BP-22 Rate Proceeding

Final Proposal

Power Revenue Requirement Study

BP-22-FS-BPA-02

July 2021

POWER REVENUE REQUIREMENT STUDY

TABLE OF CONTENTS

FIGURE AND TABLES

This page intentionally left blank.

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
AGC	automatic generation control
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
GI	generation imbalance
GMS	Grandfathered Generation Management Service
GSP	Generation System Peak
GSR	Generation Supplied Reactive
GRSPs	General Rate Schedule Provisions
GTA	General Transfer Agreement
GWh	gigawatthour
HLH	Heavy Load Hour(s)
HOSS	Hourly Operating and Scheduling Simulator (computer model)
HYDSIM	Hydrosystem Simulator (computer model)
IE	Eastern Intertie
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	**N**ational Marine Fisheries Service (NMFS) **F**ederal Columbia River Power System (FCRPS) **B**iological 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)
NWPA	Northwest Power Act/Pacific Northwest Electric Power Planning and Conservation Act
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
NWPP	Northwest Power Pool
OATT	Open Access Transmission Tariff
O&M	operations and maintenance
OATI	Open Access Technology International, Inc.
ODE	Over Delivery Event
OS	Oversupply
OY	operating year (August through July)
PDCI	Pacific DC Intertie
PF	Priority Firm Power
PFp	Priority Firm Public
PFx	Priority Firm Exchange
PNCA	Pacific Northwest Coordination Agreement
PNRR	Planned Net Revenues for Risk
PNW	Pacific Northwest
POD	Point of Delivery
POI	Point of Integration or Point of Interconnection
POR	Point of Receipt
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)
RAS	Remedial Action Scheme
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
SCADA	Supervisory Control and Data Acquisition
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
UDE	Under Delivery Event
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

This page intentionally left blank.

1. INTRODUCTION

1.1 Purpose of Study

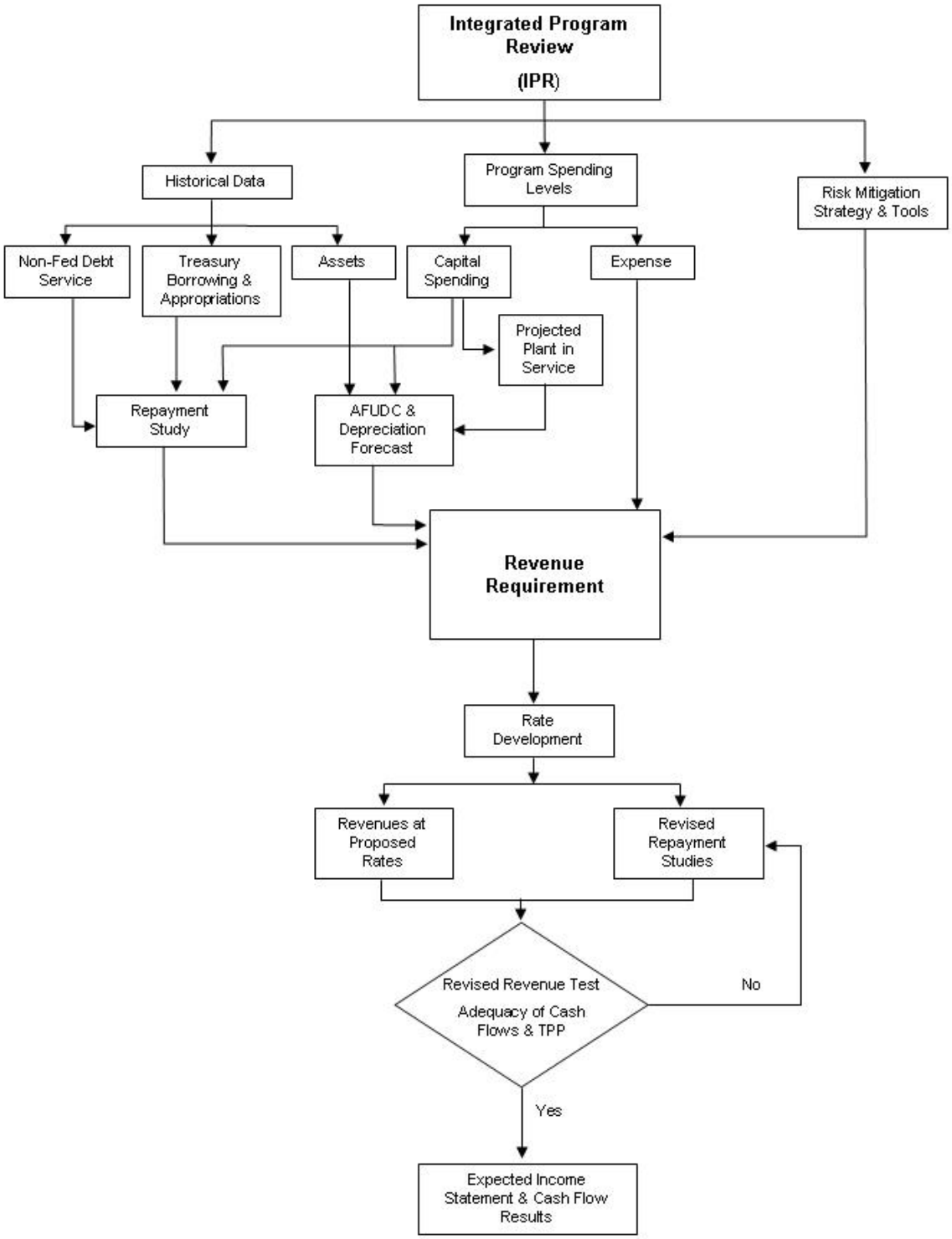
The purpose of the Power Revenue Requirement Study (Study) is to establish the revenues from wholesale power rates and other power sales and services that are necessary to recover, in accordance with sound business principles, the Federal Columbia River Power System (FCRPS) costs associated with the production, acquisition, marketing, and conservation of electric power. The revenue requirement developed in this Study includes recovery of the Federal investment in hydro generation, fish and wildlife, and conservation costs; Federal agencies' operations and maintenance (O&M) expenses allocated to power; capitalized contract expenses associated with non-Federal power suppliers, such as Energy Northwest (EN); other power purchase expenses, such as short-term power purchases; power marketing expenses; cost of transmission services necessary for the sale and delivery of FCRPS power; and all other generation-related costs incurred by the Administrator pursuant to law.

The cost evaluation period, as defined by the Federal Energy Regulatory Commission (Commission), is the period extending from the last year for which historical information is available through the proposed rate period. The cost evaluation period for this rate filing includes fiscal year (FY) 2021 and the proposed rate period, FY 2022-2023. This Study is based on generation revenue requirements that include the results of generation repayment studies. This Study does not include the revenue requirement or a cost recovery demonstration for Bonneville Power Administration's (BPA) transmission function. *See* Transmission Revenue Requirement Study, BP-22-FS-BPA-09.

This Study outlines the policies, forecasts, assumptions, and calculations used to determine the generation revenue requirement. The Power Revenue Requirement Study Documentation, BP-22-FS-BPA-02A, contains key technical assumptions and calculations, the results of the generation repayment studies, and further explanation of the repayment program and its outputs.

The revenue requirement for this Study is developed using a cost-accounting analysis comprised of three parts. First, repayment studies for the generation function are prepared to determine the schedule of amortization payments and to project annual interest expense for bonds and appropriations that fund the Federal investment in hydro generating resources, fish and wildlife recovery, conservation, and other generation assets. Repayment studies are conducted for each year of the rate period and extend over the 50-year repayment period. Second, generation operating expenses and Minimum Required Net Revenues (MRNR) are projected for each year of the rate period. Third, annual Planned Net Revenues for Risk (PNRR) are determined after taking into account risks, BPA's cost recovery goals, and other risk mitigation measures, as described in the Power and Transmission Risk Study, BP-22-FS-BPA-05. In this rate proceeding, PNRR has been added to the revenue requirement as described in the settlement agreement. From these three steps, the revenue requirement is set at the revenue level necessary to fulfill cost recovery requirements and objectives. This process is depicted in Figure 1 below. Once the revenue requirement is completed, the costs identified are passed to the rate development process, where they are allocated to the appropriate cost pools and used to develop rates in the Power Rates Study (PRS), BP-22-FS-BPA-01.

Figure 1: Generation Revenue Requirement Process



Consistent with Department of Energy (DOE) Order RA 6120.2 and the standards of review of BPA's rates applied by the Commission, BPA must demonstrate the adequacy of both current and proposed rates. BPA conducts a current revenue test to determine whether revenues projected from current rates meet cost recovery requirements for the rate period and the repayment period. If the current revenue test indicates that cost recovery and risk mitigation, requirements are met, current rates could be extended through the proposed rate approval period, although other reasons may exist for revising rates, such as the implementation of a new rate design. The current revenue test, described in Section 3.2 below, demonstrates that revenues from current rates will recover the generation revenue requirement for the rate period.

The revised revenue test, which is performed after calculation of the proposed power rates, determines whether projected revenues from proposed rates meet cost recovery requirements and objectives for the rate test and repayment periods. The revised revenue test, described in Section 3.3 below, demonstrates that revenues from the proposed power rates will recover generation costs in the rate period and over the ensuing 50-year repayment period. In addition, revenues from the proposed rates, together with risk mitigation tools, are sufficient to meet BPA's 95 percent Treasury Payment Probability (TPP) standard that all U.S. Treasury payments will be paid on time and in full, as discussed in the Power and Transmission Risk Study, BP-22-FS-BPA-05.

Table 1 summarizes the revised revenue test and shows projected net revenues from proposed power rates for FY 2022-2023. These net revenues are the lowest level necessary to achieve BPA's cost recovery objectives, when combined with other risk mitigation tools, given hydro condition uncertainty, market price volatility, and other risks. Table 2 shows planned generation amortization payments to the U.S. Treasury for each

year of the rate period and irrigation assistance payments that are due to be paid from power revenues. The amortization payments are divided into two categories. One is a base payment, which is BPA's repayment commitment to the Treasury. The second is a conditional payment that will occur only if a non-Federal refinancings occurs during the rate period. The actual amount may vary depending on the size of the non-Federal debt action. If the refinancings do not occur, the conditional payment to the Treasury will not be made and the non-Federal debt will be repaid instead.

1.2 Legal Requirements

This section summarizes the statutory framework that guides the development of BPA's generation revenue requirement and the recovery of BPA's generation costs from the various users of the FCRPS, and the repayment policies BPA follows in the development of its revenue requirement.

