

2002 Final Power Rate Proposal Loads and Resources Study

WP-02-FS-BPA-01
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**2002 LOADS AND RESOURCES STUDY
TABLE OF CONTENTS**

		Page
Commonly Used Acronyms		ii
1.	INTRODUCTION	1
2.	METHODS	1
2.1	Overview	1
2.1.1	Federal System Load Forecasts	2
2.1.2	Federal System Resources	2
2.1.3	Load and Resource Balances	2
2.2	Federal System Firm Load Forecast	3
2.2.1	Overview	3
2.2.2	Public Utility and Federal Agency Sales Forecast	3
2.2.3	Investor-Owned Utilities Sales Forecast	5
2.2.4	Direct Service Industry Sales Forecast	6
2.2.5	Contractual Obligations	6
2.3	Federal System Resource Forecasts	7
2.3.1	Overview	7
2.3.2	Federal System Marketed Resources	8
2.3.2.1	Hydro Resources	8
2.3.2.2	Other Federal Generation	9
2.3.2.3	Contract Purchases and Capacity-for-Energy Contracts	9
2.3.3	Hydroregulation Study	10
2.3.3.1	Regulation	10
2.3.3.2	Energy	13
2.3.3.3	Surplus Energy Analysis	13
2.3.3.4	Capacity	17
2.3.4	Conservation and Resource Acquisitions	17
2.3.4.1	Conservation Resources	17
2.3.4.2	Additional Generation Resources	18
2.4	Load and Resource Balances	18
2.4.1	Overview	18
2.4.2	Federal Firm Energy and Capacity Load and Resource Analysis	18
3.	APPENDICES	
A:	Sales Forecasts	A-1
	List of Tables	A-2
B:	Summary of Federal System Loads & Resources OY 2002 – 2007	B-1
	Footnotes for Appendices B.....	B-26
4.	GLOSSARY	Glossary-1

COMMONLY USED ACRONYMS

AANR	Audited Accumulated Net Revenues
AC	Alternating Current
AER	Actual Energy Regulation
Affiliated Tribes	Affiliated Tribes of Northwest Indians
AFUDC	Allowance for Funds Used During Construction
AGC	Automatic Generation Control
Alcoa	Alcoa, Inc.
Alcoa/Vanalco	Joint Alcoa and Vanalco
aMW	Average Megawatt
ANRT	Accumulated Net Revenue Threshold
AOP	Assured Operating Plan
APS	Ancillary Products and Services (rate)
APS-S	Actual Partial Service-Simple
ASC	Average System Cost
Avista	Avista Corp
BASC	BPA Average System Cost
BO	Biological Opinion
BPA	Bonneville Power Administration
BP EIS	Business Plan Environmental Impact Statement
Btu	British Thermal Unit
C&R Discount	Conservation and Renewables Discount
C&R	Cost and Revenue
CalPX	California Power Exchange
CBFWA	Columbia Basin Fish & Wildlife Authority
CBP	Columbia Basin Project
CCCT	Combined-Cycle Combustion Turbine
CEC	California Energy Commission
CFAL	Columbia Falls Aluminum Company
Cfs	cubic feet per second
COB	California-Oregon Border
COE	U.S. Army Corps of Engineers
Con/Mod	Conservation Modernization Program
COSA	Cost of Service Analysis
CP	Coincidental Peak
CRAC	Cost Recovery Adjustment Clause
CRC	Critical Rule Curves
CRITFC	Columbia River Inter-Tribal Fish Commission
CSPE	Columbia Storage Power Exchange
CT	Combustion Turbine
CTPP	Conditional TPP
CWA	Clear Water Act
CY	Calendar Year (Jan-Dec)
DC	Direct Current
DDC	Dividend Distribution Clause
DJ	Dow Jones

DMP	Data Management Procedures
DOE	Department of Energy
DROD	Draft Record of Decision
DSI	DSI (only the DSI represented by Murphy under DS)
DSIs	Direct Service Industrial Customers
ECC	Energy Content Curve
EFB	Excess Federal Power
EIA	Energy Information Administration
EIS	Environmental Impact Statement
Energy Northwest	Formerly Washington Public Power Supply System (Nuclear) Project
Energy Services	Energy Services, Inc.
Enron	Enron Corporation
EPA	Environmental Protection Agency
EPP	Environmentally Preferred Power
ESA	Endangered Species Act
EWEB	Eugene Water & Electric Board
F&O	Financial and Operating Reports
FBS	Federal Base System
FCCF	Fish Cost Contingency Fund
FCRPS	Federal Columbia River Power System
FCRTS	Federal Columbia River Transmission System
FELCC	Firm Energy Load Carrying Capability
FERC	Federal Energy Regulatory Commission
Fourth Power Plan	NWPPC's Fourth Northwest Conservation and Electric Power Plan
FPA	Federal Power Act
FPS	Firm Power Products and Services (rate)
FSEA	Federal Secondary Energy Analysis
F&WCA	Fish and Wildlife Coordination Act
FY	Fiscal Year (Oct-Sep)
GCPs	General Contract Provisions
GEP	Green Energy Premium
GI	Generation Integration
GRI	Gas Research Institute
GRSPs	General Rate Schedule Provisions
GSP	Generation System Peak
GSU	Generator Step-Up Transformers
GTA	General Transfer Agreement
GWh	Gigawatthour
HELM	Hourly Electric Load Model
HLFG	High Load Factor Group
HLH	Heavy Load Hour
HNF	Hourly Non-Firm
HOSS	Hourly Operating and Scheduling Simulator
ICNU	Industrial Customers of Northwest Utilities
ICUA	Idaho Consumer-Owned Utilities Association, Inc.
IPC	Idaho Power Company

IP	Industrial Firm Power (rate)
IPTAC	Industrial Firm Power Targeted Adjustment Charge
IJC	International Joint Commission
IOU	IOU (the joint IOU filings)
IOUs	Investor-Owned Utilities
ISC	Investment Service Coverage
ISO	Independent System Operator
JOA	Joint Operating Agency
Joint DSI	Alcoa, Vanalco, and DSI
KAF	Thousand Acre Feet
kcfs	kilo (thousands) of cubic feet per second
ksfd	thousand second foot day
kV	Kilovolt (1,000 volts)
kW	Kilowatt (1,000 watts)
kWh	Kilowatthour
LCP	Least-Cost Plan
LDD	Low Density Discount
LLH	Light Load Hour
LME	London Metal Exchange
LOLP	Loss of Load Probability
L/R Balance	Load/Resource Balance
m/kWh	Mills per kilowatthour
MAC	Market Access Coalition Group
MAF	Million Acre Feet
MC	Marginal Cost
MCA	Marginal Cost Analysis
MCS	Model Conservation Standards
Mid-C	Mid-Columbia
MIMA	Market Index Monthly Adjustment
MIP	Minimum Irrigation Pool
MMBTU	Million British Thermal Units
MOA	Memorandum of Agreement
MOP	Minimum Operating Pool
MORC	Minimum Operating Reliability Criteria
MPC	Montana Power Company
MT	Market Transmission (rate)
MW	Megawatt (1 million watts)
MWh	Megawatthour
NCD	Non-coincidental Demand
NEC	Northwest Energy Coalition
NEPA	National Environmental Policy Act
NEPOOL	New England Power Pool
NERC	North American Electric Reliability Council
NF	Nonfirm Energy (rate)
NFRAP	Nonfirm Revenue Analysis Program (model)
NLSL	New Large Single Load

NMFS	National Marine Fisheries Service
NOB	Nevada-Oregon Border
NORM	Non-Operating Risk Model
Northwest Power Act	Pacific Northwest Electric Power Planning and Conservation Act
NPV	Net Present Value
NR	New Resource Firm Power (rate)
NRU	Northwest Requirements Utilities
NT	Network Transmission
NTP	Network Integration Transmission (rate)
NTSA	Non-Treaty Storage Agreement
NUG	Non-Utility Generation
NWPP	Northwest Power Pool
NWPPC C&R	Northwest Power Planning Council Cost and Revenues Analysis
NWPPC	Northwest Power Planning Council
O&M	Operation and Maintenance
OMB	Office of Management and Budget
OPUC	Oregon Public Utility Commission
OURCA	Oregon Utility Resource Coordination Association
OY	Operating Year (Aug-Jul)
PA	Public Agency
PacifiCorp	PacifiCorp
PATH	Plan for Analyzing and Testing Hypotheses
PBL	Power Business Line
PDP	Proportional Draft Points
PDR	Power Discharge Requirement
PF	Priority Firm Power (rate)
PFBC	Pressurized Fluidized Bed Combustion
PGE	Portland General Electric
PGP	Public Generating Pool
PMA	Power Marketing Agencies
PMDAM	Power Marketing Decision Analysis Model
PNCA	Pacific Northwest Coordination Agreement
PNGC	Pacific Northwest Generating Cooperative
PNRR	Planned Net Revenues for Risk
PNUCC	Pacific Northwest Utilities Conference Committee
PNW	Pacific Northwest
POD	Point of Delivery
PPC	Public Power Council
PPLM	PP&L Montana, LLC
Principles	Fish and Wildlife Funding Principles
Project Act	Bonneville Project Act
PSE	Puget Sound Energy
PSW	Pacific Southwest
PTP	Point-to-Point
PUD	Public or People's Utility District
Puget	Puget Sound Energy, Inc.

PURPA	Public Utilities Regulatory Policies Act
RAM	Rate Analysis Model (computer model)
RAS	Remedial Action Scheme
Reclamation	Bureau of Reclamation
Renewable Northwest	Renewable Northwest Project
REP	Residential Exchange Program
RFP	Request for Proposal
RiskMod	Risk Analysis Model (computer model)
RiskSim	Risk Simulation Model
RL	Residential Load (rate)
RMS	Remote Metering System
ROD	Record of Decision
RPSA	Residential Purchase and Sale Agreement
RTF	Regional Technical Forum
RTO	Regional Transmission Organization
SCCT	Single-Cycle Combustion Turbine
Shoshone-Bannock	Shoshone-Bannock Tribes
SOS	Save Our Wild Salmon
SPG	Slice Purchasers Group
SS	Share-the-Savings Energy (rate)
STREAM	Short-Term Evaluation and Analysis Model
SUB	Springfield Utility Board
SUMY	Stepped-Up Multiyear
SWPA	Southwestern Power Administration
TAC	Targeted Adjustment Charge
TACUL	Targeted Adjustment Charge for Uncommitted Loads
TBL	Transmission Business Line
tcf	Trillion Cubic Feet
TCH	Transmission Contract Holder
TDG	Total Dissolved Gas
TPP	Treasury Payment Probability
Transmission System Act	Federal Columbia River Transmission System Act
TRL	Total Retail Load
UAI Charge	Unauthorized Increase Charge
UAMPS	Utah Associated Municipal Power Systems
UCUT	Upper Columbia United Tribes
UDC	Utility Distribution Company
UP&L	Utah Power & Light
URC	Upper Rule Curve
USFWS	U.S. Fish and Wildlife Service
Vanalco	Vanalco, Inc.
VB	Visual Basic
VBA	Visual Basic for Applications
VI	Variable Industrial Power rate
VOR	Value of Reserves
WAPA	Western Area Power Administration

WEFA	WEFA Group (Wharton Econometric Forecasting Associates)
WPAG	Western Public Agencies Group
WPRDS	Wholesale Power Rate Development Study
WSCC	Western Systems Coordinating Council
WSPP	Western System Power Pool
WUTC	Washington Utilities and Transportation Commission
WY	Watt-Year
Yakama	Confederated Tribes and Bands of the Yakama Nation

1. INTRODUCTION

The Loads and Resources Study represents the compilation of the load and resource data necessary for developing Bonneville Power Administration's (BPA) wholesale power rates.

The results of the Study are used to: (1) determine resource costs for the Revenue Requirement Study, WP-02-FS-BPA-02; (2) provide load and resource data for use in risk analysis in the Risk Analysis Study, WP-02-FS-BPA-03; (3) derive billing determinants in the Wholesale Power Rate Development Study, WP-02-FS-BPA-05; and (4) derive load inputs for the 7(b)(2) Rate Test Study, WP-02-FS-BPA-06.

The Study provides a synopsis of BPA's loads and resources analyses. Specific components of the analyses are not addressed in detail in this Study. Instead, an overview illustrates how each component is completed, how components relate to each other, and how each component fits into the rate development process. Methods, details, and results supporting the Study are contained in the Loads and Resources Study Documentation, WP-02-FS-BPA-01A.

The Study and the supporting Documentation reflect all of the load and resource assumptions made for BPA's 2002 final wholesale power rate proposal.

2. METHODS

2.1 Overview

This study has three major interrelated components: (1) BPA's Federal system load forecast; (2) BPA's Federal system resource forecast; and (3) load and resource balances.

1 This Study provides projected firm loads and resources of the BPA system for the Fiscal Year¹
2 (FY) 2002 through 2006 rate period.

3
4 **2.1.1 Federal System Load Forecasts.** The Federal system load forecast is the forecast of
5 firm energy load that BPA expects to serve during the FY 2002 through 2006 period. The
6 Federal system load forecast is composed of customer group sales forecasts for public utilities
7 and Federal agencies, direct service industrial customer (DSI), investor-owned utilities (IOU),
8 and other BPA contractual obligations.

9
10 **2.1.2 Federal System Resources.** BPA markets power from resources which include power
11 generated by both Federal and non-Federal projects, return energy associated with BPA's
12 existing capacity-for-energy exchanges, contracted resources, and other BPA hydro-related
13 contracts. The combination of these resources represents the Federal system's available firm
14 resources. BPA's current projection of the output of these generating and contract resources is
15 incorporated in this Study.

16
17 **2.1.3 Load and Resource Balances.** Projections of Federal system firm energy loads are
18 compared with Federal system energy resources for each month of Operating Year² (OY) 2002
19 through 2007 (August 2001 through July 2007) under 1937 water conditions. The results of this
20 comparison yield the firm energy surplus or deficit of the Federal system resources. Similarly,
21 firm capacity surpluses or deficits are determined for OY 2002 through 2007 using 1937 water
22 conditions. This analysis provides the base case that is used in RiskMod to provide revenue and
23 costing estimates. *See Risk Analysis Study, WP-02-FS-BPA-03.*

24
25

¹ Fiscal Year is the 12-month period October – September.

² Operating Year is the 12-month period August – July.

1 **2.2 Federal System Firm Load Forecast**

2
3 **2.2.1 Overview.** The Federal System Firm Load Forecast includes BPA’s forecasted sales to
4 regional public utilities and Federal agencies, forecasted sales to regional IOUs and DSIs, and
5 other inter- and intraregional contractual obligations. The Federal system firm loads used in
6 BPA’s 2002 final rate proposal are detailed in the Loads and Resources Study Documentation,
7 WP-02-FS-BPA-01A. Summaries of the Federal system loads and resources for OY 2002
8 through 2007 are in Appendix B of this Study.

9
10 Policies and procedures guiding BPA’s firm energy sales in the FY 2002 through 2006 rate
11 period are presented in BPA’s Power Subscription Strategy and Record of Decision
12 (Subscription Strategy). The Subscription Strategy and BPA’s Federal system load and resource
13 forecasts, as well as the testimony in support of these forecasts, provide the basis for the public
14 utility and Federal agency, IOU, and DSI firm energy sales forecasts.

15
16 **2.2.2 Public Utility and Federal Agency Sales Forecast.** The public utilities’ monthly
17 energy sales forecast is based upon the annual load forecast by consuming sector for the public
18 agencies and Federal agencies produced by the Northwest Power Planning Council (NWPPC) in
19 its 1998 Power Plan. This forecast was reduced by an incremental 20 average megawatts (aMW)
20 per year for the rate period and by a constant 100 aMW thereafter to reflect conservation
21 augmentation, market transformation and low-income weatherization. BPA split the NWPPC’s
22 forecast into Full Service and Partial Service³ customers. BPA then shaped the NWPPC’s annual
23 sector load forecast across each month by state.

24
25

³ For purposes of this forecast, the Partial Service group is defined as any utility that does not purchase the Full Service product during the Subscription process. Therefore, any utilities that signed Pre-Subscription Contracts, even if the contract is to serve a utility’s entire load, are assigned to the Partial Service customer group.

1 To account for the possibility of retail access market changes, BPA developed an algorithm to
2 calculate BPA's sales given an assumed market share. The algorithm uses the month and year of
3 implementation of retail access by state to estimate BPA's sales. For this Study, it is assumed
4 that no new retail access legislation will be enacted in the region during the rate period.

