

2012 BPA Final Rate Proposal

**Power Revenue Requirement
Study**

July 2011

BP-12-FS-BPA-02



POWER REVENUE REQUIREMENT STUDY

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COMMONLY USED ACRONYMS AND SHORT FORMS

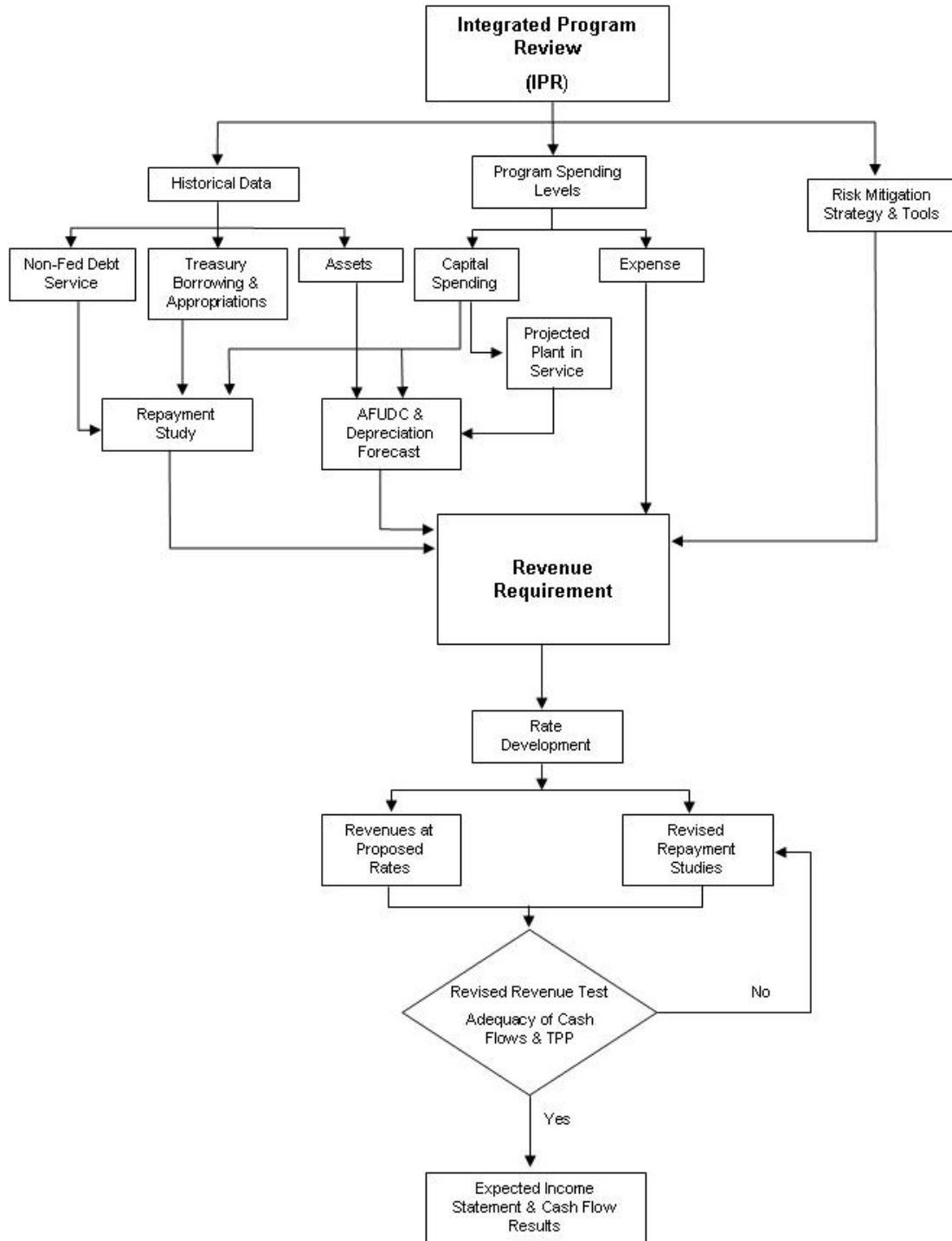
AGC	Automatic Generation Control
ALF	Agency Load Forecast (computer model)
aMW	average megawatt(s)
AMNR	Accumulated Modified Net Revenues
ANR	Accumulated Net Revenues
ASC	Average System Cost
BiOp	Biological Opinion
BPA	Bonneville Power Administration
Btu	British thermal unit
CDD	cooling degree day(s)
CDQ	Contract Demand Quantity
CGS	Columbia Generating Station
CHWM	Contract High Water Mark
Commission	Federal Energy Regulatory Commission
COSA	Cost of Service Analysis
COU	consumer-owned utility
Corps or USACE	U.S. Army Corps of Engineers
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
<i>dec</i>	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
<i>inc</i>	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: 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) 2011 and the proposed rate approval period (rate period), FY 2012–2013. This Study for the rate period FY 2012–2013 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-12-FS-BPA-07.

1 This Study outlines the policies, forecasts, assumptions, and calculations used to determine the
2 power revenue requirement. The Power Revenue Requirement Study Documentation, BP-12-
3 FS-BPA-02A, contains key technical assumptions and calculations, the results of the generation
4 repayment studies, and further explanation of the repayment program and its outputs.

5
6 The revenue requirement for this Study is developed using a cost accounting analysis comprised
7 of three parts. First, repayment studies for the generation function are prepared to determine the
8 schedule of amortization payments and to project annual interest expense for bonds and
9 appropriations that fund the Federal investment in hydro, fish and wildlife recovery,
10 conservation, and other generation assets. Repayment studies are conducted for each year of the
11 rate period and extend over the 50-year repayment period. Second, generation operating
12 expenses, based on Integrated Program Review (IPR) program spending forecasts (see
13 Figure 1), and Minimum Required Net Revenue (MRNR) are projected for each year of the rate
14 period. Third, annual Planned Net Revenues for Risk (PNRR) are determined after taking into
15 account risks, BPA's cost recovery goals, and other risk mitigation measures, as described in the
16 Power Risk and Market Price Study, BP-12-FS-BPA-04. From these three steps, the revenue
17 requirement is set at the revenue level necessary to fulfill cost recovery requirements and
18 objectives. This process is depicted in Figure 1. Once the revenue requirement is completed, the
19 costs identified in it are passed to the rate development process, where they are allocated to the
20 appropriate cost pools and used to develop rates.

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

1 current rates could be extended through the proposed rate approval period. The current revenue
2 test, described in section 3.2 of this Study, demonstrates that revenues from current rates will not
3 recover the generation revenue requirement for the rate period. The revised revenue test, which
4 is performed after calculation of the proposed power rates, determines whether projected
5 revenues from proposed rates meet cost recovery requirements and objectives for the rate test
6 and repayment periods. The revised revenue test, contained in section 3.3 of this Study,
7 demonstrates that revenues from the proposed power rates will recover generation costs in the
8 rate period and over the ensuing 50-year repayment period. Rate period costs are projected to be
9 recovered with a very high confidence level, meeting BPA's 95 percent probability standard that
10 all U.S. Treasury payments will be paid on time and in full.

11
12 Table 1 summarizes the revised revenue test and shows projected net revenues from proposed
13 power rates for FY 2012–2013. These net revenues are the lowest level necessary to achieve
14 BPA's cost recovery objectives, when combined with other risk mitigation tools, given hydro
15 condition uncertainty, market price volatility, and other risks.

16
17 Table 2 shows planned generation amortization payments to the U.S. Treasury during the rate
18 period and irrigation assistance payments that are due to be paid from power revenues.

19 20 **1.2 Legal Requirements**

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

1 **1.2.1 Governing Statutes**

2 BPA’s revenue requirements are governed primarily by four statutes: The Bonneville Project
3 Act of 1937, P.L. No. 75-329, 50 Stat. 731; the Flood Control Act of 1944, P.L. No. 78-534,
4 58 Stat. 890, amended 1977; the Federal Columbia River Transmission System Act
5 (Transmission System Act) of 1974, P.L. No. 93-454, 88 Stat. 1376; and the Pacific Northwest
6 Electric Power Planning and Conservation Act (Northwest Power Act), P.L. No. 96-501,
7 94 Stat. 2697. Other statutory provisions that guide the development of BPA’s revenue
8 requirements include the Federal Power Act, as amended by the Energy Policy Act of 1992
9 (EPA-92), P.L. No. 102-486, 106 Stat. 2776; the Colville Settlement Act, P.L. No. 103-436,
10 108 Stat. 4577; and the Omnibus Consolidated Rescissions and Appropriations Act of 1996,
11 P.L. No. 104-134, 110 Stat. 132. DOE Order “Power Marketing Administration Financial
12 Reporting,” RA 6120.2, issued by the Secretary of Energy, provides guidance to Federal power
13 marketing agencies regarding repayment of the Federal investment.

14
15 **1.2.2 Legal Requirements Governing the FCRPS Revenue Requirement**

16 BPA’s power rates must be set in a manner that ensures revenue levels sufficient to recover fully
17 BPA’s generation costs. This requirement is set forth in section 7 of the Bonneville Project Act,
18 16 U.S.C. § 832f (amended 1977):

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

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

4 [A]t levels to produce such additional revenues as may be required, in the
5 aggregate with all other revenues of the Administrator, to pay when due
6 the principal of, premiums, discounts, and expenses in connection with the
7 issuance of and interest on all bonds issued and outstanding pursuant to
8 this Act, and amounts required to establish and maintain reserve and other
9 funds and accounts established in connection therewith.

10
11 Similarly, section 7(a)(1) of the Northwest Power Act, 16 U.S.C. § 839e(a)(1), provides:

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

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

4 Rates established under this section shall become effective only, except in
5 the case of interim rules as provided in subsection (i)(6) of this section,
6 upon confirmation and approval by the Federal Energy Regulatory
7 Commission upon a finding by the Commission, that such rates—

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

15
16 In addition to reiterating and clarifying the cost recovery principle, the Northwest Power Act
17 provides BPA with supplementary authority to sell bonds to the U.S. Treasury to finance BPA’s
18 new conservation and renewable resource programs. 16 U.S.C. § 838i. The Energy Policy Act
19 of 1992 clarifies BPA’s authority to provide funds directly to the U.S. Army Corps of Engineers
20 (USACE) and U.S. Bureau of Reclamation (Reclamation) for hydroelectric generation additions,
21 improvements, and replacements, as well as O&M expenses. P.L. No. 102-486, 1992 U.S. Code
22 Cong. & Admin. News, 106 Stat. 2776. Other provisions that have particular relevance to the
23 repayment of power costs can be found in the Reclamation Project Act of 1939 (codified as
24 amended in scattered sections of 43 U.S.C.) and the Grand Coulee Dam – Third Powerplant Act
25 of June 14, 1966, P.L. No. 89-448, 80 Stat. 200, authorizing construction of the Grand Coulee
26 Dam Third Powerhouse; and P.L. No. 89-561, 80 Stat. 707, Act of September 7, 1966, which

1 partially amended P. L. No. 89-448. The costs associated with these projects and programs, as
2 well as the other costs incurred by the Administrator in furtherance of BPA's mission, are
3 included in this Study.

