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

2012 BPA Final Rate Proposal

Transmission Revenue Requirement Study

July 2011

BP-12-FS-BPA-07

TRANSMISSION REVENUE REQUIREMENT STUDY

TABLE OF CONTENTS

Page

Tables

Figures

COMMONLY USED ACRONYMS AND SHORT FORMS

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
Commission	Federal Energy Regulatory Commission
Corps or USACE	U.S. Army Corps of Engineers
COSA	Cost of Service Analysis
COU	consumer-owned utility
Council	Northwest Power and Conservation Council
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
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	Hydro Simulation (computer model)
ICE	IntercontinentalExchange
inc	increase, increment, or incremental
IOU	investor-owned utility
IP	Industrial Firm Power (rate)
IPR	Integrated Program Review
IRD	Irrigation Rate Discount
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
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
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
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)
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
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 or Corps	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
WECC	Western Electricity Coordinating Council (formerly WSCC)
WIT	Wind Integration Team
WSPP	Western Systems Power Pool

Figure 1: Transmission Revenue Requirement Process

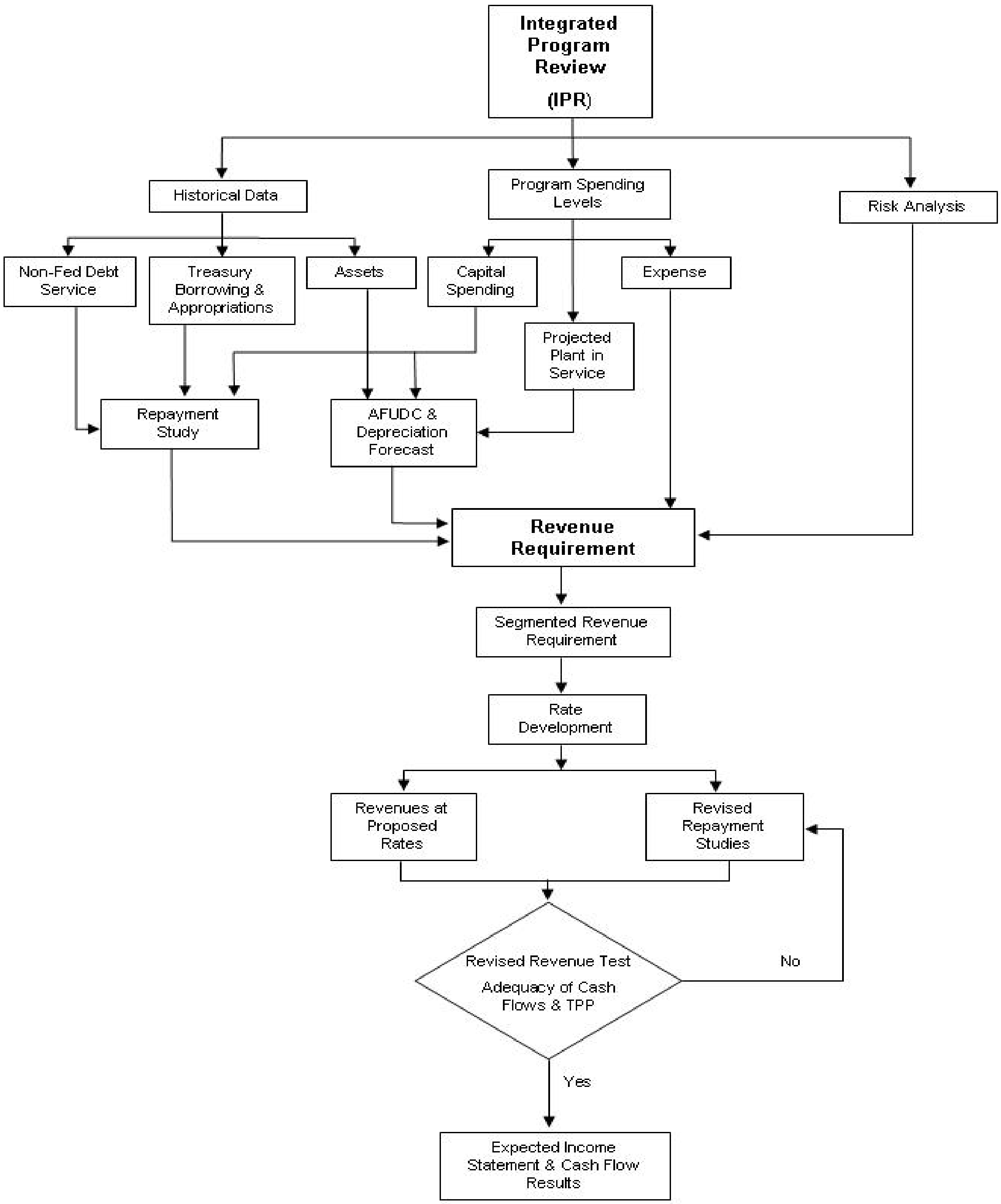
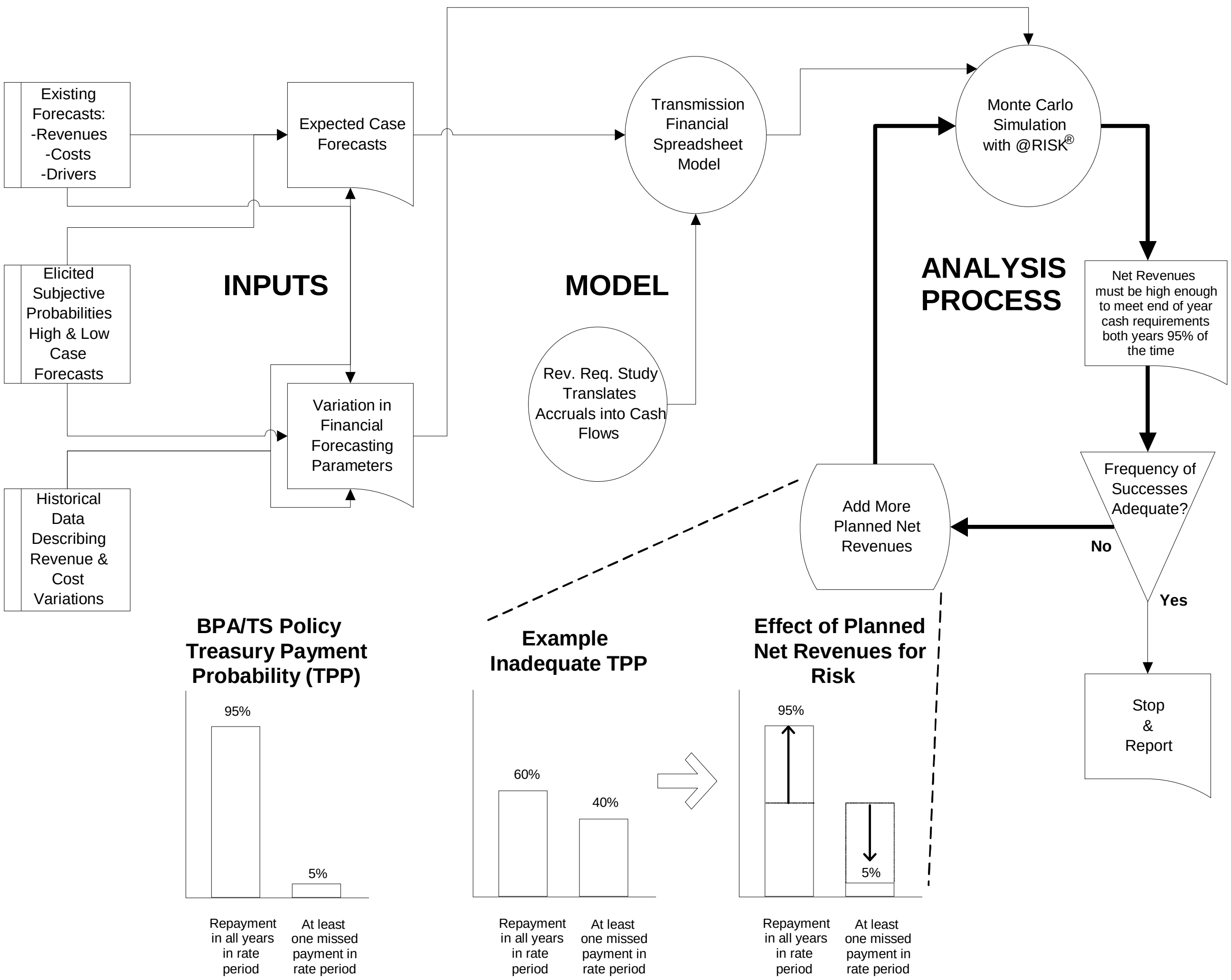


Figure 2: Transmission Rate Case Risk Analysis Flow Diagram



1. INTRODUCTION

1.1 Purpose of the Study

The purpose of the Transmission Revenue Requirement Study (Study) is to establish the level of revenues needed from rates for Bonneville Power Administration's (BPA's) transmission and ancillary services. Such revenues must recover, in accordance with sound business principles, costs associated with the transmission of electric power over the Federal Columbia River Transmission System (FCRTS). The FCRTS is part of the Federal Columbia River Power System (FCRPS), which also includes the multipurpose generation facilities constructed and operated by the U.S. Army Corps of Engineers (Corps) and the U.S. Bureau of Reclamation (Reclamation) in the Pacific Northwest. The FCRPS costs that are not associated with the FCRTS are funded and repaid through BPA power rates. The transmission revenue requirement herein includes recovery of the Federal investment in transmission and transmission-related assets; the operations and maintenance (O&M) and other annual expenses associated with the provision of transmission and ancillary services; the cost of generation inputs for ancillary services and other inter-business line services necessary for the transmission of power; and all other transmission-related costs incurred by BPA.

