

BP-22 Rate Proceeding

Final Proposal

Transmission Revenue Requirement Study Documentation

BP-22-FS-BPA-09A

July 2021



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
BPAP	Bonneville Power Administration Power
BPAT	Bonneville Power Administration Transmission
Bps	basis points
Btu	British thermal unit
CAISO	California Independent System Operator
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 (see also "NPCC")
COVID-19	coronavirus disease 2019
CP	Coincidental Peak
CRAC	Cost Recovery Adjustment Clause
CRFM	Columbia River Fish Mitigation
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
dec	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
EESC	EIM Entity Scheduling Coordinator
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
FMM-IIE	Fifteen Minute Market – Instructed Imbalance Energy
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)
GDP	Gross Domestic Product
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)
Hz	Hertz
IE	Eastern Intertie
IIE	Instructed Imbalance Energy
IM	Montana Intertie
inc	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
KSI	key strategic initiative
kW	kilowatt
kWh	kilowatthour
LAP	Load Aggregation Point
LDD	Low Density Discount
LGIA	Large Generator Interconnection Agreement
LLH	Light Load Hour(s)
LMP	Locational Marginal Price
LPP	Large Project Program
LT	long term
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)
NP-15	North of Path 15
NPCC	Northwest Power and Conservation 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
NWPA	Northwest Power Act/Pacific Northwest Electric Power Planning and Conservation Act
NWPP	Northwest Power Pool

O&M	operations and maintenance
OATI	Open Access Technology International, Inc.
OATT	Open Access Transmission Tariff
OCBR	Operational Controls for Balancing Reserves
OS	Oversupply
OY	operating year (August through July)
PDCI	Pacific DC Intertie
PF	Priority Firm Power
PFp	Priority Firm Public
PFx	Priority Firm Exchange
PMA	Power Marketing Administration
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
PPC	Public Power Council
PRSC	Participating Resource Scheduling Coordinator
PS	Power Services
PSC	power sales contract
PSW	Pacific Southwest
PTP	Point-to-Point
PUD	public or people's utility district
RAM	Rate Analysis Model (computer model)
RBC	Reliability-based control
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
RTD-IIE	Real-Time Dispatch – Instructed Imbalance Energy
RTIEO	Real-Time Imbalance Energy Offset
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)
SMCR	Settlements, Metering, and Client Relations
SP-15	South of Path 15
T1SFCO	Tier 1 System Firm Critical Output
TC	Tariff Terms and Conditions
TCMS	Transmission Curtailment Management Service
TDG	Total Dissolved Gas
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
UFE	unaccounted for energy
UFT	Use of Facilities Transmission
UIC	Unauthorized Increase Charge
UIE	Uninstructed Imbalance Energy
ULS	Unanticipated Load Service
USACE	U.S. Army Corps of Engineers
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 2022 and FY 2023). On the first table, revenue requirements for FY 2022 and FY 2023 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-22-FS-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 may be 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 27). Planned net revenues for risk (PNRR) is the amount of net revenues, if any, to be included in rates for financial risk mitigation.

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 3). This represents the cash flow generated after after LGIA iterations are completed. It is the sum of line 4 through line 12, line 18, and line 26. A negative value is an offset to line 2b, Revenue Financing Minimum Required Net Revenue.

Revenue Financing Minimum Required Net Revenue (line 4). This represents the amount of revenue financing chosen for the implementation of the Leverage Policy or for any other purpose.

Depreciation & Amortization (line 6). 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 7). 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 8). Amortization of capitalized bond premiums, from the Income Statement (Table 1-1, line 16), is a non-cash expense.

Capitalization adjustment (line 9). The capitalization adjustment, from the Income Statement (Table 1-1, line 14), is a negative non-cash expense.

LGIA (line 11). 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 12). 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 13). Cash provided by current operations, the sum of lines 3 through 12, is available for the year to satisfy cash requirements.

Investment in utility plant (line 17). 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 21). 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 22). 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 24). Repayment of capital leases is BPA's payment of the principal component of certain capital leases.

Repayment of long-term debt (line 25). 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 25). Repayment of capital appropriations represents projected amortization of outstanding BPA appropriations (pre-self-financing) as determined in the repayment studies. Transmission no longer has appropriations outstanding. *Id.*

Cash from treasury borrowing and appropriations (line 26). 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 28). Annual increase (decrease) in cash, the sum of lines 13, 18, and 26, 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 30). 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 32). 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)

	A	B
	<u>2022</u>	<u>2023</u>
1 OPERATING EXPENSES		
2 TRANSMISSION OPERATIONS	168,711	171,595
3 TRANSMISSION ENGINEERING	56,570	57,094
4 TRANSMISSION MAINTENANCE	177,560	179,860
5 TRANSMISSION ACQUISITION & ANCILLARY SERVICES	109,597	110,278
6 BPA INTERNAL SUPPORT	103,195	104,681
7 OTHER INCOME, EXPENSES & ADJUSTMENTS	-	-
8 DEPRECIATION & AMORTIZATION	<u>345,303</u>	<u>349,991</u>
9 TOTAL OPERATING EXPENSES	960,936	973,500
10		
11 INTEREST EXPENSE		
12 INTEREST EXPENSE		
13 FEDERAL APPROPRIATIONS	-	-
14 CAPITALIZATION ADJUSTMENT	(18,968)	(18,968)
15 ON LONG-TERM DEBT	108,189	115,052
16 AMORTIZATION OF CAPITALIZED BOND PREMIUMS	559	559
17 DEBT SERVICE REASSIGNMENT INTEREST	2,960	1,927
18 NON-FEDERAL INTEREST	67,411	65,176
19 PREMIUMS/DISCOUNTS	-	-
20 AFUDC	(15,937)	(16,016)
21 INTEREST INCOME	<u>(2,002)</u>	<u>(1,810)</u>
22 NET INTEREST EXPENSE	142,210	145,920
23		
24 TOTAL EXPENSES	1,103,146	1,119,420
25		
26 MINIMUM REQUIRED NET REVENUE 1/	40,023	40,012
27 PLANNED NET REVENUES FOR RISK	-	-
28 TOTAL PLANNED NET REVENUE	40,023	40,012
29		
30 TOTAL REVENUE REQUIREMENT	1,143,169	1,159,432

1/ SEE NOTE ON CASH FLOW TABLE.

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

	A	B
	<u>2022</u>	<u>2023</u>
1 CASH FROM CURRENT OPERATIONS:		
2 TOTAL MINIMUM REQUIRED NET REVENUE	40,023	40,012
3 CASH FLOW	<u>23</u>	<u>12</u>
4 REVENUE FINANCING MINIMUM REQUIRED NET REVENUE	40,000	40,000
5 EXPENSES NOT REQUIRING CASH:		
6 DEPRECIATION & AMORTIZATION	345,303	349,991
7 TRANSMISSION CREDIT PROJECTS NET INTEREST	4,304	3,736
8 AMORTIZATION OF CAPITALIZED BOND PREMIUMS	559	559
9 CAPITALIZATION ADJUSTMENT	(18,968)	(18,968)
10 NON-CASH REVENUES/ACCRUAL REVENUES		
11 LGIA	(27,442)	(26,071)
12 AC INTERTIE CO/FIBER	<u>(3,507)</u>	<u>(3,507)</u>
13 CASH PROVIDED BY CURRENT OPERATIONS	340,272	345,752
14		
15 CASH USED FOR CAPITAL INVESTMENTS:		
16 INVESTMENT IN:		
17 UTILITY PLANT	<u>(470,870)</u>	<u>(489,393)</u>
18 CASH USED FOR CAPITAL INVESTMENTS	(470,870)	(489,393)
19		
20 CASH FROM TREASURY BORROWING AND APPROPRIATIONS:		
21 INCREASE IN LONG-TERM DEBT	430,870	449,393
22 DEBT SERVICE REASSIGNMENT PRINCIPAL	(21,596)	(22,678)
23 REPAYMENT OF CAPITAL LEASES	(74,479)	(73,695)
24 REPAYMENT OF LONG-TERM DEBT	(204,197)	(209,379)
25 REPAYMENT OF CAPITAL APPROPRIATIONS	<u>-</u>	<u>-</u>
26 CASH FROM TREASURY BORROWING AND APPROPRIATIONS	130,598	143,641
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

This chapter documents how the components of the transmission revenue requirements are allocated to the transmission segments, defined in the Transmission Segmentation Study and Documentation, B-22-FS-BPA-07. This allocation results in the segmented revenue requirements, which are used to develop proposed transmission and ancillary services rates. *See* Transmission Rates Study and Documentation, B-22-FS-BPA-08.

2.2 Segmentation

The allocation of the revenue requirement components to the transmission segments is described below.

Operations & Maintenance Expense (O&M)

BPA transmission O&M (*see* chapter 3 – Transmission Expenses) is segmented in three steps.

Step 1: certain costs are directly assigned to the segments and Ancillary Services to which they are attributed: (1) costs for balancing reserve capacity are assigned to the Ancillary and Control Area Services; (2) the annual costs of transmission facilities owned and operated by the Corps of Engineers and Bureau of Reclamation are assigned to the Network and Utility Delivery segments; (3) costs associated with synchronous condensing and remedial action schemes for generation dropping are assigned to the Network and Southern Intertie segment; (4) costs associated with redispatch provided by Power Services to Transmission Services under Attachment M of the tariff are assigned to the Network segment; (5) portions of Transmission Services O&M (specifically, certain costs associated with the Ancillary Service of Scheduling, System Control and Dispatch (SCD)—the costs of the scheduling program, portions of the costs of the system operations program, and costs of related pilot programs) are assigned to Ancillary Services.

Step 2: the costs of the direct programs for operating and maintaining the transmission system are allocated. The costs of these direct programs include all of the remaining costs of the system operations program (those not assigned to SCD) and the costs of system maintenance and environmental operations programs. Direct program costs are first allocated between lines and substations according to the percentage share of historical O&M spending on lines and substations. *See* Transmission Segmentation Study and Documentation, B-22-FS-BPA-07, Table 4.3. Then costs assigned to the lines and substations are allocated to the segments based on the percentage share of historical O&M spending that has been identified for each segment in the Transmission Segmentation Study and Documentation. This method allows BPA to reflect the appropriate division of costs for lines and for substations by segment, as the division of costs between lines and substations historically varies by segment. Therefore, costs are allocated between lines and substations, prior to being allocated to segments. Station service costs are allocated to the segments based on the percentage share of historical substation O&M in each segment. *See id.* This second step results in segmented direct O&M expenses.

Step 3: the directly assigned O&M in step 1 and segmented direct transmission O&M expenses in step 2 are summed for each segment, including ancillary services. The remaining expense programs (marketing, business support, engineering and corporate agency services, and costs associated with General Transfer Agreement (GTA) settlements) are allocated to the segments pro rata based on the ratio of the total direct assigned O&M for each segment to the total direct assigned O&M. Finally, the costs in the one remaining expense category—non-between-business-line ancillary services—are segmented based on the ratio of net plant investment in each segment to total transmission net plant investment; except the payments for operating leases of transmission facilities, which are directly assigned to the Network segment. The non-between-business-line ancillary services costs are segmented on this basis, rather than by an O&M-based ratio, because they are transmission system overhead not directly associated with or influenced by BPA O&M activities.

Net Interest Expense and Planned Net Revenues

Transmission net interest expense (Table 1-1, line 22) and total planned net revenues (line 28) are segmented similarly in a two-step process. As with O&M, costs that can be directly assigned are allocated to the segments first, after which the remainder are allocated.

Net Interest:

Step 1: interest expense and AFUDC associated with Large and Small Generator Interconnection Agreements (LGIA and SGIA) transmission credits is directly assigned to the Network segment. Interest expense and AFUDC associated with transmission credits related to the California-Oregon Intertie (COI) upgrade project is directly assigned to the Southern Intertie segment. Section 2.2.5 of the Transmission Revenue Requirement Study, B-22-FS-BPA-09, discusses these credits in more detail.

Step 2: the remaining net interest expense (interest net of AFUDC) is then calculated by taking the total net interest expense and subtracting the total LGIA/SGIA and COI net interest expense that was directly assigned above. The remaining net interest expense is allocated pro rata to the segments and ancillary services based on the ratio of net plant investment in each segment to total transmission net plant.

Total Planned Net Revenue:

Step 1: minimum required net revenue related to LGIA/SGIA transmission credits and COI upgrade transmission credits is calculated and directly assigned to the Network and Southern Intertie segments, respectively. The calculation begins with the total revenue credits to be repaid (that is, non-cash revenues) and subtracts from that net interest and depreciation expense associated with the advance-funded facilities. The result is the minimum required net revenues required to ensure that cash requirements can be met.

Step 2: The total planned net revenue is then reduced by the total LGIA/SGIA and COI minimum required net revenues, resulting in the remaining planned net revenue to be allocated across the segments and ancillary services. The remaining planned net revenue is

allocated based on the ratio of net plant investment in each segment to total net plant investment.

Depreciation

Depreciation is segmented in two steps.

Step 1: depreciation is calculated directly for each segment and ancillary service based on gross plant investment for the particular year (see chapter 4 for more discussion on plant investment).

Step 2: after calculating depreciation for the gross investment particular to each segment, general plant depreciation (exclusive of that associated with ancillary services) is allocated to the segments and ancillary services based on the ratio of direct O&M in each segment to total transmission direct O&M.

**TABLE 2-1:
SEGMENTATION OF O&M
(\$000s)**

FY 2022	A TOTAL FCRTS	B GENERATION INTEGRATION	C NETWORK	D SOUTHERN INTERTIE	E EASTERN INTERTIE	F UTILITY DELIVERY	G DSI DELIVERY	H ANCILLARY SERVICES
SEGMENTATION STUDY AVERAGES								
1	7-YEAR AVERAGE O&M: LINES	53,823	618	48,833	2,252	2,107	13	-
2	7-YEAR AVERAGE O&M: SUBSTATIONS	132,737	3,338	108,436	18,653	791	1,118	401
3	TOTAL 7-YEAR AVERAGE O&M (LN 2+3)	186,560						
SYSTEM OPERATION, MAINTENANCE & ENVIRONMENT								
4	SYSTEM OPERATION ^{1/}	26,097		261				62,053
5	SYSTEM MAINTENANCE ^{2/}	177,560						
6	TOTAL TO SEGMENT (LN 4+5)	203,658						
7	DIRECT LINES O&M	58,756	675	53,308	2,458	2,300	14	-
8	DIRECT SUBS O&M	144,902	3,644	118,373	20,363	864	1,220	438
9	DIRECT TRANSMISSION O&M SUBTOTAL (LN 7+8)	203,658	4,319	171,681	22,821	3,163	1,235	438
10	SCHEDULING	11,276						11,276
11	TOTAL DIRECT TRANSMISSION O&M W/ANCILLARY SERVICES	277,248	4,319	171,942	22,821	3,163	1,235	438
OVERHEAD CATEGORIES								
12	MARKETING	14,491	226	8,987	1,193	165	65	23
13	BUSINESS SUPPORT	54,532	850	33,819	4,489	622	243	86
14	SYSTEM ENGINEERING	56,570	845	33,657	4,467	619	242	86
15	CORPORATE	103,195	1,608	63,999	8,494	1,177	460	163
16	OVERHEAD CATEGORIES SUBTOTAL (LN 12+13+14+15)	228,788	3,528	140,462	18,643	2,584	1,009	358
17	TOTAL 2022 O&M (LN 11+16)	506,036	7,847	312,404	41,464	5,747	2,243	796
FY 2023								
SEGMENTATION STUDY AVERAGES								
18	7-YEAR AVERAGE O&M: LINES	53,823	618	48,833	2,252	2,107	13	-
19	7-YEAR AVERAGE O&M: SUBSTATIONS	132,737	3,338	108,436	18,653	791	1,118	401
20	TOTAL 7-YEAR AVERAGE O&M (LN 18+19)	186,560						
SYSTEM OPERATION, MAINTENANCE & ENVIRONMENT								
21	SYSTEM OPERATION ^{1/}	26,625		265				62,876
22	SYSTEM MAINTENANCE ^{2/}	179,860						
23	TOTAL TO SEGMENT (LN 21+22)	206,485						
24	DIRECT LINES O&M	59,571	684	54,048	2,493	2,332	15	-
25	DIRECT SUBS O&M	146,914	3,695	120,017	20,646	876	1,237	444
26	DIRECT TRANSMISSION O&M SUBTOTAL (LN 24+25)	206,485	4,379	174,065	23,138	3,207	1,252	444
27	SCHEDULING	11,520						11,520
28	TOTAL DIRECT TRANSMISSION O&M W/ANCILLARY SERVICES	281,147	4,379	174,330	23,138	3,207	1,252	444
OVERHEAD CATEGORIES								
29	MARKETING	14,780	230	9,164	1,216	169	66	23
30	BUSINESS SUPPORT	55,528	865	34,431	4,570	633	247	88
31	SYSTEM ENGINEERING	57,094	853	33,976	4,510	625	244	87
32	CORPORATE/OTHER	104,681	1,630	64,910	8,615	1,194	466	165
33	OVERHEAD CATEGORIES SUBTOTAL (LN 29+30+31+32)	232,083	3,579	142,481	18,911	2,621	1,023	363
34	TOTAL 2023 O&M (LN 28+33)	513,231	7,958	316,811	42,049	5,829	2,275	807

1/ SYSTEM OPERATION EXPENSES NET OF ANCILLARY SERVICES

2/ INCLUDES ENVIRONMENTAL OPERATIONS

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

		A	B	C	D	E	F	G	H
		TOTAL FCRTS	GENERATION INTEGRATION	NETWORK	SOUTHERN INTERTIE	EASTERN INTERTIE	UTILITY DELIVERY	DSI DELIVERY	ANCILLARY SERVICES
FY 2022									
1	FCRTS INVESTMENT BASE	6,517,136	105,574	5,362,763	737,167	85,244	14,661	6,319	205,409
2	PERCENT	100.00%	1.62%	82.29%	11.31%	1.31%	0.22%	0.10%	3.15%
FY 2023									
3	FCRTS INVESTMENT BASE	6,619,781	101,582	5,423,357	717,586	81,357	14,145	6,098	275,655
4	PERCENT	100.00%	1.53%	81.93%	10.84%	1.23%	0.21%	0.09%	4.16%

**TABLE 2-3
SEGMENTATION OF DEPRECIATION
(\$000s)**

		A	B	C	D	E	F	G	H
		TOTAL FCRTS	GENERATION INTEGRATION	NETWORK	SOUTHERN INTERTIE	EASTERN INTERTIE	UTILITY DELIVERY	DSI DELIVERY	ANCILLARY SERVICES
FY 2022									
1	DIRECT DEPRECIATION	268,467	3,392	221,163	27,535	3,332	437	187	12,420
2	PERCENTAGE OF DIRECT O&M W/OUT ANCILLARY SERVICES	100.00%	1.56%	62.02%	8.23%	1.14%	0.45%	0.16%	26.45%
3	TRANSMISSION GENERAL PLANT	76,836	1,197	47,652	6,325	877	342	121	20,322
4	LGIA DEPRECIATION	1,722		1,722					
5	TOTAL 2022 DEPRECIATION EXPENSE	347,025	4,589	270,537	33,860	4,209	779	308	32,743
FY 2023									
6	DIRECT DEPRECIATION	274,825	3,392	229,126	27,535	3,332	437	187	10,816
7	PERCENTAGE OF DIRECT O&M W/OUT ANCILLARY SERVICES	100.00%	1.56%	62.01%	8.23%	1.14%	0.45%	0.16%	26.46%
8	TRANSMISSION GENERAL PLANT	75,166	1,171	46,608	6,186	857	335	119	19,890
9	LGIA DEPRECIATION	2,772		2,772					
10	TOTAL 2023 DEPRECIATION EXPENSE	352,763	4,563	278,506	33,721	4,189	772	306	30,706

**TABLE 2-4
SEGMENTATION OF INTEREST EXPENSE
(\$000s)**

		A	B	C	D	E	F	G	H
		TOTAL FCRTS	GENERATION INTEGRATION	NETWORK	SOUTHERN INTERTIE	EASTERN INTERTIE	UTILITY DELIVERY	DSI DELIVERY	ANCILLARY SERVICES
FY 2022									
1	TRANSMISSION CREDIT PROJECTS INTEREST EXPENSE	4,304		4,304					
2	TRANSMISSION CREDIT PROJECTS AFUDC	-		-					
3	TC PROJECTS NET INTEREST	4,304		4,304					
4	REMAINING NET INTEREST EXPENSE	137,906	2,234	113,479	15,599	1,804	310	134	4,347
5	TOTAL 2022 NET INTEREST	142,210	2,234	117,783	15,599	1,804	310	134	4,347
FY 2023									
8	TRANSMISSION CREDIT PROJECTS INTEREST EXPENSE	3,736		3,736					
9	TRANSMISSION CREDIT PROJECTS AFUDC	-		-					
10	TC PROJECTS NET INTEREST	3,736		3,736					
11	REMAINING NET INTEREST EXPENSE	142,184	2,182	116,486	15,413	1,747	304	131	5,921
12	TOTAL 2023 NET INTEREST	145,920	2,182	120,223	15,413	1,747	304	131	5,921

**TABLE 2-5
SEGMENTATION OF PLANNED NET REVENUE**

(\$000s)

	A	B	C	D	E	F	G	H
	TOTAL	GENERATION	NETWORK	SOUTHERN	EASTERN	UTILITY	DSI	ANCILLARY
	FCRTS	INTEGRATION		INTERTIE	INTERTIE	DELIVERY	DELIVERY	SERVICES
FY 2022								
1 TRANSMISSION CREDIT PROJECTS REVENUE CREDITS			27,442					
2 TRANSMISSION CREDIT PROJECTS NET INTEREST			4,304					
3 TRANSMISSION CREDIT PROJECTS DEPRECIATION			1,722					
4 TC PROJECTS MINIMUM REQUIRED NET REVENUE (LN 1-2-3)	21,416		21,416					
5 REMAINING PLANNED NET REVENUE	18,607	301	15,311	2,105	243	42	18	586
6 TOTAL PLANNED NET REVENUE (LN 4+5)	40,023	301	36,727	2,105	243	42	18	586
FY 2023								
9 TRANSMISSION CREDIT PROJECTS REVENUE CREDITS			26,071					
10 TRANSMISSION CREDIT PROJECTS NET INTEREST			3,736					
11 TRANSMISSION CREDIT PROJECTS DEPRECIATION			2,772					
12 TC PROJECTS MINIMUM REQUIRED NET REVENUE (LN 1-2-3)	19,563		19,563					
13 REMAINING PLANNED NET REVENUE	20,449	314	16,753	2,217	251	44	19	852
14 TOTAL PLANNED NET REVENUE (LN 12+13)	40,012	314	36,316	2,217	251	44	19	852

**TABLE 2-6
SEGMENTATION OF TRANSMISSION ACQUISITION & ANCILLARY SERVICES**

(\$000s)

	A	B	C	D	E	F	G	H
	TOTAL	GENERATION	NETWORK	SOUTHERN	EASTERN	UTILITY	DSI	ANCILLARY
	FCRTS	INTEGRATION		INTERTIE	INTERTIE	DELIVERY	DELIVERY	SERVICES
FY 2022								
PAYMENTS TO POWER SERVICES:								
1 COE/USBR TRANSMISSION	9,502		9,191			311		
2 GEN DROPPING	365			365				
3 REDISPATCH	370		370					
4 SYNCHRONOUS CONDENSERS	923		495	428				
5 STATION SERVICE	2,295	58	1,875	323	14	19	7	
6 GENERATION INPUTS	90,790							90,790
7 168 HR IN-KIND DELAY LOSSES SERVICE	-							-
PAYMENTS TO OTHERS (NON-PS):								
8 NON-BBL ANCILLARY SERVICES	81	1	66	9	1			3
9 OPERATING LEASES	4,296		4,296					
10 SETTLEMENT AGREEMENTS	1		1					
11 TRANSMISSION RENEWABLES	298							298
12 TOTAL 2022 TRANS ACQ & ANCLRY	108,922	59	16,295	1,124	15	330	7	91,091
FY 2023								
PAYMENTS TO POWER SERVICES:								
13 COE/USBR TRANSMISSION	9,502		9,191			311		
14 GEN DROPPING	365			365				
15 REDISPATCH	370		370					
16 SYNCHRONOUS CONDENSERS	923		495	428				
17 STATION SERVICE	2,295	58	1,875	323	14	19	7	
18 GENERATION INPUTS	90,790							90,790
168 HR IN-KIND DELAY LOSSES SERVICE	-							-
PAYMENTS TO OTHERS (NON-PS):								
19 NON-BBL ANCILLARY SERVICES	81	1	66	9	1			3
20 OPERATING LEASES	4,296		4,296					
21 SETTLEMENT AGREEMENTS	1		1					
22 TRANSMISSION RENEWABLES	305							305
23 TOTAL 2023 TRANS ACQ & ANCLRY	108,928	59	16,295	1,124	15	330	7	91,099

TABLE 2-7
REVENUE REQUIREMENTS FOR ANCILLARY SERVICES
(\$000s)

	A	B
	TOTAL	SCHEDULING,
	ANCILLARY	SYST CONTROL,
FY 2022	SERVICES	& DISPATCH
1 DIRECT O&M	73,330	73,330
2 OVERHEADS	62,204	62,204
3 NON-BBL / ACQ. & ANCILLARY	<u>301</u>	<u>301</u>
4 TOTAL O&M	135,834	135,834
5 GENERATION INPUTS	90,790	0
6 DEPRECIATION	32,743	32,743
7 NET INTEREST EXPENSE	4,347	4,347
8 PLANNED NET REVENUE	<u>586</u>	<u>586</u>
9 TOTAL REV REQ	264,301	173,510
	TOTAL	SCHEDULING,
	ANCILLARY	SYST CONTROL,
FY 2023	SERVICES	& DISPATCH
10 DIRECT O&M	74,397	74,397
11 OVERHEADS	63,105	63,105
12 NON-BBL / ACQ. & ANCILLARY	<u>308</u>	<u>308</u>
13 TOTAL O&M	137,810	137,810
14 GENERATION INPUTS	90,790	0
15 DEPRECIATION	30,706	30,706
16 NET INTEREST EXPENSE	5,921	5,921
17 PLANNED NET REVENUE	<u>852</u>	<u>852</u>
18 TOTAL REV REQ	266,078	175,288

TABLE 2-8
SEGMENTED REVENUE REQUIREMENT
(\$000s)

	A	B	C	D	E	F	G	H
FY 2022	TOTAL	GENERATION INTEGRATION	NETWORK	SOUTHERN INTERTIE	EASTERN INTERTIE	UTILITY DELIVERY	DSI DELIVERY	ANCILLARY SERVICES
1 OPERATIONS & MAINTENANCE	506,036	7,847	312,404	41,464	5,747	2,243	796	135,533
2 TRANSMISSION ACQUISITION & ANCILLARY SERVICES	109,597	59	16,881	1,202	26	330	7	91,091
3 DEPRECIATION	345,303	4,589	268,815	33,860	4,209	779	308	32,743
4 NET INTEREST EXPENSE	142,210	2,234	117,783	15,599	1,804	310	134	4,347
5 PLANNED NET REVENUES	<u>40,023</u>	<u>301</u>	<u>36,727</u>	<u>2,105</u>	<u>243</u>	<u>42</u>	<u>18</u>	<u>586</u>
6 TOTAL TRANSMISSION REVENUE REQUIREMENT	1,143,169	15,031	752,610	94,230	12,029	3,705	1,263	264,301

	A	B	C	D	E	F	G	H
FY 2023	TOTAL	GENERATION INTEGRATION	NETWORK	SOUTHERN INTERTIE	EASTERN INTERTIE	UTILITY DELIVERY	DSI DELIVERY	ANCILLARY SERVICES
7 OPERATIONS & MAINTENANCE	513,231	7,958	316,811	42,049	5,829	2,275	807	137,501
8 TRANSMISSION ACQUISITION & ANCILLARY SERVICES	110,278	59	17,467	1,280	36	330	7	91,099
9 DEPRECIATION	349,991	4,563	275,734	33,721	4,189	772	306	30,706
10 NET INTEREST EXPENSE	145,920	2,182	120,223	15,413	1,747	304	131	5,921
11 PLANNED NET REVENUES	<u>40,012</u>	<u>314</u>	<u>36,316</u>	<u>2,217</u>	<u>251</u>	<u>44</u>	<u>19</u>	<u>852</u>
12 TOTAL TRANSMISSION REVENUE REQUIREMENT	1,159,432	15,075	766,552	94,679	12,053	3,725	1,270	266,078

TABLE 2-9
SEGMENTATION OF UNALLOCATED EIM CHARGES
(\$000s)

		2022			
		A	B	C	D
		NETWORK	SOUTHERN INTERTIE	EASTERN INTERTIE	TOTAL
1	Total O&M	\$ 312,404	\$ 41,464	\$ 5,747	\$ 359,616
2	% of Total	86.87%	11.53%	1.60%	
3	EIM Unallocated Charges	\$ 586	\$ 78	\$ 11	\$ 675

		2023			
		A	B	C	D
		NETWORK	SOUTHERN INTERTIE	EASTERN INTERTIE	TOTAL
4	Total O&M	\$ 316,811	\$ 42,049	\$ 5,829	\$ 364,689
5	% of Total	88.10%	11.69%	1.62%	
6	EIM Unallocated Charges	\$ 1,189	\$ 158	\$ 22	\$ 1,350

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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 (IPR) 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 2022	B 2023
1 TRANSMISSION SYSTEM OPERATIONS		
2 POWER SYSTEM DISPATCHING	16,273	16,590
3 INFORMATION TECHNOLOGY	3,972	4,037
4 CONTROL CENTER SUPPORT	34,588	34,882
5 TECHNICAL OPERATIONS	7,401	7,547
6 SUBSTATION OPERATIONS	25,917	26,445
7 OVERSUPPLY ADMIN - SPLIT FROM TECH. OPS	180	180
11 SUB-TOTAL TRANSMISSION SYSTEM OPERATIONS	88,331	89,681
12 TRANSMISSION SCHEDULING		
13 RESERVATIONS	934	954
14 PRE-SCHEDULING	138	141
15 REAL-TIME SCHEDULING	5,161	5,274
16 SCHEDULING TECHNICAL SUPPORT	4,899	5,004
17 SCHEDULING AFTER-THE-FACT	144	147
18 SUB-TOTAL TRANSMISSION SCHEDULING	11,276	11,520
19 TRANSMISSION MARKETING		
20 TRANSMISSION SALES	3,402	3,483
21 CONTRACT MANAGEMENT	2,139	2,182
22 TRANSMISSION BILLING	907	939
23 BUSINESS STRATEGY & ASSESSMENT	8,043	8,175
STRATEGIC INTEGRATION (<i>Previously Energy Imbalance Market - EIM</i>)	1,340	1,352
24 SUB-TOTAL TRANSMISSION MARKETING	15,831	16,132
25 TRANSMISSION BUSINESS SUPPORT		
26 EXECUTIVE & ADMIN SERVICES	16,069	16,314
27 AIRCRAFT SERVICES	948	962
28 GENERAL ADMINISTRATIVE	23,327	23,823
29 LOGISTICS SERVICES	5,847	5,902
30 SECURITY ENHANCEMENTS EXPENSE	3,031	3,031
31 LEGAL SUPPORT - EXPENSE	2,638	2,783
34 SUB-TOTAL TRANSMISSION BUSINESS SUPPORT	51,860	52,814
35 TRANSMISSION ENGINEERING		
36 RESEARCH & DEVELOPMENT	2,752	2,794
37 TSD PLANNING & ANALYSIS	34,694	35,022
38 CAPITAL TO EXPENSE TRANSFER	5,846	5,846
39 NERC/WECC COMPLIANCE	8,096	8,140
40 ENVIRONMENTAL POLICY/PLANNING	2,838	2,935
41 ENG. LINE RATING	2,343	2,356
42 SUB-TOTAL TRANSMISSION ENGINEERING	56,570	57,094

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

PROGRAM & OTHER OPERATING COSTS	A 2022	B 2023
43 TRANSMISSION SYSTEM MAINTENANCE		
44 ENVIRONMENTAL ANALYSIS		
45 HEAVY MOBILE EQUIPMENT MAINTENANCE		
46 NON-ELECTRIC MAINTENANCE	30,708	30,880
47 SUBSTATION MAINTENANCE	32,355	32,926
48 TRANSMISSION LINE MAINTENANCE	27,868	28,279
49 SYSTEM PROTECTION CONTROL MAINTENANCE	16,548	16,916
50 POWER SYSTEM CONTROL MAINTENANCE	25,696	26,076
51 JOINT COST MAINTENANCE	46	47
52 SYSTEM MAINTENANCE MANAGEMENT	8,641	8,760
53 RIGHT OF WAY MAINTENANCE	8,208	8,275
54 POLLUTION PREVENTION & ABATEMENT	4,779	4,896
55 TECHNICAL TRAINING	2,915	2,960
56 VEGETATION MANAGEMENT	19,796	19,846
57 SUB-TOTAL TRANSMISSION SYSTEM MAINTENANCE	177,560	179,860
58 SUB-TOTAL TRANSMISSION SYSTEM OPERATIONS & MAINTENANCE	401,428	407,102
59 NON-BETWEEN BUSINESS LINE ANCILLARY SERVICES		
60 LEASED FACILITIES	4,296	4,296
61 SETTLEMENT AGREEMENTS	1	1
62 NON-BBL ANCILLARY SERVICES	268	268
63 RELIABILITY DEMAND RESPONSE/REDISPATCH (NonBBL)	298	305
64 SUB-TOTAL NON-BETWEEN BUSINESS LINE ANCILLARY SERVICES	4,863	4,870
65 CORPORATE EXPENSES		
66 UNFUNDED RETIREMENT BENEFITS	12,607	12,952
67 CORPORATE OVERHEAD DISTRIBUTIONS	90,589	91,730
68 SUB-TOTAL CORPORATE CHARGES	90,589	91,730
69 EIM rolled-in costs	675	1,350
69 OTHER INCOME AND ADJUSTMENTS	-	-
70 TOTAL TRANSMISSION IPR PROGRAM LEVELS	497,555	505,052

