

BP-22 Rate Proceeding

Initial Proposal

Power Revenue Requirement Study

BP-22-E-BPA-02

December 2020



POWER REVENUE REQUIREMENT STUDY

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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
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 “Council”)
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-III	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	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)
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-IIIE	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

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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-E-BPA-09.

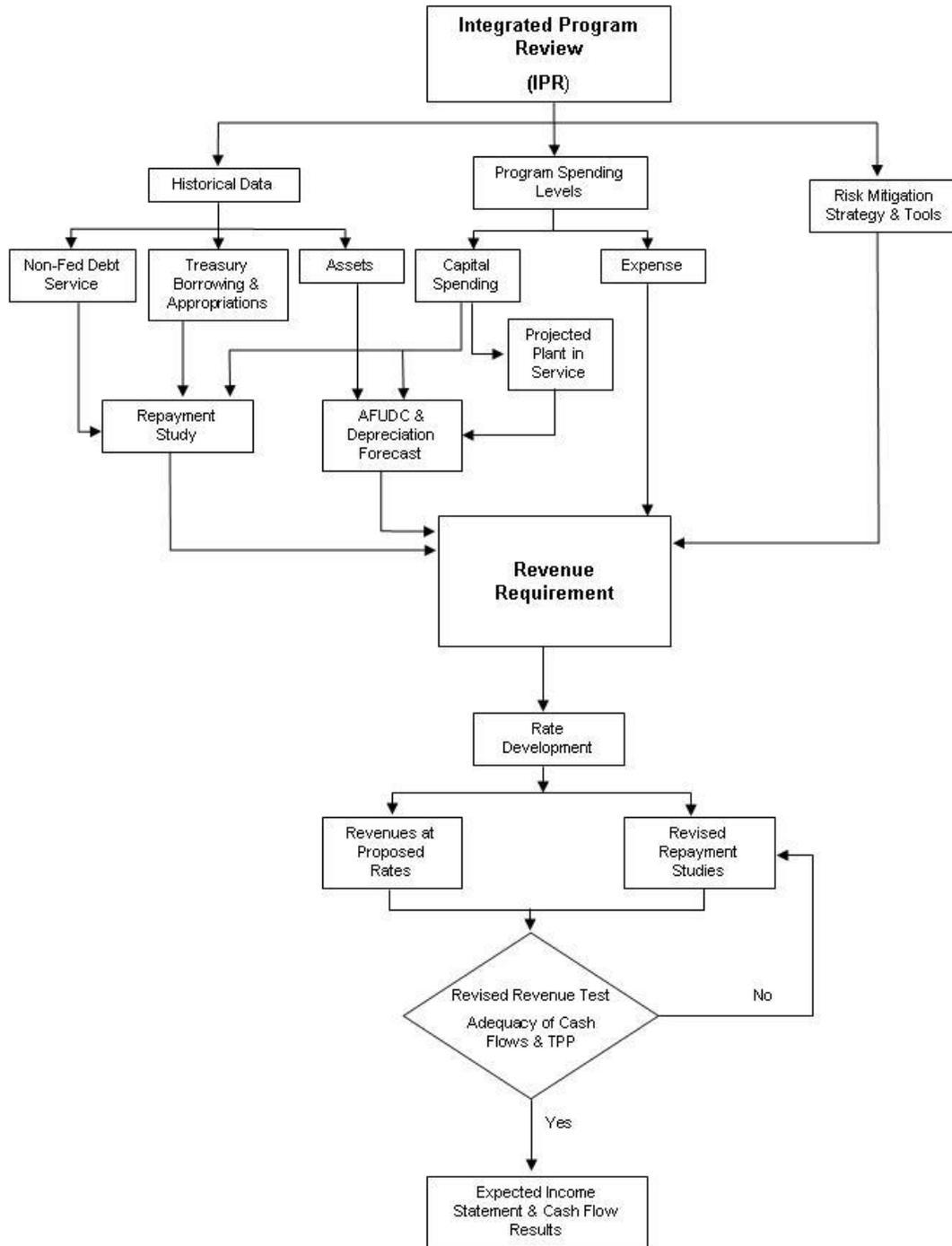
This Study outlines the policies, forecasts, assumptions, and calculations used to determine the generation revenue requirement. The Power Revenue Requirement Study Documentation,

1 BP-22-E-BPA-02A, contains key technical assumptions and calculations, the results of the
2 generation repayment studies, and further explanation of the repayment program and its outputs.

3
4 The revenue requirement for this Study is developed using a cost-accounting analysis comprised
5 of three parts. First, repayment studies for the generation function are prepared to determine the
6 schedule of amortization payments and to project annual interest expense for bonds and
7 appropriations that fund the Federal investment in hydro generating resources, fish and wildlife
8 recovery, conservation, and other generation assets. Repayment studies are conducted for each
9 year of the rate period and extend over the 50-year repayment period. Second, generation
10 operating expenses and Minimum Required Net Revenues (MRNR) are projected for each year
11 of the rate period. Third, annual Planned Net Revenues for Risk (PNRR) are determined after
12 taking into account risks, BPA's cost recovery goals, and other risk mitigation measures, as
13 described in the Power and Transmission Risk Study, BP-22-E-BPA-05. From these three steps,
14 the revenue requirement is set at the revenue level necessary to fulfill cost recovery requirements
15 and objectives. This process is depicted in Figure 1 below. Once the revenue requirement is
16 completed, the costs identified are passed to the rate development process, where they are
17 allocated to the appropriate cost pools and used to develop rates in the Power Rates Study (PRS),
18 BP-22-E-BPA-01.

19
20 Consistent with Department of Energy (DOE) Order RA 6120.2 and the standards of review of
21 BPA's rates applied by the Commission, BPA must demonstrate the adequacy of both current
22 and proposed rates. BPA conducts a current revenue test to determine whether revenues
23 projected from current rates meet cost recovery requirements for the rate period and the
24 repayment period. If the current revenue test indicates that cost recovery and risk mitigation
25 requirements are met, current rates could be extended through the proposed rate approval period,

Figure 1: Generation Revenue Requirement Process



1 although other reasons may exist for revising rates, such as the implementation of a new rate
2 design. The current revenue test, described in Section 3.2 below, demonstrates that revenues
3 from current rates will not recover the generation revenue requirement for the rate period.
4

5 The revised revenue test, which is performed after calculation of the proposed power rates,
6 determines whether projected revenues from proposed rates meet cost recovery requirements and
7 objectives for the rate test and repayment periods. The revised revenue test, described in
8 Section 3.3 below, demonstrates that revenues from the proposed power rates will recover
9 generation costs in the rate period and over the ensuing 50-year repayment period. In addition,
10 revenues from the proposed rates, together with risk mitigation tools, are sufficient to meet
11 BPA's 95 percent Treasury Payment Probability (TPP) standard that all U.S. Treasury payments
12 will be paid on time and in full, as discussed in the Power and Transmission Risk Study,
13 BP-22-E-BPA-05.
14

15 Table 1 summarizes the revised revenue test and shows projected net revenues from proposed
16 power rates for FY 2022–2023. These net revenues are the lowest level necessary to achieve
17 BPA's cost recovery objectives, when combined with other risk mitigation tools, given hydro
18 condition uncertainty, market price volatility, and other risks. Table 2 shows planned generation
19 amortization payments to the U.S. Treasury for each year of the rate period and irrigation
20 assistance payments that are due to be paid from power revenues. The amortization payments
21 are divided into two categories. One is a base payment, which is BPA's repayment commitment
22 to the Treasury. The second is a conditional payment that will occur only if a non-Federal
23 refinancing occurs in FY 2022. If the refinancing does not occur, the conditional payment to the
24 Treasury will not be made and the non-Federal debt will be repaid instead.
25
26