5
6 BPA's forecast of monthly peak loads is developed by applying load factors to the forecasted
7 monthly average energy loads. Separate load factors are produced for the Full and Partial
8 Service customer groups from metered data for the years 1992 through 1997. For the Full
9 Service group, the load factor reflects the load at the time of the Federal system's generation
10 peak. For the Partial Service group, the load factor reflects the utilities' own system peaks.

11
12 The Partial Service customer group's energy and peak load forecasts are reduced for their
13 projected resources. Subtracting these projected resources from the Partial Service customer
14 group's energy and peak load forecasts produces BPA's energy and peak sales forecasts. These
15 sales forecasts are further reduced by 700 megawatts (MW) uniformly across all hours to reflect
16 assumed continued diversifications.

17
18 BPA's peak and energy forecasts for the Full Service group are increased by 150 aMW, shaped
19 to the Full Service group forecast, to reflect annexation of service territory and the formation of
20 new public utilities. Both Full and Partial Service energy forecasts are split into heavy load
21 hours (HLH) energy and light load hours (LLH) energy totals by consuming sector. The sector
22 splits are derived from the load shapes in BPA's Hourly Electric Load Model.

23
24 The monthly sales forecasts for energy and demand for the Full and Partial Service groups are
25 presented in Appendix A, Tables 1 through 5. A detailed description of the data, method, and
26

1 projections of the public utilities' sales forecast can be found in the Loads and Resources Study
2 Documentation, WP-02-FS-BPA-01A.

3
4 **2.2.3 Investor-Owned Utilities Sales Forecast.** The six IOUs in the region are: Avista
5 Utilities Corporation (formerly Washington Water Power), Idaho Power Company, Montana
6 Power Company, PacifiCorp, Portland General Electric Company, and Puget Sound Energy
7 (formerly Puget Sound Power and Light Company).

8
9 BPA offers regional IOUs access to the equivalent of 1,900 aMW of Federal power for the
10 FY 2002 through 2006 period as a proposed settlement of the Residential Exchange Program
11 (REP). *See* Leathley, *et al.*, WP-02-E-BPA-19. Of this amount, at least 1,000 aMW is actual
12 BPA power deliveries. BPA has the option to provide the remaining 900 aMW through either a
13 financial arrangement or additional power deliveries. The power portion of the 1,900 aMW also
14 depends, in part, on preference customer load obligations and any reductions in BPA's system
15 capability. For purposes of this Study, BPA assumes power sales to IOUs of 1,000 aMW.
16 *See* Appendix A, Tables 6 through 10. This sales forecast assumes each of the region's IOUs
17 participates in the REP settlement.

18
19 BPA assumes that Subscription power sales to the IOUs are made as requirements sales under
20 section 5(b) of the Pacific Northwest Electric Power Planning and Conservation Act (Northwest
21 Power Act) at the proposed Residential Load (RL) rate or as "in lieu" sales under section 5(c) of
22 the Northwest Power Act at the proposed PF Exchange Subscription rate. BPA will meet the
23 IOUs' requests for net requirements service, in excess of requirements loads served under
24 section 5(b) Subscription sales, at the New Resources (NR-02) rate. BPA's forecast does not
25 contain estimates for NR sales.

26

1 **2.2.4 Direct Service Industry Sales Forecast.** The DSIs are a group of 13 industrial firms
2 operating 17 plants in the Pacific Northwest (PNW) that purchase electric power directly from
3 BPA. These plants primarily involve electricity-intensive industrial processes such as the
4 production of aluminum and other primary metals, pulp and paper, ferroalloys, and
5 chlor-alkalies.⁴

6
7 The IP rate class sales forecast is 990 aMW for the Loads and Resources Study,
8 WP-02-FS-BPA-01. BPA is allocating an additional 450 aMW of purchases to the DSIs at the
9 average forecast purchase rate. This 1,440 aMW will be sold to the DSIs at rates sufficient to
10 cover the allocated costs of the 990 aMW plus the purchase costs of the additional 450 aMW.
11 *See* Berwager, *et al.*, WP-02-E-BPA-09. *See* Wholesale Power Rate Development Study,
12 WP-02-FS-BPA-05.

13
14 The IP rate class sales forecast is shown in Appendix A, Tables 11 through 15. Only the IP rate
15 class sales forecast of 990 aMW is reflected in the Loads and Resources Study,
16 WP-02-FS-BPA-01 and analysis. The 450 aMW purchase is made solely on behalf of the DSIs
17 and the costs of that purchase are not allocated to any other rate class.⁵ *See* Doubleday, *et al.*,
18 WP-02-E-BPA-18.

19
20 **2.2.5 Contractual Obligations.** BPA provides Federal power to customers under a variety of
21 contractual arrangements not included in the public utility, IOU, and DSI sales forecasts. The
22 contracts are categorized as: (1) adjustable rate contracts; (2) fixed rate contracts; (3) power,
23 capacity, or energy exchange contracts; (4) capacity sales or capacity-for-energy exchange
24 contracts; (5) power payments for services; and (6) power commitments under international

⁴ The DSIs include Alcoa, Inc. (formerly Aluminum Company of America), Columbia Falls Aluminum Company, Elf Atochem North America, Inc., Georgia Pacific Corporation, Glenbrook Nickel Company, Goldendale Aluminum Company, Intalco Aluminum Corporation, Kaiser Aluminum & Chemical Corporation, Northwest Aluminum Company, Oregon Metallurgical Corporation, Port Townsend Paper Company, Reynolds Metal Company, and Vanalco, Inc.

⁵ Transmission losses for the DSI augmentation purchase are addressed in Wholesale Power Rate Development Study, WP-02-FS-BPA-05.

1 treaty. These arrangements are collectively called contractual obligations. The energy and peak
2 levels of each of these obligations are obtained from the individual contracts. Unlike previous
3 studies, this analysis includes energy associated with the delivery and return from capacity and
4 capacity-for-energy exchange contracts. This information was provided for input to Risk
5 Analysis Model (RiskMod) to estimate HLH and LLH surplus/deficits.

6
7 All firm contractual obligations are served by Federal system firm resources regardless of
8 weather, water, or economic conditions. The Federal system contractual obligations are detailed
9 in the Loads and Resources Study Documentation, WP-02-FS-BPA-01A.

10 11 **2.3 Federal System Resource Forecasts**

12
13 **2.3.1 Overview.** Federal system resources consist of both hydro and contracted resources.
14 The Federal system hydro resource estimates are derived from a hydroregulation study that
15 estimates their generation under 50 water conditions using the operating provisions of the Pacific
16 Northwest Coordination Agreement (PNCA).⁶ The seasonal shape and magnitude of the Federal
17 system hydro depends on availability and coordination of PNW regional resources to meet
18 regional loads. The rate analysis uses resource generation estimates and contract resource
19 information to determine the composition of Federal system resources.

20
21 The PNCA defines the planning and operation of the regional hydrosystem. Major features
22 recently introduced into hydroregulation studies are the Columbia River flow augmentation
23 targets from the 1995 National Marine Fisheries Services (NMFS) Biological Opinion for
24 Salmon (1995 BO) dated March 2, 1995, and the 1998 NMFS Supplemental Biological Opinion
25 for Steelhead (1998 BO) dated May 14, 1998.

⁶ The hydroregulation study used for the Loads and Resources Study is for the base case only. Hydro studies reflecting the 13 fish alternatives are described in the Risk Analysis Study, WP-02-FS-BPA-03, and in the Revenue Requirement Study, WP-02-FS-BPA-02.

1 Flow augmentation is intended to assist in the downstream migration of fish smolt. The
2 hydroregulation study incorporates both of these BOs, which provide: (1) Snake River flow
3 augmentation April 3 through August 31; (2) storage of water January through mid-April for
4 lower Columbia River flow augmentation that occurs from April 20 through August 31; and
5 (3) mid-Columbia flow augmentation April 10 through June 30.

6
7 **2.3.2 Federal System Marketed Resources.** Federal firm resources from which BPA markets
8 power currently consist of federally owned hydro, nonfederally owned resources (hydro, thermal
9 and wind projects), exchange energy associated with BPA's existing capacity-for-energy
10 exchanges, power purchases, and other BPA hydro-related contracts. To provide for Federal
11 system transmission losses, total Federal resources less reserves and maintenance were reduced
12 by 2.82 percent for energy and 3.35 percent for peak. These transmission losses are shown in
13 Appendix B, line 42, Federal Transmission Losses.

14
15 **2.3.2.1 Hydro Resources.** The Federal system hydro resources, though marketed by BPA, are
16 owned and operated by the Bureau of Reclamation (Reclamation) and the U.S. Army Corps of
17 Engineers (COE). BPA also markets power purchased from hydro projects owned by the City of
18 Idaho Falls (Idaho Falls Bulb turbine), Lewis County Public Utility District (Cowlitz Falls),
19 Energy Northwest (Packwood Lake), and Mission Valley (Big Creek). This study also includes
20 as resources anticipated control system efficiency improvements at The Dalles, Chief Joseph,
21 Grand Coulee, Green Springs, and Minidoka. These efficiency improvements are expected to
22 yield as much as 77.4 aMW by OY 2006. These resources are summarized in Appendix B,
23 line 20, Regulated Hydro and line 21, Independent Hydro. Hydro resource details are included
24 in the Loads and Resources Study Documentation, WP-02-FS-BPA-01A, Tables A-3 (Regulated
25 Hydro Projects) and A-4 (Hydro Independents).

26

1 **2.3.2.2 Other Federal Generation.** Additional Federal system resources include Energy
 2 Northwest’s WNP-2 nuclear plant and contracted resources. The projected output of WNP-2
 3 includes facility improvements and changes in the refueling cycle to once every two years. *See*
 4 Appendix B and the Loads and Resources Study Documentation, WP-02-FS-BPA-01A. BPA
 5 also has contracted, or is negotiating, for the output of several generation projects. These
 6 projects include hydro (Clearwater), wind (100 percent of a future wind project and 37 percent of
 7 Wyoming Wind Project), and geothermal (100 percent of BPA/Cwest Geothermal Project and
 8 100 percent of a future geothermal project) resources. *See* Appendix B and Loads and Resources
 9 Study Documentation, WP-02-FS-BPA-01A. In addition, BPA has contracted for the output of
 10 the gas-fired James River Wauna project.

11
 12 **2.3.2.3 Contract Purchases and Capacity-for-Energy Contracts.** BPA makes contract
 13 power purchases to help meet its Federal system load obligations. In addition to its existing
 14 power purchase contracts, BPA is assuming 1282 aMW (fiscal five-year average) of system
 15 augmentation for the rate period. The system augmentation is to meet forecasted Federal load
 16 and is assumed to be flat power purchases. System augmentation by fiscal and operating years is
 17 presented in the following table.

18 **Federal System Augmentation Purchases**
 19 **Under 1936-1937 Water Conditions**
 20 **Energy in aMW**

	2002	2003	2004	2005	2006	5-Year Average
OY	1091	1358	1207	1292	1255	1241
FY	1309	1368	1175	1315	1243	1282

24
 25 BPA also receives exchange energy from capacity-for-energy exchange contracts, which provide
 26 firm energy to BPA in exchange for capacity BPA delivers. *See* Loads and Resources Study

1 Documentation, WP-02-FS-BPA-01A, Tables A-2 (Exports), A-5 (Imports), and A-16
2 (Contracts Between Utilities).

3
4 The combination of these acquisitions and the resources discussed above represents the Federal
5 system's available firm resources. Summaries of Federal system resources for OY 2002 through
6 2007 are contained in Appendix B.

7 8 **2.3.3 Hydroregulation Study**

9
10 **2.3.3.1 Regulation.** The hydroregulation study integrates operating requirements from a
11 variety of sources: (1) the Assured Operating Plan (AOP) rule curves for Canadian reservoirs;
12 (2) the PNCA rule curves for United States (U.S.) projects; (3) the flood control rule curves
13 developed by the COE; and (4) the fish operations required under the BOs. A multistep study is
14 conducted to reflect these operating requirements and their net effect on the hydrosystem.

15
16 In the hydroregulation study, the critical period portion of the streamflow record is not
17 independently modeled by BPA. Critical Rule Curves developed in the PNCA 1999-2000 final
18 regulation are used to guide proportional drafting of the coordinated system's projects during the
19 Actual Energy Regulation (AER) and the Operational hydro studies. The PNCA final regulation
20 also determines the critical period Firm Energy Load Carrying Capability (FELCC).

21
22 The Canadian projects are modeled duplicating their final operations from the 2002 AOP. The
23 AOP operations are developed through joint studies between the U.S. and Canada in determining
24 the benefits of the development of the Canadian portion of the Columbia River. The AOP
25 studies are run yearly to show the downstream benefits and to coordinate operation of
26

1 Canadian dams as required in the Columbia River Treaty. These operations of the Canadian
2 projects allow them to be free of impacts due to fish operations on the U.S. side of the border.

3
4 BPA modeled the hydrosystem in a two-step procedure. First, an AER study is run to determine
5 the 50-year operation of the non-Federal projects when trying to meet the coordinated system's
6 FELCC and an unlimited secondary energy load. In the AER study, Federal and non-Federal
7 hydro projects are proportionally drafted to meet the coordinated system's FELCC. Second, an
8 Operational 50-year study is run with estimated regional firm loads and a limited secondary
9 energy load based on observed operations. In the 50-year Operational study, the non-Federal
10 projects are limited to the proportional draft points developed in the 50-year AER study.

11
12 The hydro resources derived from this OY 2002 simulation are then used to represent hydro
13 resources in OY 2002 through 2007. The OY 2002 level study is run in a continuous mode with
14 each water year starting where the previous water year ended in the 50-year sequence. This
15 continuous study accurately reflects the expected energy generation when nothing is known of
16 the OY 2002 through 2007 level refill events.

17
18 With the introduction of the NMFS BOs as a requirement of firm planning, the operation of
19 major Federal hydrosystem projects (Grand Coulee, Libby, Hungry Horse, Albeni Falls, and
20 Dworshak) are limited so that minimal proportional drafting will occur. As a result, both the
21 AER and the Operational hydro study are regulated by Columbia River and Snake River flow
22 augmentation, as set forth in the BOs and the COE's and the Reclamation's PNCA data
23 submittals.

24
25 Snake River and Columbia River flow augmentation, modeled in both the AER and the
26 Operational studies, includes storing January through mid-April flows at Arrow, Libby,

1 Hungry Horse, Dworshak, Brownlee, and Grand Coulee for later release during the springtime in
2 order to enhance juvenile fish passage at downstream dams. An agreement with Canada enables
3 the storage of 1.0 million acre feet (MAF) for flow augmentation during water years where the
4 forecast January through July runoff at The Dalles is below 90 MAF. The effect of storing
5 approximately 1.0 MAF at Arrow is achieved in the models by using Arrow's total energy
6 content curves in both the AER and Operational studies. Other constraints related to flow
7 augmentation include the drawdown of the four lower Snake projects (Lower Granite,
8 Little Goose, Lower Monumental, and Ice Harbor) and John Day, to facilitate juvenile fish
9 bypass. The hydro studies are discussed in greater detail in the Loads and Resources Study
10 Documentation, WP-02-FS-BPA-01A.

11
12 Additional fish measures on the system to complement flow augmentation include:

13 (1) springtime fish spills at Lower Granite, Little Goose, Lower Monumental, Ice Harbor,
14 McNary, John Day, The Dalles, and Bonneville; (2) summertime fish spills at Ice Harbor,
15 John Day, The Dalles, and Bonneville; (3) operation of Libby for the protection of sturgeon in all
16 but the driest 20 percent of the studied water conditions; and (4) top 1 percent turbine efficiency
17 operation at all lower Snake and lower Columbia projects for powerhouse flows March through
18 November.

19
20 Compared to system generation from operations prior to the BOs, this process shapes generation
21 out of the fall and winter and into spring and summer. Less firm energy is available to meet
22 loads when the hydrosystem is storing water (January through early to mid-April), and more
23 energy is available to meet loads when the hydrosystem is releasing stored water during flow
24 augmentation periods (mid-April through August). The 50 year hydro study monthly reservoir
25 operations were run through the Hourly Operating and Scheduling Simulator (HOSS) model to
26 estimate the monthly ratios of HLH hydro generation. The Operational hydro study results and

1 the HOSS HLH hydro generation ratios are input into RiskMod, which determines the Federal
2 system monthly HLH and LLH surpluses and deficits. HLH and LLH energy surpluses and
3 deficits estimated in RiskMod include transmission losses of 2.82 percent, which are applied to
4 all hydro and nuclear generation. Also included in RiskMod is the Federal System
5 Augmentation Purchased energy described above. The surplus energy estimated in RiskMod is
6 used to project surplus power sales revenues and power purchase expenses. *See Risk Analysis*
7 *Study, WP-02-FS-BPA-03.*

8
9 **2.3.3.2 Energy.** BPA generally plans to meet firm energy loads based on current generation
10 capability under critical streamflow conditions. The critical period is that period, using the
11 historical streamflow data base, during which the hydrosystem can produce the least amount of
12 power while drafting the reservoirs from full to empty. This period can vary depending upon the
13 assumptions used in the hydro study. With implementation of the BOs, the critical period is the
14 eight-month period of historical streamflows that occurred from September 1, 1936, through
15 April 30, 1937. Generation from the hydro study is used as input to the Loads and Resources
16 Study, WP-02-FS-BPA-01 and RiskMod. Project generation is detailed in the Loads and
17 Resources Study Documentation, WP-02-FS-BPA-01A.