1.2.1 Governing Authorities

BPA's revenue requirements are governed primarily by four legislative acts: the Bonneville Project Act of 1937, Pub.L. No. 75-329, 50 Stat. 731; the Flood Control Act of 1944, Pub.L. No. 78-534, 58 Stat. 890, amended 1977; the Federal Columbia River Transmission System Act (Transmission System Act) of 1974, Pub.L. No. 93-454, 88 Stat. 1376; and the Pacific Northwest Electric Power Planning and Conservation Act (Northwest Power Act), Pub.L. No. 96-501, 94 Stat. 2697 (1980). The Omnibus Consolidated Rescissions and Appropriations Act of 1996, Pub.L. No. 104-134, 110 Stat. 1321, also guides the development of BPA's revenue requirements. DOE Order "Power Marketing Administration Financial Reporting," RA 6120.2, issued by the Secretary of Energy, provides guidance to Federal power marketing administrations regarding repayment of the Federal investment. In addition, policies issued by the Commission provide guidance on

separate accounting for transmission system costs. *See, e.g., Bonneville Power Admin.*, 25 FERC ¶ 61,140 (1983).

1.2.1.1 Legal Requirements Governing BPA's Revenue Requirement

BPA's rates must be set to ensure that revenues are sufficient to recover costs. This requirement was first set forth in Section 7 of the Bonneville Project Act, codified at 16 U.S.C. § 832f (as amended in 1977), which provides that:

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

Id.

This cost recovery principle was repeated for Army reservoir projects in Section 5 of the Flood Control Act of 1944, 16 U.S.C. § 825s. In 1974, Section 9 of the Transmission System Act, 16 U.S.C. § 838g, expanded the cost recovery principle so that BPA's rates also would be set to recover:

> [P]ayments provided [in the Administrator's annual budget] . . . at levels to produce such additional revenues as may be required, in the aggregate with all other revenues of the Administrator, to pay when due the principal of, premiums, discounts, and expenses in connection with the issuance of and interest on all bonds issued and outstanding pursuant to [this Act,] and amounts required to establish and maintain reserve and other funds and accounts established in connection therewith.

Id.

The Northwest Power Act reiterates and clarifies the cost recovery principle. Section 7(a)(1) of the Northwest Power Act, 16 U.S.C. § 839e(a)(1), provides:

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

Id.

Section 7(a)(2) of the Northwest Power Act, 16 U.S.C. § 839e(a)(2), provides that the Commission shall issue a confirmation and approval of BPA's rates upon a finding that the rates

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

(B) are based upon the Administrator's total system costs; and

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

Development of the revenue requirement is a critical component of meeting the statutory cost recovery principles relevant to BPA. The costs associated with the FCRPS and associated services and expenses, as well as other costs incurred by the Administrator in furtherance of BPA's mission, are included in this Study.

1.2.1.2 The BPA Appropriations Refinancing Act

BPA's power rates for the FY 2022-2023 rate period will reflect the requirements of the Refinancing Act, 16 U.S.C. § 838l, part of the Omnibus Consolidated Rescissions and Appropriations Act of 1996, Pub.L. No. 104-134, 110 Stat. 1321, enacted in April 1996. The Refinancing Act required that unpaid principal on BPA appropriations ("old capital investments") at the end of FY 1996 be reset at the present value of the principal and annual interest payments BPA would make to the U.S. Treasury for these obligations absent the Refinancing Act, plus $100 million. 16 U.S.C. § 838l(b). The Refinancing Act also specified that the new principal amounts of the old capital investments be assigned new interest rates from the Treasury yield curve prevailing at the time of the refinancing transaction. 16 U.S.C. § 838l(a)(6)(A).

The Refinancing Act restricted prepayment of the new principal for old capital investments to $100 million during the first five years after the effective date of the financing. 16 U.S.C. § 838l(e). The Refinancing Act also specifies that repayment dates on new principal amounts may not be earlier than the repayment dates for old capital investments. 16 U.S.C. § 838l(d). The Refinancing Act further directs the Administrator to offer to provide assurance in new or existing contracts for power, transmission, and related services that the Federal government will not increase the repayment obligations in the future. 16 U.S.C. § 838l(i).

1.2.1.3 Allocation of FCRPS Costs

The individual generating projects comprising the FCRPS serve purposes in addition to power production, including navigation, irrigation, recreation, and flood control. The total costs of these Federal projects are allocated to the power revenue requirement and the appropriate cost pools, and are generally allocated according to the purposes they serve.

For projects that provide power generation to the FCRPS, this allocation has generally been accomplished pursuant to statutory direction. For example, Section 7 of the Bonneville Project Act, 16 U.S.C. § 832f, requires that BPA's rates be based on, *inter alia*, "an allocation of costs made by the [Secretary of Energy,]" and, insofar as costs of the Bonneville Project are concerned:

> [T]he Secretary of Energy may allocate to the costs of electric facilities such a share of the cost of facilities having joint value for the production of electric energy and other purposes as the power development may fairly bear as compared with other such purposes.

Id.

Similar allocations for U.S. Bureau of Reclamation (Reclamation) projects constructed pursuant to various authorizing statutes have been performed by the Secretary of the Interior under the authority of 43 U.S.C. § 485h(a)-(b). Cost allocations for projects constructed by the U.S. Army Corps of Engineers (Corps) have been performed by the Secretary of the Army and approved by the Federal Power Commission (the predecessor to the Federal Energy Regulatory Commission).

In general, an attempt is made to allocate the cost of each feature of a multipurpose dam to the purpose it serves. For example, the costs of powerhouses, penstocks, and other specific power-related facilities have been allocated to the generation function, whereas the costs of navigation locks have been allocated to navigation. More problematic are the joint-use costs that remain unallocated after the costs identifiable to single purposes have been allocated. The joint-use formulas approximate the relative benefits provided by each function, and costs are allocated accordingly.

Thus, costs assigned to the power production functions include specific cost items whose sole purpose is power production, as well as the "power production share" of joint costs assigned to more than one purpose. Both types of costs are included in BPA's generation revenue requirement.

1.2.1.4 Section 4(h)(10)(C) Credit

The Northwest Power Act provides:

> The Administrator shall use the Bonneville Power Administration fund and the authorities available to the Administrator under this Act and other laws administered by the Administrator to protect, mitigate, and enhance fish and wildlife to the extent affected by the development and operation of any hydroelectric project of the Columbia River and its tributaries . . . .

16 U.S.C. § 839b(h)(10)(A).

BPA is not obligated to reimburse the U.S. Treasury for the non-power portion of these fish and wildlife costs. Such non-power costs are instead allocated to the various project purposes by the BPA Administrator, in consultation with the Corps and Reclamation, pursuant to Section 4(h)(10)(C) of the Northwest Power Act. 16 U.S.C. § 839b(h)(10)(C). This allocation to various project purposes implements the principle that electric power consumers will bear no greater share of the costs of fish and wildlife mitigation than the power portion of the project. The legislative history of Section 4(h)(10)(C) illustrates how the expenditures by the Administrator for protection, mitigation, and enhancement of fish and wildlife at individual Federal projects in excess of the portion allocable to electric consumers are to be treated as a credit for electric consumers. H.R. Rep. No. 96-976, 2d Sess., pt. 2, at 45 (1980), *reprinted in* 1980 U.S.C.C.A.N. 5989, 6011. This principle is satisfied by treating expenditures on behalf of non-power purposes as other project costs. BPA receives a credit against its cash transfers to the U.S. Treasury for expenditures attributable to non-power purposes. BPA's initial funding of all the costs for fish and

wildlife has the advantage of avoiding the need for funding the non-power portion of these costs through the annual appropriations process.

1.2.1.5 Colville Settlement Act Credits

The Confederated Tribes of the Colville Reservation Grand Coulee Dam Settlement Act approves and ratifies the Settlement Agreement entered into by the United States and the Confederated Tribes of the Colville Reservation (Colville Tribes) related to the claims for a portion of the revenues from Grand Coulee Dam, and directs BPA to carry out its obligations under the Settlement Agreement. Pub.L. No. 103-436, 108 Stat. 4577 (1994).

The Settlement Agreement obligates BPA to make annual payments to the Colville Tribes. Payments have been tied to BPA's average prices and the amount of annual generation from Grand Coulee Dam. Under the Refinancing Act, part of the Omnibus Consolidated Rescissions and Appropriations Act of 1996, Pub.L. No. 104-134, 110 Stat. 1321, BPA receives annual credits from the U.S. Treasury against payments due the U.S. Treasury in order to defray a portion of the costs of making payments to the Colville Tribes. The annual payments to the Colville Tribes are forecast to be $22.9 million in FY 2022 and $22.9 million in FY 2023. The credits for the FY 2022-2023 rate period are $4.6 million in each fiscal year.

1.2.2 Repayment Requirements and Policies

1.2.2.1 Separate Repayment Studies

Section 10 of the Transmission System Act, 16 U.S.C. § 838h, and Section 7(a)(2)(C) of the Northwest Power Act, 16 U.S.C. § 839e(a)(2)(C), provide that the recovery of the costs of the Federal transmission system shall be equitably allocated between Federal and non-Federal power utilizing such system. In 1982, the Commission first directed BPA to

provide accounting and repayment statements for its transmission system separate and apart from the accounting and repayment statements for the Federal generation system. *Bonneville Power Admin*., 20 FERC ¶ 61,142 (1982). The Commission required BPA to establish books of account for the Federal Columbia River Transmission System (FCRTS) separate from its generation books of account; explained that the FCRTS shall be comprised of all investments, including administrative and management costs, related to the transmission of electric power; and directed BPA to develop repayment studies for its transmission function separate from those for its generation function. Such studies must set forth the date of each investment, the repayment date, and the amount repaid from transmission revenues. *Bonneville Power Admin.*, 26 FERC ¶ 61,096 (1984).

The Commission approved BPA's methodology for separate repayment studies in 1984. *Bonneville Power Admin*., 28 FERC ¶ 61,325 (1984). Thus, BPA has prepared separate repayment studies for its transmission and generation functions since 1984. This standard has enabled BPA to set power and transmission rates separately with minimal change in repayment policy and the process for developing each revenue requirement. This Study incorporates only the repayment study for the generation function for FY 2022-2023.

1.2.2.2 Repayment Schedules

The statutes applicable to BPA do not include specific directives for scheduling repayment of capital appropriations and bonds issued to Treasury other than a directive that the Federal investment be amortized over a reasonable period of years. BPA's repayment policy has been established largely through administrative interpretation of its statutory requirements.

