B O N N E V I L L E   P O W E R   A D M I N I S T R A T I O N

BP-14 Final Rate Proposal

Power Revenue Requirement Study

BP-14-FS-BPA-02

July 2013

POWER REVENUE REQUIREMENT STUDY

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FIGURE AND TABLES

COMMONLY USED ACRONYMS AND SHORT FORMS

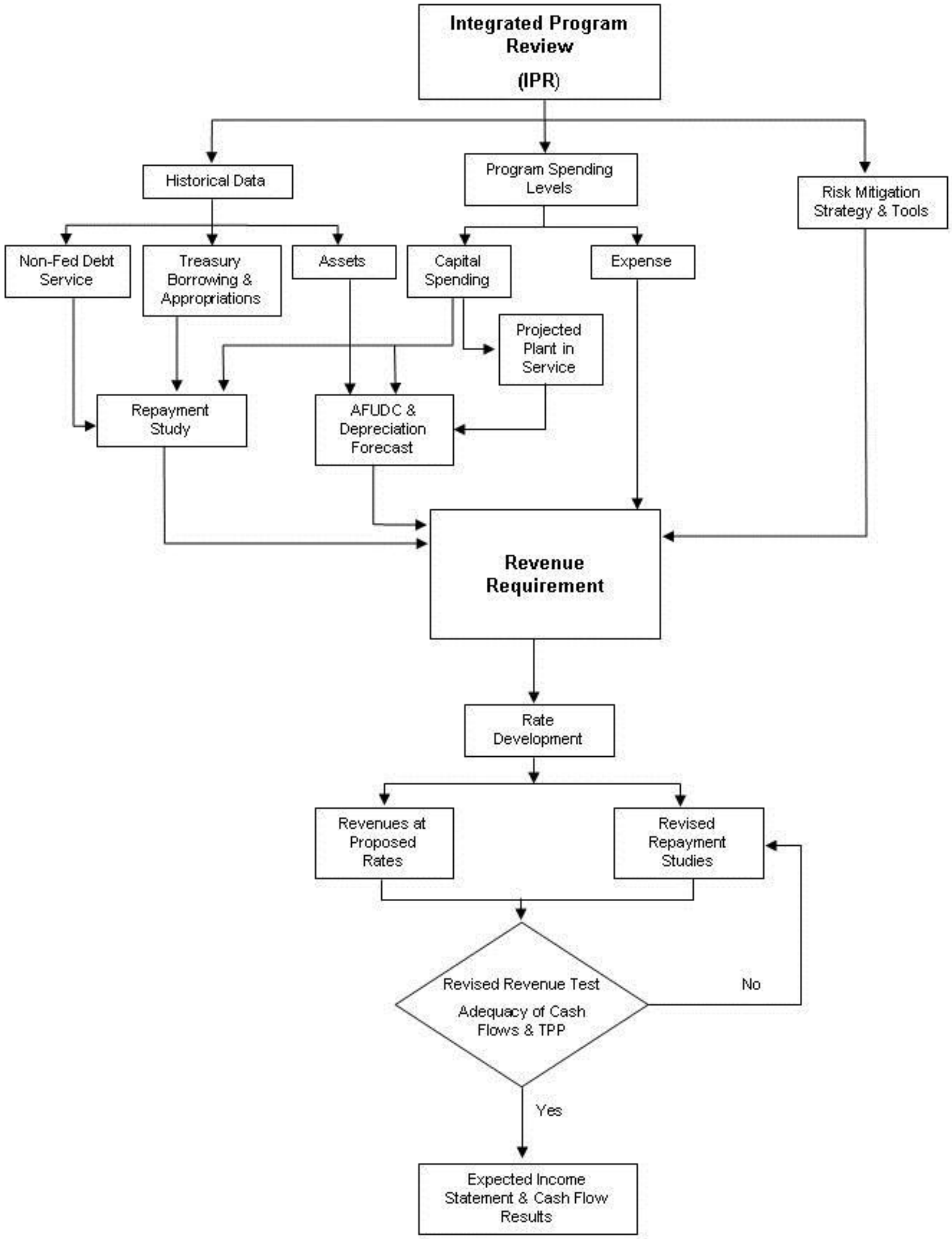
AAC	Anticipated Accumulation of Cash
AGC	Automatic Generation Control
ALF	Agency Load Forecast (computer model)
aMW	average megawatt(s)
AMNR	Accumulated Modified Net Revenues
ANR	Accumulated Net Revenues
ASC	Average System Cost
BiOp	Biological Opinion
BPA	Bonneville Power Administration
Btu	British thermal unit
CDD	cooling degree day(s)
CDQ	Contract Demand Quantity
CGS	Columbia Generating Station
CHWM	Contract High Water Mark
COE, Corps, or USACE	U.S. Army Corps of Engineers
Commission	Federal Energy Regulatory Commission
Corps, COE, or USACE	U.S. Army Corps of Engineers
COSA	Cost of Service Analysis
COU	consumer-owned utility
Council or NPCC	Northwest Power and Conservation Council
CP	Coincidental Peak
CRAC	Cost Recovery Adjustment Clause
CSP	Customer System Peak
CT	combustion turbine
CY	calendar year (January through December)
DDC	Dividend Distribution Clause
dec	decrease, decrement, or decremental
DERBS	Dispatchable Energy Resource Balancing Service
DFS	Diurnal Flattening Service
DOE	Department of Energy
DSI	direct-service industrial customer or direct-service industry
DSO	Dispatcher Standing Order
EIA	Energy Information Administration
EIS	Environmental Impact Statement
EN	Energy Northwest, Inc.
EPP	Environmentally Preferred Power
ESA	Endangered Species Act
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
FHFO	Funds Held for Others

FORS	Forced Outage Reserve Service
FPS	Firm Power Products and Services (rate)
FY	fiscal year (October through September)
GARD	Generation and Reserves Dispatch (computer model)
GEP	Green Energy Premium
GRSPs	General Rate Schedule Provisions
GTA	General Transfer Agreement
GWh	gigawatthour
HDD	heating degree day(s)
HLH	Heavy Load Hour(s)
HOSS	Hourly Operating and Scheduling Simulator (computer model)
HYDSIM	Hydrosystem Simulator (computer model)
ICE	Intercontinental Exchange
inc	increase, increment, or incremental
IOU	investor-owned utility
IP	Industrial Firm Power (rate)
IPR	Integrated Program Review
IRD	Irrigation Rate Discount
IRM	Irrigation Rate Mitigation
IRMP	Irrigation Rate Mitigation Product
JOE	Joint Operating Entity
kW	kilowatt (1000 watts)
kWh	kilowatthour
LDD	Low Density Discount
LLH	Light Load Hour(s)
LRA	Load Reduction Agreement
Maf	million acre-feet
Mid-C	Mid-Columbia
MMBtu	million British thermal units
MNR	Modified Net Revenues
MRNR	Minimum Required Net Revenue
MW	megawatt (1 million watts)
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
NORM	Non-Operating Risk Model (computer model)
Northwest Power Act	Pacific Northwest Electric Power Planning and Conservation Act

NPCC or Council	Pacific Northwest Electric Power and Conservation Planning Council
NPV	net present value
NR	New Resource Firm Power (rate)
NT	Network Transmission
NTSA	Non-Treaty Storage Agreement
NUG	non-utility generation
NWPP	Northwest Power Pool
OATT	Open Access Transmission Tariff
O&M	operation and maintenance
OATI	Open Access Technology International, Inc.
OMB	Office of Management and Budget
OY	operating year (August through July)
PF	Priority Firm Power (rate)
PFp	Priority Firm Public (rate)
PFx	Priority Firm Exchange (rate)
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
POM	Point of Metering
POR	Point of Receipt
Project Act	Bonneville Project Act
PRS	Power Rates Study
PS	BPA Power Services
PSW	Pacific Southwest
PTP	Point to Point Transmission (rate)
PUD	public or people's utility district
RAM	Rate Analysis Model (computer model)
RAS	Remedial Action Scheme
RD	Regional Dialogue
REC	Renewable Energy Certificate
Reclamation or USBR	U.S. Bureau of Reclamation
REP	Residential Exchange Program
RevSim	Revenue Simulation Model (component of RiskMod)
RFA	Revenue Forecast Application (database)
RHWM	Rate Period High Water Mark
RiskMod	Risk Analysis Model (computer model)
RiskSim	Risk Simulation Model (component of RiskMod)
ROD	Record of Decision
RPSA	Residential Purchase and Sale Agreement
RR	Resource Replacement (rate)
RRS	Resource Remarketing Service
RSS	Resource Support Services
RT1SC	RHWM Tier 1 System Capability

RTO	Regional Transmission Operator
SCADA	Supervisory Control and Data Acquisition
SCS	Secondary Crediting Service
Slice	Slice of the System (product)
T1SFCO	Tier 1 System Firm Critical Output
TCMS	Transmission Curtailment Management Service
TOCA	Tier 1 Cost Allocator
TPP	Treasury Payment Probability
TRAM	Transmission Risk Analysis Model
Transmission System Act	Federal Columbia River Transmission System Act
TRL	Total Retail Load
TRM	Tiered Rate Methodology
TS	BPA Transmission Services
TSS	Transmission Scheduling Service
UAI	Unauthorized Increase
ULS	Unanticipated Load Service
USACE, Corps, or COE	U.S. Army Corps of Engineers
USBR or Reclamation	U.S. Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service
VERBS	Variable Energy Resources Balancing Service (rate)
VOR	Value of Reserves
VR1-2014	First Vintage rate of the BP-14 rate period
WECC	Western Electricity Coordinating Council (formerly WSCC)
WIT	Wind Integration Team
WSPP	Western Systems Power Pool

Figure 1: Generation Revenue Requirement Process



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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 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 approval period. The cost evaluation period for this rate filing includes Fiscal Year (FY) 2013 and the proposed rate approval period (rate period), FY 2014–2015. 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-14-FS-BPA-08.