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

	A	B
	<u>2022</u>	<u>2023</u>
1 DSR INTEREST	2,960	1,927
2 NON-FEDERAL/CAPITAL LEASES INTEREST	70,370	67,104
3 APPROPRIATION INTEREST	-	-
4 BOND INTEREST	108,189	115,052
5 DISCOUNTS / PREMIUMS	-	-
6 TOTAL GROSS INTEREST	<u>181,519</u>	<u>184,083</u>
6 DSR PRINCIPAL	21,596	22,678
7 NON-FEDERAL/CAPITAL LEASE PRINCIPAL	72,100	71,720
8 APPROPRIATION PRINCIPAL	-	-
9 BOND PRINCIPAL	<u>204,197</u>	<u>209,379</u>
10 TOTAL PRINCIPAL	<u>297,893</u>	<u>303,777</u>

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

	A	B
<u>PLANT FUNDED FROM BPA BORROWING</u>		
	<u>2022</u>	<u>2023</u>
1 CAPITAL EXPENDITURES	485,804	503,300
2 PLANT-IN-SERVICE	491,109	517,998
3 SOY CWIP BALANCE	608,314	603,009
4 EOY CWIP BALANCE	603,009	588,311
5 AVERAGE CWIP BALANCE	605,661	595,660
6 AFUDC RATE	2.61%	2.66%
7 AFUDC	15,808	15,845
8 CORPORATE CAPITAL (65% OF TOTAL)	4,958	7,948
9 CORPORATE AFUDC	<u>129</u>	<u>172</u>
10 TOTAL AFUDC FOR BPA BORROWING	15,937	16,016

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

A	B	C	D	E	F	G	H	I
DATE OF REFINANCING	PREMIUM	PRORATION	NO. OF MONTHS	MONTHLY AMORTIZATION	TYPE OF BOND	LAST MONTH TO AMORTIZE	<u>ANNUAL AMOUNTS</u>	
							2022	2023
1	5/31/1998		411	15	CONSTRUCTION	Aug-2032	184	184
2	8/31/1998		360	13	CONSTRUCTION	Aug-2028	156	156
3	8/31/1998		360	18	CONSTRUCTION	Aug-2028	<u>219</u>	<u>219</u>
4	Total			47			559	559

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

	A	B	C
	<u>2022</u>	<u>2023</u>	<u>AVERAGE</u>
1 ANCILLARY SERVICES	90,790	90,790	90,790
2 SYNCHRONOUS CONDENSING	923	923	981
3 GENERATION DROPPING	365	365	365
4 COE/RECLAMATION NETWORK/ DELIVERY FACILITIES SEGMENTATION	9,502	9,502	9,502
5 REDISPATCH	370	370	370
6 STATION SERVICE	2,295	2,295	2,295
7 LOSSES	-	-	-
7 TOTAL	104,245	104,245	104,303

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

	<u>A</u> <u>2022</u>	<u>B</u> <u>2023</u>
1 TRANSMISSION PLANT		
2 LINES	113,491	116,736
3 SUBSTATION	109,956	113,063
4 STATION EQUIPMENT	3,899	5,510
5 GENERAL PLANT	76,836	75,166
6 ANCILLARY SERVICES (Excludes Station Equipment)	12,420	10,816
7 INTANGIBLE ASSETS	431	431
8 REGULATORY ASSET	<u>28,269</u>	<u>28,269</u>
9 TOTAL	345,303	349,991

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

		<u>A</u>	<u>B</u>
		2022	2023
1	SPACER DAMPERS - 30 YR LIFE		
2	ADDITIONS	-	-
3	AMORTIZATION	956	956
4	SPACER DAMPERS - 25 YR LIFE		
5	ADDITIONS	-	-
6	AMORTIZATION	1,310	1,310
7	CAPITALIZED BOND PREMIUMS	559	559
8	I-5 REINFORCEMENT PROJECT	26,003	26,003

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

	2021	2022	2023
DEBT	5,849,243	5,979,841	6,123,481
1 PRIOR YEAR NET DEBT OUTSTANDING	5,647,463	5,849,243	5,979,841
2 NEW FEDERAL BORROWING	436,406	430,870	449,393
3 NEW NON-FEDERAL BORROWING	-	-	-
4 DEFERRED BORROWING 1/	64,659	-	-
5 LESS: PRINCIPAL REPAYMENT	(299,285)	(300,272)	(305,752)
ASSETS (INCLUDE CORP ALLOCATION)	7,719,126	7,956,550	8,213,499
7 PRIOR YEAR COMPLETED PLANT BALANCE	10,599,586	11,039,136	11,494,920
8 CWIP	623,814	623,814	623,814
9 NEW BPA-FINANCED INVESTMENT	462,848	470,870	489,393
10 NEW NONBPA FINANCED INVESTMENT	46,884	55,096	60,787
11 ASSET RETIREMENT	(70,182)	(70,182)	(70,182)
12 LESS: PRIOR YEAR ACCUMULATED DEPRECIATION*	(3,729,524)	(3,943,824)	(4,162,185)
13 LESS: CURRENT YEAR DEPRECIATION*	(320,055)	(324,115)	(328,804)
14 ADJUSTMENTS TO DEPRECIATION	105,755	105,755	105,755
15 DEBT TO ASSET RATIO	75.78%	75.16%	74.55%

TABLE 3-9
Adjustments to Forecast Gross Plant & Accumulated Depreciation
(\$000s)

	A	B	C	D	E	F	G
Corporate	Asset Retirements	Proceeds from Sales	Costs of Removal	Gain or Loss on Sale of Land	Adjustments	Rcls FAS 143 (Neg Salv)	Total
1 2020	(9,868)	-	-	-	-	-	(9,868)
2 2019	(28,768)	-	-	-	-	-	(28,768)
3 2018	(15,333)	-	-	-	-	-	(15,333)
4 2017	(35,464)	-	-	-	-	-	(35,464)
5 3 yr Average	(17,990)	-	-	-	-	-	(17,990)
6							
7							
8 Transmission (includes capital leases and lease purchase)							
9 2020	(56,199)	9,470	(10,548)	(1,155)	28,541	(42,839)	224,140
10 2019	(66,165)	2,046	(16,300)	21	-	(35,471)	174,392
11 2018	(53,101)	4,121	(23,383)	(35)	3	(21,190)	176,070
12 2017	(47,001)	1,831	(28,555)	(410)	-	(2,066)	165,243
13 3 yr Average	(58,489)	5,212	(16,744)	(389)	9,515	(33,166)	191,534
14							
15 Asset Retirements (3-year average)							
16 Transmission	(58,489)						
17 65% of Corp	(11,693)						
18 Total	(70,182)						
19							
20							
21 Adjustments to Depreciation							
22 Transmission	191,534						
23 65% of Corp	(11,693)						
24 Total	179,840						

**Table 3-10
Agency Services G&A Allocators**

	A	B	Final IPR				G
			C	D	E	F	
	Allocation	Costs included in the pool	Power	F&W	Transmission expense	Transmission capital	Comments
1	Corporate Executive, Planning & Gov.	Regulatory affairs, executive, CAO management, strategic planning and internal audit.	40.5%	9.5%	28.5%	21.5%	A - Equal Effort
2	Finance	Accounting, budgeting, forecasting, accounts payable, payroll, financial reporting, treasury, rates support, capital management, financial liaisons	40.5%	9.5%	28.5%	21.5%	A - Equal Effort
3	Legal	General counsel	40.5%	9.5%	28.5%	21.5%	A - Equal Effort
4	IT Cross Agency Applications	Customer billing systems, enterprise performance management (EPM), reporting services, data integration	40.5%	9.5%	50.0%	0.0%	A - Equal Effort
5	Public Affairs	Internal and external communications, national relations, regional relations, tribal relations	40.5%	9.5%	50.0%	0.0%	A - Equal Effort
6	Risk Management	Enterprise risk, transaction risk and credit risk management	40.5%	9.5%	28.5%	21.5%	A - Equal Effort
7	Technology Innovation	Technology innovation administration and project management costs	40.5%	9.5%	50.0%	0.0%	A - Equal Effort
8	Metering & Billing	Power and Transmission Services customer billing and metering services	40.5%	9.5%	50.0%	0.0%	A - Equal Effort
9	Forecasting & Contract Management	Contract management and support, load forecasting and analysis	40.5%	9.5%	50.0%	0.0%	A - Equal Effort
10	BTO Portfolio Management	BTO administration and project management costs	40.5%	9.5%	50.0%	0.0%	A - Equal Effort
11	IT Corp Application Assets	IT maintenance of BES/Financials, HRMIS and a number of other IT business systems applications such as SharePoint, customer contracting and DOE hiring.	28.3%	6.7%	65.0%	0.0%	B - Extra Effort
12	Supply Chain Management & Admin	Management and administrative costs for agency purchasing & Transmission contracting and logistics	28.3%	6.7%	65.0%	0.0%	B - Extra Effort
13	Supply Chain Agency Purchasing	Purchasing services for environment, Energy Efficiency, Power, IT and Corporate	28.3%	6.7%	37.1%	28.0%	B - Extra Effort
14	BPA Safety	Field safety, construction safety, medical surveillance, corporate safety	16.2%	3.8%	45.6%	34.4%	C - Labor Hour (FTE and supplemental labor)
15	BPA Security	Physical, personnel and information security, continuity of operations	16.2%	3.8%	45.6%	34.4%	C - Labor Hour (FTE and supplemental labor)
16	IT Infrastructure Assets	Data center storage, Linux, Wintel, security, Desk top/end user computing, LAN, WAN, help desk, and phone services	16.2%	3.8%	45.6%	34.4%	C - Labor Hour (FTE and supplemental labor)
17	Human Resources	HR policy, talent acquisition, employee development, labor relations, staffing and classification, EEO	17.0%	4.0%	45.0%	34.0%	C - Labor Hour (FTE only)
18	Agency Service Awards	Corporate awards	17.0%	4.0%	79.0%	0.0%	C - Labor Hour (FTE only)
19	IT Admin & System Policy	IT leadership & planning, admin, quality control, project management, IT training	28.3%	6.7%	37.1%	28.0%	E - Blended IT
20	Workplace Services	HQ and field leases, utilities, janitorial, maintenance, space management including moves and furniture, office equipment & supplies, mail/courier, media services, motor pool, transit and parking	34.0%	8.0%	33.1%	24.9%	F - Workplace Services

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
Transmission Depreciation
(\$000s)**

	A	B	C	D	E	F	G	H	I
1									
2									
3									
4	LINES								
5									
6		GENERATION-INTEGRATION				NETWORK			
7		Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr	Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr
8	2020		31,671		11,463		3,438,783		1,244,663
9	2021	11,463	31,671	897	12,360	1,244,663	3,508,866	98,341	1,343,004
10	2022	12,360	31,671	897	13,257	1,343,004	3,627,038	101,006	1,444,010
11	2023	13,257	31,671	897	14,154	1,444,010	3,738,141	104,251	1,548,261
12									
13	SUBSTATIONS								
14									
15									
16		GENERATION-INTEGRATION				NETWORK			
17		Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr	Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr
18	2020		110,590		31,647		3,809,024		1,090,021
19	2021	31,647	110,590	2,495	34,142	1,090,021	3,970,311	87,747	1,177,768
20	2022	34,142	110,590	2,495	36,637	1,177,768	4,159,850	91,704	1,269,472
21	2023	36,637	110,590	2,495	39,132	1,269,472	4,388,588	96,422	1,365,894
22	Intangible Plant								
23									
24									
25		NETWORK				SOUTHERN INTERTIE			
26		Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr	Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr
27	2020		4,085		547		5,473		733
28	2021	547	4,085	184	731	733	5,473	247	980
29	2022	731	4,085	184	915	980	5,473	247	1,227
30	2023	915	4,085	184	1,099	1,227	5,473	247	1,474

**Table 4-1
Transmission Depreciation
(\$000s)**

	A	J	K	L	M	N	O	P	Q	R	S	T	U
1													
2													
3													
4	LINES												
5													
6		SOUTHERN INTERTIE				EASTERN INTERTIE				UTILITY DELIVERY			
7		Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr	Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr	Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr
8	2020		313,908		113,618		95,021		34,393		412		149
9	2021	113,618	313,908	8,886	122,504	34,393	95,021	2,690	37,083	149	412	12	161
10	2022	122,504	313,908	8,886	131,390	37,083	95,021	2,690	39,773	161	412	12	173
11	2023	131,390	313,908	8,886	140,276	39,773	95,021	2,690	42,463	173	412	12	185
12													
13	SUBSTATION:												
14													
15		SOUTHERN INTERTIE				EASTERN INTERTIE				UTILITY DELIVERY			
16		Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr	Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr	Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr
17	2020		815,748		233,441		28,466		8,146		18,848		5,394
18	2021	233,441	815,748	18,402	251,843	8,146	28,466	642	8,788	5,394	18,848	425	5,819
19	2022	251,843	815,748	18,402	270,245	8,788	28,466	642	9,430	5,819	18,848	425	6,244
20	2023	270,245	815,748	18,402	288,647	9,430	28,466	642	10,072	6,244	18,848	425	6,669
21													
22	Intangible Pl:												
23													
24		TOTAL INTANGIBLE PLANT											
25		Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr								
26	2020		9,559		1,281								
27	2021	1,281	9,559	431	1,712								
28	2022	1,712	9,559	431	2,143								
29	2023	2,143	9,559	431	2,574								

**Table 4-1
Transmission Depreciation
(\$000s)**

	A	V	W	X	Y	Z	AA	AB	AC
1									
2									
3									
4	LINES								
5									
6		DSI DELIVERY				TOTAL LINES			
7		Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr	Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr
8	2020		-		-		3,879,795		1,404,287
9	2021	-	-	-	-	1,404,287	3,949,878	110,826	1,515,113
10	2022	-	-	-	-	1,515,113	4,068,050	113,491	1,628,604
11	2023	-	-	-	-	1,628,604	4,179,153	116,736	1,745,340
12									
13	SUBSTATION:								
14									
15		DSI DELIVERY				TOTAL LINES			
16		Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr	Prior Year Accum Depr	Plant Invest	Dep Exp	Accum Depr
17	2020		8,280		2,369		4,790,956		1,371,019
18	2021	2,369	8,280	187	2,556	1,371,019	4,952,243	109,898	1,480,917
19	2022	2,556	8,280	187	2,743	1,480,917	5,141,782	113,855	1,594,772
20	2023	2,743	8,280	187	2,930	1,594,772	5,370,520	118,573	1,713,345
21									
22	Intangible Pl:								
23									
24									
25									
26	2020								
27	2021								
28	2022								
29	2023								

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

Completed Plant

		A	B	C	D	E	F	G	H	I	J	K
		GENERATION- INTEGRATION	NETWORK	SOUTHERN INTERTIE	EASTERN INTERTIE	UTILITY DELIVERY	DSI DELIVERY	REGULATORY ASSET	INTANGIBLE PLANT	ANCILLARY SERVICES	GENERAL PLANT	TOTAL COMPLETED PLANT
3	2020 Ending Balance	142,261	7,247,807	1,129,656	123,487	19,261	8,280	191,461	9,559	208,460	1,300,409	10,380,640
4	Average	142,261	7,247,807	1,129,656	123,487	19,261	8,280	191,461	9,559	208,460	1,300,409	10,380,640
5	2021 Ending Balance	142,261	7,479,177	1,129,656	123,487	19,261	8,280	191,461	9,559	257,265	1,345,626	10,706,031
6	Average	142,261	7,363,492	1,129,656	123,487	19,261	8,280	191,461	9,559	232,863	1,323,018	10,543,335
7	2022 Ending Balance	142,261	7,786,888	1,129,656	123,487	19,261	8,280	191,461	9,559	338,435	1,423,689	11,172,974
8	Average	142,261	7,633,032	1,129,656	123,487	19,261	8,280	191,461	9,559	297,850	1,384,657	10,939,502
9	2023 Ending Balance	142,261	8,126,729	1,129,656	123,487	19,261	8,280	191,461	9,559	406,565	1,502,796	11,660,054
10	Average	142,261	7,956,808	1,129,656	123,487	19,261	8,280	191,461	9,559	372,500	1,463,243	11,416,514

Accumulated Depreciation

		A	B	C	D	E	F	G	H	I	J	K
		GENERATION- INTEGRATION	NETWORK	SOUTHERN INTERTIE	EASTERN INTERTIE	UTILITY DELIVERY	DSI DELIVERY	REGULATORY ASSET	INTANGIBLE PLANT	ANCILLARY SERVICES	GENERAL PLANT	TOTAL COMPLETED PLANT
13	2020 Ending Balance	43,111	2,334,685	347,060	42,539	5,543	2,369	45,120	1,281	93,075	506,237	3,421,019
14	Average	43,111	2,334,685	347,060	42,539	5,543	2,369	45,120	1,281	93,075	506,237	3,421,019
15	2021 Ending Balance	46,503	2,520,773	374,348	45,871	5,980	2,556	73,389	1,712	108,627	582,503	3,762,261
16	Average	44,807	2,427,729	360,704	44,205	5,762	2,463	59,254	1,496	100,851	544,370	3,591,640
17	2022 Ending Balance	49,895	2,713,483	401,636	49,203	6,417	2,743	101,658	2,143	121,047	659,339	4,107,564
18	Average	48,199	2,617,128	387,992	47,537	6,199	2,650	87,524	1,927	114,837	620,921	3,934,912
19	2023 Ending Balance	53,287	2,914,156	428,924	52,535	6,854	2,930	129,928	2,574	131,863	734,505	4,457,555
20	Average	51,591	2,813,819	415,280	50,869	6,636	2,837	115,793	2,358	126,455	696,922	4,282,559

Net Investment

		A	B	C	D	E	F	G	H	I	J	K
		GENERATION- INTEGRATION	NETWORK	SOUTHERN INTERTIE	EASTERN INTERTIE	UTILITY DELIVERY	DSI DELIVERY	REGULATORY ASSET	INTANGIBLE PLANT	ANCILLARY SERVICES	GENERAL PLANT	TOTAL COMPLETED PLANT
23	2020 Ending Balance	99,150	4,913,123	782,596	80,948	13,718	5,910	146,341	8,278	115,385	794,172	6,959,621
24	Average	99,150	4,913,123	782,596	80,948	13,718	5,910	146,341	8,278	115,385	794,172	6,959,621
25	2021 Ending Balance	95,758	4,958,404	755,308	77,616	13,281	5,723	118,072	7,847	148,638	763,123	6,943,770
26	Average	97,454	4,935,764	768,952	79,282	13,499	5,817	132,206	8,062	132,011	778,648	6,951,696
27	2022 Ending Balance	92,366	5,073,405	728,020	74,284	12,844	5,536	89,802	7,416	217,387	764,349	7,065,410
28	Average	94,062	5,015,905	741,664	75,950	13,062	5,630	103,937	7,631	183,013	763,736	7,004,590
29	2023 Ending Balance	88,974	5,212,574	700,732	70,952	12,407	5,349	61,533	6,985	274,702	768,291	7,202,499
30	Average	90,670	5,142,989	714,376	72,618	12,625	5,443	75,668	7,200	246,045	766,320	7,133,955

**Table 4-3
Projected Plant Investment
(\$000s)**

		A	B	C	D	E	F
		GENERATION-INTEGRATION			NETWORK		
		Invest	Additions	Total	Invest	Additions	Total
2	2020	142,261		142,261	7,247,807		7,247,807
3	2021	142,261	-	142,261	7,247,807	231,369	7,479,177
4	2022	142,261	-	142,261	7,479,177	307,711	7,786,888
5	2023	142,261	-	142,261	7,786,888	339,842	8,126,729

**Table 4-3
Projected Plant Investment
(\$000s)**

		G	H	I	J	K	L
		SOUTHERN INTERTIE			EASTERN INTERTIE		
		Invest	Additions	Total	Invest	Additions	Total
2	2020	1,129,656		1,129,656	123,487		123,487
3	2021	1,129,656	-	1,129,656	123,487	-	123,487
4	2022	1,129,656	-	1,129,656	123,487	-	123,487
5	2023	1,129,656	-	1,129,656	123,487	-	123,487

Table 4-3
Projected Plant Investment
(\$000s)

		M	N	O	P	Q	R
		UTILITY DELIVERY			DSI DELIVERY		
		Invest	Additions	Total	Invest	Additions	Total
2	2020	19,261		19,261	8,280		8,280
3	2021	19,261	-	19,261	8,280	-	8,280
4	2022	19,261	-	19,261	8,280	-	8,280
5	2023	19,261	-	19,261	8,280	-	8,280

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

	A	B	C	E	F	G	H	I	
	GENERATION INTEGRATION	NETWORK	SOUTHERN INTERTIE	EASTERN INTERTIE	UTILITY DELIVERY	DSI DELIVERY	ANCILLARY SERVICES	TOTAL	
FY 2022									
1	NET TRANSMISSION PLANT	94,062	5,015,905	741,664	75,950	13,062	5,630	183,013	6,129,286
2	INTANGIBLE PLANT		3,262	4,369					7,631
3	REGULATORY ASSET		103,937						103,937
4	SUBTOTAL INVESTMENT	94,062	5,123,103	746,034	75,950	13,062	5,630	183,013	6,240,854
5	PERCENT	2%	82.09%	11.95%	1.22%	0.21%	0.09%	2.93%	100.00%
6	GENERAL PLANT	11,511	626,949	91,297	9,295	1,599	689	22,397	763,736
7	TRANSMISSION CREDIT PROJECTS (NET PLANT)		(387,290)	(9,276)					(396,566)
8	ACC REV BAL ADJ - Fiber	-	-	-	-	-	-	-	-
9	ACC REV BAL ADJ - 3AC			(90,888)					(90,888)
10	INVESTMENT BASE	105,574	5,362,763	737,167	85,244	14,661	6,319	205,409	6,517,136
FY 2023									
11	NET TRANSMISSION PLANT	90,670	5,142,989	714,376	72,618	12,625	5,443	246,045	6,284,766
12	INTANGIBLE PLANT		3,077	4,123					7,200
13	REGULATORY ASSET		75,668						75,668
14	SUBTOTAL INVESTMENT	90,670	5,221,735	718,499	72,618	12,625	5,443	246,045	6,367,634
15	PERCENT	1%	82.00%	11.28%	1.14%	0.20%	0.09%	3.86%	100.00%
16	GENERAL PLANT	10,912	628,416	86,469	8,739	1,519	655	29,611	766,320
17	TRANSMISSION CREDIT PROJECTS (NET PLANT)		(426,793)						(426,793)
18	ACC REV BAL ADJ - Fiber	-	-	-	-	-	-	-	-
19	ACC REV BAL ADJ - 3AC			(87,381)					(87,381)
20	INVESTMENT BASE	101,582	5,423,357	717,586	81,357	14,145	6,098	275,655	6,619,781

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

		A	B	C	D	E	F	G	H	I	
RETIREMENTS		Transmission Plant									
FERC ACCOUNT		STRUCTURES/ IMPROVEMENTS	STATION EQUIPMENT	TOWERS & FIXTURES	POLES & FIXTURES	OVERHEAD CONDUCTOR	UNDERGROUND CONDUCTOR	ROADS & TRAILS			
		3520	3530	3540	3550	3560	3580	3590			
1	2013	288,550	12,294,748	61,771	701,176	457,131	-	6,098			
2	2014	329,452	12,438,522	376,309	5,394,609	3,511,919	7,328	-			
3	2015	518,586	17,666,284	206,637	1,702,468	1,871,496	-	5,534			
4	2016	2,785,852	200,195,993	100,017	1,808,790	435,930	-	0			
5	2017	380,561	8,578,588	382,627	1,083,964	5,745,269	-	-			
6	2018	792,817	16,052,896	62,749	571,943	2,027,814	-	-			
7	2019	227,577	5,997,839	136,557	405,609	477,077	-	-			

		Transmission Plant									
ADDITIONS		STRUCTURES/ IMPROVEMENTS	STATION EQUIPMENT	TOWERS & FIXTURES	POLES & FIXTURES	OVERHEAD CONDUCTOR	UNDERGROUND CONDUCTOR	ROADS & TRAILS			
FERC ACCOUNT		3520	3530	3540	3550	3560	3580	3590			
8	2013	26,097,572	169,467,868	4,546,280	13,060,878	7,034,784	49,246	24,632,389			
9	2014	26,115,479	147,181,966	10,447,189	28,433,884	15,061,057	-	11,234,418			
10	2015	15,480,461	188,753,754	59,107,276	11,328,438	40,570,970	52,435	9,549,946			
11	2016	47,573,374	549,340,721	108,213,303	36,463,262	106,929,281	33	73,898,164			
12	2017	21,811,683	183,888,387	5,751,592	29,007,130	99,101,963	-	43,870,570			
13	2018	20,743,746	160,324,905	1,687,550	42,210,636	52,468,238	-	41,094,085			
14	2019	12,044,460	141,280,297	5,266,239	21,686,142	27,176,011	268,694	13,658,636			

RETIREMENT RATIO CALCULATION		Transmission Plant								SUBS	LINES
FERC ACCOUNT		STRUCTURES/ IMPROVEMENTS	STATION EQUIPMENT	TOWERS & FIXTURES	POLES & FIXTURES	OVERHEAD CONDUCTOR	UNDERGROUND CONDUCTOR	ROADS & TRAILS			
		3520	3530	3540	3550	3560	3580	3590			
15	Avg Retirements (\$000's)	760	39,032	190	1,667	2,075	1	2	39,793	3,934	
16	Avg Additions (\$000's)	24,267	220,034	27,860	26,027	49,763	53	31,134	244,301	134,837	
17	ADDITIONS LESS RETIREMENTS	23,506	181,002	27,670	24,360	47,688	52	31,132	204,508	130,903	
18	Retirement Ratio	96.87%	82.26%	99.32%	93.60%	95.83%	98.02%	99.99%	0.837116	0.970821	
19	Weight Calculation	11.49%	88.51%	21.14%	18.61%	36.43%	0.04%	23.78%	1.00	1.00	
20	Weighted Retirement Ratio	11.13%	72.81%	20.99%	17.42%	34.91%	0.04%	23.78%	83.94%	97.14%	

**Table 4-6
Plant Additions
(\$000s)**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1																					
2	Gross Investment																				
3																					
4		GENERATION-INTEGRATION			Total Additions	NETWORK			Total Additions	SOUTHERN INTERTIE			Total Additions	EASTERN INTERTIE			Total Additions	UTILITY DELIVERY			Total Additions
5		Lines	Subs	Other		Lines	Subs	Other		Lines	Subs	Other		Lines	Subs	Other		Lines	Subs	Other	
6	2020	-	-	-	-	78,637	164,348	-	242,986	-	-	-	-	-	-	-	-	-	-	-	-
7	2021	-	-	-	-	67,379	185,407	-	252,786	-	-	-	-	-	-	-	-	-	-	-	-
8	2022	-	-	-	-	101,497	197,301	-	298,798	-	-	-	-	-	-	-	-	-	-	-	-
9	2023	-	-	-	-	95,841	246,294	-	342,136	-	-	-	-	-	-	-	-	-	-	-	-
10																					
11	Investment Net of Retirements																				
12																					
13																					
14		GENERATION-INTEGRATION			Total Additions	NETWORK			Total Additions	SOUTHERN INTERTIE			Total Additions	EASTERN INTERTIE			Total Additions	UTILITY DELIVERY			Total Additions
15		Lines	Subs	Other		Lines	Subs	Other		Lines	Subs	Other		Lines	Subs	Other		Lines	Subs	Other	
16	2020	-	-	-	-	76,391	137,953	-	214,344	-	-	-	-	-	-	-	-	-	-	-	-
17	2021	-	-	-	-	65,454	155,630	-	221,084	-	-	-	-	-	-	-	-	-	-	-	-
18	2022	-	-	-	-	98,597	165,614	-	264,211	-	-	-	-	-	-	-	-	-	-	-	-
19	2023	-	-	-	-	93,103	206,738	-	299,842	-	-	-	-	-	-	-	-	-	-	-	-

**Table 4-6
Plant Additions
(\$000s)**

	A	B	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK												
1																														
2	Gross Investment																													
3																														
4		GENERA			DSI DELIVERY			Total Additions			REGULATORY ASSET			Total Additions			GENERAL PLANT (No Ancillary Services)			Total Additions			TOTAL BPA			Total Additions				
5		Lines	Lines	Subs	Other		Lines	Subs	Other		Lines	Subs	Other		Lines	Subs	Other		Lines	Subs	Other		Lines	Subs	Other		Lines	Subs	Other	
6	2020	-	-	-	-	-	-	-	-	926	-	-	-	44,750	-	-	-	44,750	78,637	164,348	45,676	-	78,637	164,348	45,676	-	288,661			
7	2021	-	-	-	-	-	-	-	-	-	-	-	-	45,217	-	-	-	45,217	67,379	185,407	45,217	-	67,379	185,407	45,217	-	298,003			
8	2022	-	-	-	-	-	-	-	-	-	-	-	-	78,063	-	-	-	78,063	101,497	197,301	78,063	-	101,497	197,301	78,063	-	376,860			
9	2023	-	-	-	-	-	-	-	-	-	-	-	-	79,107	-	-	-	79,107	95,841	246,294	79,107	-	95,841	246,294	79,107	-	421,243			
10																														
11	Investment Net of Ret:																													
12																														
13																														
14		GENERA			DSI DELIVERY			Total Additions			REGULATORY ASSET			Total Additions			GENERAL PLANT (No Ancillary Services)			Total Additions			TOTAL BPA			Total Additions				
15		Lines	Lines	Subs	Other		Lines	Subs	Other		Lines	Subs	Other		Lines	Subs	Other		Lines	Subs	Other		Lines	Subs	Other		Lines	Subs	Other	
16	2020	-	-	-	-	-	-	-	-	926	-	-	-	44,750	-	-	-	44,750	76,391	137,953	45,676	-	76,391	137,953	45,676	-	260,020			
17	2021	-	-	-	-	-	-	-	-	-	-	-	-	45,217	-	-	-	45,217	65,454	155,630	45,217	-	65,454	155,630	45,217	-	266,301			
18	2022	-	-	-	-	-	-	-	-	-	-	-	-	78,063	-	-	-	78,063	98,597	165,614	78,063	-	98,597	165,614	78,063	-	342,273			
19	2023	-	-	-	-	-	-	-	-	-	-	-	-	79,107	-	-	-	79,107	93,103	206,738	79,107	-	93,103	206,738	79,107	-	378,949			

**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	
	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>
1	2020	-	-	0	956	10,102	28,692		18,591
2	2021	-	-	0	956	11,058	28,692		17,634
3	2022	-	-	0	956	12,015	28,692		16,678
4	2023	-	-	0	956	12,971	28,692		15,721

**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>
5	2020	926	19	37	1,292	9,015	32,755		23,740
6	2021	0	0	0	1,310	10,325	32,755		22,430
7	2022	0	0	0	1,310	11,636	32,755		21,119
8	2023	0	0	0	1,310	12,946	32,755		19,809

**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>
9	2020	0	0	26,003	26,003	26,003	130,013	0	104,011
10	2021	0	0	26,003	26,003	52,005	130,013	0	78,008
11	2022	0	0	26,003	26,003	78,008	130,013	0	52,005
12	2023	0	0	26,003	26,003	104,011	130,013	0	26,003
13	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		ACCUMULATED DEPRECIATION		TOTAL
						LINES	SUBSTATIONS	LINES	SUBSTATIONS	
1	2020	430,358	11,408	12,097	25,034	171	292	9,073	64,124	73,197
2	2021	440,644	10,285	4,628	5,657	408	638	9,481	64,761	74,243
3	2022	484,144	43,500	19,575	23,925	751	971	10,232	65,733	75,965
4	2023	524,144	40,000	18,000	22,000	1,282	1,489	11,514	67,222	78,737

**Table 4-9
General Plant Investment Depreciation
(\$000s)**

	A	B	C	D	E	F
1						
2						
3						
4						
5			LAND & LAND RIGHTS	STRUCTURES & IMPROVEMENTS	OFFICE FURNITURE & FIXTURES	DATA PROCESSING - EQUIPMENT
6		FERC Account	389	390	391.1	391.2
7		Depr Acrl Rate	0.07	0.02	0.05	0.18
8		Depreciation Expense				
9	2020	Accumulated Depreciation	-	80,814	1,206	9,421
10		Total Investment	-	323,453	1,730	11,406
11		Depreciation Expense	223	6,355	87	1,984
12	2021	Accumulated Depreciation	223	87,169	1,293	11,406
13		Total Investment	6,517	328,318	1,730	11,406
14		Depreciation Expense	1,188	6,450	87	-
15	2022	Accumulated Depreciation	1,411	93,619	1,380	11,406
16		Total Investment	28,207	333,183	1,730	11,406
17		Depreciation Expense	2,588	6,554	87	-
18	2023	Accumulated Depreciation	3,999	100,173	1,467	11,406
19		Total Investment	47,457	339,021	1,730	11,406

Table 4-9
General Plant Investment Depreciation
(\$000s)

	A	B	G	H	I	J
1						
2						
3						
4			TRANSMISSION ASSIGNMENTS			
5			DATA PROCESSING - SOFTWARE	TRANSPORT EQUIPMENT	HELICOPTERS	AIRPLANES
6		FERC Account	391.3	392.1	392.2	392.3
7		Depr Acrl Rate	0.15	0.04	0.03	0.08
8		Depreciation Expense				
9	2020	Accumulated Depreciation	8,820	28,456	4,462	7,097
10		Total Investment	11,946	62,592	9,234	8,656
11		Depreciation Expense	1,794	2,297	284	652
12	2021	Accumulated Depreciation	10,614	30,753	4,746	7,749
13		Total Investment	11,946	62,592	9,234	8,656
14		Depreciation Expense	1,332	2,297	284	652
15	2022	Accumulated Depreciation	11,946	33,050	5,030	8,401
16		Total Investment	11,946	62,592	9,234	8,656
17		Depreciation Expense	-	2,297	284	255
18	2023	Accumulated Depreciation	11,946	35,347	5,314	8,656
19		Total Investment	11,946	62,592	9,234	8,656

Table 4-9
General Plant Investment Depreciation
(\$000s)