1 **1.2 Legal Requirements**

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

6
7 **1.2.1 Governing Authorities**

8 BPA’s revenue requirements are governed primarily by four legislative acts: the Bonneville
9 Project Act of 1937, Pub.L. No. 75-329, 50 Stat. 731; the Flood Control Act of 1944, Pub.L.
10 No. 78-534, 58 Stat. 890, amended 1977; the Federal Columbia River Transmission System Act
11 (Transmission System Act) of 1974, Pub.L. No. 93-454, 88 Stat. 1376; and the Pacific Northwest
12 Electric Power Planning and Conservation Act (Northwest Power Act), Pub.L. No. 96-501,
13 94 Stat. 2697 (1980). The Omnibus Consolidated Rescissions and Appropriations Act of 1996,
14 Pub.L. No. 104-134, 110 Stat. 1321, also guides the development of BPA’s revenue
15 requirements. DOE Order “Power Marketing Administration Financial Reporting,” RA 6120.2,
16 issued by the Secretary of Energy, provides guidance to Federal power marketing
17 administrations regarding repayment of the Federal investment. In addition, policies issued by
18 the Commission provide guidance on separate accounting for transmission system costs.
19 *See, e.g., Bonneville Power Admin., 25 FERC ¶ 61,140 (1983).*

20
21 **1.2.1.1 Legal Requirements Governing BPA’s Revenue Requirement**

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

25 Rate schedules shall be drawn having regard to the recovery (upon the basis of the
26 application of such rate schedules to the capacity of the electric facilities of the
27 Bonneville project) of the cost of producing and transmitting such electric energy,

1 including the amortization of the capital investment over a reasonable period of
2 years.

3 *Id.*

4
5 This cost recovery principle was repeated for Army reservoir projects in Section 5 of the Flood
6 Control Act of 1944, 16 U.S.C. § 825s. In 1974, Section 9 of the Transmission System Act,
7 16 U.S.C. § 838g, expanded the cost recovery principle so that BPA's rates also would be set to
8 recover:

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

16 *Id.*

17
18 The Northwest Power Act reiterates and clarifies the cost recovery principle. Section 7(a)(1) of
19 the Northwest Power Act, 16 U.S.C. § 839e(a)(1), provides:

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

32 *Id.*

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

- 3 (A) are sufficient to assure repayment of the Federal investment in the Federal
4 Columbia River Power System over a reasonable number of years after
5 first meeting the Administrator’s other costs;
- 6 (B) are based upon the Administrator’s total system costs; and
- 7 (C) insofar as transmission rates are concerned, equitably allocate the costs of
8 the Federal transmission system between Federal and non-Federal power
9 utilizing such system.

10
11 Development of the revenue requirement is a critical component of meeting the statutory cost
12 recovery principles relevant to BPA. The costs associated with the FCRPS and associated
13 services and expenses, as well as other costs incurred by the Administrator in furtherance of
14 BPA’s mission, are included in this Study.

16 **1.2.1.2 The BPA Appropriations Refinancing Act**

17 BPA’s power rates for the FY 2022-2023 rate period will reflect the requirements of the
18 Refinancing Act, 16 U.S.C. § 838l, part of the Omnibus Consolidated Rescissions and
19 Appropriations Act of 1996, Pub.L. No. 104-134, 110 Stat. 1321, enacted in April 1996. The
20 Refinancing Act required that unpaid principal on BPA appropriations (“old capital
21 investments”) at the end of FY 1996 be reset at the present value of the principal and annual
22 interest payments BPA would make to the U.S. Treasury for these obligations absent the
23 Refinancing Act, plus \$100 million. 16 U.S.C. § 838l(b). The Refinancing Act also specified
24 that the new principal amounts of the old capital investments be assigned new interest rates from
25 the Treasury yield curve prevailing at the time of the refinancing transaction. 16 U.S.C.
26 § 838l(a)(6)(A).

1 The Refinancing Act restricted prepayment of the new principal for old capital investments to
2 \$100 million during the first five years after the effective date of the financing. 16 U.S.C.
3 § 8381(e). The Refinancing Act also specifies that repayment dates on new principal amounts
4 may not be earlier than the repayment dates for old capital investments. 16 U.S.C. § 8381(d).
5 The Refinancing Act further directs the Administrator to offer to provide assurance in new or
6 existing contracts for power, transmission, and related services that the Federal government will
7 not increase the repayment obligations in the future. 16 U.S.C. § 8381(i).

9 **1.2.1.3 Allocation of FCRPS Costs**

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

14
15 For projects that provide power generation to the FCRPS, this allocation has generally been
16 accomplished pursuant to statutory direction. For example, Section 7 of the Bonneville Project
17 Act, 16 U.S.C. § 832f, requires that BPA's rates be based on, *inter alia*, "an allocation of costs
18 made by the [Secretary of Energy,]" and, insofar as costs of the Bonneville Project are
19 concerned:

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

24 *Id.*

25
26 Similar allocations for U.S. Bureau of Reclamation (Reclamation) projects constructed pursuant
27 to various authorizing statutes have been performed by the Secretary of the Interior under the

1 authority of 43 U.S.C. § 485h(a)-(b). Cost allocations for projects constructed by the U.S. Army
2 Corps of Engineers (Corps) have been performed by the Secretary of the Army and approved by
3 the Federal Power Commission (the predecessor to the Federal Energy Regulatory Commission).

4
5 In general, an attempt is made to allocate the cost of each feature of a multipurpose dam to the
6 purpose it serves. For example, the costs of powerhouses, penstocks, and other specific
7 power-related facilities have been allocated to the generation function, whereas the costs of
8 navigation locks have been allocated to navigation. More problematic are the joint-use costs that
9 remain unallocated after the costs identifiable to single purposes have been allocated. The
10 joint-use formulas approximate the relative benefits provided by each function, and costs are
11 allocated accordingly.

12
13 Thus, costs assigned to the power production functions include specific cost items whose sole
14 purpose is power production, as well as the “power production share” of joint costs assigned to
15 more than one purpose. Both types of costs are included in BPA’s generation revenue
16 requirement.

17 18 **1.2.1.4 Section 4(h)(10)(C) Credit**

19 The Northwest Power Act provides:

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

25 16 U.S.C. § 839b(h)(10)(A).

26
27 BPA is not obligated to reimburse the U.S. Treasury for the non-power portion of these fish
28 and wildlife costs. Such non-power costs are instead allocated to the various project purposes

1 by the BPA Administrator, in consultation with the Corps and Reclamation, pursuant to
2 Section 4(h)(10)(C) of the Northwest Power Act. 16 U.S.C. § 839b(h)(10)(C). This allocation to
3 various project purposes implements the principle that electric power consumers will bear no
4 greater share of the costs of fish and wildlife mitigation than the power portion of the project.
5 The legislative history of Section 4(h)(10)(C) illustrates how the expenditures by the
6 Administrator for protection, mitigation, and enhancement of fish and wildlife at individual
7 Federal projects in excess of the portion allocable to electric consumers are to be treated as a
8 credit for electric consumers. H.R. Rep. No. 96-976, 2d Sess., pt. 2, at 45 (1980), *reprinted in*
9 1980 U.S.C.C.A.N. 5989, 6011. This principle is satisfied by treating expenditures on behalf of
10 non-power purposes as other project costs. BPA receives a credit against its cash transfers to the
11 U.S. Treasury for expenditures attributable to non-power purposes. BPA's initial funding of all
12 the costs for fish and wildlife has the advantage of avoiding the need for funding the non-power
13 portion of these costs through the annual appropriations process.