This Study outlines the policies, forecasts, assumptions, and calculations used to determine the power revenue requirement. The Power Revenue Requirement Study Documentation, BP-14-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, 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, based on Integrated Program Review (IPR) program spending forecasts (see Figure 1), and Minimum Required Net Revenue (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 Risk and Market Price Study, BP-14-FS-BPA-04. 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. Once the revenue requirement is completed, the costs identified in it 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, BP-14-FS-BPA-01.

Consistent with Department of Energy (DOE) Order RA 6120.2 and the standards applied by the Commission on review of BPA's rates, the adequacy of both current and proposed rates must be demonstrated. 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. The current revenue test, described in section 3.2 of this Study, demonstrates that revenues from current rates will not 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, section 3.3 of this Study, demonstrates that revenues from the proposed power rates will recover generation costs in the rate period and over the ensuing 50-year repayment period. Rate period costs are projected to be recovered with a very high confidence level, meeting BPA's 95 percent probability standard that all U.S. Treasury payments will be paid on time and in full.

Table 1 summarizes the revised revenue test and shows projected net revenues from proposed power rates for FY 2014–2015. 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 during the rate period and irrigation assistance payments that are due to be paid from power revenues.

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 Statutes

BPA's revenue requirements are governed primarily by four statutes: The Bonneville Project Act of 1937, P.L. No. 75-329, 50 Stat. 731; the Flood Control Act of 1944, P.L. No. 78-534, 58 Stat. 890, amended 1977; the Federal Columbia River Transmission System Act (Transmission System Act) of 1974, P.L. No. 93-454, 88 Stat. 1376; and the Pacific Northwest Electric Power Planning and Conservation Act (Northwest Power Act), P.L. No. 96-501, 94 Stat. 2697. Other statutory provisions that guide the development of BPA's revenue requirements include the Federal Power Act, as amended by the Energy Policy Act of 1992 (EPA-92), P.L. No. 102-486, 106 Stat. 2776; the Colville Settlement Act, P.L. No. 103-436, 108 Stat. 4577; and the Omnibus Consolidated Rescissions and Appropriations Act of 1996, P.L. No. 104-134, 110 Stat. 132. DOE Order "Power Marketing Administration Financial Reporting," RA 6120.2, issued by the Secretary of Energy, provides guidance to Federal power marketing agencies regarding repayment of the Federal investment.

1.2.2 Legal Requirements Governing the FCRPS Revenue Requirement

BPA's power rates must be set in a manner that ensures revenue levels sufficient to fully recover BPA's generation costs. This requirement is set forth in section 7 of the Bonneville Project Act, 16 U.S.C. § 832f (amended 1977):

> 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 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 ….

Development of the generation revenue requirement is a critical component of meeting this ratemaking directive. Section 9 of the Transmission System Act, 16 U.S.C, § 838g, also strongly reflects this cost recovery principle, providing that rates be set:

> [A]t 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.

Similarly, 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 Act 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 Act.

The Northwest Power Act also makes it clear that a primary purpose of confirmation of BPA rates by the Commission is to ensure that the revenue requirement is adequate to ensure timely U.S. Treasury repayment. Section 7(a)(2), 16 U.S.C. § 839e(a)(2), provides:

> Rates established under this section shall become effective only, except in the case of interim rules as provided in subsection (i)(6) of this section,

> upon confirmation and approval by the Federal Energy Regulatory Commission upon a finding by the Commission, that such 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.

In addition to reiterating and clarifying the cost recovery principle, the Northwest Power Act provides BPA with supplementary authority to sell bonds to the U.S. Treasury to finance BPA's new conservation and renewable resource programs. 16 U.S.C. § 838i. The Energy Policy Act of 1992 clarifies BPA's authority to provide funds directly to the U.S. Army Corps of Engineers (Corps) and U.S. Bureau of Reclamation (Reclamation) for hydroelectric generation additions, improvements, and replacements, as well as O&M expenses. P.L. No. 102-486, 1992 U.S. Code Cong. & Admin. News, 106 Stat. 2776. Other provisions that have particular relevance to the repayment of power costs can be found in the Reclamation Project Act of 1939 (codified as amended in scattered sections of 43 U.S.C.); the Grand Coulee Dam – Third Powerplant Act of June 14, 1966, P.L. No. 89-448, 80 Stat. 200, authorizing construction of the Grand Coulee Dam Third Powerhouse; and P.L. No. 89-561, 80 Stat. 707, Act of September 7, 1966, which partially amended P.L. No. 89-448. The costs associated with these projects and programs, as well as the other costs incurred by the Administrator in furtherance of BPA's mission, are included in this Study.

1.2.3 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. P.L. No. 103-436, Nov. 2, 1994, 108 Stat. 4577.

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, P.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 $21.4 million in FY 2014 and $21.9 million in FY 2015. The credits for the FY 2014–2015 rate period are $4.6 million in each fiscal year.

1.2.4 The BPA Appropriations Refinancing Act

As in prior rate periods, BPA's power rates for the FY 2014–2015 rate period will reflect the requirements of the Refinancing Act, part of the Omnibus Consolidated Rescissions and Appropriations Act of 1996, 16 U.S.C. § 838l, P.L. No. 104-134, 110 Stat. 1321. The Refinancing Act requires that unpaid principal on FCRPS 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. *Id*. at § 838l(b)(I). The Refinancing Act also specifies that the new principal amounts of the old capital investments be assigned new interest rates from the U.S. Treasury yield curve prevailing at the time of the refinancing transaction. *Id*. at § 838l(a)(6)(A).

The Refinancing Act specifies that repayment periods on new principal amounts may not be earlier than determined prior to the refinancing. *Id*. at § 838l(d).

The Refinancing Act specifies that the prevailing U.S. Treasury yield curve will be used to calculate interest during construction (IDC) and to assign interest rates to new capital investments funded by appropriations. 16 U.S.C. § 838l(f). New capital investments are defined as capital investments funded by appropriations for a project placed in service after September 30, 1996. *Id*. at § 838l(a)(3). The IDC in each fiscal year of construction for new capital investments is the prevailing one-year U.S. Treasury rate. *Id*. at § 838l(f)(1). The IDC is capitalized and included in the principal. After the plant is completed, the principal amount is assigned an interest rate based on the U.S. Treasury yield curve prevailing in the year in which the plant is placed in service. *Id.* at § 838l(g).

The U.S. Treasury rate for new capital investments prescribed in the Refinancing Act is:

> [A] rate determined by the Secretary of the Treasury, taking into consideration prevailing market yields, during the month preceding the beginning of the fiscal year in which the [new investment] … is placed in service, on outstanding interest bearing obligations of the United States with periods to maturity comparable to the period between the beginning of the fiscal year and the repayment date for the new capital investment.

16 U.S.C. § 838l(a)(6)(B).

The Refinancing Act directs the Administrator to offer to provide assurance in new or existing power, transmission, or related service contracts that the government will not increase the repayment obligations in the future. 16 U.S.C. § 838l(i). The Refinancing Act also amends the Colville Settlement Act to modify the amount and timing of certain credits that BPA takes against its annual cash transfers to the U.S. Treasury.

1.2.5 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 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, *inter alia*, on "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 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 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 and 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.

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

The Northwest Power Act provides that:

> 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 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. 976, 96th Cong., 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.

1.2.7 Equitable Allocation of Transmission Costs

In an order dated January 27, 1984, *United States Department of Energy – Bonneville Power Admin.*, 26 FERC ¶ 61,096 (1984), the Commission directed BPA to, among other things, develop separate repayment studies for the generation and transmission functions of the FCRPS. The purpose of this requirement was to assist the Commission in making the determination required under section 7(a)(2)(C) of the Northwest Power Act (16 U.S.C. § 839e(a)(2)(C)) that transmission costs be equitably allocated between Federal and non-Federal uses of the transmission system. This requirement has given BPA a 28-year history of conducting separate repayment studies for the transmission and generation functions, which has enabled BPA to set power and transmission rates separately with minimal change in repayment policy and development of each revenue requirement. Consistent with the decision to separate the rates for the transmission and generation functions beginning with the WP-02 proceeding, this Power Revenue Requirement Study incorporates only the repayment study for the generation function of the FCRPS for FY 2014–2015. The Transmission Revenue Requirement Study, BP-14-FS-BPA-08, incorporates the repayment study for the transmission function.

1.2.8 Repayment Requirements and Policies

The statutes do not include specific directives for scheduling repayment of the FCRPS capital appropriations and bonds issued to the U.S. Treasury. The details of the repayment policy have largely been established through administrative interpretation of statutory requirements, with Congressional sanction.