4 5 **1.2.3 Colville Settlement Act Credits**

6 The Confederated Tribes of the Colville Reservation Grand Coulee Dam Settlement Act
7 approves and ratifies the Settlement Agreement entered into by the United States and the
8 Confederated Tribes of the Colville Reservation (Colville Tribes) related to the claims for a
9 portion of the revenues from Grand Coulee Dam, and directs BPA to carry out its obligations
10 under the Settlement Agreement. P. L. No. 103-436, Nov. 2, 1994, 108 Stat. 4577.

11
12 The Settlement Agreement obligates BPA to make annual payments to the Colville Tribes.
13 Payments have been tied to BPA's average prices and the amount of annual generation from
14 Grand Coulee Dam. Under the Refinancing Act, part of the Omnibus Consolidated Rescissions
15 and Appropriations Act of 1996, P.L. No. 104-134, 110 Stat. 1321, BPA receives annual credits
16 from the U.S. Treasury against payments due the U.S. Treasury in order to defray a portion of
17 the costs of making payments to the Colville Tribes. The annual payments to the Colville Tribes
18 are forecast to be \$21.9 million in FY 2012 and \$22.1 million in FY 2013. The credits for the
19 FY 2012–2013 rate period are \$4.6 million in each fiscal year.

20 21 **1.2.4 The BPA Appropriations Refinancing Act**

22 As in prior rate periods, BPA's power rates for the FY 2012–2013 rate period will reflect the
23 requirements of the Refinancing Act, part of the Omnibus Consolidated Rescissions and
24 Appropriations Act of 1996, 16 U.S.C. § 838l, P.L. No. 104-134, 110 Stat. 1321. The
25 Refinancing Act required that unpaid principal on FCRPS appropriations (old capital
26 investments) at the end of FY 1996 be reset at the present value of the principal and annual

1 interest payments BPA would make to the U.S. Treasury for these obligations absent the
2 Refinancing Act, plus \$100 million. *Id.* at § 8381(b)(I). The Refinancing Act also specifies that
3 the new principal amounts of the old capital investments be assigned new interest rates from the
4 U.S. Treasury yield curve prevailing at the time of the refinancing transaction. *Id.*
5 at § 8381(a)(6)(A).

6
7 The Refinancing Act specifies that repayment periods on new principal amounts may not be
8 earlier than determined prior to the refinancing. *Id.* at § 8381(d).

9
10 The Refinancing Act specifies that the prevailing U.S. Treasury yield curve will be used to
11 calculate interest during construction (IDC) and to assign interest rates to new capital
12 investments funded by appropriations. 16 U.S.C. § 8381(f). New capital investments are defined
13 as capital investments funded by appropriations for a project placed in service after
14 September 30, 1996. *Id.* at § 8381(a)(3). The IDC in each fiscal year of construction for new
15 capital investments is the prevailing one-year U.S. Treasury rate. *Id.* at § 8381(f)(1). The IDC is
16 capitalized and included in the principal. After the plant is completed, the principal amount is
17 assigned an interest rate based on the U.S. Treasury yield curve prevailing in the year in which
18 the plant is placed in service. *Id.* at § 8381(g).

19
20 The U.S. Treasury rate for new capital investments prescribed in the Refinancing Act is:

21 [A] rate determined by the Secretary of the Treasury, taking into
22 consideration prevailing market yields, during the month preceding the
23 beginning of the fiscal year in which the [new investment] ... is placed in
24 service, on outstanding interest bearing obligations of the United States
25
26

1 with periods to maturity comparable to the period between the beginning
2 of the fiscal year and the repayment date for the new capital investment.

3 16 U.S.C. § 8381(a)(6)(B).
4

5 The Refinancing Act also directs the Administrator to offer to provide assurance in new or
6 existing power, transmission, or related service contracts that the government would not increase
7 the repayment obligations in the future. 16 U.S.C. § 8381(i). The Refinancing Act also amends
8 the Colville Settlement Act to modify the amount and timing of certain credits that BPA takes
9 against its annual cash transfers to U.S. Treasury.
10

11 **1.2.5 Allocation of FCRPS Costs**

12 The individual generating projects comprising the FCRPS serve purposes in addition to power
13 production, including navigation, irrigation, recreation, and flood control. The total costs of
14 these Federal projects are generally allocated according to the purposes they serve.
15

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

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

25 *Id.*
26

1 Similar allocations for Reclamation projects constructed pursuant to various authorizing statutes
2 have been performed by the Secretary of the Interior under the authority of 43 U.S.C.
3 § 485h(a)-(b). Cost allocations for projects constructed by the USACE have been performed by
4 the Secretary of the Army and approved by the Federal Power Commission (the predecessor to
5 the Federal Energy Regulatory Commission).

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

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

18 19 **1.2.6 Section 4(h)(10)(C) Credit**

20 The Northwest Power Act provides that:

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

26 16 U.S.C. § 839b(h)(10)(A).

1 BPA is not obligated to reimburse the U.S. Treasury for the non-power portion of these fish and
2 wildlife costs. Such non-power costs are instead allocated to the various project purposes by the
3 BPA Administrator, in consultation with the USACE and Reclamation, pursuant to
4 section 4(h)(10)(C) of the Northwest Power Act. 16 U.S.C. § 839b(h)(10)(C). This allocation to
5 various project purposes implements the principle that electric power consumers bear no greater
6 share of the costs of fish and wildlife mitigation than the power portion of the project.

7
8 The legislative history of section 4(h)(10)(C) illustrates how the expenditures by the
9 Administrator for protection, mitigation, and enhancement of fish and wildlife at individual
10 Federal projects in excess of the portion allocable to electric consumers are to be treated as a
11 credit for electric consumers. H.R. Rep. No. 976, 96th Cong., 2d Sess., pt. 2 at 45 (1980),
12 *reprinted in* 1980 U.S.C.C.A.N. 5989, 6011. This principle is satisfied by treating expenditures
13 on behalf of non-power purposes as other project costs. These amounts are regarded as having
14 been applied toward other project costs properly allocable to the generation function and payable
15 to the U.S. Treasury. Thus, BPA receives a credit against its cash transfers to the U.S. Treasury
16 for expenditures attributable to other project purposes. BPA's initial funding of all the costs for
17 fish and wildlife has the advantage of avoiding the need for funding the non-power portion of
18 these costs through the annual appropriations process.

19 20 **1.2.7 Equitable Allocation of Transmission Costs**

21 In an order dated January 27, 1984, *United States Department of Energy – Bonneville Power*
22 *Admin.*, 26 FERC ¶ 61,096 (1984), the Commission directed BPA to, among other things,
23 develop separate repayment studies for the generation and transmission functions of the FCRPS.
24 The purpose of this requirement was to assist the Commission in making the determination
25 required under section 7(a)(2)(C) of the Northwest Power Act (16 U.S.C. § 839e(a)(2)(C)) that
26 transmission costs be equitably allocated between Federal and non-Federal uses of the

1 transmission system. This requirement has given BPA a 25-year history of conducting separate
2 repayment studies for the transmission and generation functions, which has enabled BPA to set
3 power and transmission rates separately with minimal change in repayment policy and
4 development of each revenue requirement. Consistent with the decision to separate the rates for
5 the transmission and generation functions beginning with the WP-02 proceeding, this Power
6 Revenue Requirement Study incorporates only the repayment study for the generation function
7 of the FCRPS for FY 2012–2013. The Transmission Revenue Requirement Study, BP-12-FS-
8 BPA-07, incorporates the repayment study for the transmission function.

10 **1.2.8 Repayment Requirements and Policies**

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

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

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

1 Accordingly, in a repayment study there is no annual schedule of capital
2 repayment. The test of the sufficiency of revenues is whether the capital
3 investment can be repaid within the overall repayment period established
4 for each power project, each increment of investment in the transmission
5 system, and each block of irrigation assistance. Hence, repayment may
6 proceed at a faster or slower pace from year-to-year as conditions change.
7 This approach to repayment scheduling has the effect of averaging the
8 year-to-year variations in costs and revenues over the repayment period.
9 This results in a uniform cost per unit of power sold, and permits the
10 maintenance of stable rates for extended periods. It also facilitates the
11 orderly marketing of power and permits Bonneville Power
12 Administration's customers, which include both electric utilities and
13 electro-process industries, to plan for the future with assurance.

14
15 The Secretary of the Interior issued a statement of power policy on September 30, 1970, setting
16 forth general principles that reaffirmed the repayment policy as previously developed. The most
17 pertinent of these principles are set forth in the Department of the Interior (DOI) Manual,
18 Part 730, Chapter 1:

- 19 A. Hydroelectric power, although not a primary objective, will be
20 proposed to Congress and supported for inclusion in multiple-
21 purpose Federal projects when ... it is capable of repaying its share
22 of the Federal investment, including operation and maintenance
23 costs and interest, in accordance with the law.
- 24 B. Electric power generated at Federal projects will be marketed at
25 the lowest rates consistent with sound financial management.
26 Rates for the sale of Federal electric power will be reviewed

1 periodically to assure their sufficiency to repay operating and
2 maintenance costs and the capital investment within 50 years with
3 interest that more accurately reflects the cost of money.
4

5 To achieve a greater degree of uniformity in a repayment policy for all DOI power marketing
6 agencies, of which BPA was one at the time, the Deputy Assistant Secretary of the Interior
7 issued a memo on August 2, 1972, outlining: (1) a uniform definition of the commencement of
8 the repayment period for a particular project; (2) the method for including future replacement
9 costs in repayment studies; and (3) a provision that the investment or obligation bearing the
10 highest interest rate shall be amortized first, to the extent possible, while still complying with the
11 repayment period established for each increment of investment.
12

13 A further clarification of the repayment policy was outlined in a joint memo of January 7, 1974,
14 from the Assistant Secretary for Reclamation and Assistant Secretary for Energy and Minerals.
15 This memo states that, in addition to meeting the overall objective of repaying the Federal
16 investment or obligations within the prescribed repayment periods, revenues shall be adequate,
17 except in unusual circumstances, to repay annually all costs for O&M, purchased power, and
18 interest.
19

20 On March 22, 1976, the DOI issued Chapter 4 of Part 730 of the DOI Manual to codify financial
21 reporting requirements for the DOI power marketing agencies. Included therein are standard
22 policies and procedures for preparing system repayment studies.
23

24 BPA and other former DOI power marketing agencies were transferred to the newly established
25 DOE on October 1, 1977. *See* DOE Organization Act, 42 U.S.C. § 7101 *et seq.* (1994). The
26 DOE adopted the policies set forth in Part 730 of the DOI Manual by issuing Interim

1 Management Directive No. 1701 on September 28, 1977, which was subsequently replaced by
2 RA 6120.2 on September 20, 1979, as amended on October 1, 1983.