18
19 **2.3.3.3 Surplus Energy Analysis.** BPA resource planning uses critical waterflows to compute
20 long-term firm energy production capability. In most years, however, the Columbia River Basin
21 collects enough water from rain and snow melt to surpass the region's critical waterflows. The
22 amount of generation that can be produced in excess of firm loads under critical water conditions
23 is called surplus energy. This section summarizes the Federal system energy surpluses and
24 deficits produced from the 50 water year hydroregulation study. The purpose of this surplus
25 energy analysis is to show the seasonal distribution of these Federal system surpluses and deficits
26

1 over the rate period. The seasonality of the Federal surplus energy in excess of firm load from
2 the hydroregulation study is described below.

3
4 **Mid-August through December**

5 Snowmelt runoff typically ends in August. Grand Coulee, Hungry Horse, Dworshak, and Libby
6 continue drafting in August to the draft limits as needed to meet flow targets on the lower
7 Columbia. In August, after reservoirs reach the draft limits, water is released only to maintain
8 minimum outflow requirements. August is a transition month that is typically split. The first
9 half of August is typically surplus, while the latter half of the month tends to be deficit. The
10 following table shows the depth of draft from full allowed by the end of August to support flow
11 targets. The August 31 elevations at Dworshak, Hungry Horse, and Grand Coulee are at, or
12 above, these draft limits in each of the 50 water years. In 10 of the 50 water years studied, Libby
13 started the September period at elevations lower than 20 feet below full.

14
15 **End of August Draft Limits**

16 Project	Grand Coulee	Dworshak	Hungry Horse	Libby
17 Draft from Full	10 feet	80 feet	20 feet	20 feet

18
19 September is marked by a significant reduction in natural streamflows and the reservoirs are
20 typically limited to minimum discharge requirements. Minimum discharge requirements at
21 Hungry Horse and Dworshak typically exceed inflows resulting in some draft. Frequently,
22 September reservoir operations begin from reduced reservoir elevation resulting from August
23 flow augmentation.

24
25 Between September and November, natural streamflows are frequently at their lowest point.

26 Very limited flexibility exists for power operations. Flows out of Grand Coulee are reduced in

1 October and November to maintain a low Vernita Bar protection level for anadromous fish
 2 reproduction. Numerous energy deficits occur during this period as Grand Coulee, Dworshak,
 3 and Hungry Horse are either on minimum flow or low flow operations to meet future flow
 4 augmentation storage requirements. Of the 250 periods represented by Mid-August through
 5 December in all 50 water years, surplus energy is generated as shown in the following table.

6
 7 **Surplus Energy Generation for Mid-August through December**

	Number of Periods			50-year Avg. Surplus (aMW)
	Surplus	L/R Balance ⁷	Deficit	
2002 Level	125 out of 250	18 out of 250	107 out of 250	481.3
2003 Level	152 out of 250	22 out of 250	76 out of 250	743.9
2004 Level	155 out of 250	15 out of 250	80 out of 250	711.5
2005 Level	164 out of 250	19 out of 250	67 out of 250	864.8
2006 Level	155 out of 250	18 out of 250	77 out of 250	753.8

14 ⁷ Surplus energy estimates for load and resource balance represents Federal energy surpluses and deficits which range from
 15 +100 to -100 aMW.

16 **January through Mid-April**

17 In low runoff years, the Federal projects operate to store water January through early April for
 18 flow augmentation while still operating at or below elevations required for flood control. Most
 19 projects in most years have drafted to the lowest flood control elevations by the end of April. In
 20 high runoff years, this flood control draft of reservoirs produces large surpluses. Of the
 21 200 periods represented by January through Mid-April, in all 50 water years, surplus energy is
 22 generated as shown in the following table.

23
 24
 25
 26

Surplus Energy Generation for January through Mid-April

	Number of Periods			50-year Avg. Surplus (aMW)
	Surplus	L/R Balance ⁷	Deficit	
2002 Level	142 out of 200	2 out of 200	56 out of 200	1834.0
2003 Level	145 out of 200	7 out of 200	48 out of 200	2148.8
2004 Level	143 out of 200	0 out of 200	57 out of 200	1923.5
2005 Level	143 out of 200	5 out of 200	52 out of 200	1984.9
2006 Level	143 out of 200	3 out of 200	54 out of 200	1914.1

⁷ Surplus energy estimates for load and resource balance represents Federal energy surpluses and deficits which range from +100 to -100 aMW.

Mid-April through Mid-August

Surplus energy is usually abundant mid-April through mid-August as a byproduct of running the system to meet flow targets. In low runoff years, the refill of reservoirs by late June takes priority over the flow targets, causing some deficits. Of the 250 periods represented by mid-April through mid-August, in all 50 water years, surplus energy is generated as shown in the following table.

Surplus Energy Generation for Mid-April through Mid-August

	Number of Periods			50-year Avg. Surplus (aMW)
	Surplus	L/R Balance ⁷	Deficit	
2002 Level	228 out of 250	3 out of 250	19 out of 250	4257.5
2003 Level	235 out of 250	3 out of 250	12 out of 250	4270.1
2004 Level	245 out of 250	0 out of 250	5 out of 250	4621.4
2005 Level	235 out of 250	3 out of 250	12 out of 250	4334.0
2006 Level	245 out of 250	0 out of 250	5 out of 250	4624.2

⁷ Surplus energy estimates for load and resource balances represents Federal energy surpluses and deficits which range from +100 to -100 aMW.

1 **2.3.3.4 Capacity**

2 Hydro peaking capacity is based on the historical water year 1937. Hydro peaking capability is
3 based on a one hour capability. BPA reduces the hydro capability by a sustained peaking
4 adjustment to reflect the daily duration characteristics of peak loads and the shaping limitations
5 of the hydro resources used to meet those loads. The sustained peaking adjustment assumes any
6 BPA capacity sale will be for 50 hours per week, every week of the year. These BPA capacity
7 sales require that replacement energy be returned to BPA. Additionally, hydro capacity is
8 reduced for maintenance.

9
10 Total Federal peaking capacity is determined for hydro, inter-, and intraregional resource
11 contracts, and thermal resources. Total Federal peaking capacity is reduced by reserves for
12 forced outages that are calculated as 15 percent of large thermal project output plus 5 percent of
13 the output of other resources.

14
15 **2.3.4 Conservation and Resource Acquisitions**

16
17 **2.3.4.1 Conservation Resources.** The NWPPC in their Fourth Northwest Conservation and
18 Power Plan, Document No. 98-22, pages 6-3, 6-4, and 6-5, estimated conservation BPA's service
19 territory at 150 aMW for the rate period, 2002 through 2006. For this rate case, BPA is
20 projecting conservation savings from BPA programs of 150 aMW in 30 aMW increments per
21 FY. Market transformation, low-income weatherization and conservation augmentation account
22 for 20 aMW per year (100 aMW over the five-year rate case period). Conservation and
23 renewable discount conservation accounts for 10 aMW per year (50 aMW over the five-year
24 period). Conservation savings from market transformation, low-income weatherization, and
25 conservation augmentation are subtracted from the sales forecast for public agency loads in
26 section 2.2.2.

2.3.4.2 Additional Generation Resources. Generation resources beyond current resources are added in the Loads and Resources Study, WP-02-FS-BPA-01 to account for additions and efficiency improvements. Up to 77.4 aMW reflect control system efficiency improvements at The Dalles, Chief Joseph, Grand Coulee, and Minidoka by OY 2006, and the acquisition of Green Springs as a resource in OY 2001. WNP-2's capabilities have increased by changing the refueling outage cycle to once every two years.

2.4 Load and Resource Balances

2.4.1 Overview. BPA prepared monthly load and resource balances for the Federal system. These balances evaluate all firm loads (system firm loads and contractual loads) and firm resources (hydro resources, thermal resources, miscellaneous resources, and contractual resources) for the Federal system.

2.4.2 Federal Firm Energy and Capacity Load and Resource Analysis. The Federal system firm energy and capacity load and resource balances under 1937 water conditions were determined by month for each OY over the study period. These results are presented in Appendix B. The Federal loads are comprised of the public utility, IOU, and DSI sales forecasts and contractual obligations described in sections 2.2 and 2.3 of this Study. The Federal resources are described in section 2.3 of this Study. The Federal system energy load and resource balance results for both FY 2002 through 2006 and OY 2002 through 2006 are presented in the following table.

Federal Firm Energy Surplus(+)/Deficit(-) Projections
 Under 1936-1937 Water Conditions
 Energy in aMW

	2002	2003	2004	2005	2006	5-Year Average
OY	-221	-26	11	-13	19	-46
FY	0	0	0	0	0	0

APPENDIX A
SALES FORECASTS

TABLES

Page

2002 BPA Public Utility Sales Forecast

1.	2001–2002 Fiscal Year	A-3
2.	2002–2003 Fiscal Year	A-3
3.	2003–2004 Fiscal Year	A-4
4.	2004–2005 Fiscal Year	A-4
5.	2005–2006 Fiscal Year	A-5

2002 BPA Initial Rate IOU Sales Forecast

6.	2001-2002 Fiscal Year	A-6
7.	2002-2003 Fiscal Year	A-6
8.	2003-2004 Fiscal Year	A-6
9.	2004-2005 Fiscal Year	A-7
10.	2005-2006 Fiscal Year	A-7

2002 BPA Initial Rate DSI Sales Forecast

11.	2001-2002 Fiscal Year	A-8
12.	2002-2003 Fiscal Year	A-8
13.	2003-2004 Fiscal Year	A-8
14.	2004-2005 Fiscal Year	A-9
15.	2005-2006 Fiscal Year	A-9

Table 1
2002 BPA Public Utility Sales Forecast
2001-2002 Fiscal Year

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	12Mon Avg
Full-HLH	MWh	235278	265848	315230	310487	288943	273479	257139	238156	249826	250447	267440	244323	266383
Full-LLH	MWh	143724	155714	181288	204432	184705	168078	149748	151977	144531	148162	141447	139309	159426
Full-Demand	MW	708	719	865	880	830	615	639	609	631	736	704	656	
Partial-HLH	MWh	1423814	1621346	2115520	2374493	2229975	2080755	1869066	1171083	923177	889665	1250366	1620564	1630819
Partial-LLH	MWh	859842	929323	1185138	1557851	1413142	1253657	1065791	731390	493188	495089	617153	896645	958184
Partial-Demand	MW	4807	5117	6539	7517	7283	5306	5119	3339	2702	3066	3788	4838	
LV-HLH	MWh	2486816	2752921	3319130	3341260	3203266	3055052	2879318	2587985	2661145	2562345	2684739	2563582	
LV-LLH	MWh	1561949	1649087	1935882	2225963	2069271	1896727	1709242	1681244	1558719	1549176	1455533	1492765	
Total Energy	aMW	3574	4128	5104	5978	6126	5075	4648	3081	2515	2397	3060	4029	4130
Total Peak	MW	5515	5836	7404	8397	8113	5921	5757	3949	3332	3801	4492	5495	

Table 2
2002 BPA Public Utility Sales Forecast
2002-2003 Fiscal Year

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	12Mon Avg
Full-HLH	MWh	237032	267787	317487	312711	291020	275488	259027	239934	251703	252297	269430	246145	268339
Full-LLH	MWh	144866	156907	182635	205944	186077	169357	150897	153172	145681	149337	142587	140414	160656
Full-Demand	MW	711	725	871	886	836	620	643	614	636	741	710	661	
Partial-HLH	MWh	1449070	1646970	2145277	2399167	2254795	2104841	1923054	1217632	975606	944543	1306961	1673380	1670108
Partial-LLH	MWh	876345	945207	1202979	1574820	1429627	1269041	1098414	762092	524242	528728	648505	928098	982341
Partial-Demand	MW	4887	5194	6626	7594	7362	5367	5264	3466	2847	3237	3950	4991	
LV-HLH	MWh	2512522	2780924	3352052	3374289	3235020	3085756	2908552	2614570	2688604	2588829	2712424	2590175	
LV-LLH	MWh	1578953	1666578	1955712	2248603	2090340	1916324	1727270	1699223	1575462	1565998	1471533	1509081	
Total Energy	aMW	3634	4190	5173	6038	6193	5133	4772	3189	2635	2520	3182	4150	4221
Total Peak	MW	5598	5919	7498	8480	8198	5986	5908	4080	3483	3978	4660	5652	

Table 3
2002 BPA Public Utility Sales Forecast
2003-2004 Fiscal Year

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	12Mon Avg
Full-HLH	MWh	238504	269408	319341	315390	293530	277927	261309	242043	253843	254376	271698	248269	270470
Full-LLH	MWh	145835	157919	183755	207764	187726	170896	152281	154564	146957	150617	143849	141675	161986
Full-Demand	MW	716	729	883	894	814	625	649	619	641	747	716	667	
Partial-HLH	MWh	1505939	1706822	2210963	2481399	2283409	2192625	2039664	1212070	1014998	986074	1347537	1713713	1724601
Partial-LLH	MWh	912866	981774	1241905	1630297	1448662	1324029	1168371	758834	547632	554328	671158	952211	1016005
Partial-Demand	MW	5068	5375	6822	7846	7175	5588	5577	3452	2956	3367	4067	5108	
LV-HLH	MWh	2535794	2806420	3381593	3413106	3272364	3121999	2942815	2645375	2720054	2618987	2744153	2621066	
LV-LLH	MWh	1594528	1682712	1973677	2275217	2115135	1939355	1748349	1719876	1594460	1585075	1489696	1527804	
Total Energy	aMW	3763	4328	5317	6230	6270	5330	5037	3182	2727	2615	3272	4244	4347
Total Peak	MW	5783	6104	7705	8740	7989	6213	6226	4071	3597	4114	4783	5775	

Table 4
2002 BPA Public Utility Sales Forecast
2004-2005 Fiscal Year

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	12Mon Avg
Full-HLH	MWh	240897	272058	322409	316672	294742	279138	262439	243096	254887	255360	272795	249321	271985
Full-LLH	MWh	147365	159531	185570	208661	188541	171676	152991	155275	147593	151247	144490	142319	162938
Full-Demand	MW	723	736	885	898	847	628	652	622	644	750	719	670	
Partial-HLH	MWh	1539088	1742785	2252781	2501591	2352266	2213337	2060793	1226283	1029370	1006676	1378069	1734246	1753107
Partial-LLH	MWh	934349	1003931	1266841	1644346	1493596	1337287	1181495	768393	556311	567203	688321	964733	1033901
Partial-Demand	MW	5173	5485	6947	7909	7673	5640	5635	3491	2996	3431	4155	5168	
LV-HLH	MWh	2567115	2840691	3421620	3434360	3292956	3142196	2962004	2662746	2737759	2635952	2762063	2638702	
LV-LLH	MWh	1615031	1704016	1997694	2290081	2128927	1952374	1760437	1731696	1605335	1596090	1500295	1538760	
Total Energy	aMW	3841	4414	5413	6279	6442	5378	5087	3216	2761	2662	3338	4293	4414
Total Peak	MW	5896	6221	7832	8807	8519	6268	6287	4113	3640	4182	4874	5838	

Table 5
 2002 BPA Public Utility Sales Forecast
 2005-2006 Fiscal Year

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	12Mon Avg
Full-HLH	MWh	241962	273227	323755	318863	296790	281113	264292	244827	256687	257134	274709	251087	273704
Full-LLH	MWh	148060	160254	186378	210137	189878	172916	154105	156412	148666	152339	145552	143363	164005
Full-Demand	MW	726	740	889	904	870	633	657	627	648	756	724	675	
Partial-HLH	MWh	1559625	1814123	2337685	2586432	2429646	2273728	2076648	1375053	1132407	1102752	1496417	1855578	1836675
Partial-LLH	MWh	947731	1047194	1316800	1701370	1543984	1375121	1191296	865527	616841	625580	753098	1036010	1085046
Partial-Demand	MW	5239	5700	7200	8168	7919	5792	5678	3896	3281	3730	4494	5517	
LV-HLH	MWh	2584339	2859473	3443565	3465704	3323105	3171306	2989600	2687746	2763601	2660866	2788031	2663695	
LV-LLH	MWh	1626459	1715782	2010918	2311440	2148797	1970797	1777295	1748298	1620586	1611340	1514905	1553790	
Total Energy	aMWh	3889	4576	5598	6474	6637	5515	5127	3551	2993	2873	3588	4564	4602
Total Peak	MW	5965	6440	8089	9072	8790	6425	6335	4522	3930	4486	5217	6192	