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) 2011 and the proposed rate approval period (rate period), FY 2012–2013. This Study for the rate period FY 2012–2013 is based on transmission revenue requirements that include the results of transmission repayment studies. This Study does not include revenue requirements or a cost recovery demonstration for the Bonneville Power

Administration's (BPA) generation function. *See* Power Revenue Requirement Study, BP-12-FS-BPA-02.

This Study outlines the policies, forecasts, assumptions, and calculations used to determine BPA's transmission revenue requirements. Legal requirements are summarized in section 1.2 of this Study. The Documentation for the Transmission Revenue Requirement Study (Documentation), BP-12-FS-BPA-07A, contains key technical assumptions and calculations, the results of the transmission repayment studies, and a further explanation of the repayment inputs and outputs.

The revenue requirements that appear in this Study are developed using a cost accounting analysis comprised of multiple steps, as shown in Figure 1, Transmission Revenue Requirement Process. The primary features of the Study include repayment studies, transmission operating expenses, and risk analysis. First, repayment studies for the transmission function are prepared to determine an amortization schedule and to project the resulting annual interest expense for bonds and appropriations that fund the Federal investment in transmission and transmission-related assets. Repayment studies are conducted for each year of the cost evaluation period (FY 2010–2013) and extend over the 35-year repayment period assumed for transmission assets. Second, transmission operating expenses, non-Federal debt service requirements, and minimum required net revenues (if needed) are projected for each year of the rate period. Third, the necessity for including annual planned net revenues for risk is evaluated by taking into account Transmission Services' business risks, BPA's cost recovery goals, and risk mitigation measures. From these three steps, revenue requirements are set at the revenue level necessary to fulfill BPA's cost recovery requirements and objectives.

BPA conducts current and revised revenue tests to determine whether revenues projected from current and proposed rates meet its cost recovery requirements and objectives for the rate period and repayment period. If the current revenue test indicates that cost recovery and risk mitigation requirements can be met, current rates could be extended. However, the current revenue test, discussed in section 3.2, demonstrates that current revenues are insufficient to meet cost recovery requirements and objectives for the rate period and the repayment period.

The revised revenue test determines whether projected revenues from proposed rates are sufficient to meet cost recovery requirements for the rate and repayment periods. The revised revenue test, discussed in section 3.4, demonstrates that revenues from proposed rates recover the costs of transmission and ancillary and control area services in the rate period as well as over the ensuing 35-year repayment period. Consistent with the Treasury Payment Probability (TPP) standard that BPA adopted as a long-term policy in 1993, the revenues from the transmission and ancillary services rates in this rate proposal provide a greater than 95 percent probability that associated U.S. Treasury payments will be made on time and in full over the two-year rate period.

Table 1 shows projected net revenues from proposed rates and summarizes the revised revenue test over the two-year rate period. These net revenues are set at the lowest level necessary to achieve, in combination with other risk mitigation tools, BPA's cost recovery objectives in the face of transmission-related risks. Risk mitigation tools are discussed further in section 2.2. Table 2 shows planned transmission amortization repayments to the U.S. Treasury for each year of the rate period.

1.2 Legal Requirements

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

1.2.1 Governing Statutes

BPA's revenue requirements are governed primarily by three main legislative acts: 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. The Omnibus Consolidated Rescissions and Appropriations Act of 1996, P.L. No. 104-134, Stat. 132, also guides the development of BPA's revenue requirements.

Department of Energy (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. In addition, policies issued by the Commission provide guidance on transmission pricing. *See, e.g.*, Bonneville Power Administration, 25 ¶ 61,140 (1983).

1.2.1.1 Legal Requirement Governing BPA's Revenue Requirement

BPA constructs, operates, and maintains the FCRTS within the Pacific Northwest and makes improvements or replacements thereto as are appropriate and required to (a) integrate and transmit electric power from existing or additional Federal or non-Federal generating units; (b) provide service to BPA customers; (c) provide inter-regional transmission facilities; and (d) maintain the electrical stability and reliability of the Federal system. Section 4, Transmission System Act, 16 U.S.C. § 838b.

BPA's rates must be set in a manner that ensures revenue levels sufficient to recover its costs. This requirement was first set forth in Section 7 of the Bonneville Project Act, 16 U.S.C. § 832f (as amended 1977), which provides that:

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

This cost recovery principle was repeated for Army reservoir projects in Section 5 of the Flood Control Act of 1944, 16 U.S.C. 825s (as amended 1977). In 1974, Section 9 of the Transmission System Act, 16 U.S.C, § 838g, expanded the cost recovery principle so that BPA's rates also would be set to recover:

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

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

> 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 Chapter.

The Northwest Power Act also provides that the Commission shall issue a confirmation and approval of BPA's rates upon a finding that the rates are adequate to recover BPA's costs and ensure timely U.S. Treasury repayments. 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), 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.

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

1.2.1.2 The BPA Appropriations Refinancing Act

As in the prior rate period, BPA's transmission rates for the FY 2012–2013 rate period will reflect the requirements of the Refinancing Act, part of the Omnibus Consolidated Rescissions and Appropriations Act of 1996, P.L. No. 104-134, 110 Stat. 1321, enacted in April 1996. The Refinancing Act required that unpaid principal on BPA appropriations ("old capital investments") at the end of FY 1996 be reset at the present value of the principal and annual interest payments BPA would make to the U.S. Treasury for these obligations absent the Refinancing Act, plus $100 million. 16 U.S.C. § 838l(b). The Refinancing Act also specified that the new principal amounts of the old capital investments be assigned new interest rates from the Treasury yield curve prevailing at the time of the refinancing transaction. 16 U.S.C. § 838l(a)(6)(A).

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

1.2.2 Repayment Requirements and Policies

1.2.2.1 Separate Repayment Studies

Section 10 of the Transmission System Act, 16 U.S.C. §838h, and section 7(a)(2)(C) of the Northwest Power Act, 16 U.S.C. §839e(a)(2)(C), provide that the recovery of the costs of the Federal transmission system shall be equitably allocated between Federal and non-Federal power utilizing such system. In 1982, the Commission first directed BPA to provide accounting and repayment statements for its transmission system separate and apart from the accounting and repayment statements for the Federal generation system. 20 FERC ¶61,142 (1982). The Commission required BPA to establish books of account for the FCRTS separate from its generation costs; explained that the FCRTS shall be comprised of all investments, including administrative and management costs, related to the transmission of electric power; and directed BPA to develop repayment studies for its transmission function separate from its generation function that set forth the date of each investment, the repayment date, and the amount repaid from transmission revenues. 26 FERC ¶ 61,096 (1984). The Commission approved BPA's methodology for separate repayment studies in 1984, 28 FERC ¶ 61,325 (1984), and BPA has prepared separate repayment studies for its transmission and generation functions since 1984.

1.2.2.2 Repayment Schedules

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

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

The repayment policy was presented to Congress for its consideration for the authorization of the Grand Coulee Dam Third Powerhouse in June 1966. The underlying theory of repayment was discussed in the House of Representatives' Report related to authorization of this project, H.R. Rep. No. 1409, 89th Cong., 2d Sess. 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 averaging of the variations 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 allows BPA's customers, such as retail electric utilities, independent power producers, and power marketers, to plan for the future with assurance.

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

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

To achieve a greater degree of uniformity in repayment policy for all Federal power marketing agencies, the Deputy Assistant Secretary of the Department of the Interior (DOI) issued a memo on August 2, 1972, outlining (1) a uniform definition of the 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 prescribed repayment period established for each increment of investment.

A further clarification of the repayment policy was outlined in a joint memo of January 7, 1974, from the Assistant Secretary for Reclamation and Assistant Secretary for Energy and Minerals. This memo states that in addition to meeting the overall objective of repaying the Federal investment 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 Federal power marketing agencies. Included therein are standard policies and procedures for preparing system repayment studies.

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

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

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

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

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

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

(5) Repay:
- each dollar of power investments and obligations in the FCRPS generating projects within 50 years after the projects become revenue-producing (50 years has been deemed a "reasonable period" as intended by Congress, except for the Yakima-Chandler Project, which has a legislated amortization period of 66 years);
- each annual increment of transmission financed by Federal investments and obligations within the average service life of such transmission facilities (currently 40 years) or within a maximum of 50 years, whichever is less [BPA has interpreted RA 6120.2 to require repayment of bonds sold to finance conservation to be within the average service lives of these projects, currently estimated to be five years, and for fish and wildlife facilities to be 15 years];
- the Federally-financed amount of each replacement within its service life up to a maximum of 50 years; and

(6) As required by 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.

Although DOE Order RA 6120.2 allows a repayment period of up to 50 years, BPA has set due dates at no more than 40 years to reflect expected service lives of new transmission investment. The Refinancing Act (see section 1.2.1.2) overrides provisions in DOE Order RA 6120.2 related to determining interest during construction and assigning interest rates to Federal investments financed by appropriations. This Act also contains provisions on repayment periods (due dates) for the refinanced appropriations investments.

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

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2. DEVELOPMENT OF REVENUE REQUIREMENT

2.1 Spending Level Development

The forecasts of program spending levels are developed in the Integrated Program Review (IPR). The IPR was designed to provide customers and constituents an opportunity to examine, understand, and comment on BPA's cost projections for future years for both power and transmission. BPA began the IPR for FY 2012–2013 program levels on May 10, 2010, with a workshop containing an overview of Power Services' and Transmission Services' proposed spending levels through FY 2013. BPA conducted additional workshops on the various transmission programs. At the workshops, BPA conducted detailed discussions outlining transmission capital spending levels and planned transmission system improvements, upgrades, and reinforcement projects. Additionally, while risk management and debt management issues are not decided in the IPR forum, BPA held workshops on these topics as part of a regional discussion to better inform participants about the implications of past debt management decisions, proposed capital spending levels, and approaches to managing risk.

On July 13, 2010, BPA released a draft IPR report for public review and comment. BPA released the final IPR report on October 27, 2010. The final IPR report outlined projected program spending levels for FY 2012–2013 and included discussion of the debt management and risk analysis regional discussions. The final IPR report can be found on BPA's public Web site at www.bpa.gov/corporate/Finance/IBR/IPR/.

