

BP-20 Rate Proceeding

Final Proposal

Transmission Revenue Requirement Study Documentation

BP-20-FS-BPA-09A

July 2019



**TRANSMISSION REVENUE REQUIREMENT
STUDY DOCUMENTATION**

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COMMONLY USED ACRONYMS AND SHORT FORMS

AAC	Anticipated Accumulation of Cash
ACNR	Accumulated Calibrated Net Revenue
ACS	Ancillary and Control Area Services
AF	Advance Funding
AFUDC	Allowance for Funds Used During Construction
aMW	average megawatt(s)
ANR	Accumulated Net Revenues
ASC	Average System Cost
BAA	Balancing Authority Area
BiOp	Biological Opinion
BPA	Bonneville Power Administration
Bps	basis points
Btu	British thermal unit
CIP	Capital Improvement Plan
CIR	Capital Investment Review
CDQ	Contract Demand Quantity
CGS	Columbia Generating Station
CHWM	Contract High Water Mark
CNR	Calibrated Net Revenue
COB	California-Oregon border
COE	U.S. Army Corps of Engineers
COI	California-Oregon Intertie
Commission	Federal Energy Regulatory Commission
Corps	U.S. Army Corps of Engineers
COSA	Cost of Service Analysis
COU	consumer-owned utility
Council	Northwest Power and Conservation Council
CP	Coincidental Peak
CRAC	Cost Recovery Adjustment Clause
CSP	Customer System Peak
CT	combustion turbine
CWIP	Construction Work in Progress
CY	calendar year (January through December)
DD	Dividend Distribution
DDC	Dividend Distribution Clause
<i>dec</i>	decrease, decrement, or decremental
DERBS	Dispatchable Energy Resource Balancing Service
DFS	Diurnal Flattening Service
DNR	Designated Network Resource
DOE	Department of Energy
DOI	Department of Interior
DSI	direct-service industrial customer or direct-service industry
DSO	Dispatcher Standing Order
EE	Energy Efficiency

EIM	Energy imbalance market
EIS	Environmental Impact Statement
EN	Energy Northwest, Inc.
ESA	Endangered Species Act
ESS	Energy Shaping Service
e-Tag	electronic interchange transaction information
FBS	Federal base system
FCRPS	Federal Columbia River Power System
FCRTS	Federal Columbia River Transmission System
FELCC	firm energy load carrying capability
FERC	Federal Energy Regulatory Commission
FOIA	Freedom Of Information Act
FORS	Forced Outage Reserve Service
FPS	Firm Power and Surplus Products and Services
FPT	Formula Power Transmission
FRP	Financial Reserves Policy
F&W	Fish & Wildlife
FY	fiscal year (October through September)
G&A	general and administrative (costs)
GARD	Generation and Reserves Dispatch (computer model)
GMS	Grandfathered Generation Management Service
GSP	Generation System Peak
GSR	Generation Supplied Reactive
GRSPs	General Rate Schedule Provisions
GTA	General Transfer Agreement
GWh	gigawatthour
HLH	Heavy Load Hour(s)
HOSS	Hourly Operating and Scheduling Simulator (computer model)
HYDSIM	Hydrosystem Simulator (computer model)
IE	Eastern Intertie
IM	Montana Intertie
<i>inc</i>	increase, increment, or incremental
IOU	investor-owned utility
IP	Industrial Firm Power
IPR	Integrated Program Review
IR	Integration of Resources
IRD	Irrigation Rate Discount
IRM	Irrigation Rate Mitigation
IRPL	Incremental Rate Pressure Limiter
IS	Southern Intertie
kcfs	thousand cubic feet per second
kW	kilowatt
kWh	kilowatthour
LDD	Low Density Discount
LGIA	Large Generator Interconnection Agreement
LLH	Light Load Hour(s)

LPP	Large Project Program
LTF	Long-term Firm
Maf	million acre-feet
Mid-C	Mid-Columbia
MMBtu	million British thermal units
MNR	Modified Net Revenue
MRNR	Minimum Required Net Revenue
MW	megawatt
MWh	megawatthour
NCP	Non-Coincidental Peak
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NFB	National Marine Fisheries Service (NMFS) Federal Columbia River Power System (FCRPS) Biological Opinion (BiOp)
NLSL	New Large Single Load
NMFS	National Marine Fisheries Service
NOAA Fisheries	National Oceanographic and Atmospheric Administration Fisheries
NOB	Nevada-Oregon border
NORM	Non-Operating Risk Model (computer model)
Northwest Power Act	Pacific Northwest Electric Power Planning and Conservation Act
NP-15	North of Path 15
NPCC	Pacific Northwest Electric Power and Conservation Planning Council
NPV	net present value
NR	New Resource Firm Power
NRFS	NR Resource Flattening Service
NRU	Northwest Requirements Utilities
NT	Network Integration
NTSA	Non-Treaty Storage Agreement
NUG	non-utility generation
NWPP	Northwest Power Pool
OATT	Open Access Transmission Tariff
O&M	operation and maintenance
OATI	Open Access Technology International, Inc.
OS	Oversupply
OY	operating year (August through July)
PDCI	Pacific DC Intertie
PF	Priority Firm Power
PFp	Priority Firm Public
PFx	Priority Firm Exchange
PNCA	Pacific Northwest Coordination Agreement
PNRR	Planned Net Revenues for Risk
PNW	Pacific Northwest
POD	Point of Delivery
POI	Point of Integration or Point of Interconnection
POR	Point of Receipt

PS	Power Services
PSC	power sales contract
PSW	Pacific Southwest
PTP	Point to Point
PUD	public or people's utility district
PW	WECC and Peak Service
RAM	Rate Analysis Model (computer model)
RCD	Regional Cooperation Debt
RD	Regional Dialogue
RDC	Reserves Distribution Clause
REC	Renewable Energy Certificate
Reclamation	U.S. Bureau of Reclamation
REP	Residential Exchange Program
REPSIA	REP Settlement Implementation Agreement
RevSim	Revenue Simulation Model
RFA	Revenue Forecast Application (database)
RHWM	Rate Period High Water Mark
ROD	Record of Decision
RPSA	Residential Purchase and Sale Agreement
RR	Resource Replacement
RRS	Resource Remarketing Service
RSC	Resource Shaping Charge
RSS	Resource Support Services
RT1SC	RHWM Tier 1 System Capability
SCD	Scheduling, System Control, and Dispatch Service
SCS	Secondary Crediting Service
SDD	Short Distance Discount
SILS	Southeast Idaho Load Service
Slice	Slice of the System (product)
T1SFCO	Tier 1 System Firm Critical Output
TCMS	Transmission Curtailment Management Service
TGT	Townsend-Garrison Transmission
TOCA	Tier 1 Cost Allocator
TPP	Treasury Payment Probability
TRAM	Transmission Risk Analysis Model
Transmission System Act	Federal Columbia River Transmission System Act
Treaty	Columbia River Treaty
TRL	Total Retail Load
TRM	Tiered Rate Methodology
TS	Transmission Services
TSS	Transmission Scheduling Service
UAI	Unauthorized Increase
UFT	Use of Facilities Transmission
UIC	Unauthorized Increase Charge
ULS	Unanticipated Load Service
USACE	U.S. Army Corps of Engineers

USBR	U.S. Bureau of Reclamation
USFWS	U.S. Fish & Wildlife Service
VER	Variable Energy Resource
VERBS	Variable Energy Resource Balancing Service
VOR	Value of Reserves
VR1-2014	First Vintage Rate of the BP-14 rate period (PF Tier 2 rate)
VR1-2016	First Vintage Rate of the BP-16 rate period (PF Tier 2 rate)
WECC	Western Electricity Coordinating Council
WSPP	Western Systems Power Pool

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1. TRANSMISSION REVENUE REQUIREMENTS

1.1 Introduction

Chapter 1 documents how the Bonneville Power Administration's (BPA) annual transmission revenue requirements are determined. Two tables are presented, each showing both years of the rate period (FY 2020 and FY 2021). On the first table, revenue requirements for FY 2020 and FY 2021 are projected in an income statement format. The second table, a statement of annual cash flows, determines the minimum required net revenues and presents the annual cash flows available for risk mitigation.

1.2 Income Statement

Below is a line-by-line description of each of the components in the Income Statement (Table 1-1).

Transmission operations (line 2). Transmission operations includes spending for technical operations; substation operations; control center support; power system dispatching; Transmission information technology (IT) costs, including corporate agency services IT costs that are allocated to Transmission Services (TS); and scheduling services (reservations, pre-scheduling, real-time and after-the-fact scheduling, and technical support). This category also includes spending for business strategy and assessment, billing, finance, contract management, and internal operations. *See Ch. 3.*

Transmission engineering (line 3). This category includes spending on asset management and planning, design of lines/towers/substations, construction planning, construction management, and real property services. *Id.*

Transmission maintenance (line 4). This category includes spending for all Transmission Services maintenance activities, such as ongoing maintenance of substations, lines, and protection control systems. This category also includes spending on environmental analysis and pollution prevention and abatement. *Id.*

Transmission acquisition & ancillary services (line 5). This category includes inter-business line expenses resulting from functional separation and costs of ancillary services products, including Power Services generation inputs to ancillary services. It also includes the costs of station service and remedial action schemes, Corps of Engineers (Corps) and Bureau of Reclamation (Reclamation) transmission facilities serving the Network and Utility Delivery segments, and payments to other utilities for stability reserves, settlements, and operating leases. *Id.*

BPA internal support (line 6). This category comprises spending on general and administrative programs that are allocated to BPA's two business units. These programs include legal services, finance, risk management, security and emergency management, human resources, and executive oversight and management. *Id.*

Other income, expenses & adjustments (line 7). Generally, this category includes items that do not fit in any other category. For the purposes of the BP-20 rate case, this line displays the amount of financial reserves that the Administrator has committed to support the rate settlement.

Depreciation & amortization (line 8). Depreciation is the annual capital recovery expense associated with Federal Columbia River Transmission System (FCRTS) plant-in-service. BPA transmission and general plant are depreciated by the straight-line method, using the remaining life technique. Amortization refers to the annual capital recovery expense for deferred transmission assets (also known as regulatory assets). Amortization expense includes a new regulatory asset, the I-5 reinforcement project. *See* Ch. 3 & 4.

Total operating expenses (line 9). Total operating expenses is the sum of the above expenses (lines 2 through 8).

Federal appropriations (line 13). Federal appropriations consists of interest on the appropriations BPA received prior to full implementation of BPA's self-financing authority and is determined in the transmission repayment studies. *See* Ch. 3.

Capitalization adjustment (line 14). Implementation of the BPA Appropriations Refinancing Act (*see* Transmission Revenue Requirement Study, BP-20-E-BPA-09, § 1.2.1.2) entailed a change in capitalization on BPA's financial statements. Outstanding appropriations attributed to the transmission function were reduced by \$470 million as a result of the refinancing. The reduction is recognized annually over the remaining repayment period of the refinanced appropriations. The annual recognition of this adjustment is based on the increase in annual interest expense resulting from implementation of the Act, as shown in repayment studies for the year of the refinancing transaction (1997). The capitalization adjustment is included on the income statement as a non-cash expense.

Long-term debt (line 15). Long-term debt includes interest on bonds that BPA issues to the U.S. Treasury to fund investments in transmission plant, environment, general plant supportive of transmission, and capital equipment. Such interest expense is determined in the transmission repayment studies. This line includes any payments of call premiums for bonds projected to be amortized. *See* Ch. 3.

Amortization of capitalized bond premiums (line 16). When a bond issued to the U.S. Treasury is refinanced, any call premium resulting from early retirement of the original bond is capitalized and included in the principal of the new bond. The capitalized call premium then is amortized over the term of the new bond. The annual amortization is a non-cash component of interest expense. *Id.*

Debt service reassignment interest (line 17). Debt service reassignment interest consists of the interest component of the debt service reassigned to TS through the Debt Optimization Program. *See* Ch. 3 & 8.

Non-Federal interest (line 18). Non-Federal interest consists of interest paid on BPA's lease purchase projects and other capital leases as well as interest paid on customer advance funding

for generator interconnection agreements and for the California-Oregon Intertie (COI) upgrade. The customers' advanced funds accrue interest on the outstanding balances until they are returned to customers through credits for transmission service. *See* Transmission Revenue Requirement Study, BP-20-E-BPA-09, § 2.2.5.

Premiums/Discounts (line 19). Premiums and discounts are paid or received on federal bonds. *See* Transmission Revenue Requirement Study, BP-20-E-BPA-09, at § 2.3.

Allowance for funds used during construction (AFUDC) (line 20). AFUDC for U.S. Treasury-financed transmission projects is a credit against interest on long-term debt (line 15). This non-cash reduction to interest expense reflects an estimate of interest on the funds used during the construction period of facilities that are not yet in service. Also included is the interest accrued on large generator interconnection agreement (LGIA) funds during the construction period of the associated facilities. AFUDC is capitalized, added to other construction costs, and is recovered in rates once the facilities are placed in service. AFUDC is part of the depreciation expense that is recovered over the expected life of the plant. *See* Ch. 3.

Interest income (line 21). Interest income is computed on the projected year-end cash balances in the BPA Fund that are attributed to the transmission function and that carry over into the next year. It is credited against interest on long-term debt. Also included is an interest income credit calculated in the transmission repayment studies on funds to be collected during each year for payments of Federal interest and amortization at the end of the fiscal year. *See* Ch. 5.

Net interest expense (line 22). Net interest expense is computed as the sum of the interest on Federal appropriations (line 13), capitalization adjustment (line 14), long-term debt (line 15), amortization of capitalized bond premiums (line 16), debt service reassignment interest (line 17), non-Federal interest (line 18), premiums/discounts (line 19), AFUDC (line 20), and interest income (line 21).

Total expenses (line 24). Total expenses is the sum of total operating expenses (line 9) and net interest expense (line 22).

Minimum Required Net Revenues (line 26). Minimum required net revenues (MRNR), an input from line 2 of the Statement of Cash Flows (Table 1-2), may be necessary to cover cash requirements in excess of accrued expenses. An explanation of the method used for determining MRNR is included in section 1.3 below.

Planned Net Revenues for Risk (line 25). Planned net revenues for risk (PNRR) is the amount of net revenues, if any, to be included in rates for financial risk mitigation. There are no Planned Net Revenues for Risk included in the Initial Rate Proposal. Starting Transmission reserves in FY 2020 are projected to be sufficient to mitigate risk in FY 2020 and 2021. *See* Power and Transmission Risk Study, BP-20-E-BPA-05, § 5.2.2.2.

Total planned net revenues (line 28). Total planned net revenues is the sum of Minimum Required Net Revenues (line 26) and Planned Net Revenues for Risk (line 27).

Total revenue requirement (line 30). Total revenue requirement is the sum of total expenses (line 24) and total planned net revenues (line 28).

1.3 Statement of Cash Flows

Below is a line-by-line description of each of the components in the Statement of Cash Flows (Table 1-2).

Minimum Required Net Revenue (MRNR) (line 2). BPA determines whether MRNR is necessary by evaluating the annual cash inflows and outflows shown on the Statement of Cash Flows. MRNR may be necessary to ensure that the cash provided by current operations (line 11) will be sufficient to cover the planned amortization payments (the difference between lines 16 and 24) without causing the annual increase (decrease) in cash (line 26) to be negative. The MRNR determined in the Statement of Cash Flows is incorporated in the Income Statement (Table 1-1, line 26).

Cashflow (line 2a). This represents the cash flow generated after after LGIA iterations are completed. It is the sum of line 2b through line 10, line 16, and line 24. A negative value is an offset to line 2b, Revenue Financing Minimum Required Net Revenue.

Revenue Financing Minimum Required Net Revenue (line 2b). This represents the amount of revenue financing chosen for the implementation of the Leverage Policy or for any other purpose.

Depreciation & amortization (line 4). The depreciation amount is from the Income Statement (Table 1-1, line 8). It, like the following five lines, is added back to net revenues in computing cash provided by current operations (Table 1-2, line 11) because it is a non-cash expense.

Transmission credit projects net interest (line 5). Transmission credit projects net interest is the non-cash expenses from the Income Statement for generator interconnection and COI upgrade customers' interest on their credit balances for advance funding (included in Table 1-1, line 18) and the AFUDC on the projects under construction funded by those customers (included in Table 1-1, line 20).

Amortization of capitalized bond premiums (line 6). Amortization of capitalized bond premiums, from the Income Statement (Table 1-1, line 16), is a non-cash expense.

Capitalization adjustment (line 7). The capitalization adjustment, from the Income Statement (Table 1-1, line 14), is a negative non-cash expense.

LGIA (line 9). Revenue credits associated with customer-funded capital projects are recognized as non-cash revenues. Customers provide an up-front deposit for construction of transmission facilities which is returned to them through a transmission credit on their transmission service bill until the deposit is repaid.

AC Intertie/fiber (line 10). Accrual revenues are recognized here because these revenues provide no cash for cost recovery. BPA accounts for the AC Intertie non-Federal capacity ownership

lump-sum payments received in FY 1995 as unearned revenues that are recognized annually over the estimated average service life of the associated transmission facilities. Similarly, some leases of fiber optic capacity have included up-front payments, which are being recognized over the life of the particular contract. The annual accrual revenues, which are part of the total revenues recovering the FCRTS revenue requirement, are included here as a non-cash adjustment to cash from current operations.

Cash provided by current operations (line 11). Cash provided by current operations, the sum of lines 2, 4, 5, 6, 7, 9, and 10, is available for the year to satisfy cash requirements.

Investment in utility plant (line 15). Investment in utility plant represents the annual increase in capital expenditures for additions and replacements to the transmission system funded by U.S. Treasury bonds or available cash reserves. *See* Ch. 7.

Cash used for capital investments (line 18). Cash used for capital investments is the sum of investments in utility plant.

Increase in long-term debt (line 19). Increase in long-term debt reflects the new bonds issued by BPA to the U.S. Treasury to fund the construction and environmental capital equipment programs. This amount also includes any notes issued to the U.S. Treasury. *See* Ch. 7.

Debt service reassignment principal (line 20). Debt service reassignment principal is the principal component of the debt service obligation reassigned to TS through the Debt Optimization Program. *See* Ch. 8.

Repayment of capital leases (line 21). Repayment of capital leases is BPA's payment of the principal component of certain capital leases.

Repayment of long-term debt (line 22). Repayment of long-term debt is BPA's planned repayment of outstanding bonds issued by BPA to the U.S. Treasury, as determined in the repayment studies. *See* Ch. 3.

Repayment of capital appropriations (line 23). Repayment of capital appropriations represents projected amortization of outstanding BPA appropriations (pre-self-financing) as determined in the repayment studies. *Id.*

Cash from treasury borrowing and appropriations (line 24). Cash from treasury borrowing and appropriations is the sum of lines 19 through 23. This is the net cash flow resulting from increases in cash from new long-term debt and decreases in cash from repayment of long-term debt and capital appropriations.

Annual increase (decrease) in cash (line 26). Annual increase (decrease) in cash, the sum of lines 11, 16, and 24, reflects the annual net cash flow from current operations, investing, and financing activities. Revenue requirements are set to meet all projected annual cash flow requirements, as included on the Statement of Cash Flows. A decrease shown in this line would indicate that annual revenues are insufficient to cover the year's cash requirements. In such

cases, Minimum Required Net Revenues are included to offset such decrease. See above discussion of Minimum Required Net Revenues (line 2).

Planned net revenues for risk (line 28). Planned net revenues for risk reflects the amounts included in revenue requirements to meet BPA's risk mitigation objectives (from Table 1-1, line 27.)

Total annual increase (decrease) in cash (line 30). Total annual increase (decrease) in cash, the sum of Lines 26 and 28, is the total annual cash that is projected to be available to add to BPA's cash reserves.

TABLE 1-1
TRANSMISSION REVENUE REQUIREMENT INCOME STATEMENT
(\$000)

	<u>A</u>	<u>B</u>
	<u>2020</u>	<u>2021</u>
1 OPERATING EXPENSES		
2 TRANSMISSION OPERATIONS	168,490	163,854
3 TRANSMISSION ENGINEERING	44,127	49,484
4 TRANSMISSION MAINTENANCE	173,074	173,283
5 TRANSMISSION ACQUISITION & ANCILLARY SERVICES	128,369	132,211
6 BPA INTERNAL SUPPORT	92,528	93,884
7 OTHER INCOME, EXPENSES & ADJUSTMENTS	(58,350)	(52,594)
8 DEPRECIATION & AMORTIZATION	335,807	341,867
9 TOTAL OPERATING EXPENSES	884,045	901,989
10		
11 INTEREST EXPENSE		
12 INTEREST EXPENSE		
13 FEDERAL APPROPRIATIONS	11	-
14 CAPITALIZATION ADJUSTMENT	(18,968)	(18,968)
15 ON LONG-TERM DEBT	113,717	123,801
16 AMORTIZATION OF CAPITALIZED BOND PREMIUMS	559	559
17 DEBT SERVICE REASSIGNMENT INTEREST	4,880	3,943
18 NON-FEDERAL INTEREST	76,306	76,764
19 PREMIUMS/DISCOUNTS	5,882	10,660
20 AFUDC	(14,211)	(14,635)
21 INTEREST INCOME	(4,006)	(3,497)
22 NET INTEREST EXPENSE	164,169	178,626
23		
24 TOTAL EXPENSES	1,048,213	1,080,616
25		
26 MINIMUM REQUIRED NET REVENUE 1/	26,442	26,442
27 PLANNED NET REVENUES FOR RISK	-	-
28 TOTAL PLANNED NET REVENUE	26,442	26,442
29		
30 TOTAL REVENUE REQUIREMENT	1,074,655	1,107,058

1/ SEE NOTE ON CASH FLOW TABLE.

TABLE 1-2
TRANSMISSION REVENUE REQUIREMENT STATEMENT OF CASH FLOWS
(\$000)

	<u>A</u>	<u>B</u>
	<u>2020</u>	<u>2021</u>
1 CASH FROM CURRENT OPERATIONS:		
2 TOTAL MINIMUM REQUIRED NET REVENUE	26,442	26,442
3 CASH FLOW	-	-
4 REVENUE FINANCING MINIMUM REQUIRED NET REVENUE	26,442	26,442
5 EXPENSES NOT REQUIRING CASH:		
6 DEPRECIATION & AMORTIZATION	335,807	341,867
7 TRANSMISSION CREDIT PROJECTS NET INTEREST	3,340	2,774
8 AMORTIZATION OF CAPITALIZED BOND PREMIUMS	559	559
9 CAPITALIZATION ADJUSTMENT	(18,968)	(18,968)
10 NON-CASH REVENUES/ACCRUAL REVENUES		
11 LGIA	(18,624)	(18,215)
12 AC INTERTIE CO/FIBER	(3,415)	(3,415)
13 CASH PROVIDED BY CURRENT OPERATIONS	325,140	331,043
14		
15 CASH USED FOR CAPITAL INVESTMENTS:		
16 INVESTMENT IN:		
17 UTILITY PLANT	(456,721)	(462,848)
18 CASH USED FOR CAPITAL INVESTMENTS	(456,721)	(462,848)
19		
20 CASH FROM TREASURY BORROWING AND APPROPRIATIONS:		
21 INCREASE IN LONG-TERM DEBT	430,279	436,406
22 DEBT SERVICE REASSIGNMENT PRINCIPAL	(19,592)	(20,571)
23 REPAYMENT OF CAPITAL LEASES	(79,407)	(79,592)
24 REPAYMENT OF LONG-TERM DEBT	(199,545)	(204,438)
25 REPAYMENT OF CAPITAL APPROPRIATIONS	(154)	-
26 CASH FROM TREASURY BORROWING AND APPROPRIATIONS	131,581	131,805
27		
28 ANNUAL INCREASE (DECREASE) IN CASH ^{1/}	-	-
29		
30 PLANNED NET REVENUE FOR RISK	-	-
31		
32 TOTAL ANNUAL INCREASE (DECREASE) IN CASH	-	-

1/ Line 24 must be greater than or equal to zero, otherwise net revenues will be added so that there are no negative cash flows for the year.

2. SEGMENTATION OF TRANSMISSION REVENUE REQUIREMENT

2.1 Introduction

The Transmission Revenue Requirement Study and this Documentation do not include a segmented revenue requirement because the proposed rates were agreed upon and set forth in the Partial Settlement Agreement. As a result, the segmented revenue requirement is not necessary

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3. TRANSMISSION EXPENSES

3.1 Introduction

This chapter compiles the expenses that are included in transmission revenue requirements for the rate period.

3.2 Expenses

Table 3-1 displays the forecast program spending levels that are the basis for the revenue requirement study. There are two types of expenses included in the program spending levels, O&M expenses and inter-business line expenses. O&M expenses came from the Integrated Program Review and Capital Investment Review (IPR/CIR) process. Inter-business line expenses, including the cost of redispatch, are composed of two sub-groups of costs. The first is the generation inputs for ancillary services. The second is the annual cost of Network segment facilities and Utility Delivery segment facilities of the Corps of Engineers and Bureau of Reclamation annual costs of those agencies

Depreciation and amortization expense is calculated using the straight-line method and remaining-life technique for lines, substations, and each of the FERC Accounts in the general plant category. *See* Ch. 4.

Interest expense is calculated in the transmission repayment study using the capital appropriations and BPA revenue bonds issued to the U.S. Treasury at individual interest rates. In addition, forecast lease purchase program capital will assume a 3-month LIBOR rate with a 60 basis point spread for the first seven years and then a taxable non-federal interest rate for the remainder of the time outstanding. *See* section 5 for calculation of the interest credit on cash reserves.

TABLE 3-1
TRANSMISSION PROGRAM SPENDING FORECAST
(\$000s)

PROGRAM & OTHER OPERATING COSTS	A	B
	2020	2021
1 TRANSMISSION SYSTEM OPERATIONS		
2 POWER SYSTEM DISPATCHING	16,130	16,130
3 INFORMATION TECHNOLOGY	10,881	10,963
4 CONTROL CENTER SUPPORT	26,877	26,877
5 TECHNICAL OPERATIONS	7,032	7,032
6 SUBSTATION OPERATIONS	26,521	26,521
7 OVERSUPPLY ADMIN - SPLIT FROM TECH. OPS	180	180
11 SUB-TOTAL TRANSMISSION SYSTEM OPERATIONS	87,621	87,703
12 TRANSMISSION SCHEDULING		
13 RESERVATIONS	1,253	1,253
14 PRE-SCHEDULING	267	267
15 REAL-TIME SCHEDULING	5,536	5,536
16 SCHEDULING TECHNICAL SUPPORT	3,899	3,899
17 SCHEDULING AFTER-THE-FACT	202	202
18 SUB-TOTAL TRANSMISSION SCHEDULING	11,157	11,157
19 TRANSMISSION MARKETING		
20 TRANSMISSION SALES	2,864	2,864
21 CONTRACT MANAGEMENT	3,711	3,793
22 TRANSMISSION BILLING	2,719	2,816
23 BUSINESS STRATEGY & ASSESSMENT	6,541	6,565
STRATEGIC INTEGRATION (<i>Previously Energy Imbalance Market - EIM</i>)	2,735	2,786
24 SUB-TOTAL TRANSMISSION MARKETING	18,569	18,823
25 TRANSMISSION BUSINESS SUPPORT		
26 EXECUTIVE & ADMIN SERVICES	19,452	14,180
27 AIRCRAFT SERVICES	1,634	1,634
28 GENERAL ADMINISTRATIVE	11,913	11,913
29 LOGISTICS SERVICES	5,671	5,843
30 SECURITY ENHANCEMENTS EXPENSE	711	711
31 LEGAL SUPPORT - EXPENSE	3,166	3,294
34 SUB-TOTAL TRANSMISSION BUSINESS SUPPORT	42,546	37,574
35 TRANSMISSION ENGINEERING		
36 RESEARCH & DEVELOPMENT	2,838	2,857
37 TSD PLANNING & ANALYSIS	19,418	24,726
38 CAPITAL TO EXPENSE TRANSFER	3,328	3,328
39 NERC/WECC COMPLIANCE	14,973	14,973
40 ENVIRONMENTAL POLICY/PLANNING	1,639	1,668
41 ENG. LINE RATING	1,931	1,931
42 SUB-TOTAL TRANSMISSION ENGINEERING	44,127	49,484

TABLE 3-1
TRANSMISSION PROGRAM SPENDING FORECAST
(\$000s)

PROGRAM & OTHER OPERATING COSTS	A	B
	2020	2021
43 TRANSMISSION SYSTEM MAINTENANCE		
44 ENVIRONMENTAL ANALYSIS		
45 HEAVY MOBILE EQUIPMENT MAINTENANCE		
46 NON-ELECTRIC MAINTENANCE	28,968	29,053
47 SUBSTATION MAINTENANCE	33,201	33,201
48 TRANSMISSION LINE MAINTENANCE	29,249	29,249
49 SYSTEM PROTECTION CONTROL MAINTENANCE	16,477	16,477
50 POWER SYSTEM CONTROL MAINTENANCE	24,290	24,290
51 JOINT COST MAINTENANCE	1	1
52 SYSTEM MAINTENANCE MANAGEMENT	7,713	7,713
53 RIGHT OF WAY MAINTENANCE	7,052	7,052
54 POLLUTION PREVENTION & ABATEMENT	4,957	5,081
55 TECHNICAL TRAINING	2,669	2,669
56 VEGETATION MANAGEMENT	18,499	18,499
57 SUB-TOTAL TRANSMISSION SYSTEM MAINTENANCE	173,074	173,283
58 SUB-TOTAL TRANSMISSION SYSTEM OPERATIONS & MAINTENANCE	377,093	378,024
59 NON-BETWEEN BUSINESS LINE ANCILLARY SERVICES		
60 LEASED FACILITIES	5,220	5,220
61 SETTLEMENT AGREEMENTS	3	3
62 NON-BBL ANCILLARY SERVICES	97	97
63 RELIABILITY DEMAND RESPONSE/REDISPATCH (NonBBL)	5,156	5,156
64 SUB-TOTAL NON-BETWEEN BUSINESS LINE ANCILLARY SERVICES	10,476	10,476
65 CORPORATE EXPENSES		
66 UNFUNDED RETIREMENT BENEFITS	18,438	19,293
67 CORPORATE OVERHEAD DISTRIBUTIONS	74,090	74,591
68 SUB-TOTAL CORPORATE CHARGES	92,528	93,884
69 OTHER INCOME AND ADJUSTMENTS	-	-
70 TOTAL TRANSMISSION IPR PROGRAM LEVELS	480,097	482,384

TABLE 3-2
SUMMARY OF TRANSMISSION REPAYMENT STUDY DATA
(\$000s)

	A	B
	<u>2020</u>	<u>2021</u>
1 DSR INTEREST	4,880	3,943
2 NON-FEDERAL/CAPITAL LEASES INTEREST	76,306	76,764
3 APPROPRIATION INTEREST	11	-
4 BOND INTEREST	113,717	123,801
5 DISCOUNTS / PREMIUMS	<u>5,882</u>	<u>10,660</u>
6 TOTAL GROSS INTEREST	200,795	215,168
6 DSR PRINCIPAL	19,592	20,571
7 NON-FEDERAL/CAPITAL LEASE PRINCIPAL	79,407	79,592
8 APPROPRIATION PRINCIPAL	154	-
9 BOND PRINCIPAL	<u>199,545</u>	<u>204,438</u>
10 TOTAL PRINCIPAL	298,698	304,601

TABLE 3-3
ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION
(\$000s)

	A	B
<u>PLANT FUNDED FROM BPA BORROWING</u>		
	<u>2020</u>	<u>2021</u>
1 CAPITAL EXPENDITURES	433,930	439,633
2 PLANT-IN-SERVICE	425,970	420,842
3 SOY CWIP BALANCE	403,287	411,247
4 EOY CWIP BALANCE	411,247	430,038
5 AVERAGE CWIP BALANCE	407,267	420,642
6 AFUDC RATE	3.18%	3.18%
7 AFUDC	12,951	13,376
8 CORPORATE CAPITAL (65% OF TOTAL)	8,580	8,580
9 CORPORATE AFUDC	<u>274</u>	<u>273</u>
10 TOTAL AFUDC FOR BPA BORROWING	13,225	13,649
 <u>PLANT FUNDED FROM REVENUES & BY THIRD PARTIES</u>		
10 CAPITAL EXPENDITURES	53,001	46,884
11 PLANT-IN-SERVICE	53,001	46,884
12 SOY CWIP BALANCE	1,824	1,824
13 EOY CWIP BALANCE	1,824	1,824
14 AVERAGE CWIP BALANCE	1,824	1,824
15 AFUDC RATE	<u>3.18%</u>	<u>3.18%</u>
16 AFUDC FOR NON-FEDERAL PROJECTS	56	56
17 TOTAL AFUDC	13,281	13,705

TABLE 3-4
AMORTIZATION OF PREMIUMS OF BOND REFINANCINGS
(\$000s)

A	B	C	D	E	F	G	H	I	J	K	L
DATE OF REFINANCING	PREMIUM	PRORATION	NO. OF MONTHS	MONTHLY AMORTIZATION	TYPE OF BOND	LAST MONTH TO AMORTIZE	2015	<u>CALCULATION OF ANNUAL AMOUNTS</u>			
								2016	2017	2018	2019
1	5/31/1998	6,322	411	15	CONSTRUCTION	Aug-2032	184	184	184	184	184
2	8/31/1998	4,685	360	13	CONSTRUCTION	Aug-2028	156	156	156	156	156
3	8/31/1998	<u>6,560</u>	360	<u>18</u>	CONSTRUCTION	Aug-2028	<u>219</u>	<u>219</u>	<u>219</u>	<u>219</u>	<u>219</u>
4	Total	17,567		47			559	559	559	559	559

TABLE 3-5
BETWEEN BUSINESS LINE COSTS
(\$000s)

	A	B	C
	<u>2020</u>	<u>2021</u>	<u>AVERAGE</u>
1 ANCILLARY SERVICES	105,864	109,706	107,785
2 SYNCHRONOUS CONDENSING	831	831	831
3 GENERATION DROPPING	498	498	498
4 COE/RECLAMATION NETWORK/ DELIVERY FACILITIES SEGMENTATION	8,806	8,806	8,806
5 REDISPATCH	250	250	250
6 STATION SERVICE	<u>1,660</u>	<u>1,660</u>	<u>1,660</u>
7 TOTAL	117,909	121,751	119,830

TABLE 3-6
SUMMARY OF DEPRECIATION
(\$000s)

	<u>A</u> <u>2020</u>	<u>B</u> <u>2021</u>
1 TRANSMISSION PLANT		
2 LINES	107,907	110,435
3 SUBSTATION	101,428	105,556
4 STATION EQUIPMENT	2,901	2,941
5 GENERAL PLANT	80,405	83,797
6 ANCILLARY SERVICES (Excludes Station Equipment)	14,484	10,437
7 INTANGIBLE ASSETS	431	431
8 REGULATORY ASSET	<u>28,251</u>	<u>28,269</u>
9 TOTAL	335,807	341,867

TABLE 3-7
TRANSMISSION REGULATORY ASSETS
(\$000s)

		<u>A</u>	<u>B</u>
		2020	2021
1	SPACER DAMPERS - 30 YR LIFE		
2	ADDITIONS	-	-
3	AMORTIZATION	956	956
4	SPACER DAMPERS - 25 YR LIFE		
5	ADDITIONS	926	-
6	AMORTIZATION	1,292	1,310
7	CAPITALIZED BOND PREMIUMS	561	561
8	I-5 REINFORCEMENT PROJECT	26,003	26,003

TABLE 3-8
TRANSMISSION DEBT TO ASSET RATIO
(\$000s)

	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
DEBT				
1 Starting debt		5,579,226	5,740,757	5,875,340
2 Debt additions		396,702	430,279	436,406
3 Debt repayment		<u>(235,171)</u>	<u>(295,696)</u>	<u>(299,285)</u>
4 Ending debt	5,579,226	5,740,757	5,875,340	6,012,461
5				
ASSETS				
7 Starting gross assets		9,956,124	10,367,826	10,824,547
8 Plant additions		411,702	456,721	462,848
9 Ending gross assets		10,367,826	10,824,547	11,287,396
10				
11 Accumulated depreciation		(3,364,525)	(3,668,626)	(3,982,464)
12 Annual depreciation		(304,101)	(313,837)	(319,879)
13 Ending accumulated depreciation		(3,668,626)	(3,982,464)	(4,302,343)
14				
15 CWIP	606,590	606,590	606,590	606,590
16 Ending assets	7,197,189	7,305,790	7,448,674	7,591,643
17				
18 Debt to Asset Ratio (Debt/Asset)	77.5%	78.6%	78.9%	79.2%

4. FCRTS INVESTMENT BASE

4.1 Introduction

This chapter documents the development of the FCRTS investment for the rate period, which is the basis for annual depreciation expense calculations and the allocation of financing-related costs (net interest expense and planned net revenue) to the segments.

4.2 Methodology

The calculation of investment base for each year of the rate period starts with historical transmission plant investment. The general plant investment is identified according to FERC Account from BPA plant investment records. In addition, general plant investment for facilities required for Ancillary Services is separately identified and treated by FERC Account. The historical investment information includes plant investments associated with Projects Funded In Advance. Entities provide BPA with funding for exclusive use facilities and BPA retains ownership of the facilities. The facilities are excluded from general rate development, but depreciation of the facilities is included in BPA expenses. The depreciation calculated herein on these facilities is used for budgeting purposes, but neither the investment nor associated depreciation is incorporated into ratemaking.

Forecast plant additions, derived from capital budgets, are then added to the historical year investment. The additions are adjusted to take into account retirements by applying a ratio of retirements to additions, using an average of the past five years of actuals by FERC account. The application of the retirement ratio produces the gross investment for lines, substations, and general plant accounts for each year of the cost evaluation period.

The gross investment is then reduced by accumulated depreciation. Depreciation is calculated using the straight-line method, remaining-life technique. For general plant categories, annual depreciation rates are used unadjusted. For lines and substations, the annual depreciation rate has been weighted by the depreciation rates of each FERC account that composes these facilities. Depreciation is calculated on gross plant investment in each plant category according to the category's group rates. For each forecast year, depreciation expense is added to the prior year's accumulated depreciation to establish the forecast of accumulated depreciation.

Calculation of the investment base for each of the segments in each rate period year starts with the average net plant investment for that year (gross investment less accumulated depreciation). Various adjustments are made to the calculated investment base to reflect plant not included in the Transmission Segmentation Study and Documentation's analysis of historical investment and additions, and to remove plant that was funded in advance by customer deposits. First, net investment related to intangible plant (capacity rights acquired by BPA) is added to the Network and Southern Intertie segments. The regulatory asset net investment (spacer dampers) is added to the Network segment. Then, net investment in general plant categories is prorated to the segments based on the sum of net plant investment, net intangible plant, and net regulatory assets. Next the Network net plant investment is reduced by the net plant associated with LGIA/SGIA, and the Southern Intertie net plant investment is reduced by the net plant associated

with the COI upgrade. The Southern Intertie net plant investment is also reduced to remove the balance of the unearned revenues associated with non-Federal capacity ownership on the AC Intertie. Finally, the unearned revenue balance associated with prepaid fiber optic leases is allocated to each segment pro rata based on the communications plant in each segment.

