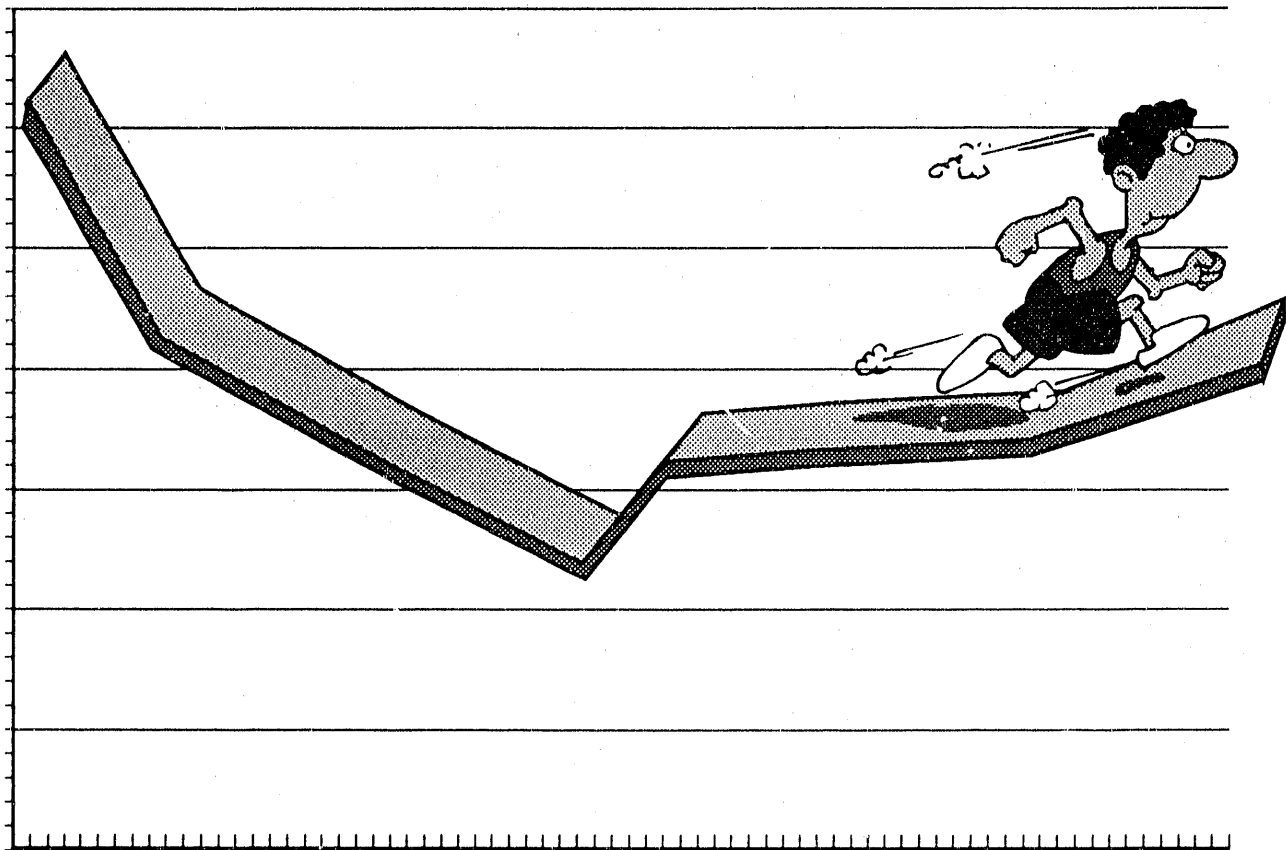


# Proposed Revenues, Financial Strategy, and Program Costs for FY 1992 and 1993

CT 0 4 1990

“Staying Fit for the Long Run”



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**MASTER**

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# Introduction

Programs in Perspective is the Bonneville Power Administration's public involvement process for engaging customers and other stakeholders in a regional dialog to set strategic direction and broad program plans for BPA effort. This planning leads into a biennial rate setting cycle and offers a more accessible and flexible opportunity for dialog on broad issues than is possible under the strict administrative procedures of ratemaking.

The self-financed character of BPA has made this public process a necessary and valuable one to assure that those who pay BPA's rates have a clear understanding and a strong voice in the plans for use of the resulting revenues.

During 1989, the previous PIP engaged the region in discussion of major strategic issues focussing on major areas. In 1990, BPA seeks discussion of the directions and plans specifically for fiscal years 1992 and 1993. The steps taken for those years will lay the foundation for the years beyond. Thus, we have subtitled this year's process, "Staying fit for the long run."

We have consulted extensively with customers and others in the region in developing these plans. In dozens of program-specific meetings, BPA staff have talked and listened to what others think our plans ought to be. PIP now gives us a chance to review their sum total, along with projections for revenues and our overall financial position.

You should read the accompanying Issue Alert for discussion of alternative views of the future. In addition, a summation of alternative scenarios is given on a separate matrix, along with rules of thumb for you to use in constructing your view of what the future will hold.

This document sets forth the BPA base case proposal. Here, we set out a proposal we believe is sound. It is summarized on a separate the Master Table giving of all the component parts and the bottom line of combined costs.

The remainder of this appendix is organized to, first, give you the overview of revenues we expect for 1992-93 and the factors that could affect actual revenue levels. Second, we describe the overall financial position of the agency and the financial objectives we believe are important to our ability to deliver programs for the long run. Thereafter, individual chapters on each of the component parts of the program costs (as shown on the Master Table) give more detailed rationale.

# Master Table Summary of Program Costs

## BPA Programs in Perspective

### Expenses (\$ in Millions)

	Before Corporate Overhead Distribution					After Corporate Overhead Distribution				
	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993
<b>CURRENT OPERATIONS</b>										
BPA --										
1. Power Marketing/Scheduling	141.6	79.7	156.4	162.5	167.6	145.8	84.0	161.2	167.5	172.7
2. Transmission System O&M	84.6	93.4	100.6	109.3	114.6	103.4	112.5	121.6	131.4	137.7
3. Transmission System Development	24.1	18.2	19.6	20.7	21.8	26.4	19.7	21.6	22.9	24.3
4. Generation Acquisition & Oversight	12.5	12.1	26.8	36.8	40.9	14.4	14.4	28.5	38.7	42.8
5. Conservation	21.6	33.5	45.4	44.0	46.0	24.0	36.3	47.4	46.0	48.0
6. Fish & Wildlife	22.4	32.3	35.6	33.8	35.1	23.0	33.0	36.3	34.6	35.9
7. Corporate Overhead 1/	30.2	30.7	32.2	34.0	35.4	---	---	---	---	---
8. Subtotal - BPA	337.0	299.9	416.6	441.1	461.4	337.0	299.9	416.6	441.1	461.4
Other Entities ---										
9. Planning Council	7.5	7.2	7.5	7.8	7.7	7.5	7.2	7.5	7.8	7.7
10. Corps of Engineers	65.7	69.2	62.8	64.4	67.4	65.7	69.2	62.8	64.4	67.4
11. U.S. Fish & Wildlife Services	7.3	9.0	10.1	11.2	11.5	7.3	9.0	10.1	11.2	11.5
12. Bureau of Reclamation	24.8	33.7	35.8	43.6	44.8	24.8	33.7	35.8	43.6	44.8
13. Hanford (HGP)	-0.9	-0.4	-0.4	0.2	0.4	-0.9	-0.4	-0.4	0.2	0.4
14. WNP-1	3.1	2.7	0.4	0.3	0.3	3.1	2.7	0.4	0.3	0.3
15. WNP-2	173.6	214.9	228.3	226.0	231.2	173.6	214.9	228.3	226.0	231.2
16. WNP-3	10.7	11.4	13.3	13.6	13.2	10.7	11.4	13.3	13.6	13.2
17. Trojan	57.5	60.3	66.4	64.8	66.5	57.5	60.3	66.4	64.8	66.5
18. Idaho Falls	1.1	1.4	1.5	1.5	1.6	1.1	1.4	1.5	1.5	1.6
19. Subtotal - Other Entities	350.4	409.4	425.7	433.4	444.6	350.4	409.4	425.7	433.4	444.6
<b>20. TOTAL CURRENT OPERATIONS</b>	<b>687.4</b>	<b>709.3</b>	<b>842.3</b>	<b>874.5</b>	<b>906.0</b>	<b>687.4</b>	<b>709.3</b>	<b>842.3</b>	<b>874.5</b>	<b>906.0</b>

**FIXED COSTS**

**Non-Federal Projects Debt Service --**

21.	Hanford Generating Project	3.8	4.5	5.2	4.0	0.1
22.	WNP-1	204.5	161.7	133.5	182.7	180.6
23.	WNP-2	222.5	166.2	113.0	191.0	189.8
24.	WNP-3	159.9	87.9	84.1	127.6	130.3
25.	Trojan	9.5	9.0	9.0	9.0	9.0
26.	EWEB Conservation Financing	1.9	2.0	2.1	2.1	2.1
27.	Idaho Falls	3.5	3.6	3.8	3.8	3.8
28.	Subtotal Non-Fed. Projects Debt Svc.	605.6	434.9	350.7	520.2	515.7

**Federal Projects Depreciation --**

29.	Depreciation	158.4	166.2	173.7	179.6	188.8
30.	Amort: Conservation, Fish & Wildlife	34.9	37.9	42.4	46.2	51.4
31.	Aluminum Smelters Con/Mod	4.6	5.4	7.1	7.3	7.6
32.	Subtotal Fed. Projects Depreciation	197.9	209.5	223.2	233.1	247.8

**Residential Exchange --**

33.	Exchange Expense	810.8	804.1	834.8	1117.1	1168.2
34.	Corporate Overhead 1/	0.6	0.6	0.5	0.4	0.4
35.	Exchange Revenues	-631.8	-647.3	-649.8	-924.6	-959.3
36.	Subtotal Net Residential Exchange	179.6	157.4	185.5	192.9	209.3

**Federal Interest Expense --**

37.	BPA Appropriations (pre-1974 Act)	56.4	56.2	56.0	58.8	58.8
38.	Corps of Engineers Appropriations	137.1	139.9	141.1	138.7	141.0
39.	Bureau of Reclamation Appropriations	30.3	30.8	32.0	36.2	35.7
40.	BPA Bonds (post-1974 Act)	159.0	138.1	118.7	116.2	140.9
41.	AFUDC 4/	-29.3	-13.1	-20.8	-19.4	-21.8
42.	Subtotal Net Federal Interest Exp.	353.5	351.9	327.0	330.5	354.6

**43. TOTAL FIXED COSTS**

2024.0	1863.0	1928.7	2151.2	2233.4
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**44. TOTAL ANNUAL EXPENSES**

2024.0	1863.0	1928.7	2151.2	2233.4
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**Reimbursable Services 2/**

(\$ in Millions)

FY 1989	Before Corporate Overhead Distribution			
	FY 1990	FY 1991	FY 1992	FY 1993
50.1	86.4	75.5	78.4	79.2
0.2	0.3	0.6	0.7	0.7
<b>50.3</b>	<b>86.7</b>	<b>76.1</b>	<b>79.1</b>	<b>79.9</b>

FY 1989	After Corporate Overhead Distribution			
	FY 1990	FY 1991	FY 1992	FY 1993
50.3	86.7	76.1	79.1	79.9
---	---	---	---	---
<b>50.3</b>	<b>86.7</b>	<b>76.1</b>	<b>79.1</b>	<b>79.9</b>

- 45. BPA Reimbursable Services
- 46. Corporate Overhead 1/
- 47. **Total Reimbursable Services**

# Capital Investments 3/ (\$ in Millions)

	Before Corporate Overhead Distribution					After Corporate Overhead Distribution				
	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993
BPA --										
48. Transmission System Development	49.7	99.2	217.0	200.5	170.4	55.4	106.1	222.7	206.3	176.2
49. Fish & Wildlife	7.9	16.1	11.4	19.1	21.7	8.1	16.4	11.6	19.2	21.8
50. Capital Equipment	7.4	7.7	8.3	10.7	9.0	7.4	7.8	8.5	11.0	9.3
51. Transmission System Maintenance	45.7	43.7	66.9	57.8	71.7	48.4	47.6	69.8	60.9	75.2
52. Conservation	39.4	48.5	61.1	72.9	80.2	40.2	49.4	62.7	74.7	82.1
53. Corporate Overhead 1/	9.4	12.1	10.6	11.1	11.6	---	---	---	---	---
54. <b>Subtotal - BPA</b>	<b>159.5</b>	<b>227.3</b>	<b>375.3</b>	<b>372.1</b>	<b>364.6</b>	<b>159.5</b>	<b>227.3</b>	<b>375.3</b>	<b>372.1</b>	<b>364.6</b>
Other Federal Entities --										
55. Corps of Engineers	26.9	41.3	49.6	38.6	36.4	26.9	41.3	49.6	38.6	36.4
56. Bureau of Reclamation	19.8	17.0	18.5	23.8	40.0	19.8	17.0	18.5	23.8	40.0
57. <b>Subtotal - Other Fed. Entities</b>	<b>46.7</b>	<b>58.3</b>	<b>68.1</b>	<b>62.4</b>	<b>76.4</b>	<b>46.7</b>	<b>58.3</b>	<b>68.1</b>	<b>62.4</b>	<b>76.4</b>
58. <b>TOTAL FED. CAPITAL INVESTMENTS</b>	<b>206.2</b>	<b>285.6</b>	<b>443.4</b>	<b>434.5</b>	<b>441.0</b>	<b>206.2</b>	<b>285.6</b>	<b>443.4</b>	<b>434.5</b>	<b>441.0</b>

1/ "Corporate Overhead" has been added as a line item to several categories (BPA Current Operations, Residential Exchange, Reimbursable Services, and Capital Investments) to identify how much overhead is distributed to the items in each category. The total Corporate Overhead, which consists of BPA's General and Administrative costs, is summarized in the following table:

BPA Corporate Overhead			
FY 1989	FY 1990	FY 1991	FY 1992
40.4	43.7	44.0	46.2
			48.2

**Total General and Administrative Costs**

"Corporate Overhead" estimates in the Master Table issued October 1989 for Phase I of Programs in Perspective included a portion of BPA's support services as well as General and Administrative costs. These program support costs have now been included with benefitting programs and are, therefore, combined with the "Before Corporate Overhead Distribution" program estimates in this table. This treatment is more consistent with standard utility practices.

2/ Although not a revenue requirement, Reimbursable Services are treated in BPA's Federal budget as an obligation and outlay.

3/ Capital Investments are presented on an obligation basis -- that is, when contracts are awarded or orders placed. Capital investments add to BPA's fixed costs when they are placed in service. They create annual revenue requirements (i.e., affect rates) as they are depreciated and as interest is paid on any debt incurred in order to make the investment.

4/ Allowance for Funds Used During Construction (AFUDC) is interest on borrowings and appropriations for items that are not yet placed in service. The in-service date marks the beginning of raising annual revenue to service the debt.

# 1

## Projected Revenues

Bonneville Power Administration (BPA) must set its rates to recover all costs and expenses projected for operating and maintaining the Federal Columbia River Power System and other programs funded by the agency. In setting rates, future revenues must be projected. During Phase II of Programs In Perspective, when BPA consults with leaders of the energy community before formulating rate proposals, projected revenues are the backdrop against which program levels, financial strategy and their likely rate effects are evaluated.

BPA has not increased its rates since October 1, 1987. In 1989, BPA held workshops to consult with customers and constituents on rates and then determined that current conditions and forecasts were such that the agency could meet its needs without increasing rates.

This paper discusses BPA's revenue projections for fiscal years 1992-93. It examines the outlook for the various factors that influence BPA revenues, such as aluminum prices, weather and water conditions, oil and gas prices and the Northwest economy. For information on BPA's power marketing plans for fiscal years 1992 and 1993, we encourage you to read the paper in the Technical Appendix entitled "Power Marketing and Scheduling," which examines our proposed marketing activities and spending levels for power scheduling.

### Revenue Results

BPA's revenues in fiscal year 1989 were \$2,062 million, \$116 million more than in fiscal year 1988. Sales to aluminum companies provided \$696 million, and sales to public utilities \$877 million. We were able to finish fiscal year 1989 in the black (net revenues of \$40 million) because of a healthy aluminum market, a strong Northwest economy, efficient operation of the transmission system, and strict cost discipline within BPA. These factors offset lower than expected revenues from surplus power sales and higher costs of power purchases. Poor water conditions limited sales outside the region to \$50 million, \$38 million more than the previous year, but still far short of export sales in a normal year (about \$150 million).

Total revenues of \$2,067 million are projected for fiscal year 1990. We anticipate revenues from nonfirm energy sales to be about \$100 million more than in fiscal year 1989. We project a decrease of \$140 million in sales to the aluminum companies in fiscal year 1990 due to a short-term price drop. There will be a \$40 million increase in other power sales for fiscal year 1990. This is due primarily to an increase in the rate for power purchased by certain BPA customers under an agreement on project WNP-1 exchange costs after 1990.

BPA expects a total of \$2,120 million in revenue under average conditions in fiscal year 1991, which is an increase of \$52 million over fiscal year 1990. An increase of \$8 million in surplus power and energy sales in fiscal year 1991 is projected, as BPA forecasts an increase in contract sales over those in fiscal year 1990. An increase of \$50 million in other power revenues in fiscal year 1991 is due mostly to a previously approved increase in the WNP-1 Exchange rate which will occur in the latter part of fiscal year 1990.

### The Fiscal 1992-93 Outlook

In fiscal years 1992-93, we are forecasting a small energy deficit of about 50-60 average MW a year. If loads grow, BPA will have to purchase energy, which will increase the overall costs that must be recovered.

*"We project revenues higher than previous years because of the strong Northwest economy."*

BPA projects total revenues of \$2,209 million for fiscal year 1992 and \$2,234 million for fiscal year 1993, assuming all sales are made at current rates. Tables 1.1, 1.2 and 1.3 show historical and projected loads, revenues, and average rates from sales assuming no rate increase in the fiscal years 1992-93.

We project revenues from publicly owned utilities of \$943 million in fiscal year 1992 and \$960 million in fiscal year 1993, higher than previous years because of the strong Northwest economy.

Total industrial revenues are predicted to be higher in fiscal years 1992 and 1993; BPA forecasts a slow but steady increase in aluminum prices. Although prices are not expected to go as high as they were in fiscal years 1988 and 1989, BPA still forecasts strong revenues from the aluminum industry, specifically \$562 million in fiscal year 1992 and \$546 million in fiscal year 1993.

Because of our current power circumstances, we are taking a more conservative approach than in the past in our forecasts of the amount of surplus sales to California utilities; thus, revenues from nonfirm sales are projected to be lower than previous forecasts. Surplus firm power sales revenues are estimated to be much less since the energy surplus is gone.

The factors which make BPA's revenues volatile are discussed below.