14 15 **1.2.1.5 Colville Settlement Act Credits**

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

21
22 The Settlement Agreement obligates BPA to make annual payments to the Colville Tribes.
23 Payments have been tied to BPA's average prices and the amount of annual generation from
24 Grand Coulee Dam. Under the Refinancing Act, part of the Omnibus Consolidated Rescissions
25 and Appropriations Act of 1996, Pub.L. No. 104-134, 110 Stat. 1321, BPA receives annual
26 credits from the U.S. Treasury against payments due the U.S. Treasury in order to defray a

1 portion of the costs of making payments to the Colville Tribes. The annual payments to the
2 Colville Tribes are forecast to be \$22.9 million in FY 2022 and \$22.9 million in FY 2023. The
3 credits for the FY 2022–2023 rate period are \$4.6 million in each fiscal year.

4 5 **1.2.2 Repayment Requirements and Policies**

6 **1.2.2.1 Separate Repayment Studies**

7 Section 10 of the Transmission System Act, 16 U.S.C. § 838h, and Section 7(a)(2)(C) of the
8 Northwest Power Act, 16 U.S.C. § 839e(a)(2)(C), provide that the recovery of the costs of the
9 Federal transmission system shall be equitably allocated between Federal and non-Federal power
10 utilizing such system. In 1982, the Commission first directed BPA to provide accounting and
11 repayment statements for its transmission system separate and apart from the accounting and
12 repayment statements for the Federal generation system. *Bonneville Power Admin.*, 20 FERC
13 ¶ 61,142 (1982). The Commission required BPA to establish books of account for the Federal
14 Columbia River Transmission System (FCRTS) separate from its generation books of account;
15 explained that the FCRTS shall be comprised of all investments, including administrative and
16 management costs, related to the transmission of electric power; and directed BPA to develop
17 repayment studies for its transmission function separate from those for its generation function.
18 Such studies must set forth the date of each investment, the repayment date, and the amount
19 repaid from transmission revenues. *Bonneville Power Admin.*, 26 FERC ¶ 61,096 (1984).

20
21 The Commission approved BPA’s methodology for separate repayment studies in 1984.
22 *Bonneville Power Admin.*, 28 FERC ¶ 61,325 (1984). Thus, BPA has prepared separate
23 repayment studies for its transmission and generation functions since 1984. This standard has
24 enabled BPA to set power and transmission rates separately with minimal change in repayment
25 policy and the process for developing each revenue requirement. This Study incorporates only
26 the repayment study for the generation function for FY 2022–2023.

1 **1.2.2.2 Repayment Schedules**

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

6
7 There have been a number of changes in BPA’s repayment policy over the years concurrent with
8 expansion of the Federal system and changing conditions. In general, current repayment criteria
9 were approved by the Secretary of the Interior on April 3, 1963. These criteria were refined and
10 submitted to the Secretary and the Federal Power Commission in support of BPA’s rate filing in
11 September 1965.

12
13 The repayment policy was presented to Congress for its consideration for the authorization of the
14 Grand Coulee Dam Third Powerhouse in June 1966. The underlying theory of repayment was
15 discussed in the House of Representatives’ Report related to authorization of this project,
16 H.R. Rep. No. 89-1409, 2d Sess., at 9-10 (1966). As stated in that report:

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

23 *Id.*

24
25 This approach to repayment scheduling has the effect of averaging the year-to-year variations in
26 costs and revenues over the repayment period. This results in a uniform cost per unit of power
27 sold, and permits the maintenance of stable rates for extended periods. It also facilitates the
28 orderly marketing of power and permits BPA customers, which include both electric utilities and
29 electroprocess industries, to plan for the future with assurance.

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

4 Chapter 1:

- 5 A. Hydroelectric power, although not a primary objective, will be proposed to
6 Congress and supported for inclusion in multiple-purpose Federal projects
7 when . . . it is capable of repaying its share of the Federal investment,
8 including operation and maintenance costs and interest, in accordance with
9 the law.
- 10 B. Electric power generated at Federal projects will be marketed at the lowest
11 rates consistent with sound financial management. Rates for the sale of
12 Federal electric power will be reviewed periodically to assure their
13 sufficiency to repay operating and maintenance costs and the capital
14 investment within 50 years with interest that more accurately reflects the
15 cost of money.

16
17 To achieve a greater degree of uniformity in repayment policy for all Federal power marketing
18 administrations, the Deputy Assistant Secretary of the Department of the Interior (DOI) issued a
19 memo on August 2, 1972, outlining (1) a uniform definition of the start of the repayment period
20 for a particular project; (2) the method for including future replacement costs in repayment
21 studies; and (3) a provision that the investment or obligation bearing the highest interest rate
22 shall be amortized first, to the extent possible, while ensuring that BPA still complies with the
23 prescribed repayment period established for each increment of investment.

24
25 A further clarification of the repayment policy was outlined in a joint memo of January 7, 1974,
26 from the Assistant Secretary for Reclamation and Assistant Secretary for Energy and Minerals.
27 This memo states that in addition to meeting the overall objective of repaying the Federal
28 investment and obligations within the prescribed repayment periods, revenues shall be adequate,
29 except in unusual circumstances, to repay annually all costs for O&M, purchased power, and
30 interest.

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

4
5 BPA and other Federal power marketing agencies were transferred to the newly established
6 Department of Energy on October 1, 1977. DOE Organization Act, 42 U.S.C. § 7101 *et seq.*
7 (1994). The DOE adopted the policies set forth in Part 730 of the DOI Manual by issuing
8 Interim Management Directive No. 1701 on September 28, 1977, which subsequently was
9 replaced by RA 6120.2, issued on September 20, 1979, and amended on October 1, 1983.

10
11 The repayment policy outlined in DOE Order RA 6120.2, paragraph 12, provides that BPA's
12 total revenues from all sources must be sufficient to:

- 13 (1) Pay all annual costs of operating and maintaining the Federal power
14 system;
- 15 (2) Pay the cost of obtaining power through purchase and exchange
16 agreements, the cost for transmission services, and other costs during the
17 year in which such costs are incurred;
- 18 (3) Pay interest each year on the unamortized portion of the commercial
19 power investment financed with appropriated funds at the interest rates
20 established for each generating project and for each annual increment of
21 such investment in the BPA transmission system, except that recovery of
22 annual interest expense may be deferred in unusual circumstances for
23 short periods of time;
- 24 (4) Pay when due the interest and amortization portion on outstanding bonds
25 sold to the U.S. Treasury;

- 1 (5) Repay:
- 2 • each dollar of power investments and obligations in the FCRPS
- 3 generating projects within 50 years after the projects become
- 4 revenue-producing (50 years has been deemed a “reasonable
- 5 period” as intended by Congress, except for the Yakima-Chandler
- 6 Project, which has a legislated amortization period of 66 years);
- 7 • each annual increment of transmission financed by Federal
- 8 investments and obligations within the average service life of such
- 9 transmission facilities (currently 40 years) or within a maximum of
- 10 50 years, whichever is less (BPA has interpreted RA 6120.2 to
- 11 require repayment of bonds sold to finance conservation to be
- 12 within the average service lives of these projects, currently
- 13 estimated to be five years, and for fish and wildlife facilities to be
- 14 15 years);
- 15 • the federally financed amount of each replacement within its
- 16 service life up to a maximum of 50 years; and
- 17 (6) As required by Pub.L. No. 89-448, repay the portion of construction costs
- 18 at Federal reclamation projects that is beyond the repayment ability of the
- 19 irrigators, and which is assigned for repayment from commercial power
- 20 revenues, within the same overall period available to the irrigation water
- 21 users for making their payments on construction costs.

22

23 The typical repayment period for appropriated capital investments for generation is 50 years

24 from the year in which the plant is placed in service. Appropriated transmission investments

25 have due dates set at no more than 45 years. The Refinancing Act (see Section 1.2.1.2 above)

26 overrides provisions in DOE Order RA 6120.2 related to determining interest during

1 construction and assigning interest rates to Federal investments financed by appropriations. The
2 Refinancing Act also contains provisions on repayment periods (due dates) for the refinanced
3 investments.