	A	B	K	L	M	N
1						
2						
3						
4						
5			STORES EQUIPMENT	TOOLS, SHOP & GARAGE EQUIPMENT	LAB EQUIPMENT	POWER OPERATED EQUIPMENT
6		FERC Account	393	394	395	396
7		Depr Accrl Rate	0.03	0.04	0.08	0.02
8		Depreciation Expense				
9	2020	Accumulated Depreciation	850	6,505	14,045	15,992
10		Total Investment	3,834	15,647	33,846	37,303
11		Depreciation Expense	131	752	2,670	899
12	2021	Accumulated Depreciation	981	7,257	16,715	16,891
13		Total Investment	3,834	20,947	33,846	37,303
14		Depreciation Expense	131	1,065	2,670	899
15	2022	Accumulated Depreciation	1,112	8,322	19,385	17,790
16		Total Investment	3,834	30,900	33,846	37,303
17		Depreciation Expense	131	1,515	2,670	899
18	2023	Accumulated Depreciation	1,243	9,837	22,055	18,689
19		Total Investment	3,834	42,843	33,846	37,303

Table 4-9
General Plant Investment Depreciation
(\$000s)

	A	B	O	P	Q	R
1						
2						
3						
4						
5			COMMUNICATIONS EQUIPMENT	MISC EQUIPMENT	SUBTOTAL GENERAL PLANT	OFFICE FURNITURE & FIXTURES
6		FERC Account	397	398		391.1
7		Depr Acrl Rate	0.07	0.07		0.05
8		Depreciation Expense				
9	2020	Accumulated Depreciation	259,436	24,503	461,607	0
10		Total Investment	645,768	65,054	1,230,469	-
11		Depreciation Expense	43,634	4,339	66,101	-
12	2021	Accumulated Depreciation	303,070	28,842	527,709	0
13		Total Investment	670,846	65,055	1,272,229	-
14		Depreciation Expense	45,776	4,340	67,171	-
15	2022	Accumulated Depreciation	348,846	33,182	594,880	0
16		Total Investment	710,407	65,069	1,348,312	-
17		Depreciation Expense	48,368	4,344	69,992	-
18	2023	Accumulated Depreciation	397,214	37,526	664,872	0
19		Total Investment	749,046	65,191	1,424,104	-

Table 4-9
General Plant Investment Depreciation
(\$000s)

	A	B	S	T	U	V	W	X
1								
2								
3								
4	CORPORATE ASSIGNMENTS							
5			DATA PROCESSING - EQUIPMENT	DATA PROCESSING - SOFTWARE	COMMUNICATIONS EQUIPMENT	MISC EQUIPMENT	SUBTOTAL CORPORATE GENERAL PLANT	TOTAL GENERAL PLANT (Excluding Ancillary Services)
6		FERC Account	391.2	391.3	397	398		
7		Depr Acrl Rate	0.18	0.15	0.07	0.07		
8		Depreciation Expense						
9	2020	Accumulated Depreciation	31,991	2,274	(14)	10,378	44,629	506,237
10		Total Investment	43,254	6,028	-	20,658	69,940	1,300,409
11		Depreciation Expense	7,801	986	-	1,378	10,165	76,266
12	2021	Accumulated Depreciation	39,792	3,260	(14)	11,756	54,794	582,503
13		Total Investment	45,641	7,098	-	20,658	73,397	1,345,626
14		Depreciation Expense	7,171	1,116	-	1,378	9,665	76,836
15	2022	Accumulated Depreciation	46,963	4,376	(14)	13,134	64,460	659,339
16		Total Investment	46,963	7,756	-	20,658	75,377	1,423,689
17		Depreciation Expense	2,575	1,221	-	1,378	5,174	75,166
18	2023	Accumulated Depreciation	49,537	5,597	(14)	14,512	69,633	734,505
19		Total Investment	49,537	8,497	-	20,658	78,692	1,502,796

Table 4-10
General Plant Additions
(\$000s)

	A	B	C	D	E	F
1						
2		TRANSMISSION				
3		LAND & LAND RIGHTS	STRUCTURES & IMPROVEMENTS	OFFICE FURNITURE & FIXTURES	DATA PROCESSING - EQUIPMENT	DATA PROCESSING - SOFTWARE
4	FERC Account	389	390	391.1	391.2	391.3
5	Retirement Ratio	1.00	0.97	(1.89)	0.46	0.32
6	FY2020	3,763	5,749	-	-	-
7	FY2021	6,517	5,000	-	-	-
8	FY2022	21,690	5,000	-	-	-
9	FY2023	19,250	6,000	-	-	-

Table 4-10
General Plant Additions
(\$000s)

	A	G	H	I	J	K
1						
2						
3		TRANSPORT EQUIPMENT	HELICOPTERS	AIRPLANES	STORES EQUIPMENT	TOOLS, SHOP & GARAGE EQUIPMENT
4	FERC Account	392.1	392.2	392.3	393	394
5	Retirement Ratio	0.54	-	-	1.00	1.00
6	FY2020	-	-	709	-	5,799
7	FY2021	-	-	350	-	5,325
8	FY2022	-	-	800	-	10,000
9	FY2023	-	-	820	-	12,000

Table 4-10
General Plant Additions
(\$000s)

	A	L	M	N	O	P
1						
2						
3		LAB EQUIPMENT	POWER OPERATED EQUIPMENT	COMMUNICATIONS EQUIPMENT	METERING STATIONS	SUBTOTAL GENERAL PLANT
4	FERC Account	395	396	397	3530.3	
5	Retirement Ratio	0.13	0.32	0.71	0.82	
6	FY2020	-	-	40,611	-	56,631
7	FY2021	-	-	38,925	0	56,118
8	FY2022	-	-	61,405	18	98,913
9	FY2023	-	-	59,976	148	98,193

Table 4-10
General Plant Additions
(\$000s)

	A	Q	R	S	T	U
1						
2				CORPORATE ASSIGNMENTS		
3		STATION EQUIPMENT	TOTAL GENERAL PLANT	OFFICE FURNITURE & FIXTURES	DATA PROCESSING - EQUIPMENT	DATA PROCESSING - SOFTWARE
4	FERC Account	353		391.1	391.2	391.3
5	Retirement Ratio	0.82		(1.89)	0.46	0.32
6	FY2020	41,416	98,048		5,200	3,380
7	FY2021	55,984	112,102		5,200	3,380
8	FY2022	93,398	192,311		2,878	2,080
9	FY2023	77,669	175,862		5,608	2,340

Table 4-10
General Plant Additions
(\$000s)

	A	V	W	X
1				
2				
3		COMMUNICATIONS EQUIPMENT	MISC EQUIPMENT & FACILITIES	TOTAL CORPORATE ASSIGNMENT
4	FERC Account	397	398	
5	Retirement Ratio	0.71	0.69	
6	FY2020	-	-	8,580
7	FY2021	-	-	8,580
8	FY2022	-	-	4,958
9	FY2023	-	-	7,948

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

	A	B	C	D	E	F
	ADDITIONS	STATION EQUIPMENT	DATA PROCESS EQUIPMENT	SOFTWARE	COMMUNICATION EQUIP-PORT	TOTAL ADDITIONS
	FERC ACCOUNT	353	391.2	391.3	397	
2	2020	34,069	-	-	2,870	36,940
3	2021	46,053	-	-	2,751	48,805
4	2022	76,830	-	-	4,340	81,170
5	2023	63,891	-	-	4,239	68,130

	A	B	C	D	E	F	G
	DEPRECIATION CALCULATION	STATION EQUIPMENT	DATA PROCESS EQUIPMENT	SOFTWARE	COMMUNICATION EQUIP-PORT		TOTAL
	FERC ACCOUNT	353	391.2	391.3	397		
	Depr Accrl Rate	0.02	0.18	0.15	0.07		
6	2021	Depr Exp	2,492	3,559	4,714	4,787	15,552
7		Accum Depr	27,038	20,454	27,886	33,249	108,627
8		Total Invest	131,829	20,454	31,385	73,597	257,265
9		Avg Accum Depr	25,792	18,675	25,529	30,856	100,851
10		Avg Plant Invest	108,802	20,454	31,385	72,222	232,863
11		Net Plant Invest	104,790	-	3,499	40,348	148,638
12		Avg Net Plant Invest	83,010	1,779	5,856	41,366	132,011
13	2022	Depr Exp	3,899	-	3,499	5,022	12,420
14		Accum Depr	30,937	20,454	31,385	38,271	121,047
15		Total Invest	208,658	20,454	31,385	77,937	338,435
16		Avg Accum Depr	28,988	20,454	29,635	35,760	114,837
17		Avg Plant Invest	170,243	20,454	31,385	75,767	297,850
18		Net Plant Invest	177,721	-	-	39,666	217,387
19		Avg Net Plant Invest	141,256	-	1,750	40,007	183,013
20	2023	Depr Exp	5,510	-	-	5,306	10,816
21		Accum Depr	36,447	20,454	31,385	43,577	131,863
22		Total Invest	272,550	20,454	31,385	82,177	406,565
23		Avg Accum Depr	33,692	20,454	31,385	40,924	126,455
24		Avg Plant Invest	240,604	20,454	31,385	80,057	372,500
25		Net Plant Invest	236,103	-	-	38,599	274,702
26		Avg Net Plant Invest	206,912	-	-	39,133	246,045

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 2021 and from current forecasts of transmission revenues, expenses, and cash flows for FY 2022-2023. 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.

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>2022</u>	<u>2023</u>
1 ANNUAL CASH SURPLUS/(DEFICIT)	-	-
2 ADJUSTMENTS TO CASH	-	-
3 SOY CASH BALANCE	708,000	708,000
4 EOY CASH BALANCE	708,000	708,000
5 AVERAGE CASH BALANCE	708,000	708,000
6 INTEREST INCOME RATE	0.24%	0.21%
7 INTEREST ON BPA FUND/INVESTMENTS (LN 5 X LN 6)	1,670	1,491
8 REPAYMENT STUDY INTEREST INCOME	65	79
<u>INTEREST EARNED ON RESERVES NOT FOR RISK</u>		
9 SOY CASH BALANCE	113,241	113,241
10 EOY CASH BALANCE	113,241	113,241
11 AVERAGE CASH BALANCE	113,241	113,241
12 INTEREST ON FUNDS HELD FOR OTHERS (LN 11 X LN 6)	267	238
13 TRUSTEE INTEREST INCOME	-	-
14 TOTAL ANNUAL INTEREST INCOME (LN 7+8+12+13)	2,002	1,808

TABLE 5-2
INTEREST INCOME FROM PROJECTED CASH BALANCES
REVENUES FROM CURRENT RATES
(\$000s)

	A	B
	<u>2022</u>	<u>2023</u>
1 ANNUAL CASH SURPLUS/(DEFICIT)	(56,445)	(68,463)
2 ADJUSTMENTS TO CASH	-	-
3 SOY CASH BALANCE	708,000	651,555
4 EOY CASH BALANCE	651,555	583,092
5 AVERAGE CASH BALANCE	679,778	617,324
6 INTEREST INCOME RATE	0.21%	0.18%
7 INTEREST ON BPA FUND/INVESTMENTS (LN 5 X LN 6)	1,431	1,142
8 REPAYMENT STUDY INTEREST INCOME	923	1,028
<u>INTEREST EARNED ON RESERVES NOT FOR RISK</u>		
9 SOY CASH BALANCE	113,241	113,241
10 EOY CASH BALANCE	113,241	113,241
11 AVERAGE CASH BALANCE	113,241	113,241
12 INTEREST INCOME (LN 11 X LN 6)	238	209
13 TRUSTEE INTEREST INCOME	-	-
14 TOTAL ANNUAL INTEREST INCOME (LN 7+8+12+13)	2,593	2,380

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

	A	B
	<u>2022</u>	<u>2023</u>
1 ANNUAL CASH SURPLUS/(DEFICIT)	-	-
2 ADJUSTMENTS TO CASH	-	-
3 SOY CASH BALANCE	708,000	708,000
4 EOY CASH BALANCE	708,000	708,000
5 AVERAGE CASH BALANCE	708,000	708,000
6 INTEREST INCOME RATE	0.21%	0.18%
7 INTEREST ON BPA FUND/INVESTMENTS (LN 5 X LN 6)	1,046	1,134
8 REPAYMENT STUDY INTEREST INCOME	923	1,028
<u>INTEREST EARNED ON RESERVES NOT FOR RISK</u>		
9 SOY CASH BALANCE	113,241	113,241
10 EOY CASH BALANCE	113,241	113,241
11 AVERAGE CASH BALANCE	113,241	113,241
12 INTEREST INCOME (LN 11 X LN 6)**	238	209
13 TRUSTEE INTEREST INCOME	-	-
14 TOTAL ANNUAL INTEREST INCOME (LN 7+8+12+13)	2,662	2,915

**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 a markup 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.

memorandum

DATE: 1/21/2021

REPLY TO
ATTN OF: FTR-2

SUBJECT: FY 2021 Interest Rate and Inflation Forecast

TO: See Attached "cc:" List

Please see the attached BPA interest rate and inflation forecast for the period FY 2020 through 2049.

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 2020 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 Tax-Exempt Borrowing Rates
- Table 7: Third-Party Taxable 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) 2020-2050 is established using:

- an average of all available data for CY 2020 from Bloomberg's Bi550 US Treasury BVAL curve and
- the 2021-2050 projections from the Global Insight's (GI) fourth-quarter November 2020 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 2022 consists of 75% CY 2022 and 25% of CY 2021.

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 fourth-quarter November 2020 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 2020. The projected change in the GDP price deflator and comparison with the FY 2020 inflation forecast is summarized in Table 9. Column A shows the projected trend in GDP inflation rates between 2021-2050 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 of projections.

If you are unsure about what interest rates apply to your analysis, consult "BPA Policy 210-1 Interest Rate" in the BPA Policy Library. To ensure that you are using the most up to date forecast, check the site below before use.

If you have questions concerning the FY 2021 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

Table 1

30 Year Borrowing Rate Comparison

FY 2021 Forecast of Appropriation, BPA Agency, Third-Part Taxable,
and Third-Party Tax-Exempt Borrowing Rates

BPA Fiscal Years 2021-2050

Year	A Appropriation Rate	B BPA Agency Rate	C Third-Party Tax-Exempt Rate	D Third-Party Taxable Rate
2021	1.38	2.31	2.17	2.84
2022	2.42	2.56	2.42	3.07
2023	2.62	2.80	2.65	3.29
2024	2.74	2.95	2.80	3.42
2025	2.87	3.12	2.96	3.56
2026	3.00	3.29	3.13	3.71
2027	3.13	3.45	3.29	3.85
2028	3.23	3.59	3.42	3.96
2029	3.36	3.71	3.54	4.08
2030	3.45	3.80	3.63	4.17
2031	3.51	3.86	3.69	4.23
2032	3.54	3.90	3.73	4.27
2033	3.56	3.91	3.74	4.28
2034	3.56	3.91	3.75	4.29
2035	3.56	3.92	3.75	4.29
2036	3.56	3.92	3.75	4.29
2037	3.56	3.92	3.75	4.29
2038	3.56	3.92	3.75	4.29
2039	3.56	3.92	3.75	4.29
2040	3.56	3.92	3.75	4.29
2041	3.56	3.92	3.75	4.29
2042	3.56	3.92	3.75	4.29
2043	3.56	3.92	3.75	4.29
2044	3.56	3.92	3.75	4.29
2045	3.56	3.92	3.75	4.29
2046	3.56	3.92	3.75	4.29
2047	3.56	3.92	3.75	4.29
2048	3.56	3.92	3.75	4.29
2049	3.56	3.92	3.75	4.29
2050	3.56	3.92	3.75	4.29

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

2/ FY 2021 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 2021 Forecast of Appropriation, BPA Agency, Third-Part Taxable,
and Third-Party Tax-Exempt Borrowing Rates

BPA Fiscal Years 2021-2050

Year	A Appropriation Rate	B BPA Agency Rate	C Third-Party Tax-Exempt Rate	D Third-Party Taxable Rate
2021	1.00	1.58	1.43	2.13
2022	1.81	1.77	1.59	2.29
2023	1.99	1.99	1.79	2.49
2024	2.11	2.17	1.94	2.64
2025	2.27	2.38	2.12	2.82
2026	2.45	2.62	2.33	3.03
2027	2.63	2.85	2.53	3.23
2028	2.78	3.05	2.70	3.41
2029	2.95	3.22	2.87	3.58
2030	3.08	3.35	3.01	3.72
2031	3.17	3.44	3.09	3.80
2032	3.21	3.49	3.14	3.85
2033	3.24	3.51	3.16	3.87
2034	3.24	3.51	3.17	3.88
2035	3.24	3.51	3.17	3.88
2036	3.24	3.51	3.17	3.88
2037	3.24	3.51	3.17	3.88
2038	3.24	3.51	3.17	3.88
2039	3.24	3.51	3.17	3.88
2040	3.24	3.51	3.17	3.88
2041	3.24	3.51	3.17	3.88
2042	3.24	3.51	3.17	3.88
2043	3.24	3.51	3.17	3.88
2044	3.24	3.51	3.17	3.88
2045	3.24	3.51	3.17	3.88
2046	3.24	3.51	3.17	3.88
2047	3.24	3.51	3.17	3.88
2048	3.24	3.51	3.17	3.88
2049	3.24	3.52	3.17	3.88
2050	3.24	3.52	3.17	3.88

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

2/ FY 2021 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 2021 Forecast of Appropriation, BPA Agency, Third-Part Taxable,
and Third-Party Tax-Exempt Borrowing Rates

BPA Fiscal Years 2021-2050

Year	A Appropriation Rate	B BPA Agency Rate	C Third-Party Tax-Exempt Rate	D Third-Party Taxable Rate
2021	0.32	0.69	0.63	1.15
2022	1.14	0.73	0.61	1.18
2023	1.22	0.88	0.71	1.32
2024	1.26	1.00	0.77	1.42
2025	1.34	1.17	0.87	1.57
2026	1.50	1.41	1.05	1.79
2027	1.73	1.72	1.31	2.09
2028	2.00	2.07	1.60	2.43
2029	2.34	2.41	1.94	2.77
2030	2.61	2.68	2.21	3.04
2031	2.79	2.86	2.39	3.22
2032	2.92	2.99	2.52	3.35
2033	2.97	3.04	2.57	3.40
2034	2.98	3.05	2.58	3.41
2035	2.98	3.05	2.58	3.41
2036	2.98	3.05	2.58	3.41
2037	2.98	3.05	2.58	3.41
2038	2.98	3.05	2.58	3.41
2039	2.98	3.05	2.58	3.41
2040	2.98	3.05	2.58	3.41
2041	2.98	3.05	2.58	3.41
2042	2.98	3.05	2.58	3.41
2043	2.98	3.05	2.58	3.41
2044	2.98	3.05	2.58	3.41
2045	2.98	3.05	2.58	3.41
2046	2.98	3.05	2.58	3.41
2047	2.98	3.05	2.58	3.41
2048	2.98	3.05	2.58	3.41
2049	2.98	3.05	2.58	3.41
2050	2.98	3.05	2.58	3.41

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

2/ FY 2021 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 2021-2050

(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
2021	0.13	0.13	0.17	0.25	0.32	0.43	0.50	0.60	0.63	0.75	0.75	0.86	0.88	0.97	1.00
2022	0.94	1.00	1.05	1.10	1.14	1.24	1.33	1.42	1.52	1.61	1.65	1.69	1.73	1.77	1.81
2023	0.84	0.95	1.04	1.13	1.22	1.33	1.44	1.55	1.66	1.77	1.82	1.86	1.90	1.94	1.99
2024	0.74	0.87	1.00	1.13	1.26	1.39	1.51	1.64	1.77	1.90	1.94	1.98	2.02	2.07	2.11
2025	0.67	0.81	0.99	1.16	1.34	1.48	1.63	1.77	1.92	2.07	2.11	2.15	2.19	2.23	2.27
2026	0.68	0.86	1.07	1.29	1.50	1.65	1.80	1.96	2.11	2.26	2.30	2.34	2.37	2.41	2.45
2027	0.86	1.08	1.30	1.51	1.73	1.87	2.02	2.17	2.31	2.46	2.49	2.53	2.56	2.59	2.63
2028	1.20	1.43	1.62	1.81	2.00	2.12	2.25	2.37	2.50	2.62	2.65	2.68	2.71	2.75	2.78
2029	1.72	1.93	2.07	2.20	2.34	2.43	2.53	2.62	2.72	2.81	2.84	2.87	2.90	2.92	2.95
2030	2.19	2.36	2.44	2.52	2.61	2.68	2.75	2.82	2.89	2.96	2.98	3.01	3.03	3.06	3.08
2031	2.55	2.67	2.71	2.75	2.79	2.85	2.90	2.95	3.00	3.05	3.07	3.10	3.12	3.14	3.17
2032	2.80	2.89	2.90	2.91	2.92	2.96	2.99	3.03	3.07	3.11	3.13	3.15	3.17	3.19	3.21
2033	2.95	2.99	2.99	2.98	2.97	3.00	3.03	3.07	3.10	3.13	3.15	3.17	3.19	3.22	3.24
2034	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.10	3.13	3.16	3.18	3.20	3.22	3.24
2035	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.10	3.14	3.16	3.18	3.20	3.22	3.24
2036	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.10	3.14	3.16	3.18	3.20	3.22	3.24
2037	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.10	3.14	3.16	3.18	3.20	3.22	3.24
2038	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.10	3.14	3.16	3.18	3.20	3.22	3.24
2039	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.10	3.14	3.16	3.18	3.20	3.22	3.24
2040	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.10	3.14	3.16	3.18	3.20	3.22	3.24
2041	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.10	3.14	3.16	3.18	3.20	3.22	3.24
2042	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.10	3.14	3.16	3.18	3.20	3.22	3.24
2043	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.10	3.14	3.16	3.18	3.20	3.22	3.24
2044	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.10	3.14	3.16	3.18	3.20	3.22	3.24
2045	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.10	3.14	3.16	3.18	3.20	3.22	3.24
2046	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.10	3.14	3.16	3.18	3.20	3.22	3.24
2047	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.10	3.14	3.16	3.18	3.20	3.22	3.24
2048	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.10	3.14	3.16	3.18	3.20	3.22	3.24
2049	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.10	3.14	3.16	3.18	3.20	3.22	3.24
2050	2.98	3.01	3.00	2.99	2.98	3.01	3.04	3.07	3.11	3.14	3.16	3.18	3.20	3.22	3.24

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

2/ FY 2021 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 2021-2050

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
1.05	1.13	1.13	1.21	1.25	1.25	1.25	1.36	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	2021
1.85	1.89	1.93	1.97	2.01	2.05	2.10	2.14	2.18	2.22	2.26	2.30	2.34	2.38	2.42	2.42	2022
2.03	2.07	2.11	2.15	2.20	2.24	2.28	2.32	2.37	2.41	2.45	2.49	2.54	2.58	2.62	2.62	2023
2.15	2.19	2.23	2.28	2.32	2.36	2.40	2.44	2.49	2.53	2.57	2.61	2.66	2.70	2.74	2.74	2024
2.31	2.35	2.39	2.43	2.47	2.51	2.55	2.59	2.63	2.67	2.71	2.75	2.79	2.83	2.87	2.87	2025
2.49	2.52	2.56	2.60	2.63	2.67	2.71	2.74	2.78	2.82	2.86	2.89	2.93	2.97	3.00	3.00	2026
2.66	2.69	2.73	2.76	2.79	2.83	2.86	2.90	2.93	2.96	3.00	3.03	3.06	3.10	3.13	3.13	2027
2.81	2.84	2.87	2.90	2.93	2.96	2.99	3.02	3.05	3.08	3.11	3.14	3.17	3.20	3.23	3.23	2028
2.98	3.00	3.03	3.06	3.08	3.11	3.14	3.17	3.19	3.22	3.25	3.27	3.30	3.33	3.36	3.36	2029
3.11	3.13	3.16	3.18	3.20	3.23	3.25	3.28	3.30	3.33	3.35	3.38	3.40	3.42	3.45	3.45	2030
3.19	3.21	3.23	3.26	3.28	3.30	3.32	3.35	3.37	3.39	3.42	3.44	3.46	3.48	3.51	3.51	2031
3.24	3.26	3.28	3.30	3.32	3.35	3.37	3.39	3.41	3.43	3.45	3.48	3.50	3.52	3.54	3.54	2032
3.26	3.28	3.30	3.32	3.34	3.37	3.39	3.41	3.43	3.45	3.47	3.49	3.51	3.54	3.56	3.56	2033
3.26	3.28	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.45	3.48	3.50	3.52	3.54	3.56	3.56	2034
3.26	3.28	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.46	3.48	3.50	3.52	3.54	3.56	3.56	2035
3.26	3.29	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.46	3.48	3.50	3.52	3.54	3.56	3.56	2036
3.26	3.29	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.46	3.48	3.50	3.52	3.54	3.56	3.56	2037
3.26	3.28	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.46	3.48	3.50	3.52	3.54	3.56	3.56	2038
3.26	3.28	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.46	3.48	3.50	3.52	3.54	3.56	3.56	2039
3.26	3.29	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.46	3.48	3.50	3.52	3.54	3.56	3.56	2040
3.26	3.29	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.46	3.48	3.50	3.52	3.54	3.56	3.56	2041
3.26	3.29	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.46	3.48	3.50	3.52	3.54	3.56	3.56	2042
3.26	3.29	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.46	3.48	3.50	3.52	3.54	3.56	3.56	2043
3.26	3.29	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.46	3.48	3.50	3.52	3.54	3.56	3.56	2044
3.26	3.29	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.46	3.48	3.50	3.52	3.54	3.56	3.56	2045
3.26	3.29	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.46	3.48	3.50	3.52	3.54	3.56	3.56	2046
3.26	3.29	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.46	3.48	3.50	3.52	3.54	3.56	3.56	2047
3.26	3.29	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.46	3.48	3.50	3.52	3.54	3.56	3.56	2048
3.26	3.29	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.46	3.48	3.50	3.52	3.54	3.56	3.56	2049
3.26	3.29	3.31	3.33	3.35	3.37	3.39	3.41	3.43	3.46	3.48	3.50	3.52	3.54	3.56	3.56	2050

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

2/ FY 2021 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 2021-2050

(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
2021	0.33	0.33	0.40	0.49	0.59	0.69	0.82	0.95	1.08	1.21	1.34	1.39	1.44	1.48	1.53	1.58
2022	0.16	0.20	0.35	0.47	0.60	0.73	0.88	1.04	1.19	1.35	1.50	1.55	1.61	1.66	1.71	1.77
2023	0.16	0.23	0.42	0.57	0.73	0.88	1.05	1.22	1.39	1.56	1.72	1.78	1.83	1.89	1.94	1.99
2024	0.17	0.26	0.45	0.64	0.82	1.00	1.18	1.36	1.55	1.73	1.91	1.96	2.01	2.06	2.12	2.17
2025	0.19	0.32	0.51	0.73	0.95	1.17	1.36	1.55	1.75	1.94	2.13	2.18	2.23	2.28	2.33	2.38
2026	0.22	0.46	0.68	0.92	1.16	1.41	1.60	1.80	2.00	2.19	2.39	2.44	2.48	2.53	2.57	2.62
2027	0.46	0.77	1.02	1.25	1.48	1.72	1.90	2.09	2.27	2.46	2.64	2.68	2.72	2.76	2.81	2.85
2028	0.90	1.23	1.49	1.68	1.88	2.07	2.23	2.39	2.55	2.71	2.87	2.90	2.94	2.98	3.01	3.05
2029	1.44	1.76	1.99	2.13	2.27	2.41	2.54	2.67	2.80	2.93	3.06	3.09	3.12	3.16	3.19	3.22
2030	1.98	2.23	2.41	2.50	2.59	2.68	2.78	2.89	2.99	3.10	3.20	3.23	3.26	3.29	3.32	3.35
2031	2.39	2.58	2.72	2.77	2.82	2.86	2.95	3.04	3.12	3.21	3.30	3.32	3.35	3.38	3.41	3.44
2032	2.68	2.84	2.94	2.96	2.98	2.99	3.06	3.13	3.21	3.28	3.35	3.38	3.40	3.43	3.46	3.49
2033	2.88	2.98	3.05	3.05	3.04	3.04	3.11	3.17	3.24	3.31	3.37	3.40	3.43	3.46	3.48	3.51
2034	2.92	3.01	3.07	3.06	3.05	3.05	3.11	3.18	3.25	3.31	3.38	3.41	3.43	3.46	3.49	3.51
2035	2.92	3.01	3.07	3.06	3.05	3.05	3.12	3.18	3.25	3.31	3.38	3.41	3.43	3.46	3.49	3.51
2036	2.92	3.01	3.07	3.06	3.05	3.05	3.12	3.18	3.25	3.31	3.38	3.41	3.43	3.46	3.49	3.51
2037	2.92	3.01	3.07	3.06	3.05	3.05	3.12	3.18	3.25	3.31	3.38	3.41	3.43	3.46	3.49	3.51
2038	2.92	3.01	3.07	3.06	3.05	3.05	3.12	3.18	3.25	3.31	3.38	3.41	3.43	3.46	3.49	3.51
2039	2.92	3.01	3.07	3.06	3.05	3.05	3.12	3.18	3.25	3.31	3.38	3.41	3.43	3.46	3.49	3.51
2040	2.92	3.01	3.07	3.06	3.05	3.05	3.12	3.18	3.25	3.31	3.38	3.41	3.43	3.46	3.49	3.51
2041	2.92	3.01	3.07	3.06	3.05	3.05	3.12	3.18	3.25	3.31	3.38	3.41	3.43	3.46	3.49	3.51
2042	2.92	3.01	3.07	3.06	3.05	3.05	3.12	3.18	3.25	3.31	3.38	3.41	3.43	3.46	3.49	3.51
2043	2.92	3.01	3.07	3.06	3.05	3.05	3.12	3.18	3.25	3.31	3.38	3.41	3.43	3.46	3.49	3.51
2044	2.92	3.01	3.07	3.06	3.05	3.05	3.12	3.18	3.25	3.31	3.38	3.41	3.43	3.46	3.49	3.51
2045	2.92	3.01	3.07	3.06	3.05	3.05	3.12	3.18	3.25	3.31	3.38	3.41	3.43	3.46	3.49	3.51
2046	2.92	3.01	3.07	3.06	3.05	3.05	3.12	3.18	3.25	3.31	3.38	3.41	3.43	3.46	3.49	3.51
2047	2.92	3.01	3.07	3.06	3.05	3.05	3.12	3.18	3.25	3.31	3.38	3.41	3.43	3.46	3.49	3.51
2048	2.92	3.01	3.07	3.06	3.05	3.05	3.12	3.18	3.25	3.31	3.38	3.41	3.43	3.46	3.49	3.51
2049	2.92	3.01	3.07	3.06	3.05	3.05	3.12	3.18	3.25	3.31	3.38	3.41	3.43	3.46	3.49	3.52
2050	2.92	3.01	3.07	3.06	3.05	3.05	3.12	3.18	3.25	3.32	3.38	3.41	3.44	3.46	3.49	3.52

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

Table 5

BPA Agency Borrowing Rates

BPA Fiscal Years 2021-2050

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
1.63	1.68	1.73	1.77	1.82	1.87	1.92	1.97	2.02	2.06	2.11	2.16	2.21	2.26	2.31	2.31	2021
1.82	1.87	1.93	1.98	2.03	2.09	2.14	2.19	2.25	2.30	2.35	2.40	2.46	2.51	2.56	2.56	2022
2.05	2.10	2.15	2.21	2.26	2.32	2.37	2.42	2.48	2.53	2.59	2.64	2.69	2.75	2.80	2.80	2023
2.22	2.27	2.33	2.38	2.43	2.48	2.54	2.59	2.64	2.69	2.74	2.80	2.85	2.90	2.95	2.95	2024
2.43	2.48	2.53	2.58	2.62	2.67	2.72	2.77	2.82	2.87	2.92	2.97	3.02	3.07	3.12	3.12	2025
2.66	2.70	2.75	2.79	2.84	2.88	2.93	2.97	3.02	3.06	3.11	3.15	3.20	3.24	3.29	3.29	2026
2.89	2.93	2.97	3.01	3.05	3.09	3.13	3.17	3.21	3.25	3.29	3.33	3.37	3.41	3.45	3.45	2027
3.08	3.12	3.16	3.19	3.23	3.26	3.30	3.34	3.37	3.41	3.44	3.48	3.52	3.55	3.59	3.59	2028
3.25	3.29	3.32	3.35	3.38	3.42	3.45	3.48	3.51	3.55	3.58	3.61	3.64	3.68	3.71	3.71	2029
3.38	3.41	3.44	3.47	3.50	3.53	3.56	3.59	3.62	3.65	3.68	3.71	3.74	3.77	3.80	3.80	2030
3.47	3.49	3.52	3.55	3.58	3.61	3.63	3.66	3.69	3.72	3.75	3.78	3.80	3.83	3.86	3.86	2031
3.51	3.54	3.57	3.60	3.62	3.65	3.68	3.70	3.73	3.76	3.79	3.81	3.84	3.87	3.90	3.90	2032
3.54	3.56	3.59	3.62	3.64	3.67	3.70	3.72	3.75	3.78	3.80	3.83	3.86	3.88	3.91	3.91	2033
3.54	3.57	3.59	3.62	3.65	3.67	3.70	3.73	3.75	3.78	3.81	3.83	3.86	3.89	3.91	3.91	2034
3.54	3.57	3.59	3.62	3.65	3.67	3.70	3.73	3.76	3.78	3.81	3.84	3.86	3.89	3.92	3.92	2035
3.54	3.57	3.59	3.62	3.65	3.68	3.70	3.73	3.76	3.78	3.81	3.84	3.86	3.89	3.92	3.92	2036
3.54	3.57	3.59	3.62	3.65	3.68	3.70	3.73	3.76	3.78	3.81	3.84	3.86	3.89	3.92	3.92	2037
3.54	3.57	3.59	3.62	3.65	3.68	3.70	3.73	3.76	3.78	3.81	3.84	3.86	3.89	3.92	3.92	2038
3.54	3.57	3.59	3.62	3.65	3.68	3.70	3.73	3.76	3.78	3.81	3.84	3.86	3.89	3.92	3.92	2039
3.54	3.57	3.59	3.62	3.65	3.68	3.70	3.73	3.76	3.78	3.81	3.84	3.86	3.89	3.92	3.92	2040
3.54	3.57	3.59	3.62	3.65	3.68	3.70	3.73	3.76	3.78	3.81	3.84	3.86	3.89	3.92	3.92	2041
3.54	3.57	3.59	3.62	3.65	3.68	3.70	3.73	3.76	3.78	3.81	3.84	3.86	3.89	3.92	3.92	2042
3.54	3.57	3.60	3.62	3.65	3.68	3.70	3.73	3.76	3.78	3.81	3.84	3.86	3.89	3.92	3.92	2043
3.54	3.57	3.60	3.62	3.65	3.68	3.70	3.73	3.76	3.78	3.81	3.84	3.86	3.89	3.92	3.92	2044
3.54	3.57	3.60	3.62	3.65	3.68	3.70	3.73	3.76	3.78	3.81	3.84	3.86	3.89	3.92	3.92	2045
3.54	3.57	3.60	3.62	3.65	3.68	3.70	3.73	3.76	3.78	3.81	3.84	3.86	3.89	3.92	3.92	2046
3.54	3.57	3.60	3.62	3.65	3.68	3.70	3.73	3.76	3.78	3.81	3.84	3.86	3.89	3.92	3.92	2047
3.54	3.57	3.60	3.62	3.65	3.68	3.70	3.73	3.76	3.78	3.81	3.84	3.86	3.89	3.92	3.92	2048
3.54	3.57	3.60	3.62	3.65	3.68	3.70	3.73	3.76	3.78	3.81	3.84	3.86	3.89	3.92	3.92	2049
3.54	3.57	3.60	3.62	3.65	3.68	3.70	3.73	3.76	3.78	3.81	3.84	3.86	3.89	3.92	3.92	2050