(Table 1.1)  
**HISTORICAL <sup>1/</sup> AND PROJECTED <sup>2/</sup> LOADS**  
**FY 1985-FY1993**  
 (\$ Million)

	1985	1986	1987	1988	1989	1990	1991	1992	1993
<b>Priority Firm Power (PF)</b>									
Generating Publics	1580	1451	1408	1530	1599	1641	1644	1772	1819
Nongenerating Publics	2603	2673	2595	2731	2839	2948	2937	3011	3054
Federal Agencies	128	124	122	125	128	131	144	144	141
<b>Total PF</b>	<b>4311</b>	<b>4248</b>	<b>4125</b>	<b>4386</b>	<b>4566</b>	<b>3084</b>	<b>4725</b>	<b>4926</b>	<b>5015</b>
<b>Industrial</b>									
Industrial Firm Power (IP)	2559	1915	221	212	216	275	308	306	239
Variable Industrial (VI)	0	320	2104	2685	2757	2809	2789	2783	2758
<b>Total IP + VI</b>	<b>2559</b>	<b>2235</b>	<b>2325</b>	<b>2897</b>	<b>2973</b>	<b>3083</b>	<b>3097</b>	<b>3089</b>	<b>2997</b>
<b>Nonfirm Energy (NF)</b>									
PNW	437	1001	174	27	151	350	302	192	116
PSW	984	724	399	80	343	935	1094	1280	1355
<b>Total NF</b>	<b>1421</b>	<b>1725</b>	<b>573</b>	<b>107</b>	<b>494</b>	<b>1285</b>	<b>1396</b>	<b>1473</b>	<b>1471</b>
<b>New Resource Firm (NR)</b>									
	25	36	45	55	55	79	112	146	148
<b>Surplus Pwr/Enr (SP/SE)</b>									
	1014	1047	967	265	278	139	152	115	159
<b>Other Power Sales <sup>3/</sup></b>									
	420	362	536	600	528	524	610	442	442
<b>Total</b>	<b>9749</b>	<b>9653</b>	<b>8571</b>	<b>8310</b>	<b>8895</b>	<b>9833</b>	<b>10093</b>	<b>10192</b>	<b>10231</b>

<sup>1/</sup> There is a slight difference with the final audited totals  
<sup>2/</sup> At current rates  
<sup>3/</sup> Includes WNP-1 Exchange



(Table 1.2)  
**HISTORICAL 1/ AND PROJECTED 2/ REVENUES**  
**FY 1985-FY1993**  
(\$ Million)

	1985	1986	1987	1988	1989	1990	1991	1992	1993
<b>Priority Firm Power (PF)</b>									
Generating Publics	291.0	268.7	253.9	290.3	305.1	310.7	312.8	336.0	344.6
Nongenerating Publics	513.0	509.0	495.0	553.5	571.9	587.3	591.3	607.0	615.4
Federal Agencies	25.0	24.0	23.0	25.3	26.0	26.4	29.4	29.5	28.8
Total PF	829.0	801.7	771.9	869.1	903.0	924.4	933.5	972.4	988.9
<b>Industrial</b>									
Industrial Firm Power (IP)	460.0	325.6	42.8	43.0	44.8	56.8	63.7	63.3	49.2
Variable Industrial (VI)	0.0	56.9	359.6	671.9	695.6	557.4	541.4	562.1	546.0
Total IP + VI	460.0	381.8	402.3	714.9	740.4	614.1	605.1	625.4	595.3
<b>Nonfirm Energy (NF)</b>									
PNW	60.0	64.5	15.7	4.1	13.2	26.2	24.3	17.8	9.9
PSW	162.7	77.3	52.8	12.1	50.3	134.8	119.7	164.0	180.9
Total NF	222.7	141.7	62.8	16.2	63.6	161.0	144.0	181.8	190.8
<b>New Resource Firm (NR)</b>									
	4.8	6.3	7.7	11.4	11.5	16.5	23.4	30.6	31.5
<b>Surplus Pwr/Enr (SP/SE)</b>									
	242.4	181.8	125.3	46.3	62.4	33.1	41.6	28.5	43.0
<b>Firm Capacity (CF)</b>									
	73.4	71.8	69.8	68.1	68.2	58.7	54.5	68.4	73.5
<b>Other Power Sales 3/</b>									
	79.6	75.8	99.1	95.1	96.7	138.1	188.7	170.8	173.0
<b>Transmission</b>									
	149.2	118.2	141.6	124.8	116.7	121.3	128.6	131.4	137.6
<b>Total</b>	<b>2061.7</b>	<b>1785.3</b>	<b>1685.0</b>	<b>1946.0</b>	<b>2062.4</b>	<b>2067.3</b>	<b>2119.5</b>	<b>2209.3</b>	<b>2233.5</b>

- 1/ There is a slight difference with the final audited totals  
2/ At current rates  
3/ Includes WNP-1 Exchange

Bonneville Power Administration  
Division of Contracts and Rates

**(Table 1.3)**  
**HISTORICAL 1/ AND PROJECTED 2/ RATES**  
**FY 1985–FY1993**  
**(\$ Million)**

	1985	1986	1987	1988	1989	1990	1991	1992	1993
<b>Priority Firm Power (PF)</b>									
Generating Publics	21.0	21.1	20.6	21.6	21.8	21.5	20.4	20.9	21.2
Nongenerating Publics	22.5	21.7	21.8	23.1	23.0	22.7	23.0	23.0	23.0
Federal Agencies	22.3	22.1	21.5	23.0	23.2	22.9	23.3	23.3	23.3
Total PF	22.0	21.5	21.4	22.6	22.6	22.4	22.6	22.5	22.5
<b>Industrial</b>									
Industrial Firm Power (IP)	20.5	19.4	22.1	23.1	23.6	23.5	23.6	23.6	23.5
Variable Industrial (VI)	00.0	20.3	19.5	28.5	28.8	22.7	22.2	23.0	22.6
Total IP + VI	20.5	19.6	19.8	23.1	28.4	22.7	22.3	23.1	22.7
<b>Nonfirm Energy (NF)</b>									
PNW	15.7	07.4	10.3	17.5	9.8	8.5	9.2	10.5	9.7
PSW	18.9	12.2	15.1	17.2	16.8	15.3	12.5	14.6	15.3
Total NF	17.9	09.4	12.5	17.3	14.7	14.3	11.8	14.1	14.8
<b>New Resource Firm (NR)</b>									
	22.1	20.1	19.6	23.8	23.9	23.7	23.9	23.9	24.3
<b>Surplus Pwr/Enr (SP/SE)</b>									
	27.3	19.8	14.8	19.9	25.7	27.2	27.1	28.2	30.9
<b>WNP-1 Exchange</b>									
	21.0	21.1	21.2	22.6	22.7	28.8	43.3	44.3	45.3

<sup>1/</sup> Under current rate schedules

Bonneville Power Administration  
 Division of Contracts and Rates

## The Aluminum Industry: Slow But Steady Growth

In the last several years, the major source of revenue variation has involved BPA's direct-service industrial (DSI) customers, mostly aluminum companies. BPA first implemented its Variable Industrial Power Rate, which moves up and down based on the price of aluminum, in August 1986. At that time, the price of aluminum was low, and the ability to purchase power at this below-cost rate enabled DSI customers to start up idle potlines. In a difficult economic climate and a time of surplus energy, the industry was able to keep operating and BPA kept its loads up. When the price of aluminum rebounded in fiscal years 1988–89, BPA's revenues increased due to the variable rate.

From March 1988 through February 1989, aluminum prices were above \$1.00 a pound; smelters paid the maximum variable rate of 2.88 cents per kilowatt-hour from November 1987 through September 1989. These revenues helped keep BPA in the black.

The price of aluminum began in 1989 at 108 cents per pound; it averaged 88.9 cents during the year. By year's end, it had dropped to 75 cents. The decline continued into 1990, dropping to 65 cents in the early part of the calendar year. In late spring, however, prices began a slow increase, and BPA's medium forecast shows a slow and steady increase through fiscal year 1993. This forecast includes the assumption that BPA's programs to modernize aluminum smelters and reduce their energy usage will result in improved efficiencies and competitiveness.

The outlook for healthy revenues from the aluminum industry in fiscal years 1992–93 could be changed by various events beyond BPA's control. These could include labor disputes, corporate decisions to reduce product inventories, plant shutdowns for maintenance, or power supply interruptions.

When the variable rate was put into effect, it included the stipulation that BPA would decide whether to modify it, continue it, or terminate it by July 1, 1991. We are now studying

our options with respect to the variable rate. Our current forecasts assume the variable rate in its present design will continue through fiscal years 1992 and 1993.

## **Weather and Water Affect Revenues**

Weather is another major factor in revenue variation. When water conditions are poor due to low precipitation, reservoir levels are low, which limits the availability of surplus energy BPA can sell. In fiscal years 1988-89, at the same time that BPA's revenues from the aluminum industry were increasing, water conditions were constraining surplus energy sales. A major cold front moved into the Northwest in February 1989, causing the largest load ever put on BPA's system. To serve the increased load, BPA had to make major power purchases and cut back on service to the DSIs.

Recently, water conditions in the Columbia River Basin have improved from what they were two years ago. Because of the increased runoff, BPA has been able to boost its revenues by marketing this nonfirm surplus energy to California utilities.

For the past several years, BPA has based its nonfirm energy sales and revenue estimates on the average of 50 water conditions. This year, instead of taking a broad average of 50 conditions, we have selected five water years (1938, 1946, 1958, 1962 and 1978) which represent average water conditions. These selected water years reflect the tighter conditions under which we now operate the hydro system.

## **Limits On the Hydro System**

The increasing number of operating constraints being added to the Columbia River Power System also contributes to our revenue uncertainties. Columbia River water is not only used to produce power, but also for irrigation, navigation, fish and wildlife, and recreation.

The competition among these beneficial uses is increasing. In the last decade, the system's firm energy capability decreased almost 650 average MW in order to serve non-power uses. These tradeoffs affect BPA revenues; for example, it costs about \$600 in lost power revenues each time boats pass through a lock at a dam. Programs to protect fish that result in water being released at certain times of the year can affect the amount and price of surplus power BPA has available to market. If operating constraints increase, BPA's sales and associated revenues could suffer. Currently, BPA is working with the Corps of Engineers (Corps) and the Bureau of Reclamation (Bureau) to balance the competing uses of the Columbia River.

## **Oil and Natural Gas Prices Likely To Stay Low**

Oil and natural gas prices affect BPA's markets for electricity. In the Pacific Southwest, BPA forecasts lower spot market natural gas prices during fiscal years 1992 and 1993. Natural gas and oil prices in California affect the prices BPA receives for displacing gas-fired and oil-fired generation in California. Those prices directly influence BPA's revenue levels. Gas prices have been low in recent years but because the Los Angeles Basin has a severe air pollution problem, utilities in that area have been urged, and may eventually be forced, to use oil in the spring in order to store the cleaner gas for the higher summer loads. Consequently, it will be difficult to forecast future levels of sales to California, given the variables of price, fuel availability and possible mandatory environmental restrictions.

## **Pacific Northwest Economy**

The health of the Pacific Northwest economy has a major effect on BPA revenues. We predict a strong Northwest economy in fiscal years 1992 and 1993. Economic growth has been occurring at an annual rate of 3 percent over the past four to five years. Last year, growth rates reached 4.5 percent, but they are expected to range around 3 percent in fiscal years 1992 and 1993. Winter peak loads in the Puget Sound area have been increasing by about 200-300 MW every year.

*"In the last decade, the system's firm energy capability decreased almost 650 average MW in order to serve non-power uses."*

Load growth means increased revenue for BPA, but such growth also determines how soon we need to acquire new resources. Loads for the past 12 months have grown over 3 percent; although this load growth is projected to drop off to about 1 percent during the fiscal years 1991-93, we may face a deficit in the range of 50-60 aMW in both fiscal years 1992-93. This situation makes predictions of future power purchases a critical factor in BPA's financial planning in the next few years.

### **Conclusion**

We invite your comments on our revenue projections and outlook. We are also looking for suggestions of new rate schedules that customers can use to shape their load and provide a better balance of loads and resources.

# 2

## Toward a Debt Management Strategy

During our 1988 Programs in Perspective meetings, we talked at length about a financial direction for Bonneville. Those discussions led to BPA's subsequent adoption of three financial objectives:

- Assure a very high probability of meeting BPA's annual repayment obligation to the U.S. Treasury for the federal investment in Northwest power and transmission facilities;
- Assure a high probability of being able to cover current expenses with current revenues each year; and
- Assure a reasonable probability of being able to reduce BPA's high level of fixed costs and federal debt burden.

BPA expects to achieve the first two objectives in fiscal years 1990–91, and we plan to maintain our commitment to them in fiscal years 1992–93. But until recently we have not had the financial means to act on federal debt reduction. In this year's Programs in Perspective meetings, we will be seeking advice on financial strategies to meet this third objective. Your views will help guide our thinking as BPA develops rate proposals for fiscal years 1992–93.

Our financial planning should reflect the circumstances the region faces right now. We have moved into a situation where our loads and our resources just about balance, which means major new energy resource and transmission investments must be made to meet growing demand for the electricity that will be needed in the next decade. BPA's financial position has recently been strengthened as a result of a strong Northwest economy and aggressive fiscal management, the latter including successful refinancing of high-interest Supply System bonds (see box on page 8).

But BPA remains saddled with very high debt levels, and that situation leaves us economically and politically vulnerable. To put it bluntly, we believe we have relied too much on borrowing for too long. Faced with a growing Federal budget deficit, policymakers in Washington, D.C., have proposed in recent years to increase Treasury receipts by changing the way BPA repays the federal investment in the Columbia River Power System. This is one of a number of circumstances that have prompted us to re-examine how we manage our financial affairs.

During Programs in Perspective this year, we want to discuss some financial choices with you. We will consider the long-term consequences of short-term financial decisions. Of course we need to discuss how much the products and services you want should cost in the next two years, but that's not the only question. We need to ask where our financial practices as a whole are taking us. Do they combine to provide long-term financial strength and rate stability? How financially responsible will we be if we only minimize short-term costs and rates?

Other questions to consider include:

Should we get the money for new energy resources, transmission facilities, and other capital investments the region requires solely by increasing our debt? Or should part of it come from current revenues?

At what pace should we move to reduce BPA's existing debt burden?

What types of financial reserves should BPA maintain in order to handle its large revenue uncertainties and unusual cost exposures?

*"We have relied too much on borrowing for too long."*

Is there an ideal mix of revenue financing and debt financing?  
 How can we make the most of the Supply System bond refinancing benefits? Can they be used as a springboard to boost us to a stronger financial position for the long run?

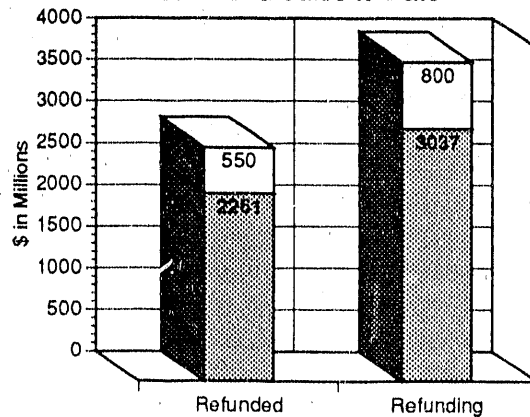
### Refinancing: Taking Advantage of Lower Interest Rates

In 1989, Bonneville and the Washington Public Power Supply System (Supply System) began a refinancing program to refund high interest

WNP-1/2/3 bonds issued in the late 1970s and early 1980s. With completion of the fourth bond sale in June of this year, just over \$3 billion in new bonds (refunding bonds) have been issued with an average effective interest rate of 7.6 percent. (See Figure 2.2, Supply System Bond Refunding Program Summary.) Proceeds from the four bond

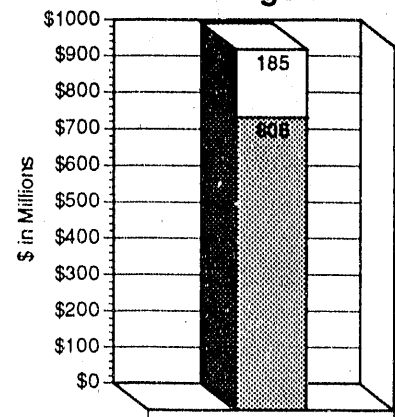
#### Supply System Refinancing Program

Total Bond Sales to Date



(Figure 2.2)

#### Net Present Value Savings\*



(Figure 2.3)

\*Net Present Value Savings of Supply System debt service.

\*\*Estimated fifth refunding bond sale currently planned for fall, 1990.

sales have been used to refund about \$2.3 billion in bonds (refunded bonds) with interest rates between 7.75 and 15 percent. About \$550 million of additional high interest Supply System bonds are planned to be refunded by the end of calendar year 1990. The net present value of the savings from the refunding program will be about \$991 million (See Figure 2.3, Net Present Value Savings.) Completion of the entire refinancing effort is expected to reduce Bonneville's total debt service by the equivalent of \$70 to \$80 million a year for 20 years.

Standard & Poor's and Moody's, municipal bond rating agencies, upgraded the refinancing bonds and all other Supply System bonds to a double A rating just prior to the fourth sale. Fitch, a third rating service, while holding their rating at AA-, changed its credit outlook for the bonds from stable to improving. The Moody's upgrade reflected "BPA's capacity and willingness to establish itself institutionally as a competitive, self-supporting enterprise, with sound resource planning policies." Standard & Poor's cited "the improved financial flexibility of the BPA" as a significant factor for the upgrade.

### The Problem of High Fixed Costs

In fiscal year 1989, depreciation and interest made up almost 60 percent of BPA's annual expenses. Other annual expenses over which BPA has little control include such legally mandated obligations as payments to the Corps of Engineers and Bureau of Reclamation for operation and maintenance of the hydro dam powerhouses, payment to the Supply System for the operating costs of WNP-2, and payments to utilities participating in the residential exchange (see box on page 9). In fiscal year 1989 these payments boosted the total of costs BPA does not control to around 85 percent of total expenses. This left BPA with discretionary control over only about 15 percent of its annual expenses. Our long-term goal of rate stability is not well served by our highly leveraged position. Table 2.1 shows BPA's fixed expenses — actual and projected — through fiscal year 1993 (does not include operating expenses of the Corps, Bureau and Supply System, mentioned above).

*"Our long-term goal of rate stability is not well served by our highly leveraged position."*

(Table 2.1)  
**FIXED COSTS**  
(Millions)

	<u>FY 1989</u>	<u>FY 1990</u>	<u>FY1991</u>	<u>FY 1992</u>	<u>FY 1993</u>
Non-Federal Projects Debt Service —					
Hanford Generating Project	3.8	4.5	5.2	4.0	0.1
WNP-1	204.5	161.7	133.5	182.7	180.6
WNP-2	222.5	166.2	113.0	191.0	189.8
WNP-3	159.9	87.9	84.1	127.6	130.3
Trojan	9.5	9.0	9.0	9.0	9.0
EWEB Conservation Financing	1.9	2.0	2.1	2.1	2.1
Idaho Falls	3.5	3.6	3.8	3.8	3.8
<b>Subtotal Non-Fed. Projects Debt Svc.</b>	<b>605.6</b>	<b>434.9</b>	<b>350.7</b>	<b>520.2</b>	<b>515.7</b>
Federal Projects Depreciation —					
Depreciation	158.4	166.2	173.7	179.6	188.8
Amort: Conservation, Fish & Wildlife	34.9	37.9	42.4	46.2	51.4
Aluminum Smelters Con/Mod	4.6	5.4	7.1	7.3	7.6
<b>Subtotal Fed. Projects Depreciation</b>	<b>197.9</b>	<b>209.5</b>	<b>223.2</b>	<b>233.1</b>	<b>247.8</b>
Residential Exchange —					
Exchange Expense	311.4	804.7	835.3	1117.5	1168.6
Corporate Overhead 1/					
Exchange Revenues	-631.8	-647.3	-649.8	-924.6	-959.3
<b>Subtotal Net Residential Exchange</b>	<b>179.6</b>	<b>157.4</b>	<b>185.5</b>	<b>192.9</b>	<b>209.3</b>
Federal Interest Expense —					
BPA Appropriations (pre-1974 Act)	56.4	56.2	56.0	58.8	58.8
Corps of Engineers Appropriations	137.1	139.9	141.1	138.7	141.0
Bureau of Reclamation Appropriations	30.3	30.8	32.0	36.2	35.7
BPA Bonds (post -- 1974 Act)	159.0	138.1	118.7	116.2	140.9
AFUDC	-29.3	-13.1	-20.8	-19.4	-21.8
<b>Subtotal Net Federal Interest Exp.</b>	<b>353.5</b>	<b>351.9</b>	<b>327.0</b>	<b>330.5</b>	<b>354.6</b>
<b>TOTAL FIXED COSTS</b>	<b>1336.6</b>	<b>1153.7</b>	<b>1086.4</b>	<b>1276.7</b>	<b>1327.4</b>

Our high level of fixed costs gives us little maneuvering room to handle the sizeable problems that are part of our utility life. For example, we can be tightly squeezed whenever unusual weather causes an unexpected increase in electricity demand necessitating costly power purchases. A low water year, a drop in aluminum prices, or an economic downturn also can suddenly cut hundreds of millions of dollars out of expected revenues and push us to the brink of deferring part of our debt service.

BPA's fixed cost situation is not very different from that of an individual saddled with monthly debt payments that are consuming most of each paycheck. That means there's no extra cash if an emergency occurs, and no way to handle a new long-term need except to go further into debt and compound the existing problem.

### What is the Residential Exchange?

The Pacific Northwest Electric Power Planning and Conservation Act of 1980 created the Residential Exchange to extend the benefits of low-cost federal power to residential and small farm customers of all utilities in the Pacific Northwest. The program acts to lower the rates paid by the residential and small farm customers of utilities whose own power production is more expensive than BPAs. The benefits to these customers are referred to as the net cost to BPA of the Residential Exchange program (the cost to BPA of purchasing an amount of the exchange utilities' power, less the revenues received by BPA on selling back an equal amount of power at BPA's lower rates). The amount of power exchanged is equal to the total residential and small farm load of the exchanging utility.

## Where Does BPA's Debt Come From?

BPA's rates must be set to recover enough money to repay the principal owed on all debts when due (as well as carry the annual interest expenses and all of our other operating costs). At the end of 1989, BPA's total debt was \$14.6 billion. Of this total, \$8.4 billion is owed to the U.S. Treasury for the capital investments made in BPA's transmission system, BPA's conservation measures, and the Corps' and Bureau's power projects. The remaining \$6.2 billion was owed to non-federal sources for the financing of the three Supply System nuclear projects, our 30 percent share of the Trojan nuclear project, and several smaller generation and conservation investments (see box on page 11).

Table 2.2 shows the additional long-term federal bonds and appropriations that would be needed in fiscal years 1991-95 under a business-as-usual approach—a net increase of almost \$1 billion in our indebtedness. This is hardly the direction our financial goals sought. But the amount of borrowing that will actually occur is open to question. Some or all of this increase could instead be met through annual revenues.

(Table 2.2)  
**POTENTIAL INCREASE IN FEDERAL BORROWING  
 ASSUMING 100% DEBT FINANCING 1/**

	1991	1992	1993	1994	1995
<b>New Borrowing</b>					
Transmission Bonds 2/	303.5	342.6	254.6	267.6	285.4
Conservation 3/	62.7	74.7	82.1	82.9	84.2
Fish & Wildlife 4/	11.6	19.2	21.8	23.4	19.6
<b>TOTAL BPA - Bonds &amp; Notes</b>	<b>377.8</b>	<b>436.5</b>	<b>358.5</b>	<b>373.9</b>	<b>389.2</b>
Corps & Bureau Appropriations 5/	112.2	69.8	65.2	50.7	3.9
<b>TOTAL NEW FEDERAL DEBT</b>	<b>490.0</b>	<b>506.3</b>	<b>423.7</b>	<b>424.6</b>	<b>393.1</b>
Less:					
Amortization 6/ Refinancing	176.3	252.1	260.3	273.3	287.0
<b>NET NEW FEDERAL DEBT</b>	<b>313.7</b>	<b>254.2</b>	<b>163.4</b>	<b>151.3</b>	<b>106.1</b>

### Notes

- 1/ FYs 1991-1995 new borrowing are preliminary estimates based on Master Table obligations and on assumed Conversion of obligations to capital expenditure data.
- 2/ FYs 1991-1995 are preliminary estimates based upon Master Table obligations, and includes the Transmission System Development, Capital Maintenance and Capital Equipment programs, and Transmission Notes.
- 3/ FYs 1991-1995 based upon Conservation capital program obligations.
- 4/ FYs 1991-1995 based upon Fish and Wildlife Capital program obligations.
- 5/ Corps and Bureau appropriations represent amounts placed into service.
- 6/ FY 1991 amortization of Federal debt as scheduled by repayment study in 1989 rate filing. FY 1992-95 amortization based on estimated payments that may be scheduled by the repayment study upon completion of the accelerated front end savings debt service structure for the total Supply System refunding program.

