show unamortized  
18 Federal investments and obligations for the generation and transmission components of the  
19 FCRPS, respectively. These data are identical to the data shown in Column G of Tables 23A-  
20 27A. Columns C and E entitled "Term Schedule" show Federal investments and obligations that  
21 are due for each year. It should be noted that unamortized Federal investment and obligations are  
22 always less than the term schedule, indicating that the FCRPS planned repayments are in excess of  
23 repayment obligations, thereby satisfying repayment requirements. (The total of Unamortized  
24 Investment need not be zero at the end of the repayment period because of the replacements  
25 occurring subsequent to the cost evaluation period.)

26

1 Tables 28 and 29 list by year through the 50-year repayment period the application of the  
2 amortization payments, consistent with the revised repayment studies, by project. The projected  
3 annual amortization payments on the Federal investments and obligations are identified by the  
4 project name, in-service date, due date, and interest rate. The amount of the Federal investment  
5 or obligation is shown as both the original gross amount due and the net amount after all prior  
6 amortization payments.

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**APPENDIX A**

**EXPENSE SPENDING LEVELS**

**FYs 1995 - 2001**

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**Application of Amortization  
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FY 2001 Current Repayment Study**

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**Application of Amortization  
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FY 2001 Current Repayment Study**

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**Application of Amortization  
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**Application of Amortization  
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FY 2001 Revised Repayment Study**

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