After the conclusion of the IPR process, the Administrator determined that a portion of the projected spending levels for transmission expense programs ($67 million over the rate period) would be withheld from recovery through transmission rates in the FY 2012–2013 rate period and would be covered instead by other sources of funds. This adjustment is reflected in the

Revenue Requirement Income Statement in the Other Income and Expense line item. Table 3, line 7.

2.2 Financial Risk and Mitigation

BPA adopted a long-term policy in its 1993 Final Rate Proposal that called for setting rates sufficient for the agency to achieve a 95 percent Treasury Payment Probability (TPP), that is, a 95 percent probability of making both end-of-year U.S. Treasury payments in full and on time during each two-year rate period. 1993 Final Rate Proposal, Administrator's Record of Decision, WP-93-A-02, p. 72. Beginning in the 2002 power and transmission rate proceedings, this standard was applied separately to the transmission and generation functions. The 95 percent TPP standard was reaffirmed in BPA's Financial Plan published in 2008. BPA's Financial Plan (2008) and 10-Year Financial Plan (1993) can be found at www.bpa.gov/corporate/Finance/financial_plan/. The purpose of the risk analysis is to ensure that the proposed rates will be sufficient to meet BPA's TPP standard. In this rate proceeding, BPA has analyzed its transmission risks and has determined that this rate proposal achieves the 95 percent two-year TPP standard for the transmission function for the two-year rate period.

2.2.1 Financial Risk Mitigation Tools

To achieve this level of TPP, the following risk mitigation tools are employed in the BP-12 rate proposal:

(1) Starting financial reserves available for risk that are attributed to Transmission Services.

Starting financial reserves available for risk comprise cash and other investment instruments in the BPA Fund and the deferred borrowing balance attributed to the transmission function as of the beginning of the rate period. Some reserves attributed to Transmission Services are considered to be encumbered and therefore not available for risk, and are not considered in the risk analysis. These encumbered reserves include customer deposits for capital projects related to Large or Small Generator Interconnection Agreements (LGIA or SGIA), Network Open Season, and the Southern Intertie capital program, as well as Master Lease funds. These funds are deposits from third parties to pay for specific facilities, security deposits from third parties, or advances through BPA's Master Lease program that are required by the lease agreement terms to be used only for specified projects. Approximately $156 million of reserves attributed to Transmission Services at the start of FY 2011 are considered to be encumbered. Reserves available for risk attributed to Transmission Services were $607 million at the beginning of FY 2011.

(2) Planned Net Revenue for Risk (PNRR).

PNRR is a component of the revenue requirement that is added if financial reserves are not sufficient for risk mitigation purposes. When added to the revenue requirement, PNRR increases rates and therefore adds to cash flows, which augments financial reserves. The appropriate amount of PNRR is the amount that is just sufficient to increase TPP until it meets the TPP standard. Since the TPP in this proposal is above 95 percent, no PNRR is required. Documentation, Chapter 10.7.

(3) Two-Year Rate Period.

BPA is setting rates for a two-year rate period. The ability to revise rates after two years, or more frequently if need be, serves as an important risk mitigation tool for BPA's transmission function. By using a two-year rate period, BPA limits the amount of risk that must be covered by financial reserves and PNRR before rates can be set again.

2.2.2 Uses of Financial Reserves

Two planned or potential uses of reserves available for risk that are attributed to Transmission Services are considered in the risk analysis:

(1) Funding of capital projects.

In FY 2011, BPA plans to use $30 million of transmission reserves to fund capital projects in lieu of borrowing. BPA similarly plans to use $15 million of transmission reserves in each of FY 2012 and FY 2013 to fund capital projects, as shown in Table 9, line 8. These plans will cause ending FY 2013 reserves to be $60 million lower than they would otherwise be.

(2) Funding of transmission expenses.

BPA plans to use up to $67 million of transmission reserves to fund transmission expenses as shown in Table 3, line 7; Table 5, line 8; and Table 8, line 8. This plan will allow BPA to maintain transmission rates at current levels. This plan is consistent with the approach taken in the TR-10 rate proceeding.

2.2.3 Transmission Risk Analysis

To quantify the effects of risk on the finances of BPA's transmission function, BPA analyzes the effects of uncertainty in expenses and revenues on transmission cash flows using a Monte Carlo simulation method, as noted on Figure 2. Monte Carlo simulation is a method of determining the probability of various outcomes by running multiple trial runs, called games, using random variables for each run. In this case, it is used to estimate the probability of successful Treasury payment on time and in full during the rate period. The risk analysis covers the period FY 2011 through FY 2013. Using this three-year timeframe permits modeling of the uncertainty in revenues and expenses between now (early in FY 2011) and the beginning of the rate period. This approach is required because the level of financial reserves at the start of the FY 2012–2013 rate period, which is the primary tool for mitigating Transmission Services' FY 2012–2013 financial risk, cannot be known today; that level depends significantly on events yet to occur in

FY 2011. Including FY 2011 allows the financial uncertainty in that year, and its impact on the FY 2012–2013 TPP, to be captured in the risk analysis. *See* Documentation, Chapter 10.1.

The risk analysis simulates changes in reserves from year to year throughout the FY 2011–2013 period for each of 3,500 games (iterations). The analysis is used to estimate the probability of successful Treasury payment (on time and in full) for both years of the rate period. Successful Treasury payment is deemed to occur when the end-of-year financial reserves for the transmission function, after Treasury payments are made, are sufficient to cover the transmission function's liquidity reserves (formerly termed "working capital") requirement of $20 million. The liquidity reserves threshold of $20 million is based on the historical monthly net cash flow patterns and monthly cash requirements for the transmission function. The value of $20 million was used in the 2002, 2004, 2006, 2008, and 2010 transmission rate cases.

The risk analysis starts from a known level of financial reserves at the beginning of FY 2011 and simulates the variability in revenue and expenses that affects the level of reserves throughout FY 2011. When the model simulates the FY 2012–2013 rate period, it starts with the distribution of financial reserves the model simulated for FY 2011. The model then calculates the two-year TPP. If the TPP is below BPA's TPP standard, the model is then used to calculate the required amount of PNRR. Input values for point estimates of expenses come from this study (see Chapter 3 of the Documentation), and the revenue inputs are from the revenue forecast (see Chapter 14 of the Documentation). These inputs, when combined with inputs describing uncertainty in expenses and revenues, provide the basis for the calculation of TPP and PNRR. The PNRR amount, in turn, is provided as an input to the transmission revenue requirement, raising the transmission revenue requirement, transmission rates, and financial reserves as needed to raise TPP.

2.2.4 Transmission Risk Analysis Model

The risk analysis is performed using the Transmission Risk Analysis Model (TRAM), as described in Chapter 10.1 of the Documentation. TRAM is a Microsoft Excel® spreadsheet with the @RISK® add-in from Palisade Corporation (www.palisade.com). (TRAM can be run or interpreted only on computers with licensed copies of @RISK installed.) TRAM was developed to estimate the effects of risk and risk mitigation tools on end-of-year financial reserves and the likelihood of successful Treasury end-of-year payment for each year during the rate period. Financial reserve levels at the end of each fiscal year determine whether BPA is able to meet its Treasury payment obligation. TRAM counts the number of games in which both the ending reserve levels for both FY 2012 and FY 2013 are above the liquidity reserves level of $20 million. If this count is 3,325 (95 percent of 3,500) or higher, then the 95 percent TPP standard has been met.

As described in Documentation Chapter 10.1, TRAM contains individual work sheets, including an income statement, a cash flow statement, accrual-to-cash adjustments, and individual work sheets for some revenue variables that are modeled to reflect uncertainty. Parameters for the probability distributions for risk variables were developed from historical data and/or judgment of technical staff familiar with specific areas of transmission risk as the basis for forecasting the uncertainty in those risks. Documentation, Chapters 10.3 and 10.4. The risk analysis is described in more detail in Chapter 10 of the Documentation.

2.2.5 Transmission Risk Analysis Results

The expected value (mean) from the resulting distribution for total reserves available for risk at the end of FY 2011 is $580 million; at the end of FY 2012, $499 million; and at the end of FY 2013, $448 million. *Id.* at Chapter 10.7. The TPP is above 99.9 percent, thus meeting BPA's standard. *Id.* at Chapter 10.6.

2.3 Capital Investments

BPA transmission capital outlay projections for this proposal and the FY 2012–2013 rate period are $1,177.1 million. These investments are:

- transmission programs ($1,115.9 million);
- environmental program ($10.1 million);
- information technology projects ($51.2 million).

Id. at Chapter 7.

2.3.1 Bonds Issued to the Treasury

Bonds issued to the U.S. Treasury will be the primary source of capital used to finance projected FY 2012–2013 transmission capital program investments. Interest rates on bonds issued by BPA to the U.S. Treasury are set at market interest rates comparable to the interest rates for securities issued by other agencies of the U.S. Government. Interest rates on bonds projected to be issued are included in the Documentation. *Id.* at Chapter 6.

2.3.2 Federal Appropriations

This Study includes the outstanding balances of the original capital investments in the Federal transmission system that were financed by Congressional appropriations. Transmission investments were no longer funded by appropriations after the full implementation of BPA's self-funding authority under the Transmission System Act. The Refinancing Act reset the unpaid principal of all outstanding BPA appropriations and reassigned current market interest rates. New principal amounts were established at the beginning of FY 1997 at the present value of the principal and annual interest payments BPA would make to the Treasury for these obligations in the absence of the Refinancing Act, plus $100 million. Before implementation of the Refinancing Act, $1,461.9 million in BPA appropriations was outstanding. After the implementation of the Refinancing Act, $1,075.4 million in BPA appropriations was outstanding. The Refinancing Act restricted prepayment of the new principal to $100 million in the FY 1997–2001 period. Other repayment terms were unaffected. Through annual repayments, Transmission outstanding appropriations had been reduced to $403 million as of September 30, 2010.