*"Annual interest expense grew from \$85 million to \$850 million per year."*

## Why Is BPA's Debt Such A Burden?

BPA's debt grew considerably in the late 1970s and early 1980s, mostly in connection with the financing of the Supply System projects. From 1974 to 1983, BPA's long-term obligations grew 200 percent, from \$4.6 billion to \$13.9 billion. During the same period, annual interest expense associated with those obligations grew from \$85 million to \$850 million per year. The rates BPA charged for power did not increase as rapidly and, as a result, BPA failed to make its full interest payments to the U.S. Treasury. Our financial situation has improved since then, and we have caught up and remained fully current with



## Where Do BPA's Repayment Obligations Come From?

- Appropriations by Congress to the Corps of Engineers and Bureau of Reclamation each year for capital improvements at the Federal Columbia River Power System dams, and, prior to 1974, for BPA's transmission investments. The total outstanding (unrepaid) appropriations at the end of fiscal year 1989 was \$3.6 billion.
- Bonds sold by BPA to the U.S. Treasury to fund investments in transmission since 1974, and, since 1980, to fund investments in conservation, renewable resources and fish and wildlife restoration. BPA currently has a bonded indebtedness ceiling of \$3.75 billion. At the end of fiscal year 1989, bonded indebtedness was \$1.8 billion.
- Capitalized contracts for Washington Public Power Supply System nuclear projects WNP-1, WNP-2 and WNP-3; for 30 percent of the Trojan nuclear plant; for 72 percent of the Hanford Generating Project; for a hydroelectric project at Idaho Falls; and for certain conservation projects which are non-BPA capital investments backed by BPA contracts. At the end of fiscal year 1989, these debts totaled \$6.2 billion.

our interest payments since 1984. But we have made no progress in reducing the debt burden of the past or in stemming the growth of new debt. See Figure 2.1, which shows historic and projected Federal debt and three scenarios regarding our borrowing from the Treasury.

Compared to other large utilities, BPA has a much higher proportion of debt to assets. BPA has traditionally financed 100 percent of capital additions with debt, whereas other utilities use a combination of debt and equity. For fiscal years 1984-89, BPA's debt service coverage ratio, which measures the ability to meet debt obligations, averaged 1.03, far below that normally required by the commercial lending community as assurance of being able to meet bond obligations. Some argue that it is irrelevant to compare BPA with other utilities because it is a federal agency. Others argue that this very fact makes it even more important for BPA to be fiscally prudent and adhere to sound, widely held business principles.

## Should We Change the Way We Manage BPA's Debt?

We've learned how volatile our revenues can be over the years—how much we can be affected by things we cannot control, such as oil and gas prices, world aluminum prices, weather and water conditions. Now our cost uncertainties, specifically those related to future power purchases, are also increasing because we are close to load-resource balance. The uncertainties on the cost side stem from not being sure how much power we might have to purchase at any given time (for example, if an unexpected outage were to occur at one of the region's generating plants).

As demand for electricity grows, BPA will have to find ways to pay for new transmission and resources, raising the possibility of more new debt. Even though we are already concerned about the net increase of over \$800 million in net Federal debt since 1984, we are facing the prospect of adding another \$1 billion in net Federal debt over the next five years to meet our basic needs. We have to repair and improve our transmission system to connect to new generating resources and to ensure reliable electricity service in the face of growing demand. We need to accelerate our conservation programs and continue our efforts to implement the Northwest Power Planning Council's fish and wildlife program. We want to work to eliminate a backlog in maintenance (including many capital replacement items) of the system. The Puget Sound region is confronting serious reliability questions that may require additional actions to deal with that area's growing peak loads.

Can we do all these things while we are carrying such a heavy debt burden and high proportion of fixed costs in our budgets? Is it financially responsible to continue to borrow to fund all these needs and push all the repayment obligation out into the future?

As the nation watches its lawmakers struggle with the huge federal deficit, now might be a good time to try to rein in BPA's federal borrowing. Do you think this is the time to develop

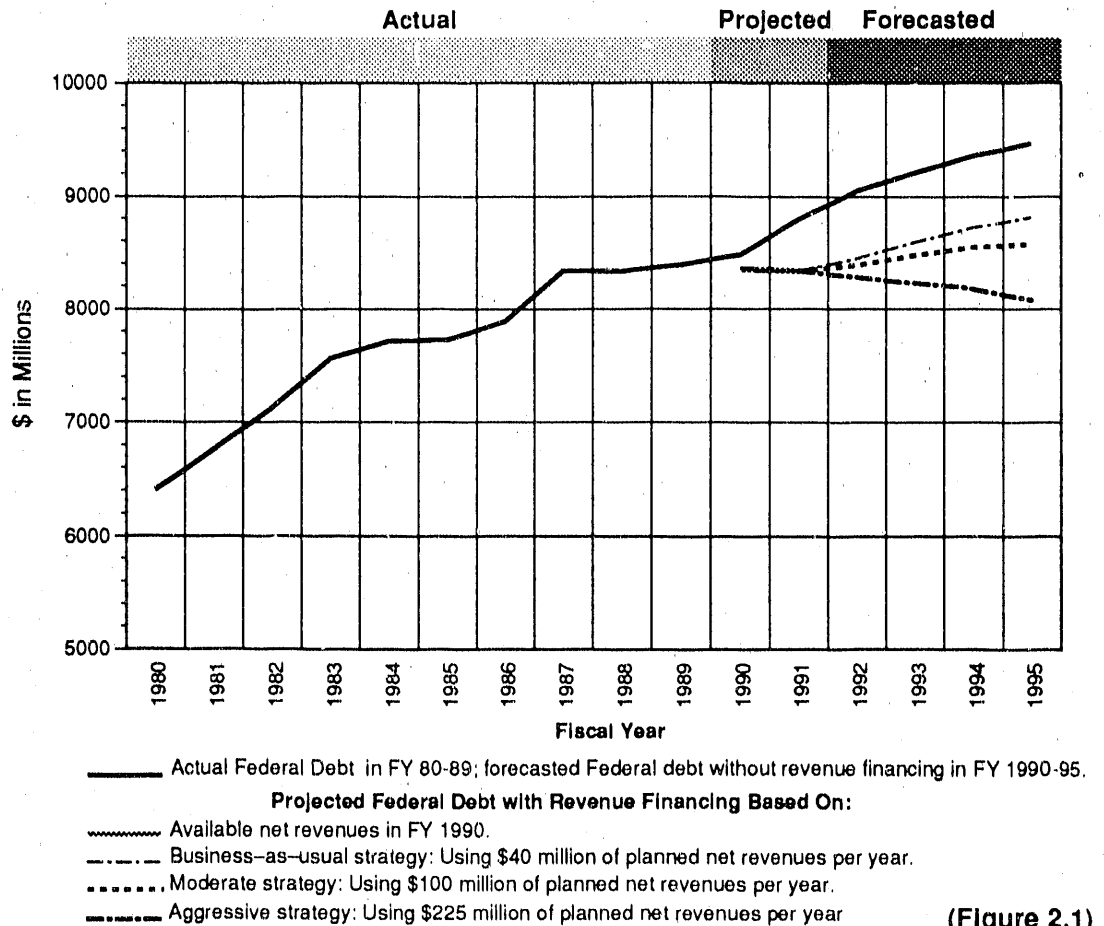
*"We are facing the prospect of adding another \$1 billion in net Federal debt over the next five years."*

a plan to reduce the Northwest's reliance on Treasury financing and become more independent?

Similarly, an emphasis on debt management is critical to the Northwest's standing in the eyes of Wall Street. The fact that two bond rating agencies recently boosted Supply System bond ratings shows that some of our financial discipline is having an effect. Standard and Poor's cited BPA's improved financial flexibility as a significant factor for its upgrade. Getting our regional debt management act together could have a ripple effect, improving access to low-cost financing for other Northwest utilities, businesses and government agencies.

Finally, avoiding down payments on large new investments is a questionable practice. It shields current managers and rate payers from sensing the implications of these commitments. We wonder how far this region would have gotten into the extremely expensive nuclear projects in the 1970's if all the current interest costs and a portion of the current construction costs had been allowed to roll right into rate bases around the utility community. Instead, rates did not signal the huge cost increases we were experiencing. And, after nearly a decade of inappropriate price signals, the region was shocked with rapid rate increases totalling 500 percent. Is there a lesson to be learned here, in the interest of long-term stability of rates?

### Federal Columbia River Power System (FCRPS) Total Federal Debt



(Figure 2.1)

### What Are Our Debt Management Options?

Our proposal is that we limit the growth of accumulated debt. We should at least not increase it, and if we can, we should try to reduce it. We have managed in the last few years, with your advice, to cut our costs. Now we propose to design a debt management strategy. We are asking you to help us determine some specific objectives for debt management for fiscal years 1992-93.

*"How can we simultaneously reduce debt and accelerate the pace of programs?"*

Because of our capital investment needs, we have a good opportunity to start controlling the increase in our debt. The Supply System refinancing has given us some breathing room we did not have just a year ago to get a debt management strategy launched.

With the Supply System refinancing, we estimate a reduction in non-federal debt service during fiscal years 1990-91 of almost \$450 million. As a result, BPA expects to be able to defer over \$400 million in new federal borrowing during fiscal years 1990-91. Because of the near-term reduction in non-federal debt service expense, BPA projected in its Midyear Review that it would have about \$700 million in reserves (cash and deferred borrowing) by the end of fiscal year 1991, assuming 1991 is an average year.

BPA currently plans to use the funds freed up by lower non-federal debt service expenses to finance new capital investments during fiscal years 1990-91, establishing a deferred borrowing capability of about \$400 million. This revenue financing of new capital investments reduces BPA's future Treasury debt service costs and creates a reserve (deferred borrowing capability) which is immediately convertible to cash in event of need. This may allow BPA to reduce its outstanding federal debt over the fiscal years 1990-91 period.

BPA is considering these three strategies for fiscal years 1992-93:

- Continue business-as-usual; that is, borrow for a large part of our future capital needs. Taking annual Treasury repayments into account, our total debt will increase by a net figure of about \$1 billion by the end of fiscal year 1995. Some would then propose that the savings from refinancing of Supply System bonds be used to reduce near-term rate increase. At some point in the future, rates then would increase sharply after depletion of the large front end of the Supply System savings.
- Adopt a middle ground approach; that is, revenue financing some capital investment to moderate the growth of our debt burden. This would be accomplished by planning for more net revenues and by applying some Supply System savings to this purpose.
- Take an aggressive stance aimed at keeping debt from increasing, building on the recent Supply System bond refinancing successes. Those savings combined with future increases in BPA planned net revenues could be used to pay for enough of our capital needs that our total indebtedness could actually decrease.

We want to discuss the short-term and long-term effects of these strategies in light of our financial objectives during the Programs in Perspective meetings. Questions to consider:

How can BPA balance its responsibilities to the region and the federal government?

How can we simultaneously reduce debt and accelerate the pace of programs the region has agreed it needs?

To what extent are long-term stable rates related to a debt management strategy?

## **A Question of Timing**

It is often said timing is everything. Right now we face an opportunity. Through careful management and the successful refinancing, we can reduce the debt burden of the past, reduce debt increases over the next five years, and start on a more fiscally responsible road. We can try to get to a position where we have options besides borrowing if circumstances turn out differently than we expect, and where large capital projects do not shock us with sudden and unstabilizing rate effects.

If we decide on an aggressive debt reduction strategy, we will be committing ourselves to making our long-term financial condition stronger. This could mean accepting modest rate increases in the short term. But the long-term payoff could be successful implementation of our programs and a greater stability and predictability of our rates through the turn of the century. Should we seize the opportunity?

## FINANCIAL OBJECTIVES GLOSSARY

**AMORTIZATION:** The repayment of debt.

**DEBT:** A source of funds with the obligation to return a set amount of money at some future time, with interest.

**DEBT BURDEN:** The annual cost of servicing debt, including interest and return of principal.

**DEBT FINANCING:** The use of debt to finance (pay for) assets, most typically capital assets which provide benefits over an extended period.

**DEBT SERVICE COVERAGE:** A ratio that measures the adequacy of a business's cash flow to cover debt service costs, both principal and interest. Used to assess a utility's ability to generate sufficient cash flow to make payments due on outstanding debt.

**DEFERRED BORROWING:** This represents the amount of capital expenditures that BPA has financed from revenues, for which borrowing authority has been received, and for which BPA can issue revenue bonds to the U.S. Treasury.

**FIXED COSTS:** Costs which an entity has little or no control over incurring. Typically includes depreciation and interest expense.

**NET FEDERAL DEBT:** On an incremental basis, this represents the net increase in outstanding Federal debt. Computed by subtracting repayment of existing Federal debt from new Federal debt.

**PLANNED NET REVENUES:** An amount of funds included in BPA's revenue requirement that provides additional assurance that planned expenses can be paid from current revenues. Provides funds that can be used to revenue finance capital assets.

**REVENUE FINANCING:** The use of funds generated from current revenues (cash flow) to finance (pay for) new capital assets.

**REVENUE REQUIREMENT:** The total annual amount of revenues that BPA's rates are designed to recover, including total expenses and planned net revenues.

# 3

## Transmission System Development Program

### Introduction

BPA's 14,500-mile high-voltage transmission system provides for the reliable and economical delivery of power to BPA's utility and Direct Service Industry (DSI) customers throughout the Pacific Northwest. The system also supports the sale and exchange of power by allowing other utilities in the region to transfer electricity to load centers and by connecting the Northwest to other regions of the country. This capability is increasingly important now that the region no longer enjoys an energy surplus and may need at times to obtain power from sources outside the region.

In anticipation of continued growth in the Pacific Northwest, the fiscal year 1992-93 proposed program level for the Transmission System Development (TSD) Program supports strengthening of BPA's main network of transmission lines to assure adequate and reliable service for BPA customers while meeting environmental and safety standards within BPA's budget constraints.

### Transmission System Development (TSD) Program

BPA's TSD Program is responsible for all additions and upgrades to the federal transmission system in the Pacific Northwest. Specifically, the TSD Program includes facilities for the main grid (the bulk power transmission system), interties (transmission interconnections with other regions), area service networks (transmission systems that serve local load areas), the customer service system (substations and short line links that connect to BPA's customers), and the system control and communication facilities required to operate the transmission system.

### Program Activity, Fiscal Years 1990-91

The fiscal years 1990-91 TSD Program included funding for several major projects which have been completed or are under development. In addition, several other projects have been moved into the fiscal years 1990-91 period to respond to specific needs:

- **Energization of the HVDC Terminal Expansion project, Cello DC Converter Station.**

This project, completed in fiscal year 1990, increased the capacity of the Pacific Northwest-Pacific Southwest DC Intertie line from 2000 megawatts to 3100 megawatts—a significant capacity improvement for BPA and the region's utilities.

- **Snohomish 230-kV line.**

Five miles of 230-kV transmission line were constructed and energized between BPA's Snohomish Substation and Puget Sound Power & Light's Beverly Park Substation in fiscal year 1990, providing additional capacity for Snohomish County PUD. The project also reduces potential overload conditions on BPA transmission facilities in the Puget Sound Area.

- **Third AC Intertie.**

A significant engineering effort has been made in fiscal year 1990 to support material and equipment procurements for the Third AC Intertie which will increase BPA's system connections and capacity with participating California utilities. Although the

*"BPA's transmission system is dynamic."*

required California–Oregon Transmission Project (COTP) agreements remain unresolved and represent a limiting factor for keeping the Third AC Intertie on schedule, the project remains scheduled for completion by April 1993.

- **Port Angeles System Reinforcement project.**

Daishowa Paper Company has deferred construction of its proposed paper mill at Port Angeles, Wash. Therefore, the Port Angeles System Reinforcement project has been split into three steps. Step one includes development of a 230–kV switchyard at Fairmont Substation and looping the Shelton–Port Angeles lines into Fairmont. This first phase, which is scheduled for completion in the fall of 1991, is consistent with BPA's long range plans to serve the Olympic Peninsula. The second and third steps, which directly support service to the Daishowa plant, are on hold pending an agreement with Daishowa for firm load. Completion of steps two and three is forecast for fiscal years 1992–93 respectively.

- **Raver Substation project.**

To mitigate potential main grid low voltage problems during certain line outage or heavy load conditions in the Puget Sound area, the addition of 500–kV shunt capacitors at Raver Substation has been accelerated by one year and will be completed in December, 1990.

- **Bellingham–Custer 230–kV Double Circuit line project.**

This project was delayed one year from fiscal year 1991 to allow for completion of joint planning studies among BPA, Puget Sound Power & Light and B.C. Hydro. These studies are aimed at developing the best overall plan to increase transfer capability with Canada and solve local system problems near Bellingham. This BPA project is being compared against a proposed Puget Power & Light line which would interconnect their facilities with BC Hydro.

- **Alvey Substation.**

Recently, Pacific Power & Light Co. (PP&L) requested that BPA accelerate completion of the 500–kV switchyard addition at the Alvey Substation—from April, 1993 to November, 1992—so that PP&L can complete the Alvey–Dixonville portion of its Eugene–Medford project to meet load requirements in southern Oregon.

- **Other Projects.**

The LaPine Area Reinforcement, Shelton Reinforcement, Toledo Transformer Reinforcement, McMinnville Area Support, Kallispell and Harvalurn Shunt Capacitor Addition, Stability Control Upgrade, Control Center Computer Upgrades (Real Time Operations Dispatch System and Transmission Control and Dispatch System), and various customer and area service projects are underway and scheduled for completion by the end of fiscal year 1991.

## **Planning for System Additions**

BPA's transmission system is dynamic. Facilities are added or upgraded to assure that the system will continue to reliably serve BPA's customers and the region. Fiscal years 1992–93 spending levels for TSD were developed after considering a variety of factors including reliability criteria, safety, BPA's Customer Service Policy and updated load projections.

### **Reliability**

BPA's Reliability Criteria, revised in a 1988–89 public review process, set limits for how transmission system disturbances can affect the system. These criteria, which define minimally acceptable performance, are used in planning needed improvements to the transmission system. The criteria are designed to ensure the cost effective reliability of transmission service to the region's consumers. (Similar criteria have been adopted by the Western System Coordinating Council (WSCC), which helps coordinate transmission planning, power exchanges and wheeling among utilities in the west. WSCC's criteria set limits on the effects that disturbances in one system can have on other systems. The BPA system is planned to satisfy both BPA and WSCC criteria.)

Included in the fiscal years 1992-93 TSD Program is approximately \$80 million for "system reactive" additions—improvements which provide voltage support to mitigate system overloads. System Reactive additions are necessary, for example, to maintain system reliability in the Seattle and Portland areas which are being affected by a combination of high load growth and long tie lines to major generation resources east of the Cascades. Other fiscal years 1992-93 projects are planned to strengthen the transmission system in the Port Angeles and Longview areas. Preliminary planning funds for options to reinforce the Puget Sound area also are included in the FY 1992-93 proposed TSD program.

### **Safety**

Safety is a high-priority for BPA. In the design of its facilities, BPA adheres to the National Electric Safety Code (NESC). The TSD Program for fiscal years 1992-93 includes specific safety enhancements—the Shelton-Fairmont Reinforcement, Olympic Peninsula Reinforcement and Cowlitz-Olympia 230-kV Rebuild. These projects include upgrades and additions that will solve potential safety and code violations that would occur with increased electrical loads.

### **Customer Service Policy**

The Customer Service Policy defines BPA's primary responsibility as providing a reliable system for the integration and delivery of bulk power to BPA customers. The policy also says that BPA will plan and construct transmission lines and substations jointly with its customers and in cooperation with governmental agencies, other utilities and the public, based upon a "one-utility" concept and developed consistent with environmental laws.

### **Updated Load Projections**

BPA annually revises its system load projections using customer load data and forecasts for new industrial and commercial development. Accordingly, proposed system additions or modifications in the TSD program are adjusted as necessary. The latest projections show increased load growth in the Puget Sound area which will contribute to low voltage problems there.

## **Proposed Fiscal Year 92-93 Program Levels**

Table 1 shows the proposed cost breakdown for the TSD Program for fiscal years 1992-93, as well as ongoing projects from fiscal years 1989-91. BPA believes the proposed program levels provide for the minimum amount of work required to sustain BPA's transmission system at a state of readiness to meet peak loads and assure that the system continues to perform reliably during outage conditions or other system disturbances.

During fiscal years 1992-93, BPA plans major additions and reinforcements for the Third AC Intertie to California. Another major project during this period could involve significant reinforcements to the Puget Sound area system, depending on the outcome of the analysis of alternatives in a study and Environmental Impact Statement now under preparation. Attachments A and B describe major main grid and area service projects proposed for 1992-93.