4
5 Other sections within DOE Order RA 6120.2 require that any outstanding deferred interest
6 payments must be repaid before any planned amortization payments are made. Also, repayments
7 are to be made by amortizing those Federal investments and obligations bearing the highest
8 interest rate first, to the extent possible, while ensuring that BPA still completes repayment of
9 each increment of Federal investment and obligation within its prescribed repayment period.

10
11 The generation function is also charged with recovering irrigation assistance costs. Irrigation
12 costs are repaid without interest. Pub.L. No. 89-448 authorizes the payment of irrigation costs
13 from revenues of the entire power system; such payments thus are functionalized to generation,
14 consistent with the so-called "Basin Account" concept. Pub.L. No. 89-561, approved on
15 September 7, 1966, amended Pub.L. No. 89-448 to provide several limitations on the repayment
16 of irrigation costs from power revenues. These limitations are:

- 17 (1) the irrigation costs are to be paid from "net revenues" of the power
18 system, with net revenues defined as those revenues over and
19 above the amount needed to cover power costs and previously
20 authorized irrigation payments;
- 21 (2) the construction of new Federal irrigation projects will be
22 scheduled or deferred, if necessary, so that the repayment of the
23 irrigation costs from power revenues will not require an increase in
24 the BPA power rate level; and

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(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.

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1 **2. DEVELOPMENT OF THE GENERATION REVENUE REQUIREMENT**

2
3 **2.1 Spending Level Development**

4 The development of program spending levels occurs outside the rate process. For the FY 2022-
5 2023 rate period, it began in June 2020, when BPA hosted the 2020 Integrated Program Review
6 (IPR) workshops. These workshops provided customers and constituents an opportunity to
7 examine, understand, and comment on BPA’s cost projections and capital investments for BPA’s
8 power and transmission functions.

9
10 BPA began the 2020 IPR discussion with the release of the IPR initial report on June 12, 2020,
11 containing an overview of Power Services, Transmission Services, and Corporate proposed
12 capital and program spending levels for FY 2021–2023 (the cost evaluation period). The initial
13 report and workshop discussed proposed spending, particularly for the FY 2022–2023 rate
14 period; the drivers, goals, and risks associated with the proposed spending; and comparisons to
15 previous IPR costs. The initial report also included capital cost projections for FY 2022-2023.

16
17 BPA held workshops in June 2020 to discuss the projected capital spending and program
18 spending levels of many program areas, including the Columbia Generating Station (CGS);
19 Corps; Reclamation; BPA’s energy efficiency, transmission, and fish and wildlife programs; and
20 BPA’s Information Technology program. While debt management actions are outside the scope
21 of the IPR, a workshop was held to enhance participants’ understanding of the implications of
22 past debt management decisions, proposed capital spending, and potential debt management
23 tools. After considering the comments received, BPA released a final IPR close-out report in
24 October 2020.

1 This Study incorporates the spending levels identified in the 2020 IPR final close-out report,
2 which can be found on BPA’s public website:

3 <https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/Pages/IPR-2020.aspx>
4

5 **2.2 Capital Funding**

6 The forecast of BPA’s capital investments for FY 2022–2023 used in setting the BP-22 power
7 rates was produced in the IPR process. The following section describes these forecasts,
8 recognizing that the timing of some planned capital spending may be stretched into the following
9 rate period. FCRPS capital investments include Corps, Reclamation, and BPA capital
10 investments and third-party resource investments for which debt is secured by BPA (capitalized
11 contracts). Projections of current FCRPS capital outlays total \$790 million for the FY 2022–
12 2023 rate period. These investments include:

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

20 This Study projects that no capital investments will be funded from current revenues.
21

22 **2.2.1 Bonds Issued to the U.S. Treasury**

23 Bonds issued to the U.S. Treasury are the source of capital that will be used to finance BPA’s
24 FY 2022–2023 capital program and Corps and Reclamation investments that BPA has agreed to
25 direct-fund under Section 2406 of the Energy Policy Act of 1992, Pub.L. No. 102-486, 106 Stat.
26 2776, *amending* 16 U.S.C. § 839d-1. These expenditures include a total capital projection of

1 \$684 million, which is comprised of BPA Fish and Wildlife direct program investments
2 (\$86 million), BPA capital equipment (\$14.3 million), and generating resource investments of
3 the Corps and Reclamation (\$584 million) during FY 2022–2023.

4
5 Interest rates on bonds issued by BPA to the U.S. Treasury are set at market interest rates
6 comparable to interest rates on securities issued by other agencies of the U.S. government.
7 Interest rates on bonds projected to be issued are included in Chapter 6 of the Power Revenue
8 Requirement Study Documentation, BP-22-E-BPA-02A.

9 10 **2.2.2 Federal Appropriations**

11 In general, the Study reflects that all Corps and Reclamation capital investments in the FCRPS
12 will be financed by Federal appropriations unless they are direct-funded by BPA. This Study
13 includes projected appropriated investments totaling \$106 million during the rate period for
14 Corps fish and wildlife mitigation and recovery measures through the Columbia River Fish
15 Mitigation (CRFM) project. No other appropriations-financed investments are forecast for the
16 rate period. Capital investments funded by this source do not become BPA’s obligation to repay
17 until they are placed in service.

18
19 The interest rate forecast for appropriated capital investments expected to be placed in service is
20 found in Chapter 6 of the Power Revenue Requirement Study Documentation, BP-22-E-
21 BPA-02A. Each new capital investment is assigned a rate from the U.S. Treasury yield curve
22 prevailing in the month prior to the beginning of the fiscal year in which the new investment is
23 placed in service.

1 **2.2.3 Third-Party Debt**

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

8
9 **2.2.4 Revenues from Rates**

10 As a means to fund capital investments in lieu of borrowing, the revenue requirement assumes
11 that \$95 million per year of the capital program is funded with current revenues.

12
13 **2.2.5 Prepayment Program**

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

18
19 **2.3 Regional Cooperation Debt**

20 Regional Cooperation Debt (RCD) is debt held by EN that is related to its one operational, and
21 two terminated, nuclear plants. BPA has worked with EN to refinance RCD as it comes due.
22 The first phase of refinancings allowed BPA to repay a like amount of higher interest rate
23 Federal debt to reduce BPA’s total debt service. The second phase is expected to begin in
24 FY 2021 which will allow BPA to accelerate the repayment of U.S. Treasury bonds to extend
25 access to limited Treasury borrowing authority. The Initial Proposal includes an assumption that
26 all RCD coming due in FY 2022-2023 will be refinanced allowing for additional Federal

1 repayment of \$735 million. This additional repayment is conditional and is dependent on
2 whether the RCD refinancing occurs and the final size of the refinancing transaction.

3 4 **2.4 Modeling of BPA's Repayment Obligations**

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

10
11 In conducting the repayment studies, BPA includes as fixed inputs the annual debt service
12 payments associated with its capitalized contract obligations and the fixed annual payments
13 associated with long-term energy resource acquisition contracts. All outstanding and projected
14 generation repayment obligations for appropriated investments (including irrigation assistance)
15 and bonds issued to the U.S. Treasury are included to be scheduled for repayment. Funding for
16 replacements projected during the repayment period is also included in the repayment study,
17 consistent with the requirements of RA 6120.2.

18
19 Appropriations and bonds are scheduled to be repaid within the expected useful life of the
20 associated facility or 50 years, whichever is less. Corps and Reclamation project replacements
21 funded by appropriations and placed in service in 1994 or later have repayment periods that are
22 set at the weighted average service life of all replacements going into service at that project in
23 that year.

24
25 Bonds issued by BPA to the U.S. Treasury have varying terms, taking into account the estimated
26 average service lives for investments, prudent financing, and cash management factors.

1 Generally, bonds are usually issued with a provision that allows them to be called after a certain
2 time. Bonds may also be issued with no early call provision. Early retirement of eligible bonds
3 may require that BPA pay a bond premium to the U.S. Treasury. Bonds may also be called and
4 repaid at a discount. In addition, the interest rate that BPA pays on callable bonds is higher than
5 the interest rate on non-callable bonds issued at the same time.