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

Table 6

Third-Party Tax-Exempt Borrowing Rates

BPA Fiscal Years 2021-2050

(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
2021	0.28	0.39	0.47	0.55	0.63	0.74	0.85	0.97	1.08	1.19	1.24	1.29	1.34	1.39	1.43
2022	0.10	0.28	0.39	0.50	0.61	0.75	0.89	1.03	1.17	1.31	1.37	1.42	1.48	1.54	1.59
2023	0.09	0.29	0.43	0.57	0.71	0.87	1.03	1.18	1.34	1.50	1.56	1.62	1.67	1.73	1.79
2024	0.07	0.26	0.43	0.60	0.77	0.95	1.12	1.30	1.47	1.65	1.70	1.76	1.82	1.88	1.94
2025	0.08	0.26	0.46	0.67	0.87	1.07	1.26	1.45	1.64	1.84	1.89	1.95	2.01	2.06	2.12
2026	0.17	0.37	0.60	0.82	1.05	1.25	1.45	1.66	1.86	2.06	2.11	2.16	2.22	2.27	2.33
2027	0.44	0.65	0.87	1.09	1.31	1.50	1.69	1.89	2.08	2.27	2.32	2.37	2.43	2.48	2.53
2028	0.85	1.06	1.24	1.42	1.60	1.77	1.94	2.12	2.29	2.46	2.51	2.56	2.60	2.65	2.70
2029	1.38	1.56	1.68	1.81	1.94	2.08	2.22	2.37	2.51	2.65	2.70	2.74	2.79	2.83	2.87
2030	1.85	1.98	2.06	2.13	2.21	2.33	2.44	2.56	2.68	2.80	2.84	2.88	2.92	2.97	3.01
2031	2.20	2.29	2.32	2.36	2.39	2.49	2.59	2.69	2.79	2.89	2.93	2.97	3.01	3.05	3.09
2032	2.46	2.51	2.51	2.52	2.52	2.60	2.69	2.77	2.86	2.94	2.98	3.02	3.06	3.10	3.14
2033	2.60	2.62	2.60	2.59	2.57	2.65	2.73	2.81	2.89	2.97	3.01	3.05	3.08	3.12	3.16
2034	2.63	2.63	2.62	2.60	2.58	2.66	2.74	2.81	2.89	2.97	3.01	3.05	3.09	3.13	3.17
2035	2.63	2.63	2.62	2.60	2.58	2.66	2.74	2.82	2.89	2.97	3.01	3.05	3.09	3.13	3.17
2036	2.63	2.63	2.61	2.60	2.58	2.66	2.74	2.82	2.89	2.97	3.01	3.05	3.09	3.13	3.17
2037	2.63	2.63	2.61	2.60	2.58	2.66	2.74	2.82	2.89	2.97	3.01	3.05	3.09	3.13	3.17
2038	2.63	2.63	2.61	2.60	2.58	2.66	2.74	2.82	2.89	2.97	3.01	3.05	3.09	3.13	3.17
2039	2.63	2.63	2.61	2.60	2.58	2.66	2.74	2.82	2.89	2.97	3.01	3.05	3.09	3.13	3.17
2040	2.63	2.63	2.61	2.60	2.58	2.66	2.74	2.82	2.89	2.97	3.01	3.05	3.09	3.13	3.17
2041	2.63	2.63	2.61	2.60	2.58	2.66	2.74	2.82	2.89	2.97	3.01	3.05	3.09	3.13	3.17
2042	2.63	2.63	2.61	2.60	2.58	2.66	2.74	2.82	2.89	2.97	3.01	3.05	3.09	3.13	3.17
2043	2.63	2.63	2.61	2.60	2.58	2.66	2.74	2.82	2.89	2.97	3.01	3.05	3.09	3.13	3.17
2044	2.63	2.63	2.61	2.60	2.58	2.66	2.74	2.82	2.89	2.97	3.01	3.05	3.09	3.13	3.17
2045	2.63	2.63	2.61	2.60	2.58	2.66	2.74	2.82	2.89	2.97	3.01	3.05	3.09	3.13	3.17
2046	2.63	2.63	2.61	2.60	2.58	2.66	2.74	2.82	2.90	2.97	3.01	3.05	3.09	3.13	3.17
2047	2.63	2.63	2.61	2.60	2.58	2.66	2.74	2.82	2.90	2.97	3.01	3.05	3.09	3.13	3.17
2048	2.63	2.63	2.61	2.60	2.58	2.66	2.74	2.82	2.90	2.97	3.01	3.05	3.09	3.13	3.17
2049	2.63	2.63	2.61	2.60	2.58	2.66	2.74	2.82	2.90	2.97	3.01	3.05	3.09	3.13	3.17
2050	2.63	2.63	2.61	2.60	2.58	2.66	2.74	2.82	2.90	2.98	3.01	3.05	3.09	3.13	3.17

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

Table 6

Third-Party Tax-Exempt Borrowing Rates

BPA Fiscal Years 2021-2050

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
1.48	1.53	1.58	1.63	1.68	1.73	1.78	1.83	1.87	1.92	1.97	2.02	2.07	2.12	2.17	2.17	2021
1.65	1.70	1.76	1.81	1.87	1.92	1.98	2.03	2.09	2.14	2.20	2.26	2.31	2.37	2.42	2.42	2022
1.85	1.90	1.96	2.02	2.08	2.14	2.19	2.25	2.31	2.37	2.42	2.48	2.54	2.60	2.65	2.65	2023
1.99	2.05	2.11	2.17	2.22	2.28	2.34	2.40	2.46	2.51	2.57	2.63	2.69	2.74	2.80	2.80	2024
2.17	2.23	2.29	2.34	2.40	2.45	2.51	2.57	2.62	2.68	2.73	2.79	2.85	2.90	2.96	2.96	2025
2.38	2.43	2.49	2.54	2.59	2.65	2.70	2.75	2.81	2.86	2.91	2.97	3.02	3.07	3.13	3.13	2026
2.58	2.63	2.68	2.73	2.78	2.83	2.88	2.93	2.98	3.03	3.08	3.13	3.18	3.23	3.29	3.29	2027
2.75	2.80	2.84	2.89	2.94	2.99	3.04	3.08	3.13	3.18	3.23	3.27	3.32	3.37	3.42	3.42	2028
2.92	2.96	3.01	3.05	3.10	3.14	3.18	3.23	3.27	3.32	3.36	3.41	3.45	3.50	3.54	3.54	2029
3.05	3.09	3.13	3.17	3.22	3.26	3.30	3.34	3.38	3.42	3.47	3.51	3.55	3.59	3.63	3.63	2030
3.13	3.17	3.21	3.25	3.29	3.33	3.37	3.41	3.45	3.49	3.53	3.57	3.61	3.65	3.69	3.69	2031
3.18	3.22	3.26	3.30	3.33	3.37	3.41	3.45	3.49	3.53	3.57	3.61	3.65	3.69	3.73	3.73	2032
3.20	3.24	3.28	3.32	3.35	3.39	3.43	3.47	3.51	3.55	3.59	3.63	3.66	3.70	3.74	3.74	2033
3.20	3.24	3.28	3.32	3.36	3.40	3.44	3.48	3.51	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2034
3.21	3.24	3.28	3.32	3.36	3.40	3.44	3.48	3.51	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2035
3.21	3.24	3.28	3.32	3.36	3.40	3.44	3.48	3.51	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2036
3.21	3.24	3.28	3.32	3.36	3.40	3.44	3.48	3.51	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2037
3.21	3.24	3.28	3.32	3.36	3.40	3.44	3.48	3.51	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2038
3.21	3.24	3.28	3.32	3.36	3.40	3.44	3.48	3.51	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2039
3.21	3.24	3.28	3.32	3.36	3.40	3.44	3.48	3.51	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2040
3.21	3.24	3.28	3.32	3.36	3.40	3.44	3.48	3.51	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2041
3.21	3.24	3.28	3.32	3.36	3.40	3.44	3.48	3.52	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2042
3.21	3.24	3.28	3.32	3.36	3.40	3.44	3.48	3.52	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2043
3.21	3.24	3.28	3.32	3.36	3.40	3.44	3.48	3.52	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2044
3.21	3.24	3.28	3.32	3.36	3.40	3.44	3.48	3.52	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2045
3.21	3.24	3.28	3.32	3.36	3.40	3.44	3.48	3.52	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2046
3.21	3.24	3.28	3.32	3.36	3.40	3.44	3.48	3.52	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2047
3.21	3.24	3.28	3.32	3.36	3.40	3.44	3.48	3.52	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2048
3.21	3.24	3.28	3.32	3.36	3.40	3.44	3.48	3.52	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2049
3.21	3.25	3.28	3.32	3.36	3.40	3.44	3.48	3.52	3.55	3.59	3.63	3.67	3.71	3.75	3.75	2050

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

Table 7

Third-Party Taxable Borrowing Rates

BPA Fiscal Years 2021-2050

(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
2021	0.71	0.79	0.91	1.03	1.15	1.30	1.45	1.60	1.74	1.89	1.94	1.99	2.03	2.08	2.13
2022	0.57	0.73	0.88	1.03	1.18	1.35	1.52	1.69	1.86	2.03	2.08	2.13	2.18	2.24	2.29
2023	0.59	0.78	0.96	1.14	1.32	1.50	1.68	1.86	2.04	2.22	2.27	2.33	2.38	2.43	2.49
2024	0.61	0.80	1.01	1.22	1.42	1.61	1.80	2.00	2.19	2.38	2.43	2.48	2.53	2.59	2.64
2025	0.66	0.85	1.09	1.33	1.57	1.77	1.97	2.17	2.38	2.58	2.63	2.67	2.72	2.77	2.82
2026	0.79	1.01	1.27	1.53	1.79	2.00	2.20	2.40	2.60	2.81	2.85	2.90	2.94	2.99	3.03
2027	1.09	1.33	1.58	1.84	2.09	2.28	2.47	2.65	2.84	3.03	3.07	3.11	3.15	3.19	3.23
2028	1.54	1.79	2.00	2.21	2.43	2.59	2.75	2.91	3.07	3.23	3.26	3.30	3.34	3.37	3.41
2029	2.06	2.29	2.45	2.61	2.77	2.90	3.03	3.16	3.29	3.42	3.45	3.49	3.52	3.55	3.58
2030	2.53	2.71	2.82	2.93	3.04	3.14	3.25	3.35	3.46	3.56	3.59	3.63	3.66	3.69	3.72
2031	2.89	3.02	3.09	3.15	3.22	3.31	3.40	3.48	3.57	3.66	3.68	3.71	3.74	3.77	3.80
2032	3.14	3.24	3.28	3.31	3.35	3.42	3.49	3.57	3.64	3.71	3.74	3.77	3.79	3.82	3.85
2033	3.29	3.35	3.36	3.38	3.40	3.47	3.53	3.60	3.67	3.73	3.76	3.79	3.82	3.84	3.87
2034	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.79	3.82	3.85	3.88
2035	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.79	3.82	3.85	3.88
2036	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.79	3.82	3.85	3.88
2037	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.79	3.82	3.85	3.88
2038	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.79	3.82	3.85	3.88
2039	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.79	3.82	3.85	3.88
2040	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.79	3.82	3.85	3.88
2041	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.79	3.82	3.85	3.88
2042	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.80	3.82	3.85	3.88
2043	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.80	3.82	3.85	3.88
2044	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.80	3.82	3.85	3.88
2045	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.80	3.82	3.85	3.88
2046	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.80	3.82	3.85	3.88
2047	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.80	3.82	3.85	3.88
2048	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.80	3.82	3.85	3.88
2049	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.80	3.82	3.85	3.88
2050	3.32	3.36	3.38	3.39	3.41	3.47	3.54	3.61	3.67	3.74	3.77	3.80	3.82	3.85	3.88

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

Table 7

Third-Party Taxable Borrowing Rates

BPA Fiscal Years 2021-2050

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
2.18	2.22	2.27	2.32	2.37	2.41	2.46	2.51	2.56	2.60	2.65	2.70	2.75	2.79	2.84	2.84	2021
2.34	2.39	2.45	2.50	2.55	2.60	2.66	2.71	2.76	2.81	2.87	2.92	2.97	3.02	3.07	3.07	2022
2.54	2.60	2.65	2.70	2.76	2.81	2.86	2.92	2.97	3.02	3.08	3.13	3.18	3.24	3.29	3.29	2023
2.69	2.74	2.79	2.85	2.90	2.95	3.00	3.05	3.11	3.16	3.21	3.26	3.31	3.37	3.42	3.42	2024
2.87	2.92	2.97	3.02	3.07	3.12	3.16	3.21	3.26	3.31	3.36	3.41	3.46	3.51	3.56	3.56	2025
3.08	3.12	3.17	3.21	3.26	3.30	3.35	3.39	3.44	3.48	3.53	3.57	3.62	3.66	3.71	3.71	2026
3.28	3.32	3.36	3.40	3.44	3.48	3.52	3.56	3.60	3.64	3.68	3.72	3.76	3.80	3.85	3.85	2027
3.45	3.48	3.52	3.56	3.59	3.63	3.67	3.70	3.74	3.78	3.81	3.85	3.89	3.92	3.96	3.96	2028
3.62	3.65	3.68	3.72	3.75	3.78	3.82	3.85	3.88	3.92	3.95	3.98	4.01	4.05	4.08	4.08	2029
3.75	3.78	3.81	3.84	3.87	3.90	3.93	3.96	3.99	4.02	4.05	4.08	4.11	4.14	4.17	4.17	2030
3.83	3.86	3.89	3.92	3.94	3.97	4.00	4.03	4.06	4.09	4.12	4.15	4.18	4.20	4.23	4.23	2031
3.88	3.90	3.93	3.96	3.99	4.02	4.04	4.07	4.10	4.13	4.16	4.18	4.21	4.24	4.27	4.27	2032
3.90	3.93	3.95	3.98	4.01	4.04	4.06	4.09	4.12	4.15	4.17	4.20	4.23	4.26	4.28	4.28	2033
3.90	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2034
3.90	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2035
3.90	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2036
3.90	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2037
3.90	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2038
3.90	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2039
3.90	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2040
3.90	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2041
3.90	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2042
3.90	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2043
3.90	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2044
3.90	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2045
3.90	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2046
3.90	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2047
3.90	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2048
3.91	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2049
3.91	3.93	3.96	3.99	4.01	4.04	4.07	4.10	4.12	4.15	4.18	4.21	4.23	4.26	4.29	4.29	2050

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 2021-2050

Year	A FERC Rate	B 3-Month LIBOR Rate
2021	3.32	0.34
2022	3.25	0.29
2023	3.25	0.35
2024	3.25	0.39
2025	3.25	0.42
2026	3.26	0.44
2027	3.45	0.61
2028	3.81	0.93
2029	4.28	1.36
2030	4.78	1.82
2031	5.18	2.06
2032	5.46	2.10
2033	5.69	2.10
2034	5.75	2.10
2035	5.75	2.10
2036	5.75	2.10
2037	5.75	2.10
2038	5.75	2.10
2039	5.75	2.10
2040	5.75	2.10
2041	5.75	2.10
2042	5.75	2.10
2043	5.75	2.10
2044	5.75	2.10
2045	5.75	2.10
2046	5.75	2.10
2047	5.75	2.10
2048	5.75	2.10
2049	5.75	2.10
2050	5.75	2.10

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

Table 9
Inflation Forecast and Comparison
 BPA Fiscal Years 2021-2050

Year	A 2021 Calendar Year GDP Price Deflator	B 2021 Fiscal Year GDP Price Deflator	C 2021 Fiscal Year Cumulative Price Deflator (Base Year 2020)	D 2020 Fiscal Year GDP Price Deflator	E 2020 Fiscal Year Cumulative Price Deflator (Base Year 2020)	F Change in the GDP Price Deflator (B-D)	G Change in the Cumulative Price Deflator (C-E)
2021	1.93%	1.74%	1.009	2.51%	1.025	-0.77%	-0.016
2022	2.01%	1.99%	1.029	2.55%	1.051	-0.56%	-0.022
2023	2.07%	2.06%	1.050	2.53%	1.078	-0.47%	-0.028
2024	2.09%	2.08%	1.072	2.43%	1.104	-0.35%	-0.032
2025	2.11%	2.10%	1.094	2.32%	1.130	-0.21%	-0.035
2026	2.17%	2.16%	1.118	2.25%	1.155	-0.09%	-0.037
2027	2.30%	2.27%	1.143	2.25%	1.181	0.01%	-0.038
2028	2.38%	2.36%	1.170	2.27%	1.208	0.09%	-0.038
2029	2.39%	2.39%	1.198	2.29%	1.236	0.09%	-0.038
2030	2.41%	2.40%	1.227	2.24%	1.264	0.16%	-0.037
2031	2.30%	2.33%	1.256	2.19%	1.292	0.14%	-0.036
2032	2.29%	2.29%	1.284	2.16%	1.319	0.14%	-0.035
2033	2.28%	2.28%	1.314	2.14%	1.348	0.14%	-0.034
2034	2.27%	2.27%	1.344	2.10%	1.376	0.17%	-0.033
2035	2.27%	2.27%	1.374	2.10%	1.405	0.17%	-0.031
2036	2.25%	2.25%	1.405	2.08%	1.435	0.17%	-0.030
2037	2.23%	2.23%	1.436	2.09%	1.464	0.15%	-0.028
2038	2.23%	2.23%	1.468	2.09%	1.495	0.14%	-0.027
2039	2.23%	2.23%	1.501	2.08%	1.526	0.15%	-0.025
2040	2.25%	2.25%	1.535	2.07%	1.558	0.17%	-0.023
2041	2.22%	2.23%	1.569	2.09%	1.590	0.14%	-0.021
2042	2.25%	2.24%	1.604	2.11%	1.624	0.14%	-0.019
2043	2.28%	2.27%	1.641	2.12%	1.658	0.15%	-0.017
2044	2.28%	2.28%	1.678	2.13%	1.693	0.15%	-0.015
2045	2.28%	2.28%	1.716	2.15%	1.730	0.13%	-0.013
2046	2.28%	2.28%	1.756	2.15%	1.767	0.13%	-0.011
2047	2.29%	2.29%	1.796	2.15%	1.805	0.14%	-0.009
2048	2.30%	2.30%	1.837	2.16%	1.844	0.15%	-0.007
2049	2.32%	2.31%	1.880	2.16%	1.883	0.15%	-0.004
2050	2.34%	2.34%	1.923				

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, 2021, is determined as follows: $1.009 = (.0174 * .5) + 1$.

An example of subsequent year cumulative growth, such as in 2022, is found as: $1.029 = (1 + .0199) * 1.009$

7. 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 2021–2023). 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 YEAR	DESCRIPTION	INTEREST RATE	TERM	TOTAL BORROWING
1	2021	Construction	2.02%	24	151,333
2		Construction	2.06%	25	151,333
3		Construction	2.11%	1	1,997
4		Construction	0.40%	2	98,000
5		Construction	2.11%	26	51,336
6		Construction (AS)	0.33%	1	2,000
7		Environment	0.33%	1	<u>13,000</u>
8		Total			469,000
9					
10	2022	Construction	2.35%	26	134,424
11		Construction	2.40%	27	134,424
12		Construction (AS)	0.88%	6	20,766
13		Environment	1.77%	1	5,379
14		Environment	1.77%	15	1,453
15		Construction	2.46%	28	<u>134,424</u>
16		Total			430,869
17					
18	2023	Construction	2.69%	28	139,601
19		Construction	2.75%	29	139,601
20		Construction (AS)	1.05%	6	23,793
21		Environment	1.99%	15	6,796
22		Construction	2.80%	30	139,601
23		Construction	2.32%	21	18,698
24		Construction (AS)	0.73%	4	31,870
25		Environment	1.83%	12	<u>14,091</u>
26		Total			514,052

**TABLE 7-2
PROJECTED CAPITAL SPENDING
(\$000s)**

		A	B	C
		2021	2022	2023
1	Construction	447,057	443,272	458,804
2	Environment	6,939	6,832	6,796
3	Construction (AS)	<u>8,853</u>	<u>20,766</u>	<u>23,793</u>
4	Total	462,848	470,870	489,393

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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 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 2022-2023 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 8-2. 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)

	INTEREST							
	A	B	C	D	E	F	G	H
	2021	2022	2023	2024	2025	2026	2027	2028
1 Capital Leases	5,763	5,626	5,524	5,427	5,330	5,228	5,121	5,011
2 Lease Purchase Bonds	49,166	48,679	47,108	45,290	42,808	39,605	36,733	33,779
3 Lease Purchase LOC	12,237	14,417	14,417	14,417	14,417	14,417	14,417	14,417
4 Adjustments	<u>(5,774)</u>	<u>(5,615)</u>	<u>(5,609)</u>	<u>(4,449)</u>	<u>(881)</u>	<u>(897)</u>	<u>(895)</u>	<u>(926)</u>
5 Total	61,392	63,107	61,440	60,686	61,674	58,354	55,375	52,281
	PRINCIPAL							
	2021	2022	2023	2024	2025	2026	2027	2028
6 Capital Leases	2,970	2,379	1,975	1,947	1,947	2,052	2,162	2,068
7 Lease Purchase Bonds	77,585	72,100	71,720	89,505	107,770	108,285	85,715	75,000
8 Lease Purchase LOC	-	-	-	-	-	-	-	-
9 Premiums/Discounts	-	-	-	-	-	-	-	-
10 Total	<u>80,555</u>	<u>74,479</u>	<u>73,695</u>	<u>91,452</u>	<u>109,717</u>	<u>110,337</u>	<u>87,877</u>	<u>77,068</u>

TABLE 8-2
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

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 2022
(\$000s)**

		A	B	C
	FY	AMOUNT	RATE	DUE
1	2023	170,191	2.565%	2058
2	2024	170,191	2.565%	2059
3	2025	170,191	2.565%	2060
4	2026	170,191	2.565%	2061
5	2027	170,191	2.565%	2062
6	2028	170,191	2.565%	2063
7	2029	170,191	2.565%	2064
8	2030	170,191	2.565%	2065
9	2031	170,191	2.565%	2066
10	2032	170,191	2.565%	2067
11	2033	170,191	2.565%	2068
12	2034	170,191	2.565%	2069
13	2035	170,191	2.565%	2070
14	2036	170,191	2.565%	2071
15	2037	170,191	2.565%	2072
16	2038	170,191	2.565%	2073
17	2039	170,191	2.565%	2074
18	2040	170,191	2.565%	2075
19	2041	170,191	2.565%	2076
20	2042	170,191	2.565%	2077
21	2043	170,191	2.565%	2078
22	2044	170,191	2.565%	2079
23	2045	170,191	2.565%	2080
24	2046	170,191	2.565%	2081
25	2047	170,191	2.565%	2082
26	2048	170,191	2.565%	2083
27	2049	170,191	2.565%	2084
28	2050	170,191	2.565%	2085
29	2051	170,191	2.565%	2086
30	2052	170,191	2.565%	2087
31	2053	170,191	2.565%	2088
32	2054	170,191	2.565%	2089
33	2055	170,191	2.565%	2090
34	2056	170,191	2.565%	2091
35	2057	170,191	2.565%	2092

**TABLE 9-2
FUTURE REPLACEMENTS FOR FY 2023
(\$000s)**

		A	B	C
	FY	AMOUNT	RATE	DUE
1	2024	165,724	2.802%	2059
2	2025	165,724	2.802%	2060
3	2026	165,724	2.802%	2061
4	2027	165,724	2.802%	2062
5	2028	165,724	2.802%	2063
6	2029	165,724	2.802%	2064
7	2030	165,724	2.802%	2065
8	2031	165,724	2.802%	2066
9	2032	165,724	2.802%	2067
10	2033	165,724	2.802%	2068
11	2034	165,724	2.802%	2069
12	2035	165,724	2.802%	2070
13	2036	165,724	2.802%	2071
14	2037	165,724	2.802%	2072
15	2038	165,724	2.802%	2073
16	2039	165,724	2.802%	2074
17	2040	165,724	2.802%	2075
18	2041	165,724	2.802%	2076
19	2042	165,724	2.802%	2077
20	2043	165,724	2.802%	2078
21	2044	165,724	2.802%	2079
22	2045	165,724	2.802%	2080
23	2046	165,724	2.802%	2081
24	2047	165,724	2.802%	2082
25	2048	165,724	2.802%	2083
26	2049	165,724	2.802%	2084
27	2050	165,724	2.802%	2085
28	2051	165,724	2.802%	2086
29	2052	165,724	2.802%	2087
30	2053	165,724	2.802%	2088
31	2054	165,724	2.802%	2089
32	2055	165,724	2.802%	2090
33	2056	165,724	2.802%	2091
34	2057	165,724	2.802%	2092
35	2058	165,724	2.802%	2093

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

		A	B	C	D	E	F
		AC INTERTIE		PFIA		TOTAL	
		2022 STUDY	2023 STUDY	2022 STUDY	2023 STUDY	2022 STUDY	2023 STUDY
1	2021	(2,658)	-	(4,425)	-	(7,083)	-
2	2022	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
3	2023	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
4	2024	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
5	2025	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
6	2026	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
7	2027	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
8	2028	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
9	2029	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
10	2030	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
11	2031	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
12	2032	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
13	2033	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
14	2034	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
15	2035	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
16	2036	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
17	2037	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
18	2038	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
19	2039	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
20	2040	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
21	2041	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
22	2042	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
23	2043	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
24	2044	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
25	2045	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
26	2046	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
27	2047	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
28	2048	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
29	2049	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
30	2050	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
31	2051	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
32	2052	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
33	2053	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
34	2054	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
35	2055	(2,658)	(2,589)	(4,425)	(4,309)	(7,083)	(6,897)
36	2056	-	(2,589)	-	(4,309)	-	(6,897)

10. REPAYMENT STUDY INPUT DATA

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**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	09/1940	09/1985	2.500%	6,812	0		
2	Bonneville Power	09/1941	09/1986	2.500%	18,906	0		
3	Bonneville Power	09/1941	09/1986	2.500%	461	0		
4	Bonneville Power	09/1942	09/1987	2.500%	8,446	0		
5	Bonneville Power	09/1942	09/1987	2.500%	1,052	0		
6	Bonneville Power	09/1943	09/1988	2.500%	16,083	0		
7	Bonneville Power	09/1943	09/1988	2.500%	4,538	0		
8	Bonneville Power	09/1944	09/1989	2.500%	583	0		
9	Bonneville Power	09/1944	09/1989	2.500%	249	0		
10	Bonneville Power	09/1945	09/1990	2.500%	1,306	0		
11	Bonneville Power	09/1945	09/1990	2.500%	3,366	0		
12	Bonneville Power	09/1946	09/1991	2.500%	2,488	0		
13	Bonneville Power	09/1946	09/1991	2.500%	732	0		
14	Bonneville Power	09/1947	09/1992	2.500%	1,330	0		
15	Bonneville Power	09/1947	09/1992	2.500%	1,773	0		
16	Bonneville Power	09/1948	09/1993	2.500%	7,468	0		
17	Bonneville Power	09/1948	09/1993	2.500%	2,290	0		
18	Bonneville Power	09/1949	09/1994	2.500%	6,809	0		
19	Bonneville Power	09/1949	09/1994	2.500%	2,719	0		
20	Bonneville Power	09/1950	09/1995	2.500%	24,111	0		
21	Bonneville Power	09/1950	09/1995	2.500%	6,124	0		
22	Bonneville Power	09/1951	09/1996	2.500%	7,040	0		
23	Bonneville Power	09/1951	09/1996	2.500%	13,266	0		
24	Bonneville Power	09/1952	09/1997	2.500%	18,610	0		
25	Bonneville Power	09/1952	09/1997	2.500%	8,979	0		
26	Bonneville Power	09/1953	09/1998	6.330%	11,605	0		
27	Bonneville Power	09/1953	09/1998	6.330%	23,550	0		
28	Bonneville Power	09/1954	09/1999	6.510%	23,614	0		
29	Bonneville Power	09/1954	09/1999	6.510%	17,370	0		
30	Bonneville Power	09/1955	09/2000	6.620%	11,827	0		
31	Bonneville Power	09/1955	09/2000	6.620%	10,283	0		
32	Bonneville Power	09/1956	09/2001	6.710%	14,573	0		
33	Bonneville Power	09/1956	09/2001	6.710%	32,221	0		
34	Bonneville Power	09/1957	09/2002	6.790%	7,933	0		
35	Bonneville Power	09/1957	09/2002	6.790%	15,980	0		
36	Bonneville Power	09/1958	09/2003	6.840%	15,593	0		
37	Bonneville Power	09/1958	09/2003	6.840%	10,654	0		
38	Bonneville Power	09/1959	09/2004	6.880%	8,157	0		
39	Bonneville Power	09/1959	09/2004	6.880%	8,863	0		
40	Bonneville Power	09/1960	09/2005	6.910%	3,598	0		
41	Bonneville Power	09/1960	09/2005	6.910%	4,218	0		
42	Bonneville Power	09/1961	09/2006	6.950%	4,468	0		
43	Bonneville Power	09/1961	09/2006	6.950%	11,271	0		
44	Bonneville Power	09/1962	09/2007	6.980%	19,597	0		
45	Bonneville Power	09/1962	09/2007	6.980%	4,877	0		
46	Bonneville Power	09/1963	09/2008	7.020%	4,876	0		
47	Bonneville Power	09/1963	09/2008	7.020%	4,330	0		
48	Bonneville Power	09/1963	09/2008	7.020%	904	0		
49	Bonneville Power	09/1963	09/2008	7.020%	803	0		
50	Bonneville Power	09/1964	09/2009	7.060%	4,151	0		
51	Bonneville Power	09/1964	09/2009	7.060%	5,738	0		
52	Bonneville Power	09/1965	09/2010	7.090%	3,706	0		
53	Bonneville Power	09/1965	09/2010	7.090%	7,248	0		
54	Bonneville Power	09/1965	09/2010	7.090%	5,202	0		
55	Bonneville Power	09/1965	09/2010	7.090%	10,171	0		
56	Bonneville Power	09/1966	09/2011	7.130%	11,830	0		
57	Bonneville Power	09/1966	09/2011	7.130%	3,049	0		
58	Bonneville Power	09/1966	09/2011	7.130%	6,647	0		
59	Bonneville Power	09/1966	09/2011	7.130%	1,714	0		
60	Bonneville Power	09/1967	09/2012	7.160%	19,003	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
61	Bonneville Power	09/1967	09/2012	7.160%	4,566	0		
62	Bonneville Power	09/1967	09/2012	7.160%	14,300	0		
63	Bonneville Power	09/1967	09/2012	7.160%	3,436	0		
64	Bonneville Power	09/1968	09/2013	7.200%	41,070	0		
65	Bonneville Power	09/1968	09/2013	7.200%	8,076	0		
66	Bonneville Power	09/1968	09/2013	7.200%	23,202	0		
67	Bonneville Power	09/1968	09/2013	7.200%	4,562	0		
68	Bonneville Power	09/1969	09/2014	7.230%	42,237	0		
69	Bonneville Power	09/1969	09/2014	7.230%	22,537	0		
70	Bonneville Power	09/1969	09/2014	7.230%	384	0		
71	Bonneville Power	09/1969	09/2014	7.230%	205	0		
72	Bonneville Power	09/1970	09/2015	7.270%	64,977	0		
73	Bonneville Power	09/1970	09/2015	7.270%	7,995	0		
74	Bonneville Power	09/1970	09/2015	7.270%	24,412	0		
75	Bonneville Power	09/1970	09/2015	7.270%	3,003	0		
76	Bonneville Power	09/1971	09/2016	7.290%	12,025	0		
77	Bonneville Power	09/1971	09/2016	7.290%	17,766	0		
78	Bonneville Power	09/1971	09/2016	7.290%	12,051	0		
79	Bonneville Power	09/1971	09/2016	7.290%	17,805	0		
80	Bonneville Power	09/1972	09/2017	7.290%	29,326	0		
81	Bonneville Power	09/1972	09/2017	7.290%	21,170	0		
82	Bonneville Power	09/1972	09/2017	7.290%	3,980	0		
83	Bonneville Power	09/1972	09/2017	7.290%	2,873	0		
84	Bonneville Power	09/1973	09/2018	7.280%	33,788	0		
85	Bonneville Power	09/1973	09/2018	7.280%	21,656	0		
86	Bonneville Power	09/1973	09/2018	7.280%	16,368	0		
87	Bonneville Power	09/1973	09/2018	7.280%	10,491	0		
88	Bonneville Power	09/1974	09/2019	7.270%	12,079	0		
89	Bonneville Power	09/1974	09/2019	7.270%	20,984	0		
90	Bonneville Power	09/1974	09/2019	7.270%	12,563	0		
91	Bonneville Power	09/1974	09/2019	7.270%	21,826	0		
92	Bonneville Power	09/1975	09/2020	7.250%	32,026	0		
93	Bonneville Power	09/1975	09/2020	7.250%	21,916	0		
94	Bonneville Power	09/1975	09/2020	7.250%	17,158	0		
95	Bonneville Power	09/1975	09/2020	7.250%	11,742	0		
96	Bonneville Power	09/1976	09/2021	7.230%	61,025	0		
97	Bonneville Power	09/1976	09/2021	7.230%	2,212	0		
98	Bonneville Power	09/1977	09/2022	7.210%	3,948	0		
99	Bonneville Power	09/1977	09/2022	7.210%	5,380	0		
100	Bonneville Power	09/1977	09/2022	7.210%	33,702	0		
101	Bonneville Power	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		
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		