### **Expenses**

The expense side of the fiscal year 1992-93 TSD program level includes funds for research and development (R&D) as well as administrative and support activities. Proposed expenses for fiscal years 1992-93 total \$47.2 million, representing a 14 percent increase over fiscal years 1990-91 levels.

Research and development activities will focus on applying new technology to the transmission system and supporting system analysis and planning. Projects proposed for fiscal years 1992-93 include intertie enhancements, reducing the environmental impacts of BPA facilities, extending the life of transmission facilities, cleaning up hazardous wastes and preventing equipment failures. These efforts will improve the efficiency and effectiveness of the TSD program as well as extend the capacity and useful life of existing facilities.

## Capital Investment

Capital expenditures averaging \$191.3 million per year for system improvements are proposed for fiscal years 1992–93. This program level is a 16 percent increase over fiscal years 1990–91 and reflects BPA's efforts to plan transmission facilities that are consistent with BPA's reliability criteria and that respond to potential regional load growth during the 1990s.

Proposed Capital Investments for Fiscal Years 1992–93 include:

- **Increased funding for main grid projects**

These projects include service to new loads, transmission line upgrades or additions, new substations facilities, reactive modifications and necessary system control facilities to permit reliable operation of the BPA transmission system. (See Attachment A for detail). In the Puget Sound Reinforcement Study, BPA and the major Puget Sound utilities are jointly studying conservation and demand-side management, load curtailment, local generation and transmission reinforcement as potential solutions to the Puget Sound area reinforcement problems. (If the transmission option is chosen as part of the solution, it would begin as a capital investment in the TSD program, amounting to \$10 million in fiscal year 1992 and \$6 million in fiscal year 1993. The decision on the best long-term plan will be reached in fiscal year 1991.)

The proposed main grid capital investment program level for fiscal years 1992–93 of \$133 million per year is an increase of 114 percent over fiscal years 1990–91.

- **Area and Customer Service activities projects (230-kV and below)**

These are projects which serve local geographic areas or customers, such as replacing and rebuilding lines in the East Lewis County and Gig Harbor areas or new line construction in the East Minidoka area. (See Attachment B for detail). The proposed program level for fiscal years 1992–93 averages \$13.9 million/year and is a 23 percent increase over fiscal years 1990–91.

- **General System Facilities projects.**

These include preliminary engineering to support projects for the main grid, area and customer service, and other related budget items in the proposed TSD program level. The fiscal years 1992–93 program level supports lead time activities needed for all proposed capital projects. This advance work is required for determining final plans of service, environmental studies, site selection and surveys. Proposed program levels in fiscal years 1992–93 average \$1.6 million/year—an decrease of 44 percent over fiscal years 1990–91. This decrease results from an inclusion in the other budget line items of funds to cover preliminary engineering on most projects.

- **System Control Facilities projects**

These projects are required to efficiently and effectively operate BPA's transmission system. They include upgrades or additions to control centers, substations and power system radio stations. The proposed program level represents a 16 percent increase over the fiscal years 1990–91 level. Proposed projects include breaker failure retrofit, communication facility replacements, dispatcher training facility construction and control center computer modifications and enhancements.

- **Miscellaneous Line and Substation Additions**

These are equipment additions that are not part of major projects such as main grid or area service. Typical line and substation additions are power circuit breakers, transformers, switches, arresters or line upgrades. The fiscal years 1992–93 program level of \$7.6 million per year is a slight increase over the previous program level.

- **Miscellaneous Completions expenses**

These are charges which are incurred for a project beyond the period for which funds have been dedicated. Such charges typically include contract claims or follow-up work after the programmed work has been completed (such as corrections to system deficiencies that appear after operations begin).



- **Allowance for Funds Used During Construction (AFUDC) expenses**

This represents interest accrued on borrowed funds used to finance TSD projects while they are under construction. When the projects are completed and placed in service, the interest becomes part of BPA's annual expenses.

## **Long Range Trends**

TSD will emphasize the development and construction of transmission facilities which have improved operating efficiencies. BPA's goal is to achieve loss savings of at least 1.5 average megawatts per year for each improvement. Funding for these efforts begins in fiscal year 1992.

Negotiations are currently under way with Canada to continue the Canadian Entitlement, which most likely will result in system enhancements to BPA as well as the Canadian systems.

BPA also will continue to develop and upgrade existing systems to mitigate system over-loading and low voltage conditions, which are particularly a concern in the Puget Sound area.

Negotiations will continue with other Pacific Northwest utilities to continue to provide optimal transmission capability based upon the "one utility" concept.

## **Tradeoffs and Risks**

In developing the proposed program level for the TSD Program in fiscal years 1992-93, BPA has considered the best balance between reliability, safety, performance, cost and environmental effects. Tradeoff and risk evaluation are performed throughout the planning process on a continuing basis.

The TSD Program is constrained by specific budget limitations, but provides for the minimum schedule of work to meet the BPA Reliability Criteria. Given certain operating conditions, however, the system could be subject to load dropping and curtailment. BPA intends to provide the best service to its customers within the program limitations for fiscal years 1992-93. As system data is gathered and analyzed, the proposals will be refined to accurately define the proposed projects before work starts on each project.

Some tradeoffs have occurred among projects included in the proposed fiscal years 1992-93 program level. Further tradeoffs may be made based on future budget constraints. These may result in reduced system reliability or loss of long-term cost savings or revenues as a tradeoff against short-term financial advantage or the financial needs of other BPA programs.

Program changes affecting fiscal years 1992-93 in which tradeoffs were considered include:

- **Grandview Area and Tri-Cities Area Reinforcement projects**

These projects will continue to be deferred for at least three years. Without these projects, load dropping in the Pacific Power & Light service area will be necessary in the Grandview area for outages during peak load periods.

- **Cowlitz-Olympia Line Rebuild**

The work schedule for this project has been delayed one year, from spring 1993 to spring 1994, to reduce funding required in the fiscal years 1992-93 period. Until this project is completed, load reductions may be required if an outage is experienced.

- **Sno-King Substation 230/115-kV power transformer**

This project could not be deferred and is proposed for completion in fiscal year 1991. Without the addition of this third transformer, an outage of one Sno-King transformer during moderately cold weather will cause the remaining 230/115-kV transformer to overload, risking the possibility of damaging the units. Some loads would need to be curtailed to relieve these overloads.

## Alternative Futures and Program Levels

The proposed program levels (base case) for Transmission System Development for fiscal years 1992–93 include needed 500–kV main grid improvements to assure system reliability and safety while meeting anticipated needs. The base case assumes upfront payments from other utilities for the Third AC Intertie Reinforcements.

The base case reflects BPA's view of the conditions and circumstances that will occur during fiscal years 1992–93. However, BPA also has identified other scenarios, based on different sets of assumptions, which could result in increases or decreases in program levels for TSD. These scenarios are described below and are depicted in the Program Alternatives Table.

### High Loads in the West (high scenario) — \$16.5 million/year above base case

A variety of factors could stimulate the need for more transmission facilities and corresponding increases in TSD program levels:

- **Portland area requirements**

In addition to the Puget Sound study area, large increases in load could accelerate the need for reinforcement in the Portland area during fiscal years 1992–93. Energization of a major Portland area transmission line in 1996 or 1997 would require that BPA undertake initial project costs in fiscal years 1992–93 of \$2–5 million for planning, preliminary design and environmental work. The balance of the costs would occur in subsequent fiscal year years.

- **Other localized needs**

Increased load growth could stimulate the need to develop small projects on a localized level.

- **Loss of generation**

Loss of generating plants would accelerate the need for the Puget Sound Reinforcement as well as reinforcements in the Portland area.

- **Increased import of power or transfers of power through the Northwest**

An increase in imported power from outside the region to meet Northwest energy loads or increased transfers of power through the Northwest between utilities in other regions could require increased intertie development. Ties to Canada, Montana, Idaho and California could be affected. In addition, the main grid may need significant reinforcements to accommodate increases in intertie transactions. Since the main grid presently is stretched to its limits, BPA and other utilities are planning 230–kV system reinforcements to correct problems caused by main grid outages. While these plans may appear cost-effective in the short-term or meet the corporate objectives of other utilities, they ignore the need for long-term overall main grid development.

### Non-federal participation (low scenario) — \$2–10 million/year below base case

This scenario assumes building the Puget Sound cross-mountain transmission, but assumes that the costs will be shared. Capital requirements would be reduced by from \$2–10 million/year.

## Summary

BPA's proposed Transmission System Development Program for fiscal years 1992–93 seeks to respond to load growth affecting the system and to assure adequate reliability to customers while meeting environmental and safety code requirements.

Maintaining adequate transmission system reliability in response to continuing high load growth in major population centers presents a formidable challenge. Reduced reliability, including potential load curtailment during severe winter peaks, may be inevitable because of the long lead times in implementing solutions to transmission capacity problems. The

*“Maintaining adequate reliability in major population centers presents a challenge.”*

proposed program levels, however, reinforce several area transmission systems to assure that they stay within BPA and WSCC reliability criteria.

While the fiscal years 1992-93 proposed program levels are constrained, they are the product of considerations that include engineering trade-offs, financial flexibility and minimum requirements to meet BPA's reliability criteria.

BPA views the proposed program level as prudent to not only assure that safe, reliable service can be provided to its customers during the two-year budget period, but that an appropriate foundation is being laid for the future growth and needs of the system and the region it serves.

**(Table 3.1)**  
**TRANSMISSION SYSTEM DEVELOPMENT**  
(\$ in millions)

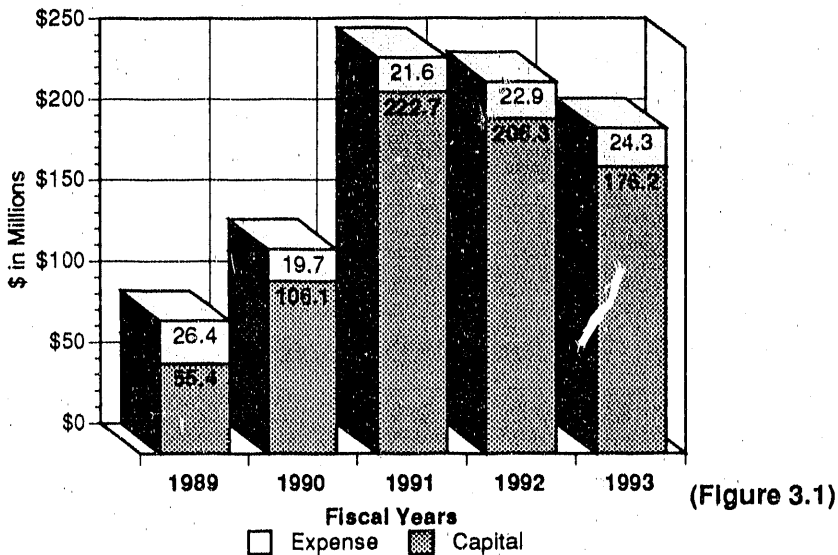
	<u>FY 1989</u>	<u>FY 1990</u>	<u>FY1991</u>	<u>FY 1992</u>	<u>FY 1993</u>
<b>Annual Expense</b>	26.4	19.7	21.6	22.9	24.3
<b>Capital Investment</b>					
Main Grid <sup>1/</sup>	27.4	27.0	81.0	87.5	121.4
Third AC Intertie <sup>2/</sup>	1.7	35.7	89.0	55.6	-14.2
Puget Sound Reinforcement <sup>3/</sup>	-	-	1.4	10.2	5.6
Area & Cust. Service	12.4	9.7	12.0	10.6	17.2
Gen Sys. Facilities	4.8	4.5	1.2	1.4	1.7
System Controls	15.9	15.6	18.6	18.9	19.9
Misc. Line/Sub. Addns.	2.1	5.7	9.4	7.6	7.6
Misc. Completions	-0.3	2.6	0.1	0.1	0.2
AFUDC		10.3	15.0	19.4	21.8
Cap. to Exp. and Other Acctg. Adjust.	<u>-8.6</u>	<u>-5.0</u>	<u>-5.0</u>	<u>-5.0</u>	<u>-5.0</u>
<b>Total Capital Investment</b>	<u>55.4</u>	<u>106.1</u>	<u>222.7</u>	<u>206.3</u>	<u>176.2</u>
<b>TOTAL TSD PROGRAM</b>	81.8	125.8	244.3	229.2	200.5

<sup>1/</sup> Represents the sum of all main grid projects, except the Third AC Intertie and Puget Sound Reinforcement, listed separately below.

<sup>2/</sup> Two main grid projects, the Third AC Intertie and Eugene-Medford (Alvey-Meridian), are combined on this line. (See detailed project descriptions in 1992-1993 Main Grid Projects List.)

<sup>3/</sup> This proposed project is one of several options being evaluated and subjected to public review before a decision is made regarding the level at which each option will contribute to the solution of the Puget Sound Area voltage problems. A project of this nature requires long lead times for planning, environmental, and preliminary engineering activities. It is included in the budget at this time as a fiscal year 1992 new start to ensure that planning funds are available for a transmission option, if needed.

## Transmission System Development



### 1992–1993 Main Grid Projects List

Examples of main grid projects and their funding requirements in fiscal years 1992–93:

- **Third AC Intertie (\$–0.7 million \*)**

This project consists of the construction of a new Captain Jack 500–kV substation in southern Oregon and various upgrades of substation and transmission lines. System additions include power circuit breakers at Slatt, Malin, and Grizzly Substations; capacitors at Sand Springs, Ft. Rock, Sycan compensation stations, and Alvey Substation; and various power system control facilities. Transmission lines to be upgraded or reinforced include the Ashe–Marion 500–kV, John Day–McNary 500–kV, Grizzly–Summer Lake 500–kV, Summer Lake 500–kV, Summer Lake–Malin 500–kV, and Grizzly–Malin Loop to Southern Oregon Substation. New 500–kV line construction by the Southern California utility project partners will be done from Captain Jack Substation to the California–Oregon border at BPA expense.

(Completion, Spring 1993)

- **Eugene–Medford (Alvey–Meridian) (\$42.1 million)**

This is a cost–shared project with Pacific Power and Light (PP&L). PP&L will construct a 500–kV transmission line from BPA’s Alvey Substation to PP&L’s Dixonville substation and from Dixonville Substation to PP&L’s Meridian Substation in Southern Oregon. BPA will provide terminal facilities at Alvey. Assuming the 3rd AC Intertie Project moves forward, BPA has the option to purchase up to 50% of the new line’s capacity for intertie use. (Completion, Spring 1993)

- **Port Angeles System Reinforcement (\$16.3 million)**

Upgrade of the existing Fairmont–Port Angeles 230–kV single–circuit line to a double–circuit line and substation additions at Port Angeles, Fairmont, and Happy Valley. This project will provide capacity and reliability on the Olympic Peninsula system to meet growing loads in the Port Angeles Area. Phase I of this project is not dependent on the Daishowa load expansion. (Completion, Fall 1993)

- **Bellingham Area Reinforcement (\$3.7 million)**

Retire the existing 230–kV single–circuit wood pole line from Bellingham to Custer and replace it with a double–circuit steel line. Substation additions are required at Bellingham and Custer substations. This project would eliminate existing overloading of the line during outages of the Monroe transformer. (Completion, Fall 1993)

\* Major expenditures made in fiscal years prior to fiscal year 1992 are offset during this 2–year period by reimbursements from other utilities participating in the Third AC Intertie.

- **Cowlitz–Olympia Line Rebuild (\$25.7 million)**  
Rebuild the existing Olympia–White River 230–kV line to single–circuit 500–kV. Breaker and switch replacements are necessary at Olympia Substation. A switch replacement is necessary at Cowlitz Substation. This project is required to provide capacity, maintain voltage and prevent overload conditions. (Completion, Spring 1994, with fiscal year 91 funds required for survey and design)
- **NW Montana/N.Idaho Support (\$25.7 million)**  
This project includes the construction of the new 230/115–kV, 200 MVA Kootenai Substation, a 230–kV double–circuit line from Libby to Bonners Ferry Substation replacing the existing 115–kV Line, and a 230–kV line terminal at Libby Substation. The project is required to maintain reliable service in the NW Montana/N. Idaho area and to serve PP&L's Sandpoint load for which BPA is contractually responsible by July 1993 (Completion, Fall 1994)
- **Olympic Peninsula Reinforcement (Phase I) (\$13.7 million)**  
Replace the existing two 115–kV Shelton–Shelton Intercept lines with a 500–kV double–circuit line, add 230–kV breakers and a terminal at Shelton, add a 230–kV terminal at Olympia, and build a new 230–kV Olympia–Shelton line. These facilities are necessary to increase the transmission capacity to both the Olympic and Kitsap peninsulas and to correct voltage problems caused by high reactive losses. (Complete phase I by Fall 1994)
- **Shelton–Fairmont Reinforcement (\$4.1 million)**  
Construct a new 230–kV single–circuit line between Shelton and Fairmont Substations and new line terminals at those stations. Some funding for planning and preliminary design have been included in 1992/93 in the event the Daishowa Paper Co. load materializes. (Completion, Fall 1996)
- **Longview System Reinforcement (\$8.3 million)**  
Add a second 500/230–kV transformer and associated breakers at Allston Substation. This facility will increase transformation capacity and improve the transmission reliability to the Portland/Vancouver area. Longview is one of several major substations that serves the Portland/Vancouver area. (Complete by Spring 1993)
- **Snoqualmie Switching and Reactive Station (\$12.4 million)**  
Construct a new 500–kV switching and reactive station to provide switching for the existing Monroe–Maple Valley and Maple Valley–Raver 500–kV lines. New shunt capacitors and reactors are required for voltage support in the Puget Sound Area. (Completion, Fall 1994)
- **Puget Sound Reinforcement (\$15.8 million)**  
Planning reserve if transmission option is considered a solution to Puget Sound area voltage problems.
- **North Seattle Transformer Reinforcement (\$0.5 million)**  
Install a 1300 MVA 500/230–kV transformer at Sno–King Substation along with substation facilities at Maple Valley. The Maple Valley–Bothell No. 2 230–kV line is looped into Sno–King Substation. This project is required to provide support to the North Seattle area during abnormal winter peak loads during certain outage conditions. (Completion, Fall 1996)
- **Chief Joseph Substation 500/230–kV Transformer Addition (\$0.1 million)**  
Install a second 1300 MVA 500/230–kV transformer at Chief Joseph Substation to eliminate overloading of the Grand Coulee 500/230–kV transformer during loss of the existing Chief Joseph transformer and several line outages in the area. (Completion, Fall 1996)

- **Monroe–Snoqualmie Line No. 2 (\$0.3 million)**

Construct 31.7 miles of new 500–kV single circuit line from Monroe Substation to Snoqualmie Substation with substation facilities at Monroe and Snoqualmie. This project is required to enhance voltage stability in the Puget Sound Area as well as provide additional capacity to support the ties proposed for the Northern Intertie with B.C. Hydro. (Completion, Fall 1997)

- **System Reactive (\$79.6 million)**

A continuing long range broad program for addition of system reactive is planned to maintain compliance with BPA's reliability criteria by raising general voltage levels, increase power transfer capability, decrease system losses and provide voltage control. These additions will defer the need for transmission line construction. (Completion – continuing)

In addition, static var (volt–Ampere reactive) systems are planned for Maple Valley Substation (Completion, Fall 1994) and Keeler Substation (Completion, Fall 1995) to reduce exposure to loss of load resulting from voltage instability, resulting from major line outages into Seattle or Portland.

- **System Reactive–Series Capacitors (\$0.5 million)**

Replace two banks of series capacitors and add three banks of series capacitors along with system reconfiguration at Sandsprings, Sycan and Ft. Rock Capacitor Stations. These replacements and additions are part of BPA's efforts for clean-up and removal of Poly–Chlorinated Biphenyl contaminated facilities of BPA's transmission system as part of an agreement with the Environmental Protection Agency. This project is independent of the proposed Third AC Intertie project. (Completion, Fall 1992)

## Area Service Projects

Examples of Area Service Projects and their funding requirements in fiscal years 1992–93:

- **East Lewis County Support (\$3.9 million)**

Replace the Silver Creek–Morton 69–kV line with a new line constructed at 115–kV but operated at 69–kV. Total line length is 15.7 miles. This project is required to mitigate thermal overloads resulting in NESC violations and low voltage conditions during peak load violating BPA's Reliability Criteria. (Completion, Fall 1993)

- **Gig Harbor Area Support (\$7.6 million)**

Rebuild the Shelton–Kitsap 115–kV line to double circuit 230–kV from Shelton to the intersection with Tacoma City Lights (TCL) Cushman 2–Pearl 115–kV lines. Construct a new 115–kV switch yard to loop in TCL's Cushman line and BPA's Shelton–Fairmont line. Substation facilities are required at Shelton and Arendale Substations. 300 MVA of 230/115–kV transformation is also required at Shelton. This project is required to separate Peninsula Light Company load from TCL due to aging TCL electrical system, overloads in 1990s on the Narrows crossing and termination of BPA transfer agreement with TCL in 1994. (Completion, Fall 1994)

- **East Minidoka Support (\$1.2 million)**

Construct 4.6 miles of 138–kV line from Heyburn to Haymill. Substation facilities are also required at Heyburn and Haymill. This project is required to improve reliability of existing radial service to the Haymill area in Idaho and also eliminates the need to replace 34.5–kV breakers and PCB contaminated capacitors. (Completion, Fall 1992)

- **Sno–King Transformer Addition (\$1.8 million)**

Add a Third 230/115–kV transformer at Sno–King Substation to prevent overloads on either 230/115–kV transformers at Sno–King during outage conditions. (Completion, Fall 1992)

# 4

## Transmission System Operations & Maintenance

### Introduction

In August 1990, BPA will release its Ten-Year Operations, Maintenance and Replacement Plan for 1990-99. The program levels for Operations and Maintenance in fiscal years 1990, 91, 92 and 93 fund the first four years of the plan.