There have been a number of changes in BPA's repayment policy over the years, generally concurrent with expansion of the FCRPS and changing conditions. In general, current repayment criteria were first approved by the Secretary of the Interior on April 3, 1963. These criteria were refined and submitted to the Secretary of the Interior 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 in 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 this authorization, H.R. Rep. No. 1409, 89th Cong., 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.
>
> 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 Bonneville Power Administration's customers, which include both electric utilities and electro-process 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 are set forth in the Department of the Interior (DOI) 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 a repayment policy for all DOI power marketing agencies, of which BPA was one at the time, the Deputy Assistant Secretary of the Interior issued a memo on August 2, 1972, outlining: (1) a uniform definition of the commencement 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 still complying with the 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 or 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 DOI power marketing agencies. Included therein are standard policies and procedures for preparing system repayment studies.

BPA and other former DOI power marketing agencies were transferred to the newly established DOE on October 1, 1977. *See* 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 was subsequently replaced by RA 6120.2 on September 20, 1979, as amended on October 1, 1983.

The repayment policy outlined in 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 each fiscal year 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 12 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 P.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 is 50 years from the year in which the plant is placed in service. The Refinancing Act overrides provisions in 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 these investments. The Refinancing Act is discussed in section 1.2.4.

Irrigation costs are repaid without interest. P.L. No. 89-448 authorizes the payment of irrigation costs from revenues of the entire power system. This is consistent with the so-called “Basin Account” concept. P.L. No. 89-561, approved on September 7, 1966, amended P.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, *i.e.*, 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.

In addition, other sections within RA 6120.2 require that any outstanding deferred interest payments must be repaid before any planned amortization payments are made. Repayments are to be made by amortizing those Federal investments and obligations bearing the highest interest rate first, to the extent possible, while still completing repayment of each increment of Federal investment and obligation within its prescribed repayment period.

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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 2014–2015 rate period it began in March and April of 2012, when BPA hosted the 2012 Capital in Review (CIR), a new public process focused on reviewing and discussing draft asset strategies and 10-year capital forecasts. It continued with the Integrated Program Review (IPR), which provides customers and constituents an opportunity to examine, understand, and comment on BPA's cost projections for BPA's power and transmission functions.

BPA began the 2012 IPR discussion of FY 2014–2015 program levels on June 5, 2012, with an opening workshop containing an overview of Power, Transmission, and Agency Services proposed expense spending levels for FY 2014–2015. At the same time, BPA released FY 2014–2015 proposed expense spending levels, drivers, goals, risks, and comparisons to previous IPR costs. Public comments received during the CIR informed capital cost projections for FY 2014–2015 in the 2012 IPR initial report released June 18, 2012. After the opening IPR workshop and release of information, participants were allowed three weeks to request additional information or specific workshops. BPA responded to 101 requests for additional information and held six workshops through August 10, 2012. These workshops were held to discuss the projected spending levels of the Columbia Generating Station (CGS), Corps, Reclamation, BPA's conservation and fish and wildlife programs, and BPA's Information Technology program. While Federal and non-Federal debt management issues are not decided in the IPR, a workshop was held on these topics because BPA believes it is important for participants to understand the implications of past debt management decisions and proposed capital spending levels. After considering the comments received, BPA released a final close-out report on October 26, 2012.

On April 26, 2013, BPA invited the region to an abbreviated "IPR2" public process to discuss proposed adjustments from the 2012 IPR. The process began with a public meeting in Portland on April 30, 2013. The comment period ended on May 7, 2013. On June 4, 2013, BPA issued the IPR2 Decision Letter and Spending Level Changes Table. In the letter and table BPA presented the program-level cost estimates to be used in the BP-14 Final Proposal. The IPR2 resulted in cost changes from the spending levels proposed at the end of the IPR, mainly due to the reshaping of BPA's capital programs and the Energy Northwest updated Long Range Plan.

This Study incorporates the spending levels identified in the IPR final close-out report and IPR2 decision letter, which can be found on BPA's public Web site: Finance & Rates—Financial Public Processes—Integrated Program Review.

Finally, the revenue requirement was reduced by the application of unspent Green Energy Premiums. BPA planned to fully expend those monies in the FY 2012–2013 rate period but now expects that $1.5 million will remain at the beginning of the FY 2014–2015 rate period. See the BP-12 Final Record of Decision, BP-12-A-02, at 374-375. The remaining balance has been carried over into the FY 2014–2015 rate period and is used to offset forecast program spending on renewables.

2.2 Capital Funding

The forecast of BPA's capital investments for FY 2014–2015 used in setting the BP-14 power rates was produced in the IPR. The following section describes the forecasts developed in the IPR and includes a 5 percent "lapse factor," recognizing that timing of some planned capital spending may be stretched into the following rate period. The lapse factor was applied to all programs except the Fish and Wildlife Program, Energy Efficiency, and CGS. 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 $1,794 million for the cost evaluation period of FY 2013–2015. 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 aging and deteriorating Federal hydro system
- investment in fish and wildlife mitigation measures
- investment in conservation activities
- investment in capital equipment

Table 3 provides investment projections for the cost evaluation period. 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 2014–2015 capital program and Corps and Reclamation investments that BPA has agreed to direct-fund under section 2406 of P.L. No. 102-486, 16 U.S.C. § 839d-1. These expenditures include a total capital projection of $569 million, which is comprised of BPA Fish and Wildlife direct program investments ($112 million), conservation investments ($167 million), BPA capital equipment ($37 million), and generating resource investments of the Corps and Reclamation ($253 million) during FY 2014–2015. *See* Table 3.

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 Documentation.

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 $138 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 Documentation. 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.

To determine interest during construction for new capital investments for a given fiscal year, the prevailing U.S. Treasury one-year rate for each fiscal year of construction is applied to the sum of the cumulative expenditures made and interest during construction that has accrued prior to the end of the fiscal year. *See* Documentation Chapter 9.

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). This Study includes forecasts of debt transactions that will occur during the cost evaluation period, including the refinancing of Lewis County debt and the refinancing of CGS debt coming due in fiscal years 2014 and 2015.

2.2.4 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 use of these funds will begin in FY 2013. BPA expects that $253 million will be used to finance Corps and Reclamation capital investment in lieu of borrowing from the U.S. Treasury in the FY 2014–2015 rate period.

2.3 Debt Optimization Program

After base power rates were filed for the FY 2002–2006 rate period, BPA instituted a Debt Optimization Program (DOP) with EN as a means of replenishing Treasury borrowing authority. Debt Optimization (DO) involves extending EN debt that has come due and using the cash flows that would have gone to pay the EN debt to repay an equivalent amount of Federal debt. The program has resulted in a considerable amount of Federal debt, primarily bonds issued to Treasury but also some Congressional appropriations, being paid well in advance of the amortization schedules established in the WP-02 rate filing. As the program continued during FY 2007–2009, additional advance amortization was created, compared to the schedules that would have been established without DO, for the subsequent rate periods through FY 2012. Effectively, the extension of EN debt into FY 2013–2018 has advanced the repayment of Federal debt relative to the amount that otherwise would have been paid in that period. BPA has committed to EN that it would follow this program, matching dollar for dollar the repayment of Federal obligations in the same year in which EN debt has been extended, absent dire financial circumstances that might cause some delay in the payment of the advanced portion of the amortization.

This Study includes EN debt refinancing transactions completed through FY 2009. BPA has ended the DO program, and no forecasts of DO actions are included in the proposed rates.

2.4 Modeling of BPA's Repayment Obligations

Typically, repayment studies are performed as the first step in 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 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 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 may include 3-year to 45-year terms, taking into account the estimated average service lives for investments and prudent financing and cash management factors. Some bonds are issued with a provision that allows them to be called after a certain time, typically five years. Bonds may also be issued with no early call provision. Early retirement of eligible bonds requires that BPA pay a bond premium to the U.S. Treasury. 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 to finance BPA conservation acquisitions, the 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 45 years. Conservation bonds are issued with maturities that are consistent with the period over which BPA amortizes these capital investments. Currently, BPA has three amortization schedules for conservation assets. Investments made prior to FY 2002, referred to as the Conservation Legacy program, have a straight-line 20-year amortization period. Investments made beginning in FY 2007, known as Conservation Acquisition investments, have a straight-line five-year amortization period. Investments made beginning with FY 2011 have a straight-line 12-year amortization 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.

Further discussion of the repayment program is included in Chapter 15 of the Documentation.

2.5 Products Used by Other Studies

The Revenue Requirement Study produces information that is used in other studies. The information provided to the Rate Analysis Model (RAM) 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.

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 Income Statement includes projections of Total Expenses, PNRR, and if necessary, an MRNR component. The Statement of Cash Flow shows the analysis used to determine MRNR and the cash available for risk mitigation.

The Income Statement, Table 4, displays the components of the annual revenue requirement, which includes Total Operating Expenses (Line 19), Net Interest Expense (Line 28), and Total Planned Net Revenues (Line 32), which consists of MRNR (Line 30) and PNRR (Line 31). The sum of these three major components is the Total Revenue Requirement (Line 33).

The amounts shown in Total Operating Expenses are primarily established outside the ratesetting process in the IPR. Other expenses, such as power purchases, augmentation, transmission acquisition and ancillary services, and net interest, are modeled within the rate case. The MRNR (Line 30) results from an analysis of the Statement of Cash Flow, Table 5. 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.