There have been a number of changes in BPA's repayment policy over the years concurrent with expansion of the Federal system and changing conditions. In general, current repayment criteria were approved by the Secretary of the Interior on April 3, 1963. These criteria were refined and submitted to the Secretary and the Federal Power Commission in support of BPA's rate filing in September 1965.

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

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

Id.

This approach to repayment scheduling has the effect of averaging the year-to-year variations in costs and revenues over the repayment period. This results in a uniform cost per unit of power sold, and permits the maintenance of stable rates for extended periods. It also facilitates the orderly marketing of power and permits BPA customers, which include both electric utilities and electroprocess industries, to plan for the future with assurance.

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

A. Hydroelectric power, although not a primary objective, will be proposed to Congress and supported for inclusion in multiple-purpose Federal projects when . . . it is capable of repaying its share of the Federal investment, including operation and maintenance costs and interest, in accordance with the law.

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

To achieve a greater degree of uniformity in repayment policy for all Federal power marketing administrations, the Deputy Assistant Secretary of the Department of the Interior (DOI) issued a memo on August 2, 1972, outlining (1) a uniform definition of the start of the repayment period for a particular project; (2) the method for including future replacement costs in repayment studies; and (3) a provision that the investment or obligation bearing the highest interest rate shall be amortized first, to the extent possible, while ensuring that BPA still complies with the prescribed repayment period established for each increment of investment.

A further clarification of the repayment policy was outlined in a joint memo of January 7, 1974, from the Assistant Secretary for Reclamation and Assistant Secretary for Energy and Minerals. This memo states that in addition to meeting the overall objective of repaying the Federal investment and obligations within the prescribed repayment periods, revenues shall be adequate, except in unusual circumstances, to repay annually all costs for O&M, purchased power, and interest.

On March 22, 1976, the DOI issued Chapter 4 of Part 730 of the DOI Manual to codify financial reporting requirements for the Federal power marketing agencies. It describes standard policies and procedures for preparing system repayment studies.

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

The repayment policy outlined in DOE Order RA 6120.2, paragraph 12, provides that BPA's total revenues from all sources must be sufficient to:

(1) Pay all annual costs of operating and maintaining the Federal power system;

(2) Pay the cost of obtaining power through purchase and exchange agreements, the cost for transmission services, and other costs during the year in which such costs are incurred;

(3) Pay interest each year on the unamortized portion of the commercial power investment financed with appropriated funds at the interest rates established for each generating project and for each annual increment of such investment in the BPA transmission system, except that recovery of annual interest expense may be deferred in unusual circumstances for short periods of time;

(4) Pay when due the interest and amortization portion on outstanding bonds sold to the U.S. Treasury;

(5) Repay:

- each dollar of power investments and obligations in the FCRPS generating projects within 50 years after the projects become revenue-producing (50 years has been deemed a "reasonable

period" as intended by Congress, except for the Yakima-Chandler Project, which has a legislated amortization period of 66 years);

- each annual increment of transmission financed by Federal investments and obligations within the average service life of such transmission facilities (currently 40 years) or within a maximum of 50 years, whichever is less (BPA has interpreted RA 6120.2 to require repayment of bonds sold to finance conservation to be within the average service lives of these projects, currently estimated to be five years, and for fish and wildlife facilities to be 15 years);
- the federally financed amount of each replacement within its service life up to a maximum of 50 years; and

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

The typical repayment period for appropriated capital investments for generation is 50 years from the year in which the plant is placed in service. Appropriated transmission investments have due dates set at no more than 45 years. The Refinancing Act (see Section 1.2.1.2 above) overrides provisions in DOE Order RA 6120.2 related to determining interest during construction and assigning interest rates to Federal investments financed

by appropriations. The Refinancing Act also contains provisions on repayment periods (due dates) for the refinanced investments.

Other sections within DOE Order RA 6120.2 require that any outstanding deferred interest payments must be repaid before any planned amortization payments are made. Also, repayments are to be made by amortizing those Federal investments and obligations bearing the highest interest rate first, to the extent possible, while ensuring that BPA still completes repayment of each increment of Federal investment and obligation within its prescribed repayment period.

The generation function is also charged with recovering irrigation assistance costs, which are repaid without interest. Pub.L. No. 89-448 authorizes the payment of irrigation costs from revenues of the entire power system; such payments thus are functionalized to generation, consistent with the so-called "Basin Account" concept. Pub.L. No. 89-561, approved on September 7, 1966, amended Pub.L. No. 89-448 to provide several limitations on the repayment of irrigation costs from power revenues. These limitations are:

(1) the irrigation costs are to be paid from "net revenues" of the power system, with net revenues defined as those revenues over and above the amount needed to cover power costs and previously authorized irrigation payments;

(2) the construction of new Federal irrigation projects will be scheduled or deferred, if necessary, so that the repayment of the irrigation costs from power revenues will not require an increase in the BPA power rate level; and

(3) the total amount of irrigation costs to be repaid from power revenues shall not average more than $30 million per year in any period of 20 consecutive years.

2. DEVELOPMENT OF THE GENERATION REVENUE REQUIREMENT

2.1 Spending Level Development

The development of program spending levels occurs outside the rate process. For the FY 2022-2023 rate period, it began in June 2020, when BPA hosted the 2020 Integrated Program Review (IPR) workshops. These workshops provided customers and constituents an opportunity to examine, understand, and comment on BPA's cost projections and capital investments for BPA's power and transmission functions.

BPA began the 2020 IPR discussion with the release of the IPR initial report on June 12, 2020, containing an overview of Power Services, Transmission Services, and Corporate proposed capital and program spending levels for FY 2021-2023 (the cost evaluation period). The initial report and workshop discussed proposed spending, particularly for the FY 2022-2023 rate period; the drivers, goals, and risks associated with the proposed spending; and comparisons to previous IPR costs. The initial report also included capital cost projections for FY 2022-2023.

BPA held workshops in June 2020 to discuss the projected capital spending and program spending levels of many program areas, including the Columbia Generating Station (CGS); Corps; Reclamation; BPA's energy efficiency, transmission, and fish and wildlife programs; and BPA's Information Technology program. While debt management actions are outside the scope of the IPR, a workshop was held to enhance participants' understanding of the implications of past debt management decisions, proposed capital spending, and potential debt management tools. After considering the comments received, BPA released a final IPR closeout report in September 2020.

This Study incorporates the spending levels identified in the 2020 IPR final closeout report, which can be found on BPA's public website: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/Pages/IPR-2020.aspx.

BPA conducted an IPR 2 process in March 2021 to review the Transmission capital spending program. BPA also reviewd the PR spending forecasts for fish and wildlife mitigation in light of the Columbia River System Operation Environmental Impact Statement and BPA's proposal to discontinue regulatory asset treatment of studies funded through the Columbia River Fish Mitigation program. A closeout report was issued in April 2021, which can be found on BPA's public website. *Id.*

2.2 Capital Funding

The forecast of BPA's capital investments for FY 2022-2023 used in setting the BP-22 power rates was produced in the IPR process. The following section describes these forecasts, recognizing that the timing of some planned capital spending may be stretched into the following rate period. FCRPS capital investments include Corps, Reclamation, and BPA capital investments and third-party resource investments for which debt is secured by BPA (capitalized contracts). Projections of current FCRPS capital outlays total $673 million for the FY 2022-023 rate period. These investments include:

- improvements and maintenance needed to increase reliability, safety, and performance at the CGS nuclear plant;
- improvements and maintenance needed to improve reliability of the Federal hydro system;
- investment in fish and wildlife mitigation measures;
- investment in conservation activities; and
- investment in capital equipment.

This Study projects that no capital investments will be funded from current revenues.

2.2.1 Bonds Issued to the U.S. Treasury

Bonds issued to the U.S. Treasury are the source of capital that will be used to finance BPA's FY 2022-2023 capital program and Corps and Reclamation investments that BPA has agreed to direct-fund under Section 2406 of the Energy Policy Act of 1992, Pub.L. No. 102-486, 106 Stat. 2776, *amending* 16 U.S.C. § 839d-1. These expenditures include a total capital projection of $645 million, which is comprised of BPA Fish and Wildlife direct program investments ($86 million), BPA capital equipment ($14 million), and generating resource investments of the Corps and Reclamation ($545 million) during FY 2022–2023.

Interest rates on bonds issued by BPA to the U.S. Treasury are set at market interest rates comparable to interest rates on securities issued by other agencies of the U.S. government. Interest rates on bonds projected to be issued are included in Chapter 6 of the Power Revenue Requirement Study Documentation, BP-22-FS-BPA-02A.

2.2.2 Federal Appropriations

In general, the Study reflects that all Corps and Reclamation capital investments in the FCRPS will be financed by Federal appropriations unless they are direct-funded by BPA. This Study includes projected appropriated investments totaling $27 million during the rate period for Corps fish and wildlife mitigation and recovery measures through the Columbia River Fish Mitigation (CRFM) project. No other appropriations-financed investments are forecast for the rate period. Capital investments funded by this source do not become BPA's obligation to repay until they are placed in service.

The interest rate forecast for appropriated capital investments expected to be placed in service is found in Chapter 6 of the Power Revenue Requirement Study Documentation, BP-22-FS-BPA-02A. Each new capital investment is assigned a rate from the U.S. Treasury yield curve prevailing in the month prior to the beginning of the fiscal year in which the new investment is placed in service.

2.2.3 Third-Party Debt

Third-party debt differs from U.S. Treasury debt in that entities other than BPA or the U.S. Treasury issue the debt. BPA's promise to make payments serves as security for bonds or other debt that the third party issues, resulting in wider market access and potentially more favorable interest rates for the seller. Examples of acquisitions financed in this way include the Energy Northwest, Inc. (EN) WNP-1, WNP-3, and CGS nuclear power projects and the Lewis County Public Utility District Hydroelectric Project (Cowlitz Falls).

2.2.4 Revenues from Rates

As a means to fund capital investments in lieu of borrowing, the revenue requirement assumes that $40 million per year of the capital program is funded with current revenues as identified in the settlement agreement. It was not necessary to add revenue financing because of the Leverage Policy.

2.2.5 Prepayment Program

The prepayment program involves customers prepaying future power bills by purchasing blocks of revenue credits that would be applied to billings through FY 2028, when the current Regional Dialogue contracts expire. Four customers chose to participate in the program, prepaying revenues of $340 million. The funds received from these customers have been fully expended.