TABLE 4-1
BPA TRANSMISSION PLANT DEPRECIATION AND ACCUMULATED DEPRECIATION
(\$000s)

	A	B	C	D	E	F	G	H	I
	2019 PLANT INVEST	2019 DEPR EXPENSE	2019 ACCUM DEPR	2020 PLANT INVEST	2020 DEPR EXPENSE	2020 ACCUM DEPR	2021 PLANT INVEST	2021 DEPR EXPENSE	2021 ACCUM DEPR
1 LINES									
2 GENERATION-INTEGRATION	30,932	876	12,954	30,932	876	13,830	30,932	876	14,706
3 NETWORK	3,338,945	93,189	1,339,504	3,436,747	95,907	1,435,411	3,517,557	98,435	1,533,846
4 SOUTHERN INTERTIE	297,769	8,429	124,658	297,771	8,430	133,088	297,811	8,430	141,518
5 EASTERN INTERTIE	94,846	2,685	39,719	94,846	2,685	42,404	94,846	2,685	45,089
6 UTILITY DELIVERY	318	9	133	318	9	142	318	9	151
7 DSI DELIVERY	0	0	0	0	0	0	0	0	0
8 TOTAL LINES	3,762,810	105,188	1,516,969	3,860,615	107,907	1,624,876	3,941,464	110,435	1,735,311
9 PFIA (excluded)	54,679	1,548	22,832	54,679	1,548	24,380	54,679	1,548	25,928
10 SUBSTATIONS									
11 GENERATION-INTEGRATION	100,661	2,271	33,706	100,661	2,271	35,977	100,661	2,271	38,248
12 NETWORK	3,576,101	77,805	1,120,454	3,754,264	82,683	1,203,137	3,942,134	86,811	1,289,948
13 SOUTHERN INTERTIE	806,126	18,169	274,298	807,899	18,205	292,503	809,645	18,245	310,748
14 EASTERN INTERTIE	28,569	644	9,565	28,569	644	10,209	28,569	644	10,853
15 UTILITY DELIVERY	14,709	332	4,925	14,709	332	5,257	14,709	332	5,589
16 DSI DELIVERY	8,583	194	2,875	8,583	194	3,069	8,583	194	3,263
17 TOTAL SUBSTATIONS	4,534,749	99,415	1,445,824	4,714,685	104,329	1,550,153	4,904,301	108,497	1,658,650
18 PFIA (excluded)	94,136	2,124	31,521	94,136	2,124	33,645	94,136	2,124	35,769
19 INTANGIBLE PLANT	9,559	431	1,847	9,559	431	2,278	9,559	431	2,709
20 NETWORK	4,085	184	789	4,085	184	973	4,085	184	1,157
21 SOUTHERN INTERTIE	5,473	247	1,058	5,473	247	1,305	5,473	247	1,552

TRANSMISSION DEPRECIATION SUMMARY

	2019	2020	2021
1 TRANSMISSION PLANT			
2 LINES	105,354	107,364	110,217
3 SUBSTATION	100,803	105,789	110,717
4 GENERAL PLANT	80,193	85,110	86,923
5 ANCILLARY SERVICES	17,590	18,639	16,003
6 INTANGIBLE PLANT	431	431	431
7 REGULATORY ASSET	2,218	28,251	28,269
8 TOTAL FOR TS RATES	306,589	345,584	352,560

TABLE 4-2
INVESTMENT BASE
(\$000s)

	A	B	C	D	E	F
	BALANCE-AS-OF		AVERAGE		BALANCE-AS-OF	AVERAGE
	2019	2020	2020	2020	2021	2021
<u>COMPLETED PLANT</u>						
1	GENERATION-INTEGRATION	131,594	131,594	131,594	131,594	131,594
2	NETWORK	6,915,046	7,191,011	7,053,029	7,191,011	7,325,351
3	SOUTHERN INTERTIE	1,103,895	1,105,670	1,104,783	1,105,670	1,106,563
4	EASTERN INTERTIE	123,415	123,415	123,415	123,415	123,415
5	UTILITY DELIVERY	15,027	15,027	15,027	15,027	15,027
6	DSI DELIVERY	8,583	8,583	8,583	8,583	8,583
7	REGULATORY ASSET	60,521	191,461	125,991	191,461	191,461
8	INTANGIBLE PLANT	9,559	9,559	9,559	9,559	9,559
9	ANCILLARY SERVICES	257,783	258,855	258,319	258,855	260,549
10	GENERAL PLANT	1,381,748	1,483,056	1,432,402	1,483,056	1,530,802
11	TOTAL COMPLETED PLANT	10,007,170	10,518,229	10,262,699	10,518,229	10,702,902
<u>ACCUMULATED DEPRECIATION</u>						
12	GENERATION-INTEGRATION	47,295	50,442	48,868	50,442	52,015
13	NETWORK	2,459,959	2,638,549	2,549,254	2,638,549	2,731,172
14	SOUTHERN INTERTIE	398,957	425,592	412,274	425,592	438,929
15	EASTERN INTERTIE	49,464	52,793	51,129	52,793	54,458
16	UTILITY DELIVERY	5,151	5,492	5,322	5,492	5,663
17	DSI DELIVERY	2,929	3,123	3,026	3,123	3,220
18	REGULATORY ASSET	16,869	45,120	30,994	45,120	59,254
19	INTANGIBLE PLANT	1,946	2,377	2,161	2,377	2,592
20	ANCILLARY SERVICES	117,935	132,419	125,177	132,419	137,638
21	GENERAL PLANT	617,443	697,848	657,645	697,848	739,746
22	TOTAL ACCUMULATED DEPRECIATION	3,717,946	4,053,753	3,885,850	4,053,753	4,224,686
<u>NET PLANT INVESTMENT</u>						
23	GENERATION-INTEGRATION	84,299	81,152	82,726	81,152	79,579
24	NETWORK	4,455,087	4,552,463	4,503,775	4,552,463	4,594,180
25	SOUTHERN INTERTIE	704,938	680,079	692,508	680,079	667,634
26	EASTERN INTERTIE	73,951	70,622	72,286	70,622	68,957
27	UTILITY DELIVERY	9,875	9,534	9,705	9,534	9,364
28	DSI DELIVERY	5,654	5,460	5,557	5,460	5,363
29	REGULATORY ASSET	43,652	146,341	94,997	146,341	132,206
30	INTANGIBLE PLANT	7,613	7,182	7,397	7,182	6,966
31	ANCILLARY SERVICES	139,848	126,436	133,142	126,436	122,911
32	GENERAL PLANT	764,305	785,208	774,757	785,208	791,056
33	TOTAL NET PLANT INVESTMENT	6,289,223	6,464,476	6,376,850	6,464,476	6,478,216

TABLE 4-3
BPA PROJECTED TRANSMISSION PLANT INVESTMENT
(\$000s)

	A	B	C	D	E	F
	2019 ADDITIONS	TOTAL 2019 INVEST	2020 ADDITIONS	TOTAL 2020 INVEST	2021 ADDITIONS	TOTAL 2021 INVEST
1 GENERATION-INTEGRATION	0	131,594	0	131,594	0	131,594
2 NETWORK	348,538	6,915,046	275,965	7,191,011	268,680	7,459,691
3 SOUTHERN INTERTIE	1,539	1,103,895	1,776	1,105,670	1,786	1,107,456
4 EASTERN INTERTIE	0	123,415	0	123,415	0	123,415
5 UTILITY DELIVERY	0	15,027	0	15,027	0	15,027
6 DSI DELIVERY	0	8,583	0	8,583	0	8,583
7 REGULATORY ASSET	556	60,521	926	61,447	0	61,447
8 GENERAL PLANT	107,848	1,381,748	101,307	1,483,056	95,492	1,578,548
9 ANCILLARY SERVICES	40,424	257,783	1,072	258,855	3,387	262,242
10 INTANGIBLE - SPACER DAMPERS	<u>0</u>	<u>9,559</u>	<u>0</u>	<u>9,559</u>	<u>0</u>	<u>9,559</u>
11 TOTAL BPA	498,905	10,007,170	381,046	10,388,216	369,346	10,757,562

TABLE 4-4
INVESTMENT BASE BY SEGMENT
(\$000s)

	A	B	C	E	F	G	H	I
FY 2020	TOTAL	GENERATION INTEGRATION	NETWORK	SOUTHERN INTERTIE	EASTERN INTERTIE	UTILITY DELIVERY	DSI DELIVERY	ANCILLARY SERVICES
1 NET TRANSMISSION PLANT	5,499,699	82,726	4,503,775	692,508	72,286	9,705	5,557	133,142
2 INTANGIBLE PLANT	7,397		3,162	4,236				
3 REGULATORY ASSET	94,997		94,997					
4 SUBTOTAL INVESTMENT	5,602,093	82,726	4,601,933	696,744	72,286	9,705	5,557	133,142
5 PERCENT	100%	1.48%	82.15%	12.44%	1.29%	0.17%	0.10%	2.38%
6 GENERAL PLANT	774,757	11,441	636,437	96,358	9,997	1,342	769	18,413
7 TRANSMISSION CREDIT PROJECTS (NET PLANT)	(285,785)		(285,785)					
8 ACC REV BAL ADJ - Fiber	(5,541)	(82)	(4,552)	(689)	(71)	(10)	(5)	(132)
9 ACC REV BAL ADJ - 3AC	(86,875)			(86,875)				
10 INVESTMENT BASE	5,998,648	94,085	4,948,033	705,538	82,212	11,037	6,320	151,424
FY 2021								
11 NET TRANSMISSION PLANT	5,547,987	79,579	4,594,180	667,634	68,957	9,364	5,363	122,911
12 INTANGIBLE PLANT	6,966		2,977	3,989				
13 REGULATORY ASSET	132,206		132,206					
14 SUBTOTAL INVESTMENT	5,687,160	79,579	4,729,364	671,623	68,957	9,364	5,363	122,911
15 PERCENT	100%	1.40%	83.16%	11.81%	1.21%	0.16%	0.09%	2.16%
16 GENERAL PLANT	791,056	11,069	657,831	93,419	9,592	1,302	746	17,096
17 TRANSMISSION CREDIT PROJECTS (NET PLANT)	(278,128)		(278,128)					
18 ACC REV BAL ADJ - Fiber	-	-	-	-	-	-	-	-
19 ACC REV BAL ADJ - 3AC	(83,460)			(83,460)				
20 INVESTMENT BASE	6,116,627	90,648	5,109,066	681,582	78,549	10,666	6,109	140,007

**TABLE 4-5
CALCULATION OF RETIREMENT RATIOS
(\$000s)**

	A	B	C	D	E	F	G	H				
<u>RETIREMENTS</u>	FERC Account	2013	2014	2015	2016	2017	Total	5-Year Average				
1 STRUCTURES/IMPROVEMENTS	352	289	329	519	2,786	381	4,303	861				
2 STATION EQUIPMENT	353	12,295	12,439	17,666	200,196	8,579	251,174	50,235				
3 TOWERS & FIXTURES	354	62	376	207	100	383	1,127	225				
4 POLES & FIXTURES	355	701	5,395	1,702	1,809	1,084	10,691	2,138				
5 OVERHEAD CONDUCTOR	356	457	3,512	1,871	436	5,745	12,022	2,404				
6 UNDERGROUND CONDUCTOR	358	-	7	-	-	-	7	1				
7 ROADS & TRAILS	359	6	-	6	0	-	12	2				

	A	B	C	D	E	F	G	H	I	J	K	L
<u>ADDITIONS</u>	FERC Account	2013	2014	2015	2016	2017	Total	5-Year Average Additions	Additions Net of Retirements	Weighted	Ratio (I/H)	Weighted Ratio (JxK)
8 STRUCTURES/IMPROVEMENTS	352	26,098	26,115	15,480	47,573	21,812	137,079	27,416	26,555	0.1185	0.9686	0.1148
9 STATION EQUIPMENT	353	169,468	147,182	188,754	549,341	183,888	1,238,633	247,727	197,492	0.8815	0.7972	0.7027
10 STATION SUB-TOTAL (Lines 8+9)		195,565	173,297	204,234	596,914	205,700	1,375,711	275,142	224,047	1.0000	0.8143	0.8175
11 TOWERS & FIXTURES	354	4,546	10,447	59,107	108,213	5,752	188,066	37,613	37,388	0.2616	0.9940	0.2601
12 POLES & FIXTURES	355	13,061	28,434	11,328	36,463	29,007	118,294	23,659	21,521	0.1506	0.9096	0.1370
13 OVERHEAD CONDUCTOR	356	7,035	15,061	40,571	106,929	99,102	268,698	53,740	51,335	0.3592	0.9553	0.3432
14 UNDERGROUND CONDUCTOR	358	49	-	52	0	-	102	20	19	0.0001	0.9280	0.0001
15 ROADS & TRAILS	359	24,632	11,234	9,550	73,898	43,871	163,185	32,637	32,635	0.2284	0.9999	0.2284
16 LINES SUB-TOTAL (Lines 11+12+13+14+15)		49,324	65,177	120,609	325,504	177,731	738,344	147,669	142,897	1.0000	0.9677	0.9687

Ratios of Additions Net of Retirements	
17 Substations	0.8175
18 Lines	0.9687

TABLE 4-6
BPA TRANSMISSION PLANT INVESTMENT ADDITIONS
(\$000s)

	E	F	G	H	I	J	K	L	M	N	O	P
	TOTAL 2019				TOTAL 2020				TOTAL 2021			
<u>GROSS INVESTMENTS</u>	LINES	SUBS	OTHER	ADDITIONS	LINES	SUBS	OTHER	ADDITIONS	LINES	SUBS	OTHER	ADDITIONS
1 GENERATION-INTEGRATION	0	0	0	0	0	0	0	0	0	0	0	0
2 NETWORK	96,842	313,965	0	410,807	100,498	218,518	0	319,016	83,037	232,328	0	315,365
3 SOUTHERN INTERTIE	61	1,829	0	3	2,193	8,774	0	10,967	41	2,159	0	2,200
4 EASTERN INTERTIE	0	0	0	0	0	0	0	0	0	0	0	0
5 UTILITY DELIVERY	0	0	0	0	0	0	0	0	0	0	0	0
6 DSI DELIVERY	0	0	0	0	0	0	0	0	0	0	0	0
7 REGULATORY ASSET	0	0	556	556	0	0	926	926	0	0	0	0
8 GENERAL PLANT	0	0	107,848	107,848	0	0	101,307	101,307	0	0	95,492	95,492
9 TOTAL BPA	96,903	315,794	108,404	519,214	102,691	227,292	102,233	432,217	83,078	234,487	95,492	413,058
 <u>INVESTMENTS NET OF RETIREMENTS</u>												
10 GENERATION-INTEGRATION	0	0	0	0	0	0	0	0	0	0	0	0
11 NETWORK	94,244	253,886	0	348,130	97,802	176,703	0	274,505	80,810	187,870	0	268,680
12 SOUTHERN INTERTIE	59	1,479	0	1,539	3	1,773	0	1,776	39	1,746	0	1,786
13 EASTERN INTERTIE	0	0	0	0	0	0	0	0	0	0	0	0
14 UTILITY DELIVERY	0	0	0	0	0	0	0	0	0	0	0	0
15 DSI DELIVERY	0	0	0	0	0	0	0	0	0	0	0	0
16 REGULATORY ASSET	0	0	556	556	0	0	926	926	0	0	0	0
17 GENERAL PLANT	0	0	107,848	107,848	0	0	101,307	101,307	0	0	95,492	95,492
18 TOTAL BPA	94,304	255,365	108,404	458,072	97,805	178,476	102,233	378,514	80,849	189,617	95,492	365,958

TABLE 4-7
AMORTIZATION OF BPA TRANSMISSION OTHER DEFERRED ASSETS
(\$000s)

SPACER DAMPERS
30-YEAR SERVICE LIFE

	A	B	C	D	E	F	G	H	I	J
	<u>FY INVESTMENT</u>	<u>PARTIAL YEAR</u>	<u>FULL YEAR</u>	<u>ANNUAL</u>	<u>ACCUM AMORT</u>	<u>CUMULATIVE INVESTMENT</u>	<u>DEFERRED INVESTMENT</u>	<u>NET INVESTMENT</u>	<u>ORIGINAL INVESTMENT/RETIREMENT</u>	
1	2006	1,094	45	36	0	1,094	5,696		2,728	(1,634)
2	2007	1,123	46	37	0	2,216	5,200		2,800	(1,677)
3	2008	9,658	334	322	0	11,875		11,875	24,091	(14,433)
4	2009	1,119	37	37	0	12,993		12,993	2,790	(1,671)
5	2010	2,688	66	90	0	15,681		15,681	6,704	(4,016)
6	2011	7,802	130	260	1,630	23,483		21,853	39,113	(23,431)
7	2012	3,888	67	130	850	2,480		24,891		
8	2013	718	25	24	937	3,417		24,671		
9	2014	600	10	20	946	4,363		24,325		
10	2015	4	0	0	956	5,320		23,373		
11	2016	0	0	0	956	6,276		22,416		
12	2017	0	0	0	956	7,233		21,460		
13	2018	0	0	0	956	8,189		20,503		
14	2019	0	0	0	956	9,145		19,547		
15	2020	0	0	0	956	10,102		18,591		
16	2021	0	0	0	956	11,058		17,634		

FY 2008 investment = 9,617 plus total deferred investment from 2006 and 2007.

FY 2011: retirement of \$23,431 of impaired assets

TABLE 4-7
AMORTIZATION OF BPA TRANSMISSION OTHER DEFERRED ASSETS
(\$000s)

SPACER DAMPERS
25-YEAR SERVICE LIFE

	A	B	C	D	E	F	G	H	
	FY	<u>INVESTMENT</u>	<u>PARTIAL</u> <u>YEAR</u>	<u>FULL</u> <u>YEAR</u>	<u>ANNUAL</u>	<u>ACCUM</u> <u>AMORT</u>	<u>CUMULATIVE</u> <u>INVESTMENT</u>	<u>DEFERRED</u> <u>INVESTMENT</u>	<u>NET</u> <u>INVESTMENT</u>
17	2012	13,090	136	524	136	136	13,090	0	12,954
18	2013	9,592	132	384	656	792	22,682	0	21,890
19	2014	4,715	94	189	1,002	1,793	27,397	0	25,604
20	2015	399	8	16	1,104	2,897	27,796	0	24,899
21	2016	1,326	27	53	1,138	4,035	29,122	0	25,087
22	2017	587	12	23	1,177	5,212	29,710	0	24,497
23	2018	2,288	46	92	1,234	6,446	31,997	0	25,551
24	2019	556	11	22	1,262	7,724	31,829	0	24,105
25	2020	926	19	37	1,292	9,015	32,755	0	23,740
26	2021	0	0	0	1,310	10,325	32,755	0	22,430

I-5 REINFORCEMENT PROJECT
5 YEAR LIFE

	A	B	C	D	E	F	G	H	
	FY	<u>INVESTMENT</u>	<u>PARTIAL</u> <u>YEAR</u>	<u>FULL</u> <u>YEAR</u>	<u>ANNUAL</u>	<u>ACCUM</u> <u>AMORT</u>	<u>CUMULATIVE</u> <u>INVESTMENT</u>	<u>DEFERRED</u> <u>INVESTMENT</u>	<u>NET</u> <u>INVESTMENT</u>
27	2017	130,013	0	0	0	0	0	0	0
28	2018	0	0	0	0	0	0	0	0
29	2019	0	0	0	0	0	0	0	0
30	2020	0	0	26,003	26,003	26,003	130,013	0	104,011
31	2021	0	0	26,003	26,003	52,005	130,013	0	78,008
32	2022	0	0	26,003	26,003	78,008	130,013	0	52,005
33	2023	0	0	26,003	26,003	104,011	130,013	0	26,003
34	2024	0	0	26,003	26,003	130,013	130,013	0	0

TABLE 4-8
DEPRECIATION OF LARGE GENERATOR INTERCONNECTION AGREEMENTS
(\$000s)

	A	B	C	D	E	F	G	H	I	J
	IN-SERVICE	CUMULATIVE INVESTMENT	TOTAL ANNUAL INVESTMENT	LINES	SUBSTATIONS	DEPRECIATION LINES	SUBSTATIONS	ACCUMULATED DEPRECIATION LINES	SUBSTATIONS	TOTAL
1	2006	6,980	6,980	768	6,212	8	77	8	77	85
2	2007	33,827	26,847	2,953	23,894	49	453	57	530	586
3	2008	56,641	22,814	2,510	20,304	108	1,004	164	1,534	1,698
4	2009	128,460	71,819	7,900	63,919	220	2,054	384	3,588	3,972
5	2010	136,700	8,240	1,086	7,154	317	2,940	702	6,528	7,230
6	2011	194,898	58,198	3,446	54,752	366	3,712	1,068	10,241	11,309
7	2012	216,898	22,000	3,300	18,700	439	4,628	1,507	14,869	16,376
8	2013	265,102	48,204	7,299	40,905	554	5,371	2,061	20,240	22,301
9	2014	341,286	76,184	11,428	64,757	756	6,689	2,818	26,929	29,746
10	2015	347,001	5,715	857	4,858	921	6,606	3,739	33,535	37,273
11	2016	354,933	7,931	1,190	6,742	944	6,732	4,683	40,267	44,950
12	2017	354,837	(96)	(14)	(82)	957	6,805	5,640	47,072	52,712
13	2018	358,788	1,015	283	732	1,277	7,077	7,198	54,395	61,594
14	2019	359,196	408	-	408	1,277	7,081	8,475	61,477	69,951
15	2020	360,656	1,460	-	1,460	1,277	7,102	9,751	68,579	78,330
16	2021	360,656	-	-	-	1,277	7,119	11,028	75,698	86,726

TABLE 4-9
BPA GENERAL PLANT CUMULATIVE INVESTMENT
(\$000s)

	A	B	C	D	E	F	G	H	I	
	FERC ACCT	DEPR ACCRL RATE	2019 TOTAL INVEST	2020 DEPR EXPENSE	2020 ACCUM DEPR	2020 TOTAL INVEST	2021 DEPR EXPENSE	2021 ACCUM DEPR	2021 TOTAL INVEST	
1	LAND & LAND RIGHTS	389	0.06840	59,509	6,682	10,197	135,867	11,612	21,809	203,661
2	STRUCTURES & IMPROVEMENTS	390	0.01950	316,215	6,304	90,284	330,374	6,582	96,866	344,676
3	OFFICE FURNITURE & FIXTURES	391.1	0.05030	1,730	87	1,342	1,730	87	1,429	1,730
4	DATA PROCESSING -EQUIPMENT	391.2	0.17550	10,912	864	10,912	10,912	-	10,912	10,912
5	DATA PROCESSING -SOFTWARE	391.3	0.15020	30,654	4,604	27,604	30,654	3,050	30,654	30,654
6	TRANSPORT EQUIPMENT	392.1	0.03670	63,938	2,375	32,373	65,511	2,436	34,809	67,265
7	HELICOPTERS	392.2	0.03080	9,234	284	4,746	9,234	284	5,030	9,234
8	AIRPLANES	392.3	0.07530	8,656	652	7,742	8,656	652	8,394	8,656
9	STORES EQUIPMENT	393	0.03430	3,809	131	1,005	3,809	131	1,136	3,809
10	TOOLS, SHOP & GARAGE EQUIPMENT	394	0.04110	18,397	785	7,208	19,817	844	8,052	21,252
11	LAB EQUIPMENT	395	0.07890	30,936	2,441	20,068	30,936	2,441	22,509	30,936
12	POWER OPERATED EQUIPMENT	396	0.02410	30,234	729	17,985	30,234	729	18,714	30,234
13	COMMUNICATIONS EQUIPMENT	397	0.06628	615,772	40,919	357,391	618,935	41,209	398,600	624,508
14	MISC EQUIPMENT	398	0.06670	49,971	3,333	34,006	49,971	3,333	37,339	49,971
15	SUBTOTAL GENERAL PLANT		1,249,968	70,190	622,864	1,346,641	73,390	696,254	1,437,499	
CORPORATE ASSIGNMENT										
18	OFFICE FURNITURE & FIXTURES	391.1	0.05270	14,267	718	2,155	14,267	718	2,873	14,267
19	DATA PROCESSING -EQUIPMENT	391.2	0.13270	6,387	-	28,269	9,745	-	28,269	13,102
20	DATA PROCESSING -SOFTWARE	391.3	0.17100	24,257	3,739	18,233	25,534	3,931	22,164	26,811
21	COMMUNICATIONS EQUIPMENT	397	0.05690	86,868	5,758	17,260	86,868	5,758	23,018	86,868
22	MISC EQUIPMENT	398	0.06700	-	-	9,067	-	-	9,067	-
23	SUBTOTAL CORPORATE ASSIGNMENT		131,780	10,215	74,984	136,414	10,407	85,391	141,049	
24	TOTAL GENERAL PLANT		1,381,748	80,405	697,848	1,483,056	83,797	781,645	1,578,548	

Removed Station Equipment (FERC 353) Line Item, now showing in Ancillary Services Table 4.11

TABLE 4-10
BPA TRANSMISSION GENERAL PLANT PROJECTED PLANT ADDITIONS
(\$000s)

		A	B	C	D
		FERC ACCT	2019	2020	2021
1	LAND & LAND RIGHTS	389	37,883	76,358	67,794
2	STRUCTURES & IMPROVEMENTS	390	29,927	14,529	14,676
3	OFFICE FURNITURE & FIXTURES	391.1	0	0	0
4	DATA PROCESSING -EQUIPMENT	391.2	0	0	0
5	DATA PROCESSING -SOFTWARE	391.3	0	0	0
6	TRANSPORT EQUIPMENT	392.1	8,086	6,900	7,695
7	HELICOPTERS	392.2	0	0	0
8	AIRPLANES	392.3	0	0	0
9	STORES EQUIPMENT	393	0	0	0
10	TOOLS, SHOP & GARAGE EQUIPMENT	394	3,241	1,430	1,445
11	LAB EQUIPMENT	395	0	0	0
12	POWER OPERATED EQUIPMENT	396	0	0	0
13	COMMUNICATIONS EQUIPMENT	397	44,476	4,630	8,156
14	METERING STATIONS	353.03	1,255	0	0
15	SUBTOTAL GENERAL PLANT		124,868	103,847	99,767
16	STATION EQUIPMENT	353	47,030	912	3,510
17	TOTAL GENERAL PLANT		171,897	104,758	103,277
		A	B	C	D
CORPORATE ASSIGNMENT					
18	OFFICE FURNITURE & FIXTURES	391.1	0	0	0
19	DATA PROCESSING -EQUIPMENT	391.2	4,620	5,200	5,200
20	DATA PROCESSING -SOFTWARE	391.3	3,649	3,380	3,380
21	COMMUNICATIONS EQUIPMENT	397	0	0	0
22	MISC EQUIPMENT	398	0	0	0
23	TOTAL CORPORATE ASSIGNMENT		8,269	8,580	8,580

TABLE 4-11
ANCILLARY SERVICES
SCHEDULING, SYSTEM CONTROL, AND DISPATCH SERVICES
(\$000s)

PLANT ADDITIONS		A	B	C
FERC ACCOUNT		2019	2020	2021
1	353	37,019	718	2,763
2	391.2	0	0	0
3	391.3	0	0	0
4	397	3,406	354	624
5	Total	40,424	1,072	3,387

		A	B	C	D	E	F	G	H
FERC ACCOUNT		DEPR ACCRUAL RATE	2019 TOTAL INVEST	2020 DEPR EXP	2020 ACCUM DEPR	2020 TOTAL INVEST	2021 DEPR EXP	2021 ACCUM DEPR	2021 TOTAL INVEST
6	353	0.0229	126,320	2,469	29,888	127,038	2,901	32,789	129,801
7	391.2	0.1755	33,519	5,837	30,867	33,519	2,651	33,519	33,519
8	391.3	0.1502	28,941	4,644	21,715	28,941	4,347	26,062	28,941
9	397	0.0663	69,003	4,743	35,464	69,357	4,585	40,049	69,982
10	Total		257,783	17,693	117,935	258,855	14,484	132,419	262,242

FERC ACCOUNT		A	B	C	D	E	F
PLANT INVESTMENT		2019	2020	AVERAGE 2020	2020	2021	AVERAGE 2021
11	353	126,320	127,038	126,679	127,038	129,801	128,419
12	391.2	33,519	33,519	33,519	33,519	33,519	33,519
13	391.3	28,941	28,941	28,941	28,941	28,941	28,941
14	397	69,003	69,357	69,180	69,357	69,982	69,670
15	Total	257,783	258,855	258,319	258,855	262,242	260,549

ACCUMULATED DEPRECIATION							
16	353	28,653	32,789	30,721	32,789	35,730	34,259
17	391.2	27,926	33,519	30,722	33,519	33,519	33,519
18	391.3	19,542	26,062	22,802	26,062	28,941	27,502
19	397	33,234	40,049	36,641	40,049	44,667	42,358
20	Total	109,355	132,419	120,887	132,419	142,856	137,638

NET PLANT INVESTMENT							
21	353	96,433	94,249	95,341	94,249	94,071	94,160
22	391.2	2,651	0	1,326	0	0	0
23	391.3	7,225	2,878	5,052	2,878	0	1,439
24	397	33,539	29,308	31,423	29,308	25,315	27,311
25	Total	139,848	126,436	133,142	126,436	119,386	122,911

5. PROJECTED CASH BALANCES/INTEREST CREDITS

5.1 Introduction

This chapter projects Transmission Services' cash balances for the rate period and estimates the interest income (credits) to be earned on BPA's projected cash balances and on annual funds to be returned to the U.S. Treasury.

5.2 Interest credits on BPA's projected cash balances

The beginning rate period cash balance was derived from BPA's business unit cash analysis for the end of FY 2018 and from current forecasts of transmission revenues, expenses, and cash flows for FY 2019. The annual incremental cash provided from forecast net revenues is added to the beginning cash balance for revenue requirements and the current and revised revenue tests. Using the existing interest earnings rate, annual interest income is calculated from projected average annual cash balances. The resulting interest income is applied as a credit against interest expense in the transmission revenue requirements and in the income statements of the current and revised revenue tests.

The starting reserves for risk for FY 2020 includes a one-time adjustment in FY 2019 to rebalance reserves between the power and transmission business units. The adjustment was forecast to be \$330 million reallocated from transmission to power. Future rate cases will reflect the actual, final adjustment made in FY 2019.

5.3 Interest credits on reserves not for risk

The projected interest earnings rate is multiplied by the reserves not for risk (RNFR) average cash balance for each year to determine the annual interest income. The resulting interest income is applied as a credit against interest expense in the transmission revenue requirement.

5.4 Interest income (repayment program calculation)

Separately, interest income rates listed in this chapter are calculated and used within the repayment program to calculate an interest credit based on the average cash necessary to pay the interest, bond call premiums, and amortization payments calculated by the study for return to the U.S. Treasury in each study year. The repayment program assumes the cash accumulates at a uniform rate throughout the year, except for interest paid on bonds issued to the U.S. Treasury at mid-year. At the end of the year, the cash balance, together with the interest credit earned thereon, is used in the program for payment of interest expense, amortization of the Federal investment, and payment of bond premiums.

TABLE 5-1
INTEREST INCOME FROM PROJECTED CASH BALANCES
REVENUE REQUIREMENT DEVELOPMENT
(\$000s)

	A	B
	<u>2020</u>	<u>2021</u>
1 ANNUAL CASH SURPLUS/(DEFICIT)	-	-
2 ADJUSTMENTS TO CASH	-	-
3 SOY CASH BALANCE	206,520	152,353
4 EOY CASH BALANCE	148,170	95,693
5 AVERAGE CASH BALANCE	177,345	121,932
6 INTEREST INCOME RATE	0.90%	0.94%
7 INTEREST ON BPA FUND/INVESTMENTS (LN 5 X LN 6)	1,596	1,140
8 REPAYMENT STUDY INTEREST INCOME	1,175	1,293
<u>INTEREST EARNED ON RESERVES NOT FOR RISK</u>		
9 SOY CASH BALANCE	115,349	114,538
10 EOY CASH BALANCE	114,538	113,241
11 AVERAGE CASH BALANCE	114,944	113,890
12 INTEREST ON FUNDS HELD FOR OTHERS (LN 11 X LN 6)	1,034	1,065
13 TRUSTEE INTEREST INCOME	200	-
14 TOTAL ANNUAL INTEREST INCOME (LN 7+8+12+13)	4,006	3,497

TABLE 5-2
INTEREST INCOME FROM PROJECTED CASH BALANCES
REVENUES FROM CURRENT RATES

(\$000s)

	A	B
	<u>2020</u>	<u>2021</u>
1 ANNUAL CASH SURPLUS/(DEFICIT)	(26,642)	(30,257)
2 ADJUSTMENTS TO CASH	-	-
3 SOY CASH BALANCE	206,520	179,878
4 EOY CASH BALANCE	179,878	149,621
5 AVERAGE CASH BALANCE	193,199	164,750
6 INTEREST INCOME RATE	0.90%	0.94%
7 INTEREST ON BPA FUND/INVESTMENTS (LN 5 X LN 6)	1,739	1,540
8 REPAYMENT STUDY INTEREST INCOME	1,175	1,293
<u>INTEREST EARNED ON RESERVES NOT FOR RISK</u>		
9 SOY CASH BALANCE	115,349	114,538
10 EOY CASH BALANCE	114,538	113,241
11 AVERAGE CASH BALANCE	114,944	113,890
12 INTEREST INCOME (LN 11 X LN 6)	1,034	1,065
13 TRUSTEE INTEREST INCOME	200	-
14 TOTAL ANNUAL INTEREST INCOME (LN 7+8+12+13)	4,148	3,898

TABLE 5-3
INTEREST INCOME FROM PROJECTED CASH BALANCES
REVENUES FROM PROPOSED RATES
(\$000s)

	A	B
	<u>2020</u>	<u>2021</u>
1 ANNUAL CASH SURPLUS/(DEFICIT)	(3,987)	(424)
2 ADJUSTMENTS TO CASH	-	-
3 SOY CASH BALANCE	206,520	144,183
4 EOY CASH BALANCE	144,183	91,282
5 AVERAGE CASH BALANCE	175,352	117,733
6 INTEREST INCOME RATE	0.90%	0.94%
7 INTEREST ON BPA FUND/INVESTMENTS (LN 5 X LN 6)	1,578	1,101
8 REPAYMENT STUDY INTEREST INCOME	1,175	1,293
<u>INTEREST EARNED ON RESERVES NOT FOR RISK</u>		
9 SOY CASH BALANCE	115,349	114,538
10 EOY CASH BALANCE	114,538	113,241
11 AVERAGE CASH BALANCE	114,944	113,890
12 INTEREST INCOME (LN 11 X LN 6)**	1,034	1,065
13 TRUSTEE INTEREST INCOME	200	-
14 TOTAL ANNUAL INTEREST INCOME (LN 7+8+12+13)	3,988	3,458

**Includes additional \$200k for trustee interest income from lease financing

6. INTEREST RATES AND PRICE DEFLATORS

6.1 Introduction

Interest rates on bonds issued by BPA to the U.S. Treasury are used in development of repayment studies and projections of Federal interest expense in revenue requirements.

6.2 Source of Forecasts

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

6.3 Interest Rate Projections

Projected interest rates for BPA bonds issued to the U.S. Treasury are based on GI's yield curve projections of U.S. Treasury market rates, plus an average markup of up to 56 basis points, depending on the length of time to maturity. The markup estimate reflects an interagency agreement that the U.S. Treasury will price BPA bonds at a level comparable to the price for securities (bonds) issued by U.S. government corporations. The markup estimate reflects the average basis point markup on recent intermediate and long-term bonds issued by BPA.

6.4 Deflators

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

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

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

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

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

When deflators are used in developing the FY 2020–2021 spending levels, they are based on the price deflators from the August 2016 GI Base Case forecast.

memorandum

DATE: 12/31/2018

REPLY TO
ATTN OF: FTR-2

SUBJECT: FY 2019 Interest Rate and Inflation Forecast

TO: See Attached "cc:" List

Please see the attached BPA interest rate and inflation forecast for the period FY 2019 through 2048.

These forecasts provide an internally consistent basis for BPA decisions regarding debt management, budget formulation, financial analyses, capital budgeting, and strategic planning efforts. The FY 2019 forecast consisted of the following tables:

- Table 1: 30 Year Borrowing Rate Comparison
- Table 2: 15 Year Borrowing Rate Comparison
- Table 3: 5 Year Borrowing Rate Comparison
- Table 4: Appropriations Borrowing Rates
- Table 5: BPA Agency Borrowing Rates
- Table 6: Third-Party Taxable Borrowing Rates
- Table 7: Third-Party Tax-Exempt Borrowing Rates
- Table 8: FERC (Bank Prime) Borrowing Rates and 3-Month London Interbank Offered (LIBOR) Borrowing Rates
- Table 9: Inflation Forecast and Comparison

Borrowing Rate Forecast Methodology

A table of US Treasury interest rates for calendar years (CY) 2018-2048 is established using:

- an average of all available data for CY 2018 from Bloomberg's Bi550 US Treasury BVAL curve and
- the 2019-2048 projections from the Global Insight's (GI) third-quarter August 2018 Long-Term Economic Outlook.

This table is then converted to BPA fiscal years (FY) by combining 75% of the current year's CY rate and 25% of the previous year's CY rate. For example, the value for BPA FY 2020 consists of 75% CY 2020 and 25% of CY 2019.

BPA's borrowing rate projections, tables 4 through 7, reflect a spread compared to the Treasury yield curve. The spread is calculated from historical data, not including any call features, and is then applied to the BPA FY Treasury table.

The FERC and LIBOR rates, table 8, are established by using the CY projections from GI's third-quarter August 2018 Long-Term Economic Outlook and then converted into BPA FY.

Inflation Forecast Methodology

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

This index assumes a base year of 2018. The projected change in the GDP price deflator and comparison with the FY 2018 inflation forecast is summarized in Table 9. Column A shows the projected trend in GDP inflation rates between 2019-2048 on a CY basis and in column B by BPA FY. Column C provides the cumulative price index projections. The forecast expresses FY dollar values as mid-year dollar values. Columns D and E show last year's projections while columns F and G show a comparison between the two years worth of projections.

If you have questions concerning the FY 2019 Interest Rate and Inflation Forecasts please contact Bill Hendricks at wwhendricks@bpa.gov or (503) 230-5389.