The Statement of Cash Flow (Table 5) analyzes annual cash inflow and outflow. Cash provided by Operating Activities (Line 8), driven by the Non-Cash Items shown in Lines 4, 5, 6, and 7, must be sufficient to compensate for the difference between Cash Used for Investment Activities (Line 14) and Cash Provided by Borrowing and Appropriations (Line 22). 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 23). Any MRNR amounts shown on the Statement of Cash Flow (Line 2) are then incorporated in the Income Statement (Table 4, Line 30).

3.2 Current Revenue Test

Consistent with RA 6120.2, the continuing adequacy of existing rates must be tested annually. The current revenue test, exhibited in Tables 6 and 7, determines whether the revenue expected from current rates can continue to meet cost recovery requirements, thus allowing the current rates to be extended. Revenue at current rates can be found in the Power Rates Study (PRS) Documentation, BP-14-FS-BPA-01A, section 4.1. The result of the current revenue test demonstrates that projected revenue from current rates is inadequate to meet the cost recovery criteria of RA 6120.2 over the repayment period, because the net position is negative. See Table 8, column K. If revenues from current rates were adequate, current rates could be extended, although other reasons may exist for revising rates, such as the implementation of a new rate design.

3.3 Revised Revenue Test

Consistent with 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, as well as BPA's Treasury Payment Probability (TPP) standard for the rate period. The revised revenue test is conducted using the forecast of revenue under proposed rates. PRS Documentation, BP-14-FS-BPA-01A, section 4.2.

For the rate period, the demonstration of the adequacy of proposed rates is shown in Table 9, Generation Revised Revenue Test Income Statement, and Table 10, Generation Revised Revenue Test Statement of Cash Flow. Table 10 tests the sufficiency of the resulting Net

Revenues from Table 9 (Line 32) for making the planned annual amortization and irrigation assistance payments and achieving the Administrator's financial objectives. The sufficiency of net revenues is demonstrated by the Annual Increase (Decrease) in Cash (Table 10, Line 25). 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 and meet risk mitigation policy for the rate period, FY 2014–2015. With the successful test of proposed rates, the rate development process ends.

3.4 Repayment Test at Proposed Rates

Table 11, Generation Revenue from Proposed Rates, demonstrates whether projected revenue from proposed rates is adequate to meet the cost recovery criteria of RA 6120.2 over the repayment period. The data are presented in a format consistent with the revised revenue tests, Tables 9 and 10, and the separate accounting analysis that is an attachment to the filing with the Commission. The focal point of these tables is the Net Position (Column K), which is the amount of funds provided by revenues that remain 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 K, 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 have been taken from BPA's separate accounting analysis. The rate period data have been developed specifically for this Study. The repayment period data are presented consistent with the requirements of RA 6120.2. Typically, the revenue test through the repayment period uses expenses from the last year of the rate period. For the FY 2014–2015 rates, 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, which results in low costs in the first year and high costs in the second year. FY 2015 is a refueling year for CGS, which increases O&M costs for the facility and 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 2014 and FY 2015 have been averaged to produce an average annual cost for the operation of CGS for the rate period. Augmentation purchases are also averaged in this fashion because of the higher costs in FY 2015 to make up for lost CGS generation.

Table 12, Amortization of Generation Investments Over Repayment Period, summarizes the amortization of Federal investments over the entire repayment period. It displays the total investment costs of the generating projects through the cost evaluation period, forecast replacements required to maintain the system through the repayment period, the cumulative dollar amount of the generation 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 (if all obligations were paid at maturity and never early), and the predetermined amortization payments and the unamortized amount of irrigation 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 2014	FY 2015	Average
1	Projected Revenues from Proposed Rates	$ 2,760,212	$ 2,817,383	$ 2,788,798
2	Projected Expenses	2,751,148	2,827,740	2,789,444
3	Net Revenues	$ 9,064	$ (10,357)	$ (647)

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

		A	B	C
		Total	Irrigation	
	Fiscal Year	Amortization	Assistance	Total
1	2014	$106,611	$52,550	$159,161
2	2015	$111,151	$52,110	$163,261
3	Total	$217,762	$104,660	$322,422

Table 3: Projected Capital Funding Requirements for the FCRPS
($000s)

		A	B	C
		FY 2013	FY 2014	FY 2015
	POWER			
	Capital Requirements for Revenue Producing Investments			
1	Corps & Reclamation Additions/Replacements - Direct Funded	225,931	228,312	226,828
2	PBL Capital Equipment	22,730	18,540	18,980
3	CGS: Additions/Replacements	111,600	112,495	129,815
4	**Annual Capital Requirements for Revenue Producing Investments**	**360,261**	**359,347**	**375,623**
	Capital Requirements for Non-Revenue Producing and Public Benefit Investments			
5	**Energy Conservation**	75,200	75,620	92,000
6	**Fish Investment**			
7	BPA Fish and Wildlife Investment	64,540	60,280	51,290
8	Corps & Reclamation Fish Investment - Appropriations	141,823	99,343	38,981
9	**Total Fish Investment**	206,363	159,623	90,271
10	Other Third-Party	-	-	-
11	**Annual Capital Req. for Non-Rev. & Public Benefit Invests.**	**281,563**	**235,243**	**182,271**
12	**ANNUAL FUNDING REQUIREMENTS FOR POWER**	**641,824**	**594,590**	**557,894**
13	**CUMULATIVE FUNDING REQUIREMENTS FOR POWER**	**641,824**	**1,236,414**	**1,794,308**

Table 4: Generation Revenue Requirement Income Statement

($000s)

		A 2014	B 2015
1	OPERATING EXPENSES		
2	POWER SYSTEM GENERATION RESOURCES		
3	OPERATING GENERATION RESOURCES	691,038	740,089
4	OPERATING GENERATION SETTLEMENT PAYMENTS	21,405	21,906
5	NON-OPERATING GENERATION	2,206	2,228
6	CONTRACTED POWER PURCHASES	70,718	54,618
7	AUGMENTATION POWER PURCHASES	6,198	94,913
8	EXCHANGES & SETTLEMENTS	278,456	278,436
9	RENEWABLE GENERATION	39,049	39,397
10	GENERATION CONSERVATION	48,408	49,320
11	POWER NON-GENERATION OPERATIONS	91,856	94,710
12	PS TRANSMISSION ACQUISITION AND ANCILLARY SERVICES	164,996	165,246
13	F&W/USF&W/PLANNING COUNCIL/ENVIRONMENTAL REQUIREMENTS	295,538	302,769
14	GENERAL AND ADMINISTRATIVE/SHARED SERVICES	73,603	76,034
15	OTHER INCOME, EXPENSES AND ADJUSTMENTS	0	0
16	NON-FEDERAL DEBT SERVICE	514,848	441,278
17	DEPRECIATION	126,508	134,164
18	AMORTIZATION	97,940	95,117
19	TOTAL OPERATING EXPENSES	2,522,764	2,590,225
20	INTEREST EXPENSE:		
21	INTEREST		
22	APPROPRIATED FUNDS	222,306	220,657
23	CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
24	BONDS ISSUED TO U.S. TREASURY	63,653	73,235
25	NON-FEDERAL INTEREST	14,775	14,041
26	ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION	(11,168)	(11,175)
27	INTEREST CREDIT ON CASH RESERVES	(15,806)	(13,829)
28	NET INTEREST EXPENSE	227,822	236,991
29	TOTAL EXPENSES	2,750,587	2,827,216
30	MINIMUM REQUIRED NET REVENUE 1/	0	0
31	PLANNED NET REVENUE FOR RISK		
32	PLANNED NET REVENUE, TOTAL (30+31)	0	0
33	**TOTAL REVENUE REQUIREMENT**	**2,750,587**	**2,827,216**
1/	SEE NOTE ON CASH FLOW STATEMENT		

Table 5: Generation Revenue Requirement Statement of Cash Flow

($000s)

				A	B
				2014	2015
1	CASH FROM OPERATING ACTIVITIES				
2		MINIMUM REQUIRED NET REVENUE 1/		0	0
3		NON-CASH ITEMS:			
4			NON-FEDERAL INTEREST	14,775	14,041
5			DEPRECIATION AND AMORTIZATION	224,447	229,281
6			CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
7			REVENUES	(34,124)	(34,124)
8	CASH PROVIDED BY OPERATING ACTIVITIES			159,161	163,261
9	CASH FROM INVESTMENT ACTIVITIES:				
10		INVESTMENT IN:			
11			UTILITY PLANT (INCLUDING AFUDC)	(390,279)	(284,924)
12			ENERGY EFFICIENCY	(75,200)	(92,000)
13			FISH & WILDLIFE	(60,275)	(51,284)
14	CASH USED FOR INVESTMENT ACTIVITIES			(525,754)	(428,208)
15	CASH FROM BORROWING AND APPROPRIATIONS:				
16		INCREASE IN BONDS ISSUED TO U.S. TREASURY		223,850	294,339
17		REPAYMENT OF BONDS ISSUED TO U.S. TREASURY		(30,611)	(111,151)
18		INCREASE IN FEDERAL CONSTRUCTION APPROPRIATIONS		143,303	38,981
19		REPAYMENT OF FEDERAL CONSTRUCTION APPROPRIATIONS		(76,000)	0
20		CUSTOMER PROCEEDS		158,601	94,888
21		PAYMENT OF IRRIGATION ASSISTANCE		(52,550)	(52,110)
22	CASH PROVIDED BY BORROWING AND APPROPRIATIONS			366,593	264,947
23	ANNUAL INCREASE (DECREASE) IN CASH			0	0
24	PLANNED NET REVENUE FOR RISK			0	0
25	TOTAL ANNUAL INCREASE (DECREASE) IN CASH			0	0

1/ Line 23 must be greater than or equal to zero to indicate that cash cost recovery requirements are being achieved. If not, net revenues (MRNR) are added so that net cash flows for the year (Line 23) are zero.