2.3 Regional Cooperation Debt

Regional Cooperation Debt (RCD) is debt held by EN that is related to its one operational, and two terminated, nuclear plants. BPA has worked with EN to refinance RCD as it comes due. The first phase of refinancings allowed BPA to repay a like amount of higher interest rate Federal debt to reduce BPA's total debt service. The second phase is expected to begin in FY 2021 which will allow BPA to accelerate the repayment of U.S. Treasury bonds to extend access to limited Treasury borrowing authority. The Final Proposal includes an assumption that all RCD coming due in FY 2022-2023 will be refinanced allowing for additional Federal repayment of $768 million. This additional repayment is conditional and is dependent on whether the RCD refinancing occurs and the final size of the refinancing transaction.

2.4 Modeling of BPA's Repayment Obligations

Repayment studies are performed as part of the process for determining revenue requirements. The studies establish a schedule of annual U.S. Treasury amortization for the rate period and the resulting interest payments. Each repayment study covers a rate test year and the ensuing repayment period, which extends to the last year by which all outstanding and projected obligations must be repaid. For generation repayment studies, that period is 50 years.

In conducting the repayment studies, BPA includes as fixed inputs the annual debt service payments associated with its capitalized contract obligations and the fixed annual payments associated with long-term energy resource acquisition contracts. All outstanding and projected generation repayment obligations for appropriated investments (including irrigation assistance) and bonds issued to the U.S. Treasury are included to be scheduled

for repayment. Funding for replacements projected during the repayment period is also included in the repayment study, consistent with the requirements of RA 6120.2.

Appropriations and bonds are scheduled to be repaid within the expected useful life of the associated facility or 50 years, whichever is less. Corps and Reclamation project replacements funded by appropriations and placed in service in 1994 or later have repayment periods that are set at the weighted average service life of all replacements going into service at that project in that year.

Bonds issued by BPA to the U.S. Treasury have varying terms, taking into account the estimated average service lives for investments, prudent financing, and cash management factors. Generally, bonds are usually issued with a provision that allows them to be called after a certain time. Bonds may also be issued with no early call provision. Early retirement of eligible bonds may require that BPA pay a bond premium to the U.S. Treasury. Bonds may also be called and repaid at a discount. In addition, the interest rate that BPA pays on callable bonds is higher than the interest rate on non-callable bonds issued at the same time.

Bonds are issued primarily to finance BPA's Fish and Wildlife Program, and Corps and Reclamation investments that are direct-funded by BPA. These bonds are repaid within the terms and conditions of each bond issued to the U.S. Treasury. Bonds to finance fish and wildlife capital investments are issued with maturities not to exceed 15 years, the same period over which BPA amortizes these capital investments. Corps and Reclamation direct-funding bonds are issued with maturities not to exceed 30 years, although they can be refinanced within the 50-year repayment period.

Based on these parameters, the repayment study establishes a schedule of planned amortization payments and resulting interest expense by determining the lowest levelized debt service stream necessary to repay all generation obligations within the required repayment period.

For further discussion of the repayment program, see Power Revenue Requirement Study Documentation, BP-22-FS-BPA-02A, Chapter 13.

2.5 Products Used by Other Studies

This Study produces information that is used in other studies. The information provided to the Rate Analysis Model (RAM2022) includes itemized program spending data; the allocation of net interest, MRNR, and PNRR to cost pools; and the allocation of interest income between the Composite cost pool and the Non-Slice cost pool.

This page intentionally left blank.

3. GENERATION REVENUE REQUIREMENT

3.1 Revenue Requirement

For each year of a rate period, BPA prepares two tables that constitute the process by which the revenue requirement is determined. The first table, the Income Statement, includes projections of Total Expenses, PNRR, and if necessary, an MRNR component. The second table, the Statement of Cash Flow, shows the analysis used to determine MRNR and the cash available for risk mitigation.

The Income Statement, Table 3, displays the components of the annual revenue requirement, which include Total Operating Expenses (Line 19), Other Expense and (Income), formerly called Net Interest Expense (Line 34), and Total Planned Net Revenues (Line 40), which consists of MRNR (Line 38) and PNRR (Line 39). The sum of these three major components is the Total Revenue Requirement (Line 42).

The amounts shown in Total Operating Expenses are primarily established in the IPR, outside the rate case. Other expenses, such as power purchases, augmentation, transmission acquisition and ancillary services, and net interest, are modeled within the rate case. The MRNR (Line 38) is added to the income statement as a result of analysis of the Statement of Cash Flow, Table 4. MRNR may be necessary to ensure that revenue requirements are sufficient to cover all cash requirements, including annual amortization of the Federal investment as determined in the power repayment studies, and any other cash requirements, such as irrigation assistance payments or the repayment of non-Federal debt. If cash flows are not adequate, MRNR is added. It serves as a net revenue target to ensure adequate cash flow.

The Statement of Cash Flow (Table 4) analyzes annual cash inflow and outflow. Cash provided by Operating Activities (Line 14), driven by the Non-Cash Items shown in Lines 4-11, must be sufficient to compensate for the difference between Cash Used for Investment Activities (Line 20) and Cash Provided by Borrowing and Appropriations (Line 30). If cash provided by current operations is not sufficient, MRNR must be included in revenue requirements to accommodate the shortfall, yielding at least zero Annual Increase in Cash (Line 32). Any MRNR amounts shown on the Statement of Cash Flow (Line 2) are then incorporated in the Income Statement (Table 3, Line 38).

3.2 Current Revenue Test

Consistent with DOE Order RA 6120.2, the continuing adequacy of existing rates must be tested annually. The current revenue test, exhibited in Tables 5 and 6, determines whether the revenue expected from current rates will meet cost recovery requirements during the FY 2022-2023 rate period and the ensuing repayment period. Revenue at current rates can be found in the Power Rates Study (PRS) Documentation, BP-22-FS-BPA-01A, Table 9.1.

The result of the current revenue test demonstrates that projected revenue from current rates is adequate to meet the cost recovery criteria of Order RA 6120.2. *See* Table 7, Column L. If revenues from current rates are adequate in all years, current rates could be extended, although other reasons may exist for revising rates, such as the implementation of a new rate design or adoption of a settlement agreement.

3.3 Revised Revenue Test

Consistent with DOE Order RA 6120.2, the adequacy of proposed rates must be demonstrated. The revised revenue test determines whether the revenue projected from proposed rates will meet cost recovery requirements for the rate period. The revised

revenue test is conducted using the forecast of revenue under proposed rates. *See* PRS Documentation, BP-22-FS-BPA-01A, Table 9.2.

For the rate period, the demonstration of the adequacy of proposed rates is shown in Tables 8 and 9. Table 9 tests the sufficiency of the resulting net revenues from Table 8 (Line 40) for making the planned annual amortization and irrigation assistance payments. The sufficiency of net revenues is demonstrated by the annual increase (decrease) in cash (Table 9, Line 33). The annual cash flow must be at least zero to demonstrate the adequacy of the projected revenues to cover all cash requirements.

The results of the revised revenue test demonstrate that proposed rates are adequate to fulfill the basic cost recovery requirements for the rate period, FY 2022-2023. With the successful test of proposed rates, the rate development process ends.

As has been done in past rate proceedings, cash flows between the two years have been smoothed by holding an amount of cash aside from the first year and applying it in the second year to address a shortfall in that year. Shaping is done because revenues in each year may be higher or lower than the projected expenses depending on the sales The shaping of the cashflows does not affect the total cashflow in the rate period. Shaping mimics actual practice which allows for the use of reserves without affecting rates.

3.4 Repayment Test at Proposed Rates

Table 10, Generation Revenue from Proposed Rates, demonstrates whether projected revenue from proposed rates is adequate to meet the cost recovery criteria of DOE Order RA 6120.2 over the repayment period. The data are presented in a format consistent with the revised revenue tests, Tables 8 and 9, and the separate accounting analysis that is an

attachment to the filing with the Commission. The focal point of Table 10 is the net position (Column L), which is the amount remaining after meeting annual expenses requiring cash for the rate period and repayment of the Federal investment. Thus, if the net position is zero or greater in each of the years of the rate period through the repayment period, the projected revenues demonstrate BPA's ability to repay the Federal investment in the FCRPS within the allowable time. As shown in Column L, the resulting net position is zero or greater for each year of the rate period and in each year of the repayment period. The historical data on this table were taken from BPA's separate accounting analysis. The rate period data were developed specifically for this Study. The repayment period data are presented consistent with the requirements of RA 6120.2. Typically, the test of revenue sufficiency through the repayment period uses expenses from the last year of the rate period. As has been done since the WP-07 rate proceeding, expenses for the CGS nuclear plant are normalized because it is on a two-year refueling cycle. FY 2023 is a refueling year for CGS, which increases O&M costs for the facility and increases BPA's power purchase costs to make up for the loss of generation during the refueling. The projection of these outage costs in every year of the repayment period would misrepresent the costs associated with the CGS refueling cycle. For the purposes of this revenue test, these CGS costs for FY 2022 and FY 2023 have been averaged to produce an average annual cost for the operation of CGS for the rate period. Any augmentation purchases are also averaged in this fashion because of the higher costs in FY 2023 to make up for lost CGS generation.

Table 11, Amortization of Generation Investments Over Repayment Period, summarizes the amortization of Federal investments over the repayment period. It displays the total investment costs through the cost evaluation period, forecast replacements required to maintain the system through the repayment period, the cumulative dollar amount of investment placed in service, scheduled amortization payments for each year of the

repayment period (due and discretionary), unamortized investments including replacements through the repayment period, unamortized obligations as determined by a term schedule (*i.e.,* if all obligations were paid at maturity and never early), predetermined amortization payments, and the unamortized amount of irrigation assistance for each year of the repayment period.

This page intentionally left blank.

TABLES

This page intentionally left blank.