APPENDIX B

SUMMARY OF FEDERAL SYSTEM LOADS & RESOURCES OY 2002-2007

TABLE 2: FEDERAL SYSTEM SHEET 1 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2001- 2 OPERATING YEAR RUN DATE: 02/08/00

ENERGY IN AVERAGE MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL	12 MO AVG
PRE-2001 LOADS	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1 FEDERAL AGENCIES	148	148	140	0	0	0	0	0	0	0	0	0	0	0	24
2 FEDERAL GPU TRANS LOSSES	42	46	18	0	0	0	0	0	0	0	0	0	0	0	5
3 FEDERAL NGP TRANS LOSSES	96	96	90	0	0	0	0	0	0	0	0	0	0	0	15
4 USBR	161	161	109	0	0	0	0	0	0	0	0	0	0	0	22
5 DSI FIRM LOAD	2463	2463	2061	0	0	0	0	0	0	0	0	0	0	0	377
6 DSI FIRM LOSSES	64	64	54	0	0	0	0	0	0	0	0	0	0	0	10
7 SM & NON GEN PUB PURCH 1/	2522	2525	2357	0	0	0	0	0	0	0	0	0	0	0	407
8 FIRM SYSTEM LOAD	5496	5503	4829	0	0	0	0	0	0	0	0	0	0	0	861
UTILITY TRANSFERS OUT															
9 EXPORTS 2/	1447	1447	1461	1425	1316	1338	1529	1531	1462	1448	1445	1533	1707	1709	1492
10 CONTRACTS OUT 3/	872	872	899	1393	1719	1867	1860	1795	1583	1538	1538	1417	1490	1528	1497
11 CSPE TO WEST GROUP UTIL 4/	95	95	95	95	95	95	95	95	95	92	92	92	92	92	94
12 GEN PUB AGEN PSC PURCH 5/	1493	1505	1502	0	0	0	0	0	0	0	0	0	0	0	250
13 IOU PSC PURCHASE 6/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 PUBLIC SALES POST-2001	0	0	0	3574	4128	5104	5978	6126	5075	4648	4648	3081	2515	2397	3552
15 USBR SALES POST-2001	0	0	0	42	2	2	2	2	4	49	49	117	151	168	45
16 IOU SALES POST-2001	0	0	0	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	833
17 DSI SALES POST-2001	0	0	0	990	990	990	990	990	990	990	990	990	990	990	825
18 FED DIVERSITY 7/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 FIRM LOADS	9403	9422	8786	8519	9250	10396	11454	11539	10209	9765	9762	8230	7945	7884	9449
HYDRO RESOURCES															
20 REGULATED HYDRO	6769	6036	5770	6108	5945	7147	5857	6299	5118	5236	4958	7687	6286	7043	6230
21 INDEPENDENT HYDRO	424	422	359	384	304	236	175	195	273	433	512	707	741	445	393
22 SUS. PKNG. ADJUSTMENT 8/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23 CAN. ENT. NON-FED(CSPE) 9/	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
24 CAN. ENT. NON-FED(CNDA) 10/	80	80	80	80	80	80	80	80	80	79	79	79	79	79	80
25 RESTORATION 11/	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26
26 TOTAL HYDRO	7268	6533	6204	6567	6324	7458	6107	6569	5466	5743	5544	8468	7101	7562	6698

TABLE 2: FEDERAL SYSTEM (CONTINUED) SHEET 2 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2001-2 OPERATING YEAR RUN DATE: 02/08/00

ENERGY IN AVERAGE MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL	12 MO AVG
OTHER RESOURCES	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
27 SMALL THERMAL & MISC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 COMBUSTION TURBINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 RENEWABLES 12/	27	27	27	28	29	31	32	31	31	30	30	27	27	27	29
30 COGENERATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 IMPORTS 13/	197	197	230	255	255	310	284	240	203	204	173	82	174	205	219
32 CONTRACTS IN 14/	322	322	434	434	434	434	434	434	434	429	429	317	429	317	404
33 LARGE THERMAL 15/	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
34 NON-UTILITY GENERATION 16/	12	12	13	13	16	19	19	19	17	16	16	15	16	13	16
35 RESOURCE ACQUISITIONS 17/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 AUGMENT PURCHASE POST 2001	0	0	0	1309	1309	1309	1309	1309	1309	1309	1309	1309	1309	1309	1091
37 TOTAL RESOURCES	8826	8091	7908	9606	9367	10562	9185	9602	8460	8731	8501	11218	10056	10433	9456
RESERVES MAINTENANCE & DISTRIBUTION LOSSES															
38 HYD SM THRM & MISC RES 18/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39 LARGE THERMAL RESERVES 19/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40 SPINNING RESERVES 20/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 FEDERAL HYDRO MAINT 21/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42 FED TRANSMISSION LOSSES	0	0	0	-271	-264	-298	-259	-271	-239	-246	-240	-316	-284	-294	-228
43 NET RESOURCES	8826	8091	7908	9335	9103	10264	8926	9331	8221	8485	8261	10902	9773	10139	9228
SURPLUS/DEFICITS															
44 FIRM SURPLUS/DEFICIT	-577	-1331	-878	816	-147	-132	-2528	-2208	-1988	-1280	-1501	2672	1828	2255	-221

NOTE: 1. THE FOLLOWING CONTRACTS ARE SHOWN AS POWER SALES THROUGH THE STUDY HORIZON.

A. BPA TO BURBANK: PS & C/N/X C. BPA TO PASADENA: PS & C/N/X

B. BPA TO GLENDALE: PS & C/N/X D. BPA TO SCE: PS & C/N/X

2. SCE TO BPA: OPTION ENERGY IS NOT INCLUDED IN THIS STUDY.

3. BPA TO SCE: OPTION CAPACITY IS INCLUDED THROUGH OY 2004.

4. THE FOLLOWING CONTRACTS ARE RESOURCE OPTIONS AND NOT INCLUDED THROUGH THE STUDY HORIZON.

A. BURBANK TO BPA: SUPPLEMENTAL ENERGY C. PASADENA TO BPA: SUPPLEMENTAL ENERGY

B. GLENDALE TO BPA: SUPPLEMENTAL ENERGY D. SCE TO BPA: SUPPLEMENTAL ENERGY

TABLE 2: FEDERAL SYSTEM SHEET 1 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2002- 3 OPERATING YEAR RUN DATE: 02/08/00

ENERGY IN AVERAGE MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL	12 MO AVG
PRE-2001 LOADS	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1 FEDERAL AGENCIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 FEDERAL GPU TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 FEDERAL NGP TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 USBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 DSI FIRM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 DSI FIRM LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 SM & NON GEN PUB PURCH 1/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 FIRM SYSTEM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UTILITY TRANSFERS OUT															
9 EXPORTS 2/	1649	1649	1664	1594	1486	1510	1291	1291	1222	1450	1447	1535	1753	1745	1516
10 CONTRACTS OUT 3/	1460	1460	1346	1394	1724	1873	1794	1729	1517	1436	1436	1315	1379	1416	1532
11 CSPE TO WEST GROUP UTIL 4/	92	92	92	92	92	92	92	92	92	0	0	0	0	0	61
12 GEN PUB AGEN PSC PURCH 5/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 IOU PSC PURCHASE 6/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 PUBLIC SALES POST-2001	3060	3060	4029	3634	4190	5173	6038	6193	5133	4772	4772	3189	2635	2520	4214
15 USBR SALES POST-2001	161	161	109	42	2	2	2	2	4	49	49	117	151	168	67
16 IOU SALES POST-2001	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
17 DSI SALES POST-2001	990	990	990	990	990	990	990	990	990	990	990	990	990	990	990
18 FED DIVERSITY 7/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 FIRM LOADS	8412	8412	9230	8746	9484	10640	11207	11297	9958	9697	9694	8146	7908	7839	9380
HYDRO RESOURCES															
20 REGULATED HYDRO	6779	6042	5776	6115	5953	7156	5867	6305	5124	5244	4967	7697	6293	7049	6238
21 INDEPENDENT HYDRO	431	429	366	384	304	236	175	195	273	433	512	707	741	445	394
22 SUS. PKNG. ADJUSTMENT 8/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23 CAN. ENT. NON-FED(CSPE) 9/	21	21	21	21	21	21	21	21	21	0	0	0	0	0	14
24 CAN. ENT. NON-FED(CNDA) 10/	79	79	79	79	79	79	79	79	79	143	143	143	143	143	100
25 RESTORATION 11/	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26
26 TOTAL HYDRO	7284	6545	6216	6573	6331	7466	6116	6574	5471	5794	5596	8521	7151	7611	6720

TABLE 2: FEDERAL SYSTEM (CONTINUED) SHEET 2 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2002- 3 OPERATING YEAR RUN DATE: 02/08/00

ENERGY IN AVERAGE MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL	12 MO AVG
OTHER RESOURCES	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
27 SMALL THERMAL & MISC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 COMBUSTION TURBINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 RENEWABLES 12/	27	27	27	28	29	31	32	31	31	30	30	27	27	27	29
30 COGENERATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 IMPORTS 13/	197	197	230	255	255	310	284	240	203	204	173	82	174	205	219
32 CONTRACTS IN 14/	317	317	429	429	429	429	429	429	429	387	387	275	387	275	387
33 LARGE THERMAL 15/	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	0	0	1000	1000	875
34 NON-UTILITY GENERATION 16/	12	12	13	13	47	50	50	49	48	46	46	37	47	44	38
35 RESOURCE ACQUISITIONS 17/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 AUGMENT PURCHASE POST 2001	1309	1309	1309	1368	1368	1368	1368	1368	1368	1368	1368	1368	1368	1368	1358
	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
37 TOTAL RESOURCES	10146	9407	9224	9666	9459	10654	9279	9691	8550	8829	7600	10311	10154	10530	9626
RESERVES MAINTENANCE & DISTRIBUTION LOSSES															
38 HYD SM THRM & MISC RES 18/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39 LARGE THERMAL RESERVES 19/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40 SPINNING RESERVES 20/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 FEDERAL HYDRO MAINT 21/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42 FED TRANSMISSION LOSSES	-286	-265	-260	-273	-267	-300	-262	-273	-241	-249	-214	-291	-286	-297	-271
	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
43 NET RESOURCES	9860	9142	8964	9394	9192	10354	9017	9418	8309	8580	7386	10020	9867	10233	9354
SURPLUS/DEFICITS															
44 FIRM SURPLUS/DEFICIT	1448	730	-266	648	-292	-286	-2190	-1879	-1649	-1117	-2308	1874	1959	2394	-26

NOTE: 1. THE FOLLOWING CONTRACTS ARE SHOWN AS POWER SALES THROUGH THE STUDY HORIZON.

A. BPA TO BURBANK: PS & C/N/X C. BPA TO PASADENA: PS & C/N/X

B. BPA TO GLENDALE: PS & C/N/X D. BPA TO SCE: PS & C/N/X

2. SCE TO BPA: OPTION ENERGY IS NOT INCLUDED IN THIS STUDY.

3. BPA TO SCE: OPTION CAPACITY IS INCLUDED THROUGH OY 2004.

4. THE FOLLOWING CONTRACTS ARE RESOURCE OPTIONS AND NOT INCLUDED THROUGH THE STUDY HORIZON.

A. BURBANK TO BPA: SUPPLEMENTAL ENERGY C. PASADENA TO BPA: SUPPLEMENTAL ENERGY

B. GLENDALE TO BPA: SUPPLEMENTAL ENERGY D. SCE TO BPA: SUPPLEMENTAL ENERGY

TABLE 2: FEDERAL SYSTEM SHEET 1 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2003- 4 OPERATING YEAR RUN DATE: 02/08/00

ENERGY IN AVERAGE MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL	12 MO AVG
PRE-2001 LOADS	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1 FEDERAL AGENCIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 FEDERAL GPU TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 FEDERAL NGP TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 USBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 DSI FIRM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 DSI FIRM LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 SM & NON GEN PUB PURCH 1/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 FIRM SYSTEM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UTILITY TRANSFERS OUT															
9 EXPORTS 2/	1671	1671	1688	1617	1512	1530	1311	1311	1242	1227	1224	1313	1522	1524	1456
10 CONTRACTS OUT 3/	1348	1348	1235	1282	1612	1762	1759	1694	1481	1443	1442	1321	1384	1421	1478
11 CSPE TO WEST GROUP UTIL 4/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 GEN PUB AGEN PSC PURCH 5/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 IOU PSC PURCHASE 6/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 PUBLIC SALES POST-2001	3182	3182	4150	3763	4328	5317	6230	6270	5330	5037	5037	3182	2727	2615	4344
15 USBR SALES POST-2001	161	161	109	42	2	2	2	2	4	49	49	117	151	168	67
16 IOU SALES POST-2001	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
17 DSI SALES POST-2001	990	990	990	990	990	990	990	990	990	990	990	990	990	990	990
18 FED DIVERSITY 7/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 FIRM LOADS	8352	8352	9172	8694	9444	10601	11292	11267	10047	9746	9742	7923	7774	7718	9336
HYDRO RESOURCES															
20 REGULATED HYDRO	6788	6050	5783	6122	5961	7165	5877	6311	5129	5253	4975	7705	6300	7055	6245
21 INDEPENDENT HYDRO	431	429	366	384	304	236	175	195	273	433	512	707	741	445	394
22 SUS. PKNG. ADJUSTMENT 8/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23 CAN. ENT. NON-FED(CSPE) 9/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 CAN. ENT. NON-FED(CNDA) 10/	143	143	143	143	143	143	143	143	143	150	150	150	150	150	145
25 RESTORATION 11/	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26
26 TOTAL HYDRO	7336	6596	6266	6623	6382	7518	6169	6623	5519	5810	5611	8536	7165	7624	6759

TABLE 2: FEDERAL SYSTEM (CONTINUED) SHEET 2 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2003- 4 OPERATING YEAR RUN DATE: 02/08/00

ENERGY IN AVERAGE MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL	12 MO AVG
OTHER RESOURCES	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
27 SMALL THERMAL & MISC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 COMBUSTION TURBINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 RENEWABLES 12/	27	27	27	28	29	31	32	31	31	30	30	27	27	27	29
30 COGENERATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 IMPORTS 13/	197	197	230	255	255	310	284	240	203	204	173	82	174	205	219
32 CONTRACTS IN 14/	275	275	387	387	387	387	387	387	387	387	387	275	387	275	359
33 LARGE THERMAL 15/	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
34 NON-UTILITY GENERATION 16/	43	43	44	42	47	50	50	49	48	46	46	37	47	44	45
35 RESOURCE ACQUISITIONS 17/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 AUGMENT PURCHASE POST 2001	1368	1368	1368	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1207
	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
37 TOTAL RESOURCES	10246	9506	9322	9510	9275	10471	9097	9505	8362	8652	8422	11132	9974	10350	9618
RESERVES MAINTENANCE & DISTRIBUTION LOSSES															
38 HYD SM THRM & MISC RES 18/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39 LARGE THERMAL RESERVES 19/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40 SPINNING RESERVES 20/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 FEDERAL HYDRO MAINT 21/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42 FED TRANSMISSION LOSSES	-289	-268	-263	-268	-262	-295	-257	-268	-236	-244	-238	-314	-281	-292	-271
	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
43 NET RESOURCES	9957	9238	9059	9241	9013	10176	8840	9237	8127	8408	8185	10818	9693	10058	9346
SURPLUS/DEFICITS															
44 FIRM SURPLUS/DEFICIT	1605	886	-113	547	-431	-425	-2452	-2030	-1920	-1338	-1557	2895	1919	2340	11

NOTE: 1. THE FOLLOWING CONTRACTS ARE SHOWN AS POWER SALES THROUGH THE STUDY HORIZON.