Table 6: Generation Current Revenue Test Income Statement

($000s)

				A	B
				2014	2015
1	REVENUES FROM CURRENT RATES			2,667,298	2,741,345
2	OPERATING EXPENSES				
3		POWER SYSTEM GENERATION RESOURCES			
4			OPERATING GENERATION	691,038	740,089
5			OPERATING GENERATION SETTLEMENTS	21,405	21,906
6			NON-OPERATING GENERATION	2,206	2,228
7			CONTRACTED POWER PURCHASES	70,718	54,618
8			AUGMENTATION POWER PURCHASES	6,198	94,913
9			EXCHANGES & SETTLEMENTS	278,456	278,436
10			RENEWABLE GENERATION	39,799	40,147
11			GENERATION CONSERVATION	48,408	49,320
12					
13		POWER NON-GENERATION OPERATIONS		91,856	94,710
14		PS TRANSMISSION ACQUISITION AND ANCILLARY SERVICES		164,845	165,102
15		F&W/USF&W/PLANNING COUNCIL		295,538	302,769
16		BPA INTERNAL SUPPORT		73,603	76,034
17		OTHER INCOME, EXPENSES AND ADJUSTMENTS		0	0
18		NON-FEDERAL DEBT SERVICE		514,848	441,278
19		DEPRECIATION		126,508	134,164
20		AMORTIZATION		97,940	95,117
21	TOTAL OPERATING EXPENSES			2,523,365	2,590,831
22	INTEREST EXPENSE				
23		INTEREST			
24			APPROPRIATED FUNDS	222,306	220,657
25			CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
26			BONDS ISSUED TO U.S. TREASURY	63,653	73,235
27			NON-FEDERAL INTEREST	14,775	14,041
28		ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION		(11,168)	(11,175)
29		INTEREST CREDIT ON CASH RESERVES		(15,199)	(11,140)
30	NET INTEREST EXPENSE			228,429	239,680
31	TOTAL EXPENSES			2,751,794	2,830,511
32	NET REVENUES			(84,496)	(89,166)

Table 7: Generation Current Revenue Test Statement of Cash Flow
($000s)

				A	B
				2014	2015
1	CASH PROVIDED BY OPERATING ACTIVITIES				
2		NET REVENUES		(84,496)	(89,166)
3		NON-CASH ITEMS:			
4			DEPRECIATION AND AMORTIZATION	224,447	229,281
5			PREPAYMENT INTEREST	14,775	14,041
6			CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
7			NON-CASH REVENUES	(34,124)	(34,124)
8			UNSPENT GEP FROM PRIOR YEARS (IN RESERVES)	750	750
9		CASH FLOW ADJUSTMENT (RESERVE)/APPLICATION		0	0
10	CASH PROVIDED BY OPERATING ACTIVITIES			75,415	74,844
11	CASH USED FOR INVESTMENT ACTIVITIES				
12		INVESTMENT IN:			
13			FEDERAL UTILITY PLANT (INCLUDING AFUDC)	(390,279)	(284,924)
14			CONSERVATION	(75,200)	(92,000)
15			FISH & WILDLIFE	(60,275)	(51,284)
16	CASH USED FOR INVESTMENT ACTIVITIES			(525,754)	(428,208)
17	CASH FROM (AND USED FOR) FINANCING ACTIVITIES				
18		INCREASE IN TREASURY DEBT		223,850	294,340
19		CUSTOMER PROCEEDS		158,601	94,888
20		REPAYMENT OF TREASURY DEBT		(30,611)	(111,151)
21		INCREASE IN FEDERAL CONSTRUCTION APPROPRIATIONS		143,303	38,981
22		REPAYMENT OF FEDERAL CONSTRUCTION APPROPRIATIONS		(76,000)	0
23		PAYMENT OF IRRIGATION ASSISTANCE		(52,550)	(52,110)
24	CASH USED FOR FINANCING ACTIVITIES			366,593	264,947
25	ANNUAL INCREASE (DECREASE) IN CASH			(83,746)	(88,417)

Table 8: Generation Revenue from Current Rates – Results Through the Repayment Period

($000s)

		A	B	C	D	E	F	G	H	I	J	K
	YEAR COMBINED CUMULATIVE	REVENUES (STATEMENT A)	OPERATION & MAINTENANCE (STATEMENT E)	PURCHASE AND EXCHANGE POWER (STATEMENT E)	DEPRECIATION	NET INTEREST (STATEMENT D)	NET REVENUES (F=A-B-C-D-E)	NONCASH EXPENSES 1/ (COLUMN D)	FUNDS FROM OPERATION 2/ (H=F+G)	AMORTIZATION (REV REQ STUDY DOC, Ch 14)	IRRIGATION AMORTIZATION (STATEMENT C)	NET POSITION (K=H-I-J)
1	**1977**	3,298,951	963,839	348,748	807,047	1,220,170	(40,853)	807,047	766,194	628,460		137,734
2	**1978-2010**	71,648,593 0	14,081,826 #	47,211,125 #	4,070,605 #	5,559,607 0	725,430 0	3,157,650 #	4,242,416 0	3,952,810 0	45,392 #	244,214
3												
4	**GENERATION**											
5	**2011**	2,619,038	934,466	1,283,304	201,106	182,860	17,302	155,354	169,132	162,163	0	6,969
6	**2012**	2,631,334	962,711	1,260,404	199,286	169,748	39,185	153,534	174,395	193,000	1,182	(19,787)
7												
8	**COST EVALUATION**											
9	**PERIOD**											
10	**2013**	2,647,095	1,011,463	1,260,527	218,103	207,798	(50,796)	164,704	110,384	122,799	58,823	(71,238)
11	**RATE APPROVAL**											
12	**PERIOD**											
13	**2014**	2,667,298	1,064,382	1,234,535	224,448	228,429	(84,496)	193,286	75,416	106,611	52,550	(83,745)
14	**2015**	2,741,345	1,085,086	1,276,464	229,281	239,680	(89,166)	197,385	74,845	111,151	52,110	(88,416)
15												
16	**REPAYMENT**											
17	**PERIOD**											
18	**2016**	2,741,345	1,085,086	1,337,849	229,281	256,657	(167,527)	197,385	(3,516)	20,644	60,814	(84,975)
19	**2017**	2,741,345	1,085,086	1,344,260	229,281	265,920	(183,202)	197,385	(19,191)	14,501	51,278	(84,971)
20	**2018**	2,741,345	1,085,086	1,338,197	229,281	275,111	(186,330)	197,385	(22,319)	35,150	27,505	(84,975)
21	**2019**	2,741,345	1,085,086	1,095,106	229,281	279,683	52,189	197,385	216,200	244,068	57,107	(84,975)
22	**2020**	2,741,345	1,085,086	1,143,729	229,281	276,900	6,350	197,385	170,361	230,788	24,547	(84,975)
23												
24	**2021**	2,741,345	1,085,086	1,124,095	229,281	275,790	27,092	197,385	191,103	263,870	12,208	(84,975)
25	**2022**	2,741,345	1,085,086	1,130,911	229,281	268,839	27,228	197,385	191,239	261,854	14,360	(84,975)
26	**2023**	2,741,345	1,085,086	1,130,129	229,281	258,791	38,058	197,385	202,069	274,095	12,949	(84,975)
27	**2024**	2,741,345	1,085,086	1,058,353	229,281	251,810	116,815	197,385	280,826	350,674	15,127	(84,975)
28	**2025**	2,741,345	1,085,086	840,443	229,281	234,580	351,955	197,385	515,966	587,218	13,723	(84,975)
29												
30	**2026**	2,741,345	1,085,086	840,901	229,281	203,026	383,051	197,385	547,062	611,099	20,938	(84,975)
31	**2027**	2,741,345	1,085,086	833,777	229,281	175,488	417,713	197,385	581,724	660,511	6,187	(84,975)
32	**2028**	2,741,345	1,085,086	822,142	229,281	149,380	455,456	197,385	619,467	693,183	11,259	(84,975)
33	**2029**	2,741,345	1,085,086	822,149	229,281	123,446	481,383	197,385	645,394	726,304	4,065	(84,975)
34	**2030**	2,741,345	1,085,086	822,143	229,281	96,236	508,599	197,385	672,610	755,550	2,035	(84,975)
35												
36	**2031**	2,741,345	1,085,086	822,145	229,281	67,137	537,696	197,385	701,707	776,048	10,634	(84,975)
37	**2032**	2,741,345	1,085,086	822,132	229,281	42,250	562,596	197,385	726,607	811,582	0	(84,975)
38	**2033**	2,741,345	1,085,086	815,255	229,281	7,292	604,431	197,385	768,442	849,069	4,348	(84,975)
39	**2034**	2,741,345	1,085,086	815,257	229,281	(22,277)	633,999	197,385	798,010	882,985	0	(84,975)
40	**2035**	2,741,345	1,085,086	815,253	229,281	(49,714)	661,439	197,385	825,450	182,979	7,843	634,628
41												
42	**2036**	2,741,345	1,085,086	815,251	229,281	(50,040)	661,767	197,385	825,778	171,569	28,920	625,288
43	**2037**	2,741,345	1,085,086	814,628	229,281	(50,046)	662,397	197,385	826,408	171,569	16,232	638,607
44	**2038**	2,741,345	1,085,086	815,257	229,281	(50,040)	661,761	197,385	825,772	171,569	0	654,203
45	**2039**	2,741,345	1,085,086	815,251	229,281	(50,040)	661,768	197,385	825,779	171,569	14,229	639,980
46	**2040**	2,741,345	1,085,086	815,250	229,281	(50,040)	661,768	197,385	825,779	171,569	0	654,210

Table 8, cont.