3
4 The repayment policy outlined in RA 6120.2, paragraph 12, provides that BPA's total revenues
5 from all sources must be sufficient to:

- 6 (1) Pay all annual costs of operating and maintaining the Federal
7 power system;
- 8 (2) Pay the cost each fiscal year of obtaining power through purchase
9 and exchange agreements, the cost for transmission services, and
10 other costs during the year in which such costs are incurred;
- 11 (3) Pay interest each year on the unamortized portion of the
12 commercial power investment financed with appropriated funds at
13 the interest rates established for each generating project and for
14 each annual increment of such investment in the BPA transmission
15 system, except that recovery of annual interest expense may be
16 deferred in unusual circumstances for short periods of time;
- 17 (4) Pay when due the interest and amortization portion on outstanding
18 bonds sold to the U.S. Treasury;
- 19 (5) Repay:
 - 20 • each dollar of power investments and obligations in the
21 FCRPS generating projects within 50 years after the
22 projects become revenue-producing (50 years has been
23 deemed a "reasonable period" as intended by Congress,
24 except for the Yakima-Chandler Project, which has a
25 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.

1 Irrigation costs are repaid without interest. P.L. No. 89-448 authorizes the payment of irrigation
2 costs from revenues of the entire power system. This is consistent with the so-called “Basin
3 Account” concept. P.L. No. 89-561, approved on September 7, 1966, amended P.L. No. 89-448
4 to provide several limitations on the repayment of irrigation costs from power revenues. These
5 limitations are:

- 6 (1) the irrigation costs are to be paid from “net revenues” of the power
7 system, with net revenues defined as those revenues over and
8 above the amount needed to cover power costs and previously
9 authorized irrigation payments;
- 10 (2) the construction of new Federal irrigation projects will be
11 scheduled, *i.e.*, deferred, if necessary, so that the repayment of the
12 irrigation costs from power revenues will not require an increase in
13 the BPA power rate level; and
- 14 (3) the total amount of irrigation costs to be repaid from power
15 revenues shall not average more than \$30 million per year in any
16 period of 20 consecutive years.

17
18 In addition, other sections within RA 6120.2 require that any outstanding deferred interest
19 payments must be repaid before any planned amortization payments are made. Also, repayments
20 are to be made by amortizing those Federal investments and obligations bearing the highest
21 interest rate first, to the extent possible, while still completing repayment of each increment of
22 Federal investment and obligation within its prescribed repayment period.

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

2
3 **2.1 Spending Level Development**

4 The development of program spending levels occurs outside the rate process in the Integrated
5 Program Review (IPR), which provides customers and constituents with an opportunity to
6 examine, understand, and comment on BPA’s cost projections for BPA’s power and transmission
7 functions. BPA began the 2010 IPR for FY 2012–2013 program levels on May 10, 2010, with
8 an opening workshop containing an overview of all Power Services and Transmission Services
9 proposed spending levels for FY 2011–2013. After the opening workshop, BPA held 19
10 technical workshops and two managerial-level workshops through September 3, 2010. These
11 workshops were held to discuss the projected spending levels and capital programs of the
12 Columbia Generating Station (CGS); USACE; USBR; BPA’s conservation, renewables, and fish
13 and wildlife programs; Power Services internal operations; BPA’s transmission purchases and
14 ancillary services program; and BPA corporate costs. While Federal and non-Federal debt
15 management issues are not decided in the IPR, workshops were held on these topics because
16 BPA believes it is important for participants to understand the implications of past debt
17 management decisions and proposed capital spending levels.

18
19 On July 13, 2010, BPA released an IPR draft report for public review and comment. After
20 considering the comments received, BPA released a final letter and report on October 27, 2010.
21 This Study incorporates the spending levels identified in the IPR final report, which can be found
22 on BPA’s public Web site: Finance & Rates—Integrated Business Review—Integrated Program
23 Review.

1 **2.2 Capital Funding**

2 The forecast of BPA’s capital investments for FY 2012–2013 used in setting the BP-12 power
3 rates was produced in the IPR. The following section describes the forecasts developed in the
4 IPR and includes a 15 percent “lapse factor,” recognizing that timing of some planned capital
5 spending may be stretched into the following rate period. The lapse factor was applied to all
6 programs except the Fish and Wildlife Program, Energy Efficiency, and CGS. FCRPS capital
7 investments include USACE, USBR, and BPA capital investments as well as third-party resource
8 investments for which debt is secured by BPA (capitalized contracts). Projections of current
9 FCRPS capital outlays are \$1,613 million for the cost evaluation period of FY 2011-2013. These
10 investments include:

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

18
19 Table 3 provides a detailed breakout of investment projections for the cost evaluation period.
20 This Study projects that no capital investments will be funded from current revenues.

21
22 **2.2.1 Bonds Issued to the U.S. Treasury**

23 Bonds issued to the U.S. Treasury are the source of capital that will be used to finance BPA’s
24 FY 2012–2013 capital program and USACE and USBR investments that BPA has agreed to
25 direct-fund under section 2406 of P.L. No. 102-486, 16 U.S.C. § 839d-1. These expenditures
26 include a projection of \$1,187 million, split among BPA Fish and Wildlife direct program

1 investments (\$190 million), conservation investments (\$305 million), BPA capital equipment
2 (\$56 million), and generating resource investments of the USACE and Reclamation
3 (\$636 million) during FY 2012–2013.

4
5 Interest rates on bonds issued by BPA to the U.S. Treasury are set at market interest rates
6 comparable to interest rates on securities issued by other agencies of the U.S. Government.
7 Interest rates on bonds projected to be issued are included in Chapter 6 of the Documentation.

8 9 **2.2.2 Federal Appropriations**

10 In general, the Study reflects that all USACE and USBR capital investments in the FCRPS will
11 be financed by Federal appropriations unless they are direct-funded by BPA. This Study
12 includes projected appropriated investments totaling \$426 million during the rate period for
13 USACE fish and wildlife mitigation and recovery measures through the Columbia River Fish
14 Mitigation (CRFM) project. No other appropriations-financed investments are forecast for the
15 rate period. Capital investments funded by this source do not become BPA’s obligation to repay
16 until placed in service.

17
18 The interest rate forecast for appropriated capital investments expected to be placed in service is
19 found in Chapter 6 of the Documentation. Each new capital investment is assigned a rate from
20 the U.S. Treasury yield curve prevailing in the month prior to the beginning of the fiscal year in
21 which the new investment is placed in service.

22
23 To determine interest during construction for new capital investments for a given fiscal year, the
24 prevailing U.S. Treasury one-year rate for each fiscal year of construction is applied to the sum
25 of the cumulative expenditures made and interest during construction that has accrued prior to
26 the end of the fiscal year. Study Chapter 5 and Documentation, Chapter 9.

1 **2.2.3 Third-Party Debt**

2 Third-party debt differs from U.S. Treasury debt in that entities other than BPA or the U.S.
3 Treasury issue the debt. BPA’s promise to make payments serves as security for bonds or other
4 debt that the third party issues, resulting in wider market access and potentially more favorable
5 interest rates for the seller. Examples of acquisitions financed in this way include the Energy
6 Northwest, Inc. (EN) WNP-1, WNP-3, and CGS nuclear power projects and the Lewis County
7 Public Utility District Hydroelectric project (Cowlitz Falls). This Study includes debt service on
8 projected CGS capital investments and nuclear fuel purchases by EN that were financed by
9 issuing bonds in FY 2011. This Study also includes the restructuring of EN debt as described in
10 the regional conversations section of the 2010 IPR final report and executed in FY 2011.

11
12 **2.3 Debt Optimization Program**

13 After base power rates were filed for the FY 2002–2006 rate period, BPA instituted a Debt
14 Optimization Program (DOP) with EN as a means of replenishing Treasury borrowing authority.
15 Debt Optimization (DO) involves extending EN debt that has come due and using the cash flows
16 that would have gone to pay the EN debt to repay an equivalent amount of Federal debt. The
17 program has resulted in a considerable amount of Federal debt, primarily bonds issued to
18 Treasury but also some Congressional appropriations, being paid well in advance of the
19 amortization schedules established in the WP-02 rate filing. As the program continued during
20 FY 2007–2009, additional advance amortization was created, compared to the schedules that
21 would have been established without DO, for the subsequent rate periods through FY 2012.
22 Effectively, the extension of EN debt into FY 2013–2018 has advanced the repayment of Federal
23 debt relative to the amount that otherwise would have been paid in that period. BPA has
24 committed to EN that it would follow this program, matching dollar for dollar the repayment of
25 Federal obligations in the same year in which EN debt has been extended, absent dire financial
26

1 circumstances that might cause some delay in the payment of the advanced portion of the
2 amortization.

3
4 This Study includes EN debt refinancing transactions completed through FY 2009. BPA has
5 ended the DO program, and no forecasts of DO actions are included in the proposed rates.
6 However, in establishing amortization schedules for FY 2012–2013, EN bonds that were
7 refinanced in FY 2001–2002 more than 90 days in advance of their due dates, known as
8 advanced refundings, are taken into account in preparing repayment studies in order to fulfill the
9 commitment for the dollar-for-dollar repayment of Federal obligations. The total planned annual
10 amortization is derived through a two-phase repayment study procedure. A base level of
11 amortization is established for each year of the rate period as though EN advanced refundings
12 had not occurred. The additional amortization amount equivalent to the EN principal advance
13 refinanced in each year is then added to the base schedule. Table 2 shows the composition of the
14 resulting planned annual amortization payments.

15 16 **2.4 Modeling of BPA’s Repayment Obligations**

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

22
23 In conducting the repayment studies, BPA includes as fixed inputs the annual debt service
24 payments associated with its capitalized contract obligations and the fixed annual payments
25 associated with long-term energy resource acquisition contracts. All outstanding and projected
26 generation repayment obligations for appropriated investments (including irrigation assistance)

1 and bonds issued to the U.S. Treasury are included to be scheduled for repayment. Funding for
2 replacements projected during the repayment period are also included in the repayment study,
3 consistent with the requirements of RA 6120.2.

4
5 Appropriations are scheduled to be repaid within the expected useful life of the associated
6 facility, or 50 years, whichever is less. USACE and USBR project replacements funded by
7 appropriations and placed in service in 1994 or later have repayment periods that are set at the
8 weighted average service life of all replacements going into service at that project in that year.

9
10 Bonds issued by BPA to the U.S. Treasury may include three-year to 45-year terms, taking into
11 account the estimated average service lives for investments and prudent financing and cash
12 management factors. Some bonds are issued with a provision that allows the bond to be called
13 after a certain time, typically five years. Bonds may also be issued with no early call provision.
14 Early retirement of eligible bonds requires that BPA pay a bond premium to the U.S. Treasury.
15 In addition, the interest rate that BPA pays on callable bonds is higher than the interest rate on
16 non-callable bonds issued at the same time.