2.3.3 Use of Financial Reserves

As a means to fund capital investments, BPA will rely on $15 million per year from reserves attributed to Transmission Services during this rate period. This amount will be drawn from reserves projected to be available in the rate period.

2.3.4 Non-Federal Payment Obligations

The transmission revenue requirements reflect two forms of non-Federal payment obligations. The first form consists of lease financing arrangements for asset purchases. BPA entered into a transaction in 2004 with the Northwest Infrastructure Financing Corporation (NIFC), a subsidiary of JH Management, to provide for the construction of the 500-kV Schultz-Wautoma transmission line (Schultz-Wautoma line). BPA will make semiannual lease payments for 30 years, concluding with a single payment for the principal due on the bonds issued by NIFC. Payment of the debt incurred by NIFC to construct the line is secured solely by BPA's revenues. During the term of the lease, BPA will operate the Schultz-Wautoma line and provide transmission and ancillary services over the facilities. Since the completion of the Schultz-Wautoma project, BPA has entered into additional lease financing arrangements with NIFC and will continue to do so. The revenue requirement includes all transactions BPA expects to complete by the date of the final proposal. It does not include forecasts of additional transactions.

The second form of non-Federal payment obligations included in the revenue requirement consists of the functional reassignment to Transmission Services of debt service (interest and principal) payment obligations associated with non-Federal Energy Northwest (EN) bonds. This reassignment is a result of BPA's Debt Optimization Program (DOP), which refinances and repays existing EN bonds before they come due and uses the revenues made available from such refinancing to replenish or create opportunities to replenish BPA's Treasury borrowing authority by retiring additional Treasury obligations in amounts equal to the amount of principal of the new EN bonds. When Treasury obligations associated with transmission investments are repaid under DOP, the debt service obligation associated with new EN debt in equivalent principal amounts is assigned to Transmission Services. The revenue requirements reflect refinancing actions that have occurred through FY 2009, when DOP ended. The revenue requirement does not include forecasts of additional refinancing activities during the rate period.

For specific calculations regarding non-Federal payment obligations, see Documentation, Chapter 8.

2.3.5 Customer-Financed Projects

The revenue requirements also reflect the impacts of customer-financed projects. Customers have financed two types of capital construction projects. The first form of customer financing occurs under generation interconnection agreements (Large Generator Interconnection Agreements, or LGIA, and Small Generator Interconnection Agreements, or SGIA). BPA amended its Open Access Transmission Tariff and adopted the LGIA and SGIA in voluntary compliance with Commission Orders 2003 and 2006. Under the generator interconnection agreements, interconnection customers finance the cost of Network Upgrades needed to interconnect their generating facilities to BPA's transmission system if BPA, as the transmission owner/provider, does not provide the funding. BPA requires the interconnection customer to advance funds in an amount sufficient to cover the cost of construction. These advance funds, with interest on the outstanding balance, are then returned to the interconnection customer in the form of transmission credits. These credits either offset charges for eligible transmission service in the customer's bill or are provided as monthly cash payments based on the generating facility's capacity and its plant capacity factor.

The second form of customer-financed projects is the customer-financed upgrades on the California-Oregon Intertie (COI). The COI upgrade is intended to increase COI and Pacific DC Intertie (PDCI) availability so that BPA is able to support requests for long-term firm transmission service up to the full rating of the COI and PDCI. The upgrade is expected to be completed at the end of FY 2011. Like the advance funds provided under generator interconnection agreements, the advance funds provided by customers for the COI upgrade, with interest, will be returned to customers in the form of transmission credits that offset eligible charges for transmission service.

These customer-financed transactions and the associated transmission credits impact several areas of the revenue requirement. Depreciation of the associated assets appears in total transmission depreciation. The interest that accrues on the outstanding credit balances is included in non-Federal interest, a component of the net interest calculation on the income statement. Both of these items increase transmission expenses. These items also appear in the statement of cash flows because they are non-cash expenses. In addition, the revenues associated with these customer-financed projects for which credits are being returned also impact the statement of cash flows because they are non-cash revenues: they provide no cash for cost recovery.

Because they provide no cash for cost recovery, non-cash revenues generally increase the need for Minimum Required Net Revenues (MRNR), which are added to the income statement if necessary to ensure that all cash requirements are met. Non-cash expenses (depreciation and interest on outstanding credit balances) offset non-cash revenues and decrease the need for

MRNR. The non-cash expenses are subtracted from the non-cash revenues. If the difference is positive, meaning that non-cash revenues exceed non-cash expenses, the need for MRNR increases. If the difference is negative, meaning that non-cash expenses exceed non-cash revenues, the need for MRNR decreases.

Transmission Services forecasts the interest expense and transmission credits associated with generator interconnection agreements and with the COI upgrade at current and proposed rates. These forecasts are provided in the Documentation, Chapter 14, Table 14-4.

2.4 Development of Repayment Studies

Repayment studies are performed as part of the process of determining revenue requirements. The studies establish the schedule of annual U.S. Treasury amortization for the rate period and the resulting interest payments.

In this Study, as in the TR-10 rate filing, the repayment period has been set at 35 years. This study horizon reflects the fact that bonds are not issued for terms longer than 35 years and that the outstanding appropriations and bonds in the transmission system are fully repaid within this period. It also is consistent with the estimated average service life of transmission system plant (40 years), in that it does not exceed that average lifetime. This Study includes the results of transmission repayment studies for each year in the rate period, FY 2012 and FY 2013. The repayment studies include outstanding and projected transmission repayment obligations for Congressional appropriations and bonds issued to the U.S. Treasury. Funding for replacements projected during the repayment period also is included in the repayment study, consistent with the requirements of DOE Order RA 6120.2, discussed in section 1.2.2.2.

Historical BPA appropriations are scheduled to be repaid within the expected useful life of the associated facility or 50 years, whichever is less. Actual bonds issued by BPA to the Treasury may be for terms ranging from 3 to 40 years, taking into account the estimated average service lives for associated investments and prudent financing and cash management factors. In the repayment studies, all projected bonds have terms of 35 years for transmission investment and 15 years for environmental investment. Some bonds are issued with a provision that allows the bonds to be called after a certain time, typically five years. Bonds also may be issued with no early call provision. Early retirement of eligible bonds requires that BPA pay a bond premium to the Treasury, which decreases with the age of the bond and is equivalent, in total, to a fixed premium and a reduced interest rate. This reduced effective interest rate enters into the comparison with other Federal investments and obligations to determine which should be repaid first. Bonds are issued to finance BPA transmission and environment investments and are repaid within the provisions of each bond agreement with the Treasury.

The streams of annual debt service pertaining to non-Federal payment obligations also are included as fixed obligations that the repayment study takes into account in establishing the overall levelized debt service. This reflects the priority of revenue application in legislation and DOE Order RA 6120.2, in which these obligations have a higher priority of debt repayment. Therefore, the Study scheduled the repayment of Federal debt around these obligations.

Based on these parameters, the repayment study establishes a schedule of planned Federal amortization payments and resulting gross Federal interest expense by determining the lowest levelized debt service stream necessary to repay all transmission obligations within the required repayment period. Further discussion of the repayment program is included in Chapter 13 of the Documentation. Repayment policies and requirements are discussed in section 1.2.2 above.

3. TRANSMISSION REVENUE REQUIREMENTS

3.1 Revenue Requirement Format

For each year of a rate period, BPA prepares two tables that reflect the process by which revenue requirements are determined. The Income Statement includes projections of Total Expenses, any Planned Net Revenues for Risk, and, if necessary, a Minimum Required Net Revenues component. The Statement of Cash Flows shows the analysis used to determine Minimum Required Net Revenues and the cash available for risk mitigation.

The Income Statement (Table 3) displays the components of the annual revenue requirements, which include Total Operating Expenses (Line 9), Net Interest Expense (Line 20), Minimum Required Net Revenues (Line 22), and Planned Net Revenues for Risk (Line 23). The sum of these four major components is the Total Revenue Requirement (Line 25) for each year of the rate period.

The Minimum Required Net Revenues (Table 3, Line 22) result from an analysis of the Statement of Cash Flows (Table 4). Minimum Required Net Revenues 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 transmission repayment studies.

The Statement of Cash Flows (Table 4) analyzes annual cash inflows and outflows. Cash Provided by Current Operations (Line 10), driven by Expenses Not Requiring Cash, shown in Lines 4, 5, and 6, must be sufficient to compensate for the difference between Cash Used for Capital Investments (Line 14) and Cash from Treasury Borrowing (Line 20). If cash provided by Current Operations is not sufficient, Minimum Required Net Revenues (Line 2) must be included in revenue requirements to accommodate the shortfall, yielding at least a zero Annual Increase in

Cash (Line 21). The Minimum Required Net Revenues shown on the Statement of Cash Flows (Line 2) then is incorporated in the Income Statement (Table 3, Line 22).

3.2 Current Revenue Test

Consistent with DOE Order RA 6120.2, the adequacy of existing rates must be tested annually. The current revenue test determines whether the revenues expected from current rates will continue to meet cost recovery requirements. BPA forecasts revenues at current rates in the Documentation, Chapter 14, Table 14-2.

For the rate period, the test of the adequacy of current rates is shown on Tables 5 and 6 of this Study. Table 5 is a pro forma income statement for each year. Table 6, Statement of Cash Flows, tests the sufficiency of the resulting Net Revenues from Table 5 (Line 23) for making the planned annual amortization payments. The Total Annual Increase (Decrease) in Cash (Table 6, Line 21) must be at least zero to demonstrate the adequacy of the projected revenues to cover all cash payment requirements. The current revenue test, Table 6, shows that current rates are not sufficient to satisfy cost recovery requirements in the rate period. This is due to the increased costs associated with certain ancillary and control services rates that are not included in the partial settlement agreement.