	REPAYMENT PERIOD	A REVENUES (STATEMENT A)	B OPERATION & MAINTENANCE (STATEMENT E)	C PURCHASE AND EXCHANGE POWER (STATEMENT E)	D DEPRECIATION	E NET INTEREST (STATEMENT D)	F NET REVENUES (F=A-B-C-D-E)	G NONCASH EXPENSES 1/ (COLUMN D)	H FUNDS FROM OPERATION 2/ (H=F+G)	I AMORTIZATION (REV REQ STUDY DOC, Ch 14)	J IRRIGATION AMORTIZATION (STATEMENT C)	K NET POSITION (K=H-I-J)
48	**2041**	2,741,345	1,085,086	815,253	229,281	(50,040)	661,765	197,385	825,776	171,569	0	654,207
49	**2042**	2,741,345	1,085,086	815,257	229,281	(50,040)	661,761	197,385	825,772	171,569	73,659	580,544
50	**2043**	2,741,345	1,085,086	815,249	229,281	(50,040)	661,769	197,385	825,780	171,569	0	654,211
51	**2044**	2,741,345	1,085,086	927,158	229,281	(48,988)	548,809	197,385	712,820	171,569	0	541,251
52	**2045**	2,741,345	1,085,086	1,260,030	229,281	(45,859)	212,808	197,385	376,819	171,569	11,700	193,549
53												
54	**2046**	2,741,345	1,085,086	1,260,029	229,281	(45,859)	212,808	197,385	376,819	171,569	0	205,250
55	**2047**	2,741,345	1,085,086	1,260,031	229,281	(45,859)	212,806	197,385	376,817	171,569	0	205,248
56	**2048**	2,741,345	1,085,086	1,260,029	229,281	(45,859)	212,808	197,385	376,819	171,569	0	205,250
57	**2049**	2,741,345	1,085,086	1,260,030	229,281	(45,859)	212,808	197,385	376,819	171,569	0	205,250
58	**2050**	2,741,345	1,085,086	1,260,030	229,281	(45,859)	212,808	197,385	376,819	171,569	0	205,250
59												
60	**2051**	2,741,345	1,085,086	1,260,029	229,281	(45,859)	212,809	197,385	376,820	171,569	0	205,251
61	**2052**	2,741,345	1,085,086	1,260,029	229,281	(45,859)	212,808	197,385	376,819	171,569	0	205,250
62	**2053**	2,741,345	1,085,086	1,260,029	229,281	(45,859)	212,808	197,385	376,819	171,569	0	205,250
63	**2054**	2,741,345	1,085,086	1,260,030	229,281	(45,859)	212,808	197,385	376,819	171,569	0	205,250
64	**2055**	2,741,345	1,085,086	1,260,030	229,281	(45,859)	212,807	197,385	376,818	171,569	0	205,249
65												
66	**2056**	2,741,345	1,085,086	1,260,028	229,281	(45,859)	212,810	197,385	376,821	171,569	0	205,252
67	**2057**	2,741,345	1,085,086	1,260,027	229,281	(45,859)	212,810	197,385	376,821	171,569	0	205,252
68	**2058**	2,741,345	1,085,086	1,260,029	229,281	(45,859)	212,809	197,385	376,820	171,569	0	205,251
69	**2059**	2,741,345	1,085,086	1,260,032	229,281	(45,859)	212,805	197,385	376,816	171,569	0	205,247
70	**2060**	2,741,345	1,085,086	1,260,031	229,281	(45,859)	212,806	197,385	376,817	171,569	0	205,248
71												
72	**2061**	2,741,345	1,085,086	1,260,031	229,281	(45,859)	212,806	197,385	376,817	171,569	0	205,248
73	**2062**	2,741,345	1,085,086	1,260,029	229,281	(45,859)	212,808	197,385	376,819	171,569	0	205,250
74	**2063**	2,741,345	1,085,086	1,260,029	229,281	(45,859)	212,808	197,385	376,819	171,569	0	205,250
75	**2064**	2,741,345	1,085,086	1,260,031	229,281	(45,859)	212,807	197,385	376,818	171,569	0	205,249
76	**2065**	2,741,345	1,085,086	1,260,028	229,281	(45,859)	212,809	197,385	376,820	171,569	0	205,251
77	**GENERATION**											
78	**TOTALS**	208,315,228	67,968,804	100,909,610	15,460,474	8,841,399	15,134,941	12,904,238	26,804,565	16,737,296	711,726	7,922,908

1/CONSISTS OF DEPRECIATION PLUS ANY ACCOUNTING WRITE-OFFS INCLUDED IN EXPENSES.

2/INCLUDES ADJUSTMENTS FOR ACCRUAL REVENUES OR OTHER ACCRUAL TO CASH ADJUSTMENTS.

Table 9: Generation Revised Revenue Test Income Statement
($000s)

		A	B
		2014	2015
1	REVENUES FROM PROPOSED RATES	2,760,212	2,817,383
2	OPERATING EXPENSES		
3	POWER SYSTEM GENERATION RESOURCES		
4	OPERATING GENERATION	691,038	740,089
5	OPERATING GENERATION SETTLEMENTS	21,405	21,906
6	NON-OPERATING GENERATION	2,206	2,228
7	CONTRACTED POWER PURCHASES	70,718	54,618
8	AUGMENTATION POWER PURCHASES	6,198	94,913
9	EXCHANGES & SETTLEMENTS	278,456	278,436
10	RENEWABLE GENERATION	39,799	40,147
11	GENERATION CONSERVATION	48,408	49,320
12			
13	POWER NON-GENERATION OPERATIONS	91,856	94,710
14	PS TRANSMISSION ACQUISITION AND ANCILLARY SERVICES	164,845	165,102
15	F&W/USF&W/PLANNING COUNCIL	295,538	302,769
16	BPA INTERNAL SUPPORT	73,603	76,034
17	OTHER INCOME, EXPENSES AND ADJUSTMENTS	0	0
18	NON-FEDERAL DEBT SERVICE	514,848	441,278
19	DEPRECIATION	126,508	134,164
20	AMORTIZATION	97,940	95,117
21	TOTAL OPERATING EXPENSES	2,523,365	2,590,831
22	INTEREST EXPENSE		
23	INTEREST		
24	APPROPRIATED FUNDS	222,306	220,657
25	CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
26	BONDS ISSUED TO U.S. TREASURY	63,653	73,235
27	NON-FEDERAL INTEREST	14,775	14,041
28	ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION	(11,168)	(11,175)
29	INTEREST CREDIT ON CASH RESERVES	(15,845)	(13,911)
30	NET INTEREST EXPENSE	227,783	236,909
31	TOTAL EXPENSES	2,751,148	2,827,740
32	NET REVENUES	9,064	(10,357)

Table 10: Generation Revised Revenue Test Statement of Cash Flow

($000s)

		A	B
		2014	2015
1	CASH PROVIDED BY OPERATING ACTIVITIES		
2	NET REVENUES	9,064	(10,357)
3	NON-CASH ITEMS:		
4	DEPRECIATION AND AMORTIZATION	224,447	229,281
5	PREPAYMENT INTEREST	14,775	14,041
6	CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
7	NON-CASH REVENUES	(34,124)	(34,124)
8	UNSPENT GEP FROM PRIOR YEARS (IN RESERVES)	750	750
9	CASH FLOW ADJUSTMENT (RESERVE)/APPLICATION	(9,650)	9,650
10	CASH PROVIDED BY OPERATING ACTIVITIES	159,325	163,303
11	CASH USED FOR INVESTMENT ACTIVITIES		
12	INVESTMENT IN:		
13	FEDERAL UTILITY PLANT (INCLUDING AFUDC)	(390,279)	(284,924)
14	CONSERVATION	(75,200)	(92,000)
15	FISH & WILDLIFE	(60,275)	(51,284)
16	CASH USED FOR INVESTMENT ACTIVITIES	(525,754)	(428,208)
17	CASH FROM (AND USED FOR) FINANCING ACTIVITIES		
18	INCREASE IN TREASURY DEBT	223,850	294,340
19	CUSTOMER PROCEEDS	158,601	94,888
20	REPAYMENT OF TREASURY DEBT	(30,611)	(111,151)
21	INCREASE IN FEDERAL CONSTRUCTION APPROPRIATIONS	143,303	38,981
22	REPAYMENT OF FEDERAL CONSTRUCTION APPROPRIATIONS	(76,000)	0
23	PAYMENT OF IRRIGATION ASSISTANCE	(52,550)	(52,110)
24	CASH USED FOR FINANCING ACTIVITIES	366,593	264,947
25	ANNUAL INCREASE (DECREASE) IN CASH	164	42