17
18 Bonds are issued to finance BPA conservation acquisitions, the Fish and Wildlife Program, and
19 USACE and Reclamation investments that are direct-funded by BPA. These bonds are repaid
20 within the terms and conditions of each bond issued to the U.S. Treasury. Bonds to finance fish
21 and wildlife capital investments are issued with maturities not to exceed 15 years, the same
22 period over which BPA amortizes these capital investments. USACE and USBR direct-funding
23 bonds are issued with maturities not to exceed 45 years. Conservation bonds are issued with
24 maturities that are consistent with the period over which BPA amortizes these capital
25 investments. Currently, BPA has four amortization schedules for conservation assets.
26 Investments made prior to FY 2002, referred to as the Conservation Legacy program, have a

1 straight-line, 20-year amortization period. Investments made beginning in FY 2007, known as
2 Conservation Acquisition investments, have a straight-line five-year amortization period.
3 Investments made beginning with FY 2011 have a straight-line 12-year amortization period.
4 Investments made from FY 2002 through FY 2006, known as Conservation Augmentation
5 investments, had a declining 10-year amortization period to be completed by 2011, so they will
6 have been fully amortized by the beginning of the rate period.

7
8 Based on these parameters, the repayment study establishes a schedule of planned amortization
9 payments and resulting interest expense by determining the lowest levelized debt service stream
10 necessary to repay all generation obligations within the required repayment period.

11
12 Further discussion of the repayment program and tables is included in Chapter 17 of the
13 Documentation.

14 15 **2.5 Products Used by Other Studies**

16 The Revenue Requirement Study produces information that is used in other studies. The
17 information provided to the Rate Analysis Model (RAM2012) includes itemized program
18 spending data; the allocation of net interest, minimum required net revenues, and PNRR into cost
19 pools; and the allocation of interest income between the Composite cost pool and the Non-Slice
20 cost pool. The Revenue Requirement Study also provides the embedded costs used for the
21 calculation of generation input costs.

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1 the shortfall, yielding at least zero Annual Increase in Cash (Line 22). The MRNR amounts
2 shown on the Statement of Cash Flow (Line 2) are then incorporated in the Income Statement
3 (Table 4, Line 31).

4 5 **3.2 Current Revenue Test**

6 Consistent with RA 6120.2, the continuing adequacy of existing rates must be tested annually.
7 The current revenue test, exhibited in Tables 6 and 7, determines whether the revenue expected
8 from current rates can continue to meet cost recovery requirements, thus allowing the current
9 rates to be extended. The test in this Study incorporates the impact of the 2012 Residential
10 Exchange Program (REP) Settlement Agreement, which is being adopted by the Administrator,
11 as well as the changes due to the adoption of a new rate design. Revenue at current rates can be
12 found in the Power Rates Study (PRS) Documentation, BP-12-FS-BPA-01A. The result of the
13 current revenue test demonstrates that projected revenue from current rates is inadequate to meet
14 the cost recovery criteria of RA 6120.2 over the repayment period. See Table 8, column K. If
15 revenues from current rates were adequate, current rates could be extended, although other
16 reasons may exist for revising rates, such as the implementation of a new rate design, which BPA
17 is doing in this rate case.

18 19 **3.3 Revised Revenue Test**

20 Consistent with RA 6120.2, the adequacy of proposed rates must be demonstrated. The revised
21 revenue test determines whether the revenue projected from proposed rates will meet cost
22 recovery requirements, as well as BPA's Treasury Payment Probability (TPP) standard for the
23 rate period. The revised revenue test is conducted using the forecast of revenue under proposed
24 rates. PRS Documentation, BP-12-FS-BPA-05A, section 2.6. The test for this Study
25 incorporates the impact of the 2012 RE P Settlement Agreement. The test also includes changes
26 in expenses that are an outcome of the rate development process.

1 For the FY 2012–2013 rate period, to accommodate unique cash requirement constraints in
2 FY 2013, \$15.5 million of cash earned in FY 2012 in excess of planned expenses and cash
3 requirements has been considered encumbered in Power reserves for application against
4 scheduled FY 2013 Federal principal payments. *See* Table 10, line 7. This is similar to creating
5 a sinking fund for debt service, except that this will last for only one year and will be applied
6 only against principal payments. This accommodation was made because the cash flow from
7 expected revenue in FY 2013 is significantly lower than the cash required in that year.
8 Typically, a shift of planned amortization would be performed to balance the cash requirements
9 with the annual cash flows. However, amortization cannot be moved from FY 2013 because the
10 only obligations scheduled for repayment in that year are bonds that are not callable.
11 Consequently, the cash flow has been reshaped between the two years without changing the total
12 cash flow for the rate period. Rate period revenues are able to recover in full all of the rate
13 period costs.

14
15 For the rate period, the demonstration of the adequacy of proposed rates is shown in Table 9,
16 Generation Revised Revenue Test Income Statement, and Table 10, Generation Revised
17 Revenue Test Statement of Cash Flow. Table 10 tests the sufficiency of the resulting Net
18 Revenues from Table 9 (Line 32) for making the planned annual amortization and irrigation
19 assistance payments and achieving the Administrator’s financial objectives. The sufficiency of
20 net revenues is demonstrated by the Annual Increase (Decrease) in Cash (Table 10, Line 24).
21 The annual cash flow must be at least zero to demonstrate the adequacy of the projected revenues
22 to cover all cash requirements.

23
24 The results of the revised revenue test demonstrate that proposed rates are adequate to fulfill the
25 basic cost recovery requirements and meet risk mitigation policy for the rate period, FY 2012–
26 2013. With the successful test of proposed rates, the rate development process ends.

1 **3.4 Repayment Test at Proposed Rates**

2 Table 11, Generation Revenue from Proposed Rates, demonstrates whether projected revenue
3 from proposed rates is adequate to meet the cost recovery criteria of RA 6120.2 over the
4 repayment period. The data are presented in a format consistent with the revised revenue tests,
5 Tables 9 and 10, and separate accounting analysis which is a separate attachment to the filing
6 with the Commission. The focal point of these tables is the Net Position (Column K), which is
7 the amount of funds provided by revenues that remain after meeting annual expenses requiring
8 cash for the rate period and repayment of the Federal investment. Thus, if the Net Position is
9 zero or greater in each of the years of the rate period through the repayment period, the projected
10 revenues demonstrate BPA's ability to repay the Federal investment in the FCRPS within the
11 allowable time. As shown in Column K, the resulting Net Position is zero or greater for each
12 year of the rate period and in each year of the repayment period.

13
14 The historical data on this table have been taken from BPA's separate accounting analysis. The
15 rate period data have been developed specifically for this Study. The repayment period data are
16 presented consistent with the requirements of RA 6120.2. Typically, the revenue test through the
17 repayment period uses expenses from the last year of the rate period. In this case, expenses for
18 the CGS nuclear plant are normalized because it is on a two-year refueling cycle, which results
19 in low costs in the first year and high costs in the second year. FY 2013 is a refueling year for
20 CGS, which increases O&M costs for the facility and power purchase costs to make up for the
21 loss of generation during the refueling. The projection of these outage costs in every year of the
22 repayment period would misrepresent the costs associated with the CGS refueling cycle. For the
23 purposes of this revenue test, these CGS costs for FY 2012 and FY 2013 have been averaged to
24 produce an average annual cost for the operation of CGS for the rate period. Augmentation
25 purchases are also averaged in this fashion because of the higher costs in FY 2013 to make up for
26 lost CGS generation.

1 Table 12, Amortization of Generation Investments Over Repayment Period, summarizes the
2 amortization of Federal investments over the entire repayment period. It displays the total
3 investment costs of the generating projects through the cost evaluation period, forecast
4 replacements required to maintain the system through the repayment period, the cumulative
5 dollar amount of the generation investment placed in service, scheduled amortization payments
6 for each year of the repayment period (due and discretionary), unamortized investments
7 including replacements through the repayment period, unamortized obligations as determined by
8 a term schedule (if all obligations were paid at maturity and never early), and the predetermined
9 amortization payments and the unamortized amount of irrigation assistance for each year of the
10 repayment period.

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TABLES

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

	A	B	C
	FY 2012	FY 2013	Average
1 Projected Revenues from Proposed Rates	\$ 2,771,494	\$ 2,836,069	\$ 2,803,782
2 Projected Expenses	<u>2,718,349</u>	<u>2,837,576</u>	<u>2,777,963</u>
3 Net Revenues	\$ 53,145	\$ (1,507)	\$ 25,819

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

		A	B	C	D
	Fiscal Year	Base	Advanced	Total	Irrigation
		Amortization	Amortization	Amortization	Assistance
1	2012	\$140,000	\$53,000	\$193,000	\$1,182
2	2013	<u>\$122,800</u>	<u>\$0</u>	<u>\$122,800</u>	<u>\$58,822</u>
3	Total	\$262,800	\$53,000	\$315,800	\$60,004

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

	A	B	C	
	FY 2011	FY 2012	FY 2013	
POWER				
<u>Capital Requirements for Revenue Producing Investments</u>				
1	Corps & Reclamation Additions/Replacements - Direct Funded	200,000	211,051	225,694
2	PBL Capital Equipment	14,000	21,399	20,326
3	CGS: Additions/Replacements	10,000	60,000	60,000
4	Annual Capital Requirements for Revenue Producing Investments	224,000	292,450	306,020
<u>Capital Requirements for Non-Revenue Producing and Public Benefit Investments</u>				
5	Energy Conservation	90,000	104,000	111,000
6	Fish Investment			
7	BPA Fish and Wildlife Investment	90,000	50,000	50,000
8	Corps & Reclamation Fish Investment - Appropriations	205,834	103,279	116,473
9	Total Fish Investment	<u>295,834</u>	<u>153,279</u>	<u>166,473</u>
10	Other Third-Party	-	-	-
11	Annual Capital Req. for Non-Rev. & Public Benefit Invests.	385,834	257,279	277,473
12	ANNUAL FUNDING REQUIREMENTS FOR POWER	609,834	549,729	583,493
13	CUMULATIVE FUNDING REQUIREMENTS FOR POWER	609,834	1,159,563	1,743,056

Table 4: Generation Revenue Requirement Income Statement
(\$000s)