6
7 Bonds are issued primarily to finance BPA's Fish and Wildlife Program, and Corps and
8 Reclamation investments that are direct-funded by BPA. These bonds are repaid within the
9 terms and conditions of each bond issued to the U.S. Treasury. Bonds to finance fish and
10 wildlife capital investments are issued with maturities not to exceed 15 years, the same period
11 over which BPA amortizes these capital investments. Corps and Reclamation direct-funding
12 bonds are issued with maturities not to exceed 30 years, although they can be refinanced within
13 the 50-year repayment period.

14
15 Based on these parameters, the repayment study establishes a schedule of planned amortization
16 payments and resulting interest expense by determining the lowest levelized debt service stream
17 necessary to repay all generation obligations within the required repayment period.

18
19 For further discussion of the repayment program, see Power Revenue Requirement Study
20 Documentation, BP-22-E-BPA-02A, Chapter 13.

21 22 **2.5 Products Used by Other Studies**

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

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

9 10 **3.2 Current Revenue Test**

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

16
17 The result of the current revenue test demonstrates that projected revenue from current rates is
18 inadequate to meet the cost recovery criteria of Order RA 6120.2, because the net position is
19 negative for some years in the repayment rate period. *See* Table 7, Column L. If revenues from
20 current rates were adequate in all years, current rates could be extended, although other reasons
21 may exist for revising rates, such as the implementation of a new rate design.

22 23 **3.3 Revised Revenue Test**

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

1 forecast of revenue under proposed rates. *See* PRS Documentation, BP-22-E-BPA-01A,
2 Table 9.2.

3
4 For the rate period, the demonstration of the adequacy of proposed rates is shown in Tables 8
5 and 9. Table 9 tests the sufficiency of the resulting net revenues from Table 8 (Line 40) for
6 making the planned annual amortization and irrigation assistance payments. The sufficiency of
7 net revenues is demonstrated by the annual increase (decrease) in cash (Table 9, Line 33). The
8 annual cash flow must be at least zero to demonstrate the adequacy of the projected revenues to
9 cover all cash requirements.

10
11 The results of the revised revenue test demonstrate that proposed rates are adequate to fulfill the
12 basic cost recovery requirements for the rate period, FY 2022–2023. With the successful test of
13 proposed rates, the rate development process ends.

14 15 **3.4 Repayment Test at Proposed Rates**

16 Table 10, Generation Revenue from Proposed Rates, demonstrates whether projected revenue
17 from proposed rates is adequate to meet the cost recovery criteria of DOE Order RA 6120.2 over
18 the repayment period. The data are presented in a format consistent with the revised revenue
19 tests, Tables 8 and 9, and the separate accounting analysis that is an attachment to the filing with
20 the Commission. The focal point of these tables is the net position (Column L), which is the
21 amount remaining after meeting annual expenses requiring cash for the rate period and
22 repayment of the Federal investment. Thus, if the net position is zero or greater in each of the
23 years of the rate period through the repayment period, the projected revenues demonstrate BPA's
24 ability to repay the Federal investment in the FCRPS within the allowable time. As shown in
25 Column L, the resulting net position is zero or greater for each year of the rate period and in each
26 year of the repayment period.

1 The historical data on this table were taken from BPA’s separate accounting analysis. The rate
2 period data were developed specifically for this Study. The repayment period data are presented
3 consistent with the requirements of RA 6120.2. Typically, the test of revenue sufficiency
4 through the repayment period uses expenses from the last year of the rate period. As has been
5 done since the WP-07 rate proceeding, expenses for the CGS nuclear plant are normalized
6 because it is on a two-year refueling cycle. FY 2023 is a refueling year for CGS, which
7 increases O&M costs for the facility and increases BPA’s power purchase costs to make up for
8 the loss of generation during the refueling. The projection of these outage costs in every year of
9 the repayment period would misrepresent the costs associated with the CGS refueling cycle. For
10 the purposes of this revenue test, these CGS costs for FY 2022 and FY 2023 have been averaged
11 to produce an average annual cost for the operation of CGS for the rate period. Any
12 augmentation purchases are also averaged in this fashion because of the higher costs in FY 2022
13 to make up for lost CGS generation.

14
15 Table 11, Amortization of Generation Investments Over Repayment Period, summarizes the
16 amortization of Federal investments over the repayment period. It displays the total investment
17 costs through the cost evaluation period, forecast replacements required to maintain the system
18 through the repayment period, the cumulative dollar amount of investment placed in service,
19 scheduled amortization payments for each year of the repayment period (due and discretionary),
20 unamortized investments including replacements through the repayment period, unamortized
21 obligations as determined by a term schedule (*i.e.*, if all obligations were paid at maturity and
22 never early), predetermined amortization payments, and the unamortized amount of irrigation
23 assistance for each year of the repayment period.

TABLES

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

		A	B	C
		FY 2022	FY 2023	Average
1	Projected Revenues from Proposed Rates	\$ 2,836,623	\$ 2,810,348	\$ 2,823,486
2	Projected Expenses	<u>2,593,038</u>	<u>2,609,605</u>	<u>2,601,322</u>
3	Net Revenues	\$ 243,585	\$ 200,743	\$ 222,164

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	\$148,013	\$0	\$16,060	\$164,073
2	2023	<u>119,299</u>	<u>-</u>	<u>12,740</u>	<u>132,039</u>
3	Total	\$267,312	\$0	\$28,800	\$296,112
Conditional Amortization					
		A	B	C	D
		Bond	Appropriations	Irrigation	
	Fiscal Year	Amortization	Amortization	Assistance	Total
4	2022	\$336,987	\$0	\$0	\$336,987
5	2023	<u>398,701</u>	<u>-</u>	<u>-</u>	<u>398,701</u>
6	Total	\$735,688	\$0	\$0	\$735,688
Total Amortization					
		A	B	C	D
		Bond	Appropriations	Irrigation	
	Fiscal Year	Amortization	Amortization	Assistance	Total
7	2022	\$485,000	\$0	\$16,060	\$501,060
8	2023	<u>518,000</u>	<u>-</u>	<u>12,740</u>	<u>530,740</u>
9	Total	\$1,003,000	\$0	\$28,800	\$1,031,800

Table 3: Generation Revenue Requirement Income Statement
(\$000s)