A. BPA TO BURBANK: PS & C/N/X C. BPA TO PASADENA: PS & C/N/X

B. BPA TO GLENDALE: PS & C/N/X D. BPA TO SCE: PS & C/N/X

2. SCE TO BPA: OPTION ENERGY IS NOT INCLUDED IN THIS STUDY.

3. BPA TO SCE: OPTION CAPACITY IS INCLUDED THROUGH OY 2004.

4. THE FOLLOWING CONTRACTS ARE RESOURCE OPTIONS AND NOT INCLUDED THROUGH THE STUDY HORIZON.

A. BURBANK TO BPA: SUPPLEMENTAL ENERGY C. PASADENA TO BPA: SUPPLEMENTAL ENERGY

B. GLENDALE TO BPA: SUPPLEMENTAL ENERGY D. SCE TO BPA: SUPPLEMENTAL ENERGY

TABLE 2: FEDERAL SYSTEM SHEET 1 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2004- 5 OPERATING YEAR RUN DATE: 02/08/00

ENERGY IN AVERAGE MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL	12 MO AVG
PRE-2001 LOADS	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1 FEDERAL AGENCIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 FEDERAL GPU TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 FEDERAL NGP TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 USBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 DSI FIRM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 DSI FIRM LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 SM & NON GEN PUB PURCH 1/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 FIRM SYSTEM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UTILITY TRANSFERS OUT															
9 EXPORTS 2/	1380	1380	1396	1335	1304	1325	1311	1313	1242	1228	1225	1314	1447	1449	1337
10 CONTRACTS OUT 3/	1353	1353	1240	1287	1618	1767	1764	1700	1486	1448	1447	1326	1390	1427	1484
11 CSPE TO WEST GROUP UTIL 4/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 GEN PUB AGEN PSC PURCH 5/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 IOU PSC PURCHASE 6/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 PUBLIC SALES POST-2001	3272	3272	4244	3841	4414	5413	6279	6442	5378	5087	5087	3216	2761	2662	4417
15 USBR SALES POST-2001	161	161	109	42	2	2	2	2	4	49	49	117	151	168	67
16 IOU SALES POST-2001	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
17 DSI SALES POST-2001	990	990	990	990	990	990	990	990	990	990	990	990	990	990	990
18 FED DIVERSITY 7/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 FIRM LOADS	8156	8156	8979	8495	9328	10497	11346	11447	10100	9802	9798	7963	7739	7696	9295
HYDRO RESOURCES															
20 REGULATED HYDRO	6797	6056	5789	6129	5970	7174	5887	6317	5135	5261	4983	7713	6307	7060	6252
21 INDEPENDENT HYDRO	431	429	366	384	304	236	175	195	273	433	512	707	741	445	394
22 SUS. PKNG. ADJUSTMENT 8/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23 CAN. ENT. NON-FED(CSPE) 9/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 CAN. ENT. NON-FED(CNDA) 10/	150	150	150	150	150	150	150	150	150	145	145	145	145	145	148
25 RESTORATION 11/	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26
26 TOTAL HYDRO	7352	6609	6279	6637	6398	7534	6186	6636	5532	5813	5614	8539	7167	7624	6769

TABLE 2: FEDERAL SYSTEM (CONTINUED) SHEET 2 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2004- 5 OPERATING YEAR RUN DATE: 02/08/00

ENERGY IN AVERAGE MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL	12 MO AVG
OTHER RESOURCES	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
27 SMALL THERMAL & MISC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 COMBUSTION TURBINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 RENEWABLES 12/	27	27	27	28	29	31	32	31	31	30	30	27	27	27	29
30 COGENERATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 IMPORTS 13/	110	110	143	180	248	303	277	233	203	204	173	82	100	131	183
32 CONTRACTS IN 14/	275	275	387	387	387	387	387	387	387	387	387	275	387	275	359
33 LARGE THERMAL 15/	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	0	0	1000	1000	875
34 NON-UTILITY GENERATION 16/	43	43	44	42	47	50	50	49	48	46	46	37	47	44	45
35 RESOURCE ACQUISITIONS 17/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 AUGMENT PURCHASE POST 2001	1175	1175	1175	1315	1315	1315	1315	1315	1315	1315	1315	1315	1315	1315	1292
37 TOTAL RESOURCES	9982	9239	9055	9589	9424	10620	9247	9651	8516	8796	7566	10276	10043	10416	9552
RESERVES MAINTENANCE & DISTRIBUTION LOSSES															
38 HYD SM THRM & MISC RES 18/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39 LARGE THERMAL RESERVES 19/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40 SPINNING RESERVES 20/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 FEDERAL HYDRO MAINT 21/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42 FED TRANSMISSION LOSSES	-281	-261	-255	-270	-266	-299	-261	-272	-240	-248	-213	-290	-283	-294	-269
43 NET RESOURCES	9700	8978	8799	9319	9158	10321	8986	9379	8276	8548	7352	9986	9760	10122	9283
SURPLUS/DEFICITS															
44 FIRM SURPLUS/DEFICIT	1544	822	-180	824	-170	-176	-2360	-2068	-1824	-1254	-2446	2023	2021	2426	-13

NOTE: 1. THE FOLLOWING CONTRACTS ARE SHOWN AS POWER SALES THROUGH THE STUDY HORIZON.

A. BPA TO BURBANK: PS & C/N/X C. BPA TO PASADENA: PS & C/N/X

B. BPA TO GLENDALE: PS & C/N/X D. BPA TO SCE: PS & C/N/X

2. SCE TO BPA: OPTION ENERGY IS NOT INCLUDED IN THIS STUDY.

3. BPA TO SCE: OPTION CAPACITY IS INCLUDED THROUGH OY 2004.

4. THE FOLLOWING CONTRACTS ARE RESOURCE OPTIONS AND NOT INCLUDED THROUGH THE STUDY HORIZON.

A. BURBANK TO BPA: SUPPLEMENTAL ENERGY C. PASADENA TO BPA: SUPPLEMENTAL ENERGY

B. GLENDALE TO BPA: SUPPLEMENTAL ENERGY D. SCE TO BPA: SUPPLEMENTAL ENERGY

TABLE 2: FEDERAL SYSTEM SHEET 1 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2005- 6 OPERATING YEAR RUN DATE: 02/08/00

ENERGY IN AVERAGE MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL	12 MO AVG
PRE-2001 LOADS	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1 FEDERAL AGENCIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 FEDERAL GPU TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 FEDERAL NGP TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 USBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 DSI FIRM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 DSI FIRM LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 SM & NON GEN PUB PURCH 1/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 FIRM SYSTEM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UTILITY TRANSFERS OUT															
9 EXPORTS 2/	1381	1381	1396	1334	1305	1326	1261	1262	1191	1176	1173	1262	1396	1399	1307
10 CONTRACTS OUT 3/	1359	1359	1246	1293	1623	1773	1673	1609	1396	1307	1306	1185	1249	1286	1417
11 CSPE TO WEST GROUP UTIL 4/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 GEN PUB AGEN PSC PURCH 5/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 IOU PSC PURCHASE 6/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 PUBLIC SALES POST-2001	3338	3338	4293	3889	4576	5598	6474	6637	5515	5127	5127	3551	2993	2873	4572
15 USBR SALES POST-2001	161	161	109	42	2	2	2	2	4	49	49	117	151	168	67
16 IOU SALES POST-2001	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
17 DSI SALES POST-2001	990	990	990	990	990	990	990	990	990	990	990	990	990	990	990
18 FED DIVERSITY 7/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 FIRM LOADS	8229	8229	9034	8548	9496	10689	11400	11500	10096	9649	9645	8105	7779	7716	9353
HYDRO RESOURCES															
20 REGULATED HYDRO	6807	6064	5796	6136	5978	7184	5896	6322	5141	5269	4992	7723	6314	7065	6260
21 INDEPENDENT HYDRO	431	429	366	384	304	236	175	195	273	433	512	707	741	445	394
22 SUS. PKNG. ADJUSTMENT 8/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23 CAN. ENT. NON-FED(CSPE) 9/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 CAN. ENT. NON-FED(CNDA) 10/	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
25 RESTORATION 11/	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26
26 TOTAL HYDRO	7356	6611	6280	6638	6400	7538	6189	6635	5532	5820	5622	8548	7173	7628	6772

TABLE 2: FEDERAL SYSTEM (CONTINUED) SHEET 2 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2005-6 OPERATING YEAR RUN DATE: 02/08/00

ENERGY IN AVERAGE MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL	12 MO AVG
OTHER RESOURCES	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
27 SMALL THERMAL & MISC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 COMBUSTION TURBINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 RENEWABLES 12/	27	27	27	28	29	31	32	31	31	30	30	27	27	27	29
30 COGENERATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 IMPORTS 13/	110	110	143	180	248	303	277	233	203	204	173	82	100	131	183
32 CONTRACTS IN 14/	275	275	387	387	387	387	387	387	387	387	387	275	387	275	359
33 LARGE THERMAL 15/	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
34 NON-UTILITY GENERATION 16/	43	43	44	42	47	50	50	49	48	46	46	37	47	44	45
35 RESOURCE ACQUISITIONS 17/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 AUGMENT PURCHASE POST 2001	1315	1315	1315	1243	1243	1243	1243	1243	1243	1243	1243	1243	1243	1243	1255
	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
37 TOTAL RESOURCES	10126	9381	9196	9518	9354	10553	9178	9579	8444	8731	8502	11213	9977	10348	9644
RESERVES MAINTENANCE & DISTRIBUTION LOSSES															
38 HYD SM THRM & MISC RES 18/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39 LARGE THERMAL RESERVES 19/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40 SPINNING RESERVES 20/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 FEDERAL HYDRO MAINT 21/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42 FED TRANSMISSION LOSSES	-286	-265	-259	-268	-264	-298	-259	-270	-238	-246	-240	-316	-281	-292	-272
	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
43 NET RESOURCES	9841	9117	8937	9250	9091	10255	8920	9308	8206	8485	8262	10897	9696	10056	9372
SURPLUS/DEFICITS															
44 FIRM SURPLUS/DEFICIT	1612	888	-97	702	-405	-434	-2480	-2192	-1890	-1164	-1383	2792	1917	2340	19

NOTE: 1. THE FOLLOWING CONTRACTS ARE SHOWN AS POWER SALES THROUGH THE STUDY HORIZON.

A. BPA TO BURBANK: PS & C/N/X C. BPA TO PASADENA: PS & C/N/X

B. BPA TO GLENDALE: PS & C/N/X D. BPA TO SCE: PS & C/N/X

2. SCE TO BPA: OPTION ENERGY IS NOT INCLUDED IN THIS STUDY.

3. BPA TO SCE: OPTION CAPACITY IS INCLUDED THROUGH OY 2004.

4. THE FOLLOWING CONTRACTS ARE RESOURCE OPTIONS AND NOT INCLUDED THROUGH THE STUDY HORIZON.

A. BURBANK TO BPA: SUPPLEMENTAL ENERGY C. PASADENA TO BPA: SUPPLEMENTAL ENERGY

B. GLENDALE TO BPA: SUPPLEMENTAL ENERGY D. SCE TO BPA: SUPPLEMENTAL ENERGY

TABLE 2: FEDERAL SYSTEM SHEET 1 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2006- 7 OPERATING YEAR RUN DATE: 02/08/00

ENERGY IN AVERAGE MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL	12 MO AVG
PRE-2001 LOADS	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1 FEDERAL AGENCIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 FEDERAL GPU TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 FEDERAL NGP TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 USBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 DSI FIRM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 DSI FIRM LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 SM & NON GEN PUB PURCH 1/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 FIRM SYSTEM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UTILITY TRANSFERS OUT															
9 EXPORTS 2/	1330	1330	1345	1205	1176	1198	978	979	908	893	890	978	1114	1118	1102
10 CONTRACTS OUT 3/	1204	1204	1084	575	852	921	902	862	705	698	697	500	526	555	782
11 CSPE TO WEST GROUP UTIL 4/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 GEN PUB AGEN PSC PURCH 5/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 IOU PSC PURCHASE 6/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 PUBLIC SALES POST-2001	3588	3588	4564	4754	5408	6525	7431	7577	6378	5904	5904	4390	3873	3737	5344
15 USBR SALES POST-2001	161	161	109	42	2	2	2	2	4	49	49	117	151	168	67
16 IOU SALES POST-2001	1000	1000	1000	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2000
17 DSI SALES POST-2001	990	990	990	990	990	990	990	990	990	990	990	990	990	990	990
18 FED DIVERSITY 7/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 FIRM LOADS	8273	8273	9092	9766	10628	11836	12503	12610	11185	10734	10730	9175	8854	8768	10285
HYDRO RESOURCES															
20 REGULATED HYDRO	6817	6071	5802	6142	5986	7193	5905	6328	5147	5278	5000	7732	6322	7071	6268
21 INDEPENDENT HYDRO	431	429	366	384	304	236	175	195	273	433	512	707	741	445	394
22 SUS. PKNG. ADJUSTMENT 8/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23 CAN. ENT. NON-FED(CSPE) 9/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 CAN. ENT. NON-FED(CNDA) 10/	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
25 RESTORATION 11/	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26
26 TOTAL HYDRO	7366	6618	6286	6644	6408	7547	6198	6641	5538	5829	5630	8557	7181	7634	6780

TABLE 2: FEDERAL SYSTEM (CONTINUED) SHEET 2 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2006- 7 OPERATING YEAR RUN DATE: 02/08/00

ENERGY IN AVERAGE MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL	12 MO AVG
OTHER RESOURCES	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
27 SMALL THERMAL & MISC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 COMBUSTION TURBINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 RENEWABLES 12/	27	27	27	28	29	31	32	31	31	30	30	27	27	27	29
30 COGENERATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 IMPORTS 13/	110	110	143	180	248	303	277	233	203	204	173	82	100	131	183
32 CONTRACTS IN 14/	275	275	387	387	387	387	387	387	387	387	387	275	387	275	359
33 LARGE THERMAL 15/	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	0	0	1000	1000	875
34 NON-UTILITY GENERATION 16/	43	43	44	42	47	50	50	49	48	46	46	37	47	44	45
35 RESOURCE ACQUISITIONS 17/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 AUGMENT PURCHASE POST 2001	1243	1243	1243	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488	2280
	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
37 TOTAL RESOURCES	10065	9317	9130	10768	10606	11806	10431	10829	9694	9984	8754	11466	11229	11598	10552
RESERVES MAINTENANCE & DISTRIBUTION LOSSES															
38 HYD SM THRM & MISC RES 18/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39 LARGE THERMAL RESERVES 19/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40 SPINNING RESERVES 20/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 FEDERAL HYDRO MAINT 21/	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42 FED TRANSMISSION LOSSES	-284	-263	-257	-304	-299	-333	-294	-305	-273	-282	-247	-323	-317	-327	-298
	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
43 NET RESOURCES	9781	9054	8873	10465	10307	11473	10137	10523	9421	9702	8507	11143	10913	11271	10254
SURPLUS/DEFICITS															
44 FIRM SURPLUS/DEFICIT	1508	781	-219	699	-321	-363	-2366	-2087	-1764	-1032	-2223	1968	2059	2503	-31

NOTE: 1. THE FOLLOWING CONTRACTS ARE SHOWN AS POWER SALES THROUGH THE STUDY HORIZON.