The Ten-Year Plan provides for: (1) maintaining essential services on a current basis, (2) reducing maintenance and replacement backlogs to prudent levels by 1999, and (3) fully meeting BPA's environmental responsibilities. The plan depends on increasing the productivity of BPA's O&M workforce at a rate of 1.5 to 2.0 percent per year in order to meet growing workload without adding staff.

Program levels for each year assume these productivity increases. There are minor staffing increases to enlarge apprentice programs and to take other steps to replace key personnel who retire during the period. For more detail refer to the Plan which can be obtained by calling BPA.

### System Operations

BPA's System Operations Program (expense) provides for the continuous, instantaneous routing of power, maintaining electrical system stability and the physical operation of the apparatus by which these tasks are accomplished. It is almost entirely comprised of people-related costs: salaries, rent, utilities and travel for control center dispatchers, substation operators and technical support staff.

The principal program issues for fiscal years 1992-93 are:

- **Managing voltage stability in the Puget Sound area**

System studies show increasing voltage support problems in the Puget Sound load area. It will be several years before a comprehensive long-term solution can be put in place. In the interim, BPA and the other affected utilities will work together to develop operating control plans and compensation schemes to deal with a variety of contingencies, such as abnormally cold weather or forced outages of transmission or generation.

- **Replacing and training power system dispatchers and substation operators**

About 75 percent of BPA's current dispatchers and substation operators will retire or move up to higher level positions by 1999. To help assure a satisfactory level of replacement BPA will:

- Add three dispatchers to allow for training while maintaining the minimum staffing needed to dispatch the system.
- Increase the number of substation operator apprentices from 10 to 16.

- **Coping with reduced regional reserves of transmission and generation capacity**

The region had substantial reserve transmission and generation capacity through much of the 1980s. Because of load growth, equipment aging and other factors, these reserves have become marginal. This makes it more difficult to operate the transmission system. To address this problem BPA will:

- Institute annual system operations studies to better identify potential operating and capacity problems.

- Increase technical analysis of outages, system failures, and equipment failures. This will include initiating a detailed and accurate compilation of outage data.
- Implement an effort to better understand BPA customers' service standards.

(Table 4.1)  
**BPA PROPOSED FY 1990-1993  
 SYSTEM OPERATIONS PROGRAM (EXPENSE)**

Direct 1990 Dollars in Millions (basic program)/Yr.

	<u>FY 90</u>	<u>FY 91</u>	<u>FY 92</u>	<u>FY 93</u>
Program Totals	20.1	19.7	20.4	20.4

**Replacement (Capital Maintenance)**

BPA's Replacement (Capital Maintenance) Program is responsible for replacing failed, unsafe, unreliable and high maintenance equipment and facilities. About two-thirds of the funds are for procurement contracts. The remainder is for design, installation, and on-site testing needed to remove and replace equipment, and return facilities to operational use.

Studies for the Ten-Year Plan revealed that replacing certain equipment soon is the fastest and most cost effective way to improve system reliability. This also will reduce both the amount of corrective maintenance necessary and the backlog of preventive maintenance. By lowering the number of premature failures, it also will reduce emergency replacements and other unplanned (and unplannable) work. In combination with systematically looking ahead 10 years, this approach will result in more orderly and efficient use of BPA's limited financial, maintenance, engineering, construction and procurement resources.

Proposed replacement plans for major cost items for fiscal years 1990-93 are shown below:

(Table 4.2)  
**PROPOSED REPLACEMENT PLANS  
 FOR MAJOR COST ITEMS FOR FYS 1990-93**

<u>ITEM</u>	Number of Items/Year			
	<u>FY 90</u>	<u>FY 91</u>	<u>FY 92</u>	<u>FY 93</u>
Maintenance Complexes 1/ (Number of locations renovated)	0	2	1	1
PCB Contaminated Capacitors (MVAR's ordered)	24	1,066	0	1,475
500-KV Power Circuit Breakers (Number of breakers ordered)	6	6	6	6
230-KV & Below Circuit Breakers (Number of breakers ordered)	41	34	25	40
Transformers and Reactors (MVARs ordered)	337	108	350	640

1/ **LOW ALTERNATIVE FUTURE:** If funding is not available to fully implement the FYs 1992-93 increments of the Ten-Year OM&R Plan, major cost items which would not immediately affect the safety, security and reliability of the transmission system would be deferred. Specifically refurbishments at the Longview, Bell and Covington district maintenance headquarters would be deferred for two years. This would reduce capital obligations about \$5 million a year below the base case, but would incur offsetting expense maintenance costs of about \$1 million a year.



Proposed expenditures for major replacement cost items for fiscal years 1990-93 are:

(Table 4.3)

**PROPOSED EXPENDITURES FOR MAJOR REPLACEMENT COST ITEMS FOR FYS 1990-93**

\$ Millions (basic program) /Yr.

<b>ITEM</b>	<b>FY 90</b>	<b>FY 91</b>	<b>FY 92</b>	<b>FY 93</b>
Maintenance Complexes	0.6	5.8	4.2	3.2
Longview Refurbishment	0.0	4.6	0.7	1.0
PCB Contaminated Capacitors	0.4	6.8	1.8	8.2
Power Circuit Breakers	9.1	8.7	7.0	6.3
Transformers	5.5	2.4	2.4	6.9
<b>Program Totals</b>	<b>15.6</b>	<b>28.3</b>	<b>16.1</b>	<b>25.6</b>

(Table 4.4)

**BPA PROPOSED FYS 1990-93 REPLACEMENT (CAPITAL MAINTENANCE) PROGRAM**

Direct 1990 dollars in millions (basic program)/Yr.

<b>ITEM</b>	<b>FY 90</b>	<b>FY 91</b>	<b>FY 92</b>	<b>FY 93</b>
Nonelectric plant	5.8	12.6	12.4	8.2
Transmission Line	2.4	1.8	1.8	1.8
Substation	15.4	25.5	14.0	25.0
System Protection	4.4	3.2	4.2	8.5
Power System Control	4.3	5.9	5.9	4.8
Tools & Equipment	4.6	8.5	8.1	8.1
<b>Totals</b>	<b>36.9</b>	<b>57.5</b>	<b>46.4</b>	<b>56.4</b>

**System Maintenance**

BPA's System Maintenance Program (expense) provides for repair and preventive maintenance of system equipment. About 75 percent of the budget covers salaries, rent, utilities, and travel for maintenance crews and technical support staff. The rest is for materials and supplies, spare parts and contract support for brush clearing, painting, major equipment overhauls and other services.

The principal program issues for fiscal years 1992-93 are:

- **Performing preventive maintenance on a current basis with no increase in staff**  
Over fiscal years 1988, 1989 and 1990, BPA increased funding and permanent staffing for preventive maintenance to levels sufficient to keep up with current work. Planned productivity increases should offset 1.5-2.0 percent anticipated growth in workload. Productivity gains will come from: (1) Replacement electrical equipment which requires less maintenance than the units it replaces, (2) better tools and work equipment, (3) improved methods and procedures and (4) improved training.
- **Reducing maintenance backlogs**  
BPA revised its maintenance backlog reduction strategy in light of the findings of studies for the Ten-Year Plan. The new strategy calls for:
  - Accelerating replacement of selected high maintenance equipment. As discussed above, this will eliminate some backlog and reduce the need for both preventive and corrective maintenance in the future.
  - Doing preventive maintenance on a current basis. This has the effect of reducing the amount of past due work. This is similar to changing oil in an automobile. When you've done it, you're current no matter how tardy you may have been.

- Increasing productivity and maintaining a stable maintenance staff at fiscal year 1991 levels.
- Reducing the backlogs to prudent levels by 1999.

This plan addresses safety issues earlier than the previous plan which called for eliminating the backlogs by the mid-1990s and buying replacements at a more level rate. During 1988 and 1989, BPA reduced the backlogs 20 percent from the levels at the beginning of the reduction program in 1987. If replacements, current maintenance and increased productivity are realized as planned, the backlogs at the end of fiscal years 1992-93 should be about half of the 1987 level.

- **Painting electrical equipment**

BPA can no longer cut expenses by deferring application of protective coatings to electrical equipment. Electrical equipment should be painted on a 10-year cycle to prevent premature loss of expensive equipment due to corrosion. The fiscal years 1992-93 program levels provide funds for this purpose.

- **Replacing and training power system electricians and linemen**

About 32 percent of BPA's electricians and about 50 percent of its linemen will become eligible to retire by 1999. To help assure a satisfactory level of replacement, BPA will:

- Increase the number of apprentice electricians from 8 to 16.
- Increase the number of apprentice linemen from 8 to 12.

- **Increasing the use of reliability centered maintenance to the extent practical**

Traditional maintenance programs rely almost exclusively on fixed time intervals between scheduled work. Reliability centered maintenance takes a variety of factors into account in addition to time. It appears that emerging technology will allow BPA to profitably increase its use of these techniques. This promises to both improve equipment life and increase maintenance staff productivity.

(Table 4.5)

**BPA PROPOSED FY 1990-93  
SYSTEM MAINTENANCE PROGRAM (EXPENSE)**

Direct 1990 Dollars in millions (basic program)/Yr.

	<u>FY 90</u>	<u>FY 91</u>	<u>FY 92</u>	<u>FY 93</u>
Program Totals	61.4	62.8	65.7	66.2

## Environment

BPA is committed to a course of environmental responsibility. It will continue to actively work to fulfill its social responsibilities to minimize the adverse effects of its operations.

The capital and expense maintenance programs include funds for power system pollution control and abatement and for cleanups of contamination caused by past transmission system operations. The fiscal years 1992-93 program levels provide for taking care of presently identified work<sup>2</sup>.

The main items to be addressed during fiscal years 1992-93 are:

- **Removing polychlorinated biphenyls (PCBs) from the system**

Capacitors are 98 percent of BPA's PCB equipment. BPA has in progress a plan to remove all remaining PCB capacitors over a 16-year period starting in 1990. The fiscal years 1992-93 program levels provide for cleanup and disposal of 1,255 MVAR

<sup>2</sup> HIGH ALTERNATIVE FUTURE: Accelerating environmental cleanup and reduction of maintenance backlogs would entail about \$8 million a year in expense costs above the base case.  
HIGHER ALTERNATIVE FUTURE: Speeding up PCB equipment replacement and clean-up to achieve a PCB-free environment at all BPA's major facilities by 1999, would cost about \$40 million a year in capital and about \$10 million a year in expense above the high alternative future.

*"BPA is committed to a course of environmental responsibility."*

(MegaVolt Ampere Reactive, a measure of reactive power in electrical circuits) at four intertie series capacitor stations and replacing 944 MVAR at three substations at a total cost of about \$10 million. BPA has signed a memorandum of understanding with the Environmental Protection Agency committing to total decontamination of the four intertie sites by 1993.

- **Retrofitting secondary oil spill containment systems at sensitive sites**

Funds are budgeted to retrofit three substations in fiscal year 1992, and four substations in fiscal year 1993, at a two-year cost of approximately \$3 million.

- **Replacing underground storage tanks**

BPA is replacing all of its underground storage tanks in order to comply with new standards and regulations. Funds are identified to replace 34 tanks during the fiscal years 1992-93 period at a two-year cost of approximately \$1.5 million. This will complete the tank replacement program.

- **Coping with the listing of the Ross Complex as a Superfund site**

EPA has listed the Ross Complex as a Superfund site. At present BPA does not have enough information to determine the amount, nature, schedule or cost of the this will entail. The fiscal years 1992-93 program levels include a two-year total of approximately \$1.3 million for assessments, public processes and preliminary cleanup.

- **Addressing identification of eight potential Superfund sites**

EPA has included eight BPA installations in the Federal Facilities Docket of potential Superfund sites. BPA's present efforts include studies and clean-up actions directed towards full compliance so that Superfund site designations will not be necessary. The outcomes and full costs are presently uncertain. The fiscal years 1992-93 program levels provide a two-year total of approximately \$3.4 million for this purpose.

- **Taking care of substation drainage systems and water wells**

To protect groundwater purity, BPA has a continuing program to inventory, evaluate and care for the substation drainage systems and water wells that have been installed during the past 50 years. This includes locating abandoned facilities and taking necessary remedial actions to assure that they are not pollution pathways. The fiscal years 1992-93 program levels each provide approximately \$250,000 for this purpose.

- **Cleaning up spills new and old**

The fiscal years 1992-93 program levels include a two-year total of approximately \$2.8 million to clean up identified historical spills and new or as yet unidentified spills.

## Reconciliation

The funding figures in this discussion are basic program costs expressed in constant 1990 dollars to facilitate comparisons of the program from year to year. Bottom line budget figures as shown in the Master Table Summary of Program Costs include accrual and inflation adjustments, allocation of corporate overheads, etc. The following tables provide a brief reconciliation of the direct costs with the Master Table for program totals.

## Summary

Program costs must be balanced against risks to the safety and reliability of the transmission system. Short term costs must be evaluated in terms of overall long term costs. The proposed fiscal years 1992-93 program levels fund specific annual increments of a long term master plan which reflects the best set of trade-offs among many important considerations.

The Ten-Year Plan addresses the issues in a carefully balanced and considered manner. Most importantly, the plan provides a workable, economic blueprint for keeping the transmission system operating at the high level of reliability necessary to assure the people of the Pacific Northwest of a safe and cost-effective supply of electric power.

**(Table 4.6)**  
**CROSSWALK OF PROGRAM DIRECT COST TOTALS  
 TO MASTER TABLE FIGURES**

(Millions of dollars)

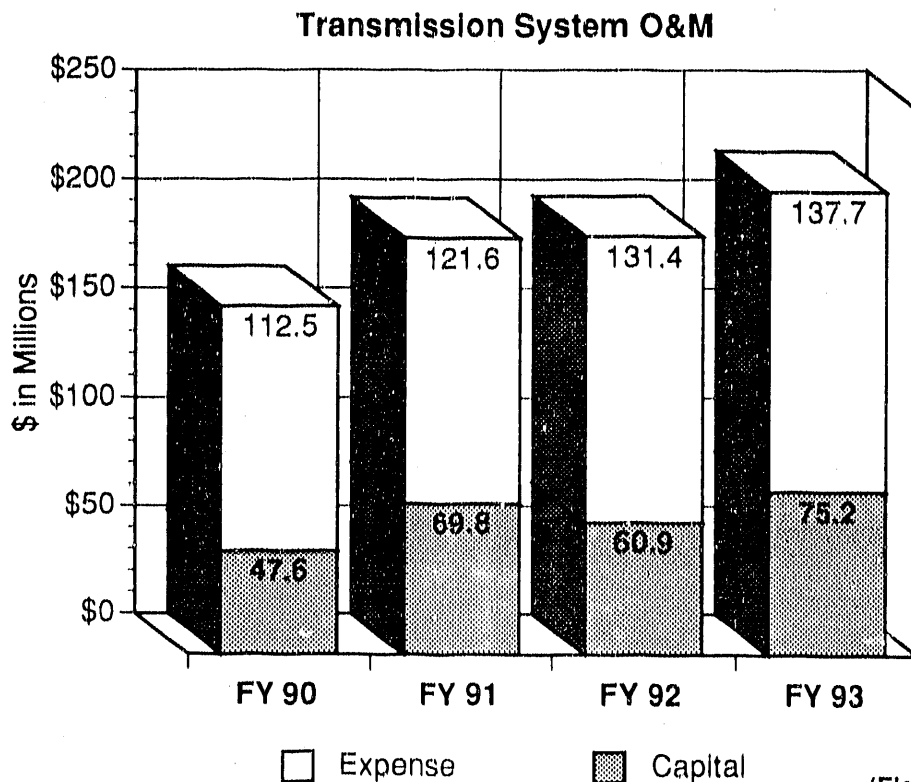
<u>Expense Operations &amp; Maintenance</u>	<u>FY 90</u>	<u>FY 91</u>	<u>FY 92</u>	<u>FY 93</u>
Program Total – Operations	20.1	19.7	20.4	20.4
Program Total – Maintenance	61.4	62.8	65.7	66.2
ADP & Accrual Adjustment	1.6			
Inflation Adjustment 1/		3.2	7.1	11.1
Support Services 2/	10.3	14.9	16.1	16.9
<b>TOTAL – Before Corporate Overhead</b>	<b>93.4</b>	<b>100.6</b>	<b>109.3</b>	<b>114.6</b>
General & Administrative Costs	19.1	21.0	22.1	23.1
<b>TOTAL – After Corporate Overhead</b>	<b>112.5</b>	<b>121.6</b>	<b>131.4</b>	<b>137.7</b>

<u>Replacement (Capital Maintenance)</u>	<u>FY 90</u>	<u>FY 91</u>	<u>FY 92</u>	<u>FY 93</u>
Program totals – Replacement	36.9	57.5	46.4	56.4
Program Indirects	4.2	4.5	4.5	4.5
Inflation Adjustment 1/		2.4	4.2	7.9
Support Services 2/	2.6	2.5	2.7	2.9
<b>TOTAL – Before Corporate Overhead</b>	<b>43.7</b>	<b>66.9</b>	<b>57.8</b>	<b>71.7</b>
General & Administrative Costs	3.9	2.9	3.1	3.5
<b>TOTAL – After Corporate Overhead</b>	<b>47.6</b>	<b>69.8</b>	<b>60.9</b>	<b>75.2</b>

1/ Inflation adjustment applies to program estimates which are stated in constant 1990 dollars.

2/ The support services shown above are services which are used by the Operations, Maintenance and Capital Replacement programs. These primarily include laboratory testing and calibration, general shops, heavy mobile equipment repair, helicopter line patrol, ADP user charges, and procurement and warehousing services.



(Figure 4.1)

# 5

## Energy Resources: Conservation & Generation

### Introduction

BPA's proposed fiscal years 1992-93 Energy Resources Program levels reflect a change in direction from the power surplus years of the 1980s. In fiscal years 1992-93, because the region has reached a load/resource balance, BPA could begin to face power deficits requiring careful planning and prudent acquisition of resources.

The proposed fiscal years 1992-93 program levels support a conservation and generation resource mix that will enable BPA to respond to its customers' needs while meeting its other responsibilities during this period of load/resource uncertainty.

The proposed fiscal years 1992-93 program levels are consistent with the long-term regional energy resource plan developed by the Northwest Power Planning Council.

### Energy Resources Program

BPA's Energy Resources Program (1) analyzes future energy needs, (2) identifies appropriate energy resources and (3) oversees the implementation/acquisition of those resources so that BPA can provide reliable, least-cost power to its customers. Among other things, the program assesses available resources and determines the general priority and timing of their acquisition.

Conservation resources include programs for the residential, commercial and industrial, and agriculture sectors. Generation resources include existing and potential generation resources (such as cogeneration, small hydro, and thermal power plants) and purchased power. Hydroelectric projects are operated by the Corps of Engineers, Bureau of Reclamation, and the City of Idaho Falls. BPA also receives electricity from two nuclear plants (Trojan and WNP-2) operated by Portland General Electric and the Supply System. BPA's program level support for these projects is included in PIP issue paper #7, Other Entities.

BPA's conservation and generation activities are guided by the Resource Program, a planning document prepared by BPA every two years which builds upon the Northwest Power Planning Council's Regional Power Plan. The recently-completed **1990 Resource Program** document is available from BPA's Public Information Center. It describes alternative resource-related actions for fiscal years 1992-93, their associated costs and recommends a specific approach. The proposed Energy Resources Program level for fiscal years 1992 and 1993 is based upon **1990 Resource Program** recommendations.

### Energy Resources Accomplishments

#### Conservation

BPA views conservation as a significant long-term energy resource for the region. Over the past ten years, BPA has invested a total of approximately \$870 million in direct acquisition conservation programs (including residential weatherization, aluminum smelter efficiency improvements, and street and area lighting), improved building codes and appliance efficiency standards, and technical support (program evaluation, state and local government support, and research and development).

During this same period, almost 300 average megawatts have been saved from direct acquisition conservation programs through the investment of \$602 million. This resource has an average total cost of approximately three-cents per kilowatt/hour over its life cycle (two-cents to BPA) which compares favorably to the four-cents per kilowatt/hour long-term cost of new coal-fired generation. New state/local building codes and federal efficiency standards for appliances now being implemented are expected to save BPA an additional 100-400 average megawatts by the year 2010—for an investment of \$129 million—even if no additional jurisdictions adopt the higher standards. The actual megawatt savings, however, will depend upon the amount of new construction in the region; more savings will occur if there is high growth, less if there is low growth. The balance of BPA's investment (\$139 million) has been in the form of technical support for evaluation and state technical assistance.

Following from the 1988 Programs in Perspective process, BPA's 1990-91 conservation program is expected to yield between 70-100 average megawatts.

### **Generation**

Since BPA has enjoyed a resource surplus until recently, no new generation resources have been added to the system in the last decade with the exception of the Idaho Falls Project, WNP-2, the geothermal pilot project and hydroelectric system/transmission efficiencies.

### **All Sources**

During fiscal years 1990-91, however, BPA is responding to potential energy deficits by beginning to solicit for resources and investigate creative resource strategies, such as implementing a process of granting billing credits to customers who develop resources and thereby reduce their load on BPA and testing an all sources competitive acquisition approach.