3.3 Repayment Test at Current Rates

Table 7 shows the adequacy of current rates to satisfy cost recovery requirements over the 35-year repayment period. The focal point of this table is the Net Position (Column K), which is the amount of funds provided by revenues from current rates that remains after meeting annual expenses requiring cash for the rate period and repayment of the Federal investment. Thus, if the Net Position (Table 7, Column K) is zero or greater in each year of the rate period and of the repayment period, the projected revenues from current rates demonstrate BPA's ability to repay the Federal investment in the FCRTS within the allowable time. As shown in Column K, the Net Position results are negative for each year of the rate period and in each year of the repayment period.

3.4 Revised Revenue Test

Consistent with DOE Order RA 6120.2, the adequacy of proposed rates must be demonstrated. The revised revenue test determines whether the revenues projected from proposed rates will meet cost recovery requirements and the 95 percent Treasury Payment Probability standard for the rate period. The revised revenue test was conducted using the forecast of revenues under proposed rates. BPA forecasts revenues at proposed rates in the Documentation, Chapter 14, Table 14-3.

The test of the adequacy of proposed rates is shown on Tables 8 and 9. Table 8 presents pro forma income statements for each year. Table 9, Statement of Cash Flows, tests the sufficiency of the resulting Net Revenues from Table 8 (Line 23) for making the planned annual amortization. Sufficiency is demonstrated by the Total Annual Increase (Decrease) in Cash (Table 9, Line 21). The annual cash flow (Line 21) must be at least zero to demonstrate the adequacy of the projected revenues to cover all cash payment requirements. As part of the partial settlement agreement, BPA extended rates for transmission and certain ancillary services. BPA revised the remaining ancillary and control area services rates to ensure cost recovery. The revised revenue test demonstrates that the total annual impact to cash is positive, indicating that proposed rates are sufficient to satisfy cost recovery requirements in the rate period. *See* Table 9.

3.5 Repayment Test at Proposed Rates

Table 10 demonstrates whether projected revenues from proposed rates are adequate to meet the cost recovery criteria of DOE Order RA 6120.2 over the repayment period. The data are presented in a format consistent with the revised revenue tests (Tables 8 and 9) and separate accounting analyses. The focal point of this table is the Net Position (Table 10, Column K), which is the amount of funds provided by revenues that remains 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 year of the rate period and of the repayment period, the projected revenues demonstrate BPA's ability to repay the Federal investment in the FCRTS within the allowable time. As shown in Column K, the resulting Net Position is greater than zero for each year of the rate period and in each year of the repayment period.

The historical data on Table 10 have been taken from BPA's separate accounting analysis. The rate period data have been developed specifically for this rate proceeding. The repayment period data are presented in a manner consistent with the requirements of DOE Order RA 6120.2.

Table 11 summarizes the amortization of Federal investments over the entire repayment period. It displays the total investment costs of the transmission projects through the cost evaluation period (FY 2011–2013), 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, and unamortized obligations as determined by a term schedule (if all obligations were paid at maturity and never early).

TABLES

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Table 1: Projected Net Revenues From Proposed Rates

($000s)

		A	B	C
		FY 2012	**FY 2013**	**Rate Period Average**
1	Projected Revenues From Proposed Rates	$936,348	$958,405	$947,377
2	Projected Expenses	844,524	900,774	872,649
3	Net Revenues	$91,824	$57,631	$74,728

Table 2: Planned Repayments to U.S. Treasury

($000s)

		A
		Planned Payments
1	2012	$200,110
2	2013	56,374
3	Total	$256,484

Table 3: Transmission Revenue Requirement Income Statement

($000s)

		A FY 2012	B FY 2013
1	OPERATING EXPENSES		
2	TRANSMISSION OPERATIONS	130,050	133,590
3	TRANSMISSION MAINTENANCE	146,712	150,831
4	TRANSMISSION ENGINEERING	31,800	32,803
5	TRANSMISSION ACQ & ANCILLARY SERVICES	139,705	139,840
6	BPA INTERNAL SUPPORT	77,100	78,781
7	OTHER INCOME, EXPENSES & ADJUSTMENTS	**(36,200)**	**(30,599)**
8	DEPRECIATION & AMORTIZATION	198,604	218,124
9	TOTAL OPERATING EXPENSES	687,771	723,370
10	INTEREST EXPENSE		
11	INTEREST EXPENSE		
12	FEDERAL APPROPRIATIONS	23,086	10,396
13	CAPITALIZATION ADJUSTMENT	(18,968)	(18,968)
14	ON LONG-TERM DEBT	101,642	137,021
15	AMORTIZATION OF CAPITALIZED BOND PREMIUMS	561	561
16	DEBT SERVICE REASSIGNMENT INTEREST	54,352	52,556
17	NON-FEDERAL INTEREST	44,842	47,321
18	AFUDC	(30,069)	(32,255)
19	INTEREST INCOME	(17,353)	(21,419)
20	NET INTEREST EXPENSE	158,094	175,213
21	TOTAL EXPENSES	845,865	898,583
22	MINIMUM REQUIRED NET REVENUES 1/	91,700	57,199
23	PLANNED NET REVENUES FOR RISK	0	0
24	TOTAL PLANNED NET REVENUES	91,700	57,199
25	**TOTAL REVENUE REQUIREMENT**	**937,565**	**955,782**

1/ SEE NOTE ON CASH FLOW TABLE.

Table 4: Transmission Revenue Requirement Statement of Cash Flows

($000s)

		A FY 2012	B FY 2013
1	CASH FROM CURRENT OPERATIONS		
2	MINIMUM REQUIRED NET REVENUES 1/	91,700	57,199
3	EXPENSES NOT REQUIRING CASH:		
4	DEPRECIATION & AMORTIZATION	198,604	218,124
5	TRANSMISSION CREDIT PROJECTS NET INTEREST	17,970	20,026
6	AMORTIZATION OF CAPITALIZED BOND PREMIUMS	561	561
7	CAPITALIZATION ADJUSTMENT	(18,968)	(18,968)
8	DRAWDOWN OF CASH RESERVES FOR CAPITAL FUNDING	15,000	15,000
9	ACCRUAL REVENUES (LGIA/AC INTERTIE/FIBER)	(48,616)	(54,851)
10	CASH PROVIDED BY CURRENT OPERATIONS	256,251	237,091
11	CASH USED FOR CAPITAL INVESTMENTS		
12	INVESTMENT IN:		
13	UTILITY PLANT	(579,415)	(627,722)
14	CASH USED FOR CAPITAL INVESTMENTS	(579,415)	(627,722)
15	CASH FROM TREASURY BORROWING AND APPROPRIATIONS		
16	INCREASE IN LONG-TERM DEBT	564,415	612,722
17	DEBT SERVICE REASSIGNMENT PRINCIPAL	(41,141)	(165,717)
18	REPAYMENT OF LONG-TERM DEBT	(25,000)	0
19	REPAYMENT OF CAPITAL APPROPRIATIONS	(175,110)	(56,374)
20	CASH FROM TREASURY BORROWING AND APPROPRIATIONS	323,164	390,631
21	ANNUAL INCREASE (DECREASE) IN CASH	0	0
22	PLANNED NET REVENUES FOR RISK	0	0
23	TOTAL ANNUAL INCREASE (DECREASE) IN CASH	0	0

1/ Line 21 must be greater than or equal to zero, otherwise net revenues will be added so that there are no negative cash flows for the year.

Table 5: Current Revenue Test Income Statement

($000s)

		A FY 2012	B FY 2013
1	REVENUES FROM CURRENT RATES	920,296	944,724
2	OPERATING EXPENSES		
3	TRANSMISSION OPERATIONS	130,050	133,590
4	TRANSMISSION MAINTENANCE	146,712	150,831
5	TRANSMISSION ENGINEERING	31,800	32,803
6	TRANSMISSION ACQUISITION & ANCILLARY SERVICES	138,373	142,079
7	BPA INTERNAL SUPPORT	77,100	78,781
8	OTHER INCOME, EXPENSES & ADJUSTMENTS	**(36,200)**	**(30,599)**
9	DEPRECIATION & AMORTIZATION	198,604	218,124
10	TOTAL OPERATING EXPENSES	686,439	725,609
11	INTEREST EXPENSE		
12	INTEREST EXPENSE		
13	FEDERAL APPROPRIATIONS	23,086	10,396
14	CAPITALIZATION ADJUSTMENT	(18,968)	(18,968)
15	ON LONG-TERM DEBT	101,642	137,021
16	AMORTIZATION OF CAPITALIZED BOND PREMIUMS	561	561
17	DEBT SERVICE REASSIGNMENT INTEREST	54,352	52,556
18	NON-FEDERAL INTEREST	44,842	47,321
19	AFUDC	(30,069)	(32,255)
20	INTEREST INCOME	(17,181)	(20,643)
21	NET INTEREST EXPENSE	158,266	175,989
22	TOTAL EXPENSES	844,705	901,598
23	NET REVENUES	75,591	43,126

Table 6: Current Revenue Test Statement of Cash Flows

($000s)

		A FY 2012	B FY 2013
1	CASH FROM CURRENT OPERATIONS		
2	NET REVENUES	75,591	43,126
3	EXPENSES NOT REQUIRING CASH:		
4	DEPRECIATION & AMORTIZATION	198,604	218,124
5	TRANSMISSION CREDIT PROJECTS NET INTEREST	17,970	20,026
6	AMORTIZATION OF CAPITALIZED BOND PREMIUMS	561	561
7	CAPITALIZATION ADJUSTMENT	(18,968)	(18,968)
8	DRAWDOWN OF CASH RESERVES FOR CAPITAL FUNDING	15,000	15,000
9	ACCRUAL REVENUES (AC INTERTIE/FIBER/LGIA)	(48,616)	(54,851)
10	CASH PROVIDED BY CURRENT OPERATIONS	240,142	223,018
11	CASH USED FOR CAPITAL INVESTMENTS		
12	INVESTMENT IN:		
13	UTILITY PLANT	(579,415)	(627,722)
14	CASH USED FOR CAPITAL INVESTMENTS	(579,415)	(627,722)
15	CASH FROM TREASURY BORROWING AND APPROPRIATIONS		
16	INCREASE IN LONG-TERM DEBT	564,415	612,722
17	DEBT SERVICE REASSIGNMENT PRINCIPAL	(41,141)	(165,717)
18	REPAYMENT OF LONG-TERM DEBT	(25,000)	0
19	REPAYMENT OF CAPITAL APPROPRIATIONS	(175,110)	(56,374)
20	CASH FROM TREASURY BORROWING AND APPROPRIATIONS	323,164	390,631
21	**ANNUAL INCREASE (DECREASE) IN CASH**	**(16,109)**	**(14,073)**