Table 11: Generation Revenue from Proposed Rates – Results Through the Repayment Period

($000s)

		A	B	C	D	E	F	G	H	I	J	K
	YEAR COMBINED CUMULATIVE	**REVENUES (STATEMENT A)**	**OPERATION & MAINTENANCE (STATEMENT E)**	**PURCHASE AND EXCHANGE POWER (STATEMENT E)**	**DEPRECIATION**	**NET INTEREST (STATEMENT D)**	**NET REVENUES (F=A-B-C-D-E)**	**NONCASH EXPENSES 1/ (COLUMN D)**	**FUNDS FROM OPERATION 2/ (H=F+G)**	**AMORTIZATION (REV REQ STUDY DOC, Ch 14)**	**IRRIGATION AMORTIZATION (STATEMENT C)**	**NET POSITION (K=H-I-J)**
1	**1977**	3,298,951	963,839	348,748	807,047	1,220,170	(40,853)	807,047	766,194	628,460		137,734
2	**1978-2010**	71,648,593 0	14,081,826 #	47,211,125 #	4,070,605 #	5,559,607 0	725,430 0	3,157,650 #	4,242,416 0	3,952,810 0	45,392 #	244,214
3												
4	**GENERATION**											
5	**2011**	2,619,038	934,466	1,283,304	201,106	182,860	17,302	155,354	169,132	162,163		6,969
6	**2012**	2,631,334	962,711	1,260,404	199,286	169,748	39,185	153,534	174,395	193,000	1,182	(19,787)
7												
8	**COST EVALUATION**											
9	**PERIOD**											
10	**2013**	2,647,095	1,011,463	1,260,527	218,103	207,798	(50,796)	164,704	110,384	122,799	58,823	(71,238)
11	**RATE APPROVAL**											
12	**PERIOD**											
13	**2014**	2,760,212	1,064,382	1,234,535	224,448	227,783	9,064	193,286	159,276	106,611	52,550	115
14	**2015**	2,817,508	1,085,086	1,276,464	229,281	236,909	(10,232)	197,385	163,479	111,151	52,110	218
15												
16	**REPAYMENT**											
17	**PERIOD**											
18	**2016**	2,817,508	1,085,086	1,337,849	229,281	244,575	(79,282)	197,385	84,729	20,644	60,814	3,270
19	**2017**	2,817,508	1,085,086	1,344,260	229,281	253,838	(94,957)	197,385	69,054	14,501	51,278	3,274
20	**2018**	2,817,508	1,085,086	1,338,197	229,281	263,029	(98,085)	197,385	65,926	35,150	27,505	3,270
21	**2019**	2,817,508	1,085,086	1,095,106	229,281	267,601	140,434	197,385	304,445	244,068	57,107	3,270
22	**2020**	2,817,508	1,085,086	1,143,729	229,281	264,818	94,595	197,385	258,606	230,788	24,547	3,270
23												
24	**2021**	2,817,508	1,085,086	1,124,095	229,281	263,708	115,337	197,385	279,348	263,870	12,208	3,270
25	**2022**	2,817,508	1,085,086	1,130,911	229,281	256,757	115,473	197,385	279,484	261,854	14,360	3,270
26	**2023**	2,817,508	1,085,086	1,130,129	229,281	246,709	126,303	197,385	290,314	274,095	12,949	3,270
27	**2024**	2,817,508	1,085,086	1,058,353	229,281	239,728	205,060	197,385	369,071	350,674	15,127	3,270
28	**2025**	2,817,508	1,085,086	840,443	229,281	222,498	440,200	197,385	604,211	587,218	13,723	3,270
29												
30	**2026**	2,817,508	1,085,086	840,901	229,281	190,944	471,296	197,385	635,307	611,099	20,938	3,270
31	**2027**	2,817,508	1,085,086	833,777	229,281	163,406	505,958	197,385	669,969	660,511	6,187	3,270
32	**2028**	2,817,508	1,085,086	822,142	229,281	137,298	543,701	197,385	707,712	693,183	11,259	3,270
33	**2029**	2,817,508	1,085,086	822,149	229,281	111,364	569,628	197,385	733,639	726,304	4,065	3,270
34	**2030**	2,817,508	1,085,086	822,143	229,281	84,154	596,844	197,385	760,855	755,550	2,035	3,270
35												
36	**2031**	2,817,508	1,085,086	822,145	229,281	55,055	625,941	197,385	789,952	776,048	10,634	3,270
37	**2032**	2,817,508	1,085,086	822,132	229,281	30,168	650,841	197,385	814,852	811,582	0	3,270
38	**2033**	2,817,508	1,085,086	815,255	229,281	(4,790)	692,676	197,385	856,687	849,069	4,348	3,270
39	**2034**	2,817,508	1,085,086	815,257	229,281	(34,359)	722,244	197,385	886,255	882,985	0	3,270
40	**2035**	2,817,508	1,085,086	815,253	229,281	(61,796)	749,684	197,385	913,695	182,979	7,843	722,873
41												
42	**2036**	2,817,508	1,085,086	815,251	229,281	(62,122)	750,012	197,385	914,023	171,569	28,920	713,533
43	**2037**	2,817,508	1,085,086	814,628	229,281	(62,128)	750,642	197,385	914,653	171,569	16,232	726,852
44	**2038**	2,817,508	1,085,086	815,257	229,281	(62,122)	750,006	197,385	914,017	171,569	0	742,448
45	**2039**	2,817,508	1,085,086	815,251	229,281	(62,122)	750,013	197,385	914,024	171,569	14,229	728,225
46	**2040**	2,817,508	1,085,086	815,250	229,281	(62,122)	750,013	197,385	914,024	171,569	0	742,455

Table 11, cont.

		A	B	C	D	E	F	G	H	I	J	K
	REPAYMENT PERIOD	**REVENUES (STATEMENT A)**	**OPERATION & MAINTENANCE (STATEMENT E)**	**PURCHASE AND EXCHANGE POWER (STATEMENT E)**	**DEPRECIATION**	**NET INTEREST (STATEMENT D)**	**NET REVENUES (F=A-B-C-D-E)**	**NONCASH EXPENSES 1/ (COLUMN D)**	**FUNDS FROM OPERATION 2/ (H=F+G)**	**AMORTIZATION (REV REQ STUDY DOC, Ch 14)**	**IRRIGATION AMORTIZATION (STATEMENT C)**	**NET POSITION (K=H-I-J)**
48	**2041**	2,817,508	1,085,086	815,253	229,281	(62,122)	750,010	197,385	914,021	171,569	0	742,452
49	**2042**	2,817,508	1,085,086	815,257	229,281	(62,122)	750,006	197,385	914,017	171,569	73,659	668,789
50	**2043**	2,817,508	1,085,086	815,249	229,281	(62,122)	750,014	197,385	914,025	171,569	0	742,456
51	**2044**	2,817,508	1,085,086	927,158	229,281	(61,070)	637,054	197,385	801,065	171,569	0	629,496
52	**2045**	2,817,508	1,085,086	1,260,030	229,281	(57,941)	301,053	197,385	465,064	171,569	11,700	281,794
53												
54	**2046**	2,817,508	1,085,086	1,260,029	229,281	(57,941)	301,053	197,385	465,064	171,569	0	293,495
55	**2047**	2,817,508	1,085,086	1,260,031	229,281	(57,941)	301,051	197,385	465,062	171,569	0	293,493
56	**2048**	2,817,508	1,085,086	1,260,029	229,281	(57,941)	301,053	197,385	465,064	171,569	0	293,495
57	**2049**	2,817,508	1,085,086	1,260,030	229,281	(57,941)	301,053	197,385	465,064	171,569	0	293,495
58	**2050**	2,817,508	1,085,086	1,260,030	229,281	(57,941)	301,053	197,385	465,064	171,569	0	293,495
59												
60	**2051**	2,817,508	1,085,086	1,260,029	229,281	(57,941)	301,054	197,385	465,065	171,569	0	293,496
61	**2052**	2,817,508	1,085,086	1,260,029	229,281	(57,941)	301,053	197,385	465,064	171,569	0	293,495
62	**2053**	2,817,508	1,085,086	1,260,029	229,281	(57,941)	301,053	197,385	465,064	171,569	0	293,495
63	**2054**	2,817,508	1,085,086	1,260,030	229,281	(57,941)	301,053	197,385	465,064	171,569	0	293,495
64	**2055**	2,817,508	1,085,086	1,260,030	229,281	(57,941)	301,052	197,385	465,063	171,569	0	293,494
65												
66	**2056**	2,817,508	1,085,086	1,260,028	229,281	(57,941)	301,055	197,385	465,066	171,569	0	293,497
67	**2057**	2,817,508	1,085,086	1,260,027	229,281	(57,941)	301,055	197,385	465,066	171,569	0	293,497
68	**2058**	2,817,508	1,085,086	1,260,029	229,281	(57,941)	301,054	197,385	465,065	171,569	0	293,496
69	**2059**	2,817,508	1,085,086	1,260,032	229,281	(57,941)	301,050	197,385	465,061	171,569	0	293,492
70	**2060**	2,817,508	1,085,086	1,260,031	229,281	(57,941)	301,051	197,385	465,062	171,569	0	293,493
71												
72	**2061**	2,817,508	1,085,086	1,260,031	229,281	(57,941)	301,051	197,385	465,062	171,569	0	293,493
73	**2062**	2,817,508	1,085,086	1,260,029	229,281	(57,941)	301,053	197,385	465,064	171,569	0	293,495
74	**2063**	2,817,508	1,085,086	1,260,029	229,281	(57,941)	301,053	197,385	465,064	171,569	0	293,495
112	**2064**	2,817,508	1,085,086	1,260,031	229,281	(57,941)	301,052	197,385	465,063	171,569	0	293,494
113	**2065**	2,817,508	1,085,086	1,260,028	229,281	(57,941)	301,054	197,385	465,065	171,569	0	293,496
114	**GENERATION**											
115	**TOTALS**	211,911,640	67,968,804	100,909,610	15,460,474	8,294,292	19,278,460	12,904,238	30,948,084	16,737,296	711,726	12,066,427