**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
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		
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		

**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
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		
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		

**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
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		
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		

**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
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		
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	0		
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	0		
324	Construction	09/2009	09/2019	3.699%	35,000	0		
325	Construction	10/2009	10/2018	3.719%	23,000	0		
326	Construction	10/2009	10/2019	3.842%	43,000	0		
327	Construction	11/2009	11/2018	3.533%	15,000	0		
328	Construction	12/2009	12/2018	4.069%	13,000	0		
329	Construction	01/2010	01/2019	3.714%	30,000	0		
330	Construction	02/2010	02/2019	0.165%	10,000	0		
331	Construction	03/2010	03/2021	4.188%	15,000	0		
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	0		
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		
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	1.580%	30,000	0		
360	Construction	03/2012	09/2012	0.210%	40,000	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
361	Construction	03/2012	03/2024	0.128%	45,000	0		
362	Construction	05/2012	05/2027	0.205%	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		
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	0		
393	Construction	01/2014	12/2018	1.943%	30,000	0		
394	Construction	01/2014	12/2018	1.943%	31,000	0		
395	Construction	01/2014	12/2018	1.943%	48,000	0		
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	0.148%	45,000	45,000		
400	Construction	04/2014	03/2034	0.128%	45,000	18,300		
401	Construction	04/2014	10/2039	1.681%	45,000	0		
402	Construction	05/2014	05/2036	1.669%	29,000	0		
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	1.669%	21,000	0		
406	Construction	07/2014	04/2032	1.681%	9,000	0		
407	Construction	08/2014	06/2015	0.262%	14,000	0		
408	Construction	08/2014	07/2035	1.580%	10,000	0		
409	Construction	08/2014	08/2035	0.148%	15,000	15,000		
410	Construction	09/2014	04/2028	0.230%	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		
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		

**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
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	1.630%	21,000	0		
448	Construction	10/2015	08/2034	0.148%	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		
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	0.148%	12,000	12,000		
478	Construction	08/2018	04/2048	1.681%	19,000	0		
479	Construction	08/2018	05/2048	1.669%	21,000	0		
480	Construction	09/2018	10/2047	1.681%	4,000	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
481	Construction	09/2018	11/2047	1.669%	24,000	0		
482	Construction	09/2018	04/2048	1.681%	67,000	0		
483	Construction	09/2018	05/2048	1.669%	42,000	0		
484	Construction	09/2018	06/2048	1.630%	63,800	0		
485	Construction	01/2019	01/2023	2.603%	6,000	6,000		
486	Construction	07/2019	07/2037	2.680%	46,940	46,940		
487	Construction	08/2019	08/2021	0.119%	50,000	50,000		
488	Construction	08/2019	08/2021	0.119%	32,000	32,000		
489	Construction	08/2019	08/2022	0.119%	36,000	36,000		
490	Construction	09/2019	09/2020	0.302%	35,000	0		
491	Construction	10/2019	09/2020	0.302%	43,000	0		
492	Construction	11/2019	03/2037	2.349%	36,000	36,000		
493	Construction	11/2019	06/2038	2.429%	37,000	37,000		
494	Construction	11/2019	09/2039	2.495%	39,000	39,000		
495	Construction	01/2020	09/2020	0.302%	50,000	0		
496	Construction	04/2020	04/2039	1.594%	45,000	45,000		
497	Construction	04/2020	04/2046	1.776%	9,000	9,000		
498	Construction	04/2020	04/2046	1.776%	48,000	48,000		
499	Construction	04/2020	04/2047	1.792%	4,000	4,000		
500	Construction	04/2020	04/2047	1.792%	72,000	72,000		
501	Construction	04/2020	04/2048	1.806%	19,000	19,000		
502	Construction	04/2020	04/2048	1.806%	67,000	67,000		
503	Construction	05/2020	11/2032	1.231%	21,000	21,000		
504	Construction	05/2020	05/2036	1.513%	29,000	29,000		
505	Construction	05/2020	05/2046	1.931%	26,000	26,000		
506	Construction	05/2020	11/2047	1.949%	24,000	24,000		
507	Construction	05/2020	05/2048	1.953%	21,000	21,000		
508	Construction	05/2020	05/2048	1.953%	42,000	42,000		
509	Construction	06/2020	06/2033	1.238%	21,000	21,000		
510	Construction	06/2020	06/2047	1.805%	20,000	20,000		
511	Construction	06/2020	06/2047	1.805%	30,000	30,000		
512	Construction	06/2020	06/2049	1.812%	63,800	63,800		
513	Construction	07/2020	07/2033	1.157%	10,000	10,000		
514	Construction	07/2020	01/2040	1.421%	30,000	30,000		
515	Construction	07/2020	07/2045	1.626%	19,000	19,000		
516	Construction	08/2020	02/2049	1.990%	11,000	11,000		
517	Construction	08/2020	08/2049	1.992%	39,000	39,000		
518	Construction	03/2021	09/2022	0.039%	4,000	4,000		
519	Construction	03/2021	03/2041	2.347%	6,000	6,000		
520	Construction	03/2021	03/2042	2.400%	46,000	46,000		
521	Construction	03/2021	09/2044	2.515%	34,000	34,000		
522	Construction	03/2021	09/2045	2.550%	14,000	14,000		
523	Construction (AS)	10/1992	10/2032	8.350%	99,962	0		
524	Construction (AS)	07/1995	07/2025	7.700%	49,933	0		
525	Construction (AS)	01/1996	01/2003	5.900%	54,378	0		
526	Construction (AS)	01/1997	01/2004	6.800%	22,600	0		
527	Construction (AS)	08/1998	08/2008	5.750%	36,819	0		
528	Construction (AS)	02/1999	02/2014	5.900%	59,050	0		
529	Construction (AS)	07/2000	07/2004	7.000%	39,052	0		
530	Construction (AS)	01/2001	01/2010	6.050%	59,932	0		
531	Construction (AS)	03/2002	03/2005	4.600%	108,010	0		
532	Construction (AS)	10/2002	10/2005	3.000%	4,938	0		
533	Construction (AS)	01/2004	01/2007	2.500%	46,643	0		
534	Construction (AS)	11/2004	11/2008	3.750%	27,010	0		
535	Construction (AS)	09/2006	09/2010	4.950%	5,319	0		
536	Construction (AS)	01/2008	01/2012	3.200%	30,000	0		
537	Construction (AS)	09/2008	09/2012	3.444%	25,000	0		
538	Construction (AS)	09/2009	09/2014	2.746%	14,000	0		
539	Construction (AS)	02/2010	02/2015	0.165%	7,500	0		
540	Construction (AS)	08/2010	08/2015	1.619%	15,000	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
541	Construction (AS)	06/2011	06/2016	1.957%	13,000	0		
542	Construction (AS)	08/2011	08/2016	1.423%	6,500	0		
543	Construction (AS)	01/2012	09/2012	0.146%	30,000	0		
544	Construction (AS)	06/2012	09/2015	0.671%	14,300	0		
545	Construction (AS)	11/2012	11/2018	1.109%	9,750	0		
546	Construction (AS)	04/2013	04/2017	0.622%	4,550	0		
547	Construction (AS)	06/2013	06/2019	1.962%	5,000	0		
548	Construction (AS)	08/2013	08/2019	2.279%	3,000	0		
549	Construction (AS)	10/2013	10/2019	2.039%	7,800	0		
550	Construction (AS)	01/2014	01/2020	2.183%	3,250	0		
551	Construction (AS)	02/2014	09/2014	0.117%	59,050	0		
552	Construction (AS)	04/2014	03/2020	1.896%	2,600	0		
553	Construction (AS)	05/2014	04/2020	1.681%	1,300	0		
554	Construction (AS)	07/2014	07/2020	1.580%	1,950	0		
555	Construction (AS)	11/2014	11/2020	1.809%	3,900	0		
556	Construction (AS)	12/2014	12/2020	1.922%	1,950	0		
557	Construction (AS)	02/2015	02/2021	1.761%	3,250	0		
558	Construction (AS)	05/2015	05/2021	1.898%	3,900	3,900		
559	Construction (AS)	10/2015	10/2021	1.942%	5,200	5,200		
560	Construction (AS)	02/2016	02/2022	1.631%	5,000	5,000		
561	Construction (AS)	06/2016	09/2016	0.436%	13,000	0		
562	Construction (AS)	04/2017	01/2018	1.051%	4,550	0		
563	Construction (AS)	09/2018	03/2024	3.078%	7,800	7,800		
564	Construction (AS)	08/2019	08/2022	0.119%	7,000	7,000		
565	Construction (AS)	10/2019	09/2020	0.302%	7,800	0		
566	Construction (AS)	11/2019	05/2021	0.119%	5,000	5,000		
567	Construction (AS)	01/2020	09/2020	0.302%	3,250	0		
568	Construction (AS)	03/2020	09/2020	0.326%	2,600	0		
569	Construction (AS)	04/2020	09/2020	0.240%	1,300	0		
570	Construction (AS)	07/2020	07/2025	0.407%	6,000	6,000		
571	Environment	11/1996	11/2011	6.950%	40,000	0		
572	Environment	01/2001	01/2010	6.050%	30,000	0		
573	Environment	09/2002	09/2006	3.050%	30,000	0		
574	Environment	03/2006	03/2009	5.050%	20,000	0		
575	Environment	09/2008	09/2011	3.151%	10,000	0		
576	Environment	02/2010	02/2025	4.279%	10,000	10,000		
577	Environment	05/2012	05/2027	0.205%	13,000	13,000		
578	Environment	11/2012	11/2027	5.046%	5,000	0		
579	Environment	10/2013	10/2028	3.880%	6,000	6,000		
580	Environment	11/2013	11/2027	3.967%	5,000	5,000		
581	Environment	01/2014	01/2029	3.896%	3,000	3,000		
582	Environment	07/2014	07/2029	0.176%	3,000	3,000		
583	Environment	01/2015	01/2024	1.908%	4,000	4,000		
584	Environment	10/2015	09/2027	1.896%	5,000	0		
585	Environment	05/2016	05/2025	2.101%	5,000	5,000		
586	Environment	09/2018	11/2032	1.669%	7,000	0		
587	Environment	08/2019	08/2020	0.155%	5,000	0		
588	Environment	11/2019	09/2023	0.112%	8,000	0		
589	Environment	03/2020	09/2027	1.025%	5,000	5,000		
590	Environment	05/2020	11/2032	1.231%	7,000	7,000		
591	Environment	03/2021	03/2031	1.804%	13,000	13,000		
592	Technology (T)	02/2015	02/2021	1.761%	23,000	0		
593	Technology (T)	10/2015	09/2018	1.976%	5,000	0		
594	Technology (T)	09/2018	09/2021	0.128%	5,000	5,000		
595	Totals:				14,267,798	3,376,640		

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	\$151,333	\$151,333	2.02	6/30/2021	6/30/2045
2	Construction	\$151,333	\$151,333	2.06	7/31/2021	7/31/2046
3	Construction	\$1,997	\$1,997	2.11	8/31/2021	8/31/2022
4	Construction	\$98,000	\$98,000	0.40	8/31/2021	8/31/2023
5	Construction	\$51,336	\$51,336	2.11	8/31/2021	8/31/2047
6	Construction (AS)	\$2,000	\$2,000	0.33	8/31/2021	8/31/2022
7	Environment	\$13,000	\$13,000	0.33	8/31/2021	8/31/2022
8	2021 Total	\$469,000	\$469,000			
9	Construction	\$134,424	\$134,424	2.35	4/30/2022	4/30/2048
10	Construction	\$134,424	\$134,424	2.40	5/31/2022	5/31/2049
11	Construction (AS)	\$20,766	\$20,766	0.88	5/31/2022	5/31/2028
12	Environment	\$5,379	\$5,379	1.77	5/31/2022	5/31/2023
13	Environment	\$1,453	\$1,453	1.77	5/31/2022	5/31/2037
14	Construction	\$134,424	\$134,424	2.46	6/30/2022	6/30/2050
15	2022 Total	\$430,869	\$430,869			
16	Construction	\$139,601	\$139,601	2.69	4/30/2023	4/30/2051
17	Construction	\$139,601	\$139,601	2.75	5/31/2023	5/31/2052
18	Construction (AS)	\$23,793	\$23,793	1.05	5/31/2023	5/31/2029
19	Environment	\$6,796	\$6,796	1.99	5/31/2023	5/31/2038
20	Construction	\$139,601	\$139,601	2.80	6/30/2023	6/30/2053

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11. REPAYMENT STUDY RESULTS

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**TABLE 11-1
SUMMARY OF INTEREST (\$000S) (FY 2022)**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
1	General Project	Specific Project	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
2	BPA Borrowing	(Less Interest Income)	(101)	(65)	(67)	(64)	(64)	(65)	(72)	(76)	(95)	(97)	(97)	(99)	(99)	
3		Construction	98,222	104,170	109,426	102,633	96,589	89,203	81,713	74,415	64,191	51,968	37,326	29,309	21,196	
4		Interest Accrual	18,899	20,962	20,539	19,634	18,929	17,492	16,329	14,465	12,873	9,496	8,530	6,370	4,543	
5		Interest Accrual Reversal	(18,332)	(18,899)	(20,962)	(20,539)	(19,634)	(18,929)	(17,492)	(16,329)	(14,465)	(12,873)	(9,496)	(8,530)	(6,370)	
6		Construction (AS)	535	370	448	328	208	183	183	183	-	-	-	-	-	
7		Interest Accrual	54	65	65	65	61	61	61	-	-	-	-	-	-	
8		Interest Accrual Reversal	(80)	(54)	(65)	(65)	(65)	(61)	(61)	(61)	-	-	-	-	-	
9		Environment	1,443	1,603	1,681	1,547	1,295	978	978	800	526	346	229	112	69	
10		Interest Accrual	309	345	314	301	230	230	221	154	37	37	37	37	9	
11		Interest Accrual Reversal	(305)	(309)	(345)	(314)	(301)	(230)	(230)	(221)	(154)	(37)	(37)	(37)	(37)	
12		Technology (T)	6	-	-	-	-	-	-	-	-	-	-	-	-	
13		BPA Borrowing Subtotal:		100,650	108,189	111,032	103,526	97,248	88,861	81,630	73,330	62,914	48,841	36,491	27,162	19,310
14		Federal Transmission Replacement	Replacements	-	-	2,182	6,547	10,912	15,276	19,641	24,006	28,371	32,735	37,100	41,465	45,829
15	Federal Transmission Replacement Subtotal:		-	-	2,182	6,547	10,912	15,276	19,641	24,006	28,371	32,735	37,100	41,465	45,829	
16	Total		\$100,650	\$108,189	\$113,215	\$110,073	\$108,160	\$104,138	\$101,271	\$97,336	\$91,285	\$81,577	\$73,591	\$68,627	\$65,140	

**TABLE 11-1
SUMMARY OF INTEREST (\$000S) (FY 2022)**

	A	B	P	Q	R	S	T	U	V	W	X	Y	Z	
1	General Project	Specific Project	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	
2		(Less Interest Income)	(75)	(70)	(71)	(79)	(80)	(81)	(82)	(81)	(87)	(84)	(86)	
3		Construction	13,766	10,373	6,192	1,227	-	-	-	-	-	-	-	
4		Interest Accrual	3,705	2,383	476	-	-	-	-	-	-	-	-	
5		Interest Accrual Reversal	(4,543)	(3,705)	(2,383)	(476)	-	-	-	-	-	-	-	
6		Construction (AS)	-	-	-	-	-	-	-	-	-	-	-	
7	BPA Borrowing	Interest Accrual	-	-	-	-	-	-	-	-	-	-	-	
8		Interest Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	
9		Environment	26	26	26	26	-	-	-	-	-	-	-	
10		Interest Accrual	9	9	9	-	-	-	-	-	-	-	-	
11		Interest Accrual Reversal	(9)	(9)	(9)	(9)	-	-	-	-	-	-	-	
12		Technology (T)	-	-	-	-	-	-	-	-	-	-	-	-
13			BPA Borrowing Subtotal:	12,878	9,008	4,239	689	(80)	(81)	(82)	(81)	(87)	(84)	(86)
14	Federal Transmission Replacement	Replacements	50,194	54,559	58,924	60,972	59,273	56,070	52,722	49,326	45,651	41,772	37,888	
15		Federal Transmission Replacement Subtotal:	50,194	54,559	58,924	60,972	59,273	56,070	52,722	49,326	45,651	41,772	37,888	
16	Total		\$63,072	\$63,567	\$63,163	\$61,661	\$59,193	\$55,989	\$52,640	\$49,245	\$45,564	\$41,688	\$37,802	

**TABLE 11-1
SUMMARY OF INTEREST (\$000S) (FY 2022)**

	A	B	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
1	General Project	Specific Project	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	Total
2		(Less Interest Income)	(90)	(87)	(95)	(117)	(118)	(119)	(119)	(119)	(119)	(119)	(119)	(119)	(119)	(3,393)
3		Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	991,918
4		Interest Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	195,623
5		Interest Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	(213,955)
6		Construction (AS)	-	-	-	-	-	-	-	-	-	-	-	-	-	2,438
7	BPA Borrowing	Interest Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	434
8		Interest Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	(515)
9		Environment	-	-	-	-	-	-	-	-	-	-	-	-	-	11,710
10		Interest Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-	2,287
11		Interest Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-	(2,592)
12		Technology (T)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		BPA Borrowing Subtotal:	(90)	(87)	(95)	(117)	(118)	(119)	(119)	(119)	(119)	(119)	(119)	(119)	(119)	983,962
14	Federal Transmission Replacement	Replacements	33,673	29,370	24,730	18,461	10,939	5,748	4,365	4,365	4,365	4,365	4,365	4,365	4,365	984,889
15		Federal Transmission Replacement Subtotal:	33,673	29,370	24,730	18,461	10,939	5,748	4,365	4,365	4,365	4,365	4,365	4,365	4,365	984,889
16	Total		\$33,583	\$29,283	\$24,635	\$18,344	\$10,822	\$5,629	\$4,246	\$4,246	\$4,246	\$4,246	\$4,246	####	\$4,246	\$1,968,850

**TABLE 11-2
INTEREST CALCULATION SUMMARY (\$000S) (FY 2022)**

	A	B	C	D	E	F	G	H	I
	Fiscal Year	Project	Type	Current Principal	Rate	Interest	Premium	Net Interest Accrual	Total
1	2021	Construction	Historical	3,153,740	3.075%	96,993	-	(840)	96,153
2	2021	Construction	New	558,000	0.220%	1,229	-	1,407	2,636
3	2021	Construction (AS)	Historical	39,900	1.341%	535	-	(27)	508
4	2021	Construction (AS)	New	2,000	-	-	-	1	1
5	2021	Environment	Historical	61,000	2.173%	1,325	-	-	1,325
6	2021	Environment	New	26,000	0.451%	117	-	4	121
7	2021	Technology (T)	Historical	5,000	0.128%	6	-	-	6
8	2021	Float	Historical	-	-	(101)	-	-	(101)
9	FY 2021 Subtotal:			3,845,640		100,106	-	544	100,650
10	2022	Construction	Historical	3,563,740	2.923%	104,170	-	(1,158)	103,012
11	2022	Construction	New	403,272	-	-	-	3,221	3,221
12	2022	Construction (AS)	Historical	33,000	1.123%	370	-	(50)	320
13	2022	Construction (AS)	New	20,766	-	-	-	61	61
14	2022	Environment	Historical	87,000	1.842%	1,603	-	(4)	1,599
15	2022	Environment	New	6,832	-	-	-	40	40
16	2022	Float	Historical	-	-	(65)	-	-	(65)
17	FY 2022 Subtotal:			4,114,609		106,078	-	2,111	108,189
18	2023	Construction	Historical	3,795,015	2.883%	109,426	-	(423)	109,003
19	2023	Construction (AS)	Historical	34,566	1.295%	448	-	-	448
20	2023	Environment	Historical	80,832	2.079%	1,681	-	(32)	1,649
21	2023	Replacements	New	170,191	1.282%	2,182	-	-	2,182
22	2023	Float	Historical	-	-	(67)	-	-	(67)
23	FY 2023 Subtotal:			4,080,603		113,670	-	(455)	113,215
24	2024	Construction	Historical	3,591,013	2.858%	102,633	-	(905)	101,728
25	2024	Construction (AS)	Historical	34,566	0.948%	328	-	-	328
26	2024	Environment	Historical	75,453	2.051%	1,547	-	(13)	1,535
27	2024	Replacements	Historical	170,191	2.565%	4,365	-	-	4,365
28	2024	Replacements	New	170,191	1.282%	2,182	-	-	2,182
29	2024	Float	Historical	-	-	(64)	-	-	(64)
30	FY 2024 Subtotal:			4,041,413		110,991	-	(917)	110,073
31	2025	Construction	Historical	3,425,327	2.820%	96,589	-	(704)	95,885
32	2025	Construction (AS)	Historical	26,766	0.775%	208	-	(4)	204
33	2025	Environment	Historical	71,453	1.813%	1,295	-	(71)	1,224
34	2025	Replacements	Historical	340,381	2.565%	8,729	-	-	8,729
35	2025	Replacements	New	170,191	1.282%	2,182	-	-	2,182
36	2025	Float	Historical	-	-	(64)	-	-	(64)
37	FY 2025 Subtotal:			4,034,117		108,940	-	(780)	108,160
38	2026	Construction	Historical	3,256,873	2.739%	89,203	-	(1,437)	87,766
39	2026	Construction (AS)	Historical	20,766	0.882%	183	-	-	183
40	2026	Environment	Historical	56,453	1.732%	978	-	-	978
41	2026	Replacements	Historical	510,572	2.565%	13,094	-	-	13,094
42	2026	Replacements	New	170,191	1.282%	2,182	-	-	2,182
43	2026	Float	Historical	-	-	(65)	-	-	(65)
44	FY 2026 Subtotal:			4,014,854		105,575	-	(1,437)	104,138
45	2027	Construction	Historical	3,062,616	2.668%	81,713	-	(1,163)	80,550
46	2027	Construction (AS)	Historical	20,766	0.882%	183	-	-	183
47	2027	Environment	Historical	56,453	1.732%	978	-	(9)	969
48	2027	Replacements	Historical	680,762	2.565%	17,459	-	-	17,459
49	2027	Replacements	New	170,191	1.282%	2,182	-	-	2,182
50	2027	Float	Historical	-	-	(72)	-	-	(72)
51	FY 2027 Subtotal:			3,990,787		102,443	-	(1,172)	101,271
52	2028	Construction	Historical	2,867,168	2.595%	74,415	-	(1,864)	72,550
53	2028	Construction (AS)	Historical	20,766	0.882%	183	-	(61)	122
54	2028	Environment	Historical	38,453	2.082%	800	-	(66)	734
55	2028	Replacements	Historical	850,953	2.565%	21,824	-	-	21,824

**TABLE 11-2
INTEREST CALCULATION SUMMARY (\$000S) (FY 2022)**

	A	B	C	D	E	F	G	H	I
	Fiscal Year	Project	Type	Current Principal	Rate	Interest	Premium	Net Interest Accrual	Total
56	2028	Replacements	New	170,191	1.282%	2,182	-	-	2,182
57	2028	Float	Historical	-	-	(76)	-	-	(76)
58	FY 2028	Subtotal:		3,947,529		99,329	-	(1,992)	97,336
59	2029	Construction	Historical	2,666,400	2.407%	64,191	-	(1,592)	62,600
60	2029	Environment	Historical	33,453	1.574%	526	-	(117)	410
61	2029	Replacements	Historical	1,021,143	2.565%	26,188	-	-	26,188
62	2029	Replacements	New	170,191	1.282%	2,182	-	-	2,182
63	2029	Float	Historical	-	-	(95)	-	-	(95)
64	FY 2029	Subtotal:		3,891,186		92,993	-	(1,709)	91,285
65	2030	Construction	Historical	2,364,919	2.197%	51,968	-	(3,376)	48,592
66	2030	Environment	Historical	21,453	1.614%	346	-	-	346
67	2030	Replacements	Historical	1,191,334	2.565%	30,553	-	-	30,553
68	2030	Replacements	New	170,191	1.282%	2,182	-	-	2,182
69	2030	Float	Historical	-	-	(97)	-	-	(97)
70	FY 2030	Subtotal:		3,747,895		84,953	-	(3,376)	81,577
71	2031	Construction	Historical	2,018,338	1.849%	37,326	-	(967)	36,359
72	2031	Environment	Historical	21,453	1.068%	229	-	-	229
73	2031	Replacements	Historical	1,361,524	2.565%	34,918	-	-	34,918
74	2031	Replacements	New	170,191	1.282%	2,182	-	-	2,182
75	2031	Float	Historical	-	-	(97)	-	-	(97)
76	FY 2031	Subtotal:		3,571,505		74,558	-	(967)	73,591
77	2032	Construction	Historical	1,669,452	1.756%	29,309	-	(2,160)	27,149
78	2032	Environment	Historical	8,453	1.323%	112	-	-	112
79	2032	Replacements	Historical	1,531,715	2.565%	39,282	-	-	39,282
80	2032	Replacements	New	170,191	1.282%	2,182	-	-	2,182
81	2032	Float	Historical	-	-	(99)	-	-	(99)
82	FY 2032	Subtotal:		3,379,809		70,787	-	(2,160)	68,627
83	2033	Construction	Historical	1,306,597	1.622%	21,196	-	(1,827)	19,369
84	2033	Environment	Historical	8,453	0.813%	69	-	(29)	40
85	2033	Replacements	Historical	1,701,905	2.565%	43,647	-	-	43,647
86	2033	Replacements	New	170,191	1.282%	2,182	-	-	2,182
87	2033	Float	Historical	-	-	(99)	-	-	(99)
88	FY 2033	Subtotal:		3,187,146		66,996	-	(1,856)	65,140
89	2034	Construction	Historical	948,959	1.451%	13,766	-	(838)	12,928
90	2034	Environment	Historical	1,453	1.766%	26	-	-	26
91	2034	Replacements	Historical	1,872,096	2.565%	48,012	-	-	48,012
92	2034	Replacements	New	170,191	1.282%	2,182	-	-	2,182
93	2034	Float	Historical	-	-	(75)	-	-	(75)
94	FY 2034	Subtotal:		2,992,697		63,911	-	(838)	63,072
95	2035	Construction	Historical	646,186	1.605%	10,373	-	(1,321)	9,052
96	2035	Environment	Historical	1,453	1.766%	26	-	-	26
97	2035	Replacements	Historical	2,042,286	2.565%	52,376	-	-	52,376
98	2035	Replacements	New	170,191	1.282%	2,182	-	-	2,182
99	2035	Float	Historical	-	-	(70)	-	-	(70)
100	FY 2035	Subtotal:		2,860,115		64,888	-	(1,321)	63,567
101	2036	Construction	Historical	365,149	1.696%	6,192	-	(1,908)	4,284
102	2036	Environment	Historical	1,453	1.766%	26	-	-	26
103	2036	Replacements	Historical	2,212,477	2.565%	56,741	-	-	56,741
104	2036	Replacements	New	170,191	1.282%	2,182	-	-	2,182
105	2036	Float	Historical	-	-	(71)	-	-	(71)
106	FY 2036	Subtotal:		2,749,269		65,070	-	(1,908)	63,163

**TABLE 11-2
INTEREST CALCULATION SUMMARY (\$000S) (FY 2022)**

	A	B	C	D	E	F	G	H	I
	Fiscal Year	Project	Type	Current Principal	Rate	Interest	Premium	Net Interest Accrual	Total
107	2037	Construction	Historical	105,292	1.165%	1,227	-	(476)	751
108	2037	Environment	Historical	1,453	1.766%	26	-	(9)	17
109	2037	Replacements	Historical	2,382,667	2.467%	58,790	-	-	58,790
110	2037	Replacements	New	170,191	1.282%	2,182	-	-	2,182
111	2037	Float	Historical	-	-	(79)	-	-	(79)
112	FY 2037	Subtotal:		2,659,602		62,145	-	(484)	61,661
113	2038	Construction	Historical	-	-	-	-	-	-
114	2038	Replacements	Historical	2,372,215	2.407%	57,090	-	-	57,090
115	2038	Replacements	New	170,191	1.282%	2,182	-	-	2,182
116	2038	Float	Historical	-	-	(80)	-	-	(80)
117	FY 2038	Subtotal:		2,542,406		59,193	-	-	59,193
118	2039	Replacements	Historical	2,250,155	2.395%	53,888	-	-	53,888
119	2039	Replacements	New	170,191	1.282%	2,182	-	-	2,182
120	2039	Float	Historical	-	-	(81)	-	-	(81)
121	FY 2039	Subtotal:		2,420,345		55,989	-	-	55,989
122	2040	Replacements	Historical	2,122,493	2.381%	50,540	-	-	50,540
123	2040	Replacements	New	170,191	1.282%	2,182	-	-	2,182
124	2040	Float	Historical	-	-	(82)	-	-	(82)
125	FY 2040	Subtotal:		2,292,684		52,640	-	-	52,640
126	2041	Replacements	Historical	1,989,035	2.370%	47,144	-	-	47,144
127	2041	Replacements	New	170,191	1.282%	2,182	-	-	2,182
128	2041	Float	Historical	-	-	(81)	-	-	(81)
129	FY 2041	Subtotal:		2,159,226		49,245	-	-	49,245
130	2042	Replacements	Historical	1,857,675	2.340%	43,469	-	-	43,469
131	2042	Replacements	New	170,191	1.282%	2,182	-	-	2,182
132	2042	Float	Historical	-	-	(87)	-	-	(87)
133	FY 2042	Subtotal:		2,027,865		45,564	-	-	45,564
134	2043	Replacements	Historical	1,702,423	2.325%	39,590	-	-	39,590
135	2043	Replacements	New	170,191	1.282%	2,182	-	-	2,182
136	2043	Float	Historical	-	-	(84)	-	-	(84)
137	FY 2043	Subtotal:		1,872,614		41,688	-	-	41,688
138	2044	Replacements	Historical	1,555,152	2.296%	35,705	-	-	35,705
139	2044	Replacements	New	170,191	1.282%	2,182	-	-	2,182
140	2044	Float	Historical	-	-	(86)	-	-	(86)
141	FY 2044	Subtotal:		1,725,343		37,802	-	-	37,802
142	2045	Replacements	Historical	1,399,524	2.250%	31,490	-	-	31,490
143	2045	Replacements	New	170,191	1.282%	2,182	-	-	2,182
144	2045	Float	Historical	-	-	(90)	-	-	(90)
145	FY 2045	Subtotal:		1,569,715		33,583	-	-	33,583
146	2046	Replacements	Historical	1,226,442	2.217%	27,188	-	-	27,188
147	2046	Replacements	New	170,191	1.282%	2,182	-	-	2,182
148	2046	Float	Historical	-	-	(87)	-	-	(87)
149	FY 2046	Subtotal:		1,396,633		29,283	-	-	29,283
150	2047	Replacements	Historical	1,063,970	2.119%	22,548	-	-	22,548
151	2047	Replacements	New	170,191	1.282%	2,182	-	-	2,182
152	2047	Float	Historical	-	-	(95)	-	-	(95)
153	FY 2047	Subtotal:		1,234,160		24,635	-	-	24,635
154	2048	Replacements	Historical	864,588	1.883%	16,278	-	-	16,278
155	2048	Replacements	New	170,191	1.282%	2,182	-	-	2,182
156	2048	Float	Historical	-	-	(117)	-	-	(117)
157	FY 2048	Subtotal:		1,034,779		18,344	-	-	18,344
158	2049	Replacements	Historical	575,069	1.523%	8,757	-	-	8,757

**TABLE 11-2
INTEREST CALCULATION SUMMARY (\$000S) (FY 2022)**

	A	B	C	D	E	F	G	H	I
	Fiscal Year	Project	Type	Current Principal	Rate	Interest	Premium	Net Interest Accrual	Total
159	2049	Replacements	New	170,191	1.282%	2,182	-	-	2,182
160	2049	Float	Historical	-	-	(118)	-	-	(118)
161	FY 2049 Subtotal:			745,260		10,822	-	-	10,822
162	2050	Replacements	Historical	278,028	1.282%	3,565	-	-	3,565
163	2050	Replacements	New	170,191	1.282%	2,182	-	-	2,182
164	2050	Float	Historical	-	-	(119)	-	-	(119)
165	FY 2050 Subtotal:			448,219		5,629	-	-	5,629
166	2051	Replacements	Historical	170,191	1.282%	2,182	-	-	2,182
167	2051	Replacements	New	170,191	1.282%	2,182	-	-	2,182
168	2051	Float	Historical	-	-	(119)	-	-	(119)
169	FY 2051 Subtotal:			340,381		4,246	-	-	4,246
170	2052	Replacements	Historical	170,191	1.282%	2,182	-	-	2,182
171	2052	Replacements	New	170,191	1.282%	2,182	-	-	2,182
172	2052	Float	Historical	-	-	(119)	-	-	(119)
173	FY 2052 Subtotal:			340,381		4,246	-	-	4,246
174	2053	Replacements	Historical	170,191	1.282%	2,182	-	-	2,182
175	2053	Replacements	New	170,191	1.282%	2,182	-	-	2,182
176	2053	Float	Historical	-	-	(119)	-	-	(119)
177	FY 2053 Subtotal:			340,381		4,246	-	-	4,246
178	2054	Replacements	Historical	170,191	1.282%	2,182	-	-	2,182
179	2054	Replacements	New	170,191	1.282%	2,182	-	-	2,182
180	2054	Float	Historical	-	-	(119)	-	-	(119)
181	FY 2054 Subtotal:			340,381		4,246	-	-	4,246
182	2055	Replacements	Historical	170,191	1.282%	2,182	-	-	2,182
183	2055	Replacements	New	170,191	1.282%	2,182	-	-	2,182
184	2055	Float	Historical	-	-	(119)	-	-	(119)
185	FY 2055 Subtotal:			340,381		4,246	-	-	4,246
186	2056	Replacements	Historical	170,191	1.282%	2,182	-	-	2,182
187	2056	Replacements	New	170,191	1.282%	2,182	-	-	2,182
188	2056	Float	Historical	-	-	(119)	-	-	(119)
189	FY 2056 Subtotal:			340,381		4,246	-	-	4,246
190	2057	Replacements	Historical	170,191	1.282%	2,182	-	-	2,182
191	2057	Replacements	New	170,191	1.282%	2,182	-	-	2,182
192	2057	Float	Historical	-	-	(119)	-	-	(119)
193	FY 2057 Subtotal:			340,381		4,246	-	-	4,246
194	Grand Total:			\$84,960,693		\$1,987,567	-	(\$18,717)	\$1,968,850