Table 7: Transmission Revenues 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)	AC INTERTIE CAPACITY OWNERSHIP CAPITAL PAYMENTS	DEPRECIATION	NET INTEREST (STATEMENT D)	NET REVENUES (F=A-B-C-D-E)	NONCASH EXPENSES 1/ (COLUMN D)	FUNDS FROM OPERATION (H=F+G)	AMORTIZATION (REV REQ STUDY DOC,Chapter 12)	NON-FEDERAL PRINCIPAL (REV REQ STUDY DOC,Chapter 8)	NET POSITION (K=H-I-J)
1977	3,298,951	963,839	348,748	807,047	1,220,170	(40,853)	807,047	766,194	628,460		137,734
TRANSMISSION											
1978	116,430	69,767		51,503	60,337	(65,177)	51,503	(13,674)	194		(13,868)
1979	107,017	73,801		53,756	69,112	(89,652)	53,756	(35,896)	26		(35,922)
1980	170,603	77,594		55,613	78,039	(40,643)	55,613	14,970	2		14,968
1981	202,740	87,243		59,638	87,665	(31,806)	59,638	27,832	1,236 **2/**		26,596
1982	269,200	91,562		64,458	106,190	6,990	64,458	71,448	0		71,448
1983	359,641	99,520		67,969	138,268	53,884	67,969	121,853	0		121,853
1984	417,821	101,406		60,360	158,783	97,272	60,360	157,632	26,722 **3/**		130,910
1985	510,030	141,623		71,012	160,336	137,059	71,012	208,071	199,646		8,425
1986	446,435	144,438		77,574	178,460	45,963	77,574	123,537	180,915		(57,378)
1987	456,728	148,596		85,807	177,020	45,305	85,807	131,112	148,860		(17,748)
1988	405,154	167,102		90,076	164,131	(16,155)	90,076	73,921	44,757		29,164
1989	422,202	175,240		93,076	164,044	(10,158)	93,076	82,918	119,322		(36,404)
1990	426,855	183,512		98,881	153,440	(8,978)	98,881	89,903	99,460		(9,557)
1991	439,871	199,668		98,731	139,458	2,014	98,731	100,745	70,930		29,815
1992	428,769	209,868		101,946	143,789	(26,834)	101,946	75,112	190,864		(115,752)
1993	417,555	189,926		101,929	173,271	(47,571)	101,929	54,358	130,989		(76,631)
1994	462,511	202,309		103,956	179,052	(22,806)	103,956	81,150	55,977		25,173
1995	490,264	200,501		112,940	181,744	(4,921)	112,940	264,019 **/4**	281,789		(17,770)
1996	534,456	206,128		125,961	165,175	37,192	123,219	145,411 **/5**	155,000		(9,589)
1997	503,217	197,202		124,457	176,977	4,581	109,802	114,383	125,000		(10,617)
1998	539,925	228,802		125,130	174,022	11,971	117,884	129,855	185,955		(56,100)
1999	552,134	231,410		147,176	173,574	(26)	133,779	133,753	139,784		(6,031)
2000	578,340	270,153		154,069	165,330	(11,212)	135,358	124,146	114,587		9,559
2001	646,673	282,851		154,881	165,404	43,537	151,746	195,283	59,064		136,219
2002	720,382	364,511		161,042	150,718	44,111	148,912	193,023	131,667		61,356
2003	663,601	326,248		171,129	168,996	(2,772)	160,628	473,056	470,747		2,309
2004	644,059	313,994		204,445	137,822	(12,202)	225,406	403,481 **/5**	359,500		43,981
2005	634,530	333,584		189,501	135,754	(24,309)	169,180	320,071 **/5**	345,201		(25,130)
2006	784,339	378,872		171,359	136,761	97,347	145,949	432,634 **/5**	384,947		47,687
2007	808,624	372,556		175,584	133,806	126,678	146,762	460,240 **/5**	372,100	716	87,424
2008	844,215	382,879		174,599	136,360	150,377	139,327	384,756 **/5**	277,833	4,510	102,413
2009	831,840	411,557		174,786	122,892	122,605	140,303	287,908 **/5**	212,659	10,407	64,842
2010	884,080	445,690		183,382	123,195	131,813	132,963	264,776	215,156	12	49,608
COST EVALUATION PERIOD											
2011	903,475	498,600		193,900	125,210	85,765	142,274	198,039	224,707	154	(26,822)
RATE APPROVAL PERIOD											
2012	920,296	487,835		198,604	158,266	75,591	149,551	225,142	200,110	41,141	(16,109)
2013	944,724	507,485		218,124	175,989	43,126	164,892	208,018	56,374	165,717	(14,073)

Table 7: continued

REPAYMENT PERIOD	A REVENUES (STATEMENT A)	B OPERATION & MAINTENANCE (STATEMENT E)	C AC INTERTIE CAPACITY OWNERSHIP CAPITAL PAYMENTS	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 (H=F+G)	I AMORTIZATION (REV REQ STUDY DOC,Chapter 12)	J NON-FEDERAL PRINCIPAL (REV REQ STUDY DOC,Chapter 8)	K NET POSITION (K=H-I-J)
2014	944,724	507,485	(4,293)	218,124	186,695	36,713	184,918	221,631	53,053	175,140	(6,562)
2015	944,724	507,485	(4,412)	218,124	190,378	33,149	184,918	218,067	39,601	185,028	(6,562)
2016	944,724	507,485	(4,498)	218,124	193,404	30,209	184,918	215,127	36,703	184,986	(6,562)
2017	944,724	507,485	(4,624)	218,124	194,398	29,341	184,918	214,259	21,043	199,778	(6,562)
2018	944,724	507,485	(4,745)	218,124	193,769	30,091	184,918	215,009	29,661	191,910	(6,562)
2019	944,724	507,485	(4,864)	218,124	189,798	34,181	184,918	219,099	220,440	5,221	(6,562)
2020	944,724	507,485	(4,957)	218,124	193,832	30,240	184,918	215,158	202,132	19,588	(6,562)
2021	944,724	507,485	(5,109)	218,124	196,030	28,194	184,918	213,112	199,107	20,567	(6,562)
2022	944,724	507,485	(5,213)	218,124	195,828	28,500	184,918	213,418	198,388	21,592	(6,562)
2023	944,724	507,485	(5,309)	218,124	198,742	25,682	184,918	210,600	194,488	22,674	(6,562)
2024	944,724	507,485	(5,456)	218,124	199,779	24,792	184,918	209,710	198,635	17,637	(6,562)
2025	944,724	507,485	(5,541)	218,124	195,128	29,528	184,918	214,446	221,008	0	(6,562)
2026	944,724	507,485	(5,694)	218,124	190,072	34,737	184,918	219,655	226,217	0	(6,562)
2027	944,724	507,485	(5,786)	218,124	197,161	27,740	184,918	212,658	219,220	0	(6,562)
2028	944,724	507,485	(5,991)	218,124	191,233	33,873	184,918	218,791	225,353	0	(6,562)
2029	944,724	507,485	(6,075)	218,124	194,371	30,819	184,918	215,737	222,299	0	(6,562)
2030	944,724	507,485	(6,224)	218,124	191,955	33,384	184,918	218,302	224,864	0	(6,562)
2031	944,724	507,485	(6,341)	218,124	188,110	37,346	184,918	222,264	228,826	0	(6,562)
2032	944,724	507,485	(6,429)	218,124	190,742	34,802	184,918	219,720	226,282	0	(6,562)
2033	944,724	507,485	(6,598)	218,124	248,142	(22,429)	184,918	162,489	139,155	29,896	(6,562)
2034	944,724	507,485	(6,690)	218,124	129,768	96,037	184,918	280,955	197,828	89,689	(6,562)
2035	944,724	507,485	(6,832)	218,124	186,770	39,177	184,918	224,095	230,657	0	(6,562)
2036	944,724	507,485	(6,918)	218,124	188,160	37,873	184,918	222,791	214,098	15,255	(6,562)
2037	944,724	507,485	(7,054)	218,124	191,078	35,091	184,918	220,009	91,574	134,997	(6,562)
2038	944,724	507,485	(7,222)	218,124	215,660	10,677	184,918	195,595	55,001	147,156	(6,562)
2039	944,724	507,485	(7,356)	218,124	197,425	29,046	184,918	213,964	187,828	32,698	(6,562)
2040	944,724	507,485	(7,438)	218,124	191,274	35,279	184,918	220,197	226,759	0	(6,562)
2041	944,724	507,485	(7,521)	218,124	194,711	31,925	184,918	216,843	223,405	0	(6,562)
2042	944,724	507,485	(7,651)	218,124	196,248	30,518	184,918	215,436	221,998	0	(6,562)
2043	944,724	507,485	(7,774)	218,124	198,103	28,786	184,918	213,704	220,266	0	(6,562)
2044	944,724	507,485	(7,912)	218,124	200,331	26,696	184,918	211,614	218,176	0	(6,562)
2045	944,724	507,485	(7,982)	218,124	199,766	27,331	184,918	212,249	218,811	0	(6,562)
2046	944,724	507,485	(8,095)	218,124	198,333	28,877	184,918	213,795	220,357	0	(6,562)
2047	944,724	507,485	(8,174)	218,124	201,506	25,783	184,918	210,701	217,260	0	(6,559)
2048	944,724	507,485	(8,420)	218,124	212,289	15,246	184,918	200,164	206,726	0	(6,562)
TRANSMISSION TOTALS	52,554,076	26,566,008	(221,198)	12,131,694	12,060,380	2,017,192	10,559,290	13,864,349	9,756,657	1,716,469	288,582

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

2/CONSISTS OF AMORTIZATION ($1,650) AND DEFERRAL PAYMENT ($2,760).