## **Proposed Energy Resources Program**

Unlike the 1980s, which were characterized by energy surpluses throughout the region, the 1990s will be a period of greater uncertainty in terms of energy supply and demand. For the first time in years, BPA is experiencing a load/resource balance and faces possible energy shortages.

BPA's recent load growth has significantly exceeded the projected "medium load growth" scenario of one percent per year. BPA's analysis shows that it faces a 50 percent chance that existing resources will not be sufficient to meet loads in the 1990s and roughly a ten percent chance that resource deficits exceeding 1,000 average megawatts will occur by fiscal year 1996.

This uncertainty has challenged BPA to pursue resources that can meet potential deficits—even under high demand forecasts—without committing BPA to large expenditures which later may prove unnecessary or more costly than other alternatives. Hence, BPA is embarking upon an approach to aggressively capture conservation resources, particularly those that would be "lost" if not acquired now, while increasing its flexibility and diversity in generation resources.

The final proposal in the **1990 Resource Program** contains the following key actions for fiscal years 1992-93:

- **Acquire 30 to 35 average megawatts per year of cost-effective conservation in all sectors—residential, commercial and industrial**

This commits BPA to a stable, steadily increasing conservation program for the period of fiscal years 1992-97, with the target of achieving at least 200 average megawatts by 1997.

- **Undertake an "all sources" test of BPA's acquisition process**

This would be achieved by seeking to obtain 100 megawatts through competitive bidding. An additional 50 megawatts is targeted for acquisition through billing credits.

*"BPA is experiencing a load/resource balance and faces possible energy shortages."*

*"Obtaining as much cost-effective conservation as possible remains a key component of this strategy."*

- **Obtain 100 average megawatts of power from Federal hydro and transmission system efficiency improvements**
- **Undertake a joint venture with other Northwest utilities for a geothermal R&D pilot project**

This project would support the acquisition of up to 30 average megawatts of electricity, to be paid for at a fixed rate if power is produced. It would provide an incentive for further geothermal exploration and development in the region.

- **Implement a Resource Contingency Plan to reduce the risk of deficits if high load growth occurs**

As part of that plan, request proposals for options on at least 800 megawatts of displaceable resources that could be operated when BPA nonfirm is not available. These options may be on combined-cycle combustion turbines, out-of-region purchases or cogeneration resources. The option would make the resource available to bring on line more quickly than otherwise would be the case in order to respond to prolonged high load growth or loss of a major resource.

Measured against a series of key decision factors, BPA views this proposal as the best, most prudent and least-cost approach to meeting the uncertainty of future load demands. Obtaining as much cost-effective conservation as possible remains a key component of this strategy. In addition, the proposed fiscal years 1992-93 program levels also support acquiring generation resources which have the diversity and flexibility to respond to higher than anticipated load growth or capacity demands.

In the past, BPA has relied largely upon its own direct programs to achieve its resource needs. The proposed fiscal years 1992-93 Energy Resources Program has broadened BPA's acquisition methods to focus on mechanisms designed or initiated by utilities—such as billing credits and competitive bidding—as viable mechanisms to add resources. BPA believes that this broadening of the program focus not only will be more flexible for its customers, it will marshal more of the region's expertise and resources for the benefit of BPA's customers.

Dealing with uncertainty about future loads is one of the challenges for energy resource planners to which we are accustomed. New uncertainties exist for BPA resource programs on the expense side of the planning. BPA has been unable to test its assumptions about on-line dates and resource costs because we do not have recent acquisition experience on which to draw. We must also be prepared to respond to good opportunities that will benefit the power system, when they arise.

## **FISCAL YEARS 1992-93 Energy Resources Program Levels**

For fiscal years 1992-93, BPA proposes Energy Resources Program levels averaging \$166.2 million per year, which represents an increase of 39 percent over fiscal years 1990-91. These resource activities will provide BPA with more than 150 additional average megawatts of energy to meet expected and potential loads.

The proposed fiscal years 1992-93 program levels for the Energy Resources Program are shown in Table 5.1. Conservation levels total \$229 million for approximately 60 average megawatts of power. Generation levels total \$25 million for 50 average megawatts of power. The total for the All Sources competitive acquisition test and billing credits is \$36 million. (The All Sources category includes those acquisition mechanisms that potentially can include resources from both conservation and generation.) Large thermal oversight and legal expenditures total \$9.2 million.

The forecast program levels below are a combination of annual expenses and capital obligations, prior to the addition of the support services used by the program and the distribution of corporate overhead cost (see Table 5.1 in this chapter for capital/expense split).

**(Table 5.1)**  
**CONSERVATION AND GENERATION**  
(\$ In Millions)

	FY 1989	FY 1990	FY1991	FY 1992	FY 1993
<b>Capital Investments 1/</b>					
Residential	22.2	31.8	33.8	37.4	41.9
Commercial	4.3	12.2	18.2	22.3	24.2
Industrial	1.1	3.4	6.3	10.2	10.9
Cap. Bond Premium—Conservation	11.7	0.0	0.0	0.0	0.0
Support Services	<u>0.0</u>	<u>1.1</u>	<u>2.8</u>	<u>3.0</u>	<u>3.2</u>
<b>Total Before Corporate Overhead</b>	<b>39.3</b>	<b>48.5</b>	<b>61.1</b>	<b>72.9</b>	<b>80.2</b>
Corporate Overhead	<u>0.9</u>	<u>0.9</u>	<u>1.6</u>	<u>1.8</u>	<u>1.9</u>
<b>Total Capital Investments</b>	<b>40.2</b>	<b>49.4</b>	<b>62.7</b>	<b>74.7</b>	<b>82.1</b>
<b>Annual Expenses 2/</b>					
Residential (w/o EWEB) 3/	11.7	25.8	31.7	26.8	25.9
Commercial 3/	4.9	7.8	7.5	10.3	12.1
Industrial (w/o Con/Mod) 3/	4.3	3.6	2.7	3.1	4.1
Generation (w/o Id. Fills) 3/	8.0	8.1	10.1	17.3	7.6
All Sources 4/	0.0	2.8	7.0	10.5	25.2
Large Thermal Legal & Oversight	2.9	4.2	6.0	5.3	3.9
Misc. Adjustments	-0.8	0.0	0.0	0.0	0.0
Support Services	3.3	3.9	7.1	7.5	7.9
Conversion: Oblgtns to Accruals	<u>0.0</u>	<u>-10.7</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
<b>Total Before Corporate Overhead</b>	<b>34.3</b>	<b>45.6</b>	<b>72.1</b>	<b>80.8</b>	<b>86.8</b>
Corporate Overhead	<u>4.1</u>	<u>5.1</u>	<u>3.8</u>	<u>3.9</u>	<u>4.0</u>
<b>Total Annual Expenses</b>	<b>38.4</b>	<b>50.7</b>	<b>75.9</b>	<b>84.7</b>	<b>90.8</b>
<b>Total Program</b>	<b>78.6</b>	<b>100.1</b>	<b>138.6</b>	<b>159.4</b>	<b>172.9</b>

1/ Capital Investment figures are obligations.

2/ Annual Expenses: FY 1989 figures are accruals.

FY 1990 figures are obligations with a conversion line to accruals.

FY 1991-93 — obligations are assumed to equal accruals.

3/ These figures include resource planning.

4/ The All Sources category includes those acquisition mechanisms that potentially can include resources from both conservation and generation.

NOTE: Totals differ slightly from those presented in the master table due to rounding.

### Residential Conservation

The residential conservation program level is increasing by approximately seven percent from fiscal years 1990-91. Program estimates are \$64 million in fiscal year 1992 and \$67 million in fiscal year 1993. BPA expects to acquire 12 average megawatts in fiscal year 1992 and 1.4 average megawatts in fiscal year 1993, through its residential programs.

Continuing emphasis is devoted to encouraging state adoption of Model Conservation Standards (MCS) which will result in energy savings far into the future. The proposed program levels also maintain BPA's commitment to weatherization in new residential buildings (Super Good Cents program) as well as existing structures.

### Commercial Conservation

The commercial sector presents significant opportunities for cost-effective resource development. The proposed fiscal years 1992-93 program level for commercial conservation is \$69 million, representing an increase of approximately 50 percent over fiscal years



1990–91 levels. This program level would allow BPA to acquire eight average megawatts of resource in fiscal year 1992 and ten megawatts in fiscal year 1993. Major program emphases include support for regional and State building codes, an enhanced Energy Smart Design Program and utility-driven programs.

### Industrial Conservation

The proposed fiscal years 1992–93 program levels for industrial conservation are increased from the levels for fiscal years 1990–91 by \$12 million, or 77 percent. The expected total acquisition is eight and ten average megawatts per year. BPA proposes to accelerate its efforts for both new and existing industrial facilities through the Energy Saving Program (ESP), increased involvement with conservation program operators and improving the region's understanding of the potential for industrial conservation.

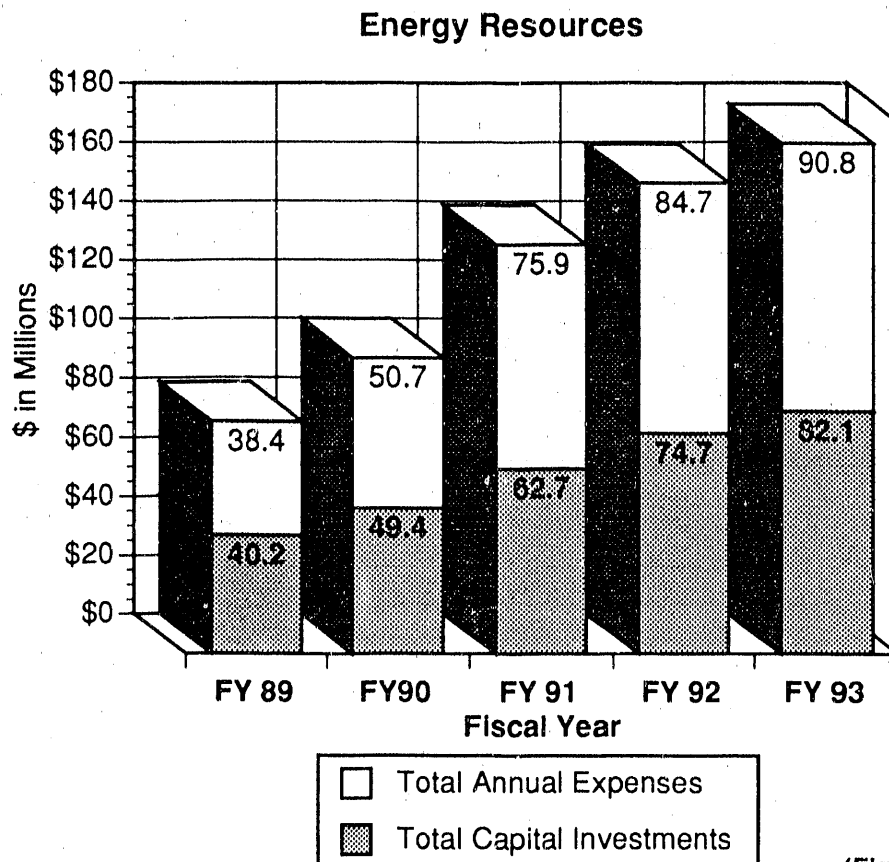
### Generation

BPA's proposed 1992–93 program levels anticipate that a modest amount of new generation resources will be developed near-term, but that generation resource flexibility plays a significant role long-term. For fiscal years 1992–93, program levels of \$17 million and \$8 million, respectively, are proposed—an increase of about 37 percent over the 1990–91 program levels.

### All sources

BPA will begin soliciting for billing credit resources this summer and anticipates 9 aMW of these resources will become available by 1992. A total of \$7 million is budgeted for billing credits for fiscal years 1992–93.

BPA plans to solicit resources beginning in fall 1990 and begin taking delivery of the power in fiscal year 1993. Budgets of \$8 million in fiscal year 1992 and \$20 million in fiscal year 1993 are included for this activity in the 1990 Resource Program.



(Figure 5.1)

**(Table 5.2)**  
**PIP TO RESOURCE CROSSWALK 1/**  
(\$ in Millions)

	<b>FY 1990</b>	<b>FY1991</b>	<b>FY 1992</b>	<b>FY 1993</b>
<b>PIP (Table 5.1)</b>				
CAPITAL INVESTMENTS	49.4	62.7	74.7	82.1
ANNUAL EXPENSES 2/	50.7	75.9	84.7	90.8
<b>TOTAL PIP (Table 5.1)</b>	<b>100.1</b>	<b>138.6</b>	<b>159.4</b>	<b>172.9</b>
<b><u>CROSSWALK TO RESOURCE PROGRAM</u></b>				
ADJUSTMENT 2/	10.7			
<b><u>ADD:</u></b>				
EWEB	2.0	2.1	2.1	2.1
CON/MOD	5.4	7.1	7.3	7.6
IDAHO FALLS	5.0	5.3	5.3	5.4
<b><u>LESS:</u></b>				
LEGAL & OVERSIGHT	-5.2	-7.5	-6.7	-5.3
<b>RESOURCE PROGRAM TOTAL</b>	<b>118.0</b>	<b>145.6</b>	<b>167.4</b>	<b>182.7</b>

1/ PIP numbers in Table 5.1 of this paper include BPA capital investments and BPA current operations costs for the Conservation and Generation Program. The Resource Program includes all costs of acquiring resources, both through generation and conservation. This crosswalk shows how the total in Table 5.1 ties to the total found in the 1990 Resource Program proposal. EWEB and CON/MOD are fixed costs BPA pays other entities to acquire conservation resources. Idaho Falls is paid for the acquisition of generating resources. These cost categories are described in the "Fixed Cost" and "Other Entities" sections of this PIP material. Legal & Oversight, while part of BPA's operating costs, is not a cost of resource acquisition and, therefore, is not included in the Resource Program.

2/ Annual Expenses from PIP Table 5.1 are accruals. The Resource Program shows obligations. Therefore, an adjustment is needed to convert accruals to obligations.

**Alternative Futures and Program Levels**

The proposed program levels (base case) described above for conservation and generation activities during fiscal years 1992-93 are based upon BPA meeting all preference customer load growth, but no load growth for Investor Owned Utilities (IOUs). Investments in resources are those specified in the final 1990 Resource Program. Deficits of up to 100 average megawatts may be experienced in fiscal years 1992-93.

The base case reflects BPA's view of the conditions and circumstances that will occur during fiscal years 1992-93. The proposed program levels for fiscal years 1992-93 have been developed accordingly. BPA believes the resource actions supported by these proposed program levels represent a prudent balance of meeting potential load growth and the associated financial risks.

However, BPA also has identified other scenarios, based on different sets of assumptions, which could result in increases or decreases in program levels for the Energy Resources Program. These scenarios—high pressures on loads or loss of major resources—are described below and depicted in the Program Alternatives Table.

**High Loads — \$130 million/year above base case**

The high load growth scenario is based upon sustained high economic growth in the region and large population migration into the Pacific Northwest. In addition, it assumes that DSIs will operate at full plant capacities and that there will be very little economic impact from the spotted owl controversy in the timber industry. This scenario also assumes higher oil and gas prices. (High loads also could occur from a combination of factors assumed in the base case and reductions in firm federal system capability.)

These factors could result in load growth of 750 average megawatts above the base case. Accordingly, BPA would increase acquisitions of conservation and begin major generation acquisitions earlier than planned. In particular, it would mean that BPA should acquire cost-effective short lead-time resources as fast as possible.

Deficits of 600–700 average megawatts, after accounting for resource additions, would be experienced during fiscal years 1992–93 under this scenario.

Another potential action which could result in higher than base case expenditures is a decision to invest heavily in conservation, load management and local generation measures to reduce the near-term risk of potential voltage collapse problems in the Puget Sound area.

#### **Low Loads — \$35 million/year below base case**

Low load growth, resulting from an economic downturn in the region, could result in a net surplus of approximately 700 average megawatts. This scenario could occur from a combination of factors: 1) the dollar remains high, thereby reducing exports, 2) interest rates rise, 3) taxes increase and 4) low aluminum prices cause smelters to close. Low load growth also could occur through some combination of lower than anticipated (base case) factors and the region's utilities developing their own resources.

Under this scenario, BPA would maintain its conservation program at the medium–low load growth path and not acquire generation resources in fiscal years 1992–93. There would be no change in power purchases.

### **Summary**

BPA's proposed fiscal years 1992–93 program levels for its Energy Resources Program support strong continued emphasis on conservation as a long-term energy resource, as well as the development of a flexible, diverse set of generation resources as a guard against the increasing prospect of energy deficits.

Through its Energy Resources Program, BPA seeks to establish a diverse power portfolio beginning in fiscal years 1992–93 that will allow a quick and prudent response to future energy needs without unnecessary financial risks or rate impacts.

# 6

## Power Marketing & Scheduling

### Introduction

BPA's Power Marketing and Scheduling Programs can be viewed as the "business" side of BPA's relationships with its customers.

Under the Power Marketing Program, BPA establishes marketing policies; negotiates and administers long-range and short-range contracts for power purchases, sales and transmission; conducts revenue and power forecasting; sets rates; bills customers; and coordinates the environmental analyses and public involvement processes that support river operations, rate development, contract negotiations, and fish and wildlife mitigation.

The Power Scheduling Program focuses on near-term power needs. It is responsible for establishing the annual criteria for operating the coordinated hydropower system in the region, purchasing short-term power as necessary, and carrying out the daily scheduling of power and wheeling transactions to meet the needs of BPA's customers.

The proposed fiscal years 1992-93 program levels and activities for power marketing and scheduling are designed to enable BPA to continue to reliably serve its customers and meet other responsibilities in light of the new circumstances and uncertainties described below.

### A New Direction for the 1990s

The environment in which BPA's power marketing and scheduling activities take place has changed now that the region's energy surplus has disappeared. BPA's emphasis has shifted from long-term marketing of power and capacity to negotiating for coordination, storage and exchanges with other systems and acquiring resources and purchasing power to maintain its load/resource balance.

Supply and demand for power depend upon factors largely outside of BPA's control. They include (1) load changes; (2) variables in weather, streamflow and moisture; (3) performance of thermal power plants; (4) the availability and cost of "spot market" energy and oil and gas; (5) the availability of transmission capacity, and (6) the cost of power purchased.

Due to increasing gas prices and reductions in the energy surplus, accurate power sales forecasting and the flexibility to respond to changes in system operations or market conditions will be increasingly important in the future. Accordingly, BPA continues to revise its forecasting methods to be more accurate and reliable.

BPA also is focusing on strategies to acquire resources, such as options to obtain power on short notice and exchanges of resources with California and Canada. In addition, BPA is working to better manage hydroelectric and transmission resources to enhance its revenues. With resource acquisition and power purchases comes the need for reliable transmission and wheeling services. BPA is interconnected with utilities from British Columbia to southern California and into the Midwest. BPA will continue to work with its customers to meet the region's needs for reliable transmission service and policy.

Spending levels for the Power Marketing Program are relatively stable year-to-year because most of the expense is for staffing. However, the cost of the Power Scheduling Program can vary rather significantly because of the need to make power purchases to meet short-term deficiencies. These costs depend primarily on differences in hydro system

*"The cost of the Power Scheduling Program can vary rather significantly because of the need to make power purchases to meet short-term deficiencies."*

*"The Corps of Engineers and Bureau of Reclamation are working with BPA on the Columbia River System Operation Review."*

runoff conditions and the resulting need to purchase power. Budget estimates are based upon an average water assumption. BPA anticipates that future needs for power purchases to serve firm loads will be increasingly uncertain—and subject to swings of millions of dollars.

## **Program Accomplishments for fiscal years 1990–91**

### **Power Marketing**

As BPA moved from a power surplus toward load/resource balance, long-term sales of BPA's surplus firm power and capacity were concluded. Program emphasis shifted to assisting with BPA's stepped-up resource acquisition activities, short-term marketing activities and environmental analysis of marketing options.

Toward that end, BPA has informed utilities in the Southwest that it will no longer initiate new capacity sale negotiations under which BPA simply seeks money and the off-peak return of the same amount of energy sent to the Southwest during their peak periods.

BPA has concluded long-term contracts of its surplus firm power and capacity with Southern California Edison; Puget Sound Power & Light; the cities of Modesto, Santa Clara and Redding, Calif.; the cities of Burbank, Glendale and Pasadena; and the cities of Anaheim and Riverside, Calif. BPA has a written offer to purchase capacity from Pacific Power & Light.

In addition, BPA continues to upgrade its methods of forecasting to help manage the risk of potential energy shortages. Being in load/resource balance increases the chance for error. BPA must accurately forecast risk factors such as oil and gas prices and California market conditions, aluminum prices and worldwide market conditions, water conditions and nonfirm energy availability and availability of resources.

In fiscal year 1990, BPA began to renegotiate the Pacific Northwest Coordination Agreement and the Canadian Entitlement Agreement. BPA is also planning a process to identify provisions in the power sales contracts that customers believe should be revised. In the transmission area, BPA is developing policies for use of the Southern, Northern and Eastern interties consistent with the Long-Term Intertie Access Policy. BPA also has continued to analyze options for non-federal participation in the northern "half" of the proposed Third AC Intertie line.

Through the Power Marketing Program, BPA also performs environmental reviews of its rate proposals, fish and wildlife mitigation projects and power sales. Major environmental analyses are underway in fiscal years 1990–91 for power and capacity sales and transmission policies.

Recent events, in conjunction with renewal of the Canadian treaties, have evolved into a comprehensive program to study the operation of the federal hydroelectric system. The Corps of Engineers and Bureau of Reclamation are working with BPA on the Columbia River System Operation Review (SOR). This activity will continue through early 1994 to address issues involved in balancing the uses of the multi-purpose system.