1/CONSISTS OF DEPRECIATION PLUS ANY ACCOUNTING WRITE-OFFS INCLUDED IN EXPENSES.

2/INCLUDEs ADJUSTMENTS FOR ACCRUAL REVENUES OR OTHER ACCRUAL TO CASH ADJUSTMENTS.

Table 12: Amortization of Generation Investments Over Repayment Period

($000s)

	A	B	C	D	E	F	G	H	I	J	K
REPAYMENT PERIOD	REVENUES (STATEMENT A)	OPERATION & MAINTENANCE (STATEMENT E)	PURCHASE AND EXCHANGE POWER (STATEMENT E)	DEPRECIATION	NET INTEREST (STATEMENT D)	NET REVENUES (F=A-B-C-D-E)	NONCASH EXPENSES 1/ (COLUMN D)	FUNDS FROM OPERATION 2/ (H=F+G)	AMORTIZATION (REV REQ STUDY DOC, Ch 14)	IRRIGATION AMORTIZATION (STATEMENT C)	NET POSITION (K=H-I-J)
2016	2,817,508	1,085,086	1,337,849	229,281	247,282	(81,989)	197,385	82,022	20,644	60,814	563
2017	2,817,508	1,085,086	1,344,260	229,281	256,545	(97,664)	197,385	66,347	14,501	51,278	567
2018	2,817,508	1,085,086	1,338,197	229,281	265,736	(100,792)	197,385	63,219	35,150	27,505	563
2019	2,817,508	1,085,086	1,095,106	229,281	270,308	137,727	197,385	301,738	244,068	57,107	563
2020	2,817,508	1,085,086	1,143,729	229,281	267,525	91,888	197,385	255,899	230,788	24,547	563
2021	2,817,508	1,085,086	1,124,095	229,281	266,415	112,630	197,385	276,641	263,870	12,208	563
2022	2,817,508	1,085,086	1,130,911	229,281	259,464	112,766	197,385	276,777	261,854	14,360	563
2023	2,817,508	1,085,086	1,130,129	229,281	249,416	123,596	197,385	287,607	274,095	12,949	563
2024	2,817,508	1,085,086	1,058,353	229,281	242,435	202,353	197,385	366,364	350,674	15,127	563
2025	2,817,508	1,085,086	840,443	229,281	225,205	437,493	197,385	601,504	587,218	13,723	563
2026	2,817,508	1,085,086	840,901	229,281	193,651	468,589	197,385	632,600	611,099	20,938	563
2027	2,817,508	1,085,086	833,777	229,281	166,113	503,251	197,385	667,262	660,511	6,187	563
2028	2,817,508	1,085,086	822,142	229,281	140,005	540,994	197,385	705,005	693,183	11,259	563
2029	2,817,508	1,085,086	822,149	229,281	114,071	566,921	197,385	730,932	726,304	4,065	563
2030	2,817,508	1,085,086	822,143	229,281	86,861	594,137	197,385	758,148	755,550	2,035	563
2031	2,817,508	1,085,086	822,145	229,281	57,762	623,234	197,385	787,245	776,048	10,634	563
2032	2,817,508	1,085,086	822,132	229,281	32,875	648,134	197,385	812,145	811,582	0	563
2033	2,817,508	1,085,086	815,255	229,281	(2,083)	689,969	197,385	853,980	849,069	4,348	563
2034	2,817,508	1,085,086	815,257	229,281	(31,652)	719,537	197,385	883,548	882,985	0	563
2035	2,817,508	1,085,086	815,253	229,281	(59,089)	746,977	197,385	910,988	182,979	7,843	720,166
2036	2,817,508	1,085,086	815,251	229,281	(59,415)	747,305	197,385	911,316	171,569	28,920	710,826
2037	2,817,508	1,085,086	814,628	229,281	(59,421)	747,935	197,385	911,946	171,569	16,232	724,145
2038	2,817,508	1,085,086	815,257	229,281	(59,415)	747,299	197,385	911,310	171,569	0	739,741
2039	2,817,508	1,085,086	815,251	229,281	(59,415)	747,306	197,385	911,317	171,569	14,229	725,518
2040	2,817,508	1,085,086	815,250	229,281	(59,415)	747,306	197,385	911,317	171,569	0	739,748
2041	2,817,508	1,085,086	815,253	229,281	(59,415)	747,303	197,385	911,314	171,569	0	739,745
2042	2,817,508	1,085,086	815,257	229,281	(59,415)	747,299	197,385	911,310	171,569	73,659	666,082
2043	2,817,508	1,085,086	815,249	229,281	(59,415)	747,307	197,385	911,318	171,569	0	739,749
2044	2,817,508	1,085,086	927,158	229,281	(58,363)	634,347	197,385	798,358	171,569	0	626,789
2045	2,817,508	1,085,086	1,260,030	229,281	(55,234)	298,346	197,385	462,357	171,569	11,700	279,087
2046	2,817,508	1,085,086	1,260,029	229,281	(55,234)	298,346	197,385	462,357	171,569	0	290,788
2047	2,817,508	1,085,086	1,260,031	229,281	(55,234)	298,344	197,385	462,355	171,569	0	290,786
2048	2,817,508	1,085,086	1,260,029	229,281	(55,234)	298,346	197,385	462,357	171,569	0	290,788
2049	2,817,508	1,085,086	1,260,030	229,281	(55,234)	298,346	197,385	462,357	171,569	0	290,788
2050	2,817,508	1,085,086	1,260,030	229,281	(55,234)	298,346	197,385	462,357	171,569	0	290,788
2051	2,817,508	1,085,086	1,260,029	229,281	(55,234)	298,347	197,385	462,358	171,569	0	290,789
2052	2,817,508	1,085,086	1,260,029	229,281	(55,234)	298,346	197,385	462,357	171,569	0	290,788
2053	2,817,508	1,085,086	1,260,029	229,281	(55,234)	298,346	197,385	462,357	171,569	0	290,788
2054	2,817,508	1,085,086	1,260,030	229,281	(55,234)	298,346	197,385	462,357	171,569	0	290,788
2055	2,817,508	1,085,086	1,260,030	229,281	(55,234)	298,345	197,385	462,356	171,569	0	290,787
2056	2,817,508	1,085,086	1,260,028	229,281	(55,234)	298,348	197,385	462,359	171,569	0	290,790
2057	2,817,508	1,085,086	1,260,027	229,281	(55,234)	298,348	197,385	462,359	171,569	0	290,790
2058	2,817,508	1,085,086	1,260,029	229,281	(55,234)	298,347	197,385	462,358	171,569	0	290,789
2059	2,817,508	1,085,086	1,260,032	229,281	(55,234)	298,343	197,385	462,354	171,569	0	290,785
2060	2,817,508	1,085,086	1,260,031	229,281	(55,234)	298,344	197,385	462,355	171,569	0	290,786
2061	2,817,508	1,085,086	1,260,031	229,281	(55,234)	298,344	197,385	462,355	171,569	0	290,786
2062	2,817,508	1,085,086	1,260,029	229,281	(55,234)	298,346	197,385	462,357	171,569	0	290,788
2063	2,817,508	1,085,086	1,260,029	229,281	(55,234)	298,346	197,385	462,357	171,569	0	290,788
2064	2,817,508	1,085,086	1,260,031	229,281	(55,234)	298,345	197,385	462,356	171,569	0	290,787
2065	2,817,508	1,085,086	1,260,028	229,281	(55,234)	298,347	197,385	462,358	171,569	0	290,789
GENERATION TOTALS	211,911,640	67,968,804	100,909,610	15,460,474	8,416,107	19,156,645	12,904,238	30,826,269	16,737,296	711,726	11,944,612

1/CONSISTS OF DEPRECIATION PLUS ANY ACCOUNTING WRITE-OFFS INCLUDED IN EXPENSES.

2/INCLUDEs ADJUSTMENTS FOR ACCRUAL REVENUES OR OTHER ACCRUAL TO CASH ADJUSTMENTS.

Bonneville Power Administration
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