A. BPA TO BURBANK: PS & C/N/X C. BPA TO PASADENA: PS & C/N/X

B. BPA TO GLENDALE: PS & C/N/X D. BPA TO SCE: PS & C/N/X

2. SCE TO BPA: OPTION ENERGY IS NOT INCLUDED IN THIS STUDY.

3. BPA TO SCE: OPTION CAPACITY IS INCLUDED THROUGH OY 2004.

4. THE FOLLOWING CONTRACTS ARE RESOURCE OPTIONS AND NOT INCLUDED THROUGH THE STUDY HORIZON.

A. BURBANK TO BPA: SUPPLEMENTAL ENERGY C. PASADENA TO BPA: SUPPLEMENTAL ENERGY

B. GLENDALE TO BPA: SUPPLEMENTAL ENERGY D. SCE TO BPA: SUPPLEMENTAL ENERGY

TABLE 2: FEDERAL SYSTEM SHEET 1 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2001- 2 OPERATING YEAR RUN DATE: 02/08/00

PEAK IN MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL
PRE-2001 LOADS														
1 FEDERAL AGENCIES	198	198	188	0	0	0	0	0	0	0	0	0	0	0
2 FEDERAL GPU TRANS LOSSES	64	80	51	0	0	0	0	0	0	0	0	0	0	0
3 FEDERAL NGP TRANS LOSSES	149	149	155	0	0	0	0	0	0	0	0	0	0	0
4 USBR	199	199	158	0	0	0	0	0	0	0	0	0	0	0
5 DSI FIRM LOAD	2472	2472	2068	0	0	0	0	0	0	0	0	0	0	0
6 DSI FIRM LOSSES	71	71	62	0	0	0	0	0	0	0	0	0	0	0
7 SM & NON GEN PUB PURCH 1/	3562	3562	3565	0	0	0	0	0	0	0	0	0	0	0
8 FIRM SYSTEM LOAD	6715	6731	6247	0	0	0	0	0	0	0	0	0	0	0
UTILITY TRANSFERS OUT														
9 EXPORTS 2/	2499	2499	2493	2475	2141	2150	2358	2361	2348	2328	2328	2440	2707	2723
10 CONTRACTS OUT 3/	1595	1595	1628	2385	2734	2896	2929	2902	2659	2579	2579	2454	2464	2474
11 CSPE TO WEST GROUP UTIL 4/	186	186	186	186	186	186	186	186	186	166	166	166	166	166
12 GEN PUB AGEN PSC PURCH 5/	1549	1497	1666	0	0	0	0	0	0	0	0	0	0	0
13 IOU PSC PURCHASE 6/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 PUBLIC SALES POST-2001	0	0	0	5515	5836	7404	8397	8113	5921	5757	5757	3949	3332	3801
15 USBR SALES POST-2001	0	0	0	76	7	4	4	3	8	100	100	170	198	204
16 IOU SALES POST-2001	0	0	0	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
17 DSI SALES POST-2001	0	0	0	990	990	990	990	990	990	990	990	990	990	990
18 FED DIVERSITY 7/	-949	-945	-967	-1090	-976	-804	-876	-854	-977	-950	-950	-908	-905	-967
19 FIRM LOADS	11594	11563	11253	11537	11918	13826	14988	14701	12135	11970	11970	10261	9952	10391
HYDRO RESOURCES														
20 REGULATED HYDRO	16010	16049	16133	16217	16618	18119	18165	18000	17430	17255	17160	17230	17467	16061
21 INDEPENDENT HYDRO	722	734	715	740	711	673	644	760	819	842	841	879	880	758
22 SUS. PKNG. ADJUSTMENT 8/	-100	-1126	-2041	-1110	-2191	-1412	-5398	-3738	-4359	-4030	-5296	-1200	-3822	-700
23 CAN. ENT. NON-FED(CSPE) 9/	42	42	42	42	42	42	42	42	42	37	37	37	37	37
24 CAN. ENT. NON-FED(CNDA) 10/	139	138	145	138	139	144	138	141	144	137	137	137	143	137
25 RESTORATION 11/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 TOTAL HYDRO	16813	15837	14994	16027	15319	17566	13591	15205	14076	14241	12879	17083	14705	16293

TABLE 2: FEDERAL SYSTEM (CONTINUED) SHEET 2 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2001-2 OPERATING YEAR RUN DATE: 02/08/00

PEAK IN MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL
OTHER RESOURCES	----	----	----	----	----	----	----	----	----	----	----	----	----	----
27 SMALL THERMAL & MISC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 COMBUSTION TURBINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 RENEWABLES 12/	27	27	27	28	29	31	32	31	31	30	30	27	27	27
30 COGENERATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 IMPORTS 13/	110	110	139	153	213	267	241	197	162	165	165	75	93	109
32 CONTRACTS IN 14/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33 LARGE THERMAL 15/	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162
34 NON-UTILITY GENERATION 16/	1	1	1	1	1	1	1	1	1	1	1	1	1	1
35 RESOURCE ACQUISITIONS 17/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 AUGMENT PURCHASE POST 2001	0	0	0	1309	1309	1309	1309	1309	1309	1309	1309	1309	1309	1309
37 TOTAL RESOURCES	18113	17137	16323	18680	18033	20336	16336	17905	16741	16908	15546	19657	17297	18901
RESERVES MAINTENANCE & DISTRIBUTION LOSSES														
38 HYD SM THRM & MISC RES 18/	-838	-840	-844	-849	-868	-941	-942	-939	-914	-906	-901	-907	-919	-842
39 LARGE THERMAL RESERVES 19/	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174
40 SPINNING RESERVES 20/	-356	-337	-314	-339	-323	-396	-310	-338	-310	-311	-311	-420	-369	-370
41 FEDERAL HYDRO MAINT 21/	-3263	-2761	-2770	-2752	-2705	-1866	-1408	-1883	-1915	-2061	-1805	-1756	-1635	-2785
42 FED TRANSMISSION LOSSES	0	0	0	-407	-388	-519	-416	-436	-396	-392	-364	-505	-433	-413
43 NET RESOURCES	13481	13025	12221	14158	13575	16440	13086	14133	13031	13062	11991	15895	13766	14317
SURPLUS/DEFICITS														
44 FIRM SURPLUS/DEFICIT	1887	1461	968	2622	1657	2614	-1902	-567	896	1093	21	5634	3814	3926

NOTE: 1. THE FOLLOWING CONTRACTS ARE SHOWN AS POWER SALES THROUGH THE STUDY HORIZON.

A. BPA TO BURBANK: PS & C/N/X C. BPA TO PASADENA: PS & C/N/X

B. BPA TO GLENDALE: PS & C/N/X D. BPA TO SCE: PS & C/N/X

2. SCE TO BPA: OPTION ENERGY IS NOT INCLUDED IN THIS STUDY.

3. BPA TO SCE: OPTION CAPACITY IS INCLUDED THROUGH OY 2004.

4. THE FOLLOWING CONTRACTS ARE RESOURCE OPTIONS AND NOT INCLUDED THROUGH THE STUDY HORIZON.

A. BURBANK TO BPA: SUPPLEMENTAL ENERGY C. PASADENA TO BPA: SUPPLEMENTAL ENERGY

B. GLENDALE TO BPA: SUPPLEMENTAL ENERGY D. SCE TO BPA: SUPPLEMENTAL ENERGY

TABLE 2: FEDERAL SYSTEM SHEET 1 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2002- 3 OPERATING YEAR RUN DATE: 02/08/00

PEAK IN MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL
PRE-2001 LOADS														
1 FEDERAL AGENCIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 FEDERAL GPU TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 FEDERAL NGP TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 USBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 DSI FIRM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 DSI FIRM LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 SM & NON GEN PUB PURCH 1/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 FIRM SYSTEM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UTILITY TRANSFERS OUT														
9 EXPORTS 2/	2716	2716	2710	2657	2322	2331	2127	2131	2118	2751	2751	2863	3173	3167
10 CONTRACTS OUT 3/	2395	2395	2276	2378	2737	2900	2863	2835	2593	2448	2448	2324	2323	2331
11 CSPE TO WEST GROUP UTIL 4/	166	166	166	166	166	166	166	166	166	0	0	0	0	0
12 GEN PUB AGEN PSC PURCH 5/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 IOU PSC PURCHASE 6/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 PUBLIC SALES POST-2001	4492	4492	5495	5598	5919	7498	8480	8198	5986	5908	5908	4080	3483	3978
15 USBR SALES POST-2001	199	199	157	76	7	4	4	3	8	100	100	170	198	204
16 IOU SALES POST-2001	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
17 DSI SALES POST-2001	990	990	990	990	990	990	990	990	990	990	990	990	990	990
18 FED DIVERSITY 7/	-1047	-1047	-1162	-1097	-982	-809	-876	-854	-975	-936	-936	-888	-885	-950
19 FIRM LOADS	10911	10911	11632	11768	12159	14080	14754	14469	11887	12261	12261	10539	10282	10720
HYDRO RESOURCES														
20 REGULATED HYDRO	16010	16049	16133	16217	16618	18119	18165	18000	17430	17255	17160	17230	17467	16061
21 INDEPENDENT HYDRO	740	752	733	740	711	673	644	760	819	842	841	879	880	758
22 SUS. PKNG. ADJUSTMENT 8/	-100	-1109	-2017	-1092	-2167	-1391	-5398	-3721	-4359	-4030	-5296	-1200	-3808	-700
23 CAN. ENT. NON-FED(CSPE) 9/	37	37	37	37	37	37	37	37	37	0	0	0	0	0
24 CAN. ENT. NON-FED(CNDA) 10/	137	136	143	137	137	142	137	139	142	248	248	246	258	246
25 RESTORATION 11/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 TOTAL HYDRO	16824	15865	15029	16039	15336	17580	13585	15215	14069	14315	12953	17155	14797	16365

TABLE 2: FEDERAL SYSTEM (CONTINUED) SHEET 2 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2002- 3 OPERATING YEAR RUN DATE: 02/08/00

PEAK IN MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL
OTHER RESOURCES	----	----	----	----	----	----	----	----	----	----	----	----	----	----
27 SMALL THERMAL & MISC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 COMBUSTION TURBINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 RENEWABLES 12/	27	27	27	28	29	31	32	31	31	30	30	27	27	27
30 COGENERATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 IMPORTS 13/	110	110	139	153	213	267	241	197	162	165	165	75	93	109
32 CONTRACTS IN 14/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33 LARGE THERMAL 15/	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162	0	0	1162	1162
34 NON-UTILITY GENERATION 16/	1	1	1	1	1	1	1	1	1	1	1	1	1	1
35 RESOURCE ACQUISITIONS 17/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 AUGMENT PURCHASE POST 2001	1309	1309	1309	1368	1368	1368	1368	1368	1368	1368	1368	1368	1368	1368
37 TOTAL RESOURCES	19433	18474	17667	18751	18109	20409	16389	17974	16793	17041	14517	18626	17449	19032
RESERVES MAINTENANCE & DISTRIBUTION LOSSES														
38 HYD SM THRM & MISC RES 18/	-839	-841	-845	-849	-868	-941	-942	-939	-914	-906	-901	-907	-919	-842
39 LARGE THERMAL RESERVES 19/	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174	0	0	-174	-174
40 SPINNING RESERVES 20/	-357	-338	-315	-340	-323	-397	-310	-339	-310	-311	-271	-379	-370	-370
41 FEDERAL HYDRO MAINT 21/	-3263	-2761	-2770	-2752	-2705	-1866	-1408	-1883	-1915	-2061	-1805	-1756	-1635	-2785
42 FED TRANSMISSION LOSSES	-398	-400	-372	-410	-391	-521	-417	-439	-398	-397	-335	-476	-438	-417
43 NET RESOURCES	14401	13961	13191	14227	13648	16510	13137	14200	13082	13191	11205	15107	13912	14444
SURPLUS/DEFICITS														
44 FIRM SURPLUS/DEFICIT	3490	3049	1559	2459	1489	2430	-1617	-269	1195	930	-1056	4569	3630	3724

NOTE: 1. THE FOLLOWING CONTRACTS ARE SHOWN AS POWER SALES THROUGH THE STUDY HORIZON.

A. BPA TO BURBANK: PS & C/N/X C. BPA TO PASADENA: PS & C/N/X

B. BPA TO GLENDALE: PS & C/N/X D. BPA TO SCE: PS & C/N/X

2. SCE TO BPA: OPTION ENERGY IS NOT INCLUDED IN THIS STUDY.

3. BPA TO SCE: OPTION CAPACITY IS INCLUDED THROUGH OY 2004.

4. THE FOLLOWING CONTRACTS ARE RESOURCE OPTIONS AND NOT INCLUDED THROUGH THE STUDY HORIZON.

A. BURBANK TO BPA: SUPPLEMENTAL ENERGY C. PASADENA TO BPA: SUPPLEMENTAL ENERGY

B. GLENDALE TO BPA: SUPPLEMENTAL ENERGY D. SCE TO BPA: SUPPLEMENTAL ENERGY

TABLE 2: FEDERAL SYSTEM SHEET 1 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2003- 4 OPERATING YEAR RUN DATE: 02/08/00

PEAK IN MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL
PRE-2001 LOADS	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1 FEDERAL AGENCIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 FEDERAL GPU TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 FEDERAL NGP TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 USBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 DSI FIRM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 DSI FIRM LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 SM & NON GEN PUB PURCH 1/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 FIRM SYSTEM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UTILITY TRANSFERS OUT														
9 EXPORTS 2/	3148	3148	3142	3087	2754	2763	2559	2563	2550	2528	2528	2641	2923	2938
10 CONTRACTS OUT 3/	2254	2254	2134	2237	2594	2758	2797	2767	2529	2459	2459	2335	2328	2337
11 CSPE TO WEST GROUP UTIL 4/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 GEN PUB AGEN PSC PURCH 5/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 IOU PSC PURCHASE 6/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 PUBLIC SALES POST-2001	4660	4660	5652	5783	6104	7705	8740	7989	6213	6226	6226	4071	3597	4114
15 USBR SALES POST-2001	199	199	157	76	7	4	4	3	8	100	100	170	198	204
16 IOU SALES POST-2001	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
17 DSI SALES POST-2001	990	990	990	990	990	990	990	990	990	990	990	990	990	990
18 FED DIVERSITY 7/	-1029	-1029	-1142	-1082	-970	-802	-878	-823	-974	-969	-969	-889	-900	-969
19 FIRM LOADS	11222	11222	11933	12091	12479	14418	15212	14489	12316	12335	12335	10318	10136	10614
HYDRO RESOURCES														
20 REGULATED HYDRO	16010	16049	16133	16217	16618	18119	18165	18000	17430	17255	17160	17230	17467	16061
21 INDEPENDENT HYDRO	740	752	733	740	711	673	644	760	819	842	841	879	880	758
22 SUS. PKNG. ADJUSTMENT 8/	-100	-1087	-1995	-1074	-2143	-1370	-5398	-3704	-4359	-4030	-5296	-1200	-3794	-700
23 CAN. ENT. NON-FED(CSPE) 9/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 CAN. ENT. NON-FED(CNDA) 10/	248	264	248	246	258	246	246	259	246	259	259	268	259	258
25 RESTORATION 11/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 TOTAL HYDRO	16898	15978	15119	16129	15444	17668	13657	15315	14136	14326	12964	17177	14812	16377

TABLE 2: FEDERAL SYSTEM (CONTINUED) SHEET 2 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2003- 4 OPERATING YEAR RUN DATE: 02/08/00

PEAK IN MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL
OTHER RESOURCES	----	----	----	----	----	----	----	----	----	----	----	----	----	----
27 SMALL THERMAL & MISC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 COMBUSTION TURBINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 RENEWABLES 12/	27	27	27	28	29	31	32	31	31	30	30	27	27	27
30 COGENERATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 IMPORTS 13/	110	110	139	153	213	267	241	197	162	165	165	75	93	109
32 CONTRACTS IN 14/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33 LARGE THERMAL 15/	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162
34 NON-UTILITY GENERATION 16/	1	1	1	1	1	1	1	1	1	1	1	1	1	1
35 RESOURCE ACQUISITIONS 17/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 AUGMENT PURCHASE POST 2001	1368	1368	1368	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175	1175
37 TOTAL RESOURCES	19566	18646	17817	18648	18024	20304	16267	17881	16667	16858	15497	19617	17270	18851
RESERVES MAINTENANCE & DISTRIBUTION LOSSES														
38 HYD SM THRM & MISC RES 18/	-839	-841	-845	-849	-868	-941	-942	-939	-914	-906	-901	-907	-919	-842
39 LARGE THERMAL RESERVES 19/	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174
40 SPINNING RESERVES 20/	-357	-339	-315	-340	-324	-397	-310	-339	-310	-311	-311	-420	-370	-370
41 FEDERAL HYDRO MAINT 21/	-3263	-2761	-2770	-2752	-2705	-1866	-1408	-1883	-1915	-2061	-1805	-1756	-1635	-2785
42 FED TRANSMISSION LOSSES	-403	-406	-377	-406	-388	-518	-413	-436	-394	-390	-362	-503	-432	-411
43 NET RESOURCES	14530	14126	13335	14127	13565	16407	13020	14110	12960	13015	11943	15856	13739	14268
SURPLUS/DEFICITS														
44 FIRM SURPLUS/DEFICIT	3308	2903	1403	2036	1086	1990	-2193	-379	644	680	-392	5537	3604	3654

NOTE: 1. THE FOLLOWING CONTRACTS ARE SHOWN AS POWER SALES THROUGH THE STUDY HORIZON.