	A	B
	2012	2013
1 OPERATING EXPENSES		
2 POWER SYSTEM GENERATION RESOURCES		
3 OPERATING GENERATION	652,117	707,368
4 OPERATING GENERATION SETTLEMENTS	21,928	22,148
5 NON-OPERATING GENERATION	1,938	1,948
6 CONTRACTED POWER PURCHASES	102,254	98,755
7 AUGMENTATION POWER PURCHASES	0	66,150
8 EXCHANGES & SETTLEMENTS	1,446	885
9 RENEWABLE GENERATION	40,667	41,456
10 GENERATION CONSERVATION	46,950	47,850
11 CONSERVATION RATE CREDIT	0	0
12 POWER NON-GENERATION OPERATIONS	81,393	83,126
13 PS TRANSMISSION ACQUISITION AND ANCILLARY SERVICES	160,516	157,184
14 F&W/USF&W/PLANNING COUNCIL	276,610	281,944
15 BPA INTERNAL SUPPORT	68,978	70,483
16 OTHER INCOME, EXPENSES AND ADJUSTMENTS	0	0
17 NON-FEDERAL DEBT SERVICE	570,970	541,586
18 DEPRECIATION	122,169	127,560
19 AMORTIZATION	81,029	86,767
20 TOTAL OPERATING EXPENSES	2,228,966	2,335,209
21 INTEREST EXPENSE		
22 INTEREST		
23 FEDERAL APPROPRIATIONS	221,866	222,715
24 CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
25 BORROWINGS FROM U.S. TREASURY	57,681	74,830
26 AMORTIZATION OF CAPITALIZED BOND PREMIUMS	185	185
27 ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION	(12,511)	(13,592)
28 INTEREST INCOME	(12,481)	(16,654)
29 NET INTEREST EXPENSE	208,802	221,546
30 TOTAL EXPENSES	2,437,768	2,556,756
31 MINIMUM REQUIRED NET REVENUES 1/	40,260	16,571
32 PLANNED NET REVENUES FOR RISK	0	0
33 PLANNED NET REVENUES, TOTAL (31+32)	40,260	16,571
34 TOTAL REVENUE REQUIREMENT	2,478,028	2,573,327

1/ See note to statement of cash flows

Table 5: Generation Revenue Requirement Statement of Cash Flow
(\$000s)

	A	B
	2012	2013
1 CASH PROVIDED BY OPERATING ACTIVITIES		
2 MINIMUM REQUIRED NET REVENUES 1/	40,260	16,571
3 NON-CASH ITEMS:		
4 DEPRECIATION AND AMORTIZATION	203,198	214,327
5 AMORTIZATION OF CAPITALIZED BOND PREMIUMS	185	185
6 CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
7 ACCRUAL REVENUES	(3,524)	(3,524)
8 CASH PROVIDED BY OPERATING ACTIVITIES	194,182	181,622
9 CASH USED FOR INVESTMENT ACTIVITIES		
10 INVESTMENT IN:		
11 FEDERAL UTILITY PLANT (INCLUDING AFUDC)	(357,948)	(402,939)
12 CONSERVATION	(104,000)	(111,000)
13 FISH & WILDLIFE	(50,000)	(50,000)
14 CASH USED FOR INVESTMENT ACTIVITIES	(511,948)	(563,939)
15 CASH FROM (AND USED FOR) FINANCING ACTIVITIES		
16 INCREASE IN TREASURY BORROWINGS	408,669	447,466
17 REPAYMENT OF TREASURY BORROWINGS	(140,000)	(122,800)
18 INCREASE IN FEDERAL CONSTRUCTION APPROPRIATIONS	103,279	116,473
19 REPAYMENT OF FEDERAL CONSTRUCTION APPROPRIATIONS	(53,000)	0
20 PAYMENT OF IRRIGATION ASSISTANCE	(1,182)	(58,822)
21 CASH USED FOR FINANCING ACTIVITIES	317,766	382,317
22 ANNUAL INCREASE (DECREASE) IN CASH	0	0
23 PLANNED NET REVENUES FOR RISK	0	0
24 TOTAL ANNUAL INCREASE (DECREASE) IN CASH	0	0

1/ Line 22 must be greater than or equal to zero to indicate that cash cost recovery requirements are being achieved. If they are not, net revenues (MRNR) are added so that net cash flows for the year, prior to any cash considerations for risk mitigation, are zero.

Table 6: Generation Current Revenue Test Income Statement
(\$000s)

	A	B
	2012	2013
1 REVENUES FROM CURRENT RATES	2,690,360	2,732,824
2 OPERATING EXPENSES		
3 POWER SYSTEM GENERATION RESOURCES		
4 OPERATING GENERATION	652,117	707,368
5 OPERATING GENERATION SETTLEMENTS	21,928	22,148
6 NON-OPERATING GENERATION	1,938	1,948
7 CONTRACTED POWER PURCHASES	102,254	98,755
8 AUGMENTATION POWER PURCHASES	0	66,150
9 EXCHANGES & SETTLEMENTS	279,545	279,183
10 RENEWABLE GENERATION	43,292	44,080
11 GENERATION CONSERVATION	46,950	47,850
12 CONSERVATION RATE CREDIT	0	0
13 POWER NON-GENERATION OPERATIONS	81,393	83,126
14 PS TRANSMISSION ACQUISITION AND ANCILLARY SERVICES	160,516	157,184
15 F&W/USF&W/PLANNING COUNCIL	276,610	281,944
16 BPA INTERNAL SUPPORT	68,978	70,483
17 OTHER INCOME, EXPENSES AND ADJUSTMENTS	0	0
18 NON-FEDERAL DEBT SERVICE	570,970	541,586
19 DEPRECIATION	122,169	127,560
20 AMORTIZATION	81,029	86,767
21 TOTAL OPERATING EXPENSES	2,509,690	2,616,132
22 INTEREST EXPENSE		
23 INTEREST		
24 APPROPRIATED FUNDS	221,866	222,715
25 CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
26 BONDS ISSUED TO U.S. TREASURY	57,681	74,830
27 AMORTIZATION OF CAPITALIZED BOND PREMIUMS	185	185
28 ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION	(12,511)	(13,592)
29 INTEREST CREDIT	(11,715)	(11,923)
30 NET INTEREST EXPENSE	209,568	226,277
31 TOTAL EXPENSES	2,719,258	2,842,409
32 NET REVENUES	(28,898)	(109,585)

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

	A	B
	2012	2013
1 CASH PROVIDED BY OPERATING ACTIVITIES		
2 NET REVENUES	(28,898)	(109,585)
3 NON-CASH ITEMS:		
4 DEPRECIATION AND AMORTIZATION	203,198	214,327
5 AMORTIZATION OF CAPITALIZED BOND PREMIUMS	185	185
6 CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
7 UNSPENT GEP FROM PRIOR YEARS	2,625	2,625
8 ACCRUAL REVENUES	(3,524)	(3,524)
9 CASH FLOW ADJUSTMENT (RESERVE)/APPLICATION		
10 CASH PROVIDED BY OPERATING ACTIVITIES	127,649	58,090
11 CASH USED FOR INVESTMENT ACTIVITIES:		
12 INVESTMENT IN:		
13 FEDERAL UTILITY PLANT (INCLUDING AFUDC)	(357,948)	(402,939)
14 CONSERVATION	(104,000)	(111,000)
15 FISH & WILDLIFE	(50,000)	(50,000)
16 CASH USED FOR INVESTMENT ACTIVITIES	(511,948)	(563,939)
17 CASH FROM (AND USED FOR) FINANCING ACTIVITIES		
18 INCREASE IN TREASURY DEBT	385,403	386,694
19 REPAYMENT OF TREASURY DEBT	(140,000)	(122,800)
20 INCREASE IN FEDERAL CONSTRUCTION APPROPRIATIONS	126,545	177,245
21 REPAYMENT OF FEDERAL CONSTRUCTION APPROPRIATIONS	(53,000)	0
22 PAYMENT OF IRRIGATION ASSISTANCE	(1,182)	(58,822)
23 CASH USED FOR FINANCING ACTIVITIES	317,766	382,317
24 ANNUAL INCREASE (DECREASE) IN CASH	(66,533)	(123,532)

Table 8: Generation Revenue from Current Rates – Results Through the Repayment Period
(\$000s)

	A	B	C	D	E	F	G	H	I	J	K
	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,V 2,C 3)	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											
3	GENERATION										
4	1978	217,534	40,331	51,130	36,511	81,883	7,679	46,521	54,200	6,937	47,263
5	1979	189,542	49,347	25,195	39,083	98,889	(22,972)	42,586	19,614	914	18,700
6	1980	341,863	76,460	182,743	41,237	105,740	(64,317)	94,441	30,124	73	30,051
7	1981	502,589	92,990	269,625	42,870	118,861	(21,757)	48,941	27,184	4,410	22,774
8	1982	1,067,604	115,430	945,442	49,355	145,610	(188,233)	55,427	(132,806)	0	(132,806)
9											
10	1983	1,485,741	114,960	1,255,810	57,967	153,763	(96,759)	64,039	(32,720)	0	(32,720)
11	1984	2,248,654	146,870	1,898,859	67,644	170,942	(35,661)	257,382	221,721	192,294	29,427
12	1985	2,371,829	137,664	1,898,178	75,711	173,888	86,388	75,711	162,099	37,354	124,745
13	1986	2,179,326	135,632	1,895,153	84,162	175,257	(110,878)	84,162	(26,716)	10,587	(37,303)
14	1987	2,014,040	154,184	1,826,711	91,552	199,448	(257,855)	91,552	(166,303)	2,471	(168,774)
15											
16	1988	2,303,479	183,326	1,796,029	98,288	204,416	21,420	98,288	119,708	149,778	(30,070)
17	1989	2,273,508	173,694	1,760,205	100,104	189,446	50,059	100,104	150,163	32,875	117,288
18	1990	2,315,035	198,721	1,527,829	105,338	197,462	285,685	105,338	391,023	63,336	327,687
19	1991	2,482,482	216,777	1,572,046	103,047	167,559	423,053	103,047	526,100	114,583	411,517
20	1992	2,142,645	287,360	1,821,930	110,403	169,711	(246,759)	110,403	(136,356)	57,543	(193,899)
21											
22	1993	2,233,989	309,915	1,868,863	118,143	186,455	(249,387)	118,143	(131,244)	117,974	(249,218)
23	1994	2,536,059	316,352	1,934,944	125,396	197,222	(37,855)	125,396	87,541	135,018	(47,477)
24	1995	2,704,285	327,420	1,915,529	141,798	215,850	103,688	141,798	245,486	196,544	48,942
25	1996	2,744,510	366,808	1,959,406	151,122	208,509	58,665	154,024	197,689	135,010	62,679
26	1997	1,996,439	612,961	924,789	148,215	197,238	113,236	105,956	219,192	82,971	111,078
27											
28	1998	2,060,750	665,005	1,091,678	162,562	201,930	(60,425)	118,892	76,812	61,000	15,812
29	1999	2,366,423	702,717	1,196,308	162,008	182,079	123,311	118,951	311,083	25,000	286,083
30	2000	2,720,940	723,377	1,410,029	165,874	169,320	252,340	119,184	366,345	175,338	191,007
31	2001	3,888,051	819,270	2,945,886	168,433	166,504	(212,042)	121,506	(143,592)	151,062	(311,214)
32	2002	3,047,803	833,606	1,925,873	174,164	201,582	(87,422)	127,491	(3,414)	373,345	(376,759)
33											
34	2003	3,144,811	705,289	1,841,035	178,896	176,595	242,996	131,592	314,144	73,000	241,144
35	2004	2,738,898	713,549	1,366,265	177,298	162,531	319,255	129,789	354,413	233,000	739
36	2005	2,814,224	711,713	1,420,735	186,099	166,610	329,067	(98,072)	320,734	271,301	49,433
37	2006	2,853,659	773,510	1,436,548	181,878	157,609	304,114	(84,357)	537,237	261,276	275,961
38	2007	2,657,891	818,494	1,361,837	176,204	145,516	155,840	133,875	289,715	246,300	43,415
39											
40	2008	2,383,688	802,849	1,224,722	183,466	142,746	29,905	28,438	195,087	277,483	(85,346)
41	2009	2,234,695	871,705	1,265,997	180,788	151,508	(235,303)	166,189	(69,114)	219,360	(288,474)
42	2010	2,385,607	883,540	1,393,796	184,989	176,928	(253,646)	120,913	(132,733)	244,673	(377,406)
43											
44	COST EVALUATION										
45	PERIOD										
46	2011	2,668,133	967,053	1,287,731	200,165	188,295	24,889	150,889	175,778	162,163	13,615
47	RATE APPROVAL										
48	PERIOD										
49	2012	2,690,360	979,426	1,327,066	203,198	209,568	(28,898)	157,446	127,649	193,000	1,182
50	2013	2,732,824	1,000,703	1,401,102	214,327	226,277	(109,585)	168,575	58,091	122,800	58,822