3/CONSISTS OF AMORTIZATION ($1,342) AND DEFERRAL PAYMENT ($190,952).

4/INCREASED BY 156,000 AC INTERTIE CAPACITY OWNERSHIP PAYMENT.

5/REDUCED BY $15,000 OF REVENUE FINANCING.

Table 8: Revised Revenue Test Income Statement

($000s)

		A FY 2012	B FY 2013
1	REVENUES FROM PROPOSED RATES	936,384	958,405
2	OPERATING EXPENSES		
3	TRANSMISSION OPERATIONS	130,050	133,590
4	TRANSMISSION MAINTENANCE	146,712	150,831
5	TRANSMISSION ENGINEERING	31,800	32,803
6	TRANSMISSION ACQUISITION & ANCILLARY SERVICES	138,373	142,079
7	BPA INTERNAL SUPPORT	77,100	78,781
8	OTHER INCOME, EXPENSES & ADJUSTMENTS	**(36,200)**	**(30,599)**
9	DEPRECIATION & AMORTIZATION	198,604	218,124
10	TOTAL OPERATING EXPENSES	686,439	725,609
11	INTEREST EXPENSE		
12	INTEREST EXPENSE		
13	FEDERAL APPROPRIATIONS	23,086	10,396
14	CAPITALIZATION ADJUSTMENT	(18,968)	(18,968)
15	ON LONG-TERM DEBT	101,642	137,021
16	AMORTIZATION OF CAPITALIZED BOND PREMIUMS	561	561
17	DEBT SERVICE REASSIGNMENT INTEREST	54,352	52,556
18	NON-FEDERAL INTEREST	44,842	47,321
19	AFUDC	(30,069)	(32,255)
20	INTEREST INCOME	(17,362)	(21,467)
21	NET INTEREST EXPENSE	158,085	175,165
22	TOTAL EXPENSES	844,524	900,774
23	NET REVENUES	91,860	57,631

Table 9: Revised Revenue Test Statement of Cash Flows

($000s)

		A FY 2012	B FY 2013
1	CASH FROM CURRENT OPERATIONS		
2	NET REVENUES	91,860	57,631
3	EXPENSES NOT REQUIRING CASH:		
4	DEPRECIATION & AMORTIZATION	198,604	218,124
5	TRANSMISSION CREDIT PROJECTS NET INTEREST	17,970	20,026
6	AMORTIZATION OF CAPITALIZED BOND PREMIUMS	561	561
7	CAPITALIZATION ADJUSTMENT	(18,968)	(18,968)
8	DRAWDOWN OF CASH RESERVES FOR CAPITAL FUNDING	15,000	15,000
9	ACCRUAL REVENUES (AC INTERTIE/FIBER/LGIA)	(48,616)	(54,851)
10	CASH PROVIDED BY CURRENT OPERATIONS	256,411	237,523
11	CASH USED FOR CAPITAL INVESTMENTS		
12	INVESTMENT IN:		
13	UTILITY PLANT	(579,415)	(627,722)
14	CASH USED FOR CAPITAL INVESTMENTS	(579,415)	(627,722)
15	CASH FROM TREASURY BORROWING AND APPROPRIATIONS		
16	INCREASE IN LONG-TERM DEBT	564,415	612,722
17	DEBT SERVICE REASSIGNMENT PRINCIPAL	(41,141)	(165,717)
18	REPAYMENT OF LONG-TERM DEBT	(25,000)	0
19	REPAYMENT OF CAPITAL APPROPRIATIONS	(175,110)	(56,374)
20	CASH FROM TREASURY BORROWING AND APPROPRIATIONS	323,164	390,631
21	**ANNUAL INCREASE (DECREASE) IN CASH**	**160**	**432**

Table 10: Transmission Revenues 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)	AC INTERTIE CAPACITY OWNERSHIP CAPITAL PAYMENTS	DEPRECIATION	NET INTEREST (STATEMENT D)	NET REVENUES (F=A-B-C-D-E)	NONCASH EXPENSES 1/ (COLUMN D)	FUNDS FROM OPERATION (H=F+G)	AMORTIZATION (REV REQ STUDY DOC,Chapter 12)	NON-FEDERAL PRINCIPAL (REV REQ STUDY DOC,Chapter 8)	NET POSITION (K=H-I-J)
1977	3,298,951	963,839	348,748	807,047	1,220,170	(40,853)	807,047	766,194	628,460		137,734
TRANSMISSION											
1978	116,430	69,767		51,503	60,337	(65,177)	51,503	(13,674)	194		(13,868)
1979	107,017	73,801		53,756	69,112	(89,652)	53,756	(35,896)	26		(35,922)
1980	170,603	77,594		55,613	78,039	(40,643)	55,613	14,970	2		14,968
1981	202,740	87,243		59,638	87,665	(31,806)	59,638	27,832	1,236 **2/**		26,596
1982	269,200	91,562		64,458	106,190	6,990	64,458	71,448	0		71,448
1983	359,641	99,520		67,969	138,268	53,884	67,969	121,853	0		121,853
1984	417,821	101,406		60,360	158,783	97,272	60,360	157,632	26,722 **3/**		130,910
1985	510,030	141,623		71,012	160,336	137,059	71,012	208,071	199,646		8,425
1986	446,435	144,438		77,574	178,460	45,963	77,574	123,537	180,915		(57,378)
1987	456,728	148,596		85,807	177,020	45,305	85,807	131,112	148,860		(17,748)
1988	405,154	167,102		90,076	164,131	(16,155)	90,076	73,921	44,757		29,164
1989	422,202	175,240		93,076	164,044	(10,158)	93,076	82,918	119,322		(36,404)
1990	426,855	183,512		98,881	153,440	(8,978)	98,881	89,903	99,460		(9,557)
1991	439,871	199,668		98,731	139,458	2,014	98,731	100,745	70,930		29,815
1992	428,769	209,868		101,946	143,789	(26,834)	101,946	75,112	190,864		(115,752)
1993	417,555	189,926		101,929	173,271	(47,571)	101,929	54,358	130,989		(76,631)
1994	462,511	202,309		103,956	179,052	(22,806)	103,956	81,150	55,977		25,173
1995	490,264	200,501		112,940	181,744	(4,921)	112,940	264,019 **/4**	281,789		(17,770)
1996	534,456	206,128		125,961	165,175	37,192	123,219	145,411 **/5**	155,000		(9,589)
1997	503,217	197,202		124,457	176,977	4,581	109,802	114,383	125,000		(10,617)
1998	539,925	228,802		125,130	174,022	11,971	117,884	129,855	185,955		(56,100)
1999	552,134	231,410		147,176	173,574	(26)	133,779	133,753	139,784		(6,031)
2000	578,340	270,153		154,069	165,330	(11,212)	135,358	124,146	114,587		9,559
2001	646,673	282,851		154,881	165,404	43,537	151,746	195,283	59,064		136,219
2002	720,382	364,511		161,042	150,718	44,111	148,912	193,023	131,667		61,356
2003	663,601	326,248		171,129	168,996	(2,772)	160,628	473,056	470,747		2,309
2004	644,059	313,994		204,445	137,822	(12,202)	225,406	403,481 **/5**	359,500		43,981
2005	634,530	333,584		189,501	135,754	(24,309)	169,180	320,071 **/5**	345,201		(25,130)
2006	784,339	378,872		171,359	136,761	97,347	145,949	432,634 **/5**	384,947		47,687
2007	808,624	372,556		175,584	133,806	126,678	146,762	460,240 **/5**	372,100	716	87,424
2008	844,215	382,879		174,599	136,360	150,377	146,108	391,485 **/5**	277,833	4,510	109,142
2009	831,840	411,557		174,786	122,892	122,605	140,303	287,908 **/5**	212,659	10,407	64,842
2010	884,080	445,690		183,382	123,195	131,813	132,963	264,776	215,156	12	49,608
COST EVALUATION PERIOD											
2011	903,475	498,600		193,900	125,210	85,765	142,274	198,039	224,707	154	(26,822)
RATE APPROVAL PERIOD											
2012	936,384	487,835		198,604	158,085	91,860	149,551	241,411	200,110	41,141	160
2013	958,405	507,485		218,124	175,165	57,631	164,892	222,523	56,374	165,717	432