Bill Hendricks
Financial Analyst
Revenue Requirement, Repayment, and Financial Strategy

Official File:

<https://finance.bud.bpa.gov/FT/FTR/Common%20Agency%20Assumptions/Forms/AllItems.aspx>

Table 1

30 Year Borrowing Rate Comparison

FY 2019 Forecast of Appropriation, BPA Agency, Third-Part Taxable,
and Third-Party Tax-Exempt Borrowing Rates

BPA Fiscal Years 2019-2048

Year	A Appropriation Rate	B BPA Agency Rate	C Third-Party Taxable Rate	D Third-Party Tax-Exempt Rate
2019	3.13	3.75	4.09	3.70
2020	3.44	4.02	4.37	3.94
2021	3.62	4.15	4.50	4.04
2022	3.74	4.22	4.58	4.08
2023	3.82	4.26	4.62	4.08
2024	3.82	4.26	4.62	4.08
2025	3.82	4.26	4.62	4.08
2026	3.82	4.26	4.62	4.08
2027	3.82	4.26	4.62	4.08
2028	3.82	4.26	4.62	4.08
2029	3.82	4.26	4.62	4.08
2030	3.82	4.26	4.62	4.08
2031	3.82	4.26	4.62	4.08
2032	3.82	4.26	4.62	4.08
2033	3.82	4.26	4.62	4.08
2034	3.82	4.26	4.62	4.08
2035	3.82	4.26	4.62	4.08
2036	3.82	4.26	4.62	4.08
2037	3.82	4.26	4.62	4.08
2038	3.82	4.26	4.62	4.08
2039	3.82	4.26	4.62	4.08
2040	3.82	4.26	4.62	4.08
2041	3.82	4.26	4.62	4.08
2042	3.82	4.26	4.62	4.08
2043	3.82	4.26	4.62	4.08
2044	3.82	4.26	4.62	4.08
2045	3.82	4.26	4.62	4.08
2046	3.82	4.26	4.62	4.08
2047	3.82	4.26	4.62	4.08
2048	3.82	4.26	4.62	4.08

1/ All values represent a Bonneville Fiscal Year (October 1 - September 30).

2/ FY 2019 Appropriation rates are determined in accordance with BPA Appropriations Refinancing Act, 16 U.S.C. 8381 enacted on April 26, 1996, and are independent of the Global Insight Treasury Yield forecasts.

Table 2

15 Year Borrowing Rate Comparison

FY 2019 Forecast of Appropriation, BPA Agency, Third-Part Taxable,
and Third-Party Tax-Exempt Borrowing Rates

BPA Fiscal Years 2019-2048

Year	A Appropriation Rate	B BPA Agency Rate	C Third-Party Taxable Rate	D Third-Party Tax-Exempt Rate
2019	3.00	3.56	3.84	3.17
2020	3.17	3.82	4.11	3.44
2021	3.34	3.91	4.21	3.53
2022	3.45	3.93	4.24	3.56
2023	3.56	3.95	4.27	3.58
2024	3.56	3.95	4.27	3.58
2025	3.56	3.95	4.27	3.58
2026	3.56	3.95	4.27	3.58
2027	3.56	3.95	4.27	3.58
2028	3.56	3.95	4.27	3.58
2029	3.56	3.95	4.27	3.58
2030	3.56	3.95	4.27	3.58
2031	3.56	3.95	4.27	3.58
2032	3.56	3.95	4.27	3.58
2033	3.56	3.95	4.27	3.58
2034	3.56	3.95	4.27	3.58
2035	3.56	3.95	4.27	3.58
2036	3.56	3.95	4.27	3.58
2037	3.56	3.95	4.27	3.58
2038	3.56	3.95	4.27	3.58
2039	3.56	3.95	4.27	3.58
2040	3.56	3.95	4.27	3.58
2041	3.56	3.95	4.27	3.58
2042	3.56	3.95	4.27	3.58
2043	3.56	3.95	4.27	3.58
2044	3.56	3.95	4.27	3.58
2045	3.56	3.95	4.27	3.58
2046	3.56	3.95	4.27	3.58
2047	3.56	3.95	4.27	3.58
2048	3.56	3.95	4.27	3.58

1/ All values represent a Bonneville Fiscal Year (October 1 - September 30).

2/ FY 2019 Appropriation rates are determined in accordance with BPA Appropriations Refinancing Act, 16 U.S.C. 8381 enacted on April 26, 1996, and are independent of the Global Insight Treasury Yield forecasts.

Table 3

5 Year Borrowing Rate Comparison

FY 2019 Forecast of Appropriation, BPA Agency, Third-Part Taxable,
and Third-Party Tax-Exempt Borrowing Rates

BPA Fiscal Years 2019-2048

Year	A Appropriation Rate	B BPA Agency Rate	C Third-Party Taxable Rate	D Third-Party Tax-Exempt Rate
2019	2.88	3.28	3.59	2.60
2020	2.96	3.58	3.90	2.93
2021	3.16	3.64	3.98	3.03
2022	3.25	3.61	3.95	3.02
2023	3.38	3.61	3.96	3.05
2024	3.38	3.61	3.96	3.05
2025	3.38	3.61	3.96	3.05
2026	3.38	3.61	3.96	3.05
2027	3.38	3.61	3.96	3.05
2028	3.38	3.61	3.96	3.05
2029	3.38	3.61	3.96	3.05
2030	3.38	3.61	3.96	3.05
2031	3.38	3.61	3.96	3.05
2032	3.38	3.61	3.96	3.05
2033	3.38	3.61	3.96	3.05
2034	3.38	3.61	3.96	3.05
2035	3.38	3.61	3.96	3.05
2036	3.38	3.61	3.96	3.05
2037	3.38	3.61	3.96	3.05
2038	3.38	3.61	3.96	3.05
2039	3.38	3.61	3.96	3.05
2040	3.38	3.61	3.96	3.05
2041	3.38	3.61	3.96	3.05
2042	3.38	3.61	3.96	3.05
2043	3.38	3.61	3.96	3.05
2044	3.38	3.61	3.96	3.05
2045	3.38	3.61	3.96	3.05
2046	3.38	3.61	3.96	3.05
2047	3.38	3.61	3.96	3.05
2048	3.38	3.61	3.96	3.05

1/ All values represent a Bonneville Fiscal Year (October 1 - September 30).

2/ FY 2019 Appropriation rates are determined in accordance with BPA Appropriations Refinancing Act, 16 U.S.C. 8381 enacted on April 26, 1996, and are independent of the Global Insight Treasury Yield forecasts.

Table 4
Appropriations Borrowing Rates

BPA Fiscal Years 2019-2048
 (continued on next page)

Year	Maturity														
	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year	11 Year	12 Year	13 Year	14 Year	15 Year
2019	2.64	2.75	2.75	2.83	2.88	2.88	2.88	2.88	2.95	3.00	3.00	3.00	3.00	3.00	3.00
2020	3.02	2.97	2.96	2.96	2.96	2.98	3.01	3.03	3.06	3.08	3.10	3.12	3.13	3.15	3.17
2021	3.29	3.24	3.21	3.18	3.16	3.17	3.19	3.21	3.23	3.25	3.27	3.29	3.31	3.32	3.34
2022	3.38	3.34	3.31	3.28	3.25	3.27	3.29	3.32	3.34	3.36	3.38	3.40	3.42	3.44	3.45
2023	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2024	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2025	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2026	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2027	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2028	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2029	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2030	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2031	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2032	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2033	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2034	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2035	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2036	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2037	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2038	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2039	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2040	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2041	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2042	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2043	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2044	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2045	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2046	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2047	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56
2048	3.49	3.47	3.44	3.41	3.38	3.39	3.41	3.43	3.45	3.47	3.49	3.50	3.52	3.54	3.56

1/ All values represent a Bonneville Fiscal Year (October 1 - September 30).

2/ FY 2019 Appropriation rates are determined in accordance with BPA Appropriations Refinancing Act, 16 U.S.C. 8381 enacted on April 26, 1996, and are independent of the Global Insight Treasury Yield forecasts.

Table 4
Appropriations Borrowing Rates

BPA Fiscal Years 2019-2048

Maturity																
16 Year	17 Year	18 Year	19 Year	20 Year	21 Year	22 Year	23 Year	24 Year	25 Year	26 Year	27 Year	28 Year	29 Year	30 Year	50 Year	Year
3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.10	3.13	3.13	3.13	3.13	3.13	3.13	3.13	3.13	2019
3.19	3.21	3.22	3.24	3.26	3.28	3.30	3.31	3.33	3.35	3.37	3.39	3.40	3.42	3.44	3.44	2020
3.36	3.38	3.40	3.42	3.43	3.45	3.47	3.49	3.51	3.53	3.54	3.56	3.58	3.60	3.62	3.62	2021
3.47	3.49	3.51	3.53	3.55	3.57	3.59	3.60	3.62	3.64	3.66	3.68	3.70	3.72	3.74	3.74	2022
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2023
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2024
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2025
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2026
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2027
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2028
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2029
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2030
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2031
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2032
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2033
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2034
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2035
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2036
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2037
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2038
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2039
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2040
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2041
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2042
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2043
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2044
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2045
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2046
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2047
3.57	3.59	3.61	3.63	3.64	3.66	3.68	3.70	3.71	3.73	3.75	3.76	3.78	3.80	3.82	3.82	2048

1/ All values represent a Bonneville Fiscal Year (October 1 - September 30).

2/ FY 2019 Appropriation rates are determined in accordance with BPA Appropriations Refinancing Act, 16 U.S.C. 8381 enacted on April 26, 1996, and are independent of the Global Insight Treasury Yield forecasts.

Table 5
BPA Agency Borrowing Rates

BPA Fiscal Years 2019-2048
 (continued on next page)

Year	Maturity															
	6 Month	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year	11 Year	12 Year	13 Year	14 Year	15 Year
2019	2.94	3.05	3.19	3.22	3.25	3.28	3.32	3.37	3.41	3.45	3.50	3.51	3.52	3.53	3.55	3.56
2020	3.59	3.60	3.64	3.62	3.60	3.58	3.61	3.65	3.68	3.72	3.75	3.76	3.78	3.79	3.80	3.82
2021	3.76	3.74	3.77	3.73	3.69	3.64	3.68	3.72	3.75	3.79	3.82	3.84	3.86	3.87	3.89	3.91
2022	3.74	3.71	3.72	3.69	3.65	3.61	3.66	3.70	3.75	3.79	3.84	3.86	3.88	3.89	3.91	3.93
2023	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2024	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2025	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2026	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2027	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2028	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2029	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2030	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2031	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2032	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2033	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2034	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2035	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2036	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2037	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2038	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2039	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2040	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2041	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2042	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2043	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2044	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2045	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2046	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2047	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95
2048	3.73	3.69	3.72	3.68	3.64	3.61	3.66	3.70	3.75	3.80	3.85	3.87	3.89	3.91	3.93	3.95

1/ All values represent a Bonneville Fiscal Year (October 1 - September 30).

Table 5
BPA Agency Borrowing Rates

BPA Fiscal Years 2019-2048

Maturity

16 Year	17 Year	18 Year	19 Year	20 Year	21 Year	22 Year	23 Year	24 Year	25 Year	26 Year	27 Year	28 Year	29 Year	30 Year	50 Year	Year
3.57	3.58	3.60	3.61	3.62	3.63	3.65	3.66	3.67	3.68	3.70	3.71	3.72	3.74	3.75	3.75	2019
3.83	3.84	3.86	3.87	3.89	3.90	3.91	3.93	3.94	3.95	3.97	3.98	3.99	4.01	4.02	4.02	2020
3.92	3.94	3.95	3.97	3.99	4.00	4.02	4.04	4.05	4.07	4.08	4.10	4.12	4.13	4.15	4.15	2021
3.95	3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.14	4.16	4.18	4.20	4.22	4.22	2022
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2023
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2024
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2025
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2026
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2027
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2028
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2029
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2030
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2031
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2032
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2033
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2034
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2035
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2036
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2037
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2038
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2039
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2040
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2041
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2042
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2043
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2044
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2045
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2046
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2047
3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.11	4.13	4.15	4.18	4.20	4.22	4.24	4.26	4.26	2048

1/ All values represent a Bonneville Fiscal Year (October 1 - September 30).

Table 6
Third-Party Taxable Borrowing Rates

BPA Fiscal Years 2019-2048
 (continued on next page)

Year	Maturity														
	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year	11 Year	12 Year	13 Year	14 Year	15 Year
2019	3.28	3.45	3.50	3.55	3.59	3.63	3.66	3.69	3.72	3.75	3.77	3.79	3.80	3.82	3.84
2020	3.85	3.91	3.91	3.90	3.90	3.92	3.95	3.97	4.00	4.02	4.04	4.06	4.07	4.09	4.11
2021	4.02	4.05	4.03	4.00	3.98	4.00	4.03	4.05	4.08	4.11	4.13	4.15	4.17	4.19	4.21
2022	4.01	4.02	4.00	3.98	3.95	3.99	4.02	4.06	4.10	4.13	4.15	4.18	4.20	4.22	4.24
2023	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2024	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2025	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2026	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2027	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2028	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2029	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2030	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2031	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2032	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2033	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2034	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2035	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2036	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2037	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2038	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2039	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2040	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2041	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2042	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2043	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2044	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2045	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2046	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2047	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27
2048	4.02	4.02	4.00	3.98	3.96	4.00	4.04	4.08	4.12	4.16	4.18	4.20	4.23	4.25	4.27

1/ All values represent a Bonneville Fiscal Year (October 1 - September 30).

Table 6
Third-Party Taxable Borrowing Rates

BPA Fiscal Years 2019-2048

Maturity

16 Year	17 Year	18 Year	19 Year	20 Year	21 Year	22 Year	23 Year	24 Year	25 Year	26 Year	27 Year	28 Year	29 Year	30 Year	50 Year	Year
3.85	3.87	3.89	3.91	3.92	3.94	3.96	3.97	3.99	4.01	4.02	4.04	4.06	4.08	4.09	4.09	2019
4.12	4.14	4.16	4.18	4.19	4.21	4.23	4.25	4.26	4.28	4.30	4.32	4.33	4.35	4.37	4.37	2020
4.23	4.24	4.26	4.28	4.30	4.32	4.34	4.36	4.38	4.40	4.42	4.44	4.46	4.48	4.50	4.50	2021
4.27	4.29	4.31	4.33	4.35	4.38	4.40	4.42	4.44	4.47	4.49	4.51	4.53	4.55	4.58	4.58	2022
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2023
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2024
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2025
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2026
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2027
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2028
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2029
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2030
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2031
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2032
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2033
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2034
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2035
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2036
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2037
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2038
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2039
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2040
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2041
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2042
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2043
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2044
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2045
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2046
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2047
4.29	4.32	4.34	4.36	4.39	4.41	4.43	4.45	4.48	4.50	4.52	4.55	4.57	4.59	4.62	4.62	2048

1/ All values represent a Bonneville Fiscal Year (October 1 - September 30).

Table 7
Third-Party Tax-Exempt Borrowing Rates

BPA Fiscal Years 2019-2048
 (continued on next page)

Maturity															
Year	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year	11 Year	12 Year	13 Year	14 Year	15 Year
2019	2.46	2.49	2.53	2.56	2.60	2.68	2.76	2.84	2.92	3.00	3.03	3.07	3.10	3.14	3.17
2020	3.07	3.00	2.97	2.95	2.93	3.00	3.06	3.13	3.20	3.27	3.30	3.33	3.37	3.40	3.44
2021	3.27	3.18	3.13	3.08	3.03	3.09	3.16	3.22	3.29	3.36	3.39	3.42	3.46	3.49	3.53
2022	3.29	3.19	3.13	3.08	3.02	3.10	3.17	3.24	3.31	3.38	3.42	3.45	3.49	3.52	3.56
2023	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2024	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2025	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2026	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2027	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2028	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2029	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2030	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2031	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2032	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2033	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2034	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2035	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2036	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2037	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2038	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2039	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2040	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2041	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2042	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2043	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2044	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2045	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2046	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2047	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58
2048	3.34	3.23	3.17	3.11	3.05	3.12	3.20	3.27	3.34	3.41	3.45	3.48	3.51	3.55	3.58

1/ All values represent a Bonneville Fiscal Year (October 1 - September 30).

Table 7
Third-Party Tax-Exempt Borrowing Rates

BPA Fiscal Years 2019-2048

Maturity																
16 Year	17 Year	18 Year	19 Year	20 Year	21 Year	22 Year	23 Year	24 Year	25 Year	26 Year	27 Year	28 Year	29 Year	30 Year	50 Year	Year
3.21	3.24	3.28	3.31	3.35	3.38	3.42	3.46	3.49	3.53	3.56	3.60	3.63	3.67	3.70	3.70	2019
3.47	3.50	3.54	3.57	3.60	3.64	3.67	3.71	3.74	3.77	3.81	3.84	3.88	3.91	3.94	3.94	2020
3.56	3.60	3.63	3.66	3.70	3.73	3.77	3.80	3.84	3.87	3.90	3.94	3.97	4.01	4.04	4.04	2021
3.59	3.63	3.66	3.70	3.73	3.77	3.80	3.84	3.87	3.91	3.94	3.98	4.01	4.05	4.08	4.08	2022
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2023
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2024
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2025
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2026
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2027
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2028
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2029
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2030
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2031
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2032
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2033
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2034
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2035
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2036
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2037
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2038
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2039
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2040
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2041
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2042
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2043
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2044
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2045
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2046
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2047
3.61	3.65	3.68	3.71	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.02	4.05	4.08	4.08	2048

1/ All values represent a Bonneville Fiscal Year (October 1 - September 30).

Table 8
FERC (Bank Prime) and 3-Month LIBOR Borrowing Rates

BPA Fiscal Years 2019-2048

Year	A FERC Rate	B 3-Month LIBOR Rate
2019	5.65	2.92
2020	6.31	3.42
2021	6.49	3.56
2022	6.50	3.57
2023	6.40	3.48
2024	6.18	3.27
2025	6.03	3.12
2026	5.90	2.99
2027	5.77	2.86
2028	5.75	2.83
2029	5.75	2.83
2030	5.75	2.83
2031	5.75	2.83
2032	5.75	2.83
2033	5.75	2.83
2034	5.75	2.83
2035	5.75	2.83
2036	5.75	2.83
2037	5.75	2.83
2038	5.75	2.83
2039	5.75	2.83
2040	5.75	2.83
2041	5.75	2.83
2042	5.75	2.83
2043	5.75	2.83
2044	5.75	2.83
2045	5.75	2.83
2046	5.75	2.83
2047	5.75	2.83
2048	5.75	2.83

1/ All values represent a Bonneville Fiscal Year (October 1 - September 30).

Table 9
Inflation Forecast and Comparison
 Calendar/Fiscal Year Forecasts 2019 vs. 2018

Calendar/Fiscal Years 2019-2048

YEAR	A	B	C	D	E	F	G
	2019 Calendar Year GDP Price Deflator (%)	2019 Fiscal Year GDP Price Deflator (%)	2019 Fiscal Year Cumulative Price Deflator (Base Year 2018)	2018 Fiscal Year GDP Price Deflator (%)	2018 Fiscal Year Cumulative Price Deflator (Base Year 2018)	Change in the GDP Price Deflator (B-D)	Change in the Cumulative Price Deflator (C-E)
2019	2.34%	2.33%	1.012	2.20%	1.022	0.14%	-0.010
2020	2.48%	2.45%	1.036	2.28%	1.045	0.17%	-0.009
2021	2.47%	2.47%	1.062	2.26%	1.069	0.21%	-0.007
2022	2.39%	2.41%	1.088	2.22%	1.093	0.18%	-0.005
2023	2.33%	2.34%	1.113	2.23%	1.117	0.11%	-0.004
2024	2.27%	2.28%	1.138	2.22%	1.142	0.06%	-0.003
2025	2.20%	2.21%	1.164	2.20%	1.167	0.02%	-0.003
2026	2.17%	2.17%	1.189	2.15%	1.192	0.02%	-0.003
2027	2.22%	2.21%	1.215	2.10%	1.217	0.10%	-0.002
2028	2.25%	2.24%	1.242	2.03%	1.242	0.22%	0.001
2029	2.26%	2.26%	1.270	2.00%	1.267	0.26%	0.004
2030	2.31%	2.29%	1.300	2.01%	1.292	0.28%	0.008
2031	2.32%	2.32%	1.330	2.01%	1.318	0.31%	0.012
2032	2.33%	2.33%	1.361	2.01%	1.345	0.31%	0.016
2033	2.34%	2.34%	1.393	2.02%	1.372	0.32%	0.021
2034	2.35%	2.35%	1.425	2.04%	1.400	0.30%	0.025
2035	2.34%	2.34%	1.459	2.06%	1.429	0.28%	0.030
2036	2.34%	2.34%	1.493	2.07%	1.458	0.27%	0.035
2037	2.37%	2.36%	1.528	2.07%	1.488	0.30%	0.040
2038	2.38%	2.38%	1.564	2.06%	1.519	0.32%	0.045
2039	2.38%	2.38%	1.602	2.05%	1.550	0.33%	0.051
2040	2.38%	2.38%	1.640	2.06%	1.582	0.32%	0.058
2041	2.39%	2.39%	1.679	2.07%	1.615	0.32%	0.064
2042	2.41%	2.41%	1.719	2.08%	1.648	0.33%	0.071
2043	2.42%	2.42%	1.761	2.10%	1.683	0.32%	0.078
2044	2.42%	2.42%	1.803	2.11%	1.719	0.30%	0.085
2045	2.40%	2.41%	1.847	2.12%	1.755	0.28%	0.092
2046	2.40%	2.40%	1.891	2.12%	1.792	0.28%	0.099
2047	2.41%	2.41%	1.937	2.11%	1.830	0.30%	0.107
2048	2.41%	2.41%	1.983				

1/ All values represent a Bonneville Fiscal Year (October 1 - September 30).
 Except for Column A which represents a standard Calendar Year.

2/ Fiscal Year Cumulative Price Deflator escalates to midyear dollars. The first year, 2019, is determined as follows: $1.012 = (.0233 \cdot 5) + 1$.
 An example of subsequent year cumulative growth, such as in 2020, is found as: $1.036 = (1 + .0245)^1 \cdot 1.012$

7. HISTORICAL AND PROJECTED NEW BONDS ISSUED TO TREASURY

7.1 Purpose

This chapter documents all the bonds that BPA has issued and those it projects it will issue to the U.S. Treasury to finance capital investments.

7.2 Method

New bonds projected to be issued for the cost evaluation period are based on IPR/CIR capital program outlays. Half of the capital program is assumed to be financed with Treasury bonds. The other half is assumed to be financed through the lease purchase program. *See* Ch. 8.

New long-term debt consists of bonds issued by BPA to the U.S. Treasury reflecting projected outlays for BPA transmission, construction, and environmental programs during the cost evaluation period (FY 2019–2021). All bonds projected for issuance are entered into the projected portions of the repayment study.

Projected bonds reflect a borrowing plan that incorporates timing differences between capital spending and the actual borrowing. BPA does not typically issue new bonds every month to finance capital spending. Instead, it uses current reserves and replenishes reserves as needed. The amount yet to be borrowed is classified as “deferred borrowing.” As a result, the amount borrowed in any year can vary significantly from the actual capital spending in that year. For the purposes of the repayment modeling, all deferred borrowing is assumed to be reduced to zero by the end of the rate period.

TABLE 7-1
PROJECTED FEDERAL BORROWING
(\$000s)

	A	B	C	D	E
	FISCAL		INTEREST		TOTAL
	YEAR	DESCRIPTION	RATE	TERM	BORROWING
1	2019	Construction	2.94%	30	81,000
2		Construction	2.94%	30	81,000
3		Construction	2.94%	30	82,000
4		Construction (AS)	2.94%	6	9,000
5		Environment	2.94%	15	<u>7,000</u>
6		Total			260,000
7					
8	2020	Construction	3.59%	30	114,449
9		Construction	4.02%	30	12,740
10		Construction	4.02%	30	127,189
11		Construction	4.02%	30	132,189
12		Construction (AS)	3.61%	6	11,000
13		Environment	3.82%	15	<u>7,000</u>
14		Total			404,567
15					
16	2021	Construction	4.15%	30	178,189
17		Construction	4.15%	30	178,189
18		Construction	4.15%	30	185,189
19		Construction (AS)	3.68%	6	18,000
20		Environment	3.91%	15	<u>21,000</u>
21		Total			580,567

TABLE 7-2
PROJECTED NON-FEDERAL BORROWING
(\$000s)

	A	B	C	D	E
	FISCAL		INTEREST		TOTAL
	YEAR	DESCRIPTION	RATE	TERM	BORROWING
1	2019	Master Lease	3.57%	22	26,072
2		Master Lease	3.57%	22	3,415
3		Master Lease	3.57%	22	<u>18,901</u>
4		Total			48,389
5					
6	2020	Master Lease	4.07%	21	21,602
7		Master Lease	4.07%	21	<u>21,605</u>
8		Total			43,207

**TABLE 7-3
PROJECTED CAPITAL SPENDING
(\$000s)**

		A	B	C
		2019	2020	2021
1	Construction	447,493	445,407	450,668
2	Environment	6,914	6,881	6,939
3	Construction (AS)	<u>8,509</u>	<u>8,840</u>	<u>8,845</u>
4	Total	462,916	461,128	466,452

8. NON-FEDERAL PAYMENT OBLIGATIONS

8.1 Introduction

There are two forms of non-Federal payment obligations associated with transmission assets in this rate proposal. One is a lease-purchase arrangement for capitalized asset purchases. The other is the functional reassignment to transmission of debt service payment obligations associated with non-Federal, Energy Northwest (EN) bonds.

8.2 Capital Leases

BPA entered into a lease-purchase agreement with the Northwest Infrastructure Financing Corporation (NIFC) to provide for the construction of the 500-kV Schultz-Wautoma transmission line. Since the completion of that project, BPA has entered into additional lease-purchase agreements with other NIFC entities, the Port of Morrow, and the Idaho Energy Resources Authority for other capital projects. The resulting payment streams are treated as debt service in the repayment study. BPA also has several legacy capital leases such as those for the Teton-Swan Valley and the Goshen-Drummond lines. Table 8-1 displays the consolidated payment stream of actual capital leases.

BPA does not project new capital lease lines of credit in the 2020-2021 rate period. Existing lines of credit will be converted to long-term bonds.

8.3 Debt Service Reassignment

Debt Service Reassignment (DSR) is an accounting and ratemaking mechanism created to make full use of the Debt Optimization Program (DOP). It allows the use of cash flows generated by DOP actions for advanced amortization payments of transmission debt. In return, DSR ensures that Transmission revenues repay the full cost of the associated EN debt. DOP and DSR ended in FY 2009, but the associated financial obligations exist through FY 2024.

Under DOP, the proceeds from EN refinancing bonds are used to pay principal on the currently maturing EN bonds in a given fiscal year. Since BPA power rates were set to recover the originally expected EN principal payments on the maturing bonds, and the associated debt service requirement was expected to decrease the EN budget (when the principal was paid from the proceeds of the newly issued refinancing bonds), funds in the BPA Fund then became available for other purposes. The amount made available equals the principal of the amortized EN bonds. BPA uses these funds to amortize Federal obligations associated with generation and transmission assets ahead of schedule, thereby replenishing or creating future opportunities to replenish BPA's available U.S. Treasury borrowing authority.

DSR is applicable when BPA uses the funds made available from DOP to early-amortize Federal Transmission obligations. The stream of annual all-in costs from the DSR transaction is assigned to Transmission Services and recovered in transmission rates. The all-in costs include debt service on tax-exempt and taxable bonds and other costs associated with the DSR transaction, which are described later. Conversely, the costs attached to these EN refinancing bonds are no longer assigned for recovery from Power revenues.

Transmission's total DSR payment obligation and the related relief of Power's payment obligations are shown in Table 8-3. Transmission's total principal obligation can be higher or lower than the total principal relief for Power if premium or discount bonds are issued. The interest associated with outstanding obligations may change over time if DSR bonds are refinanced for interest savings.

TABLE 8-1
LEASE PURCHASE PAYMENT STREAM
(\$000s)

	A	B	C	D	E
	Fiscal Year	Principal	Interest	Expenses	Total
1	2019	12,535	67,293	784	80,612
2	2020	79,407	74,888	590	154,885
3	2021	79,592	77,775	226	157,594
4	2022	73,474	76,803	23	150,300
5	2023	72,647	75,175	16	147,838
6	2024	99,398	73,254	(10)	172,642
7	2025	100,324	70,115	(2)	170,436
8	2026	97,116	66,676	5	163,797
9	2027	99,379	63,671	10	163,060
10	2028	100,435	60,121	(20)	160,535
11	2029	118,952	56,832	(43)	175,742
12	2030	119,364	52,343	(36)	171,672
13	2031	118,827	47,812	(27)	166,611
14	2032	127,133	42,824	(18)	169,938
15	2033	127,577	37,475	418	165,470
16	2034	103,003	28,535	917	132,454
17	2035	126,459	26,509	1,036	154,004
18	2036	126,548	22,686	1,000	150,234
19	2037	101,642	18,825	1,005	121,472
20	2038	89,956	13,722	1,010	104,688
21	2039	94,672	10,815	1,016	106,502
22	2040	93,559	7,063	1,022	101,644
23	2041	2,083	3,456	1,030	6,570
24	2042	86,952	3,079	1,024	91,054
25	2043	2,055	78	375	2,508
26	2044	313	2	39	353
27	2045	-	-	-	-
28	2046	-	-	-	-
29	2047	-	-	-	-
30	Total	2,253,401	1,077,826	11,389	3,342,616

TABLE 8-2
PROJECTED LEASE PURCHASE ISSUANCES
(\$000s)

	A	B	C	D	E	F	G
	Project	In Service Date	Current Principal	Line of Credit Due Date	Line of Credit Rate	Bond Due Date	Bond Rate
1	Lease Purchase	03/2019	26,072	03/2021	3.570%	09/2040	4.280%
2	Lease Purchase	03/2019	3,415	03/2021	3.570%	09/2040	4.280%
3	Lease Purchase	03/2019	18,901	03/2021	3.570%	09/2040	4.280%
4	Lease Purchase	01/2020	21,602	03/2021	4.070%	09/2040	4.280%
5	Lease Purchase	01/2020	21,605	03/2021	4.070%	09/2040	4.280%
	Totals:		91,596				

TABLE 8-3
RELIEF OF GENERATION & TRANSMISSION'S DSR OBLIGATION
(\$000s)

	A	B	C	D	E	F	
	Relief of Generation Obligation			Transmission DSR Payment Obligation			
BPA FY	Principal	Interest	Total	Principal	Interest	Total	
1	2004	-	16,366	16,366	-	15,088	15,088
2	2005	-	27,505	27,505	-	25,240	25,240
3	2006	-	35,780	35,780	-	33,041	33,041
4	2007	674	45,812	46,486	716	42,809	43,524
5	2008	4,271	57,069	61,340	4,518	51,369	55,887
6	2009	9,950	61,506	71,456	10,432	56,154	66,586
7	2010	12	62,109	62,121	12	57,173	57,185
8	2011	147	61,999	62,146	154	57,327	57,480
9	2012	39,287	59,879	99,165	41,165	55,051	96,216
10	2013	157,982	57,078	215,060	165,827	51,887	217,714
11	2014	166,651	48,411	215,062	175,119	44,348	219,466
12	2015	4,959	36,010	40,969	185,160	34,324	219,484
13	2016	5,512	26,317	31,828	185,303	24,128	209,431
14	2017	3,506	18,312	21,818	199,991	14,351	214,341
15	2018	4,499	11,561	16,060	191,504	7,288	198,792
16	2019	210	3,911	4,121	4,838	4,536	9,373
17	2020	1,111	3,337	4,448	19,592	1,463	21,055
18	2021	1,861	1,620	3,481	20,571	(811)	19,760
19	2022	1,681	1,236	2,917	21,596	(1,797)	19,799
20	2023	1,748	815	2,563	22,678	(2,826)	19,853
21	2024	1,350	359	1,709	17,640	(2,721)	14,919
22	Total	405,410	636,993	1,042,403	1,266,815	567,419	1,834,234

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9. REPAYMENT PERIOD REPLACEMENTS

9.1 Introduction

Consistent with the requirements of Department of Energy Order RA 6120.2, each repayment study includes funding for replacements to the transmission system during the repayment period. The purpose of these investments is to maintain the existing revenue-generating capability of the system. This schedule of replacements for the study year is assigned the interest rates of the projected long-term borrowing for the study year.

9.2 Transmission Replacements

BPA's Transmission replacements are based on BPA's plant in service forecast for the rate period. This forecast identifies spending on system replacements by year. The forecasts for lines substations, communications, and control equipment are summed by year. The result is considered the replacement investment for the year.

9.3 Replacement Credits

Replacement credits are calculated for two sets of customer-funded plant, the AC Intertie and facilities constructed for the dedicated use of a customer through the Projects Funded in Advance mechanism.

The cost evaluation period data for the AC Intertie is determined by multiplying the total replacements for each year by the average proportion of actual plant that is attributed to the AC Intertie. The result is then multiplied by 22 percent, the AC Intertie capacity owners' share of the Intertie. The results are the future replacements for the total AC.

BPA receives funds from customers for the construction of facilities that are dedicated to the use of those customers, known as Projects Funded in Advance (PFIA). Although the customer-financed facilities are BPA assets, the customer is responsible for the future cost of replacement of these facilities. As with the AC Intertie, BPA calculates the future replacement cost of customer-financed facilities. Because the customer will provide the up-front funding for the replacements, that funding is applied as a credit against future replacement costs in the repayment study. The replacement credit for these facilities is calculated as a percentage of the total replacement cost for each account based on the portion of plant in each account that has been funded through customer advances.