Table 8, 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 I/ (COLUMN D)	FUNDS FROM OPERATION 2/ (H=F+G)	AMORTIZATION (REV REQ STUDY DOC.V 2,C 3)	IRRIGATION AMORTIZATION (STATEMENT C)	NET POSITION (K=H-I-J)	
51	2014	2,732,824	1,000,703	1,392,885	214,327	240,339	(115,430)	168,575	49,621	72,756	52,426	(75,561)
52	2015	2,732,824	1,000,703	1,355,320	214,327	246,262	(83,787)	168,575	81,264	104,837	51,987	(75,561)
53	2016	2,732,824	1,000,703	1,360,138	214,327	253,548	(95,892)	168,575	69,159	83,906	60,813	(75,561)
54	2017	2,732,824	1,000,703	1,356,360	214,327	258,273	(96,839)	168,575	68,212	92,496	51,277	(75,561)
55	2018	2,732,824	1,000,703	1,329,940	214,327	260,972	(73,119)	168,575	91,932	140,185	27,308	(75,561)
56												
57	2019	2,732,824	1,000,703	1,114,177	214,327	257,197	146,420	168,575	311,471	329,734	57,298	(75,561)
58	2020	2,732,824	1,000,703	1,114,221	214,327	247,677	155,895	168,575	320,946	372,095	24,412	(75,561)
59	2021	2,732,824	1,000,703	1,116,710	214,327	236,678	164,406	168,575	329,457	392,818	12,200	(75,561)
60	2022	2,732,824	1,000,703	1,124,171	214,327	220,519	173,104	168,575	338,155	399,314	14,402	(75,561)
61	2023	2,732,824	1,000,703	1,124,449	214,327	201,930	191,415	168,575	356,466	419,076	12,951	(75,561)
62												
63	2024	2,732,824	1,000,703	1,046,878	214,327	183,630	287,286	168,575	452,337	512,678	15,220	(75,561)
64	2025	2,732,824	1,000,703	801,324	214,327	155,652	560,818	168,575	725,869	787,788	13,642	(75,561)
65	2026	2,732,824	1,000,703	800,955	214,327	117,373	599,466	168,575	764,517	819,179	20,899	(75,561)
66	2027	2,732,824	1,000,703	800,951	214,327	83,051	633,792	168,575	798,843	868,214	6,190	(75,561)
67	2028	2,732,824	1,000,703	800,954	214,327	45,331	671,509	168,575	836,560	900,862	11,259	(75,561)
68												
69	2029	2,732,824	1,000,703	800,953	214,327	(10,297)	727,138	168,575	892,189	963,685	4,065	(75,561)
70	2030	2,732,824	1,000,703	800,957	214,327	(49,072)	765,908	168,575	930,959	718,343	2,147	(75,561)
71	2031	2,732,824	1,000,703	800,956	214,327	(72,153)	788,991	168,575	954,042	159,073	10,633	(75,561)
72	2032	2,732,824	1,000,703	800,954	214,327	(72,406)	789,246	168,575	954,297	159,073	0	(75,561)
73	2033	2,732,824	1,000,703	800,181	214,327	(72,321)	789,934	168,575	954,985	159,073	4,351	(75,561)
74												
75	2034	2,732,824	1,000,703	797,853	214,327	(72,480)	792,421	168,575	957,472	159,073	0	(75,561)
76	2035	2,732,824	1,000,703	797,853	214,327	(72,293)	792,234	168,575	957,285	179,073	7,843	(75,561)
77	2036	2,732,824	1,000,703	797,853	214,327	(72,642)	792,583	168,575	957,634	189,073	28,930	(75,561)
78	2037	2,732,824	1,000,703	797,853	214,327	(74,590)	794,532	168,575	959,583	194,073	16,361	(75,561)
79	2038	2,732,824	1,000,703	797,853	214,327	(76,939)	796,880	168,575	961,931	189,073	0	(75,561)
80												
81	2039	2,732,824	1,000,703	797,853	214,327	(78,312)	798,253	168,575	963,304	219,073	14,244	(75,561)
82	2040	2,732,824	1,000,703	797,853	214,327	(81,750)	801,691	168,575	966,742	209,073	0	(75,561)
83	2041	2,732,824	1,000,703	797,853	214,327	(84,280)	804,221	168,575	969,272	159,073	0	(75,561)
84	2042	2,732,824	1,000,703	797,853	214,327	(82,523)	802,464	168,575	967,515	159,073	73,659	(75,561)
85	2043	2,732,824	1,000,703	797,853	214,327	(84,280)	804,221	168,575	969,272	159,073	0	(75,561)
86												
87	2044	2,732,824	1,000,703	920,112	214,327	(81,364)	679,046	168,575	844,097	159,073	0	(75,561)
88	2045	2,732,824	1,000,703	1,286,889	214,327	(72,337)	303,242	168,575	468,293	159,073	11,700	(75,561)
89	2046	2,732,824	1,000,703	1,286,888	214,327	(72,616)	303,522	168,575	468,573	159,073	0	(75,561)
90	2047	2,732,824	1,000,703	1,286,890	214,327	(72,616)	303,520	168,575	468,571	159,073	0	(75,561)
91	2048	2,732,824	1,000,703	1,286,888	214,327	(72,616)	303,522	168,575	468,573	159,073	0	(75,561)
92												
93	2049	2,732,824	1,000,703	1,286,889	214,327	(72,616)	303,522	168,575	468,573	159,073	0	(75,561)
94	2050	2,732,824	1,000,703	1,286,889	214,327	(72,616)	303,522	168,575	468,573	159,073	0	(75,561)
95	2051	2,732,824	1,000,703	1,286,888	214,327	(72,616)	303,523	168,575	468,574	159,073	0	(75,561)
96	2052	2,732,824	1,000,703	1,286,888	214,327	(72,616)	303,522	168,575	468,573	159,073	0	(75,561)
97	2053	2,732,824	1,000,703	1,286,888	214,327	(72,616)	303,522	168,575	468,573	159,073	0	(75,561)
98												
99	2054	2,732,824	1,000,703	1,286,889	214,327	(72,616)	303,522	168,575	468,573	159,073	0	(75,561)
100	2055	2,732,824	1,000,703	1,286,889	214,327	(72,616)	303,521	168,575	468,572	159,073	0	(75,561)
101	2056	2,732,824	1,000,703	1,286,887	214,327	(72,616)	303,524	168,575	468,575	159,073	0	(75,561)
102	2057	2,732,824	1,000,703	1,286,886	214,327	(72,616)	303,524	168,575	468,575	159,073	0	(75,561)
103	2058	2,732,824	1,000,703	1,286,888	214,327	(72,616)	303,523	168,575	468,574	159,073	0	(75,561)
104												
105	2059	2,732,824	1,000,703	1,286,891	214,327	(72,616)	303,519	168,575	468,570	159,073	0	(75,561)
106	2060	2,732,824	1,000,703	1,286,890	214,327	(72,616)	303,520	168,575	468,571	159,073	0	(75,561)
107	2061	2,732,824	1,000,703	1,286,890	214,327	(72,616)	303,520	168,575	468,571	159,073	0	(75,561)
108	2062	2,732,824	1,000,703	1,286,888	214,327	(72,616)	303,522	168,575	468,573	159,073	0	(75,561)
109	2063	2,732,824	1,000,703	1,286,888	214,327	(72,616)	303,522	168,575	468,573	159,073	0	(75,561)
110	GENERATION											
111	TOTALS	202,716,990	62,060,643	98,785,533	14,333,010	7,038,126	20,499,678	11,220,435	31,919,071	15,655,148	711,613	14,119,674

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

2/MAY INCLUDE ADJUSTMENTS FOR ACCRUAL REVENUES OR OTHER ACCRUAL TO CASH ADJUSTMENTS.

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

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

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

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

	A	B
	2012	2013
1 REVENUES FROM PROPOSED RATES	2,771,494	2,836,069
2 OPERATING EXPENSES		
3 POWER SYSTEM GENERATION RESOURCES		
4 OPERATING GENERATION	652,117	707,368
5 OPERATING GENERATION SETTLEMENTS	21,928	22,148
6 NON-OPERATING GENERATION	1,938	1,948
7 CONTRACTED POWER PURCHASES	102,254	98,755
8 AUGMENTATION POWER PURCHASES	0	66,150
9 EXCHANGES & SETTLEMENTS	279,545	279,183
10 RENEWABLE GENERATION	43,292	44,080
11 GENERATION CONSERVATION	46,950	47,850
12 CONSERVATION RATE CREDIT	0	0
13 POWER NON-GENERATION OPERATIONS	81,393	83,126
14 PS TRANSMISSION ACQUISITION AND ANCILLARY SERVICES	160,516	157,184
15 F&W/USF&W/PLANNING COUNCIL	276,610	281,944
16 BPA INTERNAL SUPPORT	68,978	70,483
17 OTHER INCOME, EXPENSES AND ADJUSTMENTS	0	0
18 NON-FEDERAL DEBT SERVICE	570,970	541,586
19 DEPRECIATION	122,169	127,560
20 AMORTIZATION	81,029	86,767
21 TOTAL OPERATING EXPENSES	2,509,690	2,616,132
22 INTEREST EXPENSE		
23 INTEREST		
24 APPROPRIATED FUNDS	221,866	222,715
25 CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
26 BONDS ISSUED TO U.S. TREASURY	57,681	74,830
27 AMORTIZATION OF CAPITALIZED BOND PREMIUMS	185	185
28 ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION	(12,511)	(13,592)
29 INTEREST CREDIT	(12,624)	(16,756)
30 NET INTEREST EXPENSE	208,659	221,444
31 TOTAL EXPENSES	2,718,349	2,837,576
32 NET REVENUES	53,145	(1,507)

Table 10: Generation Revised Revenue Test Statement of Cash Flow
(\$000s)