**TABLE 11-3
SUMMARY OF AMORTIZATION (\$000S) (FY 2022)**

	A	B	C	D	E	F	G	H	I	J	K	L
1		Specific Project	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
2	BPA Borrowing	Construction	148,000	171,997	204,002	165,686	168,454	194,257	195,449	200,767	301,127	335,739
3		Principal Accrual	-	-	-	-	-	-	-	-	-	-
4		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-
5		Construction (AS)	8,900	19,200	-	7,800	6,000	-	-	20,766	-	-
6		Principal Accrual	-	-	-	-	-	-	-	-	-	-
7		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-
8		Environment	-	13,000	5,379	4,000	15,000	-	18,000	5,000	12,000	-
9		Principal Accrual	-	-	-	-	-	-	-	-	-	-
10		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-
11		Technology (T)	5,000	-	-	-	-	-	-	-	-	-
12		Principal Accrual	-	-	-	-	-	-	-	-	-	-
13		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-
14		BPA Borrowing Subtotal:	161,900	204,197	209,381	177,486	189,454	194,257	213,449	226,533	313,127	335,739
15	Federal	Replacements	-	-	-	-	-	-	-	-	-	-
16	Transmission	Principal Accrual	-	-	-	-	-	-	-	-	-	-
17	Replacement	Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-
18		Federal Transmission Replacement Subtotal:	-	-	-	-	-	-	-	-	-	-
19	Make Whole Call	Discounts	-	-	-	-	-	-	-	-	-	(354)
20		Premiums	-	-	-	24,155	13,332	15,251	24,363	29,118	25,723	12,849
21		Make Whole Call Subtotal:	-	-	-	24,155	13,332	15,251	24,363	29,118	25,723	12,494
22	Total		\$161,900	\$204,197	\$209,381	\$177,486	\$189,454	\$194,257	\$213,449	\$226,533	\$313,127	\$336,093

**TABLE 11-3
SUMMARY OF AMORTIZATION (\$000S) (FY 2022)**

	A	B	M	N	O	P	Q	R	S	T	U	V	
1		Specific Project	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
2	BPA Borrowing	Construction	343,606	361,587	357,639	269,536	247,494	251,672	105,292		-	-	
3		Principal Accrual	-	-	-	-	-	-	-	-	-	-	
4		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	
5		Construction (AS)	-	-	-	-	-	-	-	-	-	-	
6		Principal Accrual	-	-	-	-	-	-	-	-	-	-	
7		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	
8		Environment	13,000	-	7,000	-	-	-	1,453	-	-	-	
9		Principal Accrual	-	-	-	-	-	-	-	-	-	-	
10		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	
11		Technology (T)	-	-	-	-	-	-	-	-	-	-	
12		Principal Accrual	-	-	-	-	-	-	-	-	-	-	
13		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	
14		BPA Borrowing Subtotal:		356,606	361,587	364,639	269,536	247,494	251,672	106,745		-	-
15		Federal Transmission Replacement	Replacements	-	-	-	-	-	-	180,642	292,251	297,852	303,649
16	Principal Accrual		-	-	-	-	-	-	-	-	-	-	
17	Principal Accrual Reversal		-	-	-	-	-	-	-	-	-	-	
18	Federal Transmission Replacement Subtotal:			-	-	-	-	-	-	180,642	292,251	297,852	303,649
19	Make Whole Call	Discounts	(10,842)	(5,280)	(1,267)	-	(33,236)	(33,543)	(8,185)	-	-	-	
20		Premiums	25	-	-	-	-	-	-	-	-	-	
21		Make Whole Call Subtotal:		(10,817)	(5,280)	(1,267)	-	(33,236)	(33,543)	(8,185)	-	-	
22	Total		\$367,448	\$366,867	\$365,906	\$269,536	\$280,730	\$285,215	\$295,572	\$292,251	\$297,852	\$303,649	

**TABLE 11-3
SUMMARY OF AMORTIZATION (\$000S) (FY 2022)**

	A	B	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1		Specific Project	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
2	BPA Borrowing	Construction	-	-	-	-	-	-	-	-	-	-
3		Principal Accrual	-	-	-	-	-	-	-	-	-	-
4		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-
5		Construction (AS)	-	-	-	-	-	-	-	-	-	-
6		Principal Accrual	-	-	-	-	-	-	-	-	-	-
7		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-
8		Environment	-	-	-	-	-	-	-	-	-	-
9		Principal Accrual	-	-	-	-	-	-	-	-	-	-
10		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-
11		Technology (T)	-	-	-	-	-	-	-	-	-	-
12		Principal Accrual	-	-	-	-	-	-	-	-	-	-
13		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-
14		BPA Borrowing Subtotal:	-	-	-	-	-	-	-	-	-	-
15		Federal Transmission Replacement	Replacements	301,551	325,442	317,462	325,818	343,273	332,663	369,572	459,709	467,232
16	Principal Accrual		-	-	-	-	-	-	-	-	-	-
17	Principal Accrual Reversal		-	-	-	-	-	-	-	-	-	-
18	Federal Transmission Replacement Subtotal:		301,551	325,442	317,462	325,818	343,273	332,663	369,572	459,709	467,232	278,028
19	Make Whole Call	Discounts	-	-	-	-	-	-	-	-	-	-
20		Premiums	-	-	-	-	-	-	-	-	-	-
21		Make Whole Call Subtotal:	-	-	-	-	-	-	-	-	-	-
22	Total		\$301,551	\$325,442	\$317,462	\$325,818	\$343,273	\$332,663	\$369,572	\$459,709	\$467,232	\$278,028

**TABLE 11-3
SUMMARY OF AMORTIZATION (\$000S) (FY 2022)**

	A	B	AG	AH	AI	AJ	AK	AL	AM	AN	
1		Specific Project	2051	2052	2053	2054	2055	2056	2057	Total	
2	BPA Borrowing	Construction	-	-	-	-	-	-	-	4,022,304	
3		Principal Accrual	-	-	-	-	-	-	-	-	
4		Principal Accrual Reversal	-	-	-	-	-	-	-	-	
5		Construction (AS)	-	-	-	-	-	-	-	62,666	
6		Principal Accrual	-	-	-	-	-	-	-	-	
7		Principal Accrual Reversal	-	-	-	-	-	-	-	-	
8		Environment	-	-	-	-	-	-	-	93,832	
9		Principal Accrual	-	-	-	-	-	-	-	-	
10		Principal Accrual Reversal	-	-	-	-	-	-	-	-	
11		Technology (T)	-	-	-	-	-	-	-	5,000	
12		Principal Accrual	-	-	-	-	-	-	-	-	
13		Principal Accrual Reversal	-	-	-	-	-	-	-	-	
14		BPA Borrowing Subtotal:		-	-	-	-	-	-	-	4,183,802
15		Federal Transmission Replacement	Replacements	170,191	170,191	170,191	170,191	170,191	170,191	170,191	5,786,477
16	Principal Accrual		-	-	-	-	-	-	-	-	
17	Principal Accrual Reversal		-	-	-	-	-	-	-	-	
18	Federal Transmission Replacement Subtotal:			170,191	170,191	170,191	170,191	170,191	170,191	170,191	5,786,477
19	Make Whole Call	Discounts	-	-	-	-	-	-	-	(92,708)	
20		Premiums	-	-	-	-	-	-	-	144,816	
21		Make Whole Call Subtotal:		-	-	-	-	-	-	52,109	
22	Total		\$170,191	\$170,191	\$170,191	\$170,191	\$170,191	\$170,191	\$170,191	\$10,062,986	

**TABLE 11-4
APPLICATION OF AMORTIZATION (\$000S) (FY 2022)**

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Fiscal Year	Project	Bond ID	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
1	2021	Construction	1072279	-	4/30/2010	4/30/2021	22,000	22,000	4.094%					22,000		
2	2021	Construction	1072280	-	5/31/2010	5/31/2021	22,000	22,000	3.694%					22,000		
3	2021	Construction (AS)	1072410	-	5/31/2015	5/31/2021	3,900	3,900	1.898%					3,900		
4	2021	Construction (AS)	1072478	-	11/30/2019	5/31/2021	5,000	5,000	0.119%					5,000		
5	2021	Construction	1072281	-	6/30/2010	6/30/2021	22,000	22,000	3.374%					22,000		
6	2021	Construction	1072471	-	8/31/2019	8/31/2021	50,000	50,000	0.119%					50,000		
7	2021	Construction	1072472	-	8/31/2019	8/31/2021	32,000	32,000	0.119%					32,000		
8	2021	Technology (T)	1072468	-	9/28/2018	9/30/2021	5,000	5,000	0.128%					5,000		
9		FY 2021 Subtotal:	-	-	-	-	161,900	161,900	-					161,900		
10	2022	Construction (AS)	1072420	-	10/31/2015	10/31/2021	5,200	5,200	1.942%					5,200		
11	2022	Construction	1072265	-	1/31/2009	1/31/2022	20,000	20,000	4.200%					20,000		
12	2022	Construction (AS)	1072421	-	2/29/2016	2/28/2022	5,000	5,000	1.631%					5,000		
13	2022	Construction	1072266	-	4/30/2009	4/30/2022	35,000	35,000	4.253%					35,000		
14	2022	Construction	1072411	-	5/31/2015	5/31/2022	11,000	11,000	2.103%					11,000		
15	2022	Construction	1072412	-	5/31/2015	5/31/2022	14,000	14,000	2.103%					14,000		
16	2022	Construction	1072283	-	7/31/2010	7/31/2022	30,000	30,000	3.372%					30,000		
17	2022	Construction (AS)	1072470	-	8/31/2019	8/31/2022	7,000	7,000	0.119%					7,000		
18	2022	Construction	1072473	-	8/31/2019	8/31/2022	36,000	36,000	0.119%					36,000		
19	2022	Construction	1072284	-	8/31/2010	8/31/2022	20,000	20,000	3.029%					20,000		
20	2022	Construction (AS)	1078157	-	8/31/2021	8/31/2022	-	2,000	0.330%					2,000		
21	2022	Construction	1078229	-	8/31/2021	8/31/2022	-	1,997	2.113%					1,997		
22	2022	Environment	1078142	-	8/31/2021	8/31/2022	-	13,000	0.330%					13,000		
23	2022	Construction	1072518	-	3/31/2021	9/30/2022	4,000	4,000	0.039%					4,000		
24		FY 2022 Subtotal:	-	-	-	-	187,200	204,197	-					204,197		
25	2023	Construction	1072384	-	12/31/2014	12/31/2022	16,000	16,000	2.274%					16,000		
26	2023	Construction	1072385	-	12/31/2014	12/31/2022	4,000	4,000	2.274%					4,000		
27	2023	Construction	1072469	-	1/31/2019	1/31/2023	6,000	6,000	2.603%					6,000		
28	2023	Construction	1072408	-	4/30/2015	4/30/2023	3,000	3,000	2.163%					3,000		
29	2023	Construction	1072409	-	4/30/2015	4/30/2023	12,000	12,000	2.163%					12,000		
30	2023	Environment	1078228	-	5/31/2022	5/31/2023	-	5,379	1.766%					5,379		
31	2023	Construction	1072413	-	6/30/2015	6/30/2023	11,000	11,000	2.443%					11,000		
32	2023	Construction	1072414	-	6/30/2015	6/30/2023	8,000	8,000	2.443%					8,000		
33	2023	Construction	1078210	-	8/31/2021	8/31/2023	-	98,000	0.400%					98,000		
34	2023	Construction	1072287	-	9/30/2010	9/30/2023	46,000	46,000	3.161%					46,000		
35	2023	Construction	1072218	-	8/31/1998	8/31/2028	112,300	112,300	5.850%							2
36		FY 2023 Subtotal:	-	-	-	-	218,300	321,679	-					209,381		
37	2024	Construction	1072380	-	10/31/2014	10/31/2023	20,000	20,000	2.521%					20,000		
38	2024	Construction	1072382	-	11/30/2014	11/30/2023	20,000	20,000	2.361%					20,000		
39	2024	Environment	1072389	-	1/31/2015	1/31/2024	4,000	4,000	1.908%					4,000		
40	2024	Construction	1072395	-	3/31/2015	3/31/2024	17,000	17,000	2.200%					17,000		
41	2024	Construction (AS)	1072467	-	9/28/2018	3/31/2024	7,800	7,800	3.078%					7,800		
42	2024	Construction	1072218	-	8/31/1998	8/31/2028	112,300	112,298	5.850%					108,686		24,155
43		FY 2024 Subtotal:	-	-	-	-	181,100	181,098	-					177,486		24,155
44	2025	Environment	1072276	-	2/28/2010	2/28/2025	10,000	10,000	4.279%					10,000		
45	2025	Construction	1072435	-	5/31/2016	5/31/2025	20,000	20,000	2.101%					20,000		
46	2025	Environment	1072434	-	5/31/2016	5/31/2025	5,000	5,000	2.101%					5,000		
47	2025	Construction	1072436	-	7/31/2016	7/31/2025	48,000	48,000	1.713%					48,000		

**TABLE 11-4
APPLICATION OF AMORTIZATION (\$000S) (FY 2022)**

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Fiscal Year	Project	Bond ID	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
48	2025	Construction (AS)	1072512	-	7/31/2020	7/31/2025	6,000	6,000	0.407%	0.407%				6,000		
49	2025	Construction	1072417	-	8/31/2015	8/31/2025	11,000	11,000	2.598%	2.598%				11,000		
50	2025	Construction	1072418	-	8/31/2015	8/31/2025	14,000	14,000	2.598%	2.598%				14,000		
51	2025	Construction	1072217	-	8/31/1998	8/31/2028	106,500	106,500	5.850%	5.850%				71,842	12,694	
52	2025	Construction	1072218	-	8/31/1998	8/31/2028	112,300	3,612	5.850%	5.850%				3,612	638	
53		FY 2025 Subtotal:	-	-	-	-	332,800	224,112	-	-	-	-	-	189,454	13,332	
54	2026	Construction	1072288	-	10/31/2010	10/31/2025	45,000	45,000	3.494%	3.494%				45,000		
55	2026	Construction	1072392	-	2/28/2015	2/28/2026	19,000	19,000	2.416%	2.416%				19,000		
56	2026	Construction	1072394	-	3/31/2015	3/31/2026	15,000	15,000	2.370%	2.370%				15,000		
57	2026	Construction	1072432	-	3/31/2016	3/31/2026	6,000	6,000	2.177%	2.177%				6,000		
58	2026	Construction	1072433	-	3/31/2016	3/31/2026	12,000	12,000	2.177%	2.177%				12,000		
59	2026	Construction	1072415	-	7/31/2015	7/31/2026	18,000	18,000	2.707%	2.707%				18,000		
60	2026	Construction	1072416	-	7/31/2015	7/31/2026	10,000	10,000	2.707%	2.707%				10,000		
61	2026	Construction	1072217	-	8/31/1998	8/31/2028	106,500	34,658	5.850%	5.850%				34,658	4,427	
62	2026	Construction	1072267	-	6/30/2009	6/30/2039	35,000	35,000	5.192%	5.192%				34,598	10,824	
63		FY 2026 Subtotal:	-	-	-	-	266,500	194,658	-	-	-	-	-	194,257	15,251	
64	2027	Construction	1072428	-	12/31/2015	12/31/2026	9,000	9,000	2.762%	2.762%				9,000		
65	2027	Construction	1072429	-	12/31/2015	12/31/2026	29,000	29,000	2.762%	2.762%				29,000		
66	2027	Construction	1072430	-	1/31/2016	1/31/2027	13,000	13,000	2.352%	2.352%				13,000		
67	2027	Construction	1072431	-	2/29/2016	2/28/2027	13,000	13,000	2.236%	2.236%				13,000		
68	2027	Construction	1072313	-	5/3/2012	5/31/2027	17,000	17,000	0.205%	0.205%				17,000		
69	2027	Environment	1072314	-	5/3/2012	5/31/2027	13,000	13,000	0.205%	0.205%				13,000		
70	2027	Environment	1072488	-	3/31/2020	9/30/2027	5,000	5,000	1.025%	1.025%				5,000		
71	2027	Construction	1072289	-	1/31/2011	1/31/2036	50,000	50,000	4.952%	4.952%				50,000	10,280	
72	2027	Construction	1072290	-	2/28/2011	2/28/2038	55,000	55,000	4.935%	4.935%				55,000	12,019	
73	2027	Construction	1072291	-	4/30/2011	4/30/2039	40,000	40,000	4.794%	4.794%				9,047	1,956	
74	2027	Construction	1072267	-	6/30/2009	6/30/2039	35,000	402	5.192%	5.192%				402	107	
75		FY 2027 Subtotal:	-	-	-	-	279,000	244,402	-	-	-	-	-	213,449	24,363	
76	2028	Environment	1072346	-	11/20/2013	11/30/2027	5,000	5,000	3.967%	3.967%				5,000		
77	2028	Construction	1072378	-	9/30/2014	4/30/2028	17,000	17,000	0.230%	0.230%				17,000		
78	2028	Construction (AS)	1078158	-	5/31/2022	5/31/2028	-	20,766	0.882%	0.881%				20,766		
79	2028	Construction	1072377	-	9/30/2014	9/30/2028	3,000	3,000	3.094%	3.094%				3,000		
80	2028	Construction	1072303	-	8/2/2011	8/31/2035	40,000	40,000	4.446%	4.446%				19,814	2,806	
81	2028	Construction	1072304	-	8/2/2011	8/31/2035	45,000	45,000	4.446%	4.446%				45,000	6,374	
82	2028	Construction	1072355	-	12/31/2013	12/31/2035	10,000	10,000	4.472%	4.472%				10,000	1,410	
83	2028	Construction	1072295	-	6/22/2011	6/30/2036	50,000	50,000	4.629%	4.629%				50,000	8,042	
84	2028	Construction	1072291	-	4/30/2011	4/30/2039	40,000	30,953	4.794%	4.794%				30,953	5,599	
85	2028	Construction	1072296	-	6/22/2011	6/30/2040	25,000	25,000	4.775%	4.775%				25,000	4,888	
86		FY 2028 Subtotal:	-	-	-	-	235,000	246,719	-	-	-	-	-	226,533	29,118	
87	2029	Environment	1072352	-	10/31/2013	10/31/2028	6,000	6,000	3.880%	3.880%				6,000		
88	2029	Environment	1072358	-	1/31/2014	1/31/2029	3,000	3,000	3.896%	3.896%				3,000		
89	2029	Environment	1072373	-	7/31/2014	7/31/2029	3,000	3,000	0.176%	0.176%				3,000		
90	2029	Construction	1072298	-	8/2/2011	8/31/2029	50,000	50,000	4.238%	4.238%				50,000		
91	2029	Construction	1072299	-	8/2/2011	8/31/2032	98,900	98,900	4.355%	4.355%				44,942	3,349	
92	2029	Construction	1072300	-	8/2/2011	8/31/2033	40,000	40,000	4.386%	4.386%				40,000	3,597	
93	2029	Construction	1072301	-	8/2/2011	8/31/2034	40,000	40,000	4.416%	4.416%				40,000	4,112	
94	2029	Construction	1072302	-	8/2/2011	8/31/2035	40,000	40,000	4.446%	4.446%				40,000	4,551	
95	2029	Construction	1072303	-	8/2/2011	8/31/2035	40,000	20,186	4.446%	4.446%				20,186	2,297	
96	2029	Construction	1072354	-	11/30/2013	11/30/2035	15,000	15,000	4.365%	4.365%				15,000	1,523	
97	2029	Construction	1072339	-	11/20/2013	6/30/2036	36,000	36,000	4.397%	4.397%				36,000	4,246	
98	2029	Construction	1072357	-	1/31/2014	1/31/2043	15,000	15,000	4.380%	4.380%				15,000	2,047	
99		FY 2029 Subtotal:	-	-	-	-	386,900	367,086	-	-	-	-	-	313,127	25,723	
100	2030	Construction	1072344	-	11/20/2013	10/31/2029	55,000	55,000	4.093%	4.093%				55,000		
101	2030	Construction	1072393	-	3/31/2015	3/31/2030	3,000	3,000	2.626%	2.626%				3,000		
102	2030	Construction	1072419	-	9/30/2015	9/30/2030	15,000	15,000	2.905%	2.905%				15,000		
103	2030	Construction	1072340	-	11/20/2013	1/31/2031	30,000	30,000	4.162%	4.162%				30,000	571	
104	2030	Construction	1072342	-	11/20/2013	2/28/2031	15,000	15,000	4.166%	4.166%				15,000	285	
105	2030	Construction	1072343	-	11/20/2013	3/31/2031	18,000	18,000	4.171%	4.171%				18,000	344	

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Fiscal Year	Project	Bond ID	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
106	2030	Construction	1072299	-	8/2/2011	8/31/2032	98,900	53,958	4.355%	4.355%				53,958	2,518	
107	2030	Construction	1072345	-	11/20/2013	4/30/2034	28,000	28,000	4.311%	4.311%				28,000	1,823	
108	2030	Construction	1072338	-	11/20/2013	8/31/2034	6,000	6,000	4.324%	4.324%				6,000	438	
109	2030	Construction	1072330	-	9/30/2013	9/30/2034	9,000	9,000	4.214%	4.214%				9,000	619	
110	2030	Construction	1072341	-	11/20/2013	5/31/2035	20,000	20,000	4.354%	4.354%				20,000	1,563	
111	2030	Construction	1072351	-	10/31/2013	10/31/2035	64,000	64,000	4.222%	4.222%				64,000	4,688	
112	2030	Construction	1072446	-	7/31/2017	7/31/2045	27,000	27,000	3.230%	3.230%				8,998		136
113	2030	Construction	1072456	-	9/30/2017	9/30/2047	10,000	10,000	3.247%	3.247%				9,782		218
114	FY 2030 Subtotal:		-	-	-	-	398,900	353,958	-	-	-	-	-	335,739	12,849	354
115	2031	Environment	1072513	-	3/31/2021	3/31/2031	13,000	13,000	1.804%	1.804%				13,000		
116	2031	Construction	1072426	-	10/31/2015	10/31/2034	2,000	2,000	3.198%	3.198%				2,000	25	
117	2031	Construction	1072476	-	7/31/2019	7/31/2037	46,940	46,940	2.680%	2.680%				46,202		738
118	2031	Construction	1072452	-	8/31/2017	8/31/2037	30,000	30,000	2.902%	2.902%				29,900		100
119	2031	Construction	1072447	-	8/31/2017	8/31/2038	7,000	7,000	2.929%	2.929%				6,946		54
120	2031	Construction	1072483	-	11/30/2019	9/30/2039	39,000	39,000	2.495%	2.495%				25,447		1,196
121	2031	Construction	1072442	-	7/31/2017	7/31/2041	19,000	19,000	3.164%	3.164%				18,779		221
122	2031	Construction	1072449	-	8/31/2017	8/31/2041	13,000	13,000	2.991%	2.991%				12,647		353
123	2031	Construction	1072453	-	9/30/2017	9/30/2041	17,000	17,000	3.156%	3.156%				16,790		210
124	2031	Construction	1072443	-	7/31/2017	7/31/2042	14,000	14,000	3.181%	3.181%				13,809		191
125	2031	Construction	1072444	-	7/31/2017	7/31/2043	23,000	23,000	3.198%	3.198%				22,639		361
126	2031	Construction	1072448	-	8/31/2017	8/31/2043	10,000	10,000	3.024%	3.024%				9,665		335
127	2031	Construction	1072454	-	9/30/2017	9/30/2043	14,000	14,000	3.193%	3.193%				13,774		226
128	2031	Construction	1072445	-	7/31/2017	7/31/2044	17,000	17,000	3.215%	3.215%				16,698		302
129	2031	Construction	1072455	-	9/30/2017	9/30/2044	9,000	9,000	3.209%	3.209%				8,834		166
130	2031	Construction	1072516	-	3/31/2021	9/30/2044	34,000	34,000	2.515%	2.515%				31,065		2,935
131	2031	Construction	1072446	-	7/31/2017	7/31/2045	27,000	17,865	3.230%	3.230%				17,504		361
132	2031	Construction	1072517	-	3/31/2021	9/30/2045	14,000	14,000	2.550%	2.550%				12,739		1,261
133	2031	Construction	1072451	-	8/31/2017	8/31/2046	22,000	22,000	3.066%	3.066%				21,034		966
134	2031	Construction	1072450	-	8/31/2017	8/31/2047	18,000	18,000	3.076%	3.076%				17,135		865
135	FY 2031 Subtotal:		-	-	-	-	388,940	379,805	-	-	-	-	-	356,606	25	10,842
136	2032	Construction	1072482	-	11/30/2019	6/30/2038	37,000	37,000	2.429%	2.429%				35,673		1,327
137	2032	Construction	1072483	-	11/30/2019	9/30/2039	39,000	12,357	2.495%	2.495%				11,852		506
138	2032	Construction	1072515	-	3/31/2021	3/31/2042	46,000	46,000	2.400%	2.400%				42,553		3,447
139	2032	Construction	1078211	-	4/30/2022	4/30/2048	-	134,424	2.352%	2.351%				2,662		
140	2032	Construction	1078212	-	5/31/2022	5/31/2049	-	134,424	2.405%	2.404%				134,424		
141	2032	Construction	1078213	-	6/30/2022	6/30/2050	-	134,424	2.458%	2.458%				134,424		
142	FY 2032 Subtotal:		-	-	-	-	122,000	498,629	-	-	-	-	-	361,587		5,280
143	2033	Construction	1072498	-	5/31/2020	11/30/2032	21,000	21,000	1.231%	1.231%				21,000		
144	2033	Environment	1072500	-	5/31/2020	11/30/2032	7,000	7,000	1.231%	1.231%				7,000		
145	2033	Construction	1072503	-	6/30/2020	6/30/2033	21,000	21,000	1.238%	1.238%				21,000		
146	2033	Construction	1072509	-	7/31/2020	7/31/2033	10,000	10,000	1.157%	1.157%				10,000		
147	2033	Construction	1072481	-	11/30/2019	3/31/2037	36,000	36,000	2.349%	2.349%				35,088		912
148	2033	Construction	1072514	-	3/31/2021	3/31/2041	6,000	6,000	2.347%	2.347%				5,645		355
149	2033	Construction	1078209	-	7/31/2021	7/31/2046	-	151,333	2.065%	2.064%				81,808		
150	2033	Construction	1078226	-	8/31/2021	8/31/2047	-	51,336	2.113%	2.113%				51,336		
151	2033	Construction	1078211	-	4/30/2022	4/30/2048	-	131,762	2.352%	2.351%				131,762		
152	FY 2033 Subtotal:		-	-	-	-	101,000	435,431	-	-	-	-	-	364,639		1,267
153	2034	Construction	1072364	-	4/30/2014	2/28/2034	45,000	45,000	0.148%	0.148%				45,000		
154	2034	Construction	1072363	-	4/30/2014	3/31/2034	45,000	18,300	0.128%	0.128%				18,300		
155	2034	Construction	1072425	-	10/31/2015	8/31/2034	19,000	19,000	0.148%	0.148%				19,000		
156	2034	Construction	1078139	-	6/30/2021	6/30/2045	-	151,333	2.017%	2.016%				117,711		
157	2034	Construction	1078209	-	7/31/2021	7/31/2046	-	69,525	2.065%	2.064%				69,525		
158	FY 2034 Subtotal:		-	-	-	-	109,000	303,159	-	-	-	-	-	269,536		
159	2035	Construction	1072375	-	8/31/2014	8/31/2035	15,000	15,000	0.148%	0.148%				15,000		
160	2035	Construction	1078139	-	6/30/2021	6/30/2045	-	33,623	2.017%	2.016%				33,623		
161	2035	Construction	1072496	-	5/31/2020	5/31/2046	26,000	26,000	1.931%	1.931%				22,895		3,105

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Fiscal Year	Project	Bond ID	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
162	2035	Construction	1072501	-	5/31/2020	11/30/2047	24,000	24,000	1.949%	1.949%				20,799		3,201
163	2035	Construction	1072495	-	4/30/2020	4/30/2048	67,000	67,000	1.806%	1.806%				4,522		786
164	2035	Construction	1072499	-	5/31/2020	5/31/2048	21,000	21,000	1.953%	1.953%				18,130		2,870
165	2035	Construction	1072502	-	5/31/2020	5/31/2048	42,000	42,000	1.953%	1.953%				36,260		5,740
166	2035	Construction	1072507	-	8/31/2020	2/28/2049	11,000	11,000	1.990%	1.990%				9,424		1,576
167	2035	Construction	1072506	-	6/30/2020	6/30/2049	63,800	63,800	1.812%	1.812%				53,549		10,251
168	2035	Construction	1072508	-	8/31/2020	8/31/2049	39,000	39,000	1.992%	1.992%				33,291		5,709
169		FY 2035 Subtotal:	-	-	-	-	308,800	342,423	-	-	-	-	-	247,494		33,236
170	2036	Construction	1072497	-	5/31/2020	5/31/2036	29,000	29,000	1.513%	1.513%				29,000		
171	2036	Construction	1072490	-	4/30/2020	4/30/2046	9,000	9,000	1.776%	1.776%				1,340		183
172	2036	Construction	1072491	-	4/30/2020	4/30/2046	48,000	48,000	1.776%	1.776%				42,241		5,759
173	2036	Construction	1072492	-	4/30/2020	4/30/2047	4,000	4,000	1.792%	1.792%				3,483		517
174	2036	Construction	1072493	-	4/30/2020	4/30/2047	72,000	72,000	1.792%	1.792%				62,697		9,303
175	2036	Construction	1072504	-	6/30/2020	6/30/2047	20,000	20,000	1.805%	1.805%				17,350		2,650
176	2036	Construction	1072505	-	6/30/2020	6/30/2047	30,000	30,000	1.805%	1.805%				26,024		3,976
177	2036	Construction	1072494	-	4/30/2020	4/30/2048	19,000	19,000	1.806%	1.806%				16,373		2,627
178	2036	Construction	1072495	-	4/30/2020	4/30/2048	67,000	61,692	1.806%	1.806%				53,163		8,529
179		FY 2036 Subtotal:	-	-	-	-	298,000	292,692	-	-	-	-	-	251,672		33,543
180	2037	Environment	1078143	-	5/31/2022	5/31/2037	-	1,453	1.766%	1.766%				1,453		
181	2037	Construction	1072489	-	4/30/2020	4/30/2039	45,000	45,000	1.594%	1.594%				43,759		1,241
182	2037	Construction	1072510	-	7/31/2020	1/31/2040	30,000	30,000	1.421%	1.421%				28,662		1,338
183	2037	Construction	1072511	-	7/31/2020	7/31/2045	19,000	19,000	1.626%	1.626%				16,961		2,039
184	2037	Construction	1072490	-	4/30/2020	4/30/2046	9,000	7,477	1.776%	1.776%				6,678		799
185	2037	Construction	1072460	-	8/31/2018	2/28/2048	12,000	12,000	0.148%	0.148%				9,232		2,768
186	2037	Construction	1072494	-	4/30/2020	4/30/2048	19,000		1.806%	1.806%						
187	2037	Replacements	1075064	-	3/31/2023	3/31/2058	170,191	170,191	2.565%	2.564%				170,191		
188	2037	Replacements	1075065	-	3/31/2024	3/31/2059	170,191	170,191	2.565%	2.564%				10,452		
189		FY 2037 Subtotal:	-	-	-	-	474,381	455,311	-	-	-	-	-	287,387		8,185
190	2038	Construction	1072460	-	8/31/2018	2/28/2048	12,000		0.148%	0.148%						
191	2038	Replacements	1075065	-	3/31/2024	3/31/2059	170,191	159,739	2.565%	2.564%				159,739		
192	2038	Replacements	1075066	-	3/31/2025	3/31/2060	170,191	170,191	2.565%	2.564%				132,512		
193		FY 2038 Subtotal:	-	-	-	-	352,381	329,929	-	-	-	-	-	292,251		
194	2039	Replacements	1075066	-	3/31/2025	3/31/2060	170,191	37,678	2.565%	2.564%				37,678		
195	2039	Replacements	1075067	-	3/31/2026	3/31/2061	170,191	170,191	2.565%	2.564%				170,191		
196	2039	Replacements	1075068	-	3/31/2027	3/31/2062	170,191	170,191	2.565%	2.564%				89,983		
197		FY 2039 Subtotal:	-	-	-	-	510,572	378,059	-	-	-	-	-	297,852		
198	2040	Replacements	1075068	-	3/31/2027	3/31/2062	170,191	80,207	2.565%	2.564%				80,207		
199	2040	Replacements	1075069	-	3/31/2028	3/31/2063	170,191	170,191	2.565%	2.564%				170,191		
200	2040	Replacements	1075070	-	3/31/2029	3/31/2064	170,191	170,191	2.565%	2.564%				53,251		
201		FY 2040 Subtotal:	-	-	-	-	510,572	420,588	-	-	-	-	-	303,649		
202	2041	Replacements	1075070	-	3/31/2029	3/31/2064	170,191	116,940	2.565%	2.564%				116,940		
203	2041	Replacements	1075071	-	3/31/2030	3/31/2065	170,191	170,191	2.565%	2.564%				170,191		
204	2041	Replacements	1075072	-	3/31/2031	3/31/2066	170,191	170,191	2.565%	2.564%				14,421		
205		FY 2041 Subtotal:	-	-	-	-	510,572	457,321	-	-	-	-	-	301,551		
206	2042	Replacements	1075072	-	3/31/2031	3/31/2066	170,191	155,770	2.565%	2.564%				155,770		
207	2042	Replacements	1075073	-	3/31/2032	3/31/2067	170,191	170,191	2.565%	2.564%				169,672		
208		FY 2042 Subtotal:	-	-	-	-	340,381	325,960	-	-	-	-	-	325,442		
209	2043	Replacements	1075073	-	3/31/2032	3/31/2067	170,191	518	2.565%	2.564%				518		
210	2043	Replacements	1075074	-	3/31/2033	3/31/2068	170,191	170,191	2.565%	2.564%				170,191		