Table 1: Projected Net Revenues from Projected Rates
($000s)

		A	B	C
		2022	2023	Average
1	Projected Revenues from Proposed Rates	$ 2,792,561	$ 2,756,984	$2,774,772
2	Projected Expenses	2,656,180	2,659,517	2,657,849
3	Net Revenues	$ 136,380	$ 97,467	$ 116,923

Table 2: Planned Federal Amortization & Irrigation Assistance Payments
($000s)

Base Amortization

		A	B	C	D
		Bond	Appropriations	Irrigation	
	Fiscal Year	Amortization	Amortization	Assistance	Total
1	2022	$145,809	$0	$16,060	$161,869
2	2023	$105,665	-	12,762	118,427
3	Total	$251,474	$0	$28,822	$280,296

Conditional Amortization

		A	B	C	D
		Bond	Appropriations	Irrigation	
	Fiscal Year	Amortization	Amortization	Assistance	Total
4	2022	349,191	$0	$0	$349,191
5	2023	419,335	-	-	419,335
6	Total	$768,526	$0	$0	$768,526

Total Amortization

		A	B	C	D
		Bond	Appropriations	Irrigation	
	Fiscal Year	Amortization	Amortization	Assistance	Total
7	2022	$495,000	$0	$16,060	$511,060
8	2023	525,000	-	12,762	537,762
9	Total	$1,020,000	$0	$28,822	$1,048,822

Table 3: Generation Revenue Requirement Income Statement

($000s)

		A	B
		2022	2023
1	OPERATING EXPENSES		
2	POWER SYSTEM GENERATION RESOURCES		
3	OPERATING GENERATION RESOURCES	706,771	731,010
4	OPERATING GENERATION SETTLEMENT PAYMENTS	27,749	27,500
5	NON-OPERATING GENERATION	2,341	2,375
6	CONTRACTED POWER PURCHASES	90,690	88,229
7	AUGMENTATION POWER PURCHASES	0	0
8	EXCHANGES & SETTLEMENTS	265,288	265,315
9	RENEWABLE GENERATION	34,418	29,467
10	GENERATION CONSERVATION	121,267	121,267
11	POWER NON-GENERATION OPERATIONS	79,507	82,056
12	PS TRANSMISSION ACQUISITION AND ANCILLARY SERVICES	211,228	209,388
13	F&W/USF&W/PLANNING COUNCIL	292,450	288,627
14	GENERAL AND ADMINISTRATIVE/SHARED SERVICES	85,471	86,515
15	OTHER INCOME, EXPENSES AND ADJUSTMENTS	0	0
16	DEPRECIATION	140,949	144,155
17	AMORTIZATION	320,900	317,320
18	ACCRETION	36,754	38,363
19	TOTAL OPERATING EXPENSES	2,415,782	2,431,585
20			
21	OTHER EXPENSE AND (INCOME)		
22	INTEREST		
23	APPROPRIATED FUNDS	38,411	38,609
24	CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
25	BONDS ISSUED TO U.S. TREASURY	43,986	39,113
26	BOND PREMIUMS/DISCOUNTS	767	1,768
27	NON-FEDERAL INTEREST	236,318	228,327
28	AMORTIZATION OF NON-FEDERAL PREMIUMS/DISCOUNTS	(7,562)	(7,491)
29	AMORTIZATION OF COST OF ISSUANCE	169	169
30	ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION	(11,005)	(11,469)
31	INTEREST CREDIT ON CASH RESERVES	(1,469)	(1,424)
32	INTEREST INCOME ON DECOMMISSIONING TRUST	(9,857)	(10,198)
33	OTHER INCOME (NET)	(3,399)	(3,516)
34	TOTAL OTHER EXPENSE AND (INCOME)	240,422	227,951
35			
36	TOTAL EXPENSES	2,656,204	2,659,536
37			
38	MINIMUM REQUIRED NET REVENUE 1/	67,831	104,443
39	PLANNED NET REVENUE FOR RISK	31,000	31,000
40	PLANNED NET REVENUE, TOTAL (38+39)	98,831	135,443
41			
42	**TOTAL REVENUE REQUIREMENT**	**2,755,035**	**2,794,978**
1/	See note on Statement of Cash Flows		

Table 4: Generation Revenue Requirement Statement of Cash Flow

($000s)

		A	B
		2022	2023
1	CASH FROM OPERATING ACTIVITIES		
2	MINIMUM REQUIRED NET REVENUE 1/	67,831	104,443
3	NON-CASH ITEMS:		
4	NON-FEDERAL INTEREST	7,854	6,799
5	DEPRECIATION AND AMORTIZATION	461,849	461,474
6	ACCRETION	36,754	38,363
7	NON-CASH EXPENSES	64,670	59,440
8	CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
9	NON-CASH REVENUES	(30,600)	(30,600)
10	AMORTIZATION OF NON-FEDERAL PREMIUMS/DISCOUNTS	(7,562)	(7,491)
11	AMORTIZATION OF COST OF ISSUANCE	169	169
12	CASH CONTRIBUTION TO DECOMMISSIONING TRUST	(4,472)	(4,651)
13	CASH FREE UP	16,510	16,865
14	CASH PROVIDED BY OPERATING ACTIVITIES	567,066	598,873
15			
16	CASH FROM INVESTMENT ACTIVITIES		
17	INVESTMENT IN:		
18	UTILITY PLANT (INCLUDING AFUDC)	(290,258)	(296,350)
19	FISH & WILDLIFE	(43,000)	(43,000)
20	CASH USED FOR INVESTMENT ACTIVITIES	(333,258)	(339,350)
21			
22	CASH FROM BORROWING AND APPROPRIATIONS:		
23	INCREASE IN BONDS ISSUED TO U.S. TREASURY	274,090	291,140
24	REPAYMENT OF BONDS ISSUED TO U.S. TREASURY	(495,001)	(525,000)
25	INCREASE IN FEDERAL CONSTRUCTION APPROPRIATIONS	19,168	8,210
26	REPAYMENT OF FEDERAL CONSTRUCTION APPROPRIATIONS	0	0
27	REPAYMENT OF NON-FEDERAL OBLIGATIONS	(16,005)	(21,111)
28	CUSTOMER PROCEEDS	0	0
29	PAYMENT OF IRRIGATION ASSISTANCE	(16,060)	(12,762)
30	CASH PROVIDED BY BORROWING AND APPROPRIATIONS	(233,808)	(259,523)
31			
32	ANNUAL INCREASE (DECREASE) IN CASH	0	0
33			
34	PLANNED NET REVENUE FOR RISK	31,000	31,000
35			
36	TOTAL ANNUAL INCREASE (DECREASE) IN CASH	31,000	31,000
1/	Minimum required net revenues are added to ensure suffcient cash flow is available		
	to repay the federal investment.		

Table 5: Generation Current Revenue Test Income Statement

($000s)

		A	B
		2022	2023
1	REVENUES FROM CURRENT RATES	2,879,681	2,847,295
2			
3	OPERATING EXPENSES		
4	POWER SYSTEM GENERATION RESOURCES		
5	OPERATING GENERATION	706,771	731,010
6	OPERATING GENERATION SETTLEMENTS	27,749	27,500
7	NON-OPERATING GENERATION	2,341	2,375
8	CONTRACTED POWER PURCHASES	90,690	88,229
9	AUGMENTATION POWER PURCHASES	0	0
10	EXCHANGES & SETTLEMENTS	265,308	265,336
11	RENEWABLE GENERATION	34,418	29,467
12	GENERATION CONSERVATION	121,267	121,267
13	POWER NON-GENERATION OPERATIONS	79,507	82,056
14	PS TRANSMISSION ACQUISITION AND ANCILLARY SERVICES	211,228	209,388
15	F&W/USF&W/PLANNING COUNCIL	292,450	288,627
16	BPA INTERNAL SUPPORT	85,471	86,515
17	OTHER INCOME, EXPENSES AND ADJUSTMENTS	0	0
18	DEPRECIATION	140,949	144,155
19	AMORTIZATION	320,900	317,320
20	ACCRETION	36,754	38,363
21	TOTAL OPERATING EXPENSES	2,415,802	2,431,606
22			
23	OTHER EXPENSE AND (INCOME)		
24	INTEREST		
25	APPROPRIATED FUNDS	38,411	38,609
26	CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
27	BONDS ISSUED TO U.S. TREASURY	43,986	39,113
28	PREMIUMS/DISCOUNTS	767	1,768
29	NON-FEDERAL INTEREST	236,318	228,327
30	AMORTIZATION OF NON-FEDERAL PREMIUMS/DISCOUNTS	(7,562)	(7,491)
31	AMORTIZATION OF COST OF ISSUANCE	169	169
32	ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION	(11,005)	(11,469)
33	INTEREST CREDIT ON CASH RESERVES	(1,617)	(1,742)
34	INTEREST INCOME ON DECOMMISSIONING TRUST	(9,857)	(10,198)
35	OTHER INCOME (NET)	(3,399)	(3,516)
36	TOTAL OTHER EXPENSE AND (INCOME)	240,275	227,633
37			
38	TOTAL EXPENSES	2,656,077	2,659,239
39			
40	NET REVENUES	223,604	188,056

Table 6: Generation Current Revenue Test Statement of Cash Flow

($000s)

		A	B
		2022	2023
1	CASH PROVIDED BY OPERATING ACTIVITIES		
2	NET REVENUES	223,604	188,056
3	NON-CASH ITEMS:		
4	NON-FEDERAL INTEREST	7,854	6,799
5	DEPRECIATION AND AMORTIZATION	461,849	461,474
6	ACCRETION	36,754	38,363
7	NON-CASH EXPENSES (INTEREST INCOME & GAINS/LOSSES)	64,670	59,440
8	CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
9	NON-CASH REVENUES	(30,600)	(30,600)
10	AMORTIZATION OF NON-FEDERAL PREMIUMS/DISCOUNTS	(7,562)	(7,491)
11	AMORTIZATION OF COST OF ISSUANCE	169	169
12	CASH CONTRIBUTION TO DECOMMISSIONING TRUST	(4,472)	(4,651)
13	CASH FREE UP	16,510	16,865
14	CASH FLOW ADJUSTMENT (RESERVE)/APPLICATION	0	0
15	CASH PROVIDED BY OPERATING ACTIVITIES	722,839	682,487
16			
17	CASH USED FOR INVESTMENT ACTIVITIES		
18	INVESTMENT IN:		
19	FEDERAL UTILITY PLANT (INCLUDING AFUDC)	(290,258)	(296,350)
20	FISH & WILDLIFE	(43,000)	(43,000)
21	CASH USED FOR INVESTMENT ACTIVITIES	(333,258)	(339,350)
22			
23	CASH FROM (AND USED FOR) FINANCING ACTIVITIES		
24	INCREASE IN TREASURY DEBT	274,090	291,140
25	REPAYMENT OF TREASURY DEBT	(495,001)	(525,000)
26	INCREASE IN FEDERAL CONSTRUCTION APPROPRIATIONS	19,168	8,210
27	REPAYMENT OF FEDERAL CONSTRUCTION APPROPRIATIONS	0	0
28	REPAYMENT OF NON-FEDERAL OBLIGATIONS	(16,005)	(21,111)
29	CUSTOMER PROCEEDS	0	0
30	PAYMENT OF IRRIGATION ASSISTANCE	(16,060)	(12,762)
31	CASH USED FOR FINANCING ACTIVITIES	(233,808)	(259,523)
32			
33	ANNUAL INCREASE (DECREASE) IN CASH	155,773	83,613