### **Power Scheduling**

In fiscal years 1990–91, BPA is experiencing an increased need for resource purchases and energy storage. Over the past 10 years, operating constraints have increased restrictions on the amount of energy available from the federal hydroelectric system. These constraints, which are designed to protect fish and wildlife resources and enhance recreational opportunities, make resource management more difficult.

BPA's power purchases include exercising its contract rights to acquire resources from both Northwest and Southwest utilities, as needed, to meet potential shortfalls in power available to meet customer needs. BPA is actively seeking to avoid costs by displacing higher cost resources with purchases of lower cost resources.

Interchange purchases pursuant to the Pacific Northwest Coordination Agreement among Northwest utilities also are increasing. With the system in load/resource balance, BPA could have to acquire resources to meet its obligation to provide interchange to other utilities.

## Proposed fiscal years 1992–93 Program Levels

Proposed program levels for power marketing and scheduling average \$170 million per year for fiscal years 1992–93. This represents an increase of 28 percent over the previous budget period.

### Power Marketing

Proposed Power Marketing activities during fiscal years 1992–93 include the following:

- **New power sales contracts**

Underlying principles for new power sales contracts will be developed through a public process beginning during fiscal year 1992; negotiations for new power sales contracts will begin in fiscal year 1993.
- **Resource acquisitions**

Policies and contracts to support resource acquisition negotiations with other power suppliers will be developed; new acquisition approaches (e.g. competitive acquisition, billing credits) will be tested and refined.
- **Canadian Treaty renegotiation**

Increased workload related to Northern Intertie will be experienced due to anticipated construction of new lines to Canada resulting from Canadian Treaty renegotiation and other transmission contract and policy actions.
- **SOR (PNCA renegotiation)**

Increased workload associated with the contract negotiation, as well as the extensive analysis and public involvement associated with the SOR.
- **Puget Sound voltage support**

Strategies for resolving Puget Sound area voltage support and reinforcement needs will be developed.
- **Third AC Intertie**

Completion of the Third AC Participation/Ownership Arrangements should be accomplished during this period. The Third AC Intertie Participation EIS is scheduled to be completed during fiscal year 1992. (The Third AC Intertie is planned for energization during fiscal years 1992–93. If the schedule continues to slip, only a small portion could be energized during the rate period. The potential for future energy and capacity exchanges will grow as the Third AC comes into service.)
- **General rate case**

Currently, a 1993 general rate case is scheduled to be undertaken in fiscal year 1991.

### Power Scheduling

Proposed power scheduling activities during fiscal years 1992–93 include:

- **Changes in contract activities**

While some contract activities will be reduced in 1992, in the area of long-term contract sales, the level of work will remain high.
- **Hydro forecasting improvements**

A more comprehensive stream flow forecasting model is scheduled to be developed to enable BPA to more accurately anticipate hydro generation resources.
- **Nonfirm energy purchases**

Increased nonfirm energy purchases are anticipated in 1993 under the Service and Exchange Agreement to meet load/resource needs.
- **Resource acquisitions**

The continuing trend of increased need for purchases of nonfirm energy and acquisition of resources to meet firm load will result in an increase in the program level for Power Purchases and Storage Services in fiscal year 1992.

## **Alternative Futures and Program Levels**

The proposed program levels (base case) for Power Marketing and Scheduling for fiscal years 1992-93 are based upon the assumption of normal load growth and water conditions. Storage costs are offset by revenues and spot market power purchases of \$73 million are used to avoid the cost of more expensive options for meeting BPA customers' requirements.

The base case reflects BPA's view of the conditions and circumstances that will occur during fiscal years 1992-93. However, BPA also has identified other scenarios, based on different sets of assumptions, which could result in increases or decreases in the program levels for Power Marketing and Scheduling. These scenarios are described below and depicted in the Program Alternatives Table.

### **High Risk Case — \$73 million expense above base case**

This scenario assumes high load growth and poor regional water conditions which result in reduced hydroelectric generation. These circumstances would result in regional shortages that would increase BPA's exposure to power purchases to meet its interchange obligations. While BPA would experience low storage costs due to the lack of surplus, purchases of \$143 million of power might be required to cover load overruns, meet spill requirements for fish, and displace high-cost resources. Purchase would be partially offset by revenues.

Under this scenario, the increase costs would be experienced by power scheduling. No change from the base case program level would occur for power marketing.

### **Low Risk Case — \$31 million expense below base case**

This scenario assumes medium to low load growth in the region and above normal water conditions. Storage costs would be higher (\$23 million), but would be offset by later revenues. Interchange exposure would be reduced by operational mitigation and the flexibility that occurs under good water conditions. Purchase of power would be minimal (\$38 million) and would be used for cost-avoidance.

Under this scenario, the reduced costs would be experienced by power scheduling. No change from the base case program level would occur for power marketing.

## **Summary**

Costs for power marketing and scheduling are expected to remain stable during fiscal years 1992-93 after small increases during the previous budget period. The major uncertainty is the cost of power purchases to meet short-term needs. Greater program emphasis will be placed on acquisition of resources, short-term power marketing and accurate forecasting of federal system hydroelectric resources.

# 7

## Fish & Wildlife

*"BPA's efforts have helped improve conditions for fish and wildlife populations."*

### Introduction

For fiscal years 1992–93, BPA is proposing Fish and Wildlife Program levels that will continue to protect, mitigate and enhance the Columbia River Basin's fish and wildlife populations. The program level has been formulated to address the needs of the people of the Northwest while meeting BPA's responsibilities to its customers.

BPA is committed to integrating fish and wildlife needs into regional power planning, operations and decision making. For guidance, BPA relies upon goals established by the Northwest Power Planning Council (Council). To implement projects designed to meet the Council's goals, BPA contracts with various federal and state agencies, Indian tribes, universities and private organizations throughout the region.

With the recent petitioning of Columbia River basin salmon species under the Endangered Species Act (ESA), BPA has included this concern for protection of fish stocks in its budget planning. Through its implementation of the Fish and Wildlife (F&W) Program, BPA is ensuring that the impact of potential ESA listing is minimized by implementation of effective actions to improve the status of the stocks.

### Fish and Wildlife Program

BPA's implementation of the Fish and Wildlife Program focuses on protecting and enhancing the populations of anadromous fish, resident fish and wildlife of the Columbia River and its tributaries that are affected by development and operation of the federal hydroelectric system. Particular emphasis is paid to salmon and steelhead populations.

BPA's responsibilities for fish and wildlife were established in 1980 under the Pacific Northwest Electric Power Planning and Conservation Act. Since then, BPA's efforts, along with those of other agencies, have helped improve conditions for fish and wildlife populations many of which had been showing significant declines.

In 1987, the Council established an interim goal of doubling the anadromous fish (salmon and steelhead) runs from their low range of 2.5 million to 5 million adults. BPA's projects include fish passage improvements at dams, improved flow requirements for spawning and fish passage, protective screening along irrigation canals, hatchery construction, improvements at existing hatcheries, research on fish diseases and fish health, and habitat improvements to enhance this population. The Council's System and Sub-Basin Planning Process, scheduled for completion in 1991, will aid in monitoring the runs and determining when the interim goal will be achieved.

Resident fish projects include hatchery construction and evaluation, habitat enhancement, and lake and stream surveys that will lead to enhancement of the resident fishery resources. A major component of this program is ongoing research to identify measures to protect and enhance the depressed white sturgeon population. Major emphasis also is given to substituting resident fish to compensate for losses of salmon and steelhead in areas permanently blocked by hydroelectric projects.

In 1989, a 10-year goal was established by the Council to mitigate 35 percent of wildlife losses resulting from hydroelectric development within the Columbia Basin. Spurred by this goal, BPA's wildlife projects include assessing losses to wildlife populations and habitat, mitigation planning and undertaking habitat enhancement and protection efforts.



BPA has initiated efforts in various planning forums to more specifically address protection and enhancement of degraded stocks of anadromous fish, to improve their productivity and to reduce the risk of listings under the ESA.

## Program Accomplishments

Early in its implementation of the Fish and Wildlife Program, BPA invested significant funds to investigate, study and plan the reversal of declining fish and wildlife resources. Based on those findings, BPA has spent more than \$50 million in the Salmon, John Day, Deschutes, Clackamas, Umatilla and Yakima River basins on fish passage facilities, irrigation canal screens and habitat enhancement activities.

The downward trends of salmon and steelhead runs of the early 1980s have been arrested in most cases and certain gains made, especially for steelhead and important fall Chinook salmon populations. Major runs continue to be relatively stable or to be increasing slightly. Increases in individual runs are occurring as a result of artificial production projects and continued improvement in mainstem passage. However, concern still exists for the long-term survival of some stocks.

Resident fish populations are increasing as a result of expanded propagation and release programs. Wildlife populations continue to show a mixed trend, with a general reduction in available wildlife habitat, primarily due to causes other than hydroelectric projects.

In fiscal year 1990-91, BPA's F&W Program accomplishments include the following activities:

- Began construction on a summer steelhead and chinook hatchery on the Umatilla River to be completed in fiscal year 1991.
- Continued planning efforts for fish propagation facilities in the Yakima basin and Northeast Oregon with construction scheduled to begin in fiscal year 1992.
- Brought the Colville trout fish hatchery in North Central Washington into full production.
- Initiated construction of the Sherman Creek and Galbraith Springs Kokanee hatcheries near Lake Roosevelt, to be completed in fiscal year 1991.
- Continued sturgeon research efforts which provide information enabling fish management agencies to protect the species. (A small experimental sturgeon hatchery is being constructed adjacent to the Kootenai River in Idaho and will be completed in fiscal year 1991.)
- Focused wildlife expenditures on mitigation for the Hungry Horse and Libby dams in Montana. Initiated a mitigation agreement (trust fund) with the state of Montana in fiscal year 1990 which provides funding for habitat protection and enhancement efforts for Libby and Hungry Horse (trust payments will continue through fiscal year 1995).
- Initiated a pilot squawfish management program to reduce the excessive loss of juvenile salmon and steelhead caused by predation in the mainstem reservoirs.
- Continued funding of the Fish Passage Center and associated smolt monitoring program to ensure effective use of fish flows and spills to improve the juvenile fish out migration to the ocean.
- Implemented a Spill Agreement to improve passage of young salmon and steelhead at four hydroelectric dams lacking effective bypass systems.
- Initiated a regional pit tag (fish identification number) data center to improve the regional capability to conduct effective fish passage research and survival.

## Long Term Trends

BPA is optimistic that individual fish species and stocks as well as major anadromous runs will continue to increase in population over the next 5-7 years. It is possible that some specific stocks may experience significant upswings.

Increased numbers of fish will result from implementation of improvements for both hatchery and wild fish. The addition and improvements of habitat also will be adding production over the next several years. Resident fish resources above areas blocked by hydroelec-

trio projects will be enhanced further as additional opportunities are identified in the Council amendment process.

Critical wildlife habitats also will be protected so that the general decline in certain wildlife populations can be stabilized.

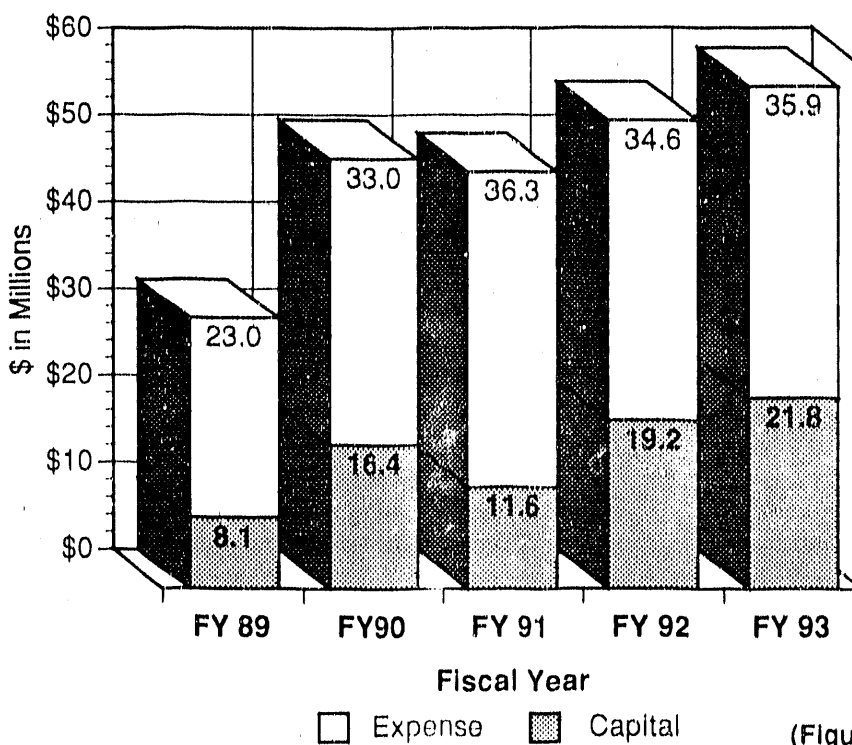
### Proposed Fiscal Years 1992-93 Program Levels

BPA proposes a Fish and Wildlife Program level for fiscal years 1992-93 that emphasizes fish passage improvements, capital construction, additions for wildlife and a reduction of research. Proposed capital and expense program levels are \$53.8 million for fiscal year 1992 and \$57.7 million for fiscal year 1993 (Table 1). These represent 12 percent and 20 percent increases, respectively, over the fiscal year 1991 level of \$47.9 million.

The proposed levels should enable BPA to continue making progress toward the Council's anadromous fish goals and to assure stable or slightly increasing stocks, although some individual species or stocks may decline. Increases in individual runs would be experienced as a result of artificial production projects and continued improvement in mainstem fish passage. Resident fish populations would increase as a result of expanded propagation and release programs. Wildlife will be enhanced by accomplishing priority mitigation objectives being established for the Columbia River Basin.

Significant discussion has occurred within Implementation Planning Process (IPP) concerning the proposed fiscal years 1992-1993 fish and wildlife program. (The IPP involves BPA customers, the Columbia Basin Fish and Wildlife Authority, several special interest groups and the Council in planning fish and wildlife improvements in the Columbia basin.) BPA believes its proposed program level is the most appropriate response to the comments received during discussions of its fiscal years 1992-93 budget.

Fish and Wildlife



(Figure 7.1)

#### Anadromous fish expense

This portion of the fish and wildlife program has been reduced from earlier program levels (with the exception of downstream migration) due to emphasis on fish production rather than on studies and research.

Specific activities include:

- **Enhanced downstream migration program.**

This will be accomplished by improved fish passage and monitoring and controlling hydro operations to alleviate mainstem passage problems. Consensus is that fish passage and downstream migration is the "bottleneck" to increased fish production; i.e., increased hatchery production without successful fish migration to the ocean will not allow sufficient progress toward the Council's goal of "doubling the run."

- **Reduced research on fish health and artificial propagation**

This is based on an emerging policy that fish propagation takes priority over research. Emphasis will be on applying research findings rather than initiating new research. However, there is a risk to this policy in that increased hatchery production may not lead to increased returns if fish are diseased or are not suited for optimal survival in the natural environment.

- **Continued systemwide monitoring and evaluation**

Programs will be funded at levels reduced from previous years due to maturation of system-wide planning efforts.

- **New habitat improvement efforts consistent with System and Subbasin Planning**

All on-going habitat work for anadromous fish would be terminated as of fiscal year 1991 in accordance with the Council's planning. Habitat improvement projects are at a reduced level in this budget due to the preliminary state of the subbasin planning. This area will increase greatly in future budgets as subbasin planning evolves.

#### **Anadromous fish capital**

Capital construction is emphasized in the fiscal years 1992-93 program.

Specific activities include:

- **Construction of facilities and enhancements in the Yakima basin**

BPA will construct a facility for early rearing of steelhead, chinook and coho and initiate associated research. Unlike traditional hatchery programs, which release all juvenile directly from the hatchery, juveniles will be transplanted to acclimation ponds prior to their release into the river. Construction on 60 small fish passage projects in the Yakima basin would continue and involve replacement of existing fish screens to divert outmigrating juvenile salmon and steelhead back to the Yakima River.

- **Construction of Northeast Oregon fish production facilities**

Chinook salmon and steelhead will be raised to enhance populations in the Hood, Umatilla, Walla Walla, Grand Ronde and Imnaha rivers.

#### **Resident fish**

Resident fish activities will continue but at their lowest level since BPA began funding the program. This is because all currently described resident fish measures in the Council's program have been completed.

#### **Wildlife**

Although few specific projects have been presently identified, movement toward the Council's goal requires increased funding. The proposed program level is a "ramping up" that will increase significantly in future years as specific priority mitigation projects are established for the Columbia River Basin.

#### **Operation and Maintenance**

Operation and maintenance expenditures increase as projects are constructed and come into full production. For fiscal years 1992-93, O&M costs are proposed to increase to \$3.1 and \$4.1 million, which are 72 percent and 127 percent increases, respectively, over fiscal year 1991.

**(Table 7.1)**  
**FISH AND WILDLIFE**  
 Analysis of FY 1989-93  
 (Dollars in Millions) 1/

	FY 89	FY 90	FY 91	FY 92	FY 93
<b>F&amp;W EXPENSE PROGRAM</b>					
Anadromous Fish Expense	\$19.6	\$25.8	\$26.9	\$22.2	\$23.1
Resident Fish Expense	\$2.7	\$3.0	\$2.4	\$1.5	\$0.9
Wildlife	\$0.6	\$3.7	\$5.2	\$7.8	\$7.8
Operation and Maintenance	\$0.1	\$0.5	\$1.8	\$3.1	\$4.1
<b>F&amp;W Expense Program</b>	<b>\$23.0</b>	<b>\$33.0</b>	<b>\$36.3</b>	<b>\$34.6</b>	<b>\$35.9</b>
<b>F&amp;W CAPITAL PROGRAM</b>					
Anadromous Fish Capital	\$6.5	\$10.9	\$10.6	\$18.6	\$21.2
Resident Fish Capital	\$0.4	\$4.3	\$0.6	\$0.0	\$0.0
Pre-Engineering Design	\$1.2	\$1.2	\$0.4	\$0.6	\$0.6
<b>F&amp;W Capital Program</b>	<b>\$8.1</b>	<b>\$16.4</b>	<b>\$11.6</b>	<b>\$19.2</b>	<b>\$21.8</b>
<b>TOTAL F&amp;W PROGRAM</b>	<b>\$31.1</b>	<b>\$49.4</b>	<b>\$47.9</b>	<b>\$53.8</b>	<b>\$57.7</b>

1/ Dollars include corporate overhead distribution.

### Alternative Futures and Program Levels

The proposed program levels (base case) for fish and wildlife activities for fiscal years 1992-93 is based upon the Council's plan and goals, and are expected to result in stable or slightly increasing anadromous fish runs, resident fish populations and wildlife. It reflects the conditions and circumstances BPA believes will occur during fiscal years 1992-93.

BPA also has identified other scenarios, based on different sets of assumptions, which could increase or decrease program levels. These scenarios are described below and depicted in the Program Alternatives Table.

#### Upward pressure — Increase \$15 million from base case

If overall fish and wildlife populations decline due to hydro operations (as opposed to other environmental conditions), BPA could accelerate movement toward the Council's goals by increasing its program level \$15 million beyond that which is proposed. This could entail, for example, early implementation of habitat improvement and other projects associated with the system and subbasin plans, and increased levels of wildlife mitigation in Oregon, Washington, and Idaho.

BPA might gain increased accountability by emphasizing evaluation and decision making based on the monitoring and evaluation program. However, it has not been determined that simply spending more money in the absence of specific measurable objectives will get to the program goals faster.

#### Downward pressure — Decrease \$10 million from base case

Should population trends for individual species and stocks as well as major runs experience a significant upswing that appears to be self-sustaining, BPA could consider a reduced level for the fish and wildlife program. This assumes that increases are noted for

both hatchery and wild fish, and that increases are independent of natural phenomena and fisheries management actions (i.e., populations appear to be sustaining themselves for at least the near-term).

In this scenario, BPA would eliminate virtually all expenditures for research, monitoring and evaluation with the assumption that "direct" project expenditures would maintain fish and wildlife population trends. The revised program level would involve targeting expenditures directly to implementation of "on the ground" projects.

### **Summary**

BPA's proposed Fish and Wildlife Program has been subject to extensive review within BPA coupled with public involvement through the IPP. Although consensus has not yet been reached through the IPP, BPA has attempted to include common philosophies expressed through the IPP process in its proposed fiscal years 1992-1993 Fish and Wildlife program levels.

BPA's proposed program level should support stability, or slight increases, in major anadromous fish runs as well as increases in resident fish populations pursuant to the Council's plan. Wildlife projects are aimed at achieving priority mitigation objectives currently being established for the Columbia basin.

*"BPA's proposed program level should support stability, or slight increases, in major anadromous fish runs."*

# 8

## Program Support

### Introduction

Most of BPA's costs can be directly attributed to specific projects, activities or program goals. Some of BPA's costs, however, are not readily assignable to the production of individual products and services. Instead, these costs support all programs.

In the Programs in Perspective process, these are discussed as Program Support. These costs consist of BPA's Corporate Overhead, or General and Administrative (G&A) costs, and its investments in Capital Equipment. They are tabulated in Table 1 for the fiscal years 1989-1993.