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Fiscal Year	Project	Bond ID	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
211	2043	Replacements	1075075	-	3/31/2034	3/31/2069	170,191	170,191	2.565%							146,753
212	FY 2043 Subtotal:		-	-	-	-	510,572	340,899	-							317,462
213	2044	Replacements	1075075	-	3/31/2034	3/31/2069	170,191	23,438	2.565%							23,438
214	2044	Replacements	1075076	-	3/31/2035	3/31/2070	170,191	170,191	2.565%							170,191
215	2044	Replacements	1075077	-	3/31/2036	3/31/2071	170,191	170,191	2.565%							132,190
216	FY 2044 Subtotal:		-	-	-	-	510,572	363,819	-							325,818
217	2045	Replacements	1075077	-	3/31/2036	3/31/2071	170,191	38,000	2.565%							38,000
218	2045	Replacements	1075078	-	3/31/2037	3/31/2072	170,191	170,191	2.565%							170,191
219	2045	Replacements	1075079	-	3/31/2038	3/31/2073	170,191	170,191	2.565%							135,082
220	FY 2045 Subtotal:		-	-	-	-	510,572	378,381	-							343,273
221	2046	Replacements	1075079	-	3/31/2038	3/31/2073	170,191	35,109	2.565%							35,109
222	2046	Replacements	1075080	-	3/31/2039	3/31/2074	170,191	170,191	2.565%							170,191
223	2046	Replacements	1075081	-	3/31/2040	3/31/2075	170,191	170,191	2.565%							127,364
224	FY 2046 Subtotal:		-	-	-	-	510,572	375,490	-							332,663
225	2047	Replacements	1075081	-	3/31/2040	3/31/2075	170,191	42,827	2.565%							42,827
226	2047	Replacements	1075082	-	3/31/2041	3/31/2076	170,191	170,191	2.565%							170,191
227	2047	Replacements	1075083	-	3/31/2042	3/31/2077	170,191	170,191	2.565%							156,555
228	FY 2047 Subtotal:		-	-	-	-	510,572	383,208	-							369,572
229	2048	Replacements	1075083	-	3/31/2042	3/31/2077	170,191	13,636	2.565%							13,636
230	2048	Replacements	1075084	-	3/31/2043	3/31/2078	170,191	170,191	2.565%							170,191
231	2048	Replacements	1075085	-	3/31/2044	3/31/2079	170,191	170,191	2.565%							170,191
232	2048	Replacements	1075086	-	3/31/2045	3/31/2080	170,191	170,191	2.565%							105,693
233	FY 2048 Subtotal:		-	-	-	-	680,762	524,207	-							459,709
234	2049	Replacements	1075086	-	3/31/2045	3/31/2080	170,191	64,498	2.565%							64,498
235	2049	Replacements	1075087	-	3/31/2046	3/31/2081	170,191	170,191	2.565%							170,191
236	2049	Replacements	1075088	-	3/31/2047	3/31/2082	170,191	170,191	2.565%							170,191
237	2049	Replacements	1075089	-	3/31/2048	3/31/2083	170,191	170,191	2.565%							62,353
238	FY 2049 Subtotal:		-	-	-	-	680,762	575,069	-							467,232
239	2050	Replacements	1075089	-	3/31/2048	3/31/2083	170,191	107,838	2.565%							107,838
240	2050	Replacements	1075090	-	3/31/2049	3/31/2084	170,191	170,191	2.565%							170,191
241	FY 2050 Subtotal:		-	-	-	-	340,381	278,028	-							278,028
242	2051	Replacements	1075091	-	3/31/2050	3/31/2085	170,191	170,191	2.565%							170,191
243	FY 2051 Subtotal:		-	-	-	-	170,191	170,191	-							170,191
244	2052	Replacements	1075092	-	3/31/2051	3/31/2086	170,191	170,191	2.565%							170,191
245	FY 2052 Subtotal:		-	-	-	-	170,191	170,191	-							170,191
246	2053	Replacements	1075093	-	3/31/2052	3/31/2087	170,191	170,191	2.565%							170,191
247	FY 2053 Subtotal:		-	-	-	-	170,191	170,191	-							170,191
248	2054	Replacements	1075094	-	3/31/2053	3/31/2088	170,191	170,191	2.565%							170,191
249	FY 2054 Subtotal:		-	-	-	-	170,191	170,191	-							170,191
250	2055	Replacements	1075095	-	3/31/2054	3/31/2089	170,191	170,191	2.565%							170,191
251	FY 2055 Subtotal:		-	-	-	-	170,191	170,191	-							170,191
252	2056	Replacements	1075096	-	3/31/2055	3/31/2090	170,191	170,191	2.565%							170,191
253	FY 2056 Subtotal:		-	-	-	-	170,191	170,191	-							170,191
254	2057	Replacements	1075097	-	3/31/2056	3/31/2091	170,191	170,191	2.565%							170,191
255	FY 2057 Subtotal:		-	-	-	-	170,191	170,191	-							170,191
256	Grand Total						\$12,120,294	\$11,529,552	-					\$9,970,279	\$144,816	\$92,708

**TABLE 11-5
SUMMARY OF INTEREST (\$000S) (FY 2023)**

	A	B	C	D	E	F	G	H	I	J	K	L
1	General Project	Specific Project	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
2		(Less Interest Income)	(101)	(65)	(81)	(78)	(78)	(80)	(87)	(92)	(115)	(117)
3		Construction	98,222	104,170	109,426	114,572	108,532	101,160	94,132	87,937	77,793	66,605
4		Interest Accrual	18,899	20,962	24,362	23,457	22,753	21,322	20,411	18,404	17,030	13,623
5		Interest Accrual Reversal	(18,332)	(18,899)	(20,962)	(24,362)	(23,457)	(22,753)	(21,322)	(20,411)	(18,404)	(17,030)
6		Construction (AS)	535	370	448	810	690	665	665	433	250	-
7	BPA Borrowing	Interest Accrual	54	65	149	149	145	145	145	84	-	-
8		Interest Accrual Reversal	(80)	(54)	(65)	(149)	(149)	(145)	(145)	(145)	(84)	-
9		Environment	1,443	1,603	1,681	1,941	1,689	1,371	1,371	1,194	920	740
10		Interest Accrual	309	345	359	346	275	275	266	200	83	83
11		Interest Accrual Reversal	(305)	(309)	(345)	(359)	(346)	(275)	(275)	(266)	(200)	(83)
12		Technology (T)	6	-	-	-	-	-	-	-	-	-
13		BPA Borrowing Subtotal:	100,650	108,189	114,971	116,327	110,053	101,685	95,161	87,338	77,273	63,820
14	Federal	Replacements	-	-	-	2,322	6,965	11,608	16,251	20,895	25,538	30,181
15	Transmission Replacement	Federal Transmission Replacement Subtotal:	-	-	-	2,322	6,965	11,608	16,251	20,895	25,538	30,181
16	Total		\$100,650	\$108,189	\$114,971	\$118,649	\$117,018	\$113,293	\$111,412	\$108,232	\$102,811	\$94,001

**TABLE 11-5
SUMMARY OF INTEREST (\$000S) (FY 2023)**

	A	B	M	N	O	P	Q	R	S	T	U	V	W
1	General Project	Specific Project	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
2		(Less Interest Income)	(117)	(119)	(119)	(91)	(84)	(86)	(96)	(97)	(98)	(99)	(98)
3		Construction	51,350	44,535	32,086	26,868	21,959	15,569	10,993	6,015	923	-	-
4		Interest Accrual	12,210	8,859	7,339	6,203	4,862	3,936	2,436	363	-	-	-
5		Interest Accrual Reversal	(13,623)	(12,210)	(8,859)	(7,339)	(6,203)	(4,862)	(3,936)	(2,436)	(363)	-	-
6		Construction (AS)	-	-	-	-	-	-	-	-	-	-	-
7	BPA Borrowing	Interest Accrual	-	-	-	-	-	-	-	-	-	-	-
8		Interest Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-
9		Environment	623	505	462	419	419	161	161	-	-	-	-
10		Interest Accrual	83	83	54	54	54	54	-	-	-	-	-
11		Interest Accrual Reversal	(83)	(83)	(83)	(54)	(54)	(54)	(54)	-	-	-	-
12		Technology (T)	-	-	-	-	-	-	-	-	-	-	-
13		BPA Borrowing Subtotal:	50,443	41,570	30,880	26,060	20,953	14,719	9,504	3,845	463	(99)	(98)
14	Federal	Replacements	34,824	39,468	44,111	48,754	53,397	58,041	62,684	67,327	69,031	66,552	62,858
15	Transmission Replacement	Federal Transmission Replacement Subtotal:	34,824	39,468	44,111	48,754	53,397	58,041	62,684	67,327	69,031	66,552	62,858
16	Total		\$85,267	\$81,038	\$74,991	\$74,815	\$74,350	\$72,759	\$72,188	\$71,172	\$69,493	\$66,453	\$62,760

**TABLE 11-5
SUMMARY OF INTEREST (\$000S) (FY 2023)**

	A	B	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH
1	General Project	Specific Project	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
2		(Less Interest Income)	(105)	(102)	(104)	(108)	(105)	(115)	(141)	(142)	(144)	(145)	(145)
3		Construction	-	-	-	-	-	-	-	-	-	-	-
4		Interest Accrual	-	-	-	-	-	-	-	-	-	-	-
5		Interest Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-
6		Construction (AS)	-	-	-	-	-	-	-	-	-	-	-
7	BPA Borrowing	Interest Accrual	-	-	-	-	-	-	-	-	-	-	-
8		Interest Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-
9		Environment	-	-	-	-	-	-	-	-	-	-	-
10		Interest Accrual	-	-	-	-	-	-	-	-	-	-	-
11		Interest Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-
12		Technology (T)	-	-	-	-	-	-	-	-	-	-	-
13		BPA Borrowing Subtotal:	(105)	(102)	(104)	(108)	(105)	(115)	(141)	(142)	(144)	(145)	(145)
14	Federal	Replacements	58,849	54,608	50,350	45,721	40,983	35,865	28,950	20,648	12,109	6,212	4,643
15	Transmission Replacement	Federal Transmission Replacement Subtotal:	58,849	54,608	50,350	45,721	40,983	35,865	28,950	20,648	12,109	6,212	4,643
16	Total		\$58,744	\$54,506	\$50,247	\$45,612	\$40,879	\$35,750	\$28,809	\$20,506	\$11,966	\$6,067	\$4,498

**TABLE 11-5
SUMMARY OF INTEREST (\$000S) (FY 2023)**

	A	B	AI	AJ	AK	AL	AM	AN	AO
1	General Project	Specific Project	2053	2054	2055	2056	2057	2058	Total
2		(Less Interest Income)	(145)	(145)	(145)	(145)	(145)	(145)	(4,226)
3		Construction	-	-	-	-	-	-	1,172,846
4		Interest Accrual	-	-	-	-	-	-	247,431
5		Interest Accrual Reversal	-	-	-	-	-	-	(265,763)
6		Construction (AS)	-	-	-	-	-	-	4,867
7	BPA Borrowing	Interest Accrual	-	-	-	-	-	-	937
8		Interest Accrual Reversal	-	-	-	-	-	-	(1,017)
9		Environment	-	-	-	-	-	-	16,702
10		Interest Accrual	-	-	-	-	-	-	2,922
11		Interest Accrual Reversal	-	-	-	-	-	-	(3,227)
12		Technology (T)	-	-	-	-	-	-	6
13		BPA Borrowing Subtotal:	(145)	(145)	(145)	(145)	(145)	(145)	1,171,479
14	Federal	Replacements	4,643	4,643	4,643	4,643	4,643	4,643	1,107,605
15	Transmission Replacement	Federal Transmission Replacement Subtotal:	4,643	4,643	4,643	4,643	4,643	4,643	1,107,605
16	Total		\$4,498	\$4,498	\$4,498	\$4,498	\$4,498	\$4,498	\$2,279,084

**TABLE 11-6
INTEREST CALCULATION SUMMARY
(\$000s)(FY 2023)**

	A	B	C	D	E	F	G	H	I
	Fiscal Year	Project	Type	Current Principal	Rate	Interest	Premium	Net Interest Accrual	Total
1	2021	Construction	Historical	3,153,740	3.075%	96,993	-	(840)	96,153
2	2021	Construction	New	558,000	0.220%	1,229	-	1,407	2,636
3	2021	Construction (AS)	Historical	39,900	1.341%	535	-	(27)	508
4	2021	Construction (AS)	New	2,000	-	-	-	1	1
5	2021	Environment	Historical	61,000	2.173%	1,325	-	-	1,325
6	2021	Environment	New	26,000	0.451%	117	-	4	121
7	2021	Technology (T)	Historical	5,000	0.128%	6	-	-	6
8	2021	Float	Historical	-	-	(101)	-	-	(101)
9	FY 2021	Subtotal:		3,845,640		100,106	-	544	100,650
10	2022	Construction	Historical	3,563,740	2.923%	104,170	-	(1,158)	103,012
11	2022	Construction	New	403,272	-	-	-	3,221	3,221
12	2022	Construction (AS)	Historical	33,000	1.123%	370	-	(50)	320
13	2022	Construction (AS)	New	20,766	-	-	-	61	61
14	2022	Environment	Historical	87,000	1.842%	1,603	-	(4)	1,599
15	2022	Environment	New	6,832	-	-	-	40	40
16	2022	Float	Historical	-	-	(65)	-	-	(65)
17	FY 2022	Subtotal:		4,114,609		106,078	-	2,111	108,189
18	2023	Construction	Historical	3,795,015	2.883%	109,426	-	(423)	109,003
19	2023	Construction	New	418,804	-	-	-	3,824	3,824
20	2023	Construction (AS)	Historical	34,566	1.295%	448	-	-	448
21	2023	Construction (AS)	New	23,793	-	-	-	84	84
22	2023	Environment	Historical	80,832	2.079%	1,681	-	(32)	1,649
23	2023	Environment	New	6,796	-	-	-	45	45
24	2023	Float	Historical	-	-	(81)	-	-	(81)
25	FY 2023	Subtotal:		4,359,805		111,474	-	3,498	114,971
26	2024	Construction	Historical	4,028,517	2.844%	114,572	-	(905)	113,667
27	2024	Construction (AS)	Historical	90,229	0.898%	810	-	-	810
28	2024	Environment	Historical	96,340	2.015%	1,941	-	(13)	1,928
29	2024	Replacements	New	165,724	1.401%	2,322	-	-	2,322
30	2024	Float	Historical	-	-	(78)	-	-	(78)
31	FY 2024	Subtotal:		4,380,810		119,566	-	(918)	118,649
32	2025	Construction	Historical	3,862,766	2.810%	108,532	-	(704)	107,828
33	2025	Construction (AS)	Historical	82,429	0.837%	690	-	(4)	686
34	2025	Environment	Historical	92,340	1.829%	1,689	-	(71)	1,617
35	2025	Replacements	Historical	165,724	2.802%	4,643	-	-	4,643
36	2025	Replacements	New	165,724	1.401%	2,322	-	-	2,322
37	2025	Float	Historical	-	-	(78)	-	-	(78)
38	FY 2025	Subtotal:		4,368,983		117,797	-	(779)	117,018
39	2026	Construction	Historical	3,694,485	2.738%	101,160	-	(1,431)	99,728
40	2026	Construction (AS)	Historical	76,429	0.871%	665	-	-	665
41	2026	Environment	Historical	77,340	1.773%	1,371	-	-	1,371
42	2026	Replacements	Historical	331,448	2.802%	9,287	-	-	9,287
43	2026	Replacements	New	165,724	1.401%	2,322	-	-	2,322
44	2026	Float	Historical	-	-	(80)	-	-	(80)
45	FY 2026	Subtotal:		4,345,426		114,724	-	(1,431)	113,293
46	2027	Construction	Historical	3,500,594	2.689%	94,132	-	(911)	93,221
47	2027	Construction (AS)	Historical	76,429	0.871%	665	-	-	665
48	2027	Environment	Historical	77,340	1.773%	1,371	-	(9)	1,362
49	2027	Replacements	Historical	497,172	2.802%	13,930	-	-	13,930

TABLE 11-6
INTEREST CALCULATION SUMMARY
(\$000s)(FY 2023)

	A	B	C	D	E	F	G	H	I
50	2027 Replacements		New	165,724	1.401%	2,322	-	-	2,322
51	2027 Float		Historical	-	-	(87)	-	-	(87)
52	FY 2027	Subtotal:		4,317,259		112,332	-	(920)	111,412
53	2028 Construction		Historical	3,332,555	2.639%	87,937	-	(2,007)	85,930
54	2028 Construction (AS)		Historical	44,559	0.972%	433	-	(61)	372
55	2028 Environment		Historical	59,340	2.012%	1,194	-	(66)	1,127
56	2028 Replacements		Historical	662,896	2.802%	18,573	-	-	18,573
57	2028 Replacements		New	165,724	1.401%	2,322	-	-	2,322
58	2028 Float		Historical	-	-	(92)	-	-	(92)
59	FY 2028	Subtotal:		4,265,073		110,367	-	(2,135)	108,232
60	2029 Construction		Historical	3,134,734	2.482%	77,793	-	(1,373)	76,419
61	2029 Construction (AS)		Historical	23,793	1.052%	250	-	(84)	166
62	2029 Environment		Historical	54,340	1.693%	920	-	(117)	803
63	2029 Replacements		Historical	828,620	2.802%	23,216	-	-	23,216
64	2029 Replacements		New	165,724	1.401%	2,322	-	-	2,322
65	2029 Float		Historical	-	-	(115)	-	-	(115)
66	FY 2029	Subtotal:		4,207,210		104,385	-	(1,574)	102,811
67	2030 Construction		Historical	2,859,258	2.329%	66,605	-	(3,408)	63,197
68	2030 Environment		Historical	42,340	1.747%	740	-	-	740
69	2030 Replacements		Historical	994,344	2.802%	27,860	-	-	27,860
70	2030 Replacements		New	165,724	1.401%	2,322	-	-	2,322
71	2030 Float		Historical	-	-	(117)	-	-	(117)
72	FY 2030	Subtotal:		4,061,666		97,409	-	(3,408)	94,001
73	2031 Construction		Historical	2,524,319	2.034%	51,350	-	(1,413)	49,938
74	2031 Environment		Historical	42,340	1.470%	623	-	-	623
75	2031 Replacements		Historical	1,160,068	2.802%	32,503	-	-	32,503
76	2031 Replacements		New	165,724	1.401%	2,322	-	-	2,322
77	2031 Float		Historical	-	-	(117)	-	-	(117)
78	FY 2031	Subtotal:		3,892,451		86,680	-	(1,413)	85,267
79	2032 Construction		Historical	2,183,734	2.039%	44,535	-	(3,351)	41,184
80	2032 Environment		Historical	29,340	1.722%	505	-	-	505
81	2032 Replacements		Historical	1,325,792	2.802%	37,146	-	-	37,146
82	2032 Replacements		New	165,724	1.401%	2,322	-	-	2,322
83	2032 Float		Historical	-	-	(119)	-	-	(119)
84	FY 2032	Subtotal:		3,704,590		84,389	-	(3,351)	81,038
85	2033 Construction		Historical	1,819,094	1.764%	32,086	-	(1,520)	30,566
86	2033 Environment		Historical	29,340	1.575%	462	-	(29)	433
87	2033 Replacements		Historical	1,491,516	2.802%	41,789	-	-	41,789
88	2033 Replacements		New	165,724	1.401%	2,322	-	-	2,322
89	2033 Float		Historical	-	-	(119)	-	-	(119)
90	FY 2033	Subtotal:		3,505,674		76,541	-	(1,549)	74,991
91	2034 Construction		Historical	1,459,938	1.840%	26,868	-	(1,135)	25,732
92	2034 Environment		Historical	22,340	1.876%	419	-	-	419
93	2034 Replacements		Historical	1,657,240	2.802%	46,433	-	-	46,433

TABLE 11-6
INTEREST CALCULATION SUMMARY
(\$000s)(FY 2023)

	A	B	C	D	E	F	G	H	I
94	2034 Replacements		New	165,724	1.401%	2,322	-	-	2,322
95	2034 Float		Historical	-	-	(91)	-	-	(91)
96	FY 2034	Subtotal:		3,305,242		75,950	-	(1,135)	74,815
97	2035 Construction		Historical	1,192,758	1.841%	21,959	-	(1,341)	20,618
98	2035 Environment		Historical	22,340	1.876%	419	-	-	419
99	2035 Replacements		Historical	1,822,964	2.802%	51,076	-	-	51,076
100	2035 Replacements		New	165,724	1.401%	2,322	-	-	2,322
101	2035 Float		Historical	-	-	(84)	-	-	(84)
102	FY 2035	Subtotal:		3,203,786		75,692	-	(1,341)	74,350
103	2036 Construction		Historical	961,484	1.619%	15,569	-	(926)	14,643
104	2036 Environment		Historical	8,249	1.953%	161	-	-	161
105	2036 Replacements		Historical	1,988,688	2.802%	55,719	-	-	55,719
106	2036 Replacements		New	165,724	1.401%	2,322	-	-	2,322
107	2036 Float		Historical	-	-	(86)	-	-	(86)
108	FY 2036	Subtotal:		3,124,145		73,686	-	(926)	72,759
109	2037 Construction		Historical	687,643	1.599%	10,993	-	(1,499)	9,493
110	2037 Environment		Historical	8,249	1.953%	161	-	(54)	107
111	2037 Replacements		Historical	2,154,412	2.802%	60,362	-	-	60,362
112	2037 Replacements		New	165,724	1.401%	2,322	-	-	2,322
113	2037 Float		Historical	-	-	(96)	-	-	(96)
114	FY 2037	Subtotal:		3,016,027		73,741	-	(1,553)	72,188
115	2038 Construction		Historical	374,904	1.604%	6,015	-	(2,073)	3,941
116	2038 Replacements		Historical	2,320,136	2.802%	65,006	-	-	65,006
117	2038 Replacements		New	165,724	1.401%	2,322	-	-	2,322
118	2038 Float		Historical	-	-	(97)	-	-	(97)
119	FY 2038	Subtotal:		2,860,764		73,245	-	(2,073)	71,172
120	2039 Construction		Historical	83,146	1.110%	923	-	(363)	560
121	2039 Replacements		Historical	2,485,860	2.684%	66,709	-	-	66,709
122	2039 Replacements		New	165,724	1.401%	2,322	-	-	2,322
123	2039 Float		Historical	-	-	(98)	-	-	(98)
124	FY 2039	Subtotal:		2,734,730		69,856	-	(363)	69,493
125	2040 Replacements		Historical	2,441,727	2.631%	64,231	-	-	64,231
126	2040 Replacements		New	165,724	1.401%	2,322	-	-	2,322
127	2040 Float		Historical	-	-	(99)	-	-	(99)
128	FY 2040	Subtotal:		2,607,451		66,453	-	-	66,453
129	2041 Replacements		Historical	2,308,961	2.622%	60,536	-	-	60,536
130	2041 Replacements		New	165,724	1.401%	2,322	-	-	2,322
131	2041 Float		Historical	-	-	(98)	-	-	(98)
132	FY 2041	Subtotal:		2,474,685		62,760	-	-	62,760
133	2042 Replacements		Historical	2,177,994	2.595%	56,527	-	-	56,527
134	2042 Replacements		New	165,724	1.401%	2,322	-	-	2,322
135	2042 Float		Historical	-	-	(105)	-	-	(105)
136	FY 2042	Subtotal:		2,343,718		58,744	-	-	58,744
137	2043 Replacements		Historical	2,022,802	2.585%	52,286	-	-	52,286
138	2043 Replacements		New	165,724	1.401%	2,322	-	-	2,322
139	2043 Float		Historical	-	-	(102)	-	-	(102)
140	FY 2043	Subtotal:		2,188,526		54,506	-	-	54,506
141	2044 Replacements		Historical	1,875,228	2.561%	48,029	-	-	48,029
142	2044 Replacements		New	165,724	1.401%	2,322	-	-	2,322
143	2044 Float		Historical	-	-	(104)	-	-	(104)
144	FY 2044	Subtotal:		2,040,952		50,247	-	-	50,247
145	2045 Replacements		Historical	1,718,923	2.525%	43,399	-	-	43,399
146	2045 Replacements		New	165,724	1.401%	2,322	-	-	2,322
147	2045 Float		Historical	-	-	(108)	-	-	(108)

TABLE 11-6
INTEREST CALCULATION SUMMARY
(\$000s)(FY 2023)

	A	B	C	D	E	F	G	H	I
148	FY 2045	Subtotal:		1,884,647		45,612	-	-	45,612
149	2046	Replacements	Historical	1,544,750	2.503%	38,662	-	-	38,662
150	2046	Replacements	New	165,724	1.401%	2,322	-	-	2,322
151	2046	Float	Historical	-	-	(105)	-	-	(105)
152	FY 2046	Subtotal:		1,710,474		40,879	-	-	40,879
153	2047	Replacements	Historical	1,380,751	2.429%	33,543	-	-	33,543
154	2047	Replacements	New	165,724	1.401%	2,322	-	-	2,322
155	2047	Float	Historical	-	-	(115)	-	-	(115)
156	FY 2047	Subtotal:		1,546,475		35,750	-	-	35,750
157	2048	Replacements	Historical	1,179,363	2.258%	26,629	-	-	26,629
158	2048	Replacements	New	165,724	1.401%	2,322	-	-	2,322
159	2048	Float	Historical	-	-	(141)	-	-	(141)
160	FY 2048	Subtotal:		1,345,087		28,809	-	-	28,809
161	2049	Replacements	Historical	887,189	2.066%	18,326	-	-	18,326
162	2049	Replacements	New	165,724	1.401%	2,322	-	-	2,322
163	2049	Float	Historical	-	-	(142)	-	-	(142)
164	FY 2049	Subtotal:		1,052,913		20,506	-	-	20,506
165	2050	Replacements	Historical	586,710	1.668%	9,788	-	-	9,788
166	2050	Replacements	New	165,724	1.401%	2,322	-	-	2,322
167	2050	Float	Historical	-	-	(144)	-	-	(144)
168	FY 2050	Subtotal:		752,434		11,966	-	-	11,966
169	2051	Replacements	Historical	277,692	1.401%	3,890	-	-	3,890
170	2051	Replacements	New	165,724	1.401%	2,322	-	-	2,322
171	2051	Float	Historical	-	-	(145)	-	-	(145)
172	FY 2051	Subtotal:		443,416		6,067	-	-	6,067
173	2052	Replacements	Historical	165,724	1.401%	2,322	-	-	2,322
174	2052	Replacements	New	165,724	1.401%	2,322	-	-	2,322
175	2052	Float	Historical	-	-	(145)	-	-	(145)
176	FY 2052	Subtotal:		331,448		4,498	-	-	4,498
177	2053	Replacements	Historical	165,724	1.401%	2,322	-	-	2,322
178	2053	Replacements	New	165,724	1.401%	2,322	-	-	2,322
179	2053	Float	Historical	-	-	(145)	-	-	(145)
180	FY 2053	Subtotal:		331,448		4,498	-	-	4,498
181	2054	Replacements	Historical	165,724	1.401%	2,322	-	-	2,322
182	2054	Replacements	New	165,724	1.401%	2,322	-	-	2,322
183	2054	Float	Historical	-	-	(145)	-	-	(145)
184	FY 2054	Subtotal:		331,448		4,498	-	-	4,498
185	2055	Replacements	Historical	165,724	1.401%	2,322	-	-	2,322
186	2055	Replacements	New	165,724	1.401%	2,322	-	-	2,322
187	2055	Float	Historical	-	-	(145)	-	-	(145)
188	FY 2055	Subtotal:		331,448		4,498	-	-	4,498
189	2056	Replacements	Historical	165,724	1.401%	2,322	-	-	2,322
190	2056	Replacements	New	165,724	1.401%	2,322	-	-	2,322
191	2056	Float	Historical	-	-	(145)	-	-	(145)
192	FY 2056	Subtotal:		331,448		4,498	-	-	4,498
193	2057	Replacements	Historical	165,724	1.401%	2,322	-	-	2,322
194	2057	Replacements	New	165,724	1.401%	2,322	-	-	2,322
195	2057	Float	Historical	-	-	(145)	-	-	(145)

TABLE 11-6
INTEREST CALCULATION SUMMARY
(\$000s)(FY 2023)

	A	B	C	D	E	F	G	H	I
196	FY 2057	Subtotal:		331,448		4,498	-	-	4,498
197	2058 Replacements		Historical	165,724	1.401%	2,322	-	-	2,322
198	2058 Replacements		New	165,724	1.401%	2,322	-	-	2,322
199	2058 Float		Historical	-	-	(145)	-	-	(145)
200	FY 2058	Subtotal:		331,448		4,498	-	-	4,498
201	Grand Total:			\$94,324,806		\$2,297,801	-	(\$18,717)	\$2,279,084

**TABLE 11-7
SUMMARY OF AMORTIZATION (\$000S) (FY 2023)**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	General Project	Specific Project	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
2		Construction	148,000	171,997	204,000	165,751	168,281	193,891	168,039	197,821	275,476	329,773	340,585	357,831	356,442
3		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
4		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
5		Construction (AS)	8,900	19,200	-	7,800	6,000	-	31,870	20,766	23,793	-	-	-	-
6		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
7		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
8	BPA Borrowing	Environment	-	13,000	5,379	4,000	15,000	-	18,000	5,000	12,000	-	13,000	-	7,000
9		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
10		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
11		Technology (T)	5,000	-	-	-	-	-	-	-	-	-	-	-	-
12		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
13		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
14		BPA Borrowing Subtotal:	161,900	204,197	209,379	177,551	189,281	193,891	217,909	223,587	311,268	329,773	353,585	357,831	363,442
15		Replacements	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Federal	Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Transmission	Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Replacement	Federal Transmission Replacement	-	-	-	-	-	-	-	-	-	-	-	-	-
19		Subtotal:	-	-	-	-	-	-	-	-	-	-	(5,166)	-	(6,810)
20	Make Whole Call	Discounts	-	-	-	24,170	13,301	15,116	18,417	29,823	24,710	15,044	25	-	-
21		Premiums	-	-	-	24,170	13,301	15,116	18,417	29,823	24,710	15,044	(5,140)	-	(6,810)
22	Total		\$161,900	\$204,197	\$209,379	\$177,551	\$189,281	\$193,891	\$217,909	\$223,587	\$311,268	\$329,773	\$358,751	\$357,831	\$370,252

**TABLE 11-7
SUMMARY OF AMORTIZATION (\$000S) (FY 2023)**

	A	B	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1	General Project	Specific Project	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
2		Construction	266,449	231,274	250,731	277,266	288,926	83,146	-	-	-	-	-	-	-
3		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
4		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
5		Construction (AS)	-	-	-	-	-	-	-	-	-	-	-	-	-
6		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
7		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
8	BPA Borrowing	Environment	-	14,091	-	8,249	-	-	-	-	-	-	-	-	-
9		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
10		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
11		Technology (T)	-	-	-	-	-	-	-	-	-	-	-	-	-
12		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
13		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
14		BPA Borrowing Subtotal:	266,449	245,365	250,731	285,514	288,926	83,146	-	-	-	-	-	-	-
15		Replacements	-	-	-	-	-	209,857	298,490	296,691	320,916	313,298	322,028	339,898	329,722
16		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
17		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
18		Federal Transmission Replacement Subtotal:	-	-	-	-	-	209,857	298,490	296,691	320,916	313,298	322,028	339,898	329,722
19		Discounts	(2,713)	(732)	-	(23,111)	(35,473)	(2,832)	-	-	-	-	-	-	-
20		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
21		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Total		\$269,162	\$246,097	\$250,731	\$308,625	\$324,399	\$295,834	\$298,490	\$296,691	\$320,916	\$313,298	\$322,028	\$339,898	\$329,722

**TABLE 11-7
SUMMARY OF AMORTIZATION (\$000S) (FY 2023)**

	A	B	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
1	General Project	Specific Project	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	Total
2		Construction	-	-	-	-	-	-	-	-	-	-	-	-	4,475,678
3		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
4		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
5		Construction (AS)	-	-	-	-	-	-	-	-	-	-	-	-	118,329
6		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
7		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
8	BPA Borrowing	Environment	-	-	-	-	-	-	-	-	-	-	-	-	114,719
9		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
10		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
11		Technology (T)	-	-	-	-	-	-	-	-	-	-	-	-	5,000
12		Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
13		Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
14		BPA Borrowing Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-	4,713,725
15		Replacements	367,112	457,899	466,202	474,742	277,692	165,724	165,724	165,724	165,724	165,724	165,724	165,724	5,634,616
16	Federal	Principal Accrual	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Transmission Replacement	Principal Accrual Reversal	-	-	-	-	-	-	-	-	-	-	-	-	-
18		Federal Transmission Replacement Subtotal:	367,112	457,899	466,202	474,742	277,692	165,724	165,724	165,724	165,724	165,724	165,724	165,724	5,634,616
19		Discounts	-	-	-	-	-	-	-	-	-	-	-	-	(76,836)
20	Make Whole Call	Premiums	-	-	-	-	-	-	-	-	-	-	-	-	140,607
21		Make Whole Call Subtotal:	-	-	-	-	-	-	-	-	-	-	-	-	63,771
22	Total		\$367,112	\$457,899	\$466,202	\$474,742	\$277,692	\$165,724	\$165,724	\$165,724	\$165,724	\$165,724	\$165,724	\$165,724	\$10,425,178