TABLE 9-1
FUTURE REPLACEMENTS FOR FY 2020
(\$000s)

		A	B	C
	FY	AMOUNT	RATE	DUE
1	2021	185,289	4.020%	2056
2	2022	185,289	4.020%	2057
3	2023	185,289	4.020%	2058
4	2024	185,289	4.020%	2059
5	2025	185,289	4.020%	2060
6	2026	185,289	4.020%	2061
7	2027	185,289	4.020%	2062
8	2028	185,289	4.020%	2063
9	2029	185,289	4.020%	2064
10	2030	185,289	4.020%	2065
11	2031	185,289	4.020%	2066
12	2032	185,289	4.020%	2067
13	2033	185,289	4.020%	2068
14	2034	185,289	4.020%	2069
15	2035	185,289	4.020%	2070
16	2036	185,289	4.020%	2071
17	2037	185,289	4.020%	2072
18	2038	185,289	4.020%	2073
19	2039	185,289	4.020%	2074
20	2040	185,289	4.020%	2075
21	2041	185,289	4.020%	2076
22	2042	185,289	4.020%	2077
23	2043	185,289	4.020%	2078
24	2044	185,289	4.020%	2079
25	2045	185,289	4.020%	2080
26	2046	185,289	4.020%	2081
27	2047	185,289	4.020%	2082
28	2048	185,289	4.020%	2083
29	2049	185,289	4.020%	2084
30	2050	185,289	4.020%	2085
31	2051	185,289	4.020%	2086
32	2052	185,289	4.020%	2087
33	2053	185,289	4.020%	2088
34	2054	185,289	4.020%	2089
35	2055	185,289	4.020%	2090

TABLE 9-2
FUTURE REPLACEMENTS FOR FY 2021
(\$000s)

		A	B	C
	FY	AMOUNT	RATE	DUE
1	2022	171,866	4.150%	2057
2	2023	171,866	4.150%	2058
3	2024	171,866	4.150%	2059
4	2025	171,866	4.150%	2060
5	2026	171,866	4.150%	2061
6	2027	171,866	4.150%	2062
7	2028	171,866	4.150%	2063
8	2029	171,866	4.150%	2064
9	2030	171,866	4.150%	2065
10	2031	171,866	4.150%	2066
11	2032	171,866	4.150%	2067
12	2033	171,866	4.150%	2068
13	2034	171,866	4.150%	2069
14	2035	171,866	4.150%	2070
15	2036	171,866	4.150%	2071
16	2037	171,866	4.150%	2072
17	2038	171,866	4.150%	2073
18	2039	171,866	4.150%	2074
19	2040	171,866	4.150%	2075
20	2041	171,866	4.150%	2076
21	2042	171,866	4.150%	2077
22	2043	171,866	4.150%	2078
23	2044	171,866	4.150%	2079
24	2045	171,866	4.150%	2080
25	2046	171,866	4.150%	2081
26	2047	171,866	4.150%	2082
27	2048	171,866	4.150%	2083
28	2049	171,866	4.150%	2084
29	2050	171,866	4.150%	2085
30	2051	171,866	4.150%	2086
31	2052	171,866	4.150%	2087
32	2053	171,866	4.150%	2088
33	2054	171,866	4.150%	2089
34	2055	171,866	4.150%	2090
35	2056	171,866	4.150%	2091

**TABLE 9-3
REPLACEMENT CREDITS
(\$000s)**

		A	B	C	D	E	F
		AC INTERTIE		PFIA		TOTAL	
		2020 STUDY	2021 STUDY	2020 STUDY	2021 STUDY	2020 STUDY	2021 STUDY
1	2021	(2,894)	-	(4,818)	-	(7,712)	-
2	2022	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
3	2023	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
4	2024	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
5	2025	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
6	2026	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
7	2027	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
8	2028	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
9	2029	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
10	2030	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
11	2031	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
12	2032	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
13	2033	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
14	2034	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
15	2035	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
16	2036	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
17	2037	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
18	2038	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
19	2039	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
20	2040	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
21	2041	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
22	2042	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
23	2043	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
24	2044	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
25	2045	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
26	2046	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
27	2047	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
28	2048	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
29	2049	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
30	2050	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
31	2051	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
32	2052	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
33	2053	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
34	2054	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
35	2055	(2,894)	(2,685)	(4,818)	(4,469)	(7,712)	(7,153)
36	2056	-	(2,685)	-	(4,469)	-	(7,153)

10. REPAYMENT STUDY INPUT DATA

TABLE 10-1
HISTORICAL INVESTMENTS
(\$000s)

	A	B	C	D	E	F	G	H
	PROJECT	IN SERVICE DATE	DUE DATE	INTEREST RATE	ORIGINAL PRINCIPAL	CURRENT PRINCIPAL	Roll Maturity Date	Rollover Rate
1	Bonneville Power Administration	09/1940	09/1985	2.500%	6,812	0		
2	Bonneville Power Administration	09/1941	09/1986	2.500%	18,906	0		
3	Bonneville Power Administration	09/1941	09/1986	2.500%	461	0		
4	Bonneville Power Administration	09/1942	09/1987	2.500%	8,446	0		
5	Bonneville Power Administration	09/1942	09/1987	2.500%	1,052	0		
6	Bonneville Power Administration	09/1943	09/1988	2.500%	16,083	0		
7	Bonneville Power Administration	09/1943	09/1988	2.500%	4,538	0		
8	Bonneville Power Administration	09/1944	09/1989	2.500%	583	0		
9	Bonneville Power Administration	09/1944	09/1989	2.500%	249	0		
10	Bonneville Power Administration	09/1945	09/1990	2.500%	1,306	0		
11	Bonneville Power Administration	09/1945	09/1990	2.500%	3,366	0		
12	Bonneville Power Administration	09/1946	09/1991	2.500%	2,488	0		
13	Bonneville Power Administration	09/1946	09/1991	2.500%	732	0		
14	Bonneville Power Administration	09/1947	09/1992	2.500%	1,330	0		
15	Bonneville Power Administration	09/1947	09/1992	2.500%	1,773	0		
16	Bonneville Power Administration	09/1948	09/1993	2.500%	7,468	0		
17	Bonneville Power Administration	09/1948	09/1993	2.500%	2,290	0		
18	Bonneville Power Administration	09/1949	09/1994	2.500%	6,809	0		
19	Bonneville Power Administration	09/1949	09/1994	2.500%	2,719	0		
20	Bonneville Power Administration	09/1950	09/1995	2.500%	24,111	0		
21	Bonneville Power Administration	09/1950	09/1995	2.500%	6,124	0		
22	Bonneville Power Administration	09/1951	09/1996	2.500%	7,040	0		
23	Bonneville Power Administration	09/1951	09/1996	2.500%	13,266	0		
24	Bonneville Power Administration	09/1952	09/1997	2.500%	18,610	0		
25	Bonneville Power Administration	09/1952	09/1997	2.500%	8,979	0		
26	Bonneville Power Administration	09/1953	09/1998	6.330%	11,605	0		
27	Bonneville Power Administration	09/1953	09/1998	6.330%	23,550	0		
28	Bonneville Power Administration	09/1954	09/1999	6.510%	23,614	0		
29	Bonneville Power Administration	09/1954	09/1999	6.510%	17,370	0		
30	Bonneville Power Administration	09/1955	09/2000	6.620%	11,827	0		
31	Bonneville Power Administration	09/1955	09/2000	6.620%	10,283	0		
32	Bonneville Power Administration	09/1956	09/2001	6.710%	14,573	0		
33	Bonneville Power Administration	09/1956	09/2001	6.710%	32,221	0		
34	Bonneville Power Administration	09/1957	09/2002	6.790%	7,933	0		
35	Bonneville Power Administration	09/1957	09/2002	6.790%	15,980	0		
36	Bonneville Power Administration	09/1958	09/2003	6.840%	15,593	0		
37	Bonneville Power Administration	09/1958	09/2003	6.840%	10,654	0		
38	Bonneville Power Administration	09/1959	09/2004	6.880%	8,157	0		
39	Bonneville Power Administration	09/1959	09/2004	6.880%	8,863	0		
40	Bonneville Power Administration	09/1960	09/2005	6.910%	3,598	0		
41	Bonneville Power Administration	09/1960	09/2005	6.910%	4,218	0		
42	Bonneville Power Administration	09/1961	09/2006	6.950%	4,468	0		
43	Bonneville Power Administration	09/1961	09/2006	6.950%	11,271	0		
44	Bonneville Power Administration	09/1962	09/2007	6.980%	19,597	0		
45	Bonneville Power Administration	09/1962	09/2007	6.980%	4,877	0		
46	Bonneville Power Administration	09/1963	09/2008	7.020%	4,876	0		
47	Bonneville Power Administration	09/1963	09/2008	7.020%	4,330	0		
48	Bonneville Power Administration	09/1963	09/2008	7.020%	904	0		
49	Bonneville Power Administration	09/1963	09/2008	7.020%	803	0		
50	Bonneville Power Administration	09/1964	09/2009	7.060%	4,151	0		
51	Bonneville Power Administration	09/1964	09/2009	7.060%	5,738	0		
52	Bonneville Power Administration	09/1965	09/2010	7.090%	3,706	0		

TABLE 10-1
HISTORICAL INVESTMENTS
(\$000s)

	A	B	C	D	E	F	G	H
	PROJECT	IN SERVICE DATE	DUE DATE	INTEREST RATE	ORIGINAL PRINCIPAL	CURRENT PRINCIPAL	Roll Maturity Date	Rollover Rate
53	Bonneville Power Administration	09/1965	09/2010	7.090%	7,248	0		
54	Bonneville Power Administration	09/1965	09/2010	7.090%	5,202	0		
55	Bonneville Power Administration	09/1965	09/2010	7.090%	10,171	0		
56	Bonneville Power Administration	09/1966	09/2011	7.130%	11,830	0		
57	Bonneville Power Administration	09/1966	09/2011	7.130%	3,049	0		
58	Bonneville Power Administration	09/1966	09/2011	7.130%	6,647	0		
59	Bonneville Power Administration	09/1966	09/2011	7.130%	1,714	0		
60	Bonneville Power Administration	09/1967	09/2012	7.160%	19,003	0		
61	Bonneville Power Administration	09/1967	09/2012	7.160%	4,566	0		
62	Bonneville Power Administration	09/1967	09/2012	7.160%	14,300	0		
63	Bonneville Power Administration	09/1967	09/2012	7.160%	3,436	0		
64	Bonneville Power Administration	09/1968	09/2013	7.200%	41,070	0		
65	Bonneville Power Administration	09/1968	09/2013	7.200%	8,076	0		
66	Bonneville Power Administration	09/1968	09/2013	7.200%	23,202	0		
67	Bonneville Power Administration	09/1968	09/2013	7.200%	4,562	0		
68	Bonneville Power Administration	09/1969	09/2014	7.230%	42,237	0		
69	Bonneville Power Administration	09/1969	09/2014	7.230%	22,537	0		
70	Bonneville Power Administration	09/1969	09/2014	7.230%	384	0		
71	Bonneville Power Administration	09/1969	09/2014	7.230%	205	0		
72	Bonneville Power Administration	09/1970	09/2015	7.270%	64,977	0		
73	Bonneville Power Administration	09/1970	09/2015	7.270%	7,995	0		
74	Bonneville Power Administration	09/1970	09/2015	7.270%	24,412	0		
75	Bonneville Power Administration	09/1970	09/2015	7.270%	3,003	0		
76	Bonneville Power Administration	09/1971	09/2016	7.290%	12,025	0		
77	Bonneville Power Administration	09/1971	09/2016	7.290%	17,766	0		
78	Bonneville Power Administration	09/1971	09/2016	7.290%	12,051	0		
79	Bonneville Power Administration	09/1971	09/2016	7.290%	17,805	0		
80	Bonneville Power Administration	09/1972	09/2017	7.290%	29,326	0		
81	Bonneville Power Administration	09/1972	09/2017	7.290%	21,170	0		
82	Bonneville Power Administration	09/1972	09/2017	7.290%	3,980	0		
83	Bonneville Power Administration	09/1972	09/2017	7.290%	2,873	0		
84	Bonneville Power Administration	09/1973	09/2018	7.280%	33,788	0		
85	Bonneville Power Administration	09/1973	09/2018	7.280%	21,656	0		
86	Bonneville Power Administration	09/1973	09/2018	7.280%	16,368	0		
87	Bonneville Power Administration	09/1973	09/2018	7.280%	10,491	0		
88	Bonneville Power Administration	09/1974	09/2019	7.270%	12,079	0		
89	Bonneville Power Administration	09/1974	09/2019	7.270%	20,984	0		
90	Bonneville Power Administration	09/1974	09/2019	7.270%	12,563	0		
91	Bonneville Power Administration	09/1974	09/2019	7.270%	21,826	0		
92	Bonneville Power Administration	09/1975	09/2020	7.250%	32,026	0		
93	Bonneville Power Administration	09/1975	09/2020	7.250%	21,916	0		
94	Bonneville Power Administration	09/1975	09/2020	7.250%	17,158	0		
95	Bonneville Power Administration	09/1975	09/2020	7.250%	11,742	0		
96	Bonneville Power Administration	09/1976	09/2021	7.230%	61,025	0		
97	Bonneville Power Administration	09/1976	09/2021	7.230%	2,212	0		
98	Bonneville Power Administration	09/1977	09/2022	7.210%	33,702	421		
99	Bonneville Power Administration	09/1977	09/2022	7.210%	3,948	0		
100	Bonneville Power Administration	09/1977	09/2022	7.210%	5,380	0		
101	Bonneville Power Administration	09/1977	09/2022	7.210%	4,981	0		
102	Construction	09/1978	09/2013	8.950%	17,770	0		
103	Construction	09/1978	09/2013	8.950%	24,222	0		
104	Construction	09/1978	09/2013	8.950%	3,389	0		

TABLE 10-1
HISTORICAL INVESTMENTS
(\$000s)

	A	B	C	D	E	F	G	H
	PROJECT	IN SERVICE DATE	DUE DATE	INTEREST RATE	ORIGINAL PRINCIPAL	CURRENT PRINCIPAL	Roll Maturity Date	Rollover Rate
105	Construction	09/1978	09/2013	8.950%	4,619	0		
106	Construction	06/1979	06/2014	9.450%	7,010	0		
107	Construction	06/1979	06/2014	9.450%	9,804	0		
108	Construction	06/1979	06/2014	9.450%	26,690	0		
109	Construction	06/1979	06/2014	9.450%	21,977	0		
110	Construction	06/1979	06/2014	9.450%	6,026	0		
111	Construction	06/1979	06/2014	9.450%	1,371	0		
112	Construction	06/1979	06/2014	9.450%	1,870	0		
113	Construction	06/1979	06/2014	9.450%	150	0		
114	Construction	06/1979	06/2014	9.450%	102	0		
115	Construction	09/1979	09/2014	9.900%	21,228	0		
116	Construction	09/1979	09/2014	9.900%	14,340	0		
117	Construction	09/1979	09/2014	9.900%	10,610	0		
118	Construction	09/1979	09/2014	9.900%	2,888	0		
119	Construction	09/1979	09/2014	9.900%	98	0		
120	Construction	09/1979	09/2014	9.900%	66	0		
121	Construction	09/1979	09/2014	9.900%	605	0		
122	Construction	09/1979	09/2014	9.900%	165	0		
123	Construction	09/1980	09/2015	13.000%	39,696	0		
124	Construction	09/1980	09/2015	13.000%	10,806	0		
125	Construction	09/1980	09/2015	13.000%	44,811	0		
126	Construction	09/1980	09/2015	13.000%	1,469	0		
127	Construction	09/1980	09/2015	13.000%	9,292	0		
128	Construction	09/1980	09/2015	13.000%	4,253	0		
129	Construction	09/1980	09/2015	13.000%	2,263	0		
130	Construction	09/1980	09/2015	13.000%	616	0		
131	Construction	09/1980	09/2015	13.000%	1,707	0		
132	Construction	09/1980	09/2015	13.000%	56	0		
133	Construction	09/1980	09/2015	13.000%	21	0		
134	Construction	09/1980	09/2015	13.000%	10	0		
135	Construction	09/1981	09/2016	16.600%	119,775	0		
136	Construction	09/1981	09/2016	16.600%	54,821	0		
137	Construction	09/1981	09/2016	16.600%	277	0		
138	Construction	09/1981	09/2016	16.600%	127	0		
139	Construction	12/1981	12/2016	14.400%	34,221	0		
140	Construction	12/1981	12/2016	14.400%	15,663	0		
141	Construction	12/1981	12/2016	14.400%	80	0		
142	Construction	12/1981	12/2016	14.400%	36	0		
143	Construction	04/1982	04/2017	14.400%	9,975	0		
144	Construction	04/1982	04/2017	14.400%	4,566	0		
145	Construction	04/1982	04/2017	14.400%	46,980	0		
146	Construction	04/1982	04/2017	14.400%	37,455	0		
147	Construction	04/1982	04/2017	14.400%	23	0		
148	Construction	04/1982	04/2017	14.400%	11	0		
149	Construction	04/1982	04/2017	14.400%	551	0		
150	Construction	04/1982	04/2017	14.400%	439	0		
151	Construction	07/1982	07/2017	14.150%	3,677	0		
152	Construction	07/1982	07/2017	14.150%	2,932	0		
153	Construction	07/1982	07/2017	14.150%	77,807	0		
154	Construction	07/1982	07/2017	14.150%	43	0		
155	Construction	07/1982	07/2017	14.150%	34	0		
156	Construction	07/1982	07/2017	14.150%	402	0		

TABLE 10-1
HISTORICAL INVESTMENTS
(\$000s)

	A	B	C	D	E	F	G	H
	PROJECT	IN SERVICE DATE	DUE DATE	INTEREST RATE	ORIGINAL PRINCIPAL	CURRENT PRINCIPAL	Roll Maturity Date	Rollover Rate
157	Construction	07/1982	07/2017	14.150%	105	0		
158	Construction	11/1982	11/2017	10.850%	205	0		
159	Construction	11/1982	11/2017	10.850%	54	0		
160	Construction	11/1982	11/2017	10.850%	39,741	0		
161	Construction	06/1983	06/2018	11.700%	154	0		
162	Construction	06/1983	06/2018	11.700%	29,806	0		
163	Construction	06/1983	06/2018	11.700%	40	0		
164	Construction	09/1983	09/2018	12.250%	814	0		
165	Construction	09/1983	09/2018	12.250%	37,235	0		
166	Construction	09/1983	09/2018	12.250%	6,708	0		
167	Construction	09/1983	09/2018	12.250%	4	0		
168	Construction	09/1983	09/2018	12.250%	1	0		
169	Construction	09/1983	09/2018	12.250%	203	0		
170	Construction	09/1983	09/2018	12.250%	35	0		
171	Construction	11/1983	11/2018	12.300%	25,283	0		
172	Construction	11/1983	11/2018	12.300%	4,555	0		
173	Construction	11/1983	11/2018	12.300%	138	0		
174	Construction	11/1983	11/2018	12.300%	24	0		
175	Construction	09/1984	09/2019	13.050%	50,567	0		
176	Construction	09/1984	09/2019	13.050%	9,109	0		
177	Construction	09/1984	09/2019	13.050%	276	0		
178	Construction	09/1984	09/2019	13.050%	48	0		
179	Construction	06/1985	06/2029	11.250%	15,182	0		
180	Construction	06/1985	06/2029	11.250%	460	0		
181	Construction	06/1985	06/2029	11.250%	80	0		
182	Construction	06/1985	06/2030	11.250%	84,278	0		
183	Construction	03/1986	03/1996	8.150%	870	0		
184	Construction	03/1986	03/1996	8.150%	157	0		
185	Construction	03/1986	03/1996	8.150%	30,161	0		
186	Construction	03/1986	03/1996	8.150%	68,194	0		
187	Construction	03/1986	03/1996	8.150%	5	0		
188	Construction	03/1986	03/1996	8.150%	1	0		
189	Construction	03/1986	03/1996	8.150%	443	0		
190	Construction	03/1986	03/1996	8.150%	169	0		
191	Construction	06/1986	06/2031	8.950%	5,161	0		
192	Construction	06/1986	06/2031	8.950%	11,668	0		
193	Construction	06/1986	06/2031	8.950%	180,054	0		
194	Construction	06/1986	06/2031	8.950%	3,117	0		
195	Construction	06/1986	06/2031	8.950%	40,000	0		
196	Construction	06/1986	06/2031	8.950%	57,354	0		
197	Construction	06/1986	06/2031	8.950%	76	0		
198	Construction	06/1986	06/2031	8.950%	29	0		
199	Construction	06/1986	06/2031	8.950%	1,819	0		
200	Construction	06/1986	06/2031	8.950%	722	0		
201	Construction	04/1987	04/2032	9.300%	43,236	0		
202	Construction	04/1987	04/2032	9.300%	54,409	0		
203	Construction	04/1987	04/2032	9.300%	111	0		
204	Construction	04/1987	04/2032	9.300%	281	0		
205	Construction	04/1987	04/2032	9.300%	554	0		
206	Construction	04/1987	04/2032	9.300%	1,409	0		
207	Construction	06/1987	06/1992	8.350%	96,519	0		
208	Construction	06/1987	06/1992	8.350%	2,498	0		

TABLE 10-1
HISTORICAL INVESTMENTS
(\$000s)

	A	B	C	D	E	F	G	H
	PROJECT	IN SERVICE DATE	DUE DATE	INTEREST RATE	ORIGINAL PRINCIPAL	CURRENT PRINCIPAL	Roll Maturity Date	Rollover Rate
209	Construction	06/1987	06/1992	8.350%	983	0		
210	Construction	07/1987	07/2017	9.550%	4,113	0		
211	Construction	07/1987	07/2017	9.550%	86,958	0		
212	Construction	07/1987	07/2017	9.550%	569	0		
213	Construction	07/1987	07/2017	9.550%	38	0		
214	Construction	07/1987	07/2017	9.550%	3,274	0		
215	Construction	07/1987	07/2017	9.550%	48	0		
216	Construction	07/1987	07/2032	9.550%	618	0		
217	Construction	07/1987	07/2032	9.550%	112	0		
218	Construction	07/1987	07/2032	9.550%	7,903	0		
219	Construction	07/1987	07/2032	9.550%	3,109	0		
220	Construction	07/1987	07/2032	9.550%	37,342	0		
221	Construction	07/1987	07/2032	9.550%	285	0		
222	Construction	07/1987	07/2032	9.550%	631	0		
223	Construction	02/1988	02/2018	9.500%	283	0		
224	Construction	02/1988	02/2018	9.500%	43,417	0		
225	Construction	02/1988	02/2033	9.500%	28,513	0		
226	Construction	02/1988	02/2033	9.500%	27,887	0		
227	Construction	02/1988	02/2033	9.500%	20,677	0		
228	Construction	02/1988	02/2033	9.500%	22,923	0		
229	Construction	02/1988	02/2033	9.500%	45,870	0		
230	Construction	02/1988	02/2033	9.500%	954	0		
231	Construction	02/1988	02/2033	9.500%	933	0		
232	Construction	02/1988	02/2033	9.500%	518	0		
233	Construction	02/1988	02/2033	9.500%	1,725	0		
234	Construction	06/1988	06/2033	9.900%	9,018	0		
235	Construction	06/1988	06/2033	9.900%	30,004	0		
236	Construction	06/1988	06/2033	9.900%	226	0		
237	Construction	06/1988	06/2033	9.900%	752	0		
238	Construction	05/1989	05/1999	8.950%	16,909	0		
239	Construction	05/1989	05/1999	8.950%	56,257	0		
240	Construction	05/1989	05/1999	8.950%	424	0		
241	Construction	05/1989	05/1999	8.950%	1,410	0		
242	Construction	01/1990	01/2030	9.250%	41,894	0		
243	Construction	01/1990	01/2030	9.250%	1,149	0		
244	Construction	01/1990	01/2030	9.250%	3,824	0		
245	Construction	01/1990	01/2030	9.250%	29	0		
246	Construction	01/1990	01/2030	9.250%	96	0		
247	Construction	01/1990	01/2030	9.250%	3,008	0		
248	Construction	02/1991	02/1995	7.550%	54,145	0		
249	Construction	02/1991	02/1995	7.550%	5,855	0		
250	Construction	04/1992	04/1995	6.200%	80,000	0		
251	Construction	04/1992	04/1997	7.000%	50,000	0		
252	Construction	04/1992	04/1997	7.000%	28,300	0		
253	Construction	04/1992	04/2032	8.800%	147,521	0		
254	Construction	04/1992	04/2032	8.800%	2,479	0		
255	Construction	07/1992	07/2032	8.130%	150,000	0		
256	Construction	08/1992	08/2000	6.600%	107,800	0		
257	Construction	08/1992	08/2007	7.250%	107,700	0		
258	Construction	10/1992	10/1997	6.050%	50,000	0		
259	Construction	02/1993	02/2033	7.800%	130,000	0		
260	Construction	04/1993	04/2033	7.500%	100,000	0		

TABLE 10-1
HISTORICAL INVESTMENTS
(\$000s)

	A	B	C	D	E	F	G	H
	PROJECT	IN SERVICE DATE	DUE DATE	INTEREST RATE	ORIGINAL PRINCIPAL	CURRENT PRINCIPAL	Roll Maturity Date	Rollover Rate
261	Construction	08/1993	08/2033	6.950%	110,000	0		
262	Construction	10/1993	10/2033	6.850%	50,000	0		
263	Construction	10/1993	10/2033	6.850%	108,400	0		
264	Construction	01/1994	01/2034	7.050%	50,000	0		
265	Construction	05/1994	05/1998	7.100%	43,155	0		
266	Construction	05/1994	05/1998	7.100%	49,489	0		
267	Construction	05/1994	05/1998	7.100%	4,456	0		
268	Construction	05/1994	05/2034	8.200%	50,000	0		
269	Construction	09/1994	09/1999	7.650%	55,000	0		
270	Construction	01/1995	01/2001	8.350%	55,000	0		
271	Construction	08/1995	08/2025	7.700%	65,000	0		
272	Construction	08/1996	08/2006	7.050%	70,000	0		
273	Construction	05/1997	05/2005	6.900%	80,000	0		
274	Construction	08/1997	08/2007	6.650%	111,254	0		
275	Construction	04/1998	04/2008	6.000%	75,300	0		
276	Construction	04/1998	04/2028	6.650%	50,000	0		
277	Construction	05/1998	05/2009	6.000%	72,700	0		
278	Construction	05/1998	05/2011	6.200%	40,000	0		
279	Construction	05/1998	05/2032	6.700%	98,900	0		
280	Construction	08/1998	08/2028	5.850%	106,500	106,500		
281	Construction	08/1998	08/2028	5.850%	112,300	112,300		
282	Construction	05/1999	05/2004	5.950%	26,200	0		
283	Construction	09/1999	09/2002	6.200%	40,000	0		
284	Construction	11/1999	11/2002	6.400%	40,000	0		
285	Construction	01/2000	01/2005	7.150%	53,500	0		
286	Construction	08/2000	08/2003	6.850%	15,300	0		
287	Construction	09/2000	09/2006	6.750%	40,000	0		
288	Construction	01/2001	01/2005	5.650%	20,000	0		
289	Construction	06/2001	06/2011	5.950%	25,000	0		
290	Construction	08/2001	08/2011	5.750%	50,000	0		
291	Construction	06/2002	06/2005	3.750%	60,000	0		
292	Construction	09/2002	09/2006	3.050%	100,000	0		
293	Construction	11/2002	11/2005	2.800%	40,000	0		
294	Construction	04/2003	04/2007	2.900%	40,000	0		
295	Construction	04/2003	04/2033	5.550%	40,000	0		
296	Construction	07/2003	07/2006	2.300%	75,000	0		
297	Construction	07/2003	07/2007	2.950%	25,000	0		
298	Construction	09/2003	09/2006	2.500%	20,000	0		
299	Construction	01/2004	01/2008	2.950%	65,000	0		
300	Construction	04/2004	04/2007	2.950%	65,000	0		
301	Construction	07/2004	07/2007	3.450%	50,000	0		
302	Construction	07/2004	07/2008	3.800%	25,000	0		
303	Construction	09/2004	09/2007	3.100%	30,000	0		
304	Construction	09/2004	09/2034	5.600%	40,000	0		
305	Construction	01/2005	01/2035	5.400%	40,000	0		
306	Construction	04/2005	04/2035	5.500%	40,000	0		
307	Construction	06/2005	06/2009	4.000%	40,000	0		
308	Construction	09/2005	09/2035	5.250%	45,000	0		
309	Construction	03/2006	03/2009	5.050%	20,000	0		
310	Construction	07/2006	07/2009	5.350%	70,000	0		
311	Construction	09/2006	09/2010	4.950%	20,000	0		
312	Construction	01/2007	01/2010	5.100%	25,000	0		

TABLE 10-1
HISTORICAL INVESTMENTS
(\$000s)

	A	B	C	D	E	F	G	H
	PROJECT	IN SERVICE DATE	DUE DATE	INTEREST RATE	ORIGINAL PRINCIPAL	CURRENT PRINCIPAL	Roll Maturity Date	Rollover Rate
313	Construction	03/2007	03/2012	4.850%	40,000	0		
314	Construction	06/2007	06/2037	6.400%	35,000	0		
315	Construction	07/2007	07/2010	5.200%	50,000	0		
316	Construction	05/2008	05/2011	3.358%	40,000	0		
317	Construction	07/2008	07/2012	3.913%	30,000	0		
318	Construction	09/2008	09/2011	3.151%	25,000	0		
319	Construction	01/2009	01/2020	3.830%	50,000	50,000		
320	Construction	01/2009	01/2022	4.200%	20,000	20,000		
321	Construction	04/2009	04/2022	4.253%	35,000	35,000		
322	Construction	06/2009	06/2039	5.192%	35,000	35,000		
323	Construction	07/2009	07/2019	4.026%	46,940	46,940	07/2028	3.450%
324	Construction	09/2009	09/2019	3.699%	35,000	35,000	09/2028	3.450%
325	Construction	10/2009	10/2018	3.719%	23,000	23,000		
326	Construction	10/2009	10/2019	3.842%	43,000	43,000		
327	Construction	11/2009	11/2018	3.533%	15,000	15,000		
328	Construction	12/2009	12/2018	4.069%	13,000	13,000		
329	Construction	01/2010	01/2019	3.714%	30,000	24,000		
330	Construction	02/2010	02/2019	0.165%	10,000	0		
331	Construction	03/2010	03/2021	4.188%	15,000	15,000		
332	Construction	04/2010	04/2021	4.094%	22,000	22,000		
333	Construction	05/2010	05/2021	3.694%	22,000	22,000		
334	Construction	06/2010	06/2021	3.374%	22,000	22,000		
335	Construction	07/2010	07/2020	3.118%	50,000	50,000		
336	Construction	07/2010	07/2022	3.372%	30,000	30,000		
337	Construction	08/2010	08/2022	0.165%	5,000	0		
338	Construction	08/2010	08/2022	3.029%	20,000	20,000		
339	Construction	09/2010	09/2023	3.161%	46,000	46,000		
340	Construction	10/2010	10/2025	3.494%	45,000	45,000		
341	Construction	01/2011	01/2036	4.952%	50,000	50,000		
342	Construction	02/2011	02/2038	4.935%	55,000	55,000		
343	Construction	04/2011	04/2039	4.794%	40,000	40,000		
344	Construction	05/2011	09/2011	0.076%	40,000	0		
345	Construction	05/2011	09/2011	0.076%	40,000	0		
346	Construction	06/2011	06/2036	4.629%	50,000	50,000		
347	Construction	06/2011	06/2040	4.775%	25,000	25,000		
348	Construction	06/2011	09/2011	0.072%	25,000	0		
349	Construction	08/2011	08/2029	4.238%	50,000	50,000		
350	Construction	08/2011	08/2032	4.355%	98,900	98,900		
351	Construction	08/2011	08/2033	4.386%	40,000	40,000		
352	Construction	08/2011	08/2034	4.416%	40,000	40,000	08/2038	3.640%
353	Construction	08/2011	08/2035	4.446%	40,000	40,000		
354	Construction	08/2011	08/2035	4.446%	40,000	40,000		
355	Construction	08/2011	08/2035	4.446%	45,000	45,000		
356	Construction	08/2011	08/2039	4.295%	50,000	0		
357	Construction	09/2011	09/2040	3.796%	35,000	0		
358	Construction	10/2011	10/2039	0.069%	45,000	0		
359	Construction	01/2012	01/2040	2.497%	30,000	30,000		
360	Construction	03/2012	09/2012	0.210%	40,000	0		
361	Construction	03/2012	03/2024	2.455%	45,000	45,000		
362	Construction	05/2012	05/2027	2.544%	17,000	17,000		
363	Construction	06/2012	09/2015	0.671%	26,000	0		
364	Construction	06/2012	06/2037	3.503%	35,000	0		

TABLE 10-1
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	A	B	C	D	E	F	G	H
	PROJECT	IN SERVICE DATE	DUE DATE	INTEREST RATE	ORIGINAL PRINCIPAL	CURRENT PRINCIPAL	Roll Maturity Date	Rollover Rate
365	Construction	08/2012	08/2015	0.589%	37,000	0		
366	Construction	09/2012	09/2017	0.891%	36,400	0		
367	Construction	09/2012	09/2039	3.627%	39,000	0		
368	Construction	11/2012	10/2042	5.687%	55,000	0		
369	Construction	01/2013	01/2043	6.194%	30,000	0		
370	Construction	02/2013	02/2043	5.993%	15,000	0		
371	Construction	03/2013	03/2043	5.958%	18,000	0		
372	Construction	04/2013	04/2043	5.633%	28,000	0		
373	Construction	05/2013	05/2043	6.192%	20,000	0		
374	Construction	06/2013	06/2043	6.938%	36,000	0		
375	Construction	08/2013	02/2014	0.090%	39,000	0		
376	Construction	08/2013	08/2034	7.413%	20,000	0		
377	Construction	09/2013	02/2014	0.021%	5,000	0		
378	Construction	09/2013	09/2034	4.214%	9,000	9,000		
379	Construction	10/2013	10/2035	4.222%	64,000	64,000		
380	Construction	11/2013	09/2014	0.140%	14,000	0		
381	Construction	11/2013	10/2029	4.093%	55,000	55,000		
382	Construction	11/2013	01/2031	4.162%	30,000	30,000		
383	Construction	11/2013	02/2031	4.166%	15,000	15,000		
384	Construction	11/2013	03/2031	4.171%	18,000	18,000		
385	Construction	11/2013	04/2034	4.311%	28,000	28,000		
386	Construction	11/2013	08/2034	4.324%	6,000	6,000		
387	Construction	11/2013	05/2035	4.354%	20,000	20,000		
388	Construction	11/2013	06/2036	4.397%	36,000	36,000		
389	Construction	11/2013	11/2035	4.365%	15,000	15,000		
390	Construction	12/2013	02/2014	0.052%	9,000	0		
391	Construction	12/2013	12/2035	4.472%	10,000	10,000		
392	Construction	01/2014	12/2018	1.943%	33,000	33,000		
393	Construction	01/2014	12/2018	1.943%	30,000	30,000		
394	Construction	01/2014	12/2018	1.943%	31,000	31,000		
395	Construction	01/2014	12/2018	1.943%	48,000	48,000		
396	Construction	01/2014	06/2014	0.083%	10,000	0		
397	Construction	01/2014	01/2043	4.380%	15,000	15,000		
398	Construction	02/2014	09/2014	0.077%	53,000	0		
399	Construction	04/2014	02/2034	2.476%	45,000	45,000		
400	Construction	04/2014	03/2034	2.455%	45,000	45,000		
401	Construction	04/2014	10/2039	2.497%	45,000	45,000		
402	Construction	05/2014	05/2036	2.544%	29,000	29,000		
403	Construction	06/2014	06/2015	0.303%	11,000	0		
404	Construction	06/2014	06/2015	0.303%	63,000	0		
405	Construction	06/2014	11/2032	2.544%	21,000	21,000		
406	Construction	07/2014	04/2032	2.497%	9,000	9,000		
407	Construction	08/2014	06/2015	0.262%	14,000	0		
408	Construction	08/2014	07/2035	2.497%	10,000	10,000		
409	Construction	08/2014	08/2035	2.476%	15,000	15,000		
410	Construction	09/2014	04/2028	2.497%	17,000	17,000		
411	Construction	09/2014	09/2028	3.094%	3,000	3,000		
412	Construction	10/2014	06/2015	0.180%	23,000	0		
413	Construction	10/2014	10/2023	2.521%	20,000	20,000		
414	Construction	11/2014	06/2015	0.168%	18,000	0		
415	Construction	11/2014	11/2023	2.361%	20,000	20,000		
416	Construction	12/2014	12/2022	2.274%	16,000	16,000		

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	A	B	C	D	E	F	G	H
	PROJECT	IN SERVICE DATE	DUE DATE	INTEREST RATE	ORIGINAL PRINCIPAL	CURRENT PRINCIPAL	Roll Maturity Date	Rollover Rate
417	Construction	12/2014	12/2022	2.274%	4,000	4,000		
418	Construction	01/2015	06/2015	0.151%	35,000	0		
419	Construction	02/2015	06/2015	0.149%	30,000	0		
420	Construction	02/2015	02/2026	2.416%	19,000	19,000		
421	Construction	03/2015	03/2024	2.200%	17,000	17,000		
422	Construction	03/2015	03/2026	2.370%	15,000	15,000		
423	Construction	03/2015	03/2030	2.626%	3,000	3,000		
424	Construction	04/2015	06/2015	0.118%	20,000	0		
425	Construction	04/2015	04/2023	2.163%	3,000	3,000		
426	Construction	04/2015	04/2023	2.163%	12,000	12,000		
427	Construction	05/2015	05/2022	2.103%	11,000	11,000		
428	Construction	05/2015	05/2022	2.103%	14,000	14,000		
429	Construction	06/2015	02/2016	0.261%	11,000	0		
430	Construction	06/2015	02/2016	0.261%	63,000	0		
431	Construction	06/2015	02/2016	0.261%	14,000	0		
432	Construction	06/2015	02/2016	0.261%	23,000	0		
433	Construction	06/2015	02/2016	0.261%	18,000	0		
434	Construction	06/2015	02/2016	0.261%	35,000	0		
435	Construction	06/2015	02/2016	0.261%	30,000	0		
436	Construction	06/2015	02/2016	0.261%	20,000	0		
437	Construction	06/2015	06/2023	2.443%	11,000	11,000		
438	Construction	06/2015	06/2023	2.443%	8,000	8,000		
439	Construction	07/2015	02/2016	0.272%	25,000	0		
440	Construction	07/2015	07/2026	2.707%	18,000	18,000		
441	Construction	07/2015	07/2026	2.707%	10,000	10,000		
442	Construction	08/2015	02/2016	0.286%	13,000	0		
443	Construction	08/2015	08/2025	2.598%	11,000	11,000		
444	Construction	08/2015	08/2025	2.598%	14,000	14,000		
445	Construction	09/2015	09/2030	2.905%	15,000	15,000		
446	Construction	10/2015	02/2016	0.216%	12,000	0		
447	Construction	10/2015	06/2034	2.530%	21,000	21,000		
448	Construction	10/2015	08/2034	2.476%	19,000	19,000		
449	Construction	10/2015	10/2034	3.198%	2,000	2,000		
450	Construction	12/2015	12/2026	2.762%	9,000	9,000		
451	Construction	12/2015	12/2026	2.762%	29,000	29,000		
452	Construction	01/2016	01/2027	2.352%	13,000	13,000		
453	Construction	02/2016	04/2016	0.436%	25,000	0		
454	Construction	02/2016	04/2016	0.436%	14,000	0		
455	Construction	02/2016	04/2016	0.436%	250,000	0		
456	Construction	02/2016	02/2027	2.236%	13,000	13,000		
457	Construction	03/2016	03/2026	2.177%	6,000	6,000		
458	Construction	03/2016	03/2026	2.177%	12,000	12,000		
459	Construction	05/2016	05/2025	2.101%	20,000	20,000		
460	Construction	07/2016	07/2025	1.713%	48,000	48,000		
461	Construction	07/2017	07/2041	3.164%	19,000	19,000		
462	Construction	07/2017	07/2042	3.181%	14,000	14,000		
463	Construction	07/2017	07/2043	3.198%	23,000	23,000		
464	Construction	07/2017	07/2044	3.215%	17,000	17,000		
465	Construction	07/2017	07/2045	3.230%	27,000	27,000		
466	Construction	08/2017	08/2037	2.902%	30,000	30,000		
467	Construction	08/2017	08/2038	2.929%	7,000	7,000		
468	Construction	08/2017	08/2041	2.991%	13,000	13,000		

TABLE 10-1
HISTORICAL INVESTMENTS
(\$000s)

	A	B	C	D	E	F	G	H
	PROJECT	IN SERVICE DATE	DUE DATE	INTEREST RATE	ORIGINAL PRINCIPAL	CURRENT PRINCIPAL	Roll Maturity Date	Rollover Rate
469	Construction	08/2017	08/2043	3.024%	10,000	10,000		
470	Construction	08/2017	08/2046	3.066%	22,000	22,000		
471	Construction	08/2017	08/2047	3.076%	18,000	18,000		
472	Construction	09/2017	01/2018	1.181%	36,400	0		
473	Construction	09/2017	09/2041	3.156%	17,000	17,000		
474	Construction	09/2017	09/2043	3.193%	14,000	14,000		
475	Construction	09/2017	09/2044	3.209%	9,000	9,000		
476	Construction	09/2017	09/2047	3.247%	10,000	10,000		
477	Construction	08/2018	02/2048	2.476%	12,000	12,000		
478	Construction	08/2018	04/2048	2.497%	19,000	19,000		
479	Construction	08/2018	05/2048	2.544%	21,000	21,000		
480	Construction	09/2018	10/2047	2.497%	4,000	4,000		
481	Construction	09/2018	11/2047	2.544%	24,000	24,000		
482	Construction	09/2018	04/2048	2.497%	67,000	67,000		
483	Construction	09/2018	05/2048	2.305%	42,000	42,000		
484	Construction	09/2018	06/2048	2.530%	63,800	63,800		
485	Construction	01/2019	01/2023	2.603%	6,000	6,000		
486	Construction (AS)	10/1992	10/2032	8.350%	99,962	0		
487	Construction (AS)	07/1995	07/2025	7.700%	49,933	0		
488	Construction (AS)	01/1996	01/2003	5.900%	54,378	0		
489	Construction (AS)	01/1997	01/2004	6.800%	22,600	0		
490	Construction (AS)	08/1998	08/2008	5.750%	36,819	0		
491	Construction (AS)	02/1999	02/2014	5.900%	59,050	0		
492	Construction (AS)	07/2000	07/2004	7.000%	39,052	0		
493	Construction (AS)	01/2001	01/2010	6.050%	59,932	0		
494	Construction (AS)	03/2002	03/2005	4.600%	108,010	0		
495	Construction (AS)	10/2002	10/2005	3.000%	4,938	0		
496	Construction (AS)	01/2004	01/2007	2.500%	46,643	0		
497	Construction (AS)	11/2004	11/2008	3.750%	27,010	0		
498	Construction (AS)	09/2006	09/2010	4.950%	5,319	0		
499	Construction (AS)	01/2008	01/2012	3.200%	30,000	0		
500	Construction (AS)	09/2008	09/2012	3.444%	25,000	0		
501	Construction (AS)	09/2009	09/2014	2.746%	14,000	0		
502	Construction (AS)	02/2010	02/2015	0.165%	7,500	0		
503	Construction (AS)	08/2010	08/2015	1.619%	15,000	0		
504	Construction (AS)	06/2011	06/2016	1.957%	13,000	0		
505	Construction (AS)	08/2011	08/2016	1.423%	6,500	0		
506	Construction (AS)	01/2012	09/2012	0.146%	30,000	0		
507	Construction (AS)	06/2012	09/2015	0.671%	14,300	0		
508	Construction (AS)	11/2012	11/2018	1.109%	9,750	9,750		
509	Construction (AS)	04/2013	04/2017	0.622%	4,550	0		
510	Construction (AS)	06/2013	06/2019	1.962%	5,000	5,000		
511	Construction (AS)	08/2013	08/2019	2.279%	3,000	3,000		
512	Construction (AS)	10/2013	10/2019	2.039%	7,800	7,800		
513	Construction (AS)	01/2014	01/2020	2.183%	3,250	3,250		
514	Construction (AS)	02/2014	09/2014	0.117%	59,050	0		
515	Construction (AS)	04/2014	03/2020	2.455%	2,600	2,600		
516	Construction (AS)	05/2014	04/2020	2.497%	1,300	1,300		
517	Construction (AS)	07/2014	07/2020	2.497%	1,950	1,950		
518	Construction (AS)	11/2014	11/2020	1.809%	3,900	3,900		
519	Construction (AS)	12/2014	12/2020	1.922%	1,950	1,950		
520	Construction (AS)	02/2015	02/2021	1.761%	3,250	3,250		