		A	B
		2022	2023
1	OPERATING EXPENSES		
2	POWER SYSTEM GENERATION RESOURCES		
3	OPERATING GENERATION RESOURCES	704,270	727,663
4	OPERATING GENERATION SETTLEMENT PAYMENTS	27,749	27,500
5	NON-OPERATING GENERATION	2,341	2,375
6	CONTRACTED POWER PURCHASES	88,398	84,607
7	AUGMENTATION POWER PURCHASES	0	0
8	EXCHANGES & SETTLEMENTS	265,237	265,199
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	216,951	215,727
13	F&W/USF&W/PLANNING COUNCIL	290,450	290,627
14	GENERAL AND ADMINISTRATIVE/SHARED SERVICES	85,471	86,515
15	OTHER INCOME, EXPENSES AND ADJUSTMENTS	0	0
16	DEPRECIATION	140,926	144,126
17	AMORTIZATION	320,983	317,402
18	ACCRETION	36,754	38,363
19	TOTAL OPERATING EXPENSES	2,414,721	2,432,893
20			
21	OTHER EXPENSE AND (INCOME)		
22	INTEREST		
23	APPROPRIATED FUNDS	45,413	46,877
24	CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
25	BONDS ISSUED TO U.S. TREASURY	51,774	46,077
26	BOND PREMIUMS/DISCOUNTS	0	0
27	NON-FEDERAL INTEREST	173,926	178,281
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	(22,042)	(23,254)
31	INTEREST CREDIT ON CASH RESERVES	(4,406)	(4,817)
32	INTEREST INCOME ON DECOMMISSIONING TRUST	(9,734)	(10,082)
33	OTHER INCOME (NET)	<u>(2,792)</u>	<u>(2,892)</u>
34	TOTAL OTHER EXPENSE AND (INCOME)	178,809	176,931
35			
36	TOTAL EXPENSES	2,593,531	2,609,825
37			
38	MINIMUM REQUIRED NET REVENUE 1/	197,049	246,852
39	PLANNED NET REVENUE FOR RISK	<u>0</u>	<u>0</u>
40	PLANNED NET REVENUE, TOTAL	197,049	246,852
41			
42	TOTAL REVENUE REQUIREMENT	2,790,579	2,856,677
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/	197,049	246,852
3	NON-CASH ITEMS:		
4	NON-FEDERAL INTEREST	7,854	6,799
5	DEPRECIATION AND AMORTIZATION	461,909	461,528
6	ACCRETION	36,754	38,363
7	NON-CASH EXPENSES (INTEREST INCOME & GAINS/LOSSES)	(12,526)	(12,974)
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	<u>16,510</u>	<u>16,865</u>
14	CASH PROVIDED BY OPERATING ACTIVITIES	619,148	668,923
15			
16	CASH FROM INVESTMENT ACTIVITIES		
17	INVESTMENT IN:		
18	UTILITY PLANT (INCLUDING AFUDC)	(331,354)	(373,174)
19	FISH & WILDLIFE	(43,000)	(43,000)
20	CASH USED FOR INVESTMENT ACTIVITIES	(374,354)	(416,174)
21			
22	CASH FROM BORROWING AND APPROPRIATIONS:		
23	INCREASE IN BONDS ISSUED TO U.S. TREASURY	238,269	255,608
24	REPAYMENT OF BONDS ISSUED TO U.S. TREASURY	(485,000)	(518,000)
25	INCREASE IN FEDERAL CONSTRUCTION APPROPRIATIONS	41,085	65,565
26	REPAYMENT OF FEDERAL CONSTRUCTION APPROPRIATIONS	0	0
27	REPAYMENT OF NON-FEDERAL OBLIGATIONS	(23,088)	(43,183)
28	CUSTOMER PROCEEDS	0	0
29	PAYMENT OF IRRIGATION ASSISTANCE	<u>(16,060)</u>	<u>(12,740)</u>
30	CASH PROVIDED BY BORROWING AND APPROPRIATIONS	(244,793)	(252,749)
31			
32	ANNUAL INCREASE (DECREASE) IN CASH	0	0
33			
34	PLANNED NET REVENUE FOR RISK	0	0
35			
36	TOTAL ANNUAL INCREASE (DECREASE) IN CASH	0	0
	1/ Minimum required net revenues are added to ensure sufficient 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	2,888,346	2,865,910
2			
3	OPERATING EXPENSES		
4	POWER SYSTEM GENERATION RESOURCES		
5	OPERATING GENERATION	704,270	727,663
6	OPERATING GENERATION SETTLEMENTS	27,749	27,500
7	NON-OPERATING GENERATION	2,341	2,375
8	CONTRACTED POWER PURCHASES	88,398	84,607
9	AUGMENTATION POWER PURCHASES	0	0
10	EXCHANGES & SETTLEMENTS	265,237	265,199
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	216,951	215,727
15	F&W/USF&W/PLANNING COUNCIL	290,450	290,627
16	BPA INTERNAL SUPPORT	85,471	86,515
17	OTHER INCOME, EXPENSES AND ADJUSTMENTS	0	0
18	DEPRECIATION	140,926	144,126
19	AMORTIZATION	320,983	317,402
20	ACCRETION	<u>36,754</u>	<u>38,363</u>
21	TOTAL OPERATING EXPENSES	2,414,721	2,432,893
22			
23	OTHER EXPENSE AND (INCOME)		
24	INTEREST		
25	APPROPRIATED FUNDS	45,413	46,877
26	CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
27	BONDS ISSUED TO U.S. TREASURY	51,774	46,077
28	PREMIUMS/DISCOUNTS	0	0
29	NON-FEDERAL INTEREST	173,926	178,281
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	(22,042)	(23,254)
33	INTEREST CREDIT ON CASH RESERVES	(4,555)	(5,006)
34	INTEREST INCOME ON DECOMMISSIONING TRUST	(9,734)	(10,082)
35	OTHER INCOME (NET)	(2,792)	(2,892)
36	TOTAL OTHER EXPENSE AND (INCOME)	178,660	176,743
37			
38	TOTAL EXPENSES	2,593,381	2,609,636
39			
40	NET REVENUES	294,965	256,274

Table 6: Generation Current Revenue Test Statement of Cash Flow
(\$000s)

		A	B
		2022	2023
1	CASH PROVIDED BY OPERATING ACTIVITIES		
2	NET REVENUES	294,965	256,274
3	NON-CASH ITEMS:		
4	NON-FEDERAL INTEREST	7,854	6,799
5	DEPRECIATION AND AMORTIZATION	461,909	461,528
6	ACCRETION	36,754	38,363
7	NON-CASH EXPENSES (INTEREST INCOME & GAINS/LOSSES)	(12,526)	(12,974)
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	717,064	678,345
16			
17	CASH USED FOR INVESTMENT ACTIVITIES		
18	INVESTMENT IN:		
19	FEDERAL UTILITY PLANT (INCLUDING AFUDC)	(331,354)	(373,174)
20	FISH & WILDLIFE	(43,000)	(43,000)
21	CASH USED FOR INVESTMENT ACTIVITIES	(374,354)	(416,174)
22			
23	CASH FROM (AND USED FOR) FINANCING ACTIVITIES		
24	INCREASE IN TREASURY DEBT	238,269	255,608
25	REPAYMENT OF TREASURY DEBT	(485,000)	(518,000)
26	INCREASE IN FEDERAL CONSTRUCTION APPROPRIATIONS	41,085	65,565
27	REPAYMENT OF FEDERAL CONSTRUCTION APPROPRIATIONS	0	0
28	REPAYMENT OF NON-FEDERAL OBLIGATIONS	(23,088)	(43,183)
29	CUSTOMER PROCEEDS	0	0
30	PAYMENT OF IRRIGATION ASSISTANCE	(16,060)	(12,740)
31	CASH USED FOR FINANCING ACTIVITIES	(244,793)	(252,749)
32			
33	ANNUAL INCREASE (DECREASE) IN CASH	97,916	9,422

Table 8: Generation Revised Revenue Test Income Statement
(\$000s)

			A	B
			2022	2023
1	REVENUES FROM PROPOSED RATES		2,836,623	2,810,348
2				
3	OPERATING EXPENSES			
4	POWER SYSTEM GENERATION RESOURCES			
5	OPERATING GENERATION		704,270	727,663
6	OPERATING GENERATION SETTLEMENTS		27,749	27,500
7	NON-OPERATING GENERATION		2,341	2,375
8	CONTRACTED POWER PURCHASES		88,398	84,607
9	AUGMENTATION POWER PURCHASES		0	0
10	EXCHANGES & SETTLEMENTS		265,237	265,199
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		216,951	215,727
15	F&W/USF&W/PLANNING COUNCIL		290,450	290,627
16	BPA INTERNAL SUPPORT		85,471	86,515
17	OTHER INCOME, EXPENSES AND ADJUSTMENTS		0	0
18	DEPRECIATION		140,926	144,126
19	AMORTIZATION		320,983	317,402
20	ACCRETION		<u>36,754</u>	<u>38,363</u>
21	TOTAL OPERATING EXPENSES		2,414,721	2,432,893
22				
23	OTHER EXPENSE AND (INCOME)			
24	INTEREST			
25	APPROPRIATED FUNDS		45,413	46,877
26	CAPITALIZATION ADJUSTMENT		(45,937)	(45,937)
27	BONDS ISSUED TO U.S. TREASURY		51,774	46,077
28	PREMIUMS/DISCOUNTS		0	0
29	NON-FEDERAL INTEREST		173,926	178,281
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		(22,042)	(23,254)
33	INTEREST CREDIT ON CASH RESERVES		(4,898)	(5,037)
34	INTEREST INCOME ON DECOMMISSIONING TRUST		(9,734)	(10,082)
35	OTHER INCOME (NET)		<u>(2,792)</u>	<u>(2,892)</u>
36	TOTAL OTHER EXPENSE AND (INCOME)		178,317	176,712
37				
38	TOTAL EXPENSES		2,593,038	2,609,605
39				
40	NET REVENUES		243,585	200,743