**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
Fiscal Year	Project	Bond ID	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
1	2021	Construction	1072279	-	4/30/2010	4/30/2021	22,000	22,000	4.094%	4.094%				22,000		
2	2021	Construction	1072280	-	5/31/2010	5/31/2021	22,000	22,000	3.694%	3.694%				22,000		
3	2021	Construction (AS)	1072410	-	5/31/2015	5/31/2021	3,900	3,900	1.898%	1.898%				3,900		
4	2021	Construction (AS)	1072478	-	11/30/2019	5/31/2021	5,000	5,000	0.119%	0.119%				5,000		
5	2021	Construction	1072281	-	6/30/2010	6/30/2021	22,000	22,000	3.374%	3.374%				22,000		
6	2021	Construction	1072471	-	8/31/2019	8/31/2021	50,000	50,000	0.119%	0.119%				50,000		
7	2021	Construction	1072472	-	8/31/2019	8/31/2021	32,000	32,000	0.119%	0.119%				32,000		
8	2021	Technology (T)	1072468	-	9/28/2018	9/30/2021	5,000	5,000	0.128%	0.128%				5,000		
9	FY 2021 Subtotal:		-	-	-	-	161,900	161,900	-	-				161,900		
10	2022	Construction (AS)	1072420	-	10/31/2015	10/31/2021	5,200	5,200	1.942%	1.942%				5,200		
11	2022	Construction	1072265	-	1/31/2009	1/31/2022	20,000	20,000	4.200%	4.200%				20,000		
12	2022	Construction (AS)	1072421	-	2/29/2016	2/28/2022	5,000	5,000	1.631%	1.631%				5,000		
13	2022	Construction	1072266	-	4/30/2009	4/30/2022	35,000	35,000	4.253%	4.253%				35,000		
14	2022	Construction	1072411	-	5/31/2015	5/31/2022	11,000	11,000	2.103%	2.103%				11,000		
15	2022	Construction	1072412	-	5/31/2015	5/31/2022	14,000	14,000	2.103%	2.103%				14,000		
16	2022	Construction	1072283	-	7/31/2010	7/31/2022	30,000	30,000	3.372%	3.372%				30,000		
17	2022	Construction (AS)	1072470	-	8/31/2019	8/31/2022	7,000	7,000	0.119%	0.119%				7,000		
18	2022	Construction	1072473	-	8/31/2019	8/31/2022	36,000	36,000	0.119%	0.119%				36,000		
19	2022	Construction	1072284	-	8/31/2010	8/31/2022	20,000	20,000	3.029%	3.029%				20,000		
20	2022	Construction (AS)	1078157	-	8/31/2021	8/31/2022	-	2,000	0.330%	0.330%				2,000		
21	2022	Construction	1078229	-	8/31/2021	8/31/2022	-	1,997	2.113%	2.113%				1,997		
22	2022	Environment	1078142	-	8/31/2021	8/31/2022	-	13,000	0.330%	0.330%				13,000		
23	2022	Construction	1072518	-	3/31/2021	9/30/2022	4,000	4,000	0.039%	0.039%				4,000		
24	FY 2022 Subtotal:		-	-	-	-	187,200	204,197	-	-				204,197		
25	2023	Construction	1072384	-	12/31/2014	12/31/2022	16,000	16,000	2.274%	2.274%				16,000		
26	2023	Construction	1072385	-	12/31/2014	12/31/2022	4,000	4,000	2.274%	2.274%				4,000		
27	2023	Construction	1072469	-	1/31/2019	1/31/2023	6,000	6,000	2.603%	2.603%				6,000		
28	2023	Construction	1072408	-	4/30/2015	4/30/2023	3,000	3,000	2.163%	2.163%				3,000		
29	2023	Construction	1072409	-	4/30/2015	4/30/2023	12,000	12,000	2.163%	2.163%				12,000		
30	2023	Environment	1078228	-	5/31/2022	5/31/2023	-	5,379	1.766%	1.766%				5,379		
31	2023	Construction	1072413	-	6/30/2015	6/30/2023	11,000	11,000	2.443%	2.443%				11,000		
32	2023	Construction	1072414	-	6/30/2015	6/30/2023	8,000	8,000	2.443%	2.443%				8,000		
33	2023	Construction	1078210	-	8/31/2021	8/31/2023	-	98,000	0.400%	0.400%				98,000		
34	2023	Construction	1072287	-	9/30/2010	9/30/2023	46,000	46,000	3.161%	3.161%				46,000		
35	FY 2023 Subtotal:		-	-	-	-	106,000	209,379	-	-				209,379		
36	2024	Construction	1072380	-	10/31/2014	10/31/2023	20,000	20,000	2.521%	2.521%				20,000		
37	2024	Construction	1072382	-	11/30/2014	11/30/2023	20,000	20,000	2.361%	2.361%				20,000		
38	2024	Environment	1072389	-	1/31/2015	1/31/2024	4,000	4,000	1.908%	1.908%				4,000		
39	2024	Construction	1072395	-	3/31/2015	3/31/2024	17,000	17,000	2.200%	2.200%				17,000		
40	2024	Construction (AS)	1072467	-	9/28/2018	3/31/2024	7,800	7,800	3.078%	3.078%				7,800		
41	2024	Construction	1072218	-	8/31/1998	8/31/2028	112,300	112,300	5.850%	5.850%				108,751	24,170	
42	FY 2024 Subtotal:		-	-	-	-	181,100	181,100	-	-				177,551	24,170	
43	2025	Environment	1072276	-	2/28/2010	2/28/2025	10,000	10,000	4.279%	4.279%				10,000		
44	2025	Construction	1072435	-	5/31/2016	5/31/2025	20,000	20,000	2.101%	2.101%				20,000		
45	2025	Environment	1072434	-	5/31/2016	5/31/2025	5,000	5,000	2.101%	2.101%				5,000		
46	2025	Construction	1072436	-	7/31/2016	7/31/2025	48,000	48,000	1.713%	1.713%				48,000		
47	2025	Construction (AS)	1072512	-	7/31/2020	7/31/2025	6,000	6,000	0.407%	0.407%				6,000		
48	2025	Construction	1072417	-	8/31/2015	8/31/2025	11,000	11,000	2.598%	2.598%				11,000		
49	2025	Construction	1072418	-	8/31/2015	8/31/2025	14,000	14,000	2.598%	2.598%				14,000		
50	2025	Construction	1072217	-	8/31/1998	8/31/2028	106,500	106,500	5.850%	5.850%				71,732	12,674	

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A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Fiscal Year	Project	Bond ID	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
51	2025	Construction	1072218	-	8/31/1998	8/31/2028	112,300	3,549	5.850%					3,549	627	
52	FY 2025 Subtotal:		-	-	-	-	332,800	224,049	-					189,281	13,301	
53	2026	Construction	1072288	-	10/31/2010	10/31/2025	45,000	45,000	3.494%					45,000		
54	2026	Construction	1072392	-	2/28/2015	2/28/2026	19,000	19,000	2.416%					19,000		
55	2026	Construction	1072394	-	3/31/2015	3/31/2026	15,000	15,000	2.370%					15,000		
56	2026	Construction	1072432	-	3/31/2016	3/31/2026	6,000	6,000	2.177%					6,000		
57	2026	Construction	1072433	-	3/31/2016	3/31/2026	12,000	12,000	2.177%					12,000		
58	2026	Construction	1072415	-	7/31/2015	7/31/2026	18,000	18,000	2.707%					18,000		
59	2026	Construction	1072416	-	7/31/2015	7/31/2026	10,000	10,000	2.707%					10,000		
60	2026	Construction	1072217	-	8/31/1998	8/31/2028	106,500	34,768	5.850%					34,768	4,441	
61	2026	Construction	1072267	-	6/30/2009	6/30/2039	35,000	35,000	5.192%					34,123	10,675	
62	FY 2026 Subtotal:		-	-	-	-	266,500	194,768	-					193,891	15,116	
63	2027	Construction	1072428	-	12/31/2015	12/31/2026	9,000	9,000	2.762%					9,000		
64	2027	Construction	1072429	-	12/31/2015	12/31/2026	29,000	29,000	2.762%					29,000		
65	2027	Construction	1072430	-	1/31/2016	1/31/2027	13,000	13,000	2.352%					13,000		
66	2027	Construction	1072431	-	2/29/2016	2/28/2027	13,000	13,000	2.236%					13,000		
67	2027	Construction	1072313	-	5/3/2012	5/31/2027	17,000	17,000	0.205%					17,000		
68	2027	Environment	1072314	-	5/3/2012	5/31/2027	13,000	13,000	0.205%					13,000		
69	2027	Construction (AS)	1078223	-	9/30/2023	9/30/2027	31,870	31,870	0.728%					31,870		
70	2027	Environment	1072488	-	3/31/2020	9/30/2027	5,000	5,000	1.025%					5,000		
71	2027	Construction	1072289	-	1/31/2011	1/31/2036	50,000	50,000	4.952%					50,000	10,280	
72	2027	Construction	1072290	-	2/28/2011	2/28/2038	55,000	55,000	4.935%					36,162	7,902	
73	2027	Construction	1072267	-	6/30/2009	6/30/2039	35,000	877	5.192%					877	235	
74	FY 2027 Subtotal:		-	-	-	-	270,870	236,747	-					217,909	18,417	
75	2028	Environment	1072346	-	11/20/2013	11/30/2027	5,000	5,000	3.967%					5,000		
76	2028	Construction	1072378	-	9/30/2014	4/30/2028	17,000	17,000	0.230%					17,000		
77	2028	Construction (AS)	1078158	-	5/31/2022	5/31/2028	-	20,766	0.882%					20,766		
78	2028	Construction	1072377	-	9/30/2014	9/30/2028	3,000	3,000	3.094%					3,000		
79	2028	Construction	1072304	-	8/2/2011	8/31/2035	45,000	45,000	4.446%					33,983	4,813	
80	2028	Construction	1072355	-	12/31/2013	12/31/2035	10,000	10,000	4.472%					10,000	1,410	
81	2028	Construction	1072295	-	6/22/2011	6/30/2036	50,000	50,000	4.629%					50,000	8,042	
82	2028	Construction	1072290	-	2/28/2011	2/28/2038	55,000	18,838	4.935%					18,838	3,435	
83	2028	Construction	1072291	-	4/30/2011	4/30/2039	40,000	40,000	4.794%					40,000	7,236	
84	2028	Construction	1072296	-	6/22/2011	6/30/2040	25,000	25,000	4.775%					25,000	4,888	
85	FY 2028 Subtotal:		-	-	-	-	250,000	234,604	-					223,587	29,823	
86	2029	Environment	1072352	-	10/31/2013	10/31/2028	6,000	6,000	3.880%					6,000		
87	2029	Environment	1072358	-	1/31/2014	1/31/2029	3,000	3,000	3.896%					3,000		
88	2029	Construction (AS)	1078159	-	5/31/2023	5/31/2029	-	23,793	1.052%					23,793		
89	2029	Environment	1072373	-	7/31/2014	7/31/2029	3,000	3,000	0.176%					3,000		
90	2029	Construction	1072298	-	8/2/2011	8/31/2029	50,000	50,000	4.238%					50,000		
91	2029	Construction	1072300	-	8/2/2011	8/31/2033	40,000	40,000	4.386%					40,000	3,597	
92	2029	Construction	1072301	-	8/2/2011	8/31/2034	40,000	40,000	4.416%					40,000	4,112	
93	2029	Construction	1072302	-	8/2/2011	8/31/2035	40,000	40,000	4.446%					40,000	4,551	
94	2029	Construction	1072303	-	8/2/2011	8/31/2035	40,000	40,000	4.446%					40,000	4,551	
95	2029	Construction	1072304	-	8/2/2011	8/31/2035	45,000	11,017	4.446%					11,017	1,254	
96	2029	Construction	1072354	-	11/30/2013	11/30/2035	15,000	15,000	4.365%					3,459	351	
97	2029	Construction	1072339	-	11/20/2013	6/30/2036	36,000	36,000	4.397%					36,000	4,246	
98	2029	Construction	1072357	-	1/31/2014	1/31/2043	15,000	15,000	4.380%					15,000	2,047	
99	FY 2029 Subtotal:		-	-	-	-	333,000	322,809	-					311,268	24,710	
100	2030	Construction	1072344	-	11/20/2013	10/31/2029	55,000	55,000	4.093%					55,000		
101	2030	Construction	1072393	-	3/31/2015	3/31/2030	3,000	3,000	2.626%					3,000		

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Fiscal Year	Project	Bond ID	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
102	2030	Construction	1072419	-	9/30/2015	9/30/2030	15,000	15,000	2.905%					15,000		
103	2030	Construction	1072342	-	11/20/2013	2/28/2031	15,000	15,000	4.166%					1,332	25	
104	2030	Construction	1072343	-	11/20/2013	3/31/2031	18,000	18,000	4.171%					18,000	344	
105	2030	Construction	1072299	-	8/2/2011	8/31/2032	98,900	98,900	4.355%					98,900	4,615	
106	2030	Construction	1072345	-	11/20/2013	4/30/2034	28,000	28,000	4.311%					28,000	1,823	
107	2030	Construction	1072338	-	11/20/2013	8/31/2034	6,000	6,000	4.324%					6,000	438	
108	2030	Construction	1072330	-	9/30/2013	9/30/2034	9,000	9,000	4.214%					9,000	619	
109	2030	Construction	1072341	-	11/20/2013	5/31/2035	20,000	20,000	4.354%					20,000	1,563	
110	2030	Construction	1072351	-	10/31/2013	10/31/2035	64,000	64,000	4.222%					64,000	4,688	
111	2030	Construction	1072354	-	11/30/2013	11/30/2035	15,000	11,541	4.365%					11,541	929	
112	FY 2030 Subtotal:		-	-	-	-	346,900	343,441	-					329,773	15,044	
113	2031	Construction	1072340	-	11/20/2013	1/31/2031	30,000	30,000	4.162%					30,000		
114	2031	Construction	1072342	-	11/20/2013	2/28/2031	15,000	13,668	4.166%					13,668		
115	2031	Environment	1072513	-	3/31/2021	3/31/2031	13,000	13,000	1.804%					13,000		
116	2031	Construction	1072426	-	10/31/2015	10/31/2034	2,000	2,000	3.198%					2,000	25	
117	2031	Construction	1072452	-	8/31/2017	8/31/2037	30,000	30,000	2.902%					29,900		100
118	2031	Construction	1072447	-	8/31/2017	8/31/2038	7,000	7,000	2.929%					6,946		54
119	2031	Construction	1072442	-	7/31/2017	7/31/2041	19,000	19,000	3.164%					18,779		221
120	2031	Construction	1072449	-	8/31/2017	8/31/2041	13,000	13,000	2.991%					12,647		353
121	2031	Construction	1072453	-	9/30/2017	9/30/2041	17,000	17,000	3.156%					16,790		210
122	2031	Construction	1072443	-	7/31/2017	7/31/2042	14,000	14,000	3.181%					13,809		191
123	2031	Construction	1072444	-	7/31/2017	7/31/2043	23,000	23,000	3.198%					22,639		361
124	2031	Construction	1072448	-	8/31/2017	8/31/2043	10,000	10,000	3.024%					9,665		335
125	2031	Construction	1072454	-	9/30/2017	9/30/2043	14,000	14,000	3.193%					13,774		226
126	2031	Construction	1072445	-	7/31/2017	7/31/2044	17,000	17,000	3.215%					16,698		302
127	2031	Construction	1072455	-	9/30/2017	9/30/2044	9,000	9,000	3.209%					8,834		166
128	2031	Construction	1072446	-	7/31/2017	7/31/2045	27,000	27,000	3.230%					26,454		546
129	2031	Construction	1072451	-	8/31/2017	8/31/2046	22,000	22,000	3.066%					21,034		966
130	2031	Construction	1072450	-	8/31/2017	8/31/2047	18,000	18,000	3.076%					17,135		865
131	2031	Construction	1072456	-	9/30/2017	9/30/2047	10,000	10,000	3.247%					9,730		270
132	2031	Construction	1078216	-	6/30/2023	6/30/2053	-	139,601	2.802%					50,083		
133	FY 2031 Subtotal:		-	-	-	-	310,000	448,270	-					353,585	25	5,166
134	2032	Construction	1078214	-	4/30/2023	4/30/2051	-	139,601	2.694%					128,711		
135	2032	Construction	1078215	-	5/31/2023	5/31/2052	-	139,601	2.748%					139,601		
136	2032	Construction	1078216	-	6/30/2023	6/30/2053	-	89,519	2.802%					89,519		
137	FY 2032 Subtotal:		-	-	-	-	-	368,722	-					357,831		
138	2033	Construction	1072498	-	5/31/2020	11/30/2032	21,000	21,000	1.231%					21,000		
139	2033	Environment	1072500	-	5/31/2020	11/30/2032	7,000	7,000	1.231%					7,000		
140	2033	Construction	1072503	-	6/30/2020	6/30/2033	21,000	21,000	1.238%					21,000		
141	2033	Construction	1072509	-	7/31/2020	7/31/2033	10,000	10,000	1.157%					10,000		
142	2033	Construction	1072476	-	7/31/2019	7/31/2037	46,940	46,940	2.680%					46,237		703
143	2033	Construction	1072482	-	11/30/2019	6/30/2038	37,000	37,000	2.429%					31,041		956
144	2033	Construction	1072483	-	11/30/2019	9/30/2039	39,000	39,000	2.495%					37,649		1,351
145	2033	Construction	1072516	-	3/31/2021	9/30/2044	34,000	34,000	2.515%					31,350		2,650
146	2033	Construction	1072517	-	3/31/2021	9/30/2045	14,000	14,000	2.550%					12,850		1,150
147	2033	Construction	1078213	-	6/30/2022	6/30/2050	-	134,424	2.458%					134,424		
148	2033	Construction	1078214	-	4/30/2023	4/30/2051	-	10,891	2.694%					10,891		
149	FY 2033 Subtotal:		-	-	-	-	229,940	375,255	-					363,442		6,810
150	2034	Construction	1072364	-	4/30/2014	2/28/2034	45,000	45,000	0.148%					45,000		
151	2034	Construction	1072363	-	4/30/2014	3/31/2034	45,000	18,300	0.128%					18,300		
152	2034	Construction	1072425	-	10/31/2015	8/31/2034	19,000	19,000	0.148%					19,000		

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153	2034	Construction	1072482	-	11/30/2019	6/30/2038	37,000	5,003	2.429%					4,876		127
154	2034	Construction	1072515	-	3/31/2021	3/31/2042	46,000	46,000	2.400%					43,414		2,586
155	2034	Construction	1078211	-	4/30/2022	4/30/2048	-	134,424	2.352%					1,435		
156	2034	Construction	1078212	-	5/31/2022	5/31/2049	-	134,424	2.405%					134,424		
157	FY 2034 Subtotal:		-	-	-	-	192,000	402,151	-					266,449		2,713
158	2035	Construction	1072375	-	8/31/2014	8/31/2035	15,000	15,000	0.148%					15,000		
159	2035	Environment	1078225	-	9/30/2023	9/30/2035	14,091	14,091	1.831%					14,091		
160	2035	Construction	1072481	-	11/30/2019	3/31/2037	36,000	36,000	2.349%					35,509		491
161	2035	Construction	1072514	-	3/31/2021	3/31/2041	6,000	6,000	2.347%					5,759		241
162	2035	Construction	1078224	-	9/30/2023	9/30/2044	18,698	18,698	2.316%					18,698		
163	2035	Construction	1078226	-	8/31/2021	8/31/2047	-	51,336	2.113%					23,319		
164	2035	Construction	1078211	-	4/30/2022	4/30/2048	-	132,989	2.352%					132,989		
165	FY 2035 Subtotal:		-	-	-	-	89,789	274,115	-					245,365		732
166	2036	Construction	1072497	-	5/31/2020	5/31/2036	29,000	29,000	1.513%					29,000		
167	2036	Construction	1078139	-	6/30/2021	6/30/2045	-	151,333	2.017%					42,380		
168	2036	Construction	1078209	-	7/31/2021	7/31/2046	-	151,333	2.065%					151,333		
169	2036	Construction	1078226	-	8/31/2021	8/31/2047	-	28,018	2.113%					28,018		
170	FY 2036 Subtotal:		-	-	-	-	29,000	359,684	-					250,731		
171	2037	Environment	1078143	-	5/31/2022	5/31/2037	-	1,453	1.766%					1,453		
172	2037	Environment	1078144	-	5/31/2023	5/31/2038	-	6,796	1.993%					6,796		
173	2037	Construction	1078139	-	6/30/2021	6/30/2045	-	108,954	2.017%					108,954		
174	2037	Construction	1072496	-	5/31/2020	5/31/2046	26,000	26,000	1.931%					23,476		2,524
175	2037	Construction	1072501	-	5/31/2020	11/30/2047	24,000	24,000	1.949%					21,259		2,741
176	2037	Construction	1072499	-	5/31/2020	5/31/2048	21,000	21,000	1.953%					18,525		2,475
177	2037	Construction	1072502	-	5/31/2020	5/31/2048	42,000	42,000	1.953%					37,051		4,949
178	2037	Construction	1072507	-	8/31/2020	2/28/2049	11,000	11,000	1.990%					9,624		1,376
179	2037	Construction	1072506	-	6/30/2020	6/30/2049	63,800	63,800	1.812%					24,391		4,032
180	2037	Construction	1072508	-	8/31/2020	8/31/2049	39,000	39,000	1.992%					33,987		5,013
181	FY 2037 Subtotal:		-	-	-	-	226,800	344,002	-					285,514		23,111
182	2038	Construction	1072489	-	4/30/2020	4/30/2039	45,000	45,000	1.594%					1,008		14
183	2038	Construction	1072511	-	7/31/2020	7/31/2045	19,000	19,000	1.626%					17,220		1,780
184	2038	Construction	1072490	-	4/30/2020	4/30/2046	9,000	9,000	1.776%					8,156		844
185	2038	Construction	1072491	-	4/30/2020	4/30/2046	48,000	48,000	1.776%					43,500		4,500
186	2038	Construction	1072492	-	4/30/2020	4/30/2047	4,000	4,000	1.792%					3,577		423
187	2038	Construction	1072493	-	4/30/2020	4/30/2047	72,000	72,000	1.792%					64,381		7,619
188	2038	Construction	1072504	-	6/30/2020	6/30/2047	20,000	20,000	1.805%					17,810		2,190
189	2038	Construction	1072505	-	6/30/2020	6/30/2047	30,000	30,000	1.805%					26,715		3,285
190	2038	Construction	1072494	-	4/30/2020	4/30/2048	19,000	19,000	1.806%					16,758		2,242
191	2038	Construction	1072495	-	4/30/2020	4/30/2048	67,000	67,000	1.806%					59,094		7,906
192	2038	Construction	1072506	-	6/30/2020	6/30/2049	63,800	35,377	1.812%					30,707		4,670
193	FY 2038 Subtotal:		-	-	-	-	396,800	368,377	-					288,926		35,473
194	2039	Construction	1072489	-	4/30/2020	4/30/2039	45,000	43,978	1.594%					43,978		
195	2039	Construction	1072510	-	7/31/2020	1/31/2040	30,000	30,000	1.421%					29,541		459
196	2039	Construction	1072460	-	8/31/2018	2/28/2048	12,000	12,000	0.148%					9,627		2,373
197	2039	Construction	1072495	-	4/30/2020	4/30/2048	67,000		1.806%							
198	2039	Replacements	1075099	-	3/31/2024	3/31/2059	165,724	165,724	2.802%					165,724		
199	2039	Replacements	1075100	-	3/31/2025	3/31/2060	165,724	165,724	2.802%					44,133		
200	FY 2039 Subtotal:		-	-	-	-	485,448	417,426	-					293,003		2,832

**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
Fiscal Year	Project	Bond ID	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
201	2040	Replacements	1075100	-	3/31/2025	3/31/2060	165,724	121,591	2.802%	2.801%						121,591
202	2040	Replacements	1075101	-	3/31/2026	3/31/2061	165,724	165,724	2.802%	2.801%						165,724
203	2040	Replacements	1075102	-	3/31/2027	3/31/2062	165,724	165,724	2.802%	2.801%						11,175
204	FY 2040 Subtotal:		-	-	-	-	497,172	453,039	-	-						298,490
205	2041	Replacements	1075102	-	3/31/2027	3/31/2062	165,724	154,549	2.802%	2.801%						154,549
206	2041	Replacements	1075103	-	3/31/2028	3/31/2063	165,724	165,724	2.802%	2.801%						142,142
207	FY 2041 Subtotal:		-	-	-	-	331,448	320,273	-	-						296,691
208	2042	Replacements	1075103	-	3/31/2028	3/31/2063	165,724	23,582	2.802%	2.801%						23,582
209	2042	Replacements	1075104	-	3/31/2029	3/31/2064	165,724	165,724	2.802%	2.801%						165,724
210	2042	Replacements	1075105	-	3/31/2030	3/31/2065	165,724	165,724	2.802%	2.801%						131,610
211	FY 2042 Subtotal:		-	-	-	-	497,172	355,030	-	-						320,916
212	2043	Replacements	1075105	-	3/31/2030	3/31/2065	165,724	34,114	2.802%	2.801%						34,114
213	2043	Replacements	1075106	-	3/31/2031	3/31/2066	165,724	165,724	2.802%	2.801%						165,724
214	2043	Replacements	1075107	-	3/31/2032	3/31/2067	165,724	165,724	2.802%	2.801%						113,460
215	FY 2043 Subtotal:		-	-	-	-	497,172	365,562	-	-						313,298
216	2044	Replacements	1075107	-	3/31/2032	3/31/2067	165,724	52,264	2.802%	2.801%						52,264
217	2044	Replacements	1075108	-	3/31/2033	3/31/2068	165,724	165,724	2.802%	2.801%						165,724
218	2044	Replacements	1075109	-	3/31/2034	3/31/2069	165,724	165,724	2.802%	2.801%						104,041
219	FY 2044 Subtotal:		-	-	-	-	497,172	383,712	-	-						322,028
220	2045	Replacements	1075109	-	3/31/2034	3/31/2069	165,724	61,683	2.802%	2.801%						61,683
221	2045	Replacements	1075110	-	3/31/2035	3/31/2070	165,724	165,724	2.802%	2.801%						165,724
222	2045	Replacements	1075111	-	3/31/2036	3/31/2071	165,724	165,724	2.802%	2.801%						112,490
223	FY 2045 Subtotal:		-	-	-	-	497,172	393,131	-	-						339,898
224	2046	Replacements	1075111	-	3/31/2036	3/31/2071	165,724	53,234	2.802%	2.801%						53,234
225	2046	Replacements	1075112	-	3/31/2037	3/31/2072	165,724	165,724	2.802%	2.801%						165,724
226	2046	Replacements	1075113	-	3/31/2038	3/31/2073	165,724	165,724	2.802%	2.801%						110,765
227	FY 2046 Subtotal:		-	-	-	-	497,172	384,682	-	-						329,722
228	2047	Replacements	1075113	-	3/31/2038	3/31/2073	165,724	54,959	2.802%	2.801%						54,959
229	2047	Replacements	1075114	-	3/31/2039	3/31/2074	165,724	165,724	2.802%	2.801%						165,724
230	2047	Replacements	1075115	-	3/31/2040	3/31/2075	165,724	165,724	2.802%	2.801%						146,429
231	FY 2047 Subtotal:		-	-	-	-	497,172	386,407	-	-						367,112
232	2048	Replacements	1075115	-	3/31/2040	3/31/2075	165,724	19,295	2.802%	2.801%						19,295
233	2048	Replacements	1075116	-	3/31/2041	3/31/2076	165,724	165,724	2.802%	2.801%						165,724
234	2048	Replacements	1075117	-	3/31/2042	3/31/2077	165,724	165,724	2.802%	2.801%						165,724
235	2048	Replacements	1075118	-	3/31/2043	3/31/2078	165,724	165,724	2.802%	2.801%						107,155
236	FY 2048 Subtotal:		-	-	-	-	662,896	516,467	-	-						457,899
237	2049	Replacements	1075118	-	3/31/2043	3/31/2078	165,724	58,569	2.802%	2.801%						58,569
238	2049	Replacements	1075119	-	3/31/2044	3/31/2079	165,724	165,724	2.802%	2.801%						165,724
239	2049	Replacements	1075120	-	3/31/2045	3/31/2080	165,724	165,724	2.802%	2.801%						165,724
240	2049	Replacements	1075121	-	3/31/2046	3/31/2081	165,724	165,724	2.802%	2.801%						76,186
241	FY 2049 Subtotal:		-	-	-	-	662,896	555,741	-	-						466,202
242	2050	Replacements	1075121	-	3/31/2046	3/31/2081	165,724	89,538	2.802%	2.801%						89,538
243	2050	Replacements	1075122	-	3/31/2047	3/31/2082	165,724	165,724	2.802%	2.801%						165,724
244	2050	Replacements	1075123	-	3/31/2048	3/31/2083	165,724	165,724	2.802%	2.801%						165,724
245	2050	Replacements	1075124	-	3/31/2049	3/31/2084	165,724	165,724	2.802%	2.801%						53,756
246	FY 2050 Subtotal:		-	-	-	-	662,896	586,710	-	-						474,742
247	2051	Replacements	1075124	-	3/31/2049	3/31/2084	165,724	111,968	2.802%	2.801%						111,968
248	2051	Replacements	1075125	-	3/31/2050	3/31/2085	165,724	165,724	2.802%	2.801%						165,724
249	FY 2051 Subtotal:		-	-	-	-	331,448	277,692	-	-						277,692
250	2052	Replacements	1075126	-	3/31/2051	3/31/2086	165,724	165,724	2.802%	2.801%						165,724
251	FY 2052 Subtotal:		-	-	-	-	165,724	165,724	-	-						165,724

**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
Fiscal Year	Project	Bond ID	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
252	2053	Replacements	1075127	-	3/31/2052	3/31/2087	165,724	165,724	2.802%					165,724		
253		FY 2053 Subtotal:	-	-	-	-	165,724	165,724	-					165,724		
254	2054	Replacements	1075128	-	3/31/2053	3/31/2088	165,724	165,724	2.802%					165,724		
255		FY 2054 Subtotal:	-	-	-	-	165,724	165,724	-					165,724		
256	2055	Replacements	1075129	-	3/31/2054	3/31/2089	165,724	165,724	2.802%					165,724		
257		FY 2055 Subtotal:	-	-	-	-	165,724	165,724	-					165,724		
258	2056	Replacements	1075130	-	3/31/2055	3/31/2090	165,724	165,724	2.802%					165,724		
259		FY 2056 Subtotal:	-	-	-	-	165,724	165,724	-					165,724		
260	2057	Replacements	1075131	-	3/31/2056	3/31/2091	165,724	165,724	2.802%					165,724		
261		FY 2057 Subtotal:	-	-	-	-	165,724	165,724	-					165,724		
262	2058	Replacements	1075132	-	3/31/2057	3/31/2092	165,724	165,724	2.802%					165,724		
263		FY 2058 Subtotal:	-	-	-	-	165,724	165,724	-					165,724		
264		Grand Total					\$11,687,903	\$11,809,510	-					\$10,348,341	\$140,607	\$76,836

12. REPAYMENT THEORY OF OPERATION

12.1 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.

12.2 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.

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FIGURES

Figure 12-1 Repayment Program (Test for Sufficiency)

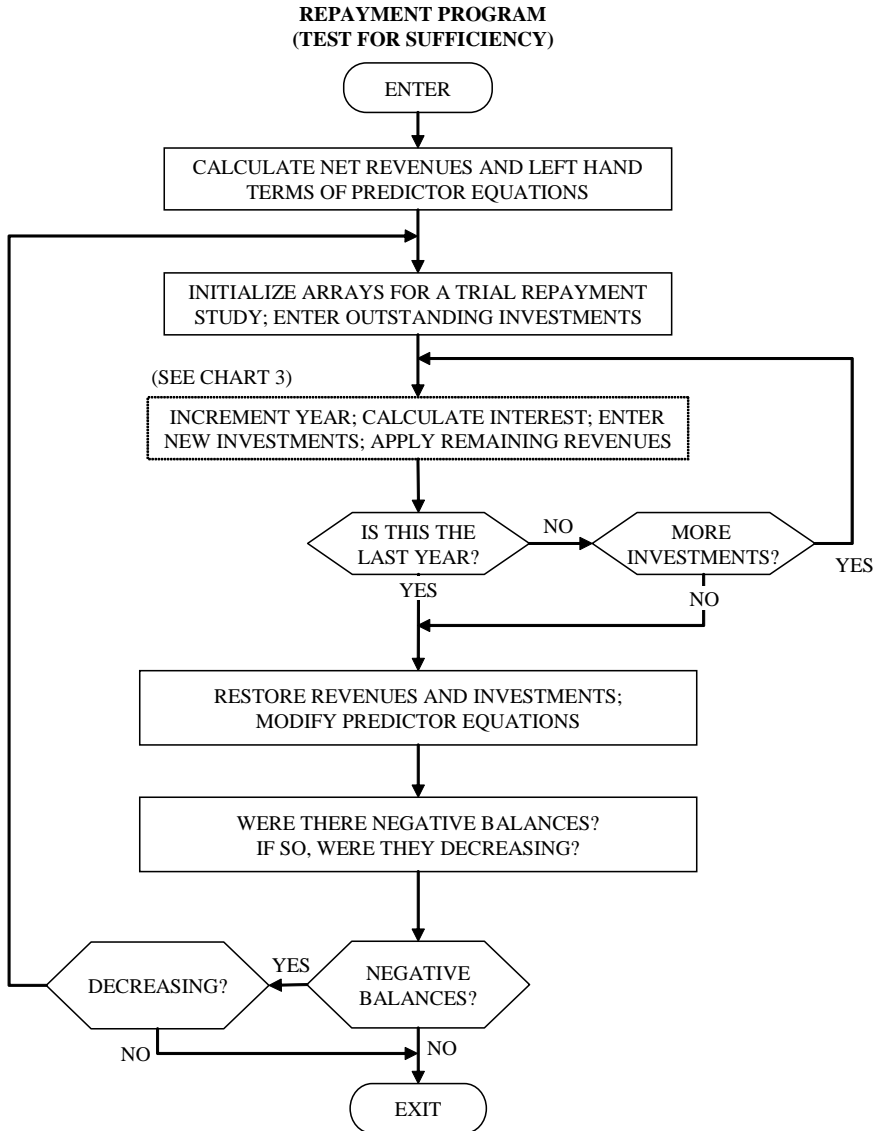


Figure 12-2 Repayment Program (Application of Revenues)