(Table 8.1)  
**BPA PROGRAM SUPPORT**  
(Millions of dollars)

	<u>FY 89</u>	<u>FY 90</u>	<u>FY 91</u>	<u>FY 92</u>	<u>FY 93</u>
General & Administrative	40.4	43.7	44.0	46.2	48.2
Capital Equipment Investments	7.4	7.8	8.5	11.0	9.3

BPA's General and Administrative costs are distributed to BPA's programs in proportion to their share of BPA staffing costs.

Corporate overhead distributions are included in the After Corporate Overhead Distribution columns of the PIP "Master Table" — Summary of Program Costs. Included in the Before Corporate Overhead Distribution columns in the fiscal years 1992-93 process are direct program costs, indirect program costs and all support services requirements of the programs. In the PIP Master Table issued October 1989 some support services (i.e., aircraft services, contracts management and buildings management) were also treated as corporate overhead and included in overhead distribution costs. BPA's current treatment of corporate overhead is more consistent with that of other utilities and businesses in general.

Capital Equipment investments support the work of the entire agency but, unlike G&A costs, are not distributed to programs. They are capitalized as general plant additions and funded through borrowing. The interest costs associated with these borrowings are funded from revenues.

BPA's corporate overhead costs are about 2 percent of its annual costs for fiscal years 1992-93. Capital Equipment Investments average about 3 percent annually of BPA's capital investments for the period.

### Corporate Overhead

BPA's General and Administrative (G&A) Program includes the costs of executive management, management support activities, and finance and accounting services for the agency.

BPA's executive management provides for the top-level executive direction of the agency. This includes executive and administrative activities of the Administrator's Office, executive direction of the program offices and Areas, the operation of BPA's Washington

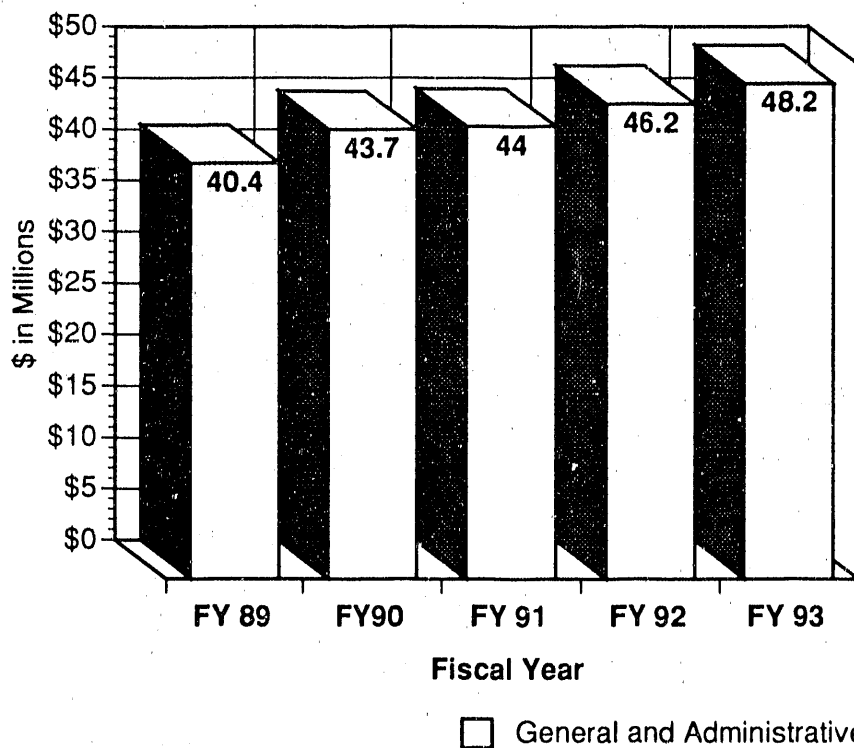
D.C. liaison office as well as the activities of the General Counsel, and the offices of Audit, Equal Opportunity and External Affairs.

Management support encompasses the numerous general administrative activities needed to ensure operation of the agency and delivery of its products and services. These include personnel, training, health services; administrative services comprising reproduction, libraries, communications, graphics, mail, records management, and facilities maintenance and equipment repair; and other management support including safety, security, environmental policy and coordination, hazardous waste management, management analysis, area support and administration, and workmen's compensation payments.

Finance and accounting services include the agency's controllership functions of financial analysis, revenue requirements and refinancing support; accounting functions such as payroll, travel, accounts payable, plant investment, general and managerial accounting; budgeting functions of budget formulation and operations; financial advisor funding and liaison; and productivity improvement programs.

The G&A Program essentially provides for a continuation of the current level of corporate overhead services with increases due to inflation.

### General and Administrative



Summary of overhead loadings already reflected in graphs in previous chapters

(Figure 8.1)

### Capital Equipment

BPA's Capital Equipment Program provides for capital investments in general and special purpose automatic data processing (ADP) that benefits all BPA programs. Included are acquisitions of capital office equipment and furniture, ADP hardware, and capitalized ADP software development.

The Capital Equipment investments for fiscal years 1989-1993 are shown in Table 8.2:

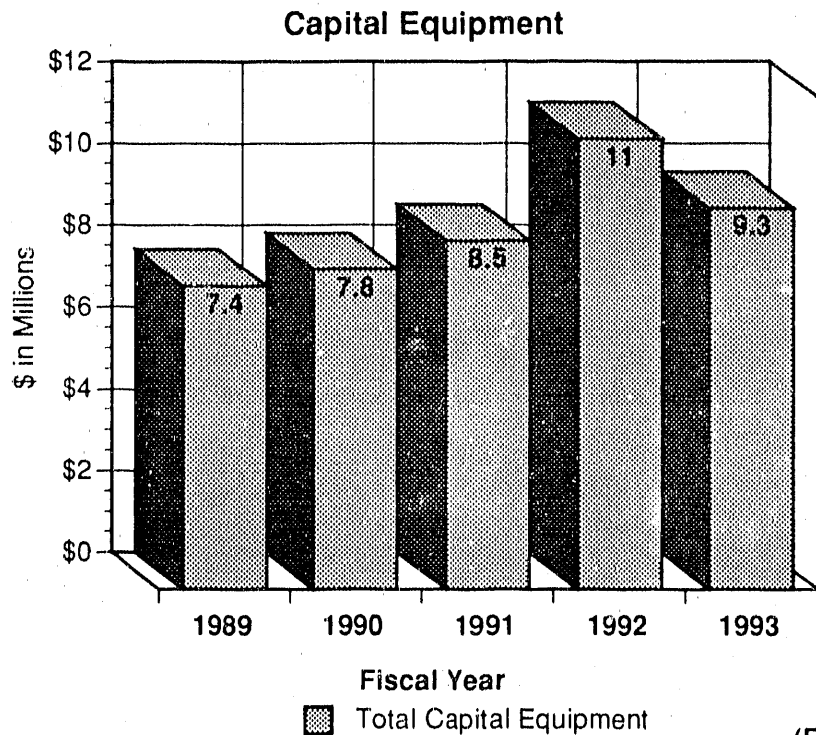
**(Table 8.2)**  
**CAPITAL EQUIPMENT**  
(Millions of Dollars)

	<u>FY 89</u>	<u>FY 90</u>	<u>FY 91</u>	<u>FY 92</u>	<u>FY 93</u>
Office Furniture and Equipment	0.6	0.6	0.6	2.2	0.4
ADP Equipment	3.7	3.2	3.6	5.2	5.6
Capital ADP Software Development	3.1	4.0	4.3	3.6	3.3
<b>TOTAL CAPITAL EQUIPMENT</b>	<b>7.4</b>	<b>7.8</b>	<b>8.5</b>	<b>11.0</b>	<b>9.3</b>

The office furniture and equipment category provides for routine additions and replacements of capital office furniture and equipment throughout the 1989-93 period, except for fiscal year 1992 which includes funding to replace the telecommunications computer system (voice switch) at BPA's Ross Complex in Vancouver, Washington, to handle increasing telecommunications workload. This replacement previously had been budgeted for acquisition in fiscal year 1989, but has been delayed for budget considerations. The present system can no longer handle increased demand.

BPA previously had budgeted for replacement of its mainframe ADP computer system in fiscal year 1992. This replacement has not been included in this proposed program level. For the foreseeable future, BPA's ADP hardware budget contemplates primarily acquiring small- to medium-sized work stations to increase work force productivity.

The capitalized software development component of the Capital Equipment Program provides for continuation and completion of ongoing developments. There are no new developments planned or budgeted.



(Figure 8.2)

### Summary

In general, Program Support costs are stable, with annual increases due largely to inflation and modest program enhancements. Some costs, previously displayed as overhead costs, are no longer being displayed as agency overhead. These support services costs are now included in the programs that benefit from the services, and appear with the "Before Corporate Overhead Distribution" costs on the Master Table.



# 9

## Other Entities

### Introduction

BPA is responsible for the annual expenses of several other entities. These costs include operations and maintenance expenses for the Corps of Engineers (Corps) and Bureau of Reclamation (Bureau) hydroelectric projects, Washington Public Power Supply System (Supply System) thermal projects, BPA's 30 percent share of the Trojan nuclear plant and the City of Idaho Falls' hydroelectric project.

BPA also funds the preservation and Investor Owned Utility (IOU) settlement agreement costs for the Supply System nuclear plant WNP-3, expenses for the Pacific Northwest Electric Power and Conservation Planning Council (Northwest Power Planning Council) and operating costs of fish hatcheries funded by the U.S. Fish and Wildlife Service under the Lower Snake Compensation Plan.

Fiscal years 1992-93 program levels for these other entities are described in Table 9.1. These program levels are for current operating costs. (BPA's share of the debt service for Corps, Bureau, Supply System, Trojan and Idaho Falls projects is addressed in the Financial Goals/Fixed Cost section. See PIP "Master Table.")

### Corps of Engineers and Bureau of Reclamation Projects

The Corps and Bureau provide about 87 percent of BPA's firm energy through the operation of 30 federal hydroelectric projects. The Corps operates 21 projects and the Bureau operates nine projects.

For the operating year 1991, BPA estimates that approximately 5,170 average megawatts of firm energy will be provided by the Corps and approximately 2,060 average megawatts by the Bureau. In addition to providing electricity to the federal system, the projects serve multiple purposes including flood control, navigation, irrigation, recreation and municipal and industrial water supply.

BPA has a statutory obligation to market the power from the federal projects and to pay the costs associated with power production and some irrigation. The Corps and Bureau receive appropriations from Congress to carry out the operation and maintenance of these projects. Each year, BPA repays the U.S. Treasury for part of the operation and maintenance costs and the annual debt service for each of the projects. These include the costs specifically allocated for power facilities and a share of the project joint costs assigned to power production.

During fiscal years 1992-93, Corps and Bureau expenses will include costs for operations and maintenance and for improvements to existing generating facilities. O&M costs include daily project operation, routine maintenance and repairs, and minor replacements. Neither agency plans to construct new projects in the near future.

The Corps has been engaged in powerhouse modernization at three of its projects—Bonneville, Chief Joseph and John Day dams. Installation of data acquisition control systems, generator rewinds and generator rewedging are examples of work to be undertaken in fiscal years 1992-93 to maintain the reliability of the system. Also included are fish facility improvements at five projects.

The Bureau continues to upgrade its maintenance program. Major maintenance to the Columbia Basin (Coulee) projects and modifications to increase generator power output at Hungry Horse, Palisades and Minidoka dams are a part of this program. In addition, remote operation capability is being installed at the Hungry Horse, Palisades and Minidoka projects to increase operating efficiencies.

*"Each year, BPA repays part of the operation and maintenance costs for each of the projects."*

For fiscal years 1992–93, BPA estimates program levels averaging \$110 million per year for operating expenses incurred by the Corps and Bureau. This is a nine percent increase over fiscal years 1990–91.

## Large Thermal Generating Program

BPA's proposed fiscal years 1992–93 large thermal generating program covers the operating costs for:

- WNP–2 (100 percent) and Trojan (30 percent) nuclear plants;
- Preservation costs for the Hanford Generating Project (HGP) (72 percent) and WNP–3 (70 percent);
- WNP–3 settlement costs (IOUs' 30 percent share of preservation);
- Annual decommissioning contributions and insurance costs for WNP–2 and Trojan (Eugene Water & Electric Board's ownership share); and
- The costs of legal work and contract management for these resources.

This financial commitment entitles BPA to power produced from WNP–2 and Trojan, and preserves two partially–completed nuclear projects (WNP–1 and WNP–3) and HGP as possible future resources.

Overall costs for operating and preserving the large thermal projects in fiscal years 1992–93 are expected to remain relatively stable at an average annual level of \$308 million—approximately three percent greater than in fiscal years 1990–91. This is because inflationary increases offset lower capital spending at WNP–2 and lower fuel purchases at Trojan.

## WNP–2

Development of WNP–2's operating budget requires tradeoffs in controlling costs while maintaining plant reliability, safety and improving its regulatory standing. WNP–2's operational performance (net generation and capacity factor) has improved each operating year.

### Current costs

Plant operating costs increased at an annual rate of eight percent from fiscal year 1989 to fiscal year 1991. Approximately half of the increase in fiscal years 1990–91 is due to inflation. The balance is due to new initiatives strongly suggested by the Nuclear Regulatory Commission (NRC) and Institute for Nuclear Power Operations (INPO), including additional operator training, specifications for plant design databases and procurement procedures to ensure that replacement parts received from vendors are made to the correct specifications.

In addition, by the end of fiscal year 1991, the Supply System plans to substantially complete the following three major net–billed capital additions: (1) installation of replacement low pressure turbine rotors, (2) construction of a new Plant Engineering Center and (3) a replacement state–of–the–art control room simulator. These constitute current expenses for BPA to be funded from revenues.

Finally, in fiscal year 1991, the Supply System is initiating a series of program and function reviews to determine whether embedded costs at the plant can be reduced. The Supply System also is implementing a long–range master planning process to increase management involvement in projections of WNP–2 financial and program requirements.

### The Next Rate Period

The Supply System's major challenge for fiscal years 1992–93 is controlling costs while sustaining WNP–2's operating reliability. Budgets for the next rate period assume that operating cost increases will not exceed the expected rate of inflation of five percent. Few new programs are contemplated; those that occur are expected to be absorbed within the planned increase. Plant capital requirements will also decline over the next rate period, with major projects scheduled for completion in fiscal year 1991.

With BPA's strong support, the Supply System also is initiating a Megawatt Improvement Program. This program will identify and implement cost–effective plant improvements designed to increase plant reliability and electrical output.

The proposed program level for WNP–2 is \$226 million in fiscal year 1992 and \$231.2 million in fiscal year 1993. Table 1 does not reflect increases in budget requirements for the Megawatt Improvement Program. They also do not reflect any results from the planned in–depth functional reviews.

## Trojan

Trojan's operating costs increased at an annual rate of nine percent from 1987 through 1989. The reasons for the increases are similar to those for WNP-2's increased costs: inflation, NRC regulations and higher materials costs. In addition, Trojan is an older facility which has incurred significant capital replacement costs, such as replacement of its main cooling condenser.

Proposed program levels for Trojan during fiscal years 1992-93 average \$66 million, which is approximately a four percent increase over fiscal year 1990-91. This is based on BPA's assumption that capital funding requirements will decrease and that operating costs will increase five percent annually. (BPA expects cash requirements to decline in real terms because of an early purchase of the nuclear fuel that will be used during that period.)

## WNP-1, WNP-3 and HGP

Both WNP-1 and WNP-3 are expected to stay in minimum preservation status during the next rate period.

At WNP-1, BPA customers probably will not have significant expenses, unless cost-sharing litigation results in substantial cash needs, because there is enough bond money remaining in the fund to pay for WNP-1 preservation costs from its earned interest. (A "cost-sharing" suit has been initiated against the Supply System by WNP-4/5 project participants seeking to recover from WNP-1/3 a portion of the common construction costs paid during the construction period.)

At WNP-3, all expenses for project preservation, bond refinancing and expected cost-sharing litigation initiated by WNP-4/5 bondholders will be paid for by BPA.

In addition, BPA and the Supply System are investigating possible use of WNP-3's electric generator to stabilize voltage on the 500-kV transmission grid in the Puget Sound area. If this use appears feasible and cost effective, necessary work would be accomplished during fiscal year 1992. Use of the generator for this purpose would not affect decisions about the future of WNP-3 as a generating resource, nor would it affect the rights of WNP-3 owners, participants or bondholders.

BPA's annual costs for WNP-1, WNP-3 and HGP during fiscal years 1992-92 (\$28 million) represent an increase of approximately four percent over program levels in fiscal years 1990-91.

## Small Hydro

In 1982, BPA agreed to purchase the generation from the City of Idaho Falls' hydroelectric project. The Idaho Falls project consists of three run-of-the-river hydroelectric facilities—the Upper, City and Lower plants. The plants produce about 16 average megawatts of power although production varies according to water conditions and other factors.

Operating costs for these projects in fiscal years 1992-93 are projected to remain stable at approximately \$1.5 million per year, a slight increase over fiscal years 1990-91.

## U.S. Fish and Wildlife Service

Pursuant to the Lower Snake River Compensation Plan (LSRCP), the Corps constructed a series of fish hatcheries to mitigate salmon and steelhead losses from the Corps' four Lower Snake River hydroelectric projects. These hatcheries are administered and funded by the U.S. Fish and Wildlife Service (FWS). (These hatcheries are separate from those BPA funds directly through its Fish and Wildlife Program—see Fish & Wildlife issue paper #5.)

State fisheries agencies from Oregon, Washington and Idaho operate some of the hatcheries under agreement with FWS. BPA is responsible, under the Water Resources Development Act of 1976, to repay the U.S. Treasury for the actual annual O&M expenditures for these hatcheries.

Over the past five years, costs have nearly doubled—from \$5.8 million in fiscal year 1987 to \$10.1 in fiscal year 1991 because hatcheries have been finished and placed into operation. BPA is working with the FWS to identify opportunities to reduce or defer costs. This is intended to assist BPA's efforts to control costs. Particular attention is being directed to potential duplication or overlaps of activities with BPA's own fish and wildlife program, particularly in areas of research and evaluation studies.

The planned increase of average annual FWS O&M costs from fiscal years 1990-91 (\$9.6 million/year) to fiscal years 1992-93 (\$11.4 million/year) reflects the additional costs of completing several new hatcheries and satellite (off-site) rearing facilities. The largest new hatchery (scheduled to come on line during fiscal year 1991) is the Clearwater Fish Hatchery. In addition to these anticipated increases, the potential exists for an additional increase in operations and maintenance funding to correct facility design and construction deficiencies at newly-constructed facilities. This issue currently is being discussed by the involved agencies.

### Northwest Power Planning Council

The Northwest Power Planning Council (Council) was established by the Northwest Power Act in 1980. The Council is composed of eight members (two appointed by each governor of the four Pacific Northwest states).

The Council's major responsibilities are to adopt and, as necessary, amend a 20-year regional Conservation and Electric Power Plan and a Fish and Wildlife Program. The Council also is obligated to undertake a comprehensive program to inform the public of major regional power and fish and wildlife issues in consultation with BPA, BPA's customers, fish and wildlife agencies, Indian tribes and others.

In 1982, the Council adopted a fish and wildlife program. It amended the program in fiscal years 1984 and 1987. The Council adopted a Regional Power Plan during fiscal year 1983, amended the plan in fiscal year 1986 and adopted a plan supplement in fiscal year 1989. The Council currently is updating its Power Plan in anticipation of adopting a new plan late in fiscal year 1990 or early in fiscal year 1991. Public information and public involvement activities concerning both the fish and wildlife program and the energy plan are continuing.

Under the Northwest Power Act, BPA is responsible for the Council's expenses, subject to certain limits. Over the previous eight years, the Council's budget has been relatively stable and is expected to remain stable through fiscal year 1993. During the six-year period of fiscal years 1986-1991, the Council's budget will have increased by 19.2 percent compared with a cumulative actual and projected rate of inflation of 23.4 percent.

Currently, the Council is in the process of adopting its fiscal year 1992 budget and revising its fiscal year 1991 budget. For fiscal years 1991-93, the Council's draft budget is \$7.5, \$7.8 and \$7.7 million, respectively. The budget is based upon current year (fiscal year 1990) expenditure levels plus adjustments for increased (or decreased) workload and cost of living adjustment factors as provided by BPA.

(Table 9.1)  
**OTHER ENTITIES CURRENT OPERATIONS**  
 (Millions of dollars)

	<u>FY 1989</u>	<u>FY 1990</u>	<u>FY 1991</u>	<u>FY 1992</u>	<u>FY 1993</u>
NW Power Planning Council	7.5	7.2	7.5	7.8	7.7
Corps of Engineers	65.7	69.2	62.8	64.4	67.4
U.S. Fish & Wildlife Services	7.3	9.0	10.1	11.2	11.5
Bureau of Reclamation	24.8	33.7	35.8	43.6	44.8
Hanford Generating Project	-0.9	-0.4	-0.4	0.2	0.4
WNP-1	3.1	2.7	0.4	0.3	0.3
WNP-2	173.6	214.9	228.3	226.0	231.2
WNP-3	10.7	11.4	13.3	13.6	13.2
Trojan	57.5	60.3	66.4	64.8	66.5
Idaho Falls	1.1	1.4	1.5	1.5	1.6
<b>Total Current Operations</b>	<b>350.4</b>	<b>409.4</b>	<b>425.7</b>	<b>433.4</b>	<b>444.6</b>

*"Other Entities represent an increase of approximately five percent."*

### Summary

Other Entities current operations are programs which BPA funds, but over which it exerts limited control. The proposed program level for fiscal years 1992-93 averages \$439 million per year, representing an overall increase of approximately five percent over fiscal years 1990-91.

**END**

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