	A	B
	2012	2013
1 CASH PROVIDED BY OPERATING ACTIVITIES		
2 NET REVENUES	53,145	(1,507)
3 NON-CASH ITEMS:		
4 DEPRECIATION AND AMORTIZATION	203,198	214,327
5 AMORTIZATION OF CAPITALIZED BOND PREMIUMS	185	185
6 CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)
7 UNSPENT GEP FROM PRIOR YEARS	2,625	2,625
8 ACCRUAL REVENUES	(3,524)	(3,524)
9 CASH FLOW ADJUSTMENT (RESERVE)/APPLICATION	(15,510)	15,510
10 CASH PROVIDED BY OPERATING ACTIVITIES	194,182	181,678
11 CASH USED FOR INVESTMENT ACTIVITIES		
12 INVESTMENT IN:		
13 FEDERAL UTILITY PLANT (INCLUDING AFUDC)	(357,948)	(402,939)
14 CONSERVATION	(104,000)	(111,000)
15 FISH & WILDLIFE	(50,000)	(50,000)
16 CASH USED FOR INVESTMENT ACTIVITIES	(511,948)	(563,939)
17 CASH FROM (AND USED FOR) FINANCING ACTIVITIES		
18 INCREASE IN TREASURY DEBT	385,403	386,694
19 REPAYMENT OF TREASURY DEBT	(140,000)	(122,800)
20 INCREASE IN FEDERAL CONSTRUCTION APPROPRIATIONS	126,545	177,245
21 REPAYMENT OF FEDERAL CONSTRUCTION APPROPRIATIONS	(53,000)	0
22 PAYMENT OF IRRIGATION ASSISTANCE	(1,182)	(58,822)
23 CASH USED FOR FINANCING ACTIVITIES	317,766	382,317
24 ANNUAL INCREASE (DECREASE) IN CASH	0	56

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,V 2,C.3)	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												
3	GENERATION											
4	1978	217,534	40,331	51,130	36,511	81,883	7,679	46,521	54,200	6,937		47,263
5	1979	189,542	49,347	25,195	39,083	98,889	(22,972)	42,586	19,614	914		18,700
6	1980	341,863	76,460	182,743	41,237	105,740	(64,317)	94,441	30,124	73		30,051
7	1981	502,589	92,990	269,625	42,870	118,861	(21,757)	48,941	27,184	4,410	3/	22,774
8	1982	1,067,604	115,430	945,442	49,355	145,610	(188,233)	55,427	(132,806)	0		(132,806)
9												
10	1983	1,485,741	114,960	1,255,810	57,967	153,763	(96,759)	64,039	(32,720)	0		(32,720)
11	1984	2,248,654	146,870	1,898,859	67,644	170,942	(35,661)	257,382	221,721	192,294	4/	29,427
12	1985	2,371,829	137,664	1,898,178	75,711	173,888	86,388	75,711	162,099	37,354		124,745
13	1986	2,179,326	135,632	1,895,153	84,162	175,257	(110,878)	84,162	(26,716)	10,587		(37,303)
14	1987	2,014,040	154,184	1,826,711	91,552	199,448	(257,855)	91,552	(166,303)	2,471		(168,774)
15												
16	1988	2,303,479	183,326	1,796,029	98,288	204,416	21,420	98,288	119,708	149,778		(30,070)
17	1989	2,273,508	173,694	1,760,205	100,104	189,446	50,059	100,104	150,163	32,875		117,288
18	1990	2,315,035	198,721	1,527,829	105,338	197,462	285,685	105,338	391,023	63,336		327,687
19	1991	2,482,482	216,777	1,572,046	103,047	167,559	423,053	103,047	526,100	114,583		411,517
20	1992	2,142,645	287,360	1,821,930	110,403	169,711	(246,759)	110,403	(136,356)	57,543		(193,899)
21												
22	1993	2,233,989	309,915	1,868,863	118,143	186,455	(249,387)	118,143	(131,244)	117,974		(249,218)
23	1994	2,536,059	316,352	1,934,944	125,396	197,222	(37,855)	125,396	87,541	135,018		(47,477)
24	1995	2,704,285	327,420	1,915,529	141,798	215,850	103,688	141,798	245,486	196,544		48,942
25	1996	2,744,510	366,808	1,959,406	151,122	208,509	58,665	154,024	197,689	5/		62,679
26	1997	1,996,439	612,961	924,789	148,215	197,238	113,236	105,956	219,192	82,971	25,143	111,078
27												
28	1998	2,060,750	665,005	1,091,678	162,562	201,930	(60,425)	118,892	76,812	61,000		15,812
29	1999	2,366,423	702,717	1,196,308	162,008	182,079	123,311	118,951	311,083	25,000		286,083
30	2000	2,720,940	723,377	1,410,029	165,874	169,320	252,340	119,184	366,345	175,338		191,007
31	2001	3,888,051	819,270	2,945,886	168,433	166,504	(212,042)	121,506	(143,592)	151,062	16,560	(311,214)
32	2002	3,047,803	833,606	1,925,873	174,164	201,582	(87,422)	127,491	(3,414)	373,345		(376,759)
33												
34	2003	3,144,811	705,289	1,841,035	178,896	176,595	242,996	131,592	314,144	73,000		241,144
35	2004	2,738,898	713,549	1,366,265	177,298	162,531	319,255	129,789	354,413	233,000	739	120,674
36	2005	2,814,224	711,713	1,420,735	186,099	166,610	329,067	(98,072)	320,734	271,301		49,433
37	2006	2,853,659	773,510	1,436,548	181,878	157,609	304,114	(84,357)	537,237	261,276		275,961
38	2007	2,657,891	818,494	1,361,837	176,204	145,516	155,840	133,875	289,715	246,300		43,415
39												
40	2008	2,383,688	802,849	1,224,722	183,466	142,746	29,905	28,438	195,087	277,483	2,950	(85,346)
41	2009	2,234,695	871,705	1,265,997	180,788	151,508	(235,303)	166,189	(69,114)	219,360		(288,474)
42	2010	2,385,607	883,540	1,393,796	184,989	176,928	(253,646)	120,913	(132,733)	244,673		(377,406)
43												
44	COST EVALUATION											
45	PERIOD											
46	2011	2,668,133	967,053	1,287,731	200,165	188,295	24,889	150,889	175,778	162,163		13,615
47	RATE APPROVAL											
48	PERIOD											
49	2012	2,771,494	979,426	1,327,066	203,198	208,659	53,145	157,446	194,182	193,000	1,182	0
50	2013	2,836,069	1,000,703	1,401,102	214,327	221,444	(1,507)	168,575	181,679	122,800	58,822	57

Table 11, cont.

	A	B	C	D	E	F	G	H	I	J	K	
			PURCHASE AND EXCHANGE POWER	DEPRECIATION	NET INTEREST	NET REVENUES (F=A-B-C-D-E)	NONCASH EXPENSES I/ (COLUMN D)	FUNDS FROM OPERATION 2/ (H=F+G)	AMORTIZATION (REV REQ STUDY DOC.V.2,C.3)	IRRIGATION AMORTIZATION (STATEMENT C)	NET POSITION (K=H-I-J)	
REPAYMENT PERIOD	REVENUES (STATEMENT A)	OPERATION & MAINTENANCE (STATEMENT E)	(STATEMENT E)		(STATEMENT D)							
51	2014	2,836,069	1,000,703	1,392,885	214,327	233,595	(5,441)	168,575	159,610	72,756	52,426	34,428
52	2015	2,836,069	1,000,703	1,355,320	214,327	239,518	26,202	168,575	191,253	104,837	51,987	34,428
53	2016	2,836,069	1,000,703	1,360,138	214,327	246,804	14,097	168,575	179,148	83,906	60,813	34,428
54	2017	2,836,069	1,000,703	1,356,360	214,327	251,529	13,150	168,575	178,201	92,496	51,277	34,428
55	2018	2,836,069	1,000,703	1,329,940	214,327	254,228	36,870	168,575	201,921	140,185	27,308	34,428
56												
57	2019	2,836,069	1,000,703	1,114,177	214,327	250,453	256,409	168,575	421,460	329,734	57,298	34,428
58	2020	2,836,069	1,000,703	1,114,221	214,327	240,933	265,884	168,575	430,935	372,095	24,412	34,428
59	2021	2,836,069	1,000,703	1,116,710	214,327	229,934	274,395	168,575	439,446	392,818	12,200	34,428
60	2022	2,836,069	1,000,703	1,124,171	214,327	213,775	283,093	168,575	448,144	399,314	14,402	34,428
61	2023	2,836,069	1,000,703	1,124,449	214,327	195,186	301,404	168,575	466,455	419,076	12,951	34,428
62												
63	2024	2,836,069	1,000,703	1,046,878	214,327	176,886	397,275	168,575	562,326	512,678	15,220	34,428
64	2025	2,836,069	1,000,703	801,324	214,327	148,908	670,807	168,575	835,858	787,788	13,642	34,428
65	2026	2,836,069	1,000,703	800,955	214,327	110,629	709,455	168,575	874,506	819,179	20,899	34,428
66	2027	2,836,069	1,000,703	800,951	214,327	76,307	743,781	168,575	908,832	868,214	6,190	34,428
67	2028	2,836,069	1,000,703	800,954	214,327	80,954	781,498	168,575	946,549	900,862	11,259	34,428
68												
69	2029	2,836,069	1,000,703	800,953	214,327	(17,041)	837,127	168,575	1,002,178	963,685	4,065	34,428
70	2030	2,836,069	1,000,703	800,957	214,327	(55,816)	875,897	168,575	1,040,948	718,343	2,147	320,458
71	2031	2,836,069	1,000,703	800,956	214,327	(78,897)	898,980	168,575	1,064,031	159,073	10,633	894,325
72	2032	2,836,069	1,000,703	800,954	214,327	(79,150)	899,235	168,575	1,064,286	159,073	0	905,213
73	2033	2,836,069	1,000,703	800,181	214,327	(79,065)	899,923	168,575	1,064,974	159,073	4,351	901,550
74												
75	2034	2,836,069	1,000,703	797,853	214,327	(79,224)	902,410	168,575	1,067,461	159,073	0	908,388
76	2035	2,836,069	1,000,703	797,853	214,327	(79,037)	902,223	168,575	1,067,274	179,073	7,843	880,358
77	2036	2,836,069	1,000,703	797,853	214,327	(79,386)	902,572	168,575	1,067,623	189,073	28,930	849,620
78	2037	2,836,069	1,000,703	797,853	214,327	(81,334)	904,521	168,575	1,069,572	194,073	16,361	859,138
79	2038	2,836,069	1,000,703	797,853	214,327	(83,683)	906,869	168,575	1,071,920	189,073	0	882,847
80												
81	2039	2,836,069	1,000,703	797,853	214,327	(85,056)	908,242	168,575	1,073,293	219,073	14,244	839,976
82	2040	2,836,069	1,000,703	797,853	214,327	(88,494)	911,680	168,575	1,076,731	209,073	0	867,658
83	2041	2,836,069	1,000,703	797,853	214,327	(91,024)	914,210	168,575	1,079,261	159,073	0	920,188
84	2042	2,836,069	1,000,703	797,853	214,327	(89,267)	912,453	168,575	1,077,504	159,073	73,659	844,772
85	2043	2,836,069	1,000,703	797,853	214,327	(91,024)	914,210	168,575	1,079,261	159,073	0	920,188
86												
87	2044	2,836,069	1,000,703	920,112	214,327	(88,108)	789,035	168,575	954,086	159,073	0	795,013
88	2045	2,836,069	1,000,703	1,286,889	214,327	(79,081)	413,231	168,575	578,282	159,073	11,700	407,509
89	2046	2,836,069	1,000,703	1,286,888	214,327	(79,360)	413,511	168,575	578,562	159,073	0	419,489
90	2047	2,836,069	1,000,703	1,286,890	214,327	(79,360)	413,509	168,575	578,560	159,073	0	419,487
91	2048	2,836,069	1,000,703	1,286,888	214,327	(79,360)	413,511	168,575	578,562	159,073	0	419,489
92												
93	2049	2,836,069	1,000,703	1,286,889	214,327	(79,360)	413,511	168,575	578,562	159,073	0	419,489
94	2050	2,836,069	1,000,703	1,286,889	214,327	(79,360)	413,511	168,575	578,562	159,073	0	419,489
95	2051	2,836,069	1,000,703	1,286,888	214,327	(79,360)	413,512	168,575	578,563	159,073	0	419,490
96	2052	2,836,069	1,000,703	1,286,888	214,327	(79,360)	413,511	168,575	578,562	159,073	0	419,489
97	2053	2,836,069	1,000,703	1,286,888	214,327	(79,360)	413,511	168,575	578,562	159,073	0	419,489
98												
99	2054	2,836,069	1,000,703	1,286,889	214,327	(79,360)	413,511	168,575	578,562	159,073	0	419,488
100	2055	2,836,069	1,000,703	1,286,889	214,327	(79,360)	413,510	168,575	578,561	159,073	0	419,488
101	2056	2,836,069	1,000,703	1,286,887	214,327	(79,360)	413,513	168,575	578,564	159,073	0	419,491
102	2057	2,836,069	1,000,703	1,286,886	214,327	(79,360)	413,513	168,575	578,564	159,073	0	419,491
103	2058	2,836,069	1,000,703	1,286,888	214,327	(79,360)	413,512	168,575	578,563	159,073	0	419,490
104												
105	2059	2,836,069	1,000,703	1,286,891	214,327	(79,360)	413,508	168,575	578,559	159,073	0	419,486
106	2060	2,836,069	1,000,703	1,286,890	214,327	(79,360)	413,509	168,575	578,560	159,073	0	419,487
107	2061	2,836,069	1,000,703	1,286,890	214,327	(79,360)	413,509	168,575	578,560	159,073	0	419,487
108	2062	2,836,069	1,000,703	1,286,888	214,327	(79,360)	413,511	168,575	578,562	159,073	0	419,489
109	2063	2,836,069	1,000,703	1,286,888	214,327	(79,360)	413,511	168,575	578,562	159,073	0	419,489
110	GENERATION											
111	TOTALS	207,547,394	62,060,643	98,785,533	14,333,010	6,728,904	25,639,304	11,220,435	37,058,697	15,655,148	711,613	19,259,300