Table 9: Generation Revised Revenue Test Statement of Cash Flow
(\$000s)

		A	B
		2022	2023
1	CASH PROVIDED BY OPERATING ACTIVITIES		
2	NET REVENUES	243,585	200,743
3	NON-CASH ITEMS:		
4	NON-FEDERAL INTEREST	7,854	6,799
5	DEPRECIATION AND AMORTIZATION	461,909	461,528
6	ACCRETION	36,754	38,363
7	NON-CASH EXPENSES	(12,526)	(12,974)
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	<u>(46,500)</u>	<u>46,500</u>
15	CASH PROVIDED BY OPERATING ACTIVITIES	619,184	669,314
16			
17	CASH USED FOR INVESTMENT ACTIVITIES		
18	INVESTMENT IN:		
19	FEDERAL UTILITY PLANT (INCLUDING AFUDC)	(331,354)	(373,174)
20	FISH & WILDLIFE	(43,000)	(43,000)
21	CASH USED FOR INVESTMENT ACTIVITIES	(374,354)	(416,174)
22			
23	CASH FROM (AND USED FOR) FINANCING ACTIVITIES		
24	INCREASE IN TREASURY DEBT	238,269	255,608
25	REPAYMENT OF TREASURY DEBT	(485,000)	(518,000)
26	INCREASE IN FEDERAL CONSTRUCTION APPROPRIATIONS	41,085	65,565
27	REPAYMENT OF FEDERAL CONSTRUCTION APPROPRIATIONS	0	0
28	REPAYMENT OF NON-FEDERAL OBLIGATIONS	(23,088)	(43,183)
29	CUSTOMER PROCEEDS	0	0
30	PAYMENT OF IRRIGATION ASSISTANCE	<u>(16,060)</u>	<u>(12,740)</u>
31	CASH USED FOR FINANCING ACTIVITIES	(244,793)	(252,749)
32			
33	ANNUAL INCREASE (DECREASE) IN CASH	36	391

Table 10: Generation Revenue from Proposed Rates – Results Through the Repayment Period
(\$000s)

	A	B	C	D	E	F	G	H	I	J	K	L
			PURCHASE AND EXCHANGE POWER					FUNDS FROM OPERATION 2/ (H-F-G)	NON-FEDERAL AMORTIZATION 3/ (REV REQ STUDY DOCUMENTATION)	FEDERAL AMORTIZATION (REV REQ STUDY DOCUMENTATION)	IRRIGATION AMORTIZATION (STATEMENT C)	NET POSITION (K-H-L)
YEAR COMBINED CUMULATIVE	REVENUES (STATEMENT A)	OPERATION & MAINTENANCE (STATEMENT B)	(STATEMENT E)	DEPRECIATION	NET INTEREST (STATEMENT D)	NET REVENUES (E=A-B-C-D-E)	NONCASH EXPENSES 1/ (COLUMN D)					
1 2014	85,655,930	18,971,574	52,260,235	5,723,414	7,536,544	1,164,163	5,120,338	6,283,752		5,521,807	157,944	604,001
3 GENERATION												
4 2015	2,588,858	1,009,924	841,782	224,188	185,925	327,038	192,292	585,598		402,532	61,066	122,000
5 2016	2,600,726	1,140,374	864,698	222,551	185,925	187,178	690,354	877,532		1,053,348	60,184	(236,000)
6 2017	2,721,171	1,171,666	947,790	224,047	121,678	255,990	190,579	794,123		796,641	50,769	(53,287)
7 2018	2,862,774	1,188,441	966,795	221,031	73,686	412,821	221,031	295,853		388,138	-	(92,285.19)
8 2019	2,817,848	1,129,514	1,139,850	225,211	65,484	257,789	155,897	430,299	141,088	422,706	56,573	190,067
9 2020	2,814,257	1,117,823	683,251	478,985	279,085	255,113	400,195	168,165	274,610	171,410	24,129	301,984
11 COST EVALUATION PERIOD												
12 2021	2,689,777	1,201,997	692,835	525,414	200,563	68,968	454,993	555,686	22,871	518,065	14,747	4
13 RATE APPROVAL PERIOD												
15 2022	2,836,623	1,233,486	682,572	498,663	178,317	243,585	327,099	524,184	23,088	485,000	16,060	36
16 2023	2,810,348	1,232,830	700,173	499,891	176,712	200,743	327,071	574,314	43,183	518,000	12,740	391
17 REPAYMENT PERIOD												
19 2024	2,810,348	1,232,830	687,120	499,891	187,924	202,583	422,071	624,654	152,760	316,287	15,021	140,586
20 2025	2,810,348	1,232,830	687,120	499,891	157,996	232,511	422,071	654,582	387,548	117,400	13,408	136,226
21 2026	2,810,348	1,232,830	687,120	499,891	147,585	242,922	422,071	664,993	400,609	110,892	20,626	132,866
22 2027	2,810,348	1,232,830	687,120	499,891	146,520	243,987	422,071	666,057	408,116	131,315	6,076	120,551
23 2028	2,810,348	1,232,830	687,120	499,891	147,871	242,636	422,071	664,706	421,150	105,776	11,111	105,776
24 2029	2,810,348	1,232,830	687,120	499,891	140,131	250,376	422,071	672,447	135,396	435,705	4,065	97,281
25 2030	2,810,348	1,232,830	687,120	499,891	137,633	252,874	422,071	674,944	271,519	313,464	1,996	87,966
26 2031	2,810,348	1,232,830	687,120	499,891	134,044	256,464	422,071	678,534	273,994	315,250	10,409	78,881
27 2032	2,810,348	1,232,830	687,120	499,891	123,128	267,379	422,071	689,450	251,091	359,478	-	78,881
28 2033	2,810,348	1,232,830	687,120	499,891	85,480	305,027	422,071	727,098	248,252	395,618	4,347	78,881
29 2034	2,810,348	1,232,830	687,120	499,891	30,745	359,762	422,071	781,833	251,187	451,765	-	78,881
30 2035	2,810,348	1,232,830	687,120	499,891	86,596	303,911	422,071	725,982	244,177	395,247	7,677	78,881
31 2036	2,810,348	1,232,830	687,120	499,891	70,274	320,233	422,071	742,304	401,484	233,018	28,920	78,881
32 2037	2,810,348	1,232,830	687,120	499,891	53,488	337,019	422,071	759,089	227,245	437,477	15,486	78,881
33 2038	2,810,348	1,232,830	687,120	499,891	35,378	355,129	422,071	777,199	218,718	479,600	78,881	78,881
34 2039	2,810,348	1,232,830	687,120	499,891	15,776	374,731	422,071	796,802	178,333	525,519	14,069	78,881
35 2040	2,810,348	1,232,830	687,120	499,891	(5,184)	395,691	422,071	817,762	104,158	634,723	78,881	78,881
36 2041	2,810,348	1,232,830	687,120	499,891	(23,547)	414,054	422,071	836,125	98,421	585,164	73,659	78,881
37 2042	2,810,348	1,232,830	687,120	499,891	(42,468)	432,975	422,071	855,046	99,323	676,842	-	78,881
38 2043	2,810,348	1,232,830	687,120	499,891	(63,115)	453,622	422,071	875,693	100,265	666,628	-	108,800
39 2044	2,810,348	1,232,830	687,120	499,891	(74,876)	465,383	422,071	887,453	198,711	252,839	-	435,903
40 2045	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,036	252,839	11,453	135,941
41 2046	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,035	252,839	-	147,395
42 2047	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,037	252,839	-	147,393
43 2048	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,035	252,839	-	147,395
44 2049	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,036	252,839	-	147,394
45 2050	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,036	252,839	-	147,394
46 2051	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,035	252,839	-	147,395
47 2052	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,035	252,839	-	147,395
48 2053	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,035	252,839	-	147,395
49 2054	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,036	252,839	-	147,394
50 2055	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,036	252,839	-	147,394
51 2056	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,034	252,839	-	147,396
52 2057	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,034	252,839	-	147,397
53 2058	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,035	252,839	-	147,395
54 2059	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,038	252,839	-	147,392
55 2060	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,037	252,839	-	147,393
56 2061	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,037	252,839	-	147,393
57 2062	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,035	252,839	-	147,395
58 2063	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,035	252,839	-	147,395
59 2064	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,037	252,839	-	147,393
60 2065	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,034	252,839	-	147,396
61 2066	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,035	252,839	-	147,395
62 2067	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,037	252,839	-	147,393
63 2068	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,034	252,839	-	147,396
64 2069	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,035	252,839	-	147,396
65 2070	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,034	252,839	-	147,396
66 2071	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,035	252,839	-	147,395
67 2072	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,037	252,839	-	147,393
68 2073	2,810,348	1,232,830	687,120	499,891	(76,692)	467,199	422,071	889,270	489,036	252,839	-	147,394
70 GENERATION TOTALS	282,837,565	101,245,671	110,147,282	36,133,325	10,308,050	25,003,237	30,328,393	55,310,588		28,506,286	808,775	7,388,769