Table 7: Generation Revenue from Current Rates – Results Through the Repayment Period

($000s)

		A	B	C	D	E	F
				PURCHASE AND			
	YEAR		OPERATION &	EXCHANGE		NET	NET
	COMBINED CUMULATIVE	REVENUES (STATEMENT A)	MAINTENANCE (STATEMENT E)	POWER (STATEMENT E)	DEPRECIATION	INTEREST (STATEMENT D)	REVENUES (F=A-B-C-D-E)
1	2014	85,655,930	18,971,574	52,260,235	5,723,414	7,536,544	1,164,163
2							
3	GENERATION						
4	2015	2,588,858	1,009,924	841,782	224,188	185,925	327,038
5	2016	2,600,726	1,140,374	864,698	222,551	185,925	187,178
6	2017	2,721,171	1,171,666	947,790	224,047	121,678	255,990
7	2018	2,862,774	1,188,441	966,795	221,031	73,686	412,821
8	2019	2,817,848	1,129,514	1,139,850	225,211	65,484	257,789
9	2020	2,814,257	1,117,823	683,251	478,985	279,085	255,113
10	COST EVALUATION						
11	PERIOD						
12	2021	2,815,950	1,200,397	723,201	491,000	245,677	155,675
13	RATE APPROVAL						
14	PERIOD						
15	2022	2,879,681	1,229,763	687,416	498,603	240,275	223,624
16	2023	2,847,295	1,224,491	707,257	499,837	227,633	188,077
17	REPAYMENT						
18	PERIOD						
19	2024	2,847,295	1,224,491	694,205	499,837	270,048	158,714
20	2025	2,847,295	1,224,491	694,205	499,837	175,108	253,654
21	2026	2,847,295	1,224,491	694,205	499,837	159,229	269,533
22	2027	2,847,295	1,224,491	694,205	499,837	142,012	286,750
23	2028	2,847,295	1,224,491	694,205	499,837	141,374	287,389
24	2029	2,847,295	1,224,491	694,205	499,837	139,008	289,754
25	2030	2,847,295	1,224,491	694,205	499,837	117,229	311,533
26	2031	2,847,295	1,224,491	694,205	499,837	104,293	324,470
27	2032	2,847,295	1,224,491	694,205	499,837	92,621	336,142
28	2033	2,847,295	1,224,491	694,205	499,837	57,711	371,051
29	2034	2,847,295	1,224,491	694,205	499,837	18,630	410,133
30	2035	2,847,295	1,224,491	694,205	499,837	47,743	381,019
31	2036	2,847,295	1,224,491	694,205	499,837	51,252	377,510
32	2037	2,847,295	1,224,491	694,205	499,837	39,269	389,493
33	2038	2,847,295	1,224,491	694,205	499,837	27,022	401,740
34	2039	2,847,295	1,224,491	694,205	499,837	13,825	414,938
35	2040	2,847,295	1,224,491	694,205	499,837	(316)	429,079
36	2041	2,847,295	1,224,491	694,205	499,837	(13,606)	442,368
37	2042	2,847,295	1,224,491	694,205	499,837	(22,428)	451,191
38	2043	2,847,295	1,224,491	694,205	499,837	(34,694)	463,456
39	2044	2,847,295	1,224,491	694,205	499,837	(45,075)	473,837
40	2045	2,847,295	1,224,491	694,205	499,837	(49,631)	478,393
41	2046	2,847,295	1,224,491	694,205	499,837	(49,993)	478,755
42	2047	2,847,295	1,224,491	694,205	499,837	(50,528)	479,290
43	2048	2,847,295	1,224,491	694,205	499,837	(51,079)	479,841
44	2049	2,847,295	1,224,491	694,205	499,837	(51,645)	480,407
45	2050	2,847,295	1,224,491	694,205	499,837	(51,996)	480,758
46	2051	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
47	2052	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
48	2053	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
49	2054	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
50	2055	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
51	2056	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
52	2057	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
53	2058	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
54	2059	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
55	2060	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
56	2061	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
57	2062	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
58	2063	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
59	2064	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
60	2065	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
61	2066	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
62	2067	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
63	2068	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
64	2069	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
65	2070	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
66	2071	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
67	2072	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
68	2073	2,847,295	1,224,491	694,205	499,837	(52,060)	480,822
69							
70	GENERATION						
71	TOTALS	338,625,152	109,580,087	146,792,739	39,524,128	16,676,457	26,051,741

Table 7 (continued)

		G	H	I	J	K	L
	YEAR COMBINED CUMULATIVE	NONCASH EXPENSES 1/ (COLUMN D)	FUNDS FROM OPERATION (H=F+G)	NON-FEDERAL AMORTIZATION 2/ (REV REQ STUDY DOCUMENTATION)	AMORTIZATION (REV REQ STUDY DOCUMENTATION)	IRRIGATION AMORTIZATION (STATEMENT C)	NET POSITION (K=H-I-J)
1	**2014**	4,789,337	5,952,751		5,521,807	157,944	273,000
2							
3	**GENERATION**						
4	**2015**	192,292	585,598	0	402,532	61,066	122,000
5	**2016**	690,354	877,532	0	1,053,348	60,184	(236,000)
6	**2017**	190,579	794,123	0	796,641	50,769	(53,287)
7	**2018**	221,031	295,853	0	388,138	0	(92,285)
8	**2019**	222,645	810,434	141,088	422,706	56,573	190,067
9	**2020**	447,520	702,633	274,610	171,410	24,129	232,484
10	**COST EVALUATION**						
11	**PERIOD**						
12	**2021**	422,686	578,361	23,570	519,000	22,112	13,679
13	**RATE APPROVAL**						
14	**PERIOD**						
15	**2022**	459,235	682,860	16,005	495,000	16,060	155,795
16	**2023**	454,431	642,507	21,111	525,000	12,762	83,634
17	**REPAYMENT**						
18	**PERIOD**						
19	**2024**	494,431	653,145	116,218	300,998	7,710	228,218
20	**2025**	494,431	748,085	386,723	97,390	13,436	250,536
21	**2026**	494,431	763,964	391,901	100,409	19,726	251,927
22	**2027**	494,431	781,181	408,116	113,237	6,084	253,743
23	**2028**	494,431	781,819	421,150	110,306	11,126	239,237
24	**2029**	494,431	784,185	129,259	423,204	4,065	227,657
25	**2030**	494,431	805,964	249,986	321,705	1,996	232,277
26	**2031**	494,431	818,901	267,840	308,534	10,433	232,093
27	**2032**	494,431	830,572	256,519	343,048	-	231,005
28	**2033**	494,431	865,482	238,944	390,993	4,347	231,197
29	**2034**	494,431	904,563	254,513	419,780	-	230,270
30	**2035**	494,431	875,450	217,720	421,465	7,695	228,570
31	**2036**	494,431	871,941	206,155	408,961	28,920	227,903
32	**2037**	494,431	883,924	199,959	441,342	15,427	227,196
33	**2038**	494,431	896,171	190,992	479,125	-	226,054
34	**2039**	494,431	909,369	174,720	495,123	13,995	225,530
35	**2040**	494,431	923,510	175,011	522,431	-	226,067
36	**2041**	494,431	936,799	181,491	455,535	73,659	226,114
37	**2042**	494,431	945,621	174,139	550,528	-	220,954
38	**2043**	494,431	957,887	70,035	671,370	-	216,482
39	**2044**	494,431	968,268	175,722	577,875	-	214,670
40	**2045**	494,431	972,824	489,036	259,843	11,479	212,466
41	**2046**	494,431	973,186	489,035	271,685	-	212,466
42	**2047**	494,431	973,721	489,037	272,218	-	212,466
43	**2048**	494,431	974,272	489,035	272,771	-	212,466
44	**2049**	494,431	974,838	489,036	273,336	-	212,466
45	**2050**	494,431	975,189	489,036	257,425	-	228,728
46	**2051**	494,431	975,253	489,035	252,839	-	233,379
47	**2052**	494,431	975,253	489,035	252,839	-	233,379
48	**2053**	494,431	975,253	489,035	252,839	-	233,379
49	**2054**	494,431	975,253	489,036	252,839	-	233,378
50	**2055**	494,431	975,253	489,036	252,839	-	233,378
51	**2056**	494,431	975,253	489,034	252,839	-	233,380
52	**2057**	494,431	975,253	489,034	252,839	-	233,380
53	**2058**	494,431	975,253	489,035	252,839	-	233,379
54	**2059**	494,431	975,253	489,038	252,839	-	233,376
55	**2060**	494,431	975,253	489,037	252,839	-	233,376
56	**2061**	494,431	975,253	489,037	252,839	-	233,377
57	**2062**	494,431	975,253	489,035	252,839	-	233,379
58	**2063**	494,431	975,253	489,035	252,839	-	233,378
59	**2064**	494,431	975,253	489,037	252,839	-	233,377
60	**2065**	494,431	975,253	489,034	252,839	-	233,379
61	**2066**	494,431	975,253	489,035	252,839	-	233,379
62	**2067**	494,431	975,253	489,037	252,839	-	233,377
63	**2068**	494,431	975,253	489,034	252,839	-	233,380
64	**2069**	494,431	975,253	489,035	252,839	-	233,379
65	**2070**	494,431	975,253	489,034	252,839	-	233,380
66	**2071**	494,431	975,253	489,035	252,839	-	233,379
67	**2072**	494,431	975,253	489,037	252,839	-	233,377
68	**2073**	494,431	975,253	489,036	252,839	-	233,378
69							
70	**GENERATION**						
71	**TOTALS**	37,392,990	64,162,942	19,545,533	31,193,334	849,641	12,574,433

1/ Consists of depreciation plus other non-cash expenses and other adjustments and any accounting write-offs included in expenses. Also removed revenue financing. FY 2019 includes a one-time increase of $182 million to rebalance financial reserves between the transmission and generation functions to correct for a misallocation error in the calculation of financial reserves attributed to the business units.

2/ Prior to 2020, non-Federal debt was considered part of purchase and exchange power. Starting in 2020, BPA is implementing new guidance on lease accounting. Non-Federal principal and interest will be treated like Federal debt.