TABLE 10-1
HISTORICAL INVESTMENTS
(\$000s)

	A	B	C	D	E	F	G	H
	PROJECT	IN SERVICE DATE	DUE DATE	INTEREST RATE	ORIGINAL PRINCIPAL	CURRENT PRINCIPAL	Roll Maturity Date	Rollover Rate
521	Construction (AS)	05/2015	05/2021	1.898%	3,900	3,900		
522	Construction (AS)	10/2015	10/2021	1.942%	5,200	5,200		
523	Construction (AS)	02/2016	02/2022	1.631%	5,000	5,000		
524	Construction (AS)	06/2016	09/2016	0.436%	13,000	0		
525	Construction (AS)	04/2017	01/2018	1.051%	4,550	0		
526	Construction (AS)	09/2018	03/2024	3.078%	7,800	7,800		
527	Environment	11/1996	11/2011	6.950%	40,000	0		
528	Environment	01/2001	01/2010	6.050%	30,000	0		
529	Environment	09/2002	09/2006	3.050%	30,000	0		
530	Environment	03/2006	03/2009	5.050%	20,000	0		
531	Environment	09/2008	09/2011	3.151%	10,000	0		
532	Environment	02/2010	02/2025	4.279%	10,000	10,000		
533	Environment	05/2012	05/2027	2.544%	13,000	13,000		
534	Environment	11/2012	11/2027	5.046%	5,000	0		
535	Environment	10/2013	10/2028	3.880%	6,000	6,000		
536	Environment	11/2013	11/2027	3.967%	5,000	5,000		
537	Environment	01/2014	01/2029	3.896%	3,000	3,000		
538	Environment	07/2014	07/2029	2.497%	3,000	3,000		
539	Environment	01/2015	01/2024	1.908%	4,000	4,000		
540	Environment	10/2015	09/2027	2.455%	5,000	5,000		
541	Environment	05/2016	05/2025	2.101%	5,000	5,000		
542	Environment	09/2018	11/2032	2.305%	7,000	7,000		
543	Technology (T)	02/2015	02/2021	1.761%	23,000	23,000		
544	Technology (T)	10/2015	09/2018	1.976%	5,000	0		
545	Technology (T)	09/2018	09/2021	2.455%	5,000	5,000		
546	Totals:				13,017,108	3,295,511		

TABLE 10-2
PROJECTED FEDERAL INVESTMENTS
(\$000s)

	A	B	C	D	F	E
	PROJECT	ORIGINAL PRINCIPAL	CURRENT PRINCIPAL	INTEREST RATE	IN SERVICE DATE	DUE DATE
1	Construction	81,000	81,000	2.940%	7/31/2019	7/31/2049
2	Construction	81,000	81,000	2.940%	8/31/2019	8/31/2049
3	Construction	82,000	82,000	2.940%	9/30/2019	9/30/2049
4	Construction (AS)	9,000	9,000	2.940%	9/30/2019	9/30/2025
5	Environment	<u>7,000</u>	<u>7,000</u>	2.940%	9/30/2019	9/30/2034
6	2019 TOTAL:	260,000	260,000			
7	Construction	114,449	114,449	3.590%	7/31/2020	7/31/2050
8	Construction	12,740	12,740	4.020%	7/31/2020	7/31/2050
9	Construction	127,189	127,189	4.020%	8/31/2020	8/31/2050
10	Construction	132,189	132,189	4.020%	9/30/2020	9/30/2050
11	Construction (AS)	11,000	11,000	3.610%	9/30/2020	3/31/2026
12	Environment	<u>7,000</u>	<u>7,000</u>	3.820%	9/30/2020	9/30/2035
13	2020 TOTAL:	404,567	404,567			
14	Construction	178,189	178,189	4.150%	7/31/2021	7/31/2051
15	Construction	178,189	178,189	4.150%	8/31/2021	8/31/2051
16	Construction	185,189	185,189	4.150%	9/30/2021	9/30/2051
17	Construction (AS)	18,000	18,000	3.680%	9/30/2021	3/31/2027
18	Environment	<u>21,000</u>	<u>21,000</u>	3.910%	9/30/2021	9/30/2036
19	2021 TOTAL:	580,567	580,567			

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11. REPAYMENT STUDY RESULTS

**TABLE 11-1
SUMMARY OF INTEREST (\$000S) (FY 2020)**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
1	Obligation Type	General Project	Specific Project	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
2	Appropriation	Bonneville Power Administration	Bonneville Power Administration	30	11	-	-	-	-	-	-	-	-	-	-	
3			Bonneville Power Administration Subtotal:	30	11	-	-	-	-	-	-	-	-	-	-	-
4			Appropriation Subtotal:	30	11	-	-	-	-	-	-	-	-	-	-	-
5		Treasury	BPA Borrowing	(Less Interest Income)	(1,127)	(1,175)	(1,179)	(1,217)	(1,228)	(1,143)	(1,211)	(1,245)	(1,247)	(1,255)	(1,186)	(1,207)
6	Construction			106,357	110,344	117,348	110,307	101,550	94,140	88,712	81,544	74,648	69,396	61,235	50,891	
7	Interest Accrual			19,737	19,477	18,297	16,842	15,710	14,569	13,477	12,113	11,106	9,952	8,351	6,910	
8	Interest Accrual Reversal			(18,997)	(19,737)	(19,477)	(18,297)	(16,842)	(15,710)	(14,569)	(13,477)	(12,113)	(11,106)	(9,952)	(8,351)	
9	Construction (AS)			1,258	1,154	1,241	993	902	782	662	199	-	-	-	-	
10	Interest Accrual			211	111	49	-	-	-	-	-	-	-	-	-	
11	Interest Accrual Reversal			(278)	(211)	(111)	(49)	-	-	-	-	-	-	-	-	
12	Environment			1,793	2,052	2,319	2,319	2,319	2,281	2,029	1,711	1,711	1,158	884	635	
13	Interest Accrual			444	444	444	444	444	431	360	360	249	182	54	54	
14	Interest Accrual Reversal			(390)	(444)	(444)	(444)	(444)	(444)	(431)	(360)	(360)	(249)	(182)	(54)	
15	Technology (T)			527	527	324	-	-	-	-	-	-	-	-	-	
16	Interest Accrual			34	34	-	-	-	-	-	-	-	-	-	-	
17	Interest Accrual Reversal			(35)	(34)	(34)	-	-	-	-	-	-	-	-	-	
18				BPA Borrowing Subtotal:	109,533	112,542	118,776	110,898	102,411	94,907	89,027	80,845	73,995	68,078	59,205	48,877
19	Federal Transmission Replacement			Replacements		-	-	3,724	11,172	18,621	26,069	33,517	40,965	48,414	55,862	63,310
20		Federal Transmission Replacement Subtotal:	-		-	3,724	11,172	18,621	26,069	33,517	40,965	48,414	55,862	63,310	70,758	
21	Treasury Subtotal:			109,533	112,542	122,500	122,070	121,031	120,976	122,544	121,810	122,409	123,940	122,515	119,636	
22	Grand Total:			\$109,564	\$112,553	\$122,500	\$122,070	\$121,031	\$120,976	\$122,544	\$121,810	\$122,409	\$123,940	\$122,515	\$119,636	

**TABLE 11-1
SUMMARY OF INTEREST (\$000S) (FY 2020)**

	A	B	C	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB		
1	Obligation Type	General Project	Specific Project	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043		
2	Appropriation	Bonneville Power Administration	Bonneville Power Administration	-	-	-	-	-	-	-	-	-	-	-	-	-		
3			Bonneville Power Administration Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4			Appropriation Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5		Treasury	BPA Borrowing	(Less Interest Income)	(1,234)	(1,223)	(1,246)	(1,395)	(1,295)	(1,311)	(1,430)	(1,512)	(1,517)	(1,548)	(1,986)	(1,624)	(2,034)	
6	Construction			42,240	33,682	25,703	19,306	12,480	7,675	2,365	-	-	-	-	-	-	-	
7	Interest Accrual			6,632	4,980	4,032	3,289	2,898	868	-	-	-	-	-	-	-	-	-
8	Interest Accrual Reversal			(6,910)	(6,632)	(4,980)	(4,032)	(3,289)	(2,898)	(868)	-	-	-	-	-	-	-	-
9	Construction (AS)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Interest Accrual			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Interest Accrual Reversal			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Environment			501	367	286	206	-	-	-	-	-	-	-	-	-	-	-
13	Interest Accrual			54	54	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Interest Accrual Reversal			(54)	(54)	(54)	-	-	-	-	-	-	-	-	-	-	-	-
15	Technology (T)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Interest Accrual			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Interest Accrual Reversal			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18				BPA Borrowing Subtotal:	41,229	31,174	23,741	17,373	10,794	4,334	67	(1,512)	(1,517)	(1,548)	(1,986)	(1,624)	(2,034)	
19	Federal Transmission Replacement			Replacements	78,207	85,655	93,103	100,551	108,000	115,448	119,507	117,927	114,054	109,959	103,637	96,837	89,673	
20		Federal Transmission Replacement Subtotal:	78,207	85,655	93,103	100,551	108,000	115,448	119,507	117,927	114,054	109,959	103,637	96,837	89,673			
21	Treasury Subtotal:			119,436	116,829	116,844	117,925	118,793	119,782	119,574	116,415	112,537	108,411	101,652	95,213	87,639		
22	Grand Total:			\$119,436	\$116,829	\$116,844	\$117,925	\$118,793	\$119,782	\$119,574	\$116,415	\$112,537	\$108,411	\$101,652	\$95,213	\$87,639		

**TABLE 11-1
SUMMARY OF INTEREST (\$000S) (FY 2020)**

	A	B	C	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	
1	Obligation Type	General Project	Specific Project	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	Total	
2	Appropriation	Bonneville Power Administration	Bonneville Power Administration	-	-	-	-	-	-	-	-	-	-	-	-	41	
3			Bonneville Power Administration Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-	-	41
4			Appropriation Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5		Treasury	BPA Borrowing	(Less Interest Income)	(2,065)	(2,088)	(2,110)	(2,133)	(2,158)	(2,183)	(2,209)	(2,237)	(2,241)	(2,241)	(2,241)	(2,241)	(59,923)
6	Construction			-	-	-	-	-	-	-	-	-	-	-	-	-	1,209,923
7	Interest Accrual			-	-	-	-	-	-	-	-	-	-	-	-	-	189,239
8	Interest Accrual Reversal			-	-	-	-	-	-	-	-	-	-	-	-	-	(208,236)
9	Construction (AS)			-	-	-	-	-	-	-	-	-	-	-	-	-	7,190
10	Interest Accrual			-	-	-	-	-	-	-	-	-	-	-	-	-	371
11	Interest Accrual Reversal			-	-	-	-	-	-	-	-	-	-	-	-	-	(649)
12	Environment			-	-	-	-	-	-	-	-	-	-	-	-	-	22,571
13	Interest Accrual			-	-	-	-	-	-	-	-	-	-	-	-	-	4,015
14	Interest Accrual Reversal			-	-	-	-	-	-	-	-	-	-	-	-	-	(4,405)
15	Technology (T)			-	-	-	-	-	-	-	-	-	-	-	-	-	1,378
16	Interest Accrual			-	-	-	-	-	-	-	-	-	-	-	-	-	68
17	Interest Accrual Reversal			-	-	-	-	-	-	-	-	-	-	-	-	-	(103)
18			BPA Borrowing Subtotal:	(2,065)	(2,088)	(2,110)	(2,133)	(2,158)	(2,183)	(2,209)	(2,237)	(2,241)	(2,241)	(2,241)	(2,241)	1,161,438	
19		Federal Transmission Replacement	Replacements	80,346	70,584	60,414	49,825	38,801	27,323	15,374	8,363	7,448	7,448	7,448	7,448	2,085,794	
20			Federal Transmission Replacement Subtotal:	80,346	70,584	60,414	49,825	38,801	27,323	15,374	8,363	7,448	7,448	7,448	7,448	2,085,794	
21			Treasury Subtotal:	78,282	68,497	58,304	47,691	36,643	25,140	13,164	6,127	5,207	5,207	5,207	5,207	3,247,232	
22	Grand Total:			\$78,282	\$68,497	\$58,304	\$47,691	\$36,643	\$25,140	\$13,164	\$6,127	\$5,207	\$5,207	\$5,207	\$5,207	\$3,247,274	

TABLE 11-2
INTEREST CALCULATION SUMMARY (\$000S) (FY 2020)

A	B	C	D	E	F	G	H	I
Fiscal Year	Project	Type	Current Principal	Rate	Interest	Premium	Net Interest Accrual	Total
1	2019 Bonneville Power Administration	Historical	421	7.210%	30	-	-	30
2	2019 Construction	Historical	3,134,440	3.391%	106,279	-	120	106,399
3	2019 Construction	New	168,000	0.046%	78	-	620	698
4	2019 Construction (AS)	Historical	65,650	1.916%	1,258	-	(68)	1,190
5	2019 Environment	Historical	61,000	2.939%	1,793	-	53	1,846
6	2019 Technology (T)	Historical	28,000	1.883%	527	-	(1)	527
7	2019 Float	Historical	-	-	(1,127)	-	-	(1,127)
8	FY 2019	Subtotal:	3,457,511		108,839	-	725	109,564
9	2020 Bonneville Power Administration	Historical	154	7.210%	11	-	-	11
10	2020 Construction	Historical	3,167,440	3.484%	110,344	-	(1,455)	108,889
11	2020 Construction	New	254,378	-	-	-	1,195	1,195
12	2020 Construction (AS)	Historical	56,900	2.028%	1,154	-	(99)	1,055
13	2020 Construction (AS)	New	11,000	-	-	-	-	-
14	2020 Environment	Historical	68,000	3.017%	2,052	-	-	2,052
15	2020 Technology (T)	Historical	28,000	1.881%	527	-	-	527
16	2020 Float	Historical	-	-	(1,175)	-	-	(1,175)
17	FY 2020	Subtotal:	3,585,872		112,912	-	(359)	112,553
18	2021 Construction	Historical	3,371,362	3.481%	117,348	-	(1,180)	116,169
19	2021 Construction (AS)	Historical	51,000	2.433%	1,241	-	(63)	1,178
20	2021 Environment	Historical	75,000	3.092%	2,319	-	-	2,319
21	2021 Replacements	New	185,289	2.010%	3,724	-	-	3,724
22	2021 Technology (T)	Historical	28,000	1.158%	324	-	(34)	290
23	2021 Float	Historical	-	-	(1,179)	-	-	(1,179)
24	FY 2021	Subtotal:	3,710,651		123,777	-	(1,277)	122,500
25	2022 Construction	Historical	3,219,944	3.426%	110,307	-	(1,455)	108,852
26	2022 Construction (AS)	Historical	38,000	2.613%	993	-	(49)	944
27	2022 Environment	Historical	75,000	3.092%	2,319	-	-	2,319
28	2022 Replacements	Historical	185,289	4.020%	7,448	-	-	7,448
29	2022 Replacements	New	185,289	2.010%	3,724	-	-	3,724
30	2022 Float	Historical	-	-	(1,217)	-	-	(1,217)

**TABLE 11-2
INTEREST CALCULATION SUMMARY (\$000S) (FY 2020)**

A	B	C	D	E	F	G	H	I
Fiscal Year	Project	Type	Current Principal	Rate	Interest	Premium	Net Interest Accrual	Total
31	FY 2022	Subtotal:	3,703,523		123,574	-	(1,504)	122,070
32	2023 Construction	Historical	3,028,303	3.353%	101,550	-	(1,132)	100,418
33	2023 Construction (AS)	Historical	27,800	3.244%	902	-	-	902
34	2023 Environment	Historical	75,000	3.092%	2,319	-	-	2,319
35	2023 Replacements	Historical	370,578	4.020%	14,897	-	-	14,897
36	2023 Replacements	New	185,289	2.010%	3,724	-	-	3,724
37	2023 Float	Historical	-	-	(1,228)	-	-	(1,228)
38	FY 2023	Subtotal:	3,686,970		122,163	-	(1,132)	121,031
39	2024 Construction	Historical	2,827,126	3.330%	94,140	-	(1,141)	92,999
40	2024 Construction (AS)	Historical	27,800	2.812%	782	-	-	782
41	2024 Environment	Historical	75,000	3.041%	2,281	-	(13)	2,268
42	2024 Replacements	Historical	555,867	4.020%	22,345	-	-	22,345
43	2024 Replacements	New	185,289	2.010%	3,724	-	-	3,724
44	2024 Float	Historical	-	-	(1,143)	-	-	(1,143)
45	FY 2024	Subtotal:	3,671,083		122,129	-	(1,154)	120,976
46	2025 Construction	Historical	2,653,112	3.344%	88,712	-	(1,092)	87,619
47	2025 Construction (AS)	Historical	20,000	3.309%	662	-	-	662
48	2025 Environment	Historical	71,000	2.857%	2,029	-	(71)	1,957
49	2025 Replacements	Historical	741,157	4.020%	29,793	-	-	29,793
50	2025 Replacements	New	185,289	2.010%	3,724	-	-	3,724
51	2025 Float	Historical	-	-	(1,211)	-	-	(1,211)
52	FY 2025	Subtotal:	3,670,558		123,708	-	(1,164)	122,544
53	2026 Construction	Historical	2,474,302	3.296%	81,544	-	(1,364)	80,180
54	2026 Construction (AS)	Historical	11,000	1.805%	199	-	-	199
55	2026 Environment	Historical	56,000	3.055%	1,711	-	-	1,711
56	2026 Replacements	Historical	926,446	4.020%	37,241	-	-	37,241
57	2026 Replacements	New	185,289	2.010%	3,724	-	-	3,724
58	2026 Float	Historical	-	-	(1,245)	-	-	(1,245)

**TABLE 11-2
INTEREST CALCULATION SUMMARY (\$000S) (FY 2020)**

A	B	C	D	E	F	G	H	I
Fiscal Year	Project	Type	Current Principal	Rate	Interest	Premium	Net Interest Accrual	Total
59	FY 2026	Subtotal:	3,653,037		123,174	-	(1,364)	121,810
60	2027 Construction	Historical	2,272,928	3.284%	74,648	-	(1,006)	73,641
61	2027 Environment	Historical	56,000	3.055%	1,711	-	(111)	1,600
62	2027 Replacements	Historical	1,111,735	4.020%	44,690	-	-	44,690
63	2027 Replacements	New	185,289	2.010%	3,724	-	-	3,724
64	2027 Float	Historical	-	-	(1,247)	-	-	(1,247)
65	FY 2027	Subtotal:	3,625,952		123,526	-	(1,117)	122,409
66	2028 Construction	Historical	2,079,220	3.338%	69,396	-	(1,155)	68,241
67	2028 Environment	Historical	38,000	3.048%	1,158	-	(66)	1,092
68	2028 Replacements	Historical	1,297,024	4.020%	52,138	-	-	52,138
69	2028 Replacements	New	185,289	2.010%	3,724	-	-	3,724
70	2028 Float	Historical	-	-	(1,255)	-	-	(1,255)
71	FY 2028	Subtotal:	3,599,533		125,161	-	(1,221)	123,940
72	2029 Construction	Historical	1,870,507	3.274%	61,235	-	(1,601)	59,634
73	2029 Environment	Historical	33,000	2.680%	884	-	(128)	756
74	2029 Replacements	Historical	1,482,313	4.020%	59,586	-	-	59,586
75	2029 Replacements	New	185,289	2.010%	3,724	-	-	3,724
76	2029 Float	Historical	-	-	(1,186)	-	-	(1,186)
77	FY 2029	Subtotal:	3,571,109		124,244	-	(1,729)	122,515
78	2030 Construction	Historical	1,681,846	3.026%	50,891	-	(1,441)	49,450
79	2030 Environment	Historical	21,000	3.022%	635	-	-	635
80	2030 Replacements	Historical	1,667,602	4.020%	67,034	-	-	67,034
81	2030 Replacements	New	185,289	2.010%	3,724	-	-	3,724
82	2030 Float	Historical	-	-	(1,207)	-	-	(1,207)
83	FY 2030	Subtotal:	3,555,738		121,076	-	(1,441)	119,636
84	2031 Construction	Historical	1,471,449	2.871%	42,240	-	(278)	41,962
85	2031 Environment	Historical	21,000	2.385%	501	-	-	501
86	2031 Replacements	Historical	1,852,892	4.020%	74,483	-	-	74,483
87	2031 Replacements	New	185,289	2.010%	3,724	-	-	3,724
88	2031 Float	Historical	-	-	(1,234)	-	-	(1,234)
89	FY 2031	Subtotal:	3,530,630		119,714	-	(278)	119,436

**TABLE 11-2
INTEREST CALCULATION SUMMARY (\$000S) (FY 2020)**

A	B	C	D	E	F	G	H	I
Fiscal Year	Project	Type	Current Principal	Rate	Interest	Premium	Net Interest Accrual	Total
90	2032 Construction	Historical	1,264,798	2.663%	33,682	-	(1,653)	32,030
91	2032 Environment	Historical	14,000	2.623%	367	-	-	367
92	2032 Replacements	Historical	2,038,181	4.020%	81,931	-	-	81,931
93	2032 Replacements	New	185,289	2.010%	3,724	-	-	3,724
94	2032 Float	Historical	-	-	(1,223)	-	-	(1,223)
95	FY 2032	Subtotal:	3,502,268		118,482	-	(1,653)	116,829
96	2033 Construction	Historical	1,044,632	2.460%	25,703	-	(948)	24,755
97	2033 Environment	Historical	14,000	2.046%	286	-	(54)	232
98	2033 Replacements	Historical	2,223,470	4.020%	89,379	-	-	89,379
99	2033 Replacements	New	185,289	2.010%	3,724	-	-	3,724
100	2033 Float	Historical	-	-	(1,246)	-	-	(1,246)
101	FY 2033	Subtotal:	3,467,391		117,846	-	(1,002)	116,844
102	2034 Construction	Historical	829,826	2.326%	19,306	-	(743)	18,563
103	2034 Environment	Historical	7,000	2.940%	206	-	-	206
104	2034 Replacements	Historical	2,408,759	4.020%	96,827	-	-	96,827
105	2034 Replacements	New	185,289	2.010%	3,724	-	-	3,724
106	2034 Float	Historical	-	-	(1,395)	-	-	(1,395)
107	FY 2034	Subtotal:	3,430,875		118,668	-	(743)	117,925
108	2035 Construction	Historical	584,748	2.134%	12,480	-	(391)	12,089
109	2035 Replacements	Historical	2,594,048	4.020%	104,276	-	-	104,276
110	2035 Replacements	New	185,289	2.010%	3,724	-	-	3,724
111	2035 Float	Historical	-	-	(1,295)	-	-	(1,295)
112	FY 2035	Subtotal:	3,364,085		119,184	-	(391)	118,793
113	2036 Construction	Historical	335,700	2.286%	7,675	-	(2,030)	5,645
114	2036 Replacements	Historical	2,779,337	4.020%	111,724	-	-	111,724
115	2036 Replacements	New	185,289	2.010%	3,724	-	-	3,724
116	2036 Float	Historical	-	-	(1,311)	-	-	(1,311)
117	FY 2036	Subtotal:	3,300,327		121,812	-	(2,030)	119,782
118	2037 Construction	Historical	92,052	2.569%	2,365	-	(868)	1,497
119	2037 Replacements	Historical	2,964,627	3.905%	115,783	-	-	115,783
120	2037 Replacements	New	185,289	2.010%	3,724	-	-	3,724
121	2037 Float	Historical	-	-	(1,430)	-	-	(1,430)
122	FY 2037	Subtotal:	3,241,968		120,442	-	(868)	119,574

**TABLE 11-2
INTEREST CALCULATION SUMMARY (\$000S) (FY 2020)**

A	B	C	D	E	F	G	H	I
Fiscal Year	Project	Type	Current Principal	Rate	Interest	Premium	Net Interest Accrual	Total
123	2038 Replacements	Historical	2,981,310	3.831%	114,203	-	-	114,203
124	2038 Replacements	New	185,289	2.010%	3,724	-	-	3,724
125	2038 Float	Historical	-	-	(1,512)	-	-	(1,512)
126	FY 2038	Subtotal:	3,166,599		116,415	-	-	116,415
127	2039 Replacements	Historical	2,885,999	3.823%	110,330	-	-	110,330
128	2039 Replacements	New	185,289	2.010%	3,724	-	-	3,724
129	2039 Float	Historical	-	-	(1,517)	-	-	(1,517)
130	FY 2039	Subtotal:	3,071,288		112,537	-	-	112,537
131	2040 Replacements	Historical	2,788,623	3.810%	106,235	-	-	106,235
132	2040 Replacements	New	185,289	2.010%	3,724	-	-	3,724
133	2040 Float	Historical	-	-	(1,548)	-	-	(1,548)
134	FY 2040	Subtotal:	2,973,912		108,411	-	-	108,411
135	2041 Replacements	Historical	2,682,264	3.725%	99,913	-	-	99,913
136	2041 Replacements	New	185,289	2.010%	3,724	-	-	3,724
137	2041 Float	Historical	-	-	(1,986)	-	-	(1,986)
138	FY 2041	Subtotal:	2,867,553		101,652	-	-	101,652
139	2042 Replacements	Historical	2,474,070	3.764%	93,113	-	-	93,113
140	2042 Replacements	New	185,289	2.010%	3,724	-	-	3,724
141	2042 Float	Historical	-	-	(1,624)	-	-	(1,624)
142	FY 2042	Subtotal:	2,659,359		95,213	-	-	95,213
143	2043 Replacements	Historical	2,343,922	3.667%	85,949	-	-	85,949
144	2043 Replacements	New	185,289	2.010%	3,724	-	-	3,724
145	2043 Float	Historical	-	-	(2,034)	-	-	(2,034)
146	FY 2043	Subtotal:	2,529,211		87,639	-	-	87,639
147	2044 Replacements	Historical	2,117,655	3.618%	76,622	-	-	76,622
148	2044 Replacements	New	185,289	2.010%	3,724	-	-	3,724
149	2044 Float	Historical	-	-	(2,065)	-	-	(2,065)
150	FY 2044	Subtotal:	2,302,944		78,282	-	-	78,282
151	2045 Replacements	Historical	1,879,874	3.557%	66,860	-	-	66,860
152	2045 Replacements	New	185,289	2.010%	3,724	-	-	3,724
153	2045 Float	Historical	-	-	(2,088)	-	-	(2,088)
154	FY 2045	Subtotal:	2,065,164		68,497	-	-	68,497
155	2046 Replacements	Historical	1,631,956	3.474%	56,689	-	-	56,689
156	2046 Replacements	New	185,289	2.010%	3,724	-	-	3,724
157	2046 Float	Historical	-	-	(2,110)	-	-	(2,110)
158	FY 2046	Subtotal:	1,817,245		58,304	-	-	58,304

**TABLE 11-2
INTEREST CALCULATION SUMMARY (\$000S) (FY 2020)**

A	B	C	D	E	F	G	H	I
Fiscal Year	Project	Type	Current Principal	Rate	Interest	Premium	Net Interest Accrual	Total
159	2047 Replacements	Historical	1,373,845	3.356%	46,101	-	-	46,101
160	2047 Replacements	New	185,289	2.010%	3,724	-	-	3,724
161	2047 Float	Historical	-	-	(2,133)	-	-	(2,133)
162	FY 2047	Subtotal:	1,559,134		47,691	-	-	47,691
163	2048 Replacements	Historical	1,105,121	3.174%	35,076	-	-	35,076
164	2048 Replacements	New	185,289	2.010%	3,724	-	-	3,724
165	2048 Float	Historical	-	-	(2,158)	-	-	(2,158)
166	FY 2048	Subtotal:	1,290,410		36,643	-	-	36,643
167	2049 Replacements	Historical	825,349	2.859%	23,599	-	-	23,599
168	2049 Replacements	New	185,289	2.010%	3,724	-	-	3,724
169	2049 Float	Historical	-	-	(2,183)	-	-	(2,183)
170	FY 2049	Subtotal:	1,010,638		25,140	-	-	25,140
171	2050 Replacements	Historical	534,074	2.181%	11,650	-	-	11,650
172	2050 Replacements	New	185,289	2.010%	3,724	-	-	3,724
173	2050 Float	Historical	-	-	(2,209)	-	-	(2,209)
174	FY 2050	Subtotal:	719,363		13,164	-	-	13,164
175	2051 Replacements	Historical	230,823	2.010%	4,639	-	-	4,639
176	2051 Replacements	New	185,289	2.010%	3,724	-	-	3,724
177	2051 Float	Historical	-	-	(2,237)	-	-	(2,237)
178	FY 2051	Subtotal:	416,112		6,127	-	-	6,127
179	2052 Replacements	Historical	185,289	2.010%	3,724	-	-	3,724
180	2052 Replacements	New	185,289	2.010%	3,724	-	-	3,724
181	2052 Float	Historical	-	-	(2,241)	-	-	(2,241)
182	FY 2052	Subtotal:	370,578		5,207	-	-	5,207
183	2053 Replacements	Historical	185,289	2.010%	3,724	-	-	3,724
184	2053 Replacements	New	185,289	2.010%	3,724	-	-	3,724
185	2053 Float	Historical	-	-	(2,241)	-	-	(2,241)
186	FY 2053	Subtotal:	370,578		5,207	-	-	5,207
187	2054 Replacements	Historical	185,289	2.010%	3,724	-	-	3,724
188	2054 Replacements	New	185,289	2.010%	3,724	-	-	3,724
189	2054 Float	Historical	-	-	(2,241)	-	-	(2,241)
190	FY 2054	Subtotal:	370,578		5,207	-	-	5,207
191	2055 Replacements	Historical	185,289	2.010%	3,724	-	-	3,724
192	2055 Replacements	New	185,289	2.010%	3,724	-	-	3,724
193	2055 Float	Historical	-	-	(2,241)	-	-	(2,241)
194	FY 2055	Subtotal:	370,578		5,207	-	-	5,207
195	Grand Total:		\$97,260,328		\$3,266,974	-	(\$19,701)	\$3,247,274

**TABLE 11-3
SUMMARY OF AMORTIZATION (\$000S) (FY 2020)**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
1	Obligation Type	General Project	Specific Project	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
2	Appropriation	Bonneville Power Administration	Bonneville Power Administration	267	154	-	-	-	-	-	-	-	-	-	-	-	
3			Bonneville Power Administration Subtotal:	267	154	-	-	-	-	-	-	-	-	-	-	-	-
4		Appropriation Subtotal:		267	154	-	-	-	-	-	-	-	-	-	-	-	-
5				Construction	217,000	182,645	151,418	191,642	201,176	174,014	178,810	201,373	193,709	208,713	188,661	210,397	206,651
6			Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	
7			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	
8			Construction (AS)	17,750	16,900	13,000	10,200	-	7,800	9,000	11,000	-	-	-	-	-	
9			Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	
10			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	
11		BPA Borrowing	Environment	-	-	-	-	-	4,000	15,000	-	18,000	5,000	12,000	-	7,000	
12			Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	
13			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	
14			Technology (T)	-	-	28,000	-	-	-	-	-	-	-	-	-	-	
15	Bond		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	
16			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	
17		BPA Borrowing Subtotal:		234,750	199,545	192,418	201,842	201,176	185,814	202,810	212,373	211,709	213,713	200,661	210,397	213,651	
18			Replacements	-	-	-	-	-	-	-	-	-	-	-	-	-	
19		Federal Transmission Replacement	Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-		
20			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-		
21			Federal Transmission Replacement Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-		
22			Discounts	-	-	-	-	-	-	-	-	-	-	-	-		
23		Make Whole Call	Premiums	-	5,882	9,676	7,694	11,806	7,353	5,913	3,724	4,527	3,516	2,787	-	2,006	
24			Make Whole Call Subtotal:	-	5,882	9,676	7,694	11,806	7,353	5,913	3,724	4,527	3,516	2,787	-	2,006	
25	Bond Subtotal:		234,750	199,545	192,418	201,842	201,176	185,814	202,810	212,373	211,709	213,713	200,661	210,397	213,651		
26	Grand Total:			\$235,017	\$199,699	\$192,418	\$201,842	\$201,176	\$185,814	\$202,810	\$212,373	\$211,709	\$213,713	\$200,661	\$210,397	\$213,651	

**TABLE 11-3
SUMMARY OF AMORTIZATION (\$000S) (FY 2020)**

	A	B	C	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	
1	Obligation Type	General Project	Specific Project	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	
2	Appropriation	Bonneville Power Administration	Bonneville Power Administration	-	-	-	-	-	-	-	-	-	-	-	-	-	
3			Bonneville Power Administration Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4		Appropriation Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5			Construction	210,175	212,390	244,325	228,907	231,689	92,052	-	-	-	-	-	-	-	-
6			Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	
7			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	
8			Construction (AS)	-	-	-	-	-	-	-	-	-	-	-	-	-	
9			Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	
10			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	
11	Bond	BPA Borrowing	Environment	-	7,000	7,000	-	-	-	-	-	-	-	-	-	-	
12				Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
13			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	
14			Technology (T)	-	-	-	-	-	-	-	-	-	-	-	-	-	
15			Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	
16			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	
17			BPA Borrowing Subtotal:	210,175	219,390	251,325	228,907	231,689	92,052	-	-	-	-	-	-	-	
18			Replacements	-	-	-	-	-	168,605	280,601	282,665	291,648	393,483	315,437	411,557	423,069	
19	Federal Transmission Replacement		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	
20			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	
21			Federal Transmission Replacement Subtotal:	-	-	-	-	-	168,605	280,601	282,665	291,648	393,483	315,437	411,557	423,069	
22			Discounts	-	(9,991)	(2,416)	(753)	(20,141)	(11,960)	-	-	-	-	-	-	-	
23	Make Whole Call		Premiums	4,762	-	-	-	-	-	-	-	-	-	-	-	-	
24			Make Whole Call Subtotal:	4,762	(9,991)	(2,416)	(753)	(20,141)	(11,960)	-	-	-	-	-	-	-	
25		Bond Subtotal:		210,175	229,381	253,741	229,661	251,829	272,617	280,601	282,665	291,648	393,483	315,437	411,557	423,069	
26	Grand Total:			\$210,175	\$229,381	\$253,741	\$229,661	\$251,829	\$272,617	\$280,601	\$282,665	\$291,648	\$393,483	\$315,437	\$411,557	\$423,069	

**TABLE 11-3
SUMMARY OF AMORTIZATION (\$000S) (FY 2020)**

	A	B	C	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	
1	Obligation Type	General Project	Specific Project	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	Total	
2	Appropriation	Bonneville Power Administration	Bonneville Power Administration	-	-	-	-	-	-	-	-	-	-	-	421	
3			Bonneville Power Administration Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-	421
4		Appropriation Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-	-	421
5				Construction	-	-	-	-	-	-	-	-	-	-	-	3,725,747
6			Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	
7			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	
8			Construction (AS)	-	-	-	-	-	-	-	-	-	-	-	85,650	
9			Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	
10			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	
11	Bond	BPA Borrowing	Environment	-	-	-	-	-	-	-	-	-	-	-	75,000	
12			Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
13			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
14			Technology (T)	-	-	-	-	-	-	-	-	-	-	-	-	28,000
15			Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	
16			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	
17			BPA Borrowing Subtotal:	-	-	-	-	-	-	-	-	-	-	-	3,914,397	
18			Replacements	433,208	443,401	454,013	465,061	476,564	488,540	230,823	185,289	185,289	185,289	185,289	6,299,832	
19	Federal Transmission Replacement		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	
20			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	
21			Federal Transmission Replacement Subtotal:	433,208	443,401	454,013	465,061	476,564	488,540	230,823	185,289	185,289	185,289	185,289	6,299,832	
22			Discounts	-	-	-	-	-	-	-	-	-	-	-	(45,260)	
23	Make Whole Call		Premiums	-	-	-	-	-	-	-	-	-	-	-	69,646	
24			Make Whole Call Subtotal:	-	-	-	-	-	-	-	-	-	-	-	24,385	
25		Bond Subtotal:		433,208	443,401	454,013	465,061	476,564	488,540	230,823	185,289	185,289	185,289	185,289	10,259,489	
26	Grand Total:			\$433,208	\$443,401	\$454,013	\$465,061	\$476,564	\$488,540	\$230,823	\$185,289	\$185,289	\$185,289	\$185,289	\$10,259,910	