- A. BPA TO BURBANK: PS & C/N/X
- B. BPA TO GLENDALE: PS & C/N/X
- C. BPA TO PASADENA: PS & C/N/X
- D. BPA TO SCE: PS & C/N/X

2. SCE TO BPA: OPTION ENERGY IS NOT INCLUDED IN THIS STUDY.

3. BPA TO SCE: OPTION CAPACITY IS INCLUDED THROUGH OY 2004.

4. THE FOLLOWING CONTRACTS ARE RESOURCE OPTIONS AND NOT INCLUDED THROUGH THE STUDY HORIZON.

- A. BURBANK TO BPA: SUPPLEMENTAL ENERGY
- B. GLENDALE TO BPA: SUPPLEMENTAL ENERGY
- C. PASADENA TO BPA: SUPPLEMENTAL ENERGY
- D. SCE TO BPA: SUPPLEMENTAL ENERGY

TABLE 2: FEDERAL SYSTEM SHEET 1 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2004- 5 OPERATING YEAR RUN DATE: 02/08/00

PEAK IN MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL
PRE-2001 LOADS	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1 FEDERAL AGENCIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 FEDERAL GPU TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 FEDERAL NGP TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 USBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 DSI FIRM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 DSI FIRM LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 SM & NON GEN PUB PURCH 1/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 FIRM SYSTEM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UTILITY TRANSFERS OUT														
9 EXPORTS 2/	2661	2661	2653	2629	2553	2561	2565	2568	2553	2532	2532	2644	2670	2685
10 CONTRACTS OUT 3/	2261	2261	2141	2246	2602	2765	2806	2777	2538	2467	2467	2344	2336	2345
11 CSPE TO WEST GROUP UTIL 4/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 GEN PUB AGEN PSC PURCH 5/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 IOU PSC PURCHASE 6/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 PUBLIC SALES POST-2001	4783	4783	5775	5896	6221	7832	8807	8519	6268	6287	6287	4113	3640	4182
15 USBR SALES POST-2001	199	199	157	76	7	4	4	3	8	100	100	170	198	204
16 IOU SALES POST-2001	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
17 DSI SALES POST-2001	990	990	990	990	990	990	990	990	990	990	990	990	990	990
18 FED DIVERSITY 7/	-1046	-1046	-1159	-1097	-982	-812	-883	-861	-981	-975	-975	-895	-907	-979
19 FIRM LOADS	10848	10848	11557	11740	12391	14340	15289	14996	12376	12401	12401	10366	9927	10427
HYDRO RESOURCES														
20 REGULATED HYDRO	16010	16049	16133	16217	16618	18119	18165	18000	17430	17255	17160	17230	17467	16061
21 INDEPENDENT HYDRO	740	752	733	740	711	673	644	760	819	842	841	879	880	758
22 SUS. PKNG. ADJUSTMENT 8/	-100	-1072	-1975	-1056	-2116	-1349	-5398	-3686	-4359	-4030	-5296	-1200	-3780	-700
23 CAN. ENT. NON-FED(CSPE) 9/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 CAN. ENT. NON-FED(CNDA) 10/	248	264	248	246	258	246	246	259	246	259	259	268	259	258
25 RESTORATION 11/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 TOTAL HYDRO	16898	15993	15139	16147	15471	17689	13657	15333	14136	14326	12964	17177	14826	16377

TABLE 2: FEDERAL SYSTEM (CONTINUED) SHEET 2 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2004- 5 OPERATING YEAR RUN DATE: 02/08/00

PEAK IN MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL
OTHER RESOURCES	----	----	----	----	----	----	----	----	----	----	----	----	----	----
27 SMALL THERMAL & MISC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 COMBUSTION TURBINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 RENEWABLES 12/	27	27	27	28	29	31	32	31	31	30	30	27	27	27
30 COGENERATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 IMPORTS 13/	88	88	117	153	206	260	234	190	162	165	165	75	93	109
32 CONTRACTS IN 14/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33 LARGE THERMAL 15/	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162	0	0	1162	1162
34 NON-UTILITY GENERATION 16/	1	1	1	1	1	1	1	1	1	1	1	1	1	1
35 RESOURCE ACQUISITIONS 17/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 AUGMENT PURCHASE POST 2001	1175	1175	1175	1315	1315	1315	1315	1315	1315	1315	1315	1315	1315	1315
37 TOTAL RESOURCES	19351	18446	17620	18807	18184	20458	16401	18032	16807	16999	14475	18595	17424	18991
RESERVES MAINTENANCE & DISTRIBUTION LOSSES														
38 HYD SM THRM & MISC RES 18/	-839	-841	-845	-849	-868	-941	-942	-939	-914	-906	-901	-907	-919	-842
39 LARGE THERMAL RESERVES 19/	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174	0	0	-174	-174
40 SPINNING RESERVES 20/	-357	-339	-316	-341	-325	-398	-310	-339	-310	-311	-271	-380	-370	-370
41 FEDERAL HYDRO MAINT 21/	-3263	-2761	-2770	-2752	-2705	-1866	-1408	-1883	-1915	-2061	-1805	-1756	-1635	-2785
42 FED TRANSMISSION LOSSES	-396	-399	-371	-411	-393	-523	-418	-441	-398	-395	-334	-475	-438	-416
43 NET RESOURCES	14322	13932	13145	14280	13719	16556	13149	14255	13095	13150	11165	15077	13888	14404
SURPLUS/DEFICITS														
44 FIRM SURPLUS/DEFICIT	3473	3084	1588	2540	1328	2216	-2140	-741	719	750	-1236	4711	3961	3977

NOTE: 1. THE FOLLOWING CONTRACTS ARE SHOWN AS POWER SALES THROUGH THE STUDY HORIZON.

A. BPA TO BURBANK: PS & C/N/X C. BPA TO PASADENA: PS & C/N/X

B. BPA TO GLENDALE: PS & C/N/X D. BPA TO SCE: PS & C/N/X

2. SCE TO BPA: OPTION ENERGY IS NOT INCLUDED IN THIS STUDY.

3. BPA TO SCE: OPTION CAPACITY IS INCLUDED THROUGH OY 2004.

4. THE FOLLOWING CONTRACTS ARE RESOURCE OPTIONS AND NOT INCLUDED THROUGH THE STUDY HORIZON.

A. BURBANK TO BPA: SUPPLEMENTAL ENERGY C. PASADENA TO BPA: SUPPLEMENTAL ENERGY

B. GLENDALE TO BPA: SUPPLEMENTAL ENERGY D. SCE TO BPA: SUPPLEMENTAL ENERGY

TABLE 2: FEDERAL SYSTEM SHEET 1 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2005- 6 OPERATING YEAR RUN DATE: 02/08/00

PEAK IN MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL
PRE-2001 LOADS														
1 FEDERAL AGENCIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 FEDERAL GPU TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 FEDERAL NGP TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 USBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 DSI FIRM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 DSI FIRM LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 SM & NON GEN PUB PURCH 1/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 FIRM SYSTEM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UTILITY TRANSFERS OUT														
9 EXPORTS 2/	2666	2666	2657	2632	2557	2567	2518	2522	2508	2484	2484	2597	2624	2640
10 CONTRACTS OUT 3/	2268	2268	2148	2254	2609	2773	2710	2682	2441	2321	2321	2198	2188	2197
11 CSPE TO WEST GROUP UTIL 4/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 GEN PUB AGEN PSC PURCH 5/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 IOU PSC PURCHASE 6/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 PUBLIC SALES POST-2001	4874	4874	5838	5965	6440	8089	9072	8790	6425	6335	6335	4522	3930	4486
15 USBR SALES POST-2001	199	199	157	76	7	4	4	3	8	100	100	170	198	204
16 IOU SALES POST-2001	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
17 DSI SALES POST-2001	990	990	990	990	990	990	990	990	990	990	990	990	990	990
18 FED DIVERSITY 7/	-1058	-1058	-1168	-1106	-1005	-830	-895	-873	-987	-966	-966	-926	-925	-999
19 FIRM LOADS	10939	10939	11622	11811	12598	14593	15399	15114	12385	12264	12264	10551	10005	10518
HYDRO RESOURCES														
20 REGULATED HYDRO	16010	16049	16133	16217	16618	18119	18165	18000	17430	17255	17160	17230	17467	16061
21 INDEPENDENT HYDRO	740	752	733	740	711	673	644	760	819	842	841	879	880	758
22 SUS. PKNG. ADJUSTMENT 8/	-100	-1051	-1953	-1038	-2093	-1326	-5398	-3671	-4359	-4030	-5296	-1200	-3766	-700
23 CAN. ENT. NON-FED(CSPE) 9/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 CAN. ENT. NON-FED(CNDA) 10/	248	264	248	246	258	246	246	259	246	259	259	268	259	258
25 RESTORATION 11/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 TOTAL HYDRO	16898	16014	15161	16165	15494	17712	13657	15348	14136	14326	12964	17177	14840	16377

TABLE 2: FEDERAL SYSTEM (CONTINUED) SHEET 2 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2005-6 OPERATING YEAR RUN DATE: 02/08/00

PEAK IN MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL
OTHER RESOURCES	----	----	----	----	----	----	----	----	----	----	----	----	----	----
27 SMALL THERMAL & MISC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 COMBUSTION TURBINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 RENEWABLES 12/	27	27	27	28	29	31	32	31	31	30	30	27	27	27
30 COGENERATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 IMPORTS 13/	88	88	117	153	206	260	234	190	162	165	165	75	93	109
32 CONTRACTS IN 14/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33 LARGE THERMAL 15/	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162
34 NON-UTILITY GENERATION 16/	1	1	1	1	1	1	1	1	1	1	1	1	1	1
35 RESOURCE ACQUISITIONS 17/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 AUGMENT PURCHASE POST 2001	1315	1315	1315	1243	1243	1243	1243	1243	1243	1243	1243	1243	1243	1243
37 TOTAL RESOURCES	19491	18608	17783	18753	18136	20409	16329	17975	16736	16927	15565	19685	17367	18919
RESERVES MAINTENANCE & DISTRIBUTION LOSSES														
38 HYD SM THRM & MISC RES 18/	-839	-841	-845	-849	-868	-941	-942	-939	-914	-906	-901	-907	-919	-842
39 LARGE THERMAL RESERVES 19/	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174
40 SPINNING RESERVES 20/	-357	-339	-316	-341	-325	-398	-310	-340	-310	-311	-311	-421	-371	-370
41 FEDERAL HYDRO MAINT 21/	-3263	-2761	-2770	-2752	-2705	-1866	-1408	-1883	-1915	-2061	-1805	-1756	-1635	-2785
42 FED TRANSMISSION LOSSES	-400	-404	-376	-410	-391	-521	-415	-439	-396	-393	-364	-506	-436	-413
43 NET RESOURCES	14457	14088	13302	14227	13672	16508	13079	14200	13026	13081	12009	15921	13832	14335
SURPLUS/DEFICITS														
44 FIRM SURPLUS/DEFICIT	3519	3149	1680	2417	1074	1916	-2320	-914	641	817	-255	5371	3827	3817

NOTE: 1. THE FOLLOWING CONTRACTS ARE SHOWN AS POWER SALES THROUGH THE STUDY HORIZON.

A. BPA TO BURBANK: PS & C/N/X C. BPA TO PASADENA: PS & C/N/X

B. BPA TO GLENDALE: PS & C/N/X D. BPA TO SCE: PS & C/N/X

2. SCE TO BPA: OPTION ENERGY IS NOT INCLUDED IN THIS STUDY.

3. BPA TO SCE: OPTION CAPACITY IS INCLUDED THROUGH OY 2004.

4. THE FOLLOWING CONTRACTS ARE RESOURCE OPTIONS AND NOT INCLUDED THROUGH THE STUDY HORIZON.

A. BURBANK TO BPA: SUPPLEMENTAL ENERGY C. PASADENA TO BPA: SUPPLEMENTAL ENERGY

B. GLENDALE TO BPA: SUPPLEMENTAL ENERGY D. SCE TO BPA: SUPPLEMENTAL ENERGY

TABLE 2: FEDERAL SYSTEM SHEET 1 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2006- 7 OPERATING YEAR RUN DATE: 02/08/00

PEAK IN MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL
PRE-2001 LOADS	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1 FEDERAL AGENCIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 FEDERAL GPU TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 FEDERAL NGP TRANS LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 USBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 DSI FIRM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 DSI FIRM LOSSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 SM & NON GEN PUB PURCH 1/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 FIRM SYSTEM LOAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UTILITY TRANSFERS OUT														
9 EXPORTS 2/	2619	2619	2611	2481	2408	2417	2215	2218	2203	2179	2179	2292	2320	2336
10 CONTRACTS OUT 3/	2106	2106	1980	1300	1591	1677	1644	1630	1487	1463	1463	1224	1239	1260
11 CSPE TO WEST GROUP UTIL 4/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 GEN PUB AGEN PSC PURCH 5/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 IOU PSC PURCHASE 6/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 PUBLIC SALES POST-2001	5217	5217	6192	7145	7502	9310	10308	9930	7378	7228	7228	5502	4981	5656
15 USBR SALES POST-2001	199	199	157	76	7	4	4	3	8	100	100	170	198	204
16 IOU SALES POST-2001	1000	1000	1000	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
17 DSI SALES POST-2001	990	990	990	990	990	990	990	990	990	990	990	990	990	990
18 FED DIVERSITY 7/	-1082	-1082	-1192	-1277	-1129	-923	-991	-963	-1107	-1089	-1089	-1071	-1095	-1185
19 FIRM LOADS	11049	11049	11738	12915	13569	15675	16370	16008	13159	13071	13071	11307	10833	11461
HYDRO RESOURCES														
20 REGULATED HYDRO	16010	16049	16133	16217	16618	18119	18165	18000	17430	17255	17160	17230	17467	16061
21 INDEPENDENT HYDRO	740	752	733	740	711	673	644	760	819	842	841	879	880	758
22 SUS. PKNG. ADJUSTMENT 8/	-100	-1032	-1935	-1022	-2069	-1306	-5398	-3654	-4359	-4030	-5296	-1200	-3750	-700
23 CAN. ENT. NON-FED(CSPE) 9/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 CAN. ENT. NON-FED(CNDA) 10/	248	264	248	246	258	246	246	259	246	259	259	268	259	258
25 RESTORATION 11/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 TOTAL HYDRO	16898	16033	15179	16181	15518	17732	13657	15365	14136	14326	12964	17177	14856	16377

TABLE 2: FEDERAL SYSTEM (CONTINUED) SHEET 2 OF 2

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS

2002 RATE FILING: 02/07/00

2006-7 OPERATING YEAR RUN DATE: 02/08/00

PEAK IN MEGAWATTS	AUG 1-15	AUG 16-31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN	JUL
OTHER RESOURCES	----	----	----	----	----	----	----	----	----	----	----	----	----	----
27 SMALL THERMAL & MISC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 COMBUSTION TURBINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 RENEWABLES 12/	27	27	27	28	29	31	32	31	31	30	30	27	27	27
30 COGENERATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 IMPORTS 13/	88	88	117	153	206	260	234	190	162	165	165	75	93	109
32 CONTRACTS IN 14/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33 LARGE THERMAL 15/	1162	1162	1162	1162	1162	1162	1162	1162	1162	1162	0	0	1162	1162
34 NON-UTILITY GENERATION 16/	1	1	1	1	1	1	1	1	1	1	1	1	1	1
35 RESOURCE ACQUISITIONS 17/	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 AUGMENT PURCHASE POST 2001	1243	1243	1243	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488	2488
37 TOTAL RESOURCES	19419	18554	17730	20012	19403	21674	17573	19236	17980	18171	15647	19768	18626	20164
RESERVES MAINTENANCE & DISTRIBUTION LOSSES														
38 HYD SM THRM & MISC RES 18/	-839	-841	-845	-849	-868	-941	-942	-939	-914	-906	-901	-907	-919	-842
39 LARGE THERMAL RESERVES 19/	-174	-174	-174	-174	-174	-174	-174	-174	-174	-174	0	0	-174	-174
40 SPINNING RESERVES 20/	-357	-340	-317	-342	-326	-399	-310	-340	-310	-311	-271	-380	-371	-370
41 FEDERAL HYDRO MAINT 21/	-3263	-2761	-2770	-2752	-2705	-1866	-1408	-1883	-1915	-2061	-1805	-1756	-1635	-2785
42 FED TRANSMISSION LOSSES	-398	-403	-374	-452	-434	-564	-457	-481	-438	-434	-373	-514	-478	-455
43 NET RESOURCES	14388	14036	13250	15444	14896	17730	14282	15419	14228	14283	12298	16210	15049	15537
SURPLUS/DEFICITS														
44 FIRM SURPLUS/DEFICIT	3339	2987	1512	2530	1328	2055	-2088	-589	1069	1213	-773	4903	4216	4076

NOTE: 1. THE FOLLOWING CONTRACTS ARE SHOWN AS POWER SALES THROUGH THE STUDY HORIZON.