Table 8: Generation Revised Revenue Test Income Statement

($000s)

		A	B
		2022	2023
1	REVENUES FROM PROPOSED RATES	2,792,561	2,756,984
2			
3	OPERATING EXPENSES		
4	POWER SYSTEM GENERATION RESOURCES		
5	OPERATING GENERATION	706,771	731,010
6	OPERATING GENERATION SETTLEMENTS	27,749	27,500
7	NON-OPERATING GENERATION	2,341	2,375
8	CONTRACTED POWER PURCHASES	90,690	88,229
9	AUGMENTATION POWER PURCHASES	0	0
10	EXCHANGES & SETTLEMENTS	265,308	265,336
11	RENEWABLE GENERATION	34,418	29,467
12	GENERATION CONSERVATION	121,267	121,267
13	POWER NON-GENERATION OPERATIONS	79,507	82,056
14	PS TRANSMISSION ACQUISITION AND ANCILLARY SERVICES	211,228	209,388
15	F&W/USF&W/PLANNING COUNCIL	292,450	288,627
16	BPA INTERNAL SUPPORT	85,471	86,515
17	OTHER INCOME, EXPENSES AND ADJUSTMENTS	0	0
18	DEPRECIATION	140,949	144,155
19	AMORTIZATION	320,900	317,320
20	ACCRETION	36,754	38,363
21	TOTAL OPERATING EXPENSES	2,415,802	2,431,606
22			
23	OTHER EXPENSE AND (INCOME)		
24	INTEREST		
25	APPROPRIATED FUNDS	38,411	38,609
26	CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
27	BONDS ISSUED TO U.S. TREASURY	43,986	39,113
28	PREMIUMS/DISCOUNTS	767	1,768
29	NON-FEDERAL INTEREST	236,318	228,327
30	AMORTIZATION OF NON-FEDERAL PREMIUMS/DISCOUNTS	(7,562)	(7,491)
31	AMORTIZATION OF COST OF ISSUANCE	169	169
32	ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION	(11,005)	(11,469)
33	INTEREST CREDIT ON CASH RESERVES	(1,514)	(1,463)
34	INTEREST INCOME ON DECOMMISSIONING TRUST	(9,857)	(10,198)
35	OTHER INCOME (NET)	(3,399)	(3,516)
36	TOTAL OTHER EXPENSE AND (INCOME)	240,378	227,912
37			
38	TOTAL EXPENSES	2,656,180	2,659,517
39			
40	NET REVENUES	136,380	97,467

Table 9: Generation Revised Revenue Test Statement of Cash Flow

($000s)

		A	B
		2022	2023
1	CASH PROVIDED BY OPERATING ACTIVITIES		
2	NET REVENUES	136,380	97,467
3	NON-CASH ITEMS:		
4	NON-FEDERAL INTEREST	7,854	6,799
5	DEPRECIATION AND AMORTIZATION	461,849	461,474
6	ACCRETION	36,754	38,363
7	NON-CASH EXPENSES	64,670	59,440
8	CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
9	NON-CASH REVENUES	(30,600)	(30,600)
10	AMORTIZATION OF NON-FEDERAL PREMIUMS/DISCOUNTS	(7,562)	(7,491)
11	AMORTIZATION OF COST OF ISSUANCE	169	169
12	CASH CONTRIBUTION TO DECOMMISSIONING TRUST	(4,472)	(4,651)
13	CASH FREE UP	16,510	16,865
14	CASH FLOW ADJUSTMENT (RESERVE)/APPLICATION	(7,000)	7,000
15	CASH PROVIDED BY OPERATING ACTIVITIES	628,616	598,897
16			
17	CASH USED FOR INVESTMENT ACTIVITIES		
18	INVESTMENT IN:		
19	FEDERAL UTILITY PLANT (INCLUDING AFUDC)	(290,258)	(296,350)
20	FISH & WILDLIFE	(43,000)	(43,000)
21	CASH USED FOR INVESTMENT ACTIVITIES	(333,258)	(339,350)
22			
23	CASH FROM (AND USED FOR) FINANCING ACTIVITIES		
24	INCREASE IN TREASURY DEBT	274,090	291,140
25	REPAYMENT OF TREASURY DEBT	(495,001)	(525,000)
26	INCREASE IN FEDERAL CONSTRUCTION APPROPRIATIONS	19,168	8,210
27	REPAYMENT OF FEDERAL CONSTRUCTION APPROPRIATIONS	0	0
28	REPAYMENT OF NON-FEDERAL OBLIGATIONS	(16,005)	(21,111)
29	CUSTOMER PROCEEDS	0	0
30	PAYMENT OF IRRIGATION ASSISTANCE	(16,060)	(12,762)
31	CASH USED FOR FINANCING ACTIVITIES	(233,808)	(259,523)
32			
33	ANNUAL INCREASE (DECREASE) IN CASH	61,549	24

Table 10: Generation Revenue from Proposed Rates – Results Through the Repayment Period

($000s)

		A	B	C	D	E	F
				PURCHASE AND			
	YEAR		OPERATION &	EXCHANGE		NET	NET
	COMBINED CUMULATIVE	REVENUES (STATEMENT A)	MAINTENANCE (STATEMENT E)	POWER (STATEMENT E)	DEPRECIATION	INTEREST (STATEMENT D)	REVENUES (F=A-B-C-D-E)
1	**2014**	85,655,930	18,971,574	52,260,235	5,723,414	7,536,544	1,164,163
2							
3	**GENERATION**						
4	**2015**	2,588,858	1,009,924	841,782	224,188	185,925	327,038
5	**2016**	2,600,726	1,140,374	864,698	222,551	185,925	187,178
6	**2017**	2,721,171	1,171,666	947,790	224,047	121,678	255,990
7	**2018**	2,862,774	1,188,441	966,795	221,031	73,686	412,821
8	**2019**	2,817,848	1,129,514	1,139,850	225,211	65,484	257,789
9	**2020**	2,814,257	1,117,823	683,251	478,985	279,085	255,113
10	**COST EVALUATION**						
11	**PERIOD**						
12	**2021**	2,815,950	1,200,397	723,201	491,000	245,677	155,675
13	**RATE APPROVAL**						
14	**PERIOD**						
15	**2022**	2,792,561	1,229,763	687,416	498,603	240,378	136,401
16	**2023**	2,756,984	1,224,491	707,257	499,837	227,912	97,487
17	**REPAYMENT**						
18	**PERIOD**						
19	**2024**	2,756,984	1,224,491	694,205	499,837	273,385	65,067
20	**2025**	2,756,984	1,224,491	694,205	499,837	200,794	137,657
21	**2026**	2,756,984	1,224,491	694,205	499,837	186,199	152,253
22	**2027**	2,756,984	1,224,491	694,205	499,837	170,876	167,576
23	**2028**	2,756,984	1,224,491	694,205	499,837	155,706	182,746
24	**2029**	2,756,984	1,224,491	694,205	499,837	141,656	196,795
25	**2030**	2,756,984	1,224,491	694,205	499,837	124,578	213,873
26	**2031**	2,756,984	1,224,491	694,205	499,837	111,420	227,031
27	**2032**	2,756,984	1,224,491	694,205	499,837	98,556	239,896
28	**2033**	2,756,984	1,224,491	694,205	499,837	64,915	273,536
29	**2034**	2,756,984	1,224,491	694,205	499,837	24,641	313,811
30	**2035**	2,756,984	1,224,491	694,205	499,837	52,153	286,299
31	**2036**	2,756,984	1,224,491	694,205	499,837	55,330	283,122
32	**2037**	2,756,984	1,224,491	694,205	499,837	42,678	295,774
33	**2038**	2,756,984	1,224,491	694,205	499,837	29,267	309,185
34	**2039**	2,756,984	1,224,491	694,205	499,837	15,571	322,880
35	**2040**	2,756,984	1,224,491	694,205	499,837	2,074	336,378
36	**2041**	2,756,984	1,224,491	694,205	499,837	(11,139)	349,591
37	**2042**	2,756,984	1,224,491	694,205	499,837	(25,060)	363,511
38	**2043**	2,756,984	1,224,491	694,205	499,837	(41,658)	380,109
39	**2044**	2,756,984	1,224,491	694,205	499,837	(53,807)	392,258
40	**2045**	2,756,984	1,224,491	694,205	499,837	(60,505)	398,957
41	**2046**	2,756,984	1,224,491	694,205	499,837	(60,827)	399,279
42	**2047**	2,756,984	1,224,491	694,205	499,837	(61,352)	399,803
43	**2048**	2,756,984	1,224,491	694,205	499,837	(62,294)	400,746
44	**2049**	2,756,984	1,224,491	694,205	499,837	(64,027)	402,479
45	**2050**	2,756,984	1,224,491	694,205	499,837	(64,378)	402,830
46	**2051**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
47	**2052**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
48	**2053**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
49	**2054**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
50	**2055**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
51	**2056**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
52	**2057**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
53	**2058**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
54	**2059**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
55	**2060**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
56	**2061**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
57	**2062**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
58	**2063**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
59	**2064**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
60	**2065**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
61	**2066**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
62	**2067**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
63	**2068**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
64	**2069**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
65	**2070**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
66	**2071**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
67	**2072**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
68	**2073**	2,756,984	1,224,491	694,205	499,837	(64,443)	402,894
69							
70	**GENERATION**						
71	**TOTALS**	280,198,121	100,815,071	110,543,801	36,096,094	10,961,677	21,781,479

Table 10 (continued)