**TABLE 11-4
APPLICATION OF AMORTIZATION (\$000S) (FY 2020)**

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Fiscal Year	Project	Debt Type	In Service	Bond Due Date	Initial Principal	Current Principal	Original Rate	Effective Rate	Refinance Type	Refinanced Date	Rolled Maturity Date	Roll Rate	Principal Paid	Premium	Discount	Accrual	Reversal
1	2019	Construction	-	10/31/2009	10/31/2018	23,000	23,000	3.719%	3.719%				23,000				
2	2019	Construction	-	11/30/2009	11/30/2018	15,000	15,000	3.533%	3.533%				15,000				
3	2019	Construction (AS)	-	11/30/2012	11/30/2018	9,750	9,750	1.109%	1.109%				9,750				
4	2019	Construction	-	12/31/2009	12/31/2018	13,000	13,000	4.069%	4.069%				13,000				
5	2019	Construction	-	1/16/2014	12/31/2018	33,000	33,000	1.943%	1.943%				33,000				
6	2019	Construction	-	1/16/2014	12/31/2018	30,000	30,000	1.943%	1.943%				30,000				
7	2019	Construction	-	1/16/2014	12/31/2018	31,000	31,000	1.943%	1.943%				31,000				
8	2019	Construction	-	1/16/2014	12/31/2018	48,000	48,000	1.943%	1.943%				48,000				
9	2019	Construction	-	1/31/2010	1/31/2019	30,000	24,000	3.714%	3.714%				24,000				
10	2019	Construction (AS)	-	6/30/2013	6/30/2019	5,000	5,000	1.962%	1.962%				5,000				
11	2019	Construction (AS)	-	8/31/2013	8/31/2019	3,000	3,000	2.279%	2.279%				3,000				
12	2019	Bonneville Power Administration	Bonneville Power Administration	9/30/1977	9/30/2022	33,702	421	7.210%	7.210%				267				
13		FY 2019 Subtotal:	-	-	-	274,452	235,171	-					235,017				
14	2020	Construction (AS)	-	10/31/2013	10/31/2019	7,800	7,800	2.039%	2.039%				7,800				
15	2020	Construction	-	10/31/2009	10/31/2019	43,000	43,000	3.842%	3.842%				43,000				
16	2020	Construction (AS)	-	1/31/2014	1/31/2020	3,250	3,250	2.183%	2.183%				3,250				
17	2020	Construction	-	1/31/2009	1/31/2020	50,000	50,000	3.830%	3.830%				50,000				
18	2020	Construction (AS)	-	4/30/2014	3/31/2020	2,600	2,600	2.455%	2.455%				2,600				
19	2020	Construction (AS)	-	5/31/2014	4/30/2020	1,300	1,300	2.497%	2.497%				1,300				
20	2020	Construction (AS)	-	7/31/2014	7/31/2020	1,950	1,950	2.497%	2.497%				1,950				
21	2020	Construction	-	7/31/2010	7/31/2020	50,000	50,000	3.118%	3.118%				50,000				
22	2020	Bonneville Power Administration	Bonneville Power Administration	9/30/1977	9/30/2022	33,702	154	7.210%	7.210%				154				
23	2020	Construction	-	8/31/1998	8/31/2028	112,300	112,300	5.850%	5.850%				39,645	5,882			
24		FY 2020 Subtotal:	-	-	-	305,902	272,354	-					199,699	5,882			
25	2021	Construction (AS)	-	11/30/2014	11/30/2020	3,900	3,900	1.809%	1.809%				3,900				
26	2021	Construction (AS)	-	12/31/2014	12/31/2020	1,950	1,950	1.922%	1.922%				1,950				
27	2021	Construction (AS)	-	2/28/2015	2/28/2021	3,250	3,250	1.761%	1.761%				3,250				
28	2021	Technology (T)	-	2/28/2015	2/28/2021	23,000	23,000	1.761%	1.761%				23,000				
29	2021	Construction	-	3/31/2010	3/31/2021	15,000	15,000	4.188%	4.188%				15,000				
30	2021	Construction	-	4/30/2010	4/30/2021	22,000	22,000	4.094%	4.094%				22,000				
31	2021	Construction	-	5/31/2010	5/31/2021	22,000	22,000	3.694%	3.694%				22,000				
32	2021	Construction (AS)	-	5/31/2015	5/31/2021	3,900	3,900	1.898%	1.898%				3,900				
33	2021	Construction	-	6/30/2010	6/30/2021	22,000	22,000	3.374%	3.374%				22,000				
34	2021	Technology (T)	-	9/28/2018	9/30/2021	5,000	5,000	2.455%	2.455%				5,000				
35	2021	Construction	-	8/31/1998	8/31/2028	112,300	72,655	5.850%	5.850%				70,418	9,676			
36		FY 2021 Subtotal:	-	-	-	234,300	194,655	-					192,418	9,676			
37	2022	Construction (AS)	-	10/31/2015	10/31/2021	5,200	5,200	1.942%	1.942%				5,200				
38	2022	Construction	-	1/31/2009	1/31/2022	20,000	20,000	4.200%	4.200%				20,000				
39	2022	Construction (AS)	-	2/29/2016	2/28/2022	5,000	5,000	1.631%	1.631%				5,000				
40	2022	Construction	-	4/30/2009	4/30/2022	35,000	35,000	4.253%	4.253%				35,000				
41	2022	Construction	-	5/31/2015	5/31/2022	11,000	11,000	2.103%	2.103%				11,000				
42	2022	Construction	-	5/31/2015	5/31/2022	14,000	14,000	2.103%	2.103%				14,000				
43	2022	Construction	-	7/31/2010	7/31/2022	30,000	30,000	3.372%	3.372%				30,000				
44	2022	Construction	-	8/31/2010	8/31/2022	20,000	20,000	3.029%	3.029%				20,000				
45	2022	Construction	-	8/31/1998	8/31/2028	106,500	106,500	5.850%	5.850%				59,404	7,414			
46	2022	Construction	-	8/31/1998	8/31/2028	112,300	2,237	5.850%	5.850%				2,237	279			
47		FY 2022 Subtotal:	-	-	-	359,000	248,937	-					201,842	7,694			

**TABLE 11-4
APPLICATION OF AMORTIZATION (\$000S) (FY 2020)**

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Fiscal Year	Project	Debt Type	In Service	Bond Due Date	Initial Principal	Current Principal	Original Rate	Effective Rate	Refinance Type	Refinanced Date	Rolled Maturity Date	Roll Rate	Principal Paid	Premium	Discount	Accrual	Reversal
48	2023	Construction	-	12/31/2014	12/31/2022	16,000	16,000	2.274%	2.274%				16,000				
49	2023	Construction	-	12/31/2014	12/31/2022	4,000	4,000	2.274%	2.274%				4,000				
50	2023	Construction	-	1/31/2019	1/31/2023	6,000	6,000	2.603%	2.603%				6,000				
51	2023	Construction	-	4/30/2015	4/30/2023	3,000	3,000	2.163%	2.163%				3,000				
52	2023	Construction	-	4/30/2015	4/30/2023	12,000	12,000	2.163%	2.163%				12,000				
53	2023	Construction	-	6/30/2015	6/30/2023	11,000	11,000	2.443%	2.443%				11,000				
54	2023	Construction	-	6/30/2015	6/30/2023	8,000	8,000	2.443%	2.443%				8,000				
55	2023	Construction	-	9/30/2010	9/30/2023	46,000	46,000	3.161%	3.161%				46,000				
56	2023	Construction	-	8/31/1998	8/31/2028	106,500	47,096	5.850%	5.850%				47,096	5,179			
57	2023	Construction	-	2/28/2011	2/28/2038	55,000	55,000	4.935%	4.935%				13,081	1,440			
58	2023	Construction	-	6/30/2009	6/30/2039	35,000	35,000	5.192%	5.192%				35,000	5,187			
59		FY 2023 Subtotal:	-	-	-	302,500	243,096	-	-				201,176	11,806			
60	2024	Construction	-	10/31/2014	10/31/2023	20,000	20,000	2.521%	2.521%				20,000				
61	2024	Construction	-	11/30/2014	11/30/2023	20,000	20,000	2.361%	2.361%				20,000				
62	2024	Environment	-	1/31/2015	1/31/2024	4,000	4,000	1.908%	1.908%				4,000				
63	2024	Construction	-	3/31/2015	3/31/2024	17,000	17,000	2.200%	2.200%				17,000				
64	2024	Construction	-	3/31/2012	3/31/2024	45,000	45,000	2.455%	2.455%				45,000				
65	2024	Construction (AS)	-	9/28/2018	3/31/2024	7,800	7,800	3.078%	3.078%				7,800				
66	2024	Construction	-	2/28/2011	2/28/2038	55,000	41,919	4.935%	4.935%				41,919	4,477			
67	2024	Construction	-	4/30/2011	4/30/2039	40,000	40,000	4.794%	4.794%				30,095	2,876			
68		FY 2024 Subtotal:	-	-	-	208,800	195,719	-	-				185,814	7,353			
69	2025	Environment	-	2/28/2010	2/28/2025	10,000	10,000	4.279%	4.279%				10,000				
70	2025	Construction	-	5/31/2016	5/31/2025	20,000	20,000	2.101%	2.101%				20,000				
71	2025	Environment	-	5/31/2016	5/31/2025	5,000	5,000	2.101%	2.101%				5,000				
72	2025	Construction	-	7/31/2016	7/31/2025	48,000	48,000	1.713%	1.713%				48,000				
73	2025	Construction	-	8/31/2015	8/31/2025	11,000	11,000	2.598%	2.598%				11,000				
74	2025	Construction	-	8/31/2015	8/31/2025	14,000	14,000	2.598%	2.598%				14,000				
75	2025	Construction (AS)	-	9/30/2019	9/30/2025	11,050	9,000	2.940%	2.940%				9,000				
76	2025	Construction	-	8/2/2011	8/31/2035	40,000	40,000	4.446%	4.446%				905	46			
77	2025	Construction	-	8/2/2011	8/31/2035	40,000	40,000	4.446%	4.446%				40,000	2,015			
78	2025	Construction	-	12/31/2013	12/31/2035	10,000	10,000	4.472%	4.472%				10,000	539			
79	2025	Construction	-	4/30/2011	4/30/2039	40,000	9,905	4.794%	4.794%				9,905	921			
80	2025	Construction	-	6/22/2011	6/30/2040	25,000	25,000	4.775%	4.775%				25,000	2,393			
81		FY 2025 Subtotal:	-	-	-	274,050	241,905	-	-				202,810	5,913			
82	2026	Construction	-	10/31/2010	10/31/2025	45,000	45,000	3.494%	3.494%				45,000				
83	2026	Construction	-	2/28/2015	2/28/2026	19,000	19,000	2.416%	2.416%				19,000				
84	2026	Construction	-	3/31/2015	3/31/2026	15,000	15,000	2.370%	2.370%				15,000				
85	2026	Construction	-	3/31/2016	3/31/2026	6,000	6,000	2.177%	2.177%				6,000				
86	2026	Construction	-	3/31/2016	3/31/2026	12,000	12,000	2.177%	2.177%				12,000				
87	2026	Construction (AS)	-	9/30/2020	3/31/2026	7,150	11,000	3.610%	3.610%				11,000				
88	2026	Construction	-	7/31/2015	7/31/2026	18,000	18,000	2.707%	2.707%				18,000				
89	2026	Construction	-	7/31/2015	7/31/2026	10,000	10,000	2.707%	2.707%				10,000				
90	2026	Construction	-	8/2/2011	8/31/2033	40,000	40,000	4.386%	4.386%				1,279	56			
91	2026	Construction	-	8/2/2011	8/31/2035	40,000	39,095	4.446%	4.446%				39,095	1,970			
92	2026	Construction	-	11/20/2013	6/30/2036	36,000	36,000	4.397%	4.397%				36,000	1,697			
93		FY 2026 Subtotal:	-	-	-	248,150	251,095	-	-				212,373	3,724			
94	2027	Construction	-	12/31/2015	12/31/2026	9,000	9,000	2.762%	2.762%				9,000				
95	2027	Construction	-	12/31/2015	12/31/2026	29,000	29,000	2.762%	2.762%				29,000				
96	2027	Construction	-	1/31/2016	1/31/2027	13,000	13,000	2.352%	2.352%				13,000				
97	2027	Construction	-	2/29/2016	2/28/2027	13,000	13,000	2.236%	2.236%				13,000				
98	2027	Construction	-	5/3/2012	5/31/2027	17,000	17,000	2.544%	2.544%				17,000				
99	2027	Environment	-	5/3/2012	5/31/2027	13,000	13,000	2.544%	2.544%				13,000				
100	2027	Environment	-	10/31/2015	9/30/2027	5,000	5,000	2.455%	2.455%				5,000				
101	2027	Construction	-	8/2/2011	8/31/2032	98,900	98,900	4.355%	4.355%				43,987	1,596			
102	2027	Construction	-	8/2/2011	8/31/2033	40,000	38,721	4.386%	4.386%				38,721	1,588			
103	2027	Construction	-	11/30/2013	11/30/2035	15,000	15,000	4.365%	4.365%				15,000	613			
104	2027	Construction	-	1/31/2014	1/31/2043	15,000	15,000	4.380%	4.380%				15,000	730			
105		FY 2027 Subtotal:	-	-	-	267,900	266,621	-	-				211,709	4,527			

**TABLE 11-4
APPLICATION OF AMORTIZATION (\$000S) (FY 2020)**

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Fiscal Year	Project	Debt Type	In Service	Bond Due Date	Initial Principal	Current Principal	Original Rate	Effective Rate	Refinance Type	Refinanced Date	Rolled Maturity Date	Roll Rate	Principal Paid	Premium	Discount	Accrual	Reversal
106	2028	Construction	-	7/31/2009	7/31/2019	46,940	46,940	4.026%	3.450%	Global	7/31/2019	7/31/2028	3.450%	46,940			
107	2028	Construction	-	9/30/2009	9/30/2019	35,000	35,000	3.699%	3.450%	Global	9/30/2019	9/30/2028	3.450%	35,000			
108	2028	Environment	-	11/20/2013	11/30/2027	5,000	5,000	3.967%	3.967%					5,000			
109	2028	Construction	-	9/30/2014	4/30/2028	17,000	17,000	2.497%	2.497%					17,000			
110	2028	Construction	-	9/30/2014	9/30/2028	3,000	3,000	3.094%	3.094%					3,000			
111	2028	Construction	-	8/2/2011	8/31/2032	98,900	54,913	4.355%	4.355%					54,913	1,591		
112	2028	Construction	-	11/20/2013	4/30/2034	28,000	28,000	4.311%	4.311%					25,860	900		
113	2028	Construction	-	11/20/2013	8/31/2034	6,000	6,000	4.324%	4.324%					6,000	225		
114	2028	Construction	-	11/20/2013	5/31/2035	20,000	20,000	4.354%	4.354%					20,000	801		
115		FY 2028 Subtotal:	-	-	-	259,840	215,853	-	-					213,713	3,516		
116	2029	Environment	-	10/31/2013	10/31/2028	6,000	6,000	3.880%	3.880%					6,000			
117	2029	Environment	-	1/31/2014	1/31/2029	3,000	3,000	3.896%	3.896%					3,000			
118	2029	Environment	-	7/31/2014	7/31/2029	3,000	3,000	2.497%	2.497%					3,000			
119	2029	Construction	-	8/2/2011	8/31/2029	50,000	50,000	4.238%	4.238%					50,000			
120	2029	Construction	-	11/20/2013	1/31/2031	30,000	30,000	4.162%	4.162%					30,000	253		
121	2029	Construction	-	11/20/2013	2/28/2031	15,000	15,000	4.166%	4.166%					15,000	125		
122	2029	Construction	-	11/20/2013	3/31/2031	18,000	18,000	4.171%	4.171%					18,000	155		
123	2029	Construction	-	11/20/2013	4/30/2034	28,000	2,140	4.311%	4.311%					2,140	68		
124	2029	Construction	-	9/30/2013	9/30/2034	9,000	9,000	4.214%	4.214%					9,000	269		
125	2029	Construction	-	10/31/2013	10/31/2035	64,000	64,000	4.222%	4.222%					64,000	1,917		
126	2029	Construction	-	7/31/2020	7/31/2050	118,000	12,740	4.020%	4.020%					521			
127		FY 2029 Subtotal:	-	-	-	344,000	212,880	-	-					200,661	2,787		
128	2030	Construction	-	11/20/2013	10/31/2029	55,000	55,000	4.093%	4.093%					55,000			
129	2030	Construction	-	3/31/2015	3/31/2030	3,000	3,000	2.626%	2.626%					3,000			
130	2030	Construction	-	9/30/2015	9/30/2030	15,000	15,000	2.905%	2.905%					15,000			
131	2030	Construction	-	7/31/2020	7/31/2050	118,000	12,219	4.020%	4.020%					12,219			
132	2030	Construction	-	8/31/2020	8/31/2050	118,000	127,189	4.020%	4.020%					125,178			
133		FY 2030 Subtotal:	-	-	-	309,000	212,408	-	-					210,397			
134	2031	Construction	-	8/2/2011	8/31/2034	40,000	40,000	4.416%	4.416%					40,000	945		
135	2031	Construction	-	8/2/2011	8/31/2035	45,000	45,000	4.446%	4.446%					32,451	1,061		
136	2031	Environment	-	9/30/2020	9/30/2035	8,000	7,000	3.820%	3.820%					7,000			
137	2031	Construction	-	8/31/2020	8/31/2050	118,000	2,011	4.020%	4.020%					2,011			
138	2031	Construction	-	9/30/2020	9/30/2050	123,000	132,189	4.020%	4.020%					132,189			
139		FY 2031 Subtotal:	-	-	-	334,000	226,200	-	-					213,651	2,006		
140	2032	Construction	-	7/31/2014	4/30/2032	9,000	9,000	2.497%	2.497%					9,000			
141	2032	Construction	-	8/2/2011	8/31/2035	45,000	12,549	4.446%	4.446%					12,549	309		
142	2032	Construction	-	1/31/2011	1/31/2036	50,000	50,000	4.952%	4.952%					50,000	2,419		
143	2032	Construction	-	6/22/2011	6/30/2036	50,000	50,000	4.629%	4.629%					50,000	2,034		
144	2032	Construction	-	7/31/2020	7/31/2050	118,000	114,449	3.590%	3.590%					88,626			
145		FY 2032 Subtotal:	-	-	-	272,000	235,998	-	-					210,175	4,762		
146	2033	Construction	-	6/30/2014	11/30/2032	21,000	21,000	2.544%	2.544%					21,000			
147	2033	Environment	-	9/28/2018	11/30/2032	7,000	7,000	2.305%	2.305%					7,000			
148	2033	Construction	-	10/31/2015	10/31/2034	2,000	2,000	3.198%	3.198%					1,985		15	
149	2033	Construction	-	7/31/2017	7/31/2041	19,000	19,000	3.164%	3.164%					18,227		773	
150	2033	Construction	-	9/30/2017	9/30/2041	17,000	17,000	3.156%	3.156%					16,299		701	
151	2033	Construction	-	7/31/2017	7/31/2042	14,000	14,000	3.181%	3.181%					13,344		656	
152	2033	Construction	-	7/31/2017	7/31/2043	23,000	23,000	3.198%	3.198%					21,776		1,224	
153	2033	Construction	-	9/30/2017	9/30/2043	14,000	14,000	3.193%	3.193%					13,250		750	
154	2033	Construction	-	7/31/2017	7/31/2044	17,000	17,000	3.215%	3.215%					16,027		973	
155	2033	Construction	-	9/30/2017	9/30/2044	9,000	9,000	3.209%	3.209%					8,480		520	
156	2033	Construction	-	7/31/2017	7/31/2045	27,000	27,000	3.230%	3.230%					25,346		1,654	
157	2033	Construction	-	8/31/2017	8/31/2046	22,000	22,000	3.066%	3.066%					5,102		456	
158	2033	Construction	-	8/31/2017	8/31/2047	18,000	18,000	3.076%	3.076%					16,433		1,567	
159	2033	Construction	-	9/30/2017	9/30/2047	10,000	10,000	3.247%	3.247%					9,298		702	
160	2033	Construction	-	7/31/2020	7/31/2050	118,000	25,823	3.590%	3.590%					25,823			
161		FY 2033 Subtotal:	-	-	-	338,000	245,823	-	-					219,390	9,991		

**TABLE 11-4
APPLICATION OF AMORTIZATION (\$000S) (FY 2020)**

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Fiscal Year	Project	Debt Type	In Service	Bond Due Date	Initial Principal	Current Principal	Original Rate	Effective Rate	Refinance Type	Refinanced Date	Rolled Maturity Date	Roll Rate	Principal Paid	Premium	Discount	Accrual	Reversal
162	2034	Construction	-	4/30/2014	2/28/2034	45,000	45,000	2.476%	2.476%				45,000				
163	2034	Construction	-	4/30/2014	3/31/2034	45,000	45,000	2.455%	2.455%				45,000				
164	2034	Construction	-	10/31/2015	6/30/2034	21,000	21,000	2.530%	2.530%				21,000				
165	2034	Construction	-	10/31/2015	8/31/2034	19,000	19,000	2.476%	2.476%				19,000				
166	2034	Environment	-	9/30/2019	9/30/2034	7,000	7,000	2.940%	2.940%				7,000				
167	2034	Construction	-	8/31/2017	8/31/2041	13,000	13,000	2.991%	2.991%				12,421		579		
168	2034	Construction	-	8/31/2017	8/31/2043	10,000	10,000	3.024%	3.024%				9,414		586		
169	2034	Construction	-	8/31/2017	8/31/2046	22,000	16,442	3.066%	3.066%				15,192		1,250		
170	2034	Construction	-	7/31/2019	7/31/2049	82,000	81,000	2.940%	2.940%				77,299				
171		FY 2034 Subtotal:	-	-	-	264,000	257,442	-	-				251,325		2,416		
172	2035	Construction	-	8/31/2014	7/31/2035	10,000	10,000	2.497%	2.497%				10,000				
173	2035	Construction	-	8/31/2014	8/31/2035	15,000	15,000	2.476%	2.476%				15,000				
174	2035	Construction	-	5/31/2014	5/31/2036	29,000	29,000	2.544%	2.544%				949		11		
175	2035	Construction	-	8/31/2017	8/31/2037	30,000	30,000	2.902%	2.902%				29,426		574		
176	2035	Construction	-	8/31/2017	8/31/2038	7,000	7,000	2.929%	2.929%				6,831		169		
177	2035	Construction	-	7/31/2019	7/31/2049	82,000	3,701	2.940%	2.940%				3,701				
178	2035	Construction	-	8/31/2019	8/31/2049	81,000	81,000	2.940%	2.940%				81,000				
179	2035	Construction	-	9/30/2019	9/30/2049	81,000	82,000	2.940%	2.940%				82,000				
180		FY 2035 Subtotal:	-	-	-	335,000	257,701	-	-				228,907		753		
181	2036	Construction	-	5/31/2014	5/31/2036	29,000	28,041	2.544%	2.544%				28,041				
182	2036	Construction	-	4/30/2014	10/31/2039	45,000	45,000	2.497%	2.497%				43,385		1,615		
183	2036	Construction	-	1/27/2012	1/31/2040	30,000	30,000	2.497%	2.497%				28,787		1,213		
184	2036	Construction	-	9/28/2018	10/31/2047	4,000	4,000	2.497%	2.497%				3,543		457		
185	2036	Construction	-	9/28/2018	11/30/2047	24,000	24,000	2.544%	2.544%				21,340		2,660		
186	2036	Construction	-	8/31/2018	4/30/2048	19,000	19,000	2.497%	2.497%				16,764		2,236		
187	2036	Construction	-	9/28/2018	4/30/2048	67,000	67,000	2.497%	2.497%				14,989		1,999		
188	2036	Construction	-	8/31/2018	5/31/2048	21,000	21,000	2.544%	2.544%				18,603		2,397		
189	2036	Construction	-	9/28/2018	6/30/2048	63,800	63,800	2.530%	2.530%				56,237		7,563		
190		FY 2036 Subtotal:	-	-	-	302,800	301,841	-	-				231,689		20,141		
191	2037	Construction	-	8/31/2018	2/28/2048	12,000	12,000	2.476%	2.476%				10,664		1,336		
192	2037	Construction	-	9/28/2018	4/30/2048	67,000	50,011	2.497%	2.497%				44,544		5,468		
193	2037	Construction	-	9/28/2018	5/31/2048	42,000	42,000	2.305%	2.305%				36,845		5,155		
194	2037	Replacements	-	3/31/2021	3/31/2056	185,289	185,289	4.020%	4.019%				168,605				
195		FY 2037 Subtotal:	-	-	-	306,289	289,301	-	-				260,657		11,960		
196	2038	Replacements	-	3/31/2021	3/31/2056	185,289	16,684	4.020%	4.019%				16,684				
197	2038	Replacements	-	3/31/2022	3/31/2057	185,289	185,289	4.020%	4.019%				185,289				
198	2038	Replacements	-	3/31/2023	3/31/2058	185,289	185,289	4.020%	4.019%				78,628				
199		FY 2038 Subtotal:	-	-	-	555,867	387,262	-	-				280,601				
200	2039	Replacements	-	3/31/2023	3/31/2058	185,289	106,661	4.020%	4.019%				106,661				
201	2039	Replacements	-	3/31/2024	3/31/2059	185,289	185,289	4.020%	4.019%				176,003				
202		FY 2039 Subtotal:	-	-	-	370,578	291,951	-	-				282,665				
203	2040	Replacements	-	3/31/2024	3/31/2059	185,289	9,286	4.020%	4.019%				9,286				
204	2040	Replacements	-	3/31/2025	3/31/2060	185,289	185,289	4.020%	4.019%				185,289				
205	2040	Replacements	-	3/31/2026	3/31/2061	185,289	185,289	4.020%	4.019%				97,074				
206		FY 2040 Subtotal:	-	-	-	555,867	379,864	-	-				291,648				
207	2041	Replacements	-	3/31/2026	3/31/2061	185,289	88,216	4.020%	4.019%				88,216				
208	2041	Replacements	-	3/31/2027	3/31/2062	185,289	185,289	4.020%	4.019%				185,289				
209	2041	Replacements	-	3/31/2028	3/31/2063	185,289	185,289	4.020%	4.019%				119,978				
210		FY 2041 Subtotal:	-	-	-	555,867	458,794	-	-				393,483				

**TABLE 11-4
APPLICATION OF AMORTIZATION (\$000S) (FY 2020)**

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Fiscal Year	Project	Debt Type	In Service	Bond Due Date	Initial Principal	Current Principal	Original Rate	Effective Rate	Refinance Type	Refinanced Date	Rolled Maturity Date	Roll Rate	Principal Paid	Premium	Discount	Accrual	Reversal
211	2042	Replacements	-	3/31/2028	3/31/2063	185,289	65,311	4.020%	4.019%				65,311				
212	2042	Replacements	-	3/31/2029	3/31/2064	185,289	185,289	4.020%	4.019%				185,289				
213	2042	Replacements	-	3/31/2030	3/31/2065	185,289	185,289	4.020%	4.019%				64,837				
214		FY 2042 Subtotal:	-	-	-	555,867	435,889	-	-				315,437				
215	2043	Replacements	-	3/31/2030	3/31/2065	185,289	120,452	4.020%	4.019%				120,452				
216	2043	Replacements	-	3/31/2031	3/31/2066	185,289	185,289	4.020%	4.019%				185,289				
217	2043	Replacements	-	3/31/2032	3/31/2067	185,289	185,289	4.020%	4.019%				105,815				
218		FY 2043 Subtotal:	-	-	-	555,867	491,031	-	-				411,557				
219	2044	Replacements	-	3/31/2032	3/31/2067	185,289	79,474	4.020%	4.019%				79,474				
220	2044	Replacements	-	3/31/2033	3/31/2068	185,289	185,289	4.020%	4.019%				185,289				
221	2044	Replacements	-	3/31/2034	3/31/2069	185,289	185,289	4.020%	4.019%				158,306				
222		FY 2044 Subtotal:	-	-	-	555,867	450,052	-	-				423,069				
223	2045	Replacements	-	3/31/2034	3/31/2069	185,289	26,983	4.020%	4.019%				26,983				
224	2045	Replacements	-	3/31/2035	3/31/2070	185,289	185,289	4.020%	4.019%				185,289				
225	2045	Replacements	-	3/31/2036	3/31/2071	185,289	185,289	4.020%	4.019%				185,289				
226	2045	Replacements	-	3/31/2037	3/31/2072	185,289	185,289	4.020%	4.019%				35,646				
227		FY 2045 Subtotal:	-	-	-	741,157	582,850	-	-				433,208				
228	2046	Replacements	-	3/31/2037	3/31/2072	185,289	149,643	4.020%	4.019%				149,643				
229	2046	Replacements	-	3/31/2038	3/31/2073	185,289	185,289	4.020%	4.019%				185,289				
230	2046	Replacements	-	3/31/2039	3/31/2074	185,289	185,289	4.020%	4.019%				108,469				
231		FY 2046 Subtotal:	-	-	-	555,867	520,221	-	-				443,401				
232	2047	Replacements	-	3/31/2039	3/31/2074	185,289	76,821	4.020%	4.019%				76,821				
233	2047	Replacements	-	3/31/2040	3/31/2075	185,289	185,289	4.020%	4.019%				185,289				
234	2047	Replacements	-	3/31/2041	3/31/2076	185,289	185,289	4.020%	4.019%				185,289				
235	2047	Replacements	-	3/31/2042	3/31/2077	185,289	185,289	4.020%	4.019%				6,614				
236		FY 2047 Subtotal:	-	-	-	741,157	632,688	-	-				454,013				
237	2048	Replacements	-	3/31/2042	3/31/2077	185,289	178,675	4.020%	4.019%				178,675				
238	2048	Replacements	-	3/31/2043	3/31/2078	185,289	185,289	4.020%	4.019%				185,289				
239	2048	Replacements	-	3/31/2044	3/31/2079	185,289	185,289	4.020%	4.019%				101,097				
240		FY 2048 Subtotal:	-	-	-	555,867	549,254	-	-				465,061				
241	2049	Replacements	-	3/31/2044	3/31/2079	185,289	84,192	4.020%	4.019%				84,192				
242	2049	Replacements	-	3/31/2045	3/31/2080	185,289	185,289	4.020%	4.019%				185,289				
243	2049	Replacements	-	3/31/2046	3/31/2081	185,289	185,289	4.020%	4.019%				185,289				
244	2049	Replacements	-	3/31/2047	3/31/2082	185,289	185,289	4.020%	4.019%				21,794				
245		FY 2049 Subtotal:	-	-	-	741,157	640,060	-	-				476,564				
246	2050	Replacements	-	3/31/2047	3/31/2082	185,289	163,496	4.020%	4.019%				163,496				
247	2050	Replacements	-	3/31/2048	3/31/2083	185,289	185,289	4.020%	4.019%				185,289				
248	2050	Replacements	-	3/31/2049	3/31/2084	185,289	185,289	4.020%	4.019%				139,755				
249		FY 2050 Subtotal:	-	-	-	555,867	534,074	-	-				488,540				
250	2051	Replacements	-	3/31/2049	3/31/2084	185,289	45,534	4.020%	4.019%				45,534				
251	2051	Replacements	-	3/31/2050	3/31/2085	185,289	185,289	4.020%	4.019%				185,289				
252		FY 2051 Subtotal:	-	-	-	370,578	230,823	-	-				230,823				
253	2052	Replacements	-	3/31/2051	3/31/2086	185,289	185,289	4.020%	4.019%				185,289				
254		FY 2052 Subtotal:	-	-	-	185,289	185,289	-	-				185,289				
255	2053	Replacements	-	3/31/2052	3/31/2087	185,289	185,289	4.020%	4.019%				185,289				
256		FY 2053 Subtotal:	-	-	-	185,289	185,289	-	-				185,289				
257	2054	Replacements	-	3/31/2053	3/31/2088	185,289	185,289	4.020%	4.019%				185,289				
258		FY 2054 Subtotal:	-	-	-	185,289	185,289	-	-				185,289				
259	2055	Replacements	-	3/31/2054	3/31/2089	185,289	185,289	4.020%	4.019%				185,289				
260		FY 2055 Subtotal:	-	-	-	185,289	185,289	-	-				185,289				
261		Grand Total				\$14,248,574	\$11,930,970	-	-				\$10,214,649	\$69,646	\$45,260		

**TABLE 11-5
SUMMARY OF INTEREST (\$000S) (FY 2021)**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	
1	Obligation Type	General Project	Specific Project	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
2	Appropriation	Bonneville Power Administration	Bonneville Power Administration	30	11	-	-	-	-	-	-	-	-	-	-	-	-	
3			Bonneville Power Administration Subtotal:	30	11	-	-	-	-	-	-	-	-	-	-	-	-	-
4		Appropriation Subtotal:		30	11	-	-	-	-	-	-	-	-	-	-	-	-	-
5				(Less Interest Income)	(1,127)	(1,175)	(1,293)	(1,318)	(1,342)	(1,253)	(1,325)	(1,364)	(1,366)	(1,376)	(1,304)	(1,329)	(1,359)	(1,349)
6			Construction	106,357	110,344	119,408	131,936	123,013	115,684	109,550	102,372	95,564	90,418	81,042	71,038	61,687	52,595	
7			Interest Accrual	19,737	19,477	20,083	18,607	17,468	16,019	15,196	13,803	12,840	11,628	9,864	7,982	7,420	6,957	
8			Interest Accrual Reversal	(18,997)	(19,737)	(19,477)	(20,083)	(18,607)	(17,468)	(16,019)	(15,196)	(13,803)	(12,840)	(11,628)	(9,864)	(7,982)	(7,420)	
9			Construction (AS)	1,258	1,154	1,241	1,655	1,564	1,444	1,324	861	331	-	-	-	-	-	
10			Interest Accrual	211	111	49	-	-	-	-	-	-	-	-	-	-	-	
11		BPA Borrowing	Interest Accrual Reversal	(278)	(211)	(111)	(49)	-	-	-	-	-	-	-	-	-	-	
12			Environment	1,793	2,052	2,319	3,140	3,140	3,102	2,850	2,532	2,532	1,979	1,705	1,456	1,456	1,456	
13	Treasury		Interest Accrual	444	444	444	444	444	431	360	360	249	182	54	54	54	54	
14			Interest Accrual Reversal	(390)	(444)	(444)	(444)	(444)	(444)	(431)	(360)	(360)	(249)	(182)	(54)	(54)	(54)	
15			Technology (T)	527	527	324	-	-	-	-	-	-	-	-	-	-	-	-
16			Interest Accrual	34	34	-	-	-	-	-	-	-	-	-	-	-	-	-
17			Interest Accrual Reversal	(35)	(34)	(34)	-	-	-	-	-	-	-	-	-	-	-	-
18			BPA Borrowing Subtotal:	109,533	112,542	122,508	133,889	125,236	117,516	111,504	103,009	95,987	89,743	79,552	69,281	61,222	52,238	
19			Federal Transmission Replacement	Replacements	-	-	-	3,566	10,698	17,830	24,962	32,094	39,226	46,358	53,489	60,621	67,753	74,885
20		Federal Transmission Replacement Subtotal:		-	-	-	3,566	10,698	17,830	24,962	32,094	39,226	46,358	53,489	60,621	67,753	74,885	
21		Treasury Subtotal:	109,533	112,542	122,508	137,455	135,934	135,345	136,466	135,102	135,213	136,100	133,041	129,903	128,976	127,124		
22	Grand Total:			\$109,564	\$112,553	\$122,508	\$137,455	\$135,934	\$135,345	\$136,466	\$135,102	\$135,213	\$136,100	\$133,041	\$129,903	\$128,976	\$127,124	

**TABLE 11-5
SUMMARY OF INTEREST (\$000S) (FY 2021)**

	A	B	C	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	
1	Obligation Type	General Project	Specific Project	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	
2	Appropriation	Bonneville Power Administration	Bonneville Power Administration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3			Bonneville Power Administration Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4			Appropriation Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5				(Less Interest Income)	(1,375)	(1,536)	(1,438)	(1,460)	(1,597)	(1,675)	(1,663)	(1,709)	(2,170)	(1,796)	(2,229)	(2,265)	(2,293)	(2,322)
6				Construction	44,174	36,421	26,861	18,663	11,320	5,283	-	-	-	-	-	-	-	-
7				Interest Accrual	6,631	5,267	4,064	3,018	2,083	-	-	-	-	-	-	-	-	-
8				Interest Accrual Reversal	(6,957)	(6,631)	(5,267)	(4,064)	(3,018)	(2,083)	-	-	-	-	-	-	-	-
9				Construction (AS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10				Interest Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11			BPA Borrowing	Interest Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12				Environment	834	209	-	-	-	-	-	-	-	-	-	-	-	-
13		Treasury		Interest Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14				Interest Accrual Reversal	(54)	-	-	-	-	-	-	-	-	-	-	-	-	-
15			Technology (T)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
16			Interest Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
17			Interest Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
18			BPA Borrowing Subtotal:	43,253	33,730	24,220	16,157	8,789	1,525	(1,663)	(1,709)	(2,170)	(1,796)	(2,229)	(2,265)	(2,293)	(2,322)	
19		Federal Transmission Replacement	Replacements	82,017	89,149	96,281	103,413	110,545	116,288	115,781	110,195	102,243	93,728	84,765	73,491	61,684	49,369	
20			Federal Transmission Replacement Subtotal:	82,017	89,149	96,281	103,413	110,545	116,288	115,781	110,195	102,243	93,728	84,765	73,491	61,684	49,369	
21		Treasury Subtotal:		125,270	122,879	120,501	119,570	119,334	117,814	114,118	108,485	100,073	91,932	82,537	71,227	59,391	47,047	
22	Grand Total:			\$125,270	\$122,879	\$120,501	\$119,570	\$119,334	\$117,814	\$114,118	\$108,485	\$100,073	\$91,932	\$82,537	\$71,227	\$59,391	\$47,047	

**TABLE 11-5
SUMMARY OF INTEREST (\$000S) (FY 2021)**

	A	B	C	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP		
1	Obligation Type	General Project	Specific Project	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	Total		
2	Appropriation	Bonneville Power Administration	Bonneville Power Administration	-	-	-	-	-	-	-	-	-	-	41		
3			Bonneville Power Administration Subtotal:	-	-	-	-	-	-	-	-	-	-	-	41	
4			Appropriation Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-	41
5				(Less Interest Income)	(2,351)	(2,382)	(2,414)	(2,436)	(2,436)	(2,436)	(2,436)	(2,436)	(2,436)	(2,436)	(68,006)	
6				Construction	-	-	-	-	-	-	-	-	-	-	1,513,732	
7				Interest Accrual	-	-	-	-	-	-	-	-	-	-	218,142	
8				Interest Accrual Reversal	-	-	-	-	-	-	-	-	-	-	(237,139)	
9				Construction (AS)	-	-	-	-	-	-	-	-	-	-	10,833	
10				Interest Accrual	-	-	-	-	-	-	-	-	-	-	371	
11			BPA Borrowing	Interest Accrual Reversal	-	-	-	-	-	-	-	-	-	-	(649)	
12				Environment	-	-	-	-	-	-	-	-	-	-	32,554	
13		Treasury		Interest Accrual	-	-	-	-	-	-	-	-	-	-	-	4,015
14				Interest Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	(4,405)
15	Technology (T)			-	-	-	-	-	-	-	-	-	-	-	1,378	
16	Interest Accrual		-	-	-	-	-	-	-	-	-	-	-	68		
17			Interest Accrual Reversal	-	-	-	-	-	-	-	-	-	-	(103)		
18			BPA Borrowing Subtotal:	(2,351)	(2,382)	(2,414)	(2,436)	(2,436)	(2,436)	(2,436)	(2,436)	(2,436)	(2,436)	1,470,790		
19		Federal Transmission Replacement	Replacements	36,530	23,146	11,723	7,132	7,132	7,132	7,132	7,132	7,132	7,132	1,841,755		
20			Federal Transmission Replacement Subtotal:	36,530	23,146	11,723	7,132	7,132	7,132	7,132	7,132	7,132	7,132	1,841,755		
21			Treasury Subtotal:	34,179	20,764	9,309	4,696	4,696	4,696	4,696	4,696	4,696	4,696	3,312,545		
22	Grand Total:			\$34,179	\$20,764	\$9,309	\$4,696	\$4,696	\$4,696	\$4,696	\$4,696	\$4,696	\$4,696	\$3,312,586		