A. BPA TO BURBANK: PS & C/N/X C. BPA TO PASADENA: PS & C/N/X

B. BPA TO GLENDALE: PS & C/N/X D. BPA TO SCE: PS & C/N/X

2. SCE TO BPA: OPTION ENERGY IS NOT INCLUDED IN THIS STUDY.

3. BPA TO SCE: OPTION CAPACITY IS INCLUDED THROUGH OY 2004.

4. THE FOLLOWING CONTRACTS ARE RESOURCE OPTIONS AND NOT INCLUDED THROUGH THE STUDY HORIZON.

A. BURBANK TO BPA: SUPPLEMENTAL ENERGY C. PASADENA TO BPA: SUPPLEMENTAL ENERGY

B. GLENDALE TO BPA: SUPPLEMENTAL ENERGY D. SCE TO BPA: SUPPLEMENTAL ENERGY

FOOTNOTES FOR APPENDIX B

Federal Table 2

1. BPA's small and nongenerating public agencies' purchases are requirements these agencies place on BPA under their power sales contracts and BPA's partnership program. BPA's obligation is each agency's net firm load requirement not served by its own dedicated resources. These contracts expire between June 30, 2001, and September 30, 2001.
2. BPA's exports include: BPA to Azusa, power exchange and capacity sale; BPA to Banning, power exchange and capacity sale; BPA to BART, power sale; BPA to Burbank, power sale and capacity/energy exchange; BPA to Colton, power exchange and capacity sale; BPA to Farmington, power sale (expires prior to rate period); BPA to Federal agencies, power sale; BPA to Glendale, power sale and capacity/energy exchange; BPA to M-S-R, power sale; BPA to other entities east of the continental divide, power sale; BPA to other entities in the Pacific Southwest, power sales; BPA to Palo Alto, capacity sale and seasonal energy (expires prior to rate period); BPA to Pasadena, power sale, capacity/energy exchange and seasonal energy exchange; BPA to Riverside, capacity/energy exchange, capacity sale and diversity exchange; BPA to SCE, power sale, capacity/energy exchange, environmental storage (expires prior to rate period), and option capacity; BPA to SCE Source, power sale (expires prior to rate period); BPA to BC Hydro for Canadian Entitlement; and BPA's Northwest-Southwest Intertie losses.
3. BPA's contracts out include: BPA to AVC, power sale, supplemental and entitlement capacity, deferred power exchange (expires prior to rate period) and WNP-3 settlement; BPA to Bandon, power sale; BPA to Big Bend Electric Cooperative, summer seasonal product; BPA to Central Electric Cooperative, summer seasonal product; BPA to Chelan County PUD, supplemental and entitlement capacity sale; BPA to Clatskanie, power sale; BPA to the city of Ashland, power sale; BPA to the city of Idaho Falls, power sale; BPA to Colockum, supplemental and entitlement capacity sale; BPA to Columbia Basin Electric Cooperative, summer seasonal product; BPA to Columbia River PUD, power sale; BPA to Columbia Rural Electric Association, summer seasonal product; BPA to Cowlitz County PUD, supplemental and entitlement capacity and power sale; BPA to Douglas County PUD, supplemental and entitlement capacity and power sale; BPA to Eugene Water and Electric Board, supplemental and entitlement capacity and power sale; BPA to City of Forest Grove, supplemental and entitlement capacity and power sale; BPA to Grant County PUD, supplemental and entitlement capacity and power sale; BPA to Harney Electric Cooperative, summer seasonal product; BPA to Idaho Power Company for Harney and Wells, BPA to Inland Power and Light, summer seasonal product; BPA to Kittitas County PUD, supplemental and entitlement capacity sale; BPA to Lewis County PUD, power sale; BPA to Lower Valley, power sale; BPA to Mason County PUD #3, power sale; BPA to City of McMinnville, supplemental and entitlement capacity and power sale; BPA to Midstate Electric Cooperative, summer seasonal product; BPA to Milton-Freewater, power sale; BPA to Modern Electric Cooperative, power sale; BPA to Monmouth, power sale; BPA to Montana Power Company, capacity/energy exchange; BPA to Nespelem Valley Electric Cooperative, summer seasonal product; BPA to Northern Wasco Electric Cooperative, power sale; BPA to Okanogan, supplemental and entitlement capacity and summer seasonal product; BPA to other entities, power sales; BPA to small and nongenerating public agencies, power sales; BPA to PP&L, capacity sale, supplemental and entitlement capacity sale, Southern Idaho exchange, and Centralia standby; BPA to PGE, capacity sale (expires prior to rate period), supplemental and entitlement capacity, and power

- sale (expires prior to rate period); BPA to PSE, Baker Head loss, power sale (expires prior to rate period), and WNP-3 settlement; BPA to Ravalli Electric Cooperative, power sale; BPA to Richland, Ormet power sale; BPA to Salem Electric Cooperative, green power sale; BPA to SCL, supplemental and entitlement capacity sale; BPA to Snohomish County PUD, power sale; BPA to Springfield Utility Board, power sale; BPA to Surprise Valley, summer seasonal product; BPA to TPU, supplemental and entitlement capacity and power sale; BPA to Tillamook, power sale; BPA to United Electric Cooperative, power sale; BPA to Umatilla Electric Cooperative, summer seasonal product; BPA to Vigilante Electric Cooperative, summer seasonal product; BPA to Wasco Electric Cooperative, summer seasonal product; and BPA to Western Oregon Cooperative, power sale.
4. Columbia Storage Power Exchange (CSPE) is the sale of the Canadian share of downstream benefits under the Columbia River Treaty with Canada to a group of Northwest utilities, expiring April 1, 2003.
 5. BPA's generating public agencies' purchases are requirements that these agencies place on BPA under their 1981 power sales contracts and BPA's partnership program. BPA's obligation is each agency's net firm load requirement not served by its own dedicated resources. These contracts expire between June 30, 2001, and September 30, 2001.
 6. No investor-owned utility customers purchasing power under the 1981 power sales contract.
 7. Federal diversity is a percentage reduction applied to the Federal system non-coincidental peak utility requirements. This is due to the fact that all peaking electrical loads do not occur simultaneously throughout the region.
 8. Sustained peaking adjustment is a percentage reduction applied to the Federal hydro system to meet a capacity load of 50 hours per week. This adjustment also includes reductions for Federal hydro maintenance, spinning reserves, forced outage reserves, and summer flow augmentation on the Snake River and John Day hydro projects.
 9. Canadian Entitlement Return non-Federal to the Columbia River Storage Exchange (CSPE) reflects the public agencies' and IOUs' obligation of Canadian Entitlement allocation to the Northwest entities of the CSPE, which expires March 31, 2003.
 10. Canadian Entitlement Return non-Federal to Canada reflects the Federal system, public agencies' and IOUs' obligation of Canadian Entitlement allocation to Canada, which began April 1, 1998.
 11. Restoration adjustments for the losses and gains of the hydro system due to Canadian storage under the terms of the Pacific Northwest Coordination Agreement. It is an obligation to those utilities that gained generation from the addition of Canadian storage, and a resource gain to utilities that lost generation from Canadian storage.
 12. Federal renewable resources include: James River Wauna.
 13. BPA's imports include: Azusa to BPA, power exchange and peak replacement; Banning to BPA, power exchange and peak replacement; BGP to BPA, supplemental energy (assumed to be zero); Burbank to BPA, exchange energy; Colton to BPA, power exchange and peak replacement; Glendale to BPA, exchange energy; other entities to BPA, power sale; Pasadena to BPA, exchange energy, peak replacement energy, and seasonal replacement energy; PP&L (Wyoming Division) to BPA for Southern Idaho, power sale; Riverside to BPA, exchange energy, peak replacement energy, diversity exchange energy, and seasonal exchange energy; Sierra to BPA for Harney and Wells; SCE to BPA, exchange energy (assumed to be zero), supplemental energy (assumed to be zero), environmental storage (assumed to be zero; expires prior to rate period), option energy, and peak replacement; and PowerEx to BPA for ABC, peak replacement energy, and for Palo Alto, peak replacement energy (expires prior to rate period).
 14. Federal contracts in include: AVC to BPA, supplemental entitlement peak replacement and WNP-3 settlement; Chelan County PUD to BPA, supplemental entitlement peak replacement; Colockum to BPA, supplemental entitlement peak replacement; Cowlitz County PUD to BPA, supplemental entitlement peak replacement; Douglas County PUD to BPA, supplemental entitlement peak replacement; Eugene Water and Electric Board to BPA, supplemental entitlement peak replacement; Grant County PUD to BPA, supplemental entitlement peak replacement; City of Forest Grove to

BPA, supplemental entitlement peak replacement; Kittitas County PUD to BPA, supplemental entitlement peak replacement; MPC to BPA, exchange energy and peak replacement; Okanogan County PUD to BPA, supplemental entitlement peak replacement; other entities to BPA, power sale; PP&L to BPA, peak replacement and supplemental entitlement peak replacement; PGE to BPA, peak replacement (expires prior to rate period) and supplemental entitlement peak replacement; PSE to BPA, supplemental entitlement peak replacement and WNP-3 settlement; SCL to BPA, supplemental entitlement peak replacement; and TPU to BPA, supplemental entitlement peak replacement.

15. Federal large thermal includes the generation from WNP-2, operated by Energy Northwest.
16. Non-utility generation (NUG) resources include generation provided to BPA by independent power producers and resources included under the Public Utility Regulatory Policies Act (PURPA).
17. Resource acquisitions are resources BPA has identified and contracted for future purchase. When new Federal resource acquisitions are contracted for and/or on-line, they will be included in the loads and resources balance.
18. Hydro, small thermal and miscellaneous resources, and combustion turbine reserve requirements are estimated at 5 percent of the Federal capacity of these resources.
19. Large thermal reserve requirements are estimated at 15 percent of the WNP-2 nuclear project.
20. Federal spinning reserve is the reserve generating capacity maintained to provide a regulating margin for the automatic generation and frequency control of power generation.
21. Hydro maintenance is the sum of all Federal hydro project maintenance based on the mean of the 1983-84 through 1988-89 schedules submitted to the Northwest Power Pool.

GLOSSARY

Adjusted Streamflow - Historical streamflows adjusted for historical change-in-content.

Assured Operating Plan - An agreed upon plan for the operation of the Columbia River Treaty storage for the sixth future year.

Average Megawatts - A unit of electrical consumption or production over a given period of time (i.e., a year or a month). It is equivalent to the energy produced by the continuous use (or generation) of 1 megawatt of capacity served over a given period of time.

Capacity Factor - The ratio of the average load on a machine or equipment, for the period of time considered, to the capacity rating of the machine or equipment.

Capacity-for-Energy Exchange – A transaction in which one utility provides a second utility with capacity service during the second utility’s peak, and receives energy in return.

Critical Period - That portion of the historical streamflow record during which the recorded streamflows, combined with all available reservoir storage, is able to produce the least amount of firm energy, while drafting reservoirs from full to empty.

Dedicated Resources - Generating resources owned by a customer and used to serve its firm load. These resources are declared for a rolling seven-year period in Exhibit I of the customer’s power sales contract with BPA.

Direct Service Industries - A group of 13 industrial firms that purchase electric power directly from BPA to operate 17 electric-intensive plants in the Pacific Northwest for the production of aluminum and other primary metals, ferroalloys, and chlor-alkalis.

Disaggregation - Method for determining customer group loads from a regional forecast.

Diversification - The amount of firm load some public utilities removed from the BPA system during BPA’s 1996 Load Commitment Exercise, thus diversifying the mix of energy sources for those utilities.

Draft - To remove water or energy from a reservoir. Also the quantity of water or energy that has been removed from a reservoir.

Draft Rate - The rate at which water, released from storage behind a dam, reduces the pool elevation of the reservoir.

Drawdown – Maintaining a reservoir pool at a minimum elevation intended to decrease the cross-sectional channel area, thus increasing flow velocities.

Energy Content Curve - A measure of the energy stored in a reservoir. It is a guide to the operation of a reservoir for the production of the greatest amount of energy from storage water while assuring a high probability of refill.

Exchange or Interchange Energy - Electric energy received by one utility system from another, usually in exchange for energy delivered to the other system at another time or place.

Federal Columbia River Power System - Thirty Federal hydroelectric projects constructed and operated by the COE, Reclamation, and the BPA transmission facilities used to market the output of those projects.

Federal System - The Federal system is a combination of BPA's customer loads and contractual obligations, and resources from which BPA acquires the power it sells. The resources include plants operated by the COE, Reclamation, and hydroelectric projects owned by the City of Idaho Falls and the Energy Northwest. BPA markets the thermal generation from WNP-2, operated by the Energy Northwest.

Fifty (50)-Hour Peak Capacity - The amount of capacity that can be sustained 10 hours a day during peak load hours for a five-day week.

Firm Energy - Electric energy intended to have assured availability to the customer to meet all or any agreed upon portion of the customer's load requirements over a defined period.

Fish Bypass – Non-turbine passage of fish around a dam generally through a downstream bypass system intended to aid in the downstream migration of juvenile fish.

Fish Spill - Discharge of water that goes over the spillway of a dam rather than through turbines intended to aid in the downstream migration of juvenile fish.

Flow Augmentation - Increasing stream flows under normal or subnormal conditions by releasing water from storage dams.

Forebay Elevation - The portion of the reservoir at a hydroelectric plant that is immediately upstream of the generating station and can be representative of a storage content at storage reservoirs.

Full Gate Flow - The outflow that will produce the maximum possible generation at a hydroplant for a given number of generating units.

Head (Hydraulic Head) - The vertical distance between the forebay elevation and the tailwater elevation at a reservoir, representing the potential energy of water in the reservoir stored at that elevation.

Head Losses - The loss of energy experienced due to a reduction in head. The amount of the reduction is the head loss.

Historical Streamflow Record - The unregulated streamflow database of the 50 years from July 1928 to June 1978. Observed historic streamflows are unregulated to account for the effects of storage and irrigation.

Hydroregulation - A study simulating the operation of the PNW electric power system using the historical streamflow record, monthly loads, thermal and other nonhydro resources, hydroelectric plant data for each project, and the nonpower requirements limiting each project's operation.

Irrigation Depletion - The reduction of river water available in the form of streamflow due to irrigation consumption.

Load Growth - An increase in demand for electricity during a period of time.

Megawatt (MW) - A megawatt is one million watts, an electrical unit of power.

Mica/Arrow Logic - Computer logic that allows Mica and Arrow to act as one reservoir while fulfilling treaty obligations.

Modified Streamflow - Adjusted streamflows that have been further adjusted to a common level of irrigation development by correcting for the effects of diversion demand and return flow.

Non-Dedicated Resources - Those resources brought into service after June 1980, owned by BPA customers who choose not to use them to serve their own Firm Loads.

Nonfirm Energy - Energy that does not have assured availability. The term is often used interchangeably with surplus energy and secondary energy (but distinct from surplus firm energy).

Nonfirm Energy Loads - Loads that are served with Nonfirm Energy, when, as, and if available.

Nonfirm Market Limit - The maximum amount of Nonfirm energy that can be used in any given period to meet Nonfirm contracts.

Non-Treaty Storage Agreement - An agreement between BPA and B.C. Hydro, which allows both parties to share in the use of existing Canadian storage space which is otherwise not useable to either party.

Non-Utility Generation (NUG) - Power produced by an independent power producer and possibly qualifying under PURPA (*see* PURPA).

Obligation - Capacity and energy that the Federal system is required to provide public and private utilities.

Operating Year (OY) - A 12-month period that begins in August and ends the following July. For example, OY 2001 through 2002 would be August 2001 through July 2002.

Pacific Northwest Coordination Agreement (PNCA) - An agreement signed by most of the Pacific Northwest utilities in 1961, which provides for coordinated system operations, resulting in greater efficiencies than if each system ran independently.

Peak Energy – (1) The amount of energy consumed during a peak load period.
(2) The maximum energy produced by a generation facility over a fixed period of time.

Power Discharge Requirement - Minimum flows required at reservoirs to ensure adequate water downstream for power generation uses.

Pre-Subscription Contracts – Contracts for post-2001 firm load service signed between BPA and some of its customers prior to the official Subscription period.

PURPA Resources - Resources declared by utilities according to the Public Utility Regulatory Policies Act of 1978, Public Law 95-617.

Region - The geographic area defined by the Northwest Power Act. The area includes the states of Oregon, Washington, Idaho, Montana west of the Continental Divide, portions of Nevada, Utah, and Wyoming that lie within the Columbia River drainage basin, and any rural electric cooperative customer not in the geographic area described above, but served by BPA on the effective date of the Northwest Power Act (December 5, 1980).

Reservoir Elevation - The level reached by water stored behind a dam.

Residential Exchange - A subsidy program established by the Northwest Power Act. Exchanging utilities “sell” power to BPA in an amount equal to their residential and small farm loads at their average system cost. BPA “sells” an equal amount of power back to