		G	H	I	J	K	L
	YEAR COMBINED CUMULATIVE	NONCASH EXPENSES 1/ (COLUMN D)	FUNDS FROM OPERATION (H=F+G)	NON-FEDERAL AMORTIZATION 2/ (REV REQ STUDY DOCUMENTATION)	FEDERAL AMORTIZATION (REV REQ STUDY DOCUMENTATION)	IRRIGATION AMORTIZATION (STATEMENT C)	NET POSITION (K=H-I-J)
1	**2014**	4,789,337	5,952,751		5,521,807	157,944	273,000
2							
3	**GENERATION**						
4	**2015**	192,292	585,598		402,532	61,066	122,000
5	**2016**	690,354	877,532		1,053,348	60,184	(236,000)
6	**2017**	190,579	794,123		796,641	50,769	(53,287)
7	**2018**	221,031	295,853		388,138	-	(92,285)
8	**2019**	222,645	810,434	141,088	422,706	56,573	190,067
9	**2020**	447,520	702,633	274,610	171,410	24,129	232,484
10	**COST EVALUATION**						
11	**PERIOD**						
12	**2021**	422,686	578,361	23,570	519,000	22,112	13,679
13	**RATE APPROVAL**						
14	**PERIOD**						
15	**2022**	459,235	588,636	16,005	495,000	16,060	61,571
16	**2023**	454,431	558,918	21,111	525,000	12,762	45
17	**REPAYMENT**						
18	**PERIOD**						
19	**2024**	494,431	559,497	116,218	300,998	7,710	134,571
20	**2025**	494,431	632,088	386,723	97,390	13,436	134,540
21	**2026**	494,431	646,684	391,901	100,409	19,726	134,648
22	**2027**	494,431	662,007	408,116	113,237	6,084	134,569
23	**2028**	494,431	677,177	421,150	110,306	11,126	134,595
24	**2029**	494,431	691,226	129,259	423,204	4,065	134,699
25	**2030**	494,431	708,304	249,986	321,705	1,996	134,617
26	**2031**	494,431	721,462	267,840	308,534	10,433	134,655
27	**2032**	494,431	734,327	256,519	343,048	-	134,760
28	**2033**	494,431	767,967	238,944	390,993	4,347	133,683
29	**2034**	494,431	808,242	254,513	419,780	-	133,949
30	**2035**	494,431	780,729	217,720	421,465	7,695	133,850
31	**2036**	494,431	777,553	206,155	408,961	28,920	133,516
32	**2037**	494,431	790,205	199,959	441,342	15,427	133,477
33	**2038**	494,431	803,616	190,992	479,125	-	133,499
34	**2039**	494,431	817,311	174,720	495,123	13,995	133,473
35	**2040**	494,431	830,809	175,011	522,431	-	133,367
36	**2041**	494,431	844,022	181,491	455,535	73,659	133,337
37	**2042**	494,431	857,942	174,139	550,528	-	133,275
38	**2043**	494,431	874,540	70,035	671,370	-	133,135
39	**2044**	494,431	886,689	175,722	577,875	-	133,092
40	**2045**	494,431	893,388	489,036	259,843	11,479	133,030
41	**2046**	494,431	893,710	489,035	271,685	-	132,990
42	**2047**	494,431	894,234	489,037	272,218	-	132,979
43	**2048**	494,431	895,177	489,035	272,771	-	133,371
44	**2049**	494,431	896,910	489,036	273,336	-	134,538
45	**2050**	494,431	897,261	489,036	257,425	-	150,800
46	**2051**	494,431	897,325	489,035	252,839	-	155,451
47	**2052**	494,431	897,325	489,035	252,839	-	155,450
48	**2053**	494,431	897,325	489,035	252,839	-	155,450
49	**2054**	494,431	897,325	489,036	252,839	-	155,450
50	**2055**	494,431	897,325	489,036	252,839	-	155,449
51	**2056**	494,431	897,325	489,034	252,839	-	155,452
52	**2057**	494,431	897,325	489,034	252,839	-	155,452
53	**2058**	494,431	897,325	489,035	252,839	-	155,451
54	**2059**	494,431	897,325	489,038	252,839	-	155,447
55	**2060**	494,431	897,325	489,037	252,839	-	155,448
56	**2061**	494,431	897,325	489,037	252,839	-	155,448
57	**2062**	494,431	897,325	489,035	252,839	-	155,450
58	**2063**	494,431	897,325	489,035	252,839	-	155,450
59	**2064**	494,431	897,325	489,037	252,839	-	155,449
60	**2065**	494,431	897,325	489,034	252,839	-	155,451
61	**2066**	494,431	897,325	489,035	252,839	-	155,451
62	**2067**	494,431	897,325	489,037	252,839	-	155,449
63	**2068**	494,431	897,325	489,034	252,839	-	155,452
64	**2069**	494,431	897,325	489,035	252,839	-	155,451
65	**2070**	494,431	897,325	489,034	252,839	-	155,451
66	**2071**	494,431	897,325	489,035	252,839	-	155,451
67	**2072**	494,431	897,325	489,037	252,839	-	155,448
68	**2073**	494,431	897,325	489,036	252,839	-	155,450
69							
70	**GENERATION**						
71	**TOTALS**	33,625,659	56,485,901		28,438,457	807,938	7,693,973

1/ Consists of depreciation plus other non-cash expenses and other adjustments and any accounting write-offs included in expenses. Also removed revenue financing. FY 2019 includes a one-time increase of $182 million to rebalance financial reserves between the transmission and generation functions to correct for a misallocation error in the calculation of financial reserves attributed to the business units.

2/ Prior to 2020, non-Federal debt was considered part of purchase and exchange power. Starting in 2020, BPA is implementing new guidance on lease accounting. Non-Federal principal and interest will be treated like Federal debt.

Table 11: Amortization of Generation Investments Over Repayment Period ($000s)

	A	B	C	D	E	F	G	H	I	J	K
		Investments Placed in Service							Irrigation Assistance		
	Fiscal Year	Original & New Obligations	Replacements	Cumulative Amount In Service	Due Amortization	Discretionary Amortization	Unamortized Investment	Term Investment Schedule	Cumulative Amount In Service	Amortization	Unamortized Amount
1	2021	14,498,222	-	14,498,222	350,100	95,000	3,222,369	7,809,650	281,033	22,112	258,921
2	2022	293,305	-	14,791,527	493,455	1,545	3,020,673	7,541,788	-	16,060	242,861
3	2023	491,141	-	15,282,668	520,986	4,014	2,986,815	7,250,930	-	12,762	230,099
4	2024	-	252,839	15,535,508	106,200	194,798	2,938,656	7,355,302	-	7,710	222,389
5	2025	-	252,839	15,788,347	87,000	10,390	3,094,105	7,272,651	-	13,436	208,953
6	2026	-	252,839	16,041,187	86,000	14,409	3,246,535	7,170,303	-	19,726	189,227
7	2027	-	252,839	16,294,026	88,118	25,120	3,386,137	7,206,126	-	6,084	183,143
8	2028	-	252,839	16,546,866	55,000	55,306	3,528,671	7,133,765	-	11,126	172,016
9	2029	-	252,839	16,799,705	119,063	304,141	3,358,307	7,005,121	-	4,065	167,952
10	2030	-	252,839	17,052,544	80,000	241,705	3,289,441	7,186,846	-	1,996	165,956
11	2031	-	252,839	17,305,384	83,000	225,534	3,233,746	7,314,334	-	10,433	155,523
12	2032	-	252,839	17,558,223	26,000	317,048	3,143,537	7,308,660	-	-	155,523
13	2033	-	252,839	17,811,063	63,000	327,993	3,005,384	7,172,665	-	4,347	151,176
14	2034	-	252,839	18,063,902	55,000	364,780	2,838,443	7,330,505	-	-	151,176
15	2035	-	252,839	18,316,741	-	421,465	2,669,818	7,515,130	-	7,695	143,481
16	2036		252,839	18,569,581	-	408,961	2,513,696	7,737,705	-	28,920	114,561
17	2037	-	252,839	18,822,420	-	441,342	2,325,194	7,888,009	-	15,427	99,134
18	2038	-	252,839	19,075,260	-	479,125	2,098,908	7,883,003	-	-	99,134
19	2039	-	252,839	19,328,099	-	495,123	1,856,624	8,005,842	-	13,995	85,138
20	2040	-	252,839	19,580,938	-	522,431	1,587,032	8,205,924	-	-	85,138
21	2041	-	252,839	19,833,778	-	455,535	1,384,336	8,324,013	-	73,659	11,479
22	2042	-	252,839	20,086,617	-	550,528	1,086,647	8,506,978	-	-	11,479
23	2043	-	252,839	20,339,457	-	671,370	668,117	8,421,340	-	-	11,479
24	2044	-	252,839	20,592,296	-	577,875	343,081	8,481,670	-	-	11,479
25	2045	-	252,839	20,845,135	-	259,843	336,077	8,612,564	-	11,479	-
26	2046	-	252,839	21,097,975	-	271,685	317,232	8,763,555	-	-	-
27	2047	-	252,839	21,350,814	-	272,218	297,853	8,859,084	-	-	-
28	2048	-	252,839	21,603,654	-	272,771	277,922	8,684,523	-	-	-
29	2049	-	252,839	21,856,493	-	273,336	257,425	8,749,362	-	-	-
30	2050	-	252,839	22,109,332	-	257,425	252,839	8,865,595	-	-	-
31	2051	-	252,839	22,362,172	-	252,839	252,839	9,009,525	-	-	-
32	2052	-	252,839	22,615,011	-	252,839	252,839	9,247,399	-	-	-
33	2053	-	252,839	22,867,851	-	252,839	252,839	9,424,652	-	-	-
34	2054	-	252,839	23,120,690	-	252,839	252,839	9,570,357	-	-	-
35	2055	-	252,839	23,373,529	-	252,839	252,839	9,677,707	-	-	-
36	2056	-	252,839	23,626,369	-	252,839	252,839	9,551,965	-	-	-
37	2057	-	252,839	23,879,208	-	252,839	252,839	9,747,793	-	-	-
38	2058	-	252,839	24,132,048	-	252,839	252,839	9,941,416	-	-	-
39	2059	-	252,839	24,384,887	-	252,839	252,839	10,042,805	-	-	-
40	2060	-	252,839	24,637,727	-	252,839	252,839	10,233,837	-	-	-
41	2061	-	252,839	24,890,566	-	-	505,679	10,365,711	-	-	-
42	2062	-	252,839	25,143,405	-	-	758,518	10,509,892	-	-	-
43	2063	-	252,839	25,396,245	-	-	1,011,358	10,658,401	-	-	-
44	2064	-	252,839	25,649,084	-	-	1,264,197	10,795,650	-	-	-
45	2065	-	252,839	25,901,924	-	-	1,517,036	10,959,553	-	-	-
46	2066	-	252,839	26,154,763	-	-	1,769,876	11,178,050	-	-	-
47	2067	-	252,839	26,407,602	-	-	2,022,715	11,368,986	-	-	-
48	2068	-	252,839	26,660,442	-	-	2,275,555	11,568,555	-	-	-
49	2069	-	252,839	26,913,281	-	-	2,528,394	11,512,953	-	-	-
50	2070	-	252,839	27,166,121	-	-	2,781,233	11,405,370		-	-
51	2071	-	252,839	27,418,960	-	-	3,034,073	11,394,639	-	-	-
52	2072	-	252,839	27,671,799	-	-	3,286,912	11,386,429	-	-	-
53	2073	-	252,839	27,924,639	-	-	3,539,752	11,377,773	-	-	-
54	**Totals**	**$15,282,668**	**$12,641,970**		**$2,212,921**	**$11,341,212**			**$281,033**	**$281,033**	

This page intentionally left blank.

BONNEVILLE POWER ADMINISTRATION
DOE/BP-5148 • July 2021