Table 10: continued

		A	B	C	D	E	F	G	H	I	J	K
	REPAYMENT PERIOD	REVENUES (STATEMENT A)	OPERATION & MAINTENANCE (STATEMENT E)	AC INTERTIE CAPACITY OWNERSHIP CAPITAL PAYMENTS	DEPRECIATION	NET INTEREST (STATEMENT D)	NET REVENUES (F=A-B-C-D-E)	NONCASH EXPENSES 1/ (COLUMN D)	FUNDS FROM OPERATION (H=F+G)	AMORTIZATION (REV REQ STUDY DOC,Chapter 12)	NON-FEDERAL PRINCIPAL (REV REQ STUDY DOC,Chapter 8)	NET POSITION (K=H-I-J)
51	**2014**	958,405	507,485	(4,293)	218,124	185,595	51,494	184,918	236,412	53,053	175,140	8,219
52	**2015**	958,405	507,485	(4,412)	218,124	189,278	47,930	184,918	232,848	39,601	185,028	8,219
53	**2016**	958,405	507,485	(4,498)	218,124	192,304	44,990	184,918	229,908	36,703	184,986	8,219
54	**2017**	958,405	507,485	(4,624)	218,124	193,298	44,122	184,918	229,040	21,043	199,778	8,219
55	**2018**	958,405	507,485	(4,745)	218,124	192,669	44,872	184,918	229,790	29,661	191,910	8,219
56												
57	**2019**	958,405	507,485	(4,864)	218,124	188,698	48,962	184,918	233,880	220,440	5,221	8,219
58	**2020**	958,405	507,485	(4,957)	218,124	192,732	45,021	184,918	229,939	202,132	19,588	8,219
59	**2021**	958,405	507,485	(5,109)	218,124	194,930	42,975	184,918	227,893	199,107	20,567	8,219
60	**2022**	958,405	507,485	(5,213)	218,124	194,728	43,281	184,918	228,199	198,388	21,592	8,219
61	**2023**	958,405	507,485	(5,309)	218,124	197,642	40,463	184,918	225,381	194,488	22,674	8,219
62												
63	**2024**	958,405	507,485	(5,456)	218,124	198,679	39,573	184,918	224,491	198,635	17,637	8,219
64	**2025**	958,405	507,485	(5,541)	218,124	194,028	44,309	184,918	229,227	221,008		8,219
65	**2026**	958,405	507,485	(5,694)	218,124	188,972	49,518	184,918	234,436	226,217		8,219
66	**2027**	958,405	507,485	(5,786)	218,124	196,061	42,521	184,918	227,439	219,220		8,219
67	**2028**	958,405	507,485	(5,991)	218,124	190,133	48,654	184,918	233,572	225,353		8,219
68												
69	**2029**	958,405	507,485	(6,075)	218,124	193,271	45,600	184,918	230,518	222,299		8,219
70	**2030**	958,405	507,485	(6,224)	218,124	190,855	48,165	184,918	233,083	224,864		8,219
71	**2031**	958,405	507,485	(6,341)	218,124	187,010	52,127	184,918	237,045	228,826		8,219
72	**2032**	958,405	507,485	(6,429)	218,124	189,642	49,583	184,918	234,501	226,282		8,219
73	**2033**	958,405	507,485	(6,598)	218,124	247,042	(7,648)	184,918	177,270	139,155	29,896	8,219
74												
75	**2034**	958,405	507,485	(6,690)	218,124	128,668	110,818	184,918	295,736	197,828	89,689	8,219
76	**2035**	958,405	507,485	(6,832)	218,124	185,670	53,958	184,918	238,876	230,657	0	8,219
77	**2036**	958,405	507,485	(6,918)	218,124	187,060	52,654	184,918	237,572	214,098	15,255	8,219
78	**2037**	958,405	507,485	(7,054)	218,124	189,978	49,872	184,918	234,790	91,574	134,997	8,219
79	**2038**	958,405	507,485	(7,222)	218,124	214,560	25,458	184,918	210,376	55,001	147,156	8,219
80												
81	**2039**	958,405	507,485	(7,356)	218,124	196,325	43,827	184,918	228,745	187,828	32,698	8,219
82	**2040**	958,405	507,485	(7,438)	218,124	190,174	50,060	184,918	234,978	226,759		8,219
83	**2041**	958,405	507,485	(7,521)	218,124	193,611	46,706	184,918	231,624	223,405		8,219
84	**2042**	958,405	507,485	(7,651)	218,124	195,148	45,299	184,918	230,217	221,998		8,219
85	**2043**	958,405	507,485	(7,774)	218,124	197,003	43,567	184,918	228,485	220,266		8,219
86												
87	**2044**	958,405	507,485	(7,912)	218,124	199,231	41,477	184,918	226,395	218,176		8,219
88	**2045**	958,405	507,485	(7,982)	218,124	198,666	42,112	184,918	227,030	218,811		8,219
89	**2046**	958,405	507,485	(8,095)	218,124	197,233	43,658	184,918	228,576	220,357		8,219
90	**2047**	958,405	507,485	(8,174)	218,124	200,406	40,564	184,918	225,482	217,260		8,222
91	**2048**	958,405	507,485	(8,420)	218,124	211,189	30,027	184,918	214,945	206,726		8,219
92												
93	**TRANSMISSION**											
94	**TOTALS**	53,062,680	26,566,008	(221,198)	12,131,694	12,020,875	2,565,301	10,566,071	14,419,187	9,756,657	1,716,469	843,420

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

2/CONSISTS OF AMORTIZATION ($1,650) AND DEFERRAL PAYMENT ($2,760).

3/CONSISTS OF AMORTIZATION ($1,342) AND DEFERRAL PAYMENT ($190,952).

4/INCREASED BY 156,000 AC INTERTIE CAPACITY OWNERSHIP PAYMENT.

5/REDUCED BY $15,000 OF REVENUE FINANCING.

Table 11: Amortization of Transmission Investments Over Repayment Period

($000s)

		A	B	C	D	E	F	G
		Investments Placed in Service						
	Date	Original & New Obligations	Replacements	Cumulative Amount In Service	Due Amortization	Discretionary Amortization	Unamortized Investment	Term Investment Schedule
1	2010	2,020,001	-	2,020,001	-	-	2,020,001	5,371,231
2	2011	366,000	-	2,386,001	161,232	63,475	2,161,294	5,523,991
3	2012	564,415	-	2,950,416	44,358	155,752	2,525,599	5,882,101
4	2013	612,722	-	3,563,138	18,250	38,124	3,081,947	6,367,913
5	2014	-	144,288	3,707,426	14,000	39,053	3,173,182	6,248,788
6	2015	-	147,019	3,854,445	22,500	17,101	3,280,600	6,157,920
7	2016	-	150,497	4,004,942	26,000	10,703	3,394,395	6,047,770
8	2017	-	154,079	4,159,021	-	21,043	3,527,431	5,814,500
9	2018	-	157,269	4,316,290	26,775	2,886	3,655,039	5,703,991
10	2019	-	159,903	4,476,193	197,356	23,084	3,594,502	5,509,086
11	2020	-	163,370	4,639,563	143,000	59,132	3,555,740	5,446,614
12	2021	-	167,909	4,807,472	81,000	118,107	3,524,542	5,470,286
13	2022	-	171,584	4,979,056	110,000	88,388	3,497,738	5,483,859
14	2023	-	175,474	5,154,530	46,000	148,488	3,478,724	5,613,333
15	2024	-	179,281	5,333,811	-	198,635	3,459,370	5,792,614
16	2025	-	182,790	5,516,601	69,050	151,958	3,421,152	5,850,471
17	2026	-	187,135	5,703,736	155,000	71,217	3,382,070	5,972,606
18	2027	-	190,900	5,894,636	4,989	214,231	3,353,750	6,158,517
19	2028	-	194,735	6,089,371	117,386	107,967	3,323,132	6,079,366
20	2029	-	198,158	6,287,529	-	222,299	3,298,991	6,261,802
21	2030	-	202,669	6,490,198	30,000	194,864	3,276,796	6,330,193
22	2031	-	207,219	6,697,417	106,500	122,326	3,255,189	6,237,412
23	2032	-	210,880	6,908,297	30,000	196,282	3,239,787	5,899,392
24	2033	-	215,333	7,123,630	40,000	99,155	3,315,964	5,444,763
25	2034	-	219,039	7,342,669	40,000	157,828	3,337,175	5,365,402
26	2035	-	223,434	7,566,103	125,000	105,657	3,329,952	5,463,836
27	2036	-	226,976	7,793,079	100,000	114,098	3,342,830	5,590,812
28	2037	-	230,889	8,023,968	-	91,574	3,482,145	5,786,701
29	2038	-	234,261	8,258,229	55,000	1	3,661,405	5,965,962
30	2039	-	238,110	8,496,339	95,000	92,828	3,711,687	6,109,072
31	2040	-	241,894	8,738,233	60,000	166,759	3,726,822	6,290,966
32	2041	-	245,840	8,984,073	-	223,405	3,749,257	6,536,806
33	2042	-	249,290	9,233,363	-	221,998	3,776,550	6,786,096
34	2043	-	253,722	9,487,085	-	220,266	3,810,006	7,039,818
35	2044	-	258,259	9,745,344	-	218,176	3,850,089	7,298,077
36	2045	-	261,205	10,006,549	-	218,811	3,892,483	7,559,282
37	2046	-	264,873	10,271,422	-	220,357	3,936,999	7,824,155
38	2047	-	268,735	10,540,157	217,260	-	3,988,474	7,560,239
39	2048	-	273,109	10,813,266	-	206,726	4,054,857	7,250,128
40	2049	-	-	10,813,266	-	202,659	3,852,198	7,250,128
41	2050	-	-	10,813,266	-	215,136	3,637,062	7,250,128
42	2051	-	-	10,813,266	-	228,363	3,408,699	7,250,128
43	2052	-	-	10,813,266	-	242,389	3,166,310	7,250,128
44	2053	-	-	10,813,266	-	257,257	2,909,053	7,250,128
45	2054	-	-	10,813,266	-	273,021	2,636,032	7,250,128
46	2055	-	-	10,813,266	-	289,732	2,346,300	7,250,128
47	2056	-	-	10,813,266	-	307,385	2,038,915	7,250,128
48	2057	-	-	10,813,266	-	326,085	1,712,830	7,250,128
49	2058	-	-	10,813,266	-	345,956	1,366,874	7,250,128
50	2059	-	-	10,813,266	-	366,902	999,971	7,250,128
51	2060	-	-	10,813,266	-	389,119	610,853	7,250,128
52	2061	-	-	10,813,266	-	412,605	198,248	7,250,128
53	2062	-	-	10,813,266	-	198,248	-	7,250,128
54	**Total**	**$3,563,138**	**$7,250,128**		**$2,135,656**	**$8,677,610**		

BONNEVILLE POWER ADMINISTRATION

DOE/BP-4331 • July 2011