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

2/MAY INCLUDE ADJUSTMENTS FOR ACCRUAL REVENUES OR OTHER ACCRUAL TO CASH ADJUSTMENTS.

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

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

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

Table 12: Amortization of Generation Investments Over Repayment Period
(\$000s)

	A	B				C				D				E				F				G				H				I				J			
		Investments Placed in Service				Irrigation Assistance																															
Date	Original & New Obligations	+	Replacements	=	Cumulative Amount In Service	-	Due Amortization	-	Discretionary Amortization	=	Unamortized Investment	Term Investment Schedule	Cumulative Amount In Service	-	Amortization	=	Unamortized Amount																				
1	09/30/2009	4,219,408	-	-	4,219,408	-	-	-	-	-	4,219,408	5,376,016	666,221	-	-	-	666,221																				
2	09/30/2010	581,376	-	-	4,800,784	114,749	-	129,924	-	4,556,111	5,261,267	-	-	-	-	-	666,221																				
3	09/30/2011	493,953	-	-	5,294,737	135,000	-	27,163	-	4,887,901	5,126,267	-	-	-	-	-	666,221																				
4	09/30/2012	512,995	-	-	5,807,732	145,264	-	47,736	-	5,207,896	4,981,003	-	-	1,182	-	-	665,039																				
5	09/30/2013	584,265	-	-	6,391,997	122,800	-	-	-	5,669,361	4,858,203	-	-	58,822	-	-	606,217																				
6	09/30/2014	-	171,480	-	6,563,477	29,950	-	76,740	-	5,734,151	4,828,253	-	-	52,426	-	-	553,791																				
7	09/30/2015	-	170,668	-	6,734,145	60,000	-	68,427	-	5,776,392	4,768,253	-	-	51,987	-	-	501,804																				
8	09/30/2016	-	165,866	-	6,900,011	14,000	-	121,438	-	5,806,820	4,754,253	-	-	60,813	-	-	440,991																				
9	09/30/2017	-	167,578	-	7,067,589	-	-	142,641	-	5,831,758	4,754,253	-	-	51,277	-	-	389,714																				
10	09/30/2018	-	159,168	-	7,226,757	21,399	-	243,008	-	5,726,519	4,732,854	-	-	27,308	-	-	362,406																				
11	09/30/2019	-	159,097	-	7,385,854	150,326	-	242,120	-	5,493,170	4,582,528	-	-	57,298	-	-	305,108																				
12	09/30/2020	-	159,073	-	7,544,927	185,000	-	246,799	-	5,220,444	4,397,528	-	-	24,412	-	-	280,696																				
13	09/30/2021	-	159,073	-	7,704,000	50,000	-	408,559	-	4,920,957	4,347,528	-	-	12,200	-	-	268,496																				
14	09/30/2022	-	159,073	-	7,863,073	-	-	476,921	-	4,603,110	4,347,528	-	-	14,402	-	-	254,094																				
15	09/30/2023	-	159,073	-	8,022,146	90,000	-	411,227	-	4,260,956	4,257,528	-	-	12,951	-	-	241,143																				
16	09/30/2024	-	159,073	-	8,181,219	124,000	-	471,630	-	3,824,399	4,133,528	-	-	15,220	-	-	225,923																				
17	09/30/2025	-	159,073	-	8,340,292	111,000	-	755,450	-	3,117,021	4,022,528	-	-	13,642	-	-	212,281																				
18	09/30/2026	-	159,073	-	8,499,365	90,000	-	799,373	-	2,386,721	3,932,528	-	-	20,899	-	-	191,382																				
19	09/30/2027	-	159,073	-	8,658,438	50,000	-	907,898	-	1,587,897	3,882,528	-	-	6,190	-	-	185,192																				
20	09/30/2028	-	159,073	-	8,817,511	-	-	1,008,959	-	738,011	3,882,528	-	-	11,259	-	-	173,933																				
21	09/30/2029	-	159,073	-	8,976,584	-	-	872,084	-	25,000	3,882,528	-	-	4,065	-	-	169,868																				
22	09/30/2030	-	159,073	-	9,135,657	-	-	159,073	-	25,000	3,882,528	-	-	2,147	-	-	167,721																				
23	09/30/2031	-	159,073	-	9,294,730	-	-	159,073	-	25,000	3,882,528	-	-	10,633	-	-	157,088																				
24	09/30/2032	-	159,073	-	9,453,803	-	-	159,073	-	25,000	3,882,528	-	-	-	-	-	157,088																				
25	09/30/2033	-	159,073	-	9,612,876	-	-	159,073	-	25,000	3,882,528	-	-	4,351	-	-	152,737																				
26	09/30/2034	-	159,073	-	9,771,949	-	-	159,073	-	25,000	3,882,528	-	-	-	-	-	152,737																				
27	09/30/2035	-	159,073	-	9,931,022	-	-	159,073	-	25,000	3,882,528	-	-	7,843	-	-	144,894																				
28	09/30/2036	-	159,073	-	10,090,095	-	-	159,073	-	25,000	3,882,528	-	-	28,930	-	-	115,964																				
29	09/30/2037	-	159,073	-	10,249,168	-	-	159,073	-	25,000	3,882,528	-	-	16,361	-	-	99,603																				
30	09/30/2038	-	159,073	-	10,408,241	-	-	159,073	-	25,000	3,882,528	-	-	-	-	-	99,603																				
31	09/30/2039	-	159,073	-	10,567,314	25,000	-	159,073	-	-	3,857,528	-	-	14,244	-	-	85,359																				
32	09/30/2040	-	159,073	-	10,726,387	-	-	159,073	-	-	3,857,528	-	-	-	-	-	85,359																				
33	09/30/2041	-	159,073	-	10,885,460	-	-	159,073	-	-	3,857,528	-	-	-	-	-	85,359																				
34	09/30/2042	-	159,073	-	11,044,533	-	-	159,073	-	-	3,857,528	-	-	73,659	-	-	11,700																				
35	09/30/2043	-	159,073	-	11,203,606	-	-	159,073	-	-	3,857,528	-	-	-	-	-	11,700																				
36	09/30/2044	-	159,073	-	11,362,679	-	-	159,073	-	-	3,857,528	-	-	-	-	-	11,700																				
37	09/30/2045	-	159,073	-	11,521,752	-	-	159,073	-	-	3,857,528	-	-	11,700	-	-	-																				
38	09/30/2046	-	159,073	-	11,680,825	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
39	09/30/2047	-	159,073	-	11,839,898	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
40	09/30/2048	-	159,073	-	11,998,971	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
41	09/30/2049	-	159,073	-	12,158,044	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
42	09/30/2050	-	159,073	-	12,317,117	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
43	09/30/2051	-	159,073	-	12,476,190	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
44	09/30/2052	-	159,073	-	12,635,263	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
45	09/30/2053	-	159,073	-	12,794,336	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
46	09/30/2054	-	159,073	-	12,953,409	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
47	09/30/2055	-	159,073	-	13,112,482	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
48	09/30/2056	-	159,073	-	13,271,555	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
49	09/30/2057	-	159,073	-	13,430,628	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
50	09/30/2058	-	159,073	-	13,589,701	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
51	09/30/2059	-	159,073	-	13,748,774	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
52	09/30/2060	-	159,073	-	13,907,847	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
53	09/30/2061	-	159,073	-	14,066,920	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
54	09/30/2062	-	159,073	-	14,225,993	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
55	09/30/2063	-	159,073	-	14,385,066	-	-	159,073	-	-	3,857,528	-	-	-	-	-	-																				
56		6,391,997		7,993,069		1,518,488		12,866,578																													