**TABLE 11-6
INTEREST CALCULATION SUMMARY (\$000S)
(FY 2021)**

A	B	C	D	E	F	G	H	I
Fiscal Year	Project	Type	Current Principal	Rate	Interest	Premium	Net Interest Accrual	Total
1	2019 Bonneville Power Administration	Historical	421	7.210%	30	-	-	30
2	2019 Construction	Historical	3,134,440	3.391%	106,279	-	120	106,399
3	2019 Construction	New	168,000	0.046%	78	-	620	698
4	2019 Construction (AS)	Historical	65,650	1.916%	1,258	-	(68)	1,190
5	2019 Environment	Historical	61,000	2.939%	1,793	-	53	1,846
6	2019 Technology (T)	Historical	28,000	1.883%	527	-	(1)	527
7	2019 Float	Historical	-	-	(1,127)	-	-	(1,127)
8	FY 2019 Subtotal:		3,457,511		108,839	-	725	109,564
9	2020 Bonneville Power Administration	Historical	154	7.210%	11	-	-	11
10	2020 Construction	Historical	3,167,440	3.484%	110,344	-	(1,455)	108,889
11	2020 Construction	New	254,378	-	-	-	1,195	1,195
12	2020 Construction (AS)	Historical	56,900	2.028%	1,154	-	(99)	1,055
13	2020 Construction (AS)	New	11,000	-	-	-	-	-
14	2020 Environment	Historical	68,000	3.017%	2,052	-	-	2,052
15	2020 Technology (T)	Historical	28,000	1.881%	527	-	-	527
16	2020 Float	Historical	-	-	(1,175)	-	-	(1,175)
17	FY 2020 Subtotal:		3,585,872		112,912	-	(359)	112,553
18	2021 Construction	Historical	3,371,362	3.542%	119,408	-	(1,239)	118,169
19	2021 Construction	New	356,378	-	-	-	1,845	1,845
20	2021 Construction (AS)	Historical	51,000	2.433%	1,241	-	(63)	1,178
21	2021 Construction (AS)	New	18,000	-	-	-	-	-
22	2021 Environment	Historical	75,000	3.092%	2,319	-	-	2,319
23	2021 Technology (T)	Historical	28,000	1.158%	324	-	(34)	290
24	2021 Float	Historical	-	-	(1,293)	-	-	(1,293)
25	FY 2021 Subtotal:		3,899,740		121,999	-	509	122,508
26	2022 Construction	Historical	3,749,491	3.519%	131,936	-	(1,476)	130,460
27	2022 Construction (AS)	Historical	56,000	2.956%	1,655	-	(49)	1,606
28	2022 Environment	Historical	96,000	3.271%	3,140	-	-	3,140
29	2022 Replacements	New	171,866	2.075%	3,566	-	-	3,566
30	2022 Float	Historical	-	-	(1,318)	-	-	(1,318)
31	FY 2022 Subtotal:		4,073,357		138,980	-	(1,525)	137,455
32	2023 Construction	Historical	3,553,600	3.462%	123,013	-	(1,139)	121,874
33	2023 Construction (AS)	Historical	45,800	3.415%	1,564	-	-	1,564
34	2023 Environment	Historical	96,000	3.271%	3,140	-	-	3,140
35	2023 Replacements	Historical	171,866	4.150%	7,132	-	-	7,132
36	2023 Replacements	New	171,866	2.075%	3,566	-	-	3,566
37	2023 Float	Historical	-	-	(1,342)	-	-	(1,342)
38	FY 2023 Subtotal:		4,039,132		137,073	-	(1,139)	135,934
39	2024 Construction	Historical	3,347,684	3.456%	115,684	-	(1,448)	114,235
40	2024 Construction (AS)	Historical	45,800	3.153%	1,444	-	-	1,444
41	2024 Environment	Historical	96,000	3.231%	3,102	-	(13)	3,089
42	2024 Replacements	Historical	343,732	4.150%	14,264	-	-	14,264
43	2024 Replacements	New	171,866	2.075%	3,566	-	-	3,566
44	2024 Float	Historical	-	-	(1,253)	-	-	(1,253)
45	FY 2024 Subtotal:		4,005,083		136,806	-	(1,461)	135,345
46	2025 Construction	Historical	3,168,196	3.458%	109,550	-	(823)	108,726
47	2025 Construction (AS)	Historical	38,000	3.484%	1,324	-	-	1,324
48	2025 Environment	Historical	92,000	3.098%	2,850	-	(71)	2,779
49	2025 Replacements	Historical	515,598	4.150%	21,396	-	-	21,396
50	2025 Replacements	New	171,866	2.075%	3,566	-	-	3,566
51	2025 Float	Historical	-	-	(1,325)	-	-	(1,325)
52	FY 2025 Subtotal:		3,985,660		137,361	-	(895)	136,466
53	2026 Construction	Historical	2,982,323	3.433%	102,372	-	(1,393)	100,980
54	2026 Construction (AS)	Historical	29,000	2.969%	861	-	-	861
55	2026 Environment	Historical	77,000	3.288%	2,532	-	-	2,532
56	2026 Replacements	Historical	687,464	4.150%	28,528	-	-	28,528
57	2026 Replacements	New	171,866	2.075%	3,566	-	-	3,566
58	2026 Float	Historical	-	-	(1,364)	-	-	(1,364)
59	FY 2026 Subtotal:		3,947,653		136,495	-	(1,393)	135,102

**TABLE 11-6
INTEREST CALCULATION SUMMARY (\$000S)
(FY 2021)**

A	B	C	D	E	F	G	H	I
Fiscal Year	Project	Type	Current Principal	Rate	Interest	Premium	Net Interest Accrual	Total
60	2027 Construction	Historical	2,774,163	3.445%	95,564	-	(963)	94,601
61	2027 Construction (AS)	Historical	18,000	1.840%	331	-	-	331
62	2027 Environment	Historical	77,000	3.288%	2,532	-	(111)	2,421
63	2027 Replacements	Historical	859,331	4.150%	35,660	-	-	35,660
64	2027 Replacements	New	171,866	2.075%	3,566	-	-	3,566
65	2027 Float	Historical	-	-	(1,366)	-	-	(1,366)
66	FY 2027 Subtotal:		3,900,360		136,286		(1,073)	135,213
67	2028 Construction	Historical	2,590,524	3.490%	90,418	-	(1,213)	89,206
68	2028 Environment	Historical	59,000	3.355%	1,979	-	(66)	1,913
69	2028 Replacements	Historical	1,031,197	4.150%	42,792	-	-	42,792
70	2028 Replacements	New	171,866	2.075%	3,566	-	-	3,566
71	2028 Float	Historical	-	-	(1,376)	-	-	(1,376)
72	FY 2028 Subtotal:		3,852,587		137,379		(1,279)	136,100
73	2029 Construction	Historical	2,373,291	3.415%	81,042	-	(1,764)	79,279
74	2029 Environment	Historical	54,000	3.158%	1,705	-	(128)	1,577
75	2029 Replacements	Historical	1,203,063	4.150%	49,923	-	-	49,923
76	2029 Replacements	New	171,866	2.075%	3,566	-	-	3,566
77	2029 Float	Historical	-	-	(1,304)	-	-	(1,304)
78	FY 2029 Subtotal:		3,802,220		134,933		(1,892)	133,041
79	2030 Construction	Historical	2,174,923	3.266%	71,038	-	(1,882)	69,155
80	2030 Environment	Historical	42,000	3.466%	1,456	-	-	1,456
81	2030 Replacements	Historical	1,374,929	4.150%	57,055	-	-	57,055
82	2030 Replacements	New	171,866	2.075%	3,566	-	-	3,566
83	2030 Float	Historical	-	-	(1,329)	-	-	(1,329)
84	FY 2030 Subtotal:		3,763,718		131,785		(1,882)	129,903
85	2031 Construction	Historical	1,954,628	3.156%	61,687	-	(562)	61,126
86	2031 Environment	Historical	42,000	3.466%	1,456	-	-	1,456
87	2031 Replacements	Historical	1,546,795	4.150%	64,187	-	-	64,187
88	2031 Replacements	New	171,866	2.075%	3,566	-	-	3,566
89	2031 Float	Historical	-	-	(1,359)	-	-	(1,359)
90	FY 2031 Subtotal:		3,715,289		129,537		(562)	128,976
91	2032 Construction	Historical	1,728,346	3.043%	52,595	-	(464)	52,132
92	2032 Environment	Historical	42,000	3.466%	1,456	-	-	1,456
93	2032 Replacements	Historical	1,718,661	4.150%	71,319	-	-	71,319
94	2032 Replacements	New	171,866	2.075%	3,566	-	-	3,566
95	2032 Float	Historical	-	-	(1,349)	-	-	(1,349)
96	FY 2032 Subtotal:		3,660,873		127,587		(464)	127,124
97	2033 Construction	Historical	1,503,539	2.938%	44,174	-	(325)	43,849
98	2033 Environment	Historical	42,000	1.985%	834	-	(54)	780
99	2033 Replacements	Historical	1,890,527	4.150%	78,451	-	-	78,451
100	2033 Replacements	New	171,866	2.075%	3,566	-	-	3,566
101	2033 Float	Historical	-	-	(1,375)	-	-	(1,375)
102	FY 2033 Subtotal:		3,607,932		125,650		(379)	125,270
103	2034 Construction	Historical	1,307,249	2.786%	36,421	-	(1,364)	35,057
104	2034 Environment	Historical	7,161	2.917%	209	-	-	209
105	2034 Replacements	Historical	2,062,393	4.150%	85,583	-	-	85,583
106	2034 Replacements	New	171,866	2.075%	3,566	-	-	3,566
107	2034 Float	Historical	-	-	(1,536)	-	-	(1,536)
108	FY 2034 Subtotal:		3,548,669		124,243		(1,364)	122,879
109	2035 Construction	Historical	1,046,996	2.566%	26,861	-	(1,203)	25,658
110	2035 Replacements	Historical	2,234,259	4.150%	92,715	-	-	92,715
111	2035 Replacements	New	171,866	2.075%	3,566	-	-	3,566
112	2035 Float	Historical	-	-	(1,438)	-	-	(1,438)
113	FY 2035 Subtotal:		3,453,122		121,704		(1,203)	120,501
114	2036 Construction	Historical	793,622	2.352%	18,663	-	(1,046)	17,617
115	2036 Replacements	Historical	2,406,125	4.150%	99,847	-	-	99,847
116	2036 Replacements	New	171,866	2.075%	3,566	-	-	3,566
117	2036 Float	Historical	-	-	(1,460)	-	-	(1,460)
118	FY 2036 Subtotal:		3,371,613		120,616		(1,046)	119,570
119	2037 Construction	Historical	533,432	2.122%	11,320	-	(935)	10,385
120	2037 Replacements	Historical	2,577,992	4.150%	106,979	-	-	106,979
121	2037 Replacements	New	171,866	2.075%	3,566	-	-	3,566
122	2037 Float	Historical	-	-	(1,597)	-	-	(1,597)
123	FY 2037 Subtotal:		3,283,289		120,269		(935)	119,334

**TABLE 11-6
INTEREST CALCULATION SUMMARY (\$000S)
(FY 2021)**

A	B	C	D	E	F	G	H	I
Fiscal Year	Project	Type	Current Principal	Rate	Interest	Premium	Net Interest Accrual	Total
124	2038 Construction	Historical	232,445	2.273%	5,283	-	(2,083)	3,200
125	2038 Replacements	Historical	2,749,858	4.099%	112,722	-	-	112,722
126	2038 Replacements	New	171,866	2.075%	3,566	-	-	3,566
127	2038 Float	Historical	-	-	(1,675)	-	-	(1,675)
128	FY 2038 Subtotal:		3,154,169		119,897	-	(2,083)	117,814
129	2039 Replacements	Historical	2,854,801	3.931%	112,215	-	-	112,215
130	2039 Replacements	New	171,866	2.075%	3,566	-	-	3,566
131	2039 Float	Historical	-	-	(1,663)	-	-	(1,663)
132	FY 2039 Subtotal:		3,026,667		114,118	-	-	114,118
133	2040 Replacements	Historical	2,725,418	3.912%	106,629	-	-	106,629
134	2040 Replacements	New	171,866	2.075%	3,566	-	-	3,566
135	2040 Float	Historical	-	-	(1,709)	-	-	(1,709)
136	FY 2040 Subtotal:		2,897,284		108,485	-	-	108,485
137	2041 Replacements	Historical	2,585,545	3.816%	98,677	-	-	98,677
138	2041 Replacements	New	171,866	2.075%	3,566	-	-	3,566
139	2041 Float	Historical	-	-	(2,170)	-	-	(2,170)
140	FY 2041 Subtotal:		2,757,411		100,073	-	-	100,073
141	2042 Replacements	Historical	2,342,185	3.849%	90,162	-	-	90,162
142	2042 Replacements	New	171,866	2.075%	3,566	-	-	3,566
143	2042 Float	Historical	-	-	(1,796)	-	-	(1,796)
144	FY 2042 Subtotal:		2,514,051		91,932	-	-	91,932
145	2043 Replacements	Historical	2,175,168	3.733%	81,200	-	-	81,200
146	2043 Replacements	New	171,866	2.075%	3,566	-	-	3,566
147	2043 Float	Historical	-	-	(2,229)	-	-	(2,229)
148	FY 2043 Subtotal:		2,347,034		82,537	-	-	82,537
149	2044 Replacements	Historical	1,910,210	3.661%	69,925	-	-	69,925
150	2044 Replacements	New	171,866	2.075%	3,566	-	-	3,566
151	2044 Float	Historical	-	-	(2,265)	-	-	(2,265)
152	FY 2044 Subtotal:		2,082,076		71,227	-	-	71,227
153	2045 Replacements	Historical	1,631,786	3.562%	58,119	-	-	58,119
154	2045 Replacements	New	171,866	2.075%	3,566	-	-	3,566
155	2045 Float	Historical	-	-	(2,293)	-	-	(2,293)
156	FY 2045 Subtotal:		1,803,652		59,391	-	-	59,391
157	2046 Replacements	Historical	1,341,174	3.415%	45,803	-	-	45,803
158	2046 Replacements	New	171,866	2.075%	3,566	-	-	3,566
159	2046 Float	Historical	-	-	(2,322)	-	-	(2,322)
160	FY 2046 Subtotal:		1,513,040		47,047	-	-	47,047
161	2047 Replacements	Historical	1,038,218	3.175%	32,964	-	-	32,964
162	2047 Replacements	New	171,866	2.075%	3,566	-	-	3,566
163	2047 Float	Historical	-	-	(2,351)	-	-	(2,351)
164	FY 2047 Subtotal:		1,210,084		34,179	-	-	34,179
165	2048 Replacements	Historical	722,394	2.710%	19,580	-	-	19,580
166	2048 Replacements	New	171,866	2.075%	3,566	-	-	3,566
167	2048 Float	Historical	-	-	(2,382)	-	-	(2,382)
168	FY 2048 Subtotal:		894,260		20,764	-	-	20,764
169	2049 Replacements	Historical	393,154	2.075%	8,157	-	-	8,157
170	2049 Replacements	New	171,866	2.075%	3,566	-	-	3,566
171	2049 Float	Historical	-	-	(2,414)	-	-	(2,414)
172	FY 2049 Subtotal:		565,020		9,309	-	-	9,309
173	2050 Replacements	Historical	171,866	2.075%	3,566	-	-	3,566
174	2050 Replacements	New	171,866	2.075%	3,566	-	-	3,566
175	2050 Float	Historical	-	-	(2,436)	-	-	(2,436)
176	FY 2050 Subtotal:		343,732		4,696	-	-	4,696
177	2051 Replacements	Historical	171,866	2.075%	3,566	-	-	3,566
178	2051 Replacements	New	171,866	2.075%	3,566	-	-	3,566
179	2051 Float	Historical	-	-	(2,436)	-	-	(2,436)
180	FY 2051 Subtotal:		343,732		4,696	-	-	4,696

TABLE 11-6
INTEREST CALCULATION SUMMARY (\$000S)
(FY 2021)

	A	B	C	D	E	F	G	H	I
	Fiscal Year	Project	Type	Current Principal	Rate	Interest	Premium	Net Interest Accrual	Total
181	2052	Replacements	Historical	171,866	2.075%	3,566	-	-	3,566
182	2052	Replacements	New	171,866	2.075%	3,566	-	-	3,566
183	2052	Float	Historical	-	-	(2,436)	-	-	(2,436)
184	FY 2052	Subtotal:		343,732		4,696	-	-	4,696
185	2053	Replacements	Historical	171,866	2.075%	3,566	-	-	3,566
186	2053	Replacements	New	171,866	2.075%	3,566	-	-	3,566
187	2053	Float	Historical	-	-	(2,436)	-	-	(2,436)
188	FY 2053	Subtotal:		343,732		4,696	-	-	4,696
189	2054	Replacements	Historical	171,866	2.075%	3,566	-	-	3,566
190	2054	Replacements	New	171,866	2.075%	3,566	-	-	3,566
191	2054	Float	Historical	-	-	(2,436)	-	-	(2,436)
192	FY 2054	Subtotal:		343,732		4,696	-	-	4,696
193	2055	Replacements	Historical	171,866	2.075%	3,566	-	-	3,566
194	2055	Replacements	New	171,866	2.075%	3,566	-	-	3,566
195	2055	Float	Historical	-	-	(2,436)	-	-	(2,436)
196	FY 2055	Subtotal:		343,732		4,696	-	-	4,696
197	2056	Replacements	Historical	171,866	2.075%	3,566	-	-	3,566
198	2056	Replacements	New	171,866	2.075%	3,566	-	-	3,566
199	2056	Float	Historical	-	-	(2,436)	-	-	(2,436)
200	FY 2056	Subtotal:		343,732		4,696	-	-	4,696
201	Grand Total:			\$98,124,555		\$3,332,287	-	(\$19,701)	\$3,312,586

**TABLE 11-7
SUMMARY OF AMORTIZATION (\$000S) (FY 2021)**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	
1	Obligation Type	General Project	Specific Project	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
2	Appropriation	Bonneville Power Administration	Bonneville Power Administration	267	154	-	-	-	-	-	-	-	-	-	-	-	-	
3			Bonneville Power Administration Subtotal:	267	154	-	-	-	-	-	-	-	-	-	-	-	-	
4			Appropriation Subtotal:	267	154	-	-	-	-	-	-	-	-	-	-	-	-	-
5			Construction	217,000	182,645	163,438	195,892	205,915	179,489	185,873	208,160	183,639	217,233	198,368	220,295	226,282	224,807	
6		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
8		Construction (AS)	17,750	16,900	13,000	10,200	-	7,800	9,000	11,000	18,000	-	-	-	-	-		
9		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
10		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
11		BPA Borrowing	Environment	-	-	-	-	-	4,000	15,000	-	18,000	5,000	12,000	-	-		
12		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
13		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
14		Technology (T)	-	-	28,000	-	-	-	-	-	-	-	-	-	-	-		
15	Bond	Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
16		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
17		BPA Borrowing Subtotal:	234,750	199,545	204,438	206,092	205,915	191,289	209,873	219,160	219,639	222,233	210,368	220,295	226,282	224,807		
18		Replacements	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
19		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
20		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
21		Federal Transmission Replacement Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
22		Discounts	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
23		Make Whole Call	Premiums	-	5,882	10,660	8,224	12,329	7,674	5,094	3,810	3,958	3,000	2,719	-	-		
24		Make Whole Call Subtotal:	-	5,882	10,660	8,224	12,329	7,674	5,094	3,810	3,958	3,000	2,719	-	-			
25		Bond Subtotal:	234,750	199,545	204,438	206,092	205,915	191,289	209,873	219,160	219,639	222,233	210,368	220,295	226,282	224,807		
26	Grand Total:			\$235,017	\$199,699	\$204,438	\$206,092	\$205,915	\$191,289	\$209,873	\$219,160	\$219,639	\$222,233	\$210,368	\$220,295	\$226,282	\$224,807	

**TABLE 11-7
SUMMARY OF AMORTIZATION (\$000S) (FY 2021)**

	A	B	C	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	
1	Obligation Type	General Project	Specific Project	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	
2	Appropriation	Bonneville Power Administration	Bonneville Power Administration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3			Bonneville Power Administration Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4			Appropriation Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5			Construction	196,290	257,023	247,120	252,066	281,063	232,445	-	-	-	-	-	-	-	-	-
6		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8		Construction (AS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11		BPA Borrowing	Environment	34,839	7,161	-	-	-	-	-	-	-	-	-	-	-	-	-
12		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		Technology (T)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Bond	Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17		BPA Borrowing Subtotal:	231,129	264,183	247,120	252,066	281,063	232,445	-	-	-	-	-	-	-	-	-	-
18		Replacements	-	-	-	-	-	66,922	301,249	311,739	415,226	338,883	436,824	450,290	462,478	474,822	-	-
19	Federal Transmission Replacement	Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21		Federal Transmission Replacement Subtotal:	-	-	-	-	-	66,922	301,249	311,739	415,226	338,883	436,824	450,290	462,478	474,822	-	-
22		Discounts	-	-	(3,230)	(6,254)	(8,124)	(19,924)	-	-	-	-	-	-	-	-	-	-
23	Make Whole Call	Premiums	-	2,353	244	-	-	-	-	-	-	-	-	-	-	-	-	-
24		Make Whole Call Subtotal:	-	2,353	(2,986)	(6,254)	(8,124)	(19,924)	-	-	-	-	-	-	-	-	-	-
25		Bond Subtotal:	231,129	264,183	250,351	258,320	289,188	319,291	301,249	311,739	415,226	338,883	436,824	450,290	462,478	474,822	-	-
26	Grand Total:			\$231,129	\$264,183	\$250,351	\$258,320	\$289,188	\$319,291	\$301,249	\$311,739	\$415,226	\$338,883	\$436,824	\$450,290	\$462,478	\$474,822	

**TABLE 11-7
SUMMARY OF AMORTIZATION (\$000S) (FY 2021)**

	A	B	C	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP
1	Obligation Type	General Project	Specific Project	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	Total
2		Bonneville Power Administration	Bonneville Power Administration	-	-	-	-	-	-	-	-	-	-	421
3	Appropriation		Bonneville Power Administration Subtotal:	-	-	-	-	-	-	-	-	-	-	421
4			Appropriation Subtotal:	-	-	-	-	-	-	-	-	-	-	421
5			Construction	-	-	-	-	-	-	-	-	-	-	4,275,042
6			Principal Accrual	-	-	-	-	-	-	-	-	-	-	-
7			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-
8			Construction (AS)	-	-	-	-	-	-	-	-	-	-	103,650
9			Principal Accrual	-	-	-	-	-	-	-	-	-	-	-
10			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-
11		BPA Borrowing	Environment	-	-	-	-	-	-	-	-	-	-	96,000
12			Principal Accrual	-	-	-	-	-	-	-	-	-	-	-
13			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-
14			Technology (T)	-	-	-	-	-	-	-	-	-	-	28,000
15	Bond		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-
16			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-
17			BPA Borrowing Subtotal:	-	-	-	-	-	-	-	-	-	-	4,502,692
18			Replacements	487,691	501,105	393,154	171,866	171,866	171,866	171,866	171,866	171,866	171,866	5,843,448
19		Federal Transmission Replacement	Principal Accrual	-	-	-	-	-	-	-	-	-	-	-
20			Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-
21			Federal Transmission Replacement Subtotal:	487,691	501,105	393,154	171,866	171,866	171,866	171,866	171,866	171,866	171,866	5,843,448
22			Discounts	-	-	-	-	-	-	-	-	-	-	(37,532)
23		Make Whole Call	Premiums	-	-	-	-	-	-	-	-	-	-	65,949
24			Make Whole Call Subtotal:	-	-	-	-	-	-	-	-	-	-	28,416
25			Bond Subtotal:	487,691	501,105	393,154	171,866	171,866	171,866	171,866	171,866	171,866	171,866	10,383,672
26	Grand Total:			\$487,691	\$501,105	\$393,154	\$171,866	\$171,866	\$171,866	\$171,866	\$171,866	\$171,866	\$171,866	\$10,384,093

**TABLE 11-8
APPLICATION OF AMORTIZATION (\$000S) (FY 2021)**

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Fiscal Year	Project	Debt Type	In Service	Bond Due Date	Initial Principal	Current Principal	Original Rate	Effective Rate	Refinance Type	Refinanced Date	Rolled Maturity Date	Roll Rate	Principal Paid	Premium	Discount	Accrual	Reversal
1	2019	Construction	-	10/31/2009	10/31/2018	23,000	23,000	3.719%	3.719%				23,000				
2	2019	Construction	-	11/30/2009	11/30/2018	15,000	15,000	3.533%	3.533%				15,000				
3	2019	Construction (AS)	-	11/30/2012	11/30/2018	9,750	9,750	1.109%	1.109%				9,750				
4	2019	Construction	-	12/31/2009	12/31/2018	13,000	13,000	4.069%	4.069%				13,000				
5	2019	Construction	-	1/16/2014	12/31/2018	33,000	33,000	1.943%	1.943%				33,000				
6	2019	Construction	-	1/16/2014	12/31/2018	30,000	30,000	1.943%	1.943%				30,000				
7	2019	Construction	-	1/16/2014	12/31/2018	31,000	31,000	1.943%	1.943%				31,000				
8	2019	Construction	-	1/16/2014	12/31/2018	48,000	48,000	1.943%	1.943%				48,000				
9	2019	Construction	-	1/31/2010	1/31/2019	30,000	24,000	3.714%	3.714%				24,000				
10	2019	Construction (AS)	-	6/30/2013	6/30/2019	5,000	5,000	1.962%	1.962%				5,000				
11	2019	Construction (AS)	-	8/31/2013	8/31/2019	3,000	3,000	2.279%	2.279%				3,000				
12	2019	Bonneville Power Administration	Bonneville Power Administration	9/30/1977	9/30/2022	33,702	421	7.210%	7.210%				267				
13		FY 2019 Subtotal:	-	-	-	274,452	235,171	-					235,017				
14	2020	Construction (AS)	-	10/31/2013	10/31/2019	7,800	7,800	2.039%	2.039%				7,800				
15	2020	Construction	-	10/31/2009	10/31/2019	43,000	43,000	3.842%	3.842%				43,000				
16	2020	Construction (AS)	-	1/31/2014	1/31/2020	3,250	3,250	2.183%	2.183%				3,250				
17	2020	Construction	-	1/31/2009	1/31/2020	50,000	50,000	3.830%	3.830%				50,000				
18	2020	Construction (AS)	-	4/30/2014	3/31/2020	2,600	2,600	2.455%	2.455%				2,600				
19	2020	Construction (AS)	-	5/31/2014	4/30/2020	1,300	1,300	2.497%	2.497%				1,300				
20	2020	Construction (AS)	-	7/31/2014	7/31/2020	1,950	1,950	2.497%	2.497%				1,950				
21	2020	Construction	-	7/31/2010	7/31/2020	50,000	50,000	3.118%	3.118%				50,000				
22	2020	Bonneville Power Administration	Bonneville Power Administration	9/30/1977	9/30/2022	33,702	154	7.210%	7.210%				154				
23	2020	Construction	-	8/31/1998	8/31/2028	112,300	112,300	5.850%	5.850%				39,645	5,882			
24		FY 2020 Subtotal:	-	-	-	305,902	272,354	-					199,699	5,882			
25	2021	Construction (AS)	-	11/30/2014	11/30/2020	3,900	3,900	1.809%	1.809%				3,900				
26	2021	Construction (AS)	-	12/31/2014	12/31/2020	1,950	1,950	1.922%	1.922%				1,950				
27	2021	Construction (AS)	-	2/28/2015	2/28/2021	3,250	3,250	1.761%	1.761%				3,250				
28	2021	Technology (T)	-	2/28/2015	2/28/2021	23,000	23,000	1.761%	1.761%				23,000				
29	2021	Construction	-	3/31/2010	3/31/2021	15,000	15,000	4.188%	4.188%				15,000				
30	2021	Construction	-	4/30/2010	4/30/2021	22,000	22,000	4.094%	4.094%				22,000				
31	2021	Construction	-	5/31/2010	5/31/2021	22,000	22,000	3.694%	3.694%				22,000				
32	2021	Construction (AS)	-	5/31/2015	5/31/2021	3,900	3,900	1.898%	1.898%				3,900				
33	2021	Construction	-	6/30/2010	6/30/2021	22,000	22,000	3.374%	3.374%				22,000				
34	2021	Technology (T)	-	9/28/2018	9/30/2021	5,000	5,000	2.455%	2.455%				5,000				
35	2021	Construction	-	8/31/1998	8/31/2028	106,500	106,500	5.850%	5.850%				9,783	1,265			
36	2021	Construction	-	8/31/1998	8/31/2028	112,300	72,655	5.850%	5.850%				72,655	9,395			
37		FY 2021 Subtotal:	-	-	-	340,800	301,155	-					204,438	10,660			
38	2022	Construction (AS)	-	10/31/2015	10/31/2021	5,200	5,200	1.942%	1.942%				5,200				
39	2022	Construction	-	1/31/2009	1/31/2022	20,000	20,000	4.200%	4.200%				20,000				
40	2022	Construction (AS)	-	2/29/2016	2/28/2022	5,000	5,000	1.631%	1.631%				5,000				
41	2022	Construction	-	4/30/2009	4/30/2022	35,000	35,000	4.253%	4.253%				35,000				
42	2022	Construction	-	5/31/2015	5/31/2022	11,000	11,000	2.103%	2.103%				11,000				
43	2022	Construction	-	5/31/2015	5/31/2022	14,000	14,000	2.103%	2.103%				14,000				
44	2022	Construction	-	7/31/2010	7/31/2022	30,000	30,000	3.372%	3.372%				30,000				
45	2022	Construction	-	8/31/2010	8/31/2022	20,000	20,000	3.029%	3.029%				20,000				
46	2022	Construction	-	8/31/1998	8/31/2028	106,500	96,717	5.850%	5.850%				65,892	8,224			
47		FY 2022 Subtotal:	-	-	-	246,700	236,917	-					206,092	8,224			
48	2023	Construction	-	12/31/2014	12/31/2022	16,000	16,000	2.274%	2.274%				16,000				
49	2023	Construction	-	12/31/2014	12/31/2022	4,000	4,000	2.274%	2.274%				4,000				
50	2023	Construction	-	1/31/2019	1/31/2023	6,000	6,000	2.603%	2.603%				6,000				
51	2023	Construction	-	4/30/2015	4/30/2023	3,000	3,000	2.163%	2.163%				3,000				
52	2023	Construction	-	4/30/2015	4/30/2023	12,000	12,000	2.163%	2.163%				12,000				
53	2023	Construction	-	6/30/2015	6/30/2023	11,000	11,000	2.443%	2.443%				11,000				
54	2023	Construction	-	6/30/2015	6/30/2023	8,000	8,000	2.443%	2.443%				8,000				
55	2023	Construction	-	9/30/2010	9/30/2023	46,000	46,000	3.161%	3.161%				46,000				
56	2023	Construction	-	8/31/1998	8/31/2028	106,500	30,826	5.850%	5.850%				30,826	3,390			

**TABLE 11-8
APPLICATION OF AMORTIZATION (\$000S) (FY 2021)**

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Fiscal Year	Project	Debt Type	In Service	Bond Due Date	Initial Principal	Current Principal	Original Rate	Effective Rate	Refinance Type	Refinanced Date	Rolled Maturity Date	Roll Rate	Principal Paid	Premium	Discount	Accrual	Reversal
57	2023	Construction	-	2/28/2011	2/28/2038	55,000	55,000	4.935%	4.935%				34,090	3,753			
58	2023	Construction	-	6/30/2009	6/30/2039	35,000	35,000	5.192%	5.192%				35,000	5,187			
59		FY 2023 Subtotal:	-	-	-	302,500	226,826	-	-				205,915	12,329			
60	2024	Construction	-	10/31/2014	10/31/2023	20,000	20,000	2.521%	2.521%				20,000				
61	2024	Construction	-	11/30/2014	11/30/2023	20,000	20,000	2.361%	2.361%				20,000				
62	2024	Environment	-	1/31/2015	1/31/2024	4,000	4,000	1.908%	1.908%				4,000				
63	2024	Construction	-	3/31/2015	3/31/2024	17,000	17,000	2.200%	2.200%				17,000				
64	2024	Construction	-	3/31/2012	3/31/2024	45,000	45,000	2.455%	2.455%				45,000				
65	2024	Construction (AS)	-	9/28/2018	3/31/2024	7,800	7,800	3.078%	3.078%				7,800				
66	2024	Construction	-	2/28/2011	2/28/2038	55,000	20,910	4.935%	4.935%				20,910	2,233			
67	2024	Construction	-	4/30/2011	4/30/2039	40,000	40,000	4.794%	4.794%				40,000	3,823			
68	2024	Construction	-	6/22/2011	6/30/2040	25,000	25,000	4.775%	4.775%				16,578	1,618			
69		FY 2024 Subtotal:	-	-	-	233,800	199,710	-	-				191,289	7,674			
70	2025	Environment	-	2/28/2010	2/28/2025	10,000	10,000	4.279%	4.279%				10,000				
71	2025	Construction	-	5/31/2016	5/31/2025	20,000	20,000	2.101%	2.101%				20,000				
72	2025	Environment	-	5/31/2016	5/31/2025	5,000	5,000	2.101%	2.101%				5,000				
73	2025	Construction	-	7/31/2016	7/31/2025	48,000	48,000	1.713%	1.713%				48,000				
74	2025	Construction	-	8/31/2015	8/31/2025	11,000	11,000	2.598%	2.598%				11,000				
75	2025	Construction	-	8/31/2015	8/31/2025	14,000	14,000	2.598%	2.598%				14,000				
76	2025	Construction (AS)	-	9/30/2019	9/30/2025	11,050	9,000	2.940%	2.940%				9,000				
77	2025	Construction	-	8/2/2011	8/31/2035	40,000	40,000	4.446%	4.446%				34,451	1,735			
78	2025	Construction	-	8/2/2011	8/31/2035	40,000	40,000	4.446%	4.446%				40,000	2,015			
79	2025	Construction	-	12/31/2013	12/31/2035	10,000	10,000	4.472%	4.472%				10,000	539			
80	2025	Construction	-	6/22/2011	6/30/2040	25,000	8,422	4.775%	4.775%				8,422	806			
81		FY 2025 Subtotal:	-	-	-	234,050	215,422	-	-				209,873	5,094			
82	2026	Construction	-	10/31/2010	10/31/2025	45,000	45,000	3.494%	3.494%				45,000				
83	2026	Construction	-	2/28/2015	2/28/2026	19,000	19,000	2.416%	2.416%				19,000				
84	2026	Construction	-	3/31/2015	3/31/2026	15,000	15,000	2.370%	2.370%				15,000				
85	2026	Construction	-	3/31/2016	3/31/2026	6,000	6,000	2.177%	2.177%				6,000				
86	2026	Construction	-	3/31/2016	3/31/2026	12,000	12,000	2.177%	2.177%				12,000				
87	2026	Construction (AS)	-	9/30/2020	3/31/2026	7,150	11,000	3.610%	3.610%				11,000				
88	2026	Construction	-	7/31/2015	7/31/2026	18,000	18,000	2.707%	2.707%				18,000				
89	2026	Construction	-	7/31/2015	7/31/2026	10,000	10,000	2.707%	2.707%				10,000				
90	2026	Construction	-	8/2/2011	8/31/2033	40,000	40,000	4.386%	4.386%				40,000	1,756			
91	2026	Construction	-	8/2/2011	8/31/2035	40,000	5,549	4.446%	4.446%				5,549	280			
92	2026	Construction	-	11/20/2013	6/30/2036	36,000	36,000	4.397%	4.397%				36,000	1,697			
93	2026	Construction	-	1/31/2014	1/31/2043	15,000	15,000	4.380%	4.380%				1,611	78			
94		FY 2026 Subtotal:	-	-	-	263,150	232,549	-	-				219,160	3,810			
95	2027	Construction	-	12/31/2015	12/31/2026	9,000	9,000	2.762%	2.762%				9,000				
96	2027	Construction	-	12/31/2015	12/31/2026	29,000	29,000	2.762%	2.762%				29,000				
97	2027	Construction	-	1/31/2016	1/31/2027	13,000	13,000	2.352%	2.352%				13,000				
98	2027	Construction	-	2/29/2016	2/28/2027	13,000	13,000	2.236%	2.236%				13,000				
99	2027	Construction (AS)	-	9/30/2021	3/31/2027	20,300	18,000	3.680%	3.680%				18,000				
100	2027	Construction	-	5/3/2012	5/31/2027	17,000	17,000	2.544%	2.544%				17,000				
101	2027	Environment	-	5/3/2012	5/31/2027	13,000	13,000	2.544%	2.544%				13,000				
102	2027	Environment	-	10/31/2015	9/30/2027	5,000	5,000	2.455%	2.455%				5,000				
103	2027	Construction	-	8/2/2011	8/31/2032	98,900	98,900	4.355%	4.355%				74,250	2,693			
104	2027	Construction	-	11/30/2013	11/30/2035	15,000	15,000	4.365%	4.365%				15,000	613			
105	2027	Construction	-	1/31/2014	1/31/2043	15,000	13,389	4.380%	4.380%				13,389	651			
106		FY 2027 Subtotal:	-	-	-	248,200	244,289	-	-				219,639	3,958			
107	2028	Construction	-	7/31/2009	7/31/2019	46,940	46,940	4.026%	3.450%	Global	7/31/2019	7/31/2028	3.450%	46,940			
108	2028	Construction	-	9/30/2009	9/30/2019	35,000	35,000	3.699%	3.450%	Global	9/30/2019	9/30/2028	3.450%	35,000			
109	2028	Environment	-	11/20/2013	11/30/2027	5,000	5,000	3.967%	3.967%				5,000				
110	2028	Construction	-	9/30/2014	4/30/2028	17,000	17,000	2.497%	2.497%				17,000				
111	2028	Construction	-	9/30/2014	9/30/2028	3,000	3,000	3.094%	3.094%				3,000				
112	2028	Construction	-	8/2/2011	8/31/2029	50,000	50,000	4.238%	4.238%				36,643	286			