1/ Consists of depreciation plus other non-cash expenses and other adjustments and any accounting write-offs included in expenses. Also removed revenue financing.
2/ Includes adjustments for non-cash revenues or other accrual to cash adjustments. FY 2019 includes a one-time increase of \$330 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.
3/ 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	2020	13,918,897	-	13,918,897	151,100	20,310	3,561,052	7,720,173	305,948	24,079	281,869
2	2021	398,000	-	14,316,897	519,000	-	3,440,052	7,563,325	-	14,747	267,123
3	2022	280,000	-	14,596,897	485,000	-	3,235,052	7,290,612	-	16,060	251,063
4	2023	526,937	-	15,123,833	518,000	-	3,243,989	7,038,536	-	12,740	238,323
5	2024	-	252,839	15,376,673	94,200	222,087	3,180,542	7,142,907	-	15,021	223,302
6	2025	-	252,839	15,629,512	64,000	53,400	3,315,981	7,060,257	-	13,408	209,894
7	2026	-	252,839	15,882,352	86,000	24,892	3,457,928	6,957,909	-	20,626	189,268
8	2027	-	252,839	16,135,191	73,000	58,315	3,579,453	7,020,849	-	6,076	183,192
9	2028	-	252,839	16,388,030	78,000	48,670	3,705,623	6,948,489	-	11,111	172,082
10	2029	-	252,839	16,640,870	157,327	278,379	3,522,757	6,806,581	-	4,065	168,017
11	2030	-	252,839	16,893,709	60,000	253,464	3,462,133	6,988,306	-	1,996	166,021
12	2031	-	252,839	17,146,549	83,000	232,250	3,399,722	7,115,793	-	10,409	155,612
13	2032	-	252,839	17,399,388	26,000	333,478	3,293,083	7,110,120	-	-	155,612
14	2033	-	252,839	17,652,227	38,000	357,618	3,150,304	6,989,125	-	4,347	151,265
15	2034	-	252,839	17,905,067	55,000	396,765	2,951,379	7,146,964	-	-	151,265
16	2035	-	252,839	18,157,906	-	395,247	2,808,971	7,331,590	-	7,677	143,588
17	2036	-	252,839	18,410,746	-	401,484	2,660,327	7,554,165	-	28,920	114,668
18	2037	-	252,839	18,663,585	-	437,477	2,475,689	7,704,468	-	15,486	99,181
19	2038	-	252,839	18,916,424	-	479,600	2,248,928	7,764,147	-	-	99,181
20	2039	-	252,839	19,169,264	-	525,519	1,976,249	7,886,986	-	14,069	85,112
21	2040	-	252,839	19,422,103	-	634,723	1,594,365	8,087,069	-	-	85,112
22	2041	-	252,839	19,674,943	-	585,164	1,262,041	8,240,157	-	73,659	11,453
23	2042	-	252,839	19,927,782	-	676,842	838,038	8,423,122	-	-	11,453
24	2043	-	252,839	20,180,621	-	666,628	424,249	8,337,484	-	-	11,453
25	2044	-	252,839	20,433,461	-	252,839	424,249	8,483,536	-	-	11,453
26	2045	-	252,839	20,686,300	-	252,839	424,249	8,614,430	-	11,453	0
27	2046	-	252,839	20,939,140	-	252,839	424,249	8,812,421	-	-	-
28	2047	-	252,839	21,191,979	-	252,839	424,249	8,971,950	-	-	-
29	2048	-	252,839	21,444,819	-	252,839	424,249	8,797,389	-	-	-
30	2049	-	252,839	21,697,658	-	252,839	424,249	8,879,228	-	-	-
31	2050	-	252,839	21,950,497	-	252,839	424,249	8,995,461	-	-	-
32	2051	-	252,839	22,203,337	-	252,839	424,249	9,139,391	-	-	-
33	2052	-	252,839	22,456,176	-	252,839	424,249	9,378,304	-	-	-
34	2053	-	252,839	22,709,016	-	252,839	424,249	9,483,460	-	-	-
35	2054	-	252,839	22,961,855	-	252,839	424,249	9,629,165	-	-	-
36	2055	-	252,839	23,214,694	-	252,839	424,249	9,736,515	-	-	-
37	2056	-	252,839	23,467,534	-	252,839	424,249	9,610,773	-	-	-
38	2057	-	252,839	23,720,373	-	252,839	424,249	9,806,601	-	-	-
39	2058	-	252,839	23,973,213	-	252,839	424,249	10,000,225	-	-	-
40	2059	-	252,839	24,226,052	-	252,839	424,249	10,101,613	-	-	-
41	2060	-	252,839	24,478,891	-	252,839	424,249	10,292,645	-	-	-
42	2061	-	252,839	24,731,731	-	252,839	424,249	10,424,520	-	-	-
43	2062	-	252,839	24,984,570	-	252,839	424,249	10,568,700	-	-	-
44	2063	-	252,839	25,237,410	-	252,839	424,249	10,717,209	-	-	-
45	2064	-	252,839	25,490,249	-	252,839	424,249	10,854,458	-	-	-
46	2065	-	252,839	25,743,088	-	252,839	424,249	11,018,362	-	-	-
47	2066	-	252,839	25,995,928	-	252,839	424,249	11,236,858	-	-	-
48	2067	-	252,839	26,248,767	-	252,839	424,249	11,427,795	-	-	-
49	2068	-	252,839	26,501,607	-	252,839	424,249	11,627,363	-	-	-
50	2069	-	252,839	26,754,446	-	252,839	424,249	11,571,773	-	-	-
51	2070	-	252,839	27,007,285	-	252,839	424,249	11,551,773	-	-	-
52	2071	-	252,839	27,260,125	-	252,839	424,249	11,484,773	-	-	-
53	Totals	\$15,123,833	\$12,136,291		\$2,487,627				\$305,948	\$305,948	\$3,636,564