**TABLE 11-8
APPLICATION OF AMORTIZATION (\$000S) (FY 2021)**

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Fiscal Year	Project	Debt Type	In Service	Bond Due Date	Initial Principal	Current Principal	Original Rate	Effective Rate	Refinance Type	Refinanced Date	Rolled Maturity Date	Roll Rate	Principal Paid	Premium	Discount	Accrual	Reversal
113	2028	Construction	-	8/2/2011	8/31/2032	98,900	24,650	4.355%	4.355%				24,650	714			
114	2028	Construction	-	11/20/2013	4/30/2034	28,000	28,000	4.311%	4.311%				28,000	974			
115	2028	Construction	-	11/20/2013	8/31/2034	6,000	6,000	4.324%	4.324%				6,000	225			
116	2028	Construction	-	11/20/2013	5/31/2035	20,000	20,000	4.354%	4.354%				20,000	801			
117		FY 2028 Subtotal:	-	-	-	309,840	235,590	-	-				222,233	3,000			
118	2029	Environment	-	10/31/2013	10/31/2028	6,000	6,000	3.880%	3.880%				6,000				
119	2029	Environment	-	1/31/2014	1/31/2029	3,000	3,000	3.896%	3.896%				3,000				
120	2029	Environment	-	7/31/2014	7/31/2029	3,000	3,000	2.497%	2.497%				3,000				
121	2029	Construction	-	8/2/2011	8/31/2029	50,000	13,357	4.238%	4.238%				13,357				
122	2029	Construction	-	11/20/2013	1/31/2031	30,000	30,000	4.162%	4.162%				30,000	253			
123	2029	Construction	-	11/20/2013	2/28/2031	15,000	15,000	4.166%	4.166%				15,000	125			
124	2029	Construction	-	11/20/2013	3/31/2031	18,000	18,000	4.171%	4.171%				18,000	155			
125	2029	Construction	-	9/30/2013	9/30/2034	9,000	9,000	4.214%	4.214%				9,000	269			
126	2029	Construction	-	10/31/2013	10/31/2035	64,000	64,000	4.222%	4.222%				64,000	1,917			
127	2029	Construction	-	7/31/2021	7/31/2051	129,000	178,189	4.150%	4.150%				49,011				
128		FY 2029 Subtotal:	-	-	-	327,000	339,546	-	-				210,368	2,719			
129	2030	Construction	-	11/20/2013	10/31/2029	55,000	55,000	4.093%	4.093%				55,000				
130	2030	Construction	-	3/31/2015	3/31/2030	3,000	3,000	2.626%	2.626%				3,000				
131	2030	Construction	-	9/30/2015	9/30/2030	15,000	15,000	2.905%	2.905%				15,000				
132	2030	Construction	-	7/31/2021	7/31/2051	129,000	129,178	4.150%	4.150%				129,178				
133	2030	Construction	-	8/31/2021	8/31/2051	129,000	178,189	4.150%	4.150%				18,117				
134		FY 2030 Subtotal:	-	-	-	331,000	380,367	-	-				220,295				
135	2031	Construction	-	8/31/2021	8/31/2051	129,000	160,072	4.150%	4.150%				160,072				
136	2031	Construction	-	9/30/2021	9/30/2051	259,000	185,189	4.150%	4.150%				66,210				
137		FY 2031 Subtotal:	-	-	-	388,000	345,261	-	-				226,282				
138	2032	Construction	-	7/31/2014	4/30/2032	9,000	9,000	2.497%	2.497%				9,000				
139	2032	Construction	-	7/31/2020	7/31/2050	118,000	12,740	4.020%	4.020%				12,740				
140	2032	Construction	-	8/31/2020	8/31/2050	118,000	127,189	4.020%	4.020%				84,088				
141	2032	Construction	-	9/30/2021	9/30/2051	259,000	118,979	4.150%	4.150%				118,979				
142		FY 2032 Subtotal:	-	-	-	504,000	267,908	-	-				224,807				
143	2033	Construction	-	6/30/2014	11/30/2032	21,000	21,000	2.544%	2.544%				21,000				
144	2033	Environment	-	9/28/2018	11/30/2032	7,000	7,000	2.305%	2.305%				7,000				
145	2033	Environment	-	9/30/2020	9/30/2035	8,000	7,000	3.820%	3.820%				6,839				
146	2033	Environment	-	9/30/2021	9/30/2036	22,000	21,000	3.910%	3.910%				21,000				
147	2033	Construction	-	8/31/2020	8/31/2050	118,000	43,101	4.020%	4.020%				43,101				
148	2033	Construction	-	9/30/2020	9/30/2050	123,000	132,189	4.020%	4.020%				132,189				
149		FY 2033 Subtotal:	-	-	-	299,000	231,290	-	-				231,129				
150	2034	Construction	-	4/30/2014	2/28/2034	45,000	45,000	2.476%	2.476%				45,000				
151	2034	Construction	-	4/30/2014	3/31/2034	45,000	45,000	2.455%	2.455%				45,000				
152	2034	Construction	-	10/31/2015	6/30/2034	21,000	21,000	2.530%	2.530%				21,000				
153	2034	Construction	-	10/31/2015	8/31/2034	19,000	19,000	2.476%	2.476%				19,000				
154	2034	Environment	-	9/30/2019	9/30/2034	7,000	7,000	2.940%	2.940%				7,000				
155	2034	Construction	-	8/2/2011	8/31/2035	45,000	45,000	4.446%	4.446%				45,000	487			
156	2034	Environment	-	9/30/2020	9/30/2035	8,000	161	3.820%	3.820%				161				
157	2034	Construction	-	1/31/2011	1/31/2036	50,000	50,000	4.952%	4.952%				50,000	1,177			
158	2034	Construction	-	6/22/2011	6/30/2036	50,000	50,000	4.629%	4.629%				32,023	689			
159		FY 2034 Subtotal:	-	-	-	290,000	282,161	-	-				264,183	2,353			
160	2035	Construction	-	8/2/2011	8/31/2034	40,000	40,000	4.416%	3.640%	Global	8/31/2034	8/31/2038	3.640%	39,356		644	

**TABLE 11-8
APPLICATION OF AMORTIZATION (\$000S) (FY 2021)**

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Fiscal Year	Project	Debt Type	In Service	Bond Due Date	Initial Principal	Current Principal	Original Rate	Effective Rate	Refinance Type	Refinanced Date	Rolled Maturity Date	Roll Rate	Principal Paid	Premium	Discount	Accrual	Reversal
161	2035	Construction	-	10/31/2015	10/31/2034	2,000	2,000	3.198%	3.198%				2,000				
162	2035	Construction	-	8/31/2014	7/31/2035	10,000	10,000	2.497%	2.497%				10,000				
163	2035	Construction	-	8/31/2014	8/31/2035	15,000	15,000	2.476%	2.476%				15,000				
164	2035	Construction	-	6/22/2011	6/30/2036	50,000	17,977	4.629%	4.629%				17,977	244			
165	2035	Construction	-	7/31/2017	7/31/2044	17,000	17,000	3.215%	3.215%				13,306		618		
166	2035	Construction	-	7/31/2017	7/31/2045	27,000	27,000	3.230%	3.230%				25,630		1,370		
167	2035	Construction	-	9/30/2017	9/30/2047	10,000	10,000	3.247%	3.247%				9,402		598		
168	2035	Construction	-	7/31/2020	7/31/2050	118,000	114,449	3.590%	3.590%				114,449				
169		FY 2035 Subtotal:	-	-	-	289,000	253,426	-	-				247,120	244	3,230		
170	2036	Construction	-	5/31/2014	5/31/2036	29,000	29,000	2.544%	2.544%				29,000				
171	2036	Construction	-	7/31/2017	7/31/2041	19,000	19,000	3.164%	3.164%				18,590		410		
172	2036	Construction	-	8/31/2017	8/31/2041	13,000	13,000	2.991%	2.991%				12,610		390		
173	2036	Construction	-	9/30/2017	9/30/2041	17,000	17,000	3.156%	3.156%				16,627		373		
174	2036	Construction	-	7/31/2017	7/31/2042	14,000	14,000	3.181%	3.181%				13,625		375		
175	2036	Construction	-	7/31/2017	7/31/2043	23,000	23,000	3.198%	3.198%				22,273		727		
176	2036	Construction	-	8/31/2017	8/31/2043	10,000	10,000	3.024%	3.024%				9,574		426		
177	2036	Construction	-	9/30/2017	9/30/2043	14,000	14,000	3.193%	3.193%				13,553		447		
178	2036	Construction	-	7/31/2017	7/31/2044	17,000	3,076	3.215%	3.215%				2,961		115		
179	2036	Construction	-	9/30/2017	9/30/2044	9,000	9,000	3.209%	3.209%				8,661		339		
180	2036	Construction	-	8/31/2017	8/31/2046	22,000	22,000	3.066%	3.066%				20,594		1,406		
181	2036	Construction	-	8/31/2017	8/31/2047	18,000	18,000	3.076%	3.076%				16,754		1,246		
182	2036	Construction	-	7/31/2019	7/31/2049	82,000	81,000	2.940%	2.940%				67,244				
183		FY 2036 Subtotal:	-	-	-	287,000	272,076	-	-				252,066		6,254		
184	2037	Construction	-	8/31/2017	8/31/2037	30,000	30,000	2.902%	2.902%				30,000				
185	2037	Construction	-	8/31/2017	8/31/2038	7,000	7,000	2.929%	2.929%				6,923		77		
186	2037	Construction	-	9/28/2018	11/30/2047	24,000	24,000	2.544%	2.544%				21,540		2,460		
187	2037	Construction	-	8/31/2018	5/31/2048	21,000	21,000	2.544%	2.544%				18,774		2,226		
188	2037	Construction	-	9/28/2018	6/30/2048	63,800	63,800	2.530%	2.530%				27,070		3,362		
189	2037	Construction	-	7/31/2019	7/31/2049	82,000	13,756	2.940%	2.940%				13,756				
190	2037	Construction	-	8/31/2019	8/31/2049	81,000	81,000	2.940%	2.940%				81,000				
191	2037	Construction	-	9/30/2019	9/30/2049	81,000	82,000	2.940%	2.940%				82,000				
192		FY 2037 Subtotal:	-	-	-	389,800	322,556	-	-				281,063		8,124		
193	2038	Construction	-	4/30/2014	10/31/2039	45,000	45,000	2.497%	2.497%				44,218		782		
194	2038	Construction	-	1/27/2012	1/31/2040	30,000	30,000	2.497%	2.497%				29,315		685		
195	2038	Construction	-	9/28/2018	10/31/2047	4,000	4,000	2.497%	2.497%				3,612		388		
196	2038	Construction	-	8/31/2018	2/28/2048	12,000	12,000	2.476%	2.476%				10,768		1,232		
197	2038	Construction	-	8/31/2018	4/30/2048	19,000	19,000	2.497%	2.497%				17,086		1,914		
198	2038	Construction	-	9/28/2018	4/30/2048	67,000	67,000	2.497%	2.497%				60,250		6,750		
199	2038	Construction	-	9/28/2018	5/31/2048	42,000	42,000	2.305%	2.305%				37,236		4,764		
200	2038	Construction	-	9/28/2018	6/30/2048	63,800	33,369	2.530%	2.530%				29,960		3,409		
201	2038	Replacements	-	3/31/2022	3/31/2057	171,866	171,866	4.150%	4.149%				66,922				
202		FY 2038 Subtotal:	-	-	-	454,666	424,235	-	-				299,367		19,924		
203	2039	Replacements	-	3/31/2022	3/31/2057	171,866	104,944	4.150%	4.149%				104,944				
204	2039	Replacements	-	3/31/2023	3/31/2058	171,866	171,866	4.150%	4.149%				171,866				
205	2039	Replacements	-	3/31/2024	3/31/2059	171,866	171,866	4.150%	4.149%				24,439				
206		FY 2039 Subtotal:	-	-	-	515,598	448,676	-	-				301,249				
207	2040	Replacements	-	3/31/2024	3/31/2059	171,866	147,427	4.150%	4.149%				147,427				
208	2040	Replacements	-	3/31/2025	3/31/2060	171,866	171,866	4.150%	4.149%				164,313				
209		FY 2040 Subtotal:	-	-	-	343,732	319,293	-	-				311,739				
210	2041	Replacements	-	3/31/2025	3/31/2060	171,866	7,553	4.150%	4.149%				7,553				
211	2041	Replacements	-	3/31/2026	3/31/2061	171,866	171,866	4.150%	4.149%				171,866				
212	2041	Replacements	-	3/31/2027	3/31/2062	171,866	171,866	4.150%	4.149%				171,866				
213	2041	Replacements	-	3/31/2028	3/31/2063	171,866	171,866	4.150%	4.149%				63,941				
214		FY 2041 Subtotal:	-	-	-	687,464	523,152	-	-				415,226				
215	2042	Replacements	-	3/31/2028	3/31/2063	171,866	107,925	4.150%	4.149%				107,925				

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Fiscal Year	Project	Debt Type	In Service	Bond Due Date	Initial Principal	Current Principal	Original Rate	Effective Rate	Refinance Type	Refinanced Date	Rolled Maturity Date	Roll Rate	Principal Paid	Premium	Discount	Accrual	Reversal
216	2042	Replacements	-	3/31/2029	3/31/2064	171,866	171,866	4.150%	4.149%				171,866				
217	2042	Replacements	-	3/31/2030	3/31/2065	171,866	171,866	4.150%	4.149%				59,091				
218		FY 2042 Subtotal:	-	-	-	515,598	451,657	-	-				338,883				
219	2043	Replacements	-	3/31/2030	3/31/2065	171,866	112,775	4.150%	4.149%				112,775				
220	2043	Replacements	-	3/31/2031	3/31/2066	171,866	171,866	4.150%	4.149%				171,866				
221	2043	Replacements	-	3/31/2032	3/31/2067	171,866	171,866	4.150%	4.149%				152,183				
222		FY 2043 Subtotal:	-	-	-	515,598	456,507	-	-				436,824				
223	2044	Replacements	-	3/31/2032	3/31/2067	171,866	19,683	4.150%	4.149%				19,683				
224	2044	Replacements	-	3/31/2033	3/31/2068	171,866	171,866	4.150%	4.149%				171,866				
225	2044	Replacements	-	3/31/2034	3/31/2069	171,866	171,866	4.150%	4.149%				171,866				
226	2044	Replacements	-	3/31/2035	3/31/2070	171,866	171,866	4.150%	4.149%				86,875				
227		FY 2044 Subtotal:	-	-	-	687,464	535,281	-	-				450,290				
228	2045	Replacements	-	3/31/2035	3/31/2070	171,866	84,991	4.150%	4.149%				84,991				
229	2045	Replacements	-	3/31/2036	3/31/2071	171,866	171,866	4.150%	4.149%				171,866				
230	2045	Replacements	-	3/31/2037	3/31/2072	171,866	171,866	4.150%	4.149%				171,866				
231	2045	Replacements	-	3/31/2038	3/31/2073	171,866	171,866	4.150%	4.149%				33,755				
232		FY 2045 Subtotal:	-	-	-	687,464	600,590	-	-				462,478				
233	2046	Replacements	-	3/31/2038	3/31/2073	171,866	138,111	4.150%	4.149%				138,111				
234	2046	Replacements	-	3/31/2039	3/31/2074	171,866	171,866	4.150%	4.149%				171,866				
235	2046	Replacements	-	3/31/2040	3/31/2075	171,866	171,866	4.150%	4.149%				164,845				
236		FY 2046 Subtotal:	-	-	-	515,598	481,844	-	-				474,822				
237	2047	Replacements	-	3/31/2040	3/31/2075	171,866	7,021	4.150%	4.149%				7,021				
238	2047	Replacements	-	3/31/2041	3/31/2076	171,866	171,866	4.150%	4.149%				171,866				
239	2047	Replacements	-	3/31/2042	3/31/2077	171,866	171,866	4.150%	4.149%				171,866				
240	2047	Replacements	-	3/31/2043	3/31/2078	171,866	171,866	4.150%	4.149%				136,937				
241		FY 2047 Subtotal:	-	-	-	687,464	522,620	-	-				487,691				
242	2048	Replacements	-	3/31/2043	3/31/2078	171,866	34,929	4.150%	4.149%				34,929				
243	2048	Replacements	-	3/31/2044	3/31/2079	171,866	171,866	4.150%	4.149%				171,866				
244	2048	Replacements	-	3/31/2045	3/31/2080	171,866	171,866	4.150%	4.149%				171,866				
245	2048	Replacements	-	3/31/2046	3/31/2081	171,866	171,866	4.150%	4.149%				122,444				
246		FY 2048 Subtotal:	-	-	-	687,464	550,527	-	-				501,105				
247	2049	Replacements	-	3/31/2046	3/31/2081	171,866	49,422	4.150%	4.149%				49,422				
248	2049	Replacements	-	3/31/2047	3/31/2082	171,866	171,866	4.150%	4.149%				171,866				
249	2049	Replacements	-	3/31/2048	3/31/2083	171,866	171,866	4.150%	4.149%				171,866				
250		FY 2049 Subtotal:	-	-	-	515,598	393,154	-	-				393,154				
251	2050	Replacements	-	3/31/2049	3/31/2084	171,866	171,866	4.150%	4.149%				171,866				
252		FY 2050 Subtotal:	-	-	-	171,866	171,866	-	-				171,866				
253	2051	Replacements	-	3/31/2050	3/31/2085	171,866	171,866	4.150%	4.149%				171,866				
254		FY 2051 Subtotal:	-	-	-	171,866	171,866	-	-				171,866				
255	2052	Replacements	-	3/31/2051	3/31/2086	171,866	171,866	4.150%	4.149%				171,866				
256		FY 2052 Subtotal:	-	-	-	171,866	171,866	-	-				171,866				
257	2053	Replacements	-	3/31/2052	3/31/2087	171,866	171,866	4.150%	4.149%				171,866				
258		FY 2053 Subtotal:	-	-	-	171,866	171,866	-	-				171,866				
259	2054	Replacements	-	3/31/2053	3/31/2088	171,866	171,866	4.150%	4.149%				171,866				
260		FY 2054 Subtotal:	-	-	-	171,866	171,866	-	-				171,866				
261	2055	Replacements	-	3/31/2054	3/31/2089	171,866	171,866	4.150%	4.149%				171,866				
262		FY 2055 Subtotal:	-	-	-	171,866	171,866	-	-				171,866				
263	2056	Replacements	-	3/31/2055	3/31/2090	171,866	171,866	4.150%	4.149%				171,866				
264		FY 2056 Subtotal:	-	-	-	171,866	171,866	-	-				171,866				
265	Grand Total					\$13,880,969	\$12,005,172	-	-				\$10,346,560	\$65,949	\$37,532		

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12. SALES AND REVENUE FORECASTS

Table 12-1:
Transmission Revenues, Current Rates FY 2019 - FY 2021
(\$000s)

A	B	C
	FY 2020	FY 2021
Network Sales Revenues		
1 FPT 1	\$ 15,853	\$ 15,853
2 FPT 3	\$ 1,530	\$ 1,530
3 FPT 1&3 Transmission Portion	\$ 14,261	\$ 14,261
4 NT_Base	\$ 135,343	\$ 136,131
5 NT Ancillary Revenues	\$ 30,052	\$ 30,226
6 Subtotal NT Sale Revenues	\$ 165,395	\$ 166,357
7 PTP, Long-term	\$ 465,479	\$ 490,167
8 PTP LT Ancillary Revenues	\$ 102,723	\$ 108,128
9 PTP, Short-term	\$ 29,221	\$ 28,442
10 PTP ST Ancillary Revenues	\$ 6,551	\$ 6,376
11 Subtotal PTP Sale Revenues	\$ 603,974	\$ 633,112
12 Subtotal Network Transmission Revenues	\$ 644,303	\$ 669,001
13 Subtotal Network Ancillary Revenues	\$ 142,448	\$ 147,852
14 Total Network Sale Revenues	\$ 786,751	\$ 816,852
Intertie Sale Revenues		
15 IM, Long-term	\$ 98	\$ 98
16 IS, Long-term	\$ 75,047	\$ 75,047
17 IS LT Ancillary Revenues	\$ 23,281	\$ 23,281
18 IS, Short-term	\$ 4,560	\$ 4,595
19 IS ST Ancillary Revenues	\$ 453	\$ 457
20 Subtotal IS Sale Revenues	\$ 103,341	\$ 103,379
21 Subtotal Intertie Transmission Revenues	\$ 79,705	\$ 79,740
22 Subtotal Intertie Ancillary Revenues	\$ 23,734	\$ 23,737
23 Total Intertie Sale Revenues	\$ 103,439	\$ 103,477
Ancillary Revenues		
24 Long-term Scheduling, Control and Dispatch	\$ 126,004	\$ 131,408
25 Short-term Scheduling, Control and Dispatch	\$ 7,004	\$ 6,833
26 NT Scheduling, Control and Dispatch	\$ 30,052	\$ 30,226
27 Subtotal SCD Rate	\$ 163,060	\$ 168,467
28 FPT & IR SCD	\$ 3,122	\$ 3,122
29 Total SCD Revenue	\$ 166,182	\$ 171,589
30 Regulation and Frequency Response	\$ 6,706	\$ 6,706
31 Balancing Reseves (VERBS Wind, VERBS Solar, DERBS)	\$ 32,746	\$ 32,746
32 VERBS	\$ 31,572	\$ 31,572
33 DERBS	\$ 1,174	\$ 1,174
34 Operating Reserves - Spinning	\$ 23,477	\$ 23,477
35 Operating Reserves - Supplemental	\$ 19,440	\$ 19,440
36 Energy Imbalance	\$ -	\$ -
37 Generation Imbalance	\$ -	\$ -
38 Total Ancillary Revenues	\$ 248,550	\$ 253,958
39 Subtotal less SCD	\$ 82,369	\$ 82,369
40 Utility Delivery	\$ 2,502	\$ 2,513
41 Regional Compliance Enforcement Rate	\$ 2,565	\$ 2,586
42 Regional Coordinator Rate	\$ 2,565	\$ 2,586
43 General Transmission Rates Subtotal	\$ 980,191	\$ 1,010,384
44 Subtotal less Generation Input Ancillaries	\$ 897,822	\$ 928,015

Table 12-1:
Transmission Revenues, Current Rates FY 2019 - FY 2021
(\$000s)

A	B		C
	FY 2020		FY 2021
Other Revenues			
45 IS Reservation Fee	\$	-	\$ -
46 UFT Fixed Dollar Amount	\$	4,676	\$ 4,676
47 UFT Variable Service Amt	\$	242	\$ 242
48 O&M Non-Federal Facility	\$	377	\$ 377
49 O&M Federal Facility	\$	281	\$ 281
50 PTP Reservation Fee	\$	1,802	\$ 257
51 CF Reservation Fee	\$	-	\$ -
52 Failure to Comply Penalty	\$	-	\$ -
53 SINT AC Non Federal O&M	\$	2,000	\$ 2,000
54 SINT AC Non Fed Replacements	\$	-	\$ -
55 TOP Service Charge	\$	673	\$ 673
56 DSI Delivery Charge	\$	1,915	\$ 1,915
57 PCS Wireless Leases	\$	5,966	\$ 5,966
58 PCS Construction	\$	3,720	\$ 3,720
59 PCS Operations & Maintenance	\$	312	\$ 312
60 Fiber Leases	\$	9,088	\$ 11,950
61 Fiber Operations & Maintenance	\$	1,578	\$ 1,583
62 Land Use/Lease/Sale	\$	216	\$ 216
63 Misc Leases	\$	105	\$ 105
64 Right-Of-Way Lease	\$	79	\$ 79
65 3rd AC RAS Generation Dropping	\$	56	\$ 56
66 AC RAS Load Tripping	\$	-	\$ -
67 Transmission Share of IPP	\$	246	\$ 246
68 Use of Communication Equipmt	\$	179	\$ 179
69 FPS Real Power Losses	\$	-	\$ -
70 Amort NonFed PNW AC Intertie	\$	2,301	\$ 2,301
71 Transmission Processing Fee	\$	40	\$ 40
72 Generation Integration BBL	\$	13,138	\$ 13,233
73 TGT Revenues	\$	12,456	\$ 12,456
74 Other Revenues Subtotal	\$	61,447	\$ 62,863
75 Total Revenue	\$	1,041,638	\$ 1,073,247

**Table 12-2:
Transmission Revenues, Proposed Rates FY 2020 - FY 2021
(\$000s)**

A	B	C
Service	FY 2020	FY 2021
1 Network Sales Revenues		
2 FPT 1	\$ 16,348	\$ 16,348
3 FPT 3	\$ 1,578	\$ 1,578
4 IR	\$ -	\$ -
5 FPT 1&3 Transmission Portion	\$ 14,839	\$ 14,839
6 IR Transmission Portion	\$ -	\$ -
7 NT_Base	\$ 138,713	\$ 139,521
8 NT Ancillary Revenues	\$ 29,172	\$ 29,342
9 Subtotal NT Sale Revenues	\$ 167,885	\$ 168,862
10 PTP, Long-term	\$ 484,781	\$ 510,493
11 PTP LT Ancillary Revenues	\$ 101,128	\$ 106,449
12 PTP, Short-term	\$ 30,338	\$ 29,530
13 PTP ST Ancillary Revenues	\$ 6,236	\$ 6,070
14 Subtotal PTP Sale Revenues	\$ 622,484	\$ 652,541
15 Subtotal Network Transmission Revenues	\$ 668,672	\$ 694,383
16 Subtotal Network Ancillary Revenues	\$ 139,623	\$ 144,946
17 Total Network Sale Revenues	\$ 808,295	\$ 839,329
18 Intertie Sale Revenues		
19 IM, Long-term	\$ 97	\$ 97
20 IS, Long-term	\$ 78,373	\$ 78,373
21 IS LT Ancillary Revenues	\$ 22,919	\$ 22,919
22 IS, Short-term	\$ 4,761	\$ 4,797
23 IS ST Ancillary Revenues	\$ 443	\$ 446
24 Subtotal IS Sale Revenues	\$ 106,496	\$ 106,536
25 Subtotal Intertie Transmission Revenues	\$ 83,231	\$ 83,267
26 Subtotal Intertie Ancillary Revenues	\$ 23,362	\$ 23,365
27 Total Intertie Sale Revenues	\$ 106,593	\$ 106,633
28 Ancillary Revenues		
29 Long-term Scheduling, Control and Dispatch	\$ 124,047	\$ 129,368
30 Short-term Scheduling, Control and Dispatch	\$ 6,679	\$ 6,516
31 NT Scheduling, Control and Dispatch	\$ 29,172	\$ 29,342
32 Subtotal SCD Rate	\$ 159,899	\$ 165,226
33 FPT & IR SCD	\$ 3,073	\$ 3,073
34 Total SCD Revenue	\$ 162,972	\$ 168,299
35 Regulation and Frequency Response	\$ 24,760	\$ 24,760
36 Balancing Reserves (VERBS Wind, VERBS Solar, DERBS)	\$ 31,449	\$ 31,449
37 VERBS	\$ 30,623	\$ 30,623
38 DERBS	\$ 826	\$ 826
39 Operating Reserves - Spinning	\$ 18,676	\$ 18,676
40 Operating Reserves - Supplemental	\$ 16,304	\$ 16,304
41 Energy Imbalance	\$ -	\$ -
42 Generation Imbalance	\$ -	\$ -
43 Total Ancillary Revenues	\$ 254,161	\$ 259,488
44 Subtotal less SCD	\$ 91,189	\$ 91,189

**Table 12-2:
Transmission Revenues, Proposed Rates FY 2020 - FY 2021
(\$000s)**

A Service	B FY 2020	C FY 2021
45 Delivery		
46 Utility Delivery	\$ 2,575	\$ 2,585
47 Regional Compliance Enforcement		
48 Regional Compliance Enforcement Rate	\$ 2,565	\$ 2,586
49 Regional Coordinator		
50 Regional Coordinator Rate	\$ 2,052	\$ 2,069
51 General Transmission Rates Subtotal	\$ 1,013,269	\$ 1,044,392
52 Subtotal less Generation Input Ancillaries	\$ 922,079	\$ 953,202
53 Other Revenues		
54 IS Reservation Fee	\$ -	\$ -
55 UFT Fixed Dollar Amount	\$ 4,676	\$ 4,676
56 UFT Variable Service Amt	\$ 242	\$ 242
57 O&M Non-Federal Facility	\$ 377	\$ 377
58 O&M Federal Facility	\$ 281	\$ 281
59 PTP Reservation Fee	\$ 1,802	\$ 257
60 CF Reservation Fee	\$ -	\$ -
61 Failure to Comply Penalty	\$ -	\$ -
62 SINT AC Non Federal O&M	\$ 2,000	\$ 2,000
63 SINT AC Non Fed Replacements	\$ -	\$ -
64 TOP Service Charge	\$ 673	\$ 673
65 DSI Delivery Charge	\$ 1,915	\$ 1,915
66 PCS Wireless Leases	\$ 5,966	\$ 5,966
67 PCS Construction	\$ 3,720	\$ 3,720
68 PCS Operations & Maintenance	\$ 312	\$ 312
69 Fiber Leases	\$ 9,088	\$ 11,950
70 Fiber Operations & Maintenance	\$ 1,578	\$ 1,583
71 Land Use/Lease/Sale	\$ 216	\$ 216
72 Misc Leases	\$ 105	\$ 105
73 Right-Of-Way Lease	\$ 79	\$ 79
74 COE/BOR Project Revenue	\$ -	\$ -
75 3rd AC RAS Generation Dropping	\$ 56	\$ 56
76 AC RAS Load Tripping	\$ -	\$ -
77 Transmission Share of IPP	\$ 246	\$ 246
78 Use of Communication Equipmt	\$ 179	\$ 179
79 FPS Real Power Losses	\$ -	\$ -
80 Amort NonFed PNW AC Intertie	\$ 2,301	\$ 2,301
81 Transmission Processing Fee	\$ 40	\$ 40
82 Generation Integration BBL	\$ 13,138	\$ 13,233
83 TGT Revenues	\$ 12,414	\$ 12,414
84 Other Revenues Subtotal	\$ 61,405	\$ 62,822
85 Total Revenue	\$ 1,074,674	\$ 1,107,214

**Table 12-3:
LGIA Transmission Credits and Interest at Current Rates
(\$000s)**

	A	B	C	D	E	F	G
#	Request	Forecasted Transmission Credit			Forecasted Interest		
		FY 2019	FY 2020	FY 2021	FY 2019	FY 2020	FY 2021
1	GI Request 1	\$ 4,663	\$ 4,663	\$ 1,420	\$ 283	\$ 124	\$ 6
2	GI Request 2	\$ 728	\$ 728	\$ 728	\$ 471	\$ 462	\$ 451
3	GI Request 3	\$ 873	\$ 873	\$ 873	\$ 107	\$ 77	\$ 46
4	GI Request 4	\$ 958	\$ 958	\$ 937	\$ 134	\$ 82	\$ 25
5	GI Request 5	\$ 5,938	\$ 5,938	\$ 5,938	\$ 2,221	\$ 2,087	\$ 1,947
6	GI Request 6	\$ 353	\$ 1,294	\$ 2,001	\$ 434	\$ 420	\$ 381
7	GI Request 7	\$ -	\$ 471	\$ 1,883	\$ 466	\$ 543	\$ 515
8	GI Request 8	\$ -	\$ 147	\$ 925	\$ 24	\$ 34	\$ 15
9	GI Request 9	\$ -	\$ -	\$ 1,080	\$ 195	\$ 234	\$ 222
10	GI Request 10	\$ 111	\$ 97	\$ -	\$ 5	\$ 1	\$ -
11	GI Request 11	\$ 9	\$ 118	\$ 143	\$ 9	\$ 7	\$ 2
12	GI Request 12	\$ 9	\$ 118	\$ 138	\$ 5	\$ 6	\$ 2
13	GI Request 13	\$ 9	\$ 118	\$ 188	\$ 86	\$ 138	\$ 137
14	GI Request 14	\$ -	\$ 118	\$ 188	\$ 8	\$ 11	\$ 6
15	GI Request 15	\$ -	\$ 118	\$ 188	\$ 33	\$ 51	\$ 48
16	GI Request 16	\$ 9	\$ 118	\$ 188	\$ 6	\$ 8	\$ 3
17	GI Request 17	\$ -	\$ 29	\$ 188	\$ 3	\$ 7	\$ 5
18	GI Request 18	\$ 318	\$ 318	\$ 160	\$ 23	\$ 12	\$ 1
19	GI Request 19	\$ 265	\$ 265	\$ 17	\$ 24	\$ 8	\$ -
20	GI Request 20	\$ 281	\$ 281	\$ 281	\$ 65	\$ 52	\$ 37
21	Total Network	\$ 14,523	\$ 16,768	\$ 17,465	\$ 4,602	\$ 4,363	\$ 3,849

**Table 12-4:
LGIA Transmission Credits and Interest at Proposed Rates
(\$000s)**

	A	B	C	D	E	F	G
#	Request	Forecasted Transmission Credit			Forecasted Interest		
		FY 2019	FY 2020	FY 2021	FY 2019	FY 2020	FY 2021
2	GI Request 1	\$ 4,663	\$ 4,866	\$ 1,211	\$ 283	\$ 120	\$ 4
3	GI Request 2	\$ 728	\$ 759	\$ 759	\$ 471	\$ 461	\$ 450
4	GI Request 3	\$ 873	\$ 911	\$ 911	\$ 107	\$ 76	\$ 44
5	GI Request 4	\$ 958	\$ 999	\$ 890	\$ 134	\$ 80	\$ 22
6	GI Request 5	\$ 5,938	\$ 6,197	\$ 6,197	\$ 2,221	\$ 2,082	\$ 1,933
7	GI Request 6	\$ 353	\$ 1,351	\$ 2,088	\$ 434	\$ 419	\$ 378
8	GI Request 7	\$ -	\$ 491	\$ 1,965	\$ 466	\$ 542	\$ 513
9	GI Request 8	\$ -	\$ 154	\$ 919	\$ 24	\$ 34	\$ 14
10	GI Request 9	\$ -	\$ -	\$ 1,127	\$ 195	\$ 234	\$ 221
11	GI Request 10	\$ 111	\$ 97	\$ -	\$ 5	\$ 1	\$ -
12	GI Request 11	\$ 9	\$ 123	\$ 137	\$ 9	\$ 7	\$ 2
13	GI Request 12	\$ 9	\$ 123	\$ 133	\$ 5	\$ 6	\$ 1
14	GI Request 13	\$ 9	\$ 123	\$ 196	\$ 86	\$ 138	\$ 137
15	GI Request 14	\$ -	\$ 123	\$ 196	\$ 8	\$ 11	\$ 6
16	GI Request 15	\$ -	\$ 123	\$ 196	\$ 33	\$ 51	\$ 47
17	GI Request 16	\$ 9	\$ 123	\$ 187	\$ 6	\$ 8	\$ 3
18	GI Request 17	\$ -	\$ 31	\$ 196	\$ 3	\$ 7	\$ 4
19	GI Request 18	\$ 318	\$ 332	\$ 146	\$ 23	\$ 11	\$ 1
20	GI Request 19	\$ 265	\$ 276	\$ 5	\$ 24	\$ 8	\$ -
21	GI Request 20	\$ 281	\$ 293	\$ 293	\$ 65	\$ 51	\$ 36
22	Total Network	\$ 14,523	\$ 17,493	\$ 17,753	\$ 4,602	\$ 4,349	\$ 3,814

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13. REPAYMENT THEORY OF OPERATION

13.1 Introduction

BPA is required to collect revenues sufficient to meet BPA's annual transmission expenses and cover the long-term obligations of the Federal Columbia River Transmission System.

The repayment program is used to determine whether a given set of annual revenues is sufficient to meet a given set of annual expenses and cover a given set of long-term obligations when applied in accordance with the requirements of Department of Energy Order RA 6120.2. The program is also used to determine the minimum factor by which future revenues can be multiplied to obtain a new set of revenues that will be sufficient to recover amortization costs.

The revenues and the expenses of the cost evaluation year will be assigned to all future years, in effect assigning the net operating revenue of the cost evaluation year to all future years and levelizing the long-term obligations over all future years.

13.2 Repayment Program Logic

The diagrams on the following pages show the flow of logic in BPA's repayment program. The first diagram shows the logic of the binary search used to locate minimum sufficient revenues. A necessary part of this search is the test for sufficiency. The logic of the test for sufficiency is shown on the remaining two diagrams.

The equations referred to are:

Revenue Equation: Net revenues of each year are expended on interest and payments on the principals.

Investment equation: The payments on each investment are less than or equal to the principal of that investment (and equal to the principal of that investment after the investment is due).

Predictor equation: For each future year, the accumulated revenues less the accumulated interest less the accumulated investments due is equal to the accumulated payments on high interest rate investments which are not due.

FIGURES

Figure 13-1 Repayment Program (Test for Sufficiency)

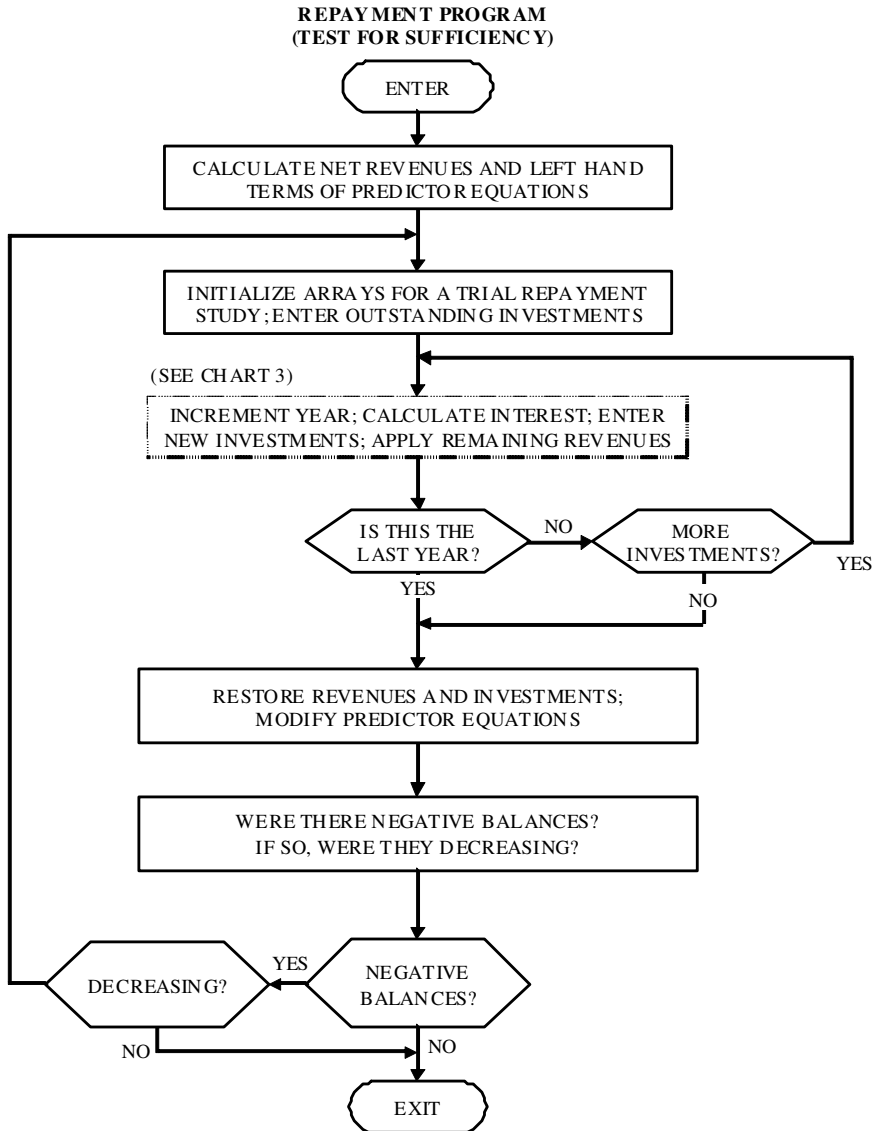


Figure 13-2 Repayment Program (Application of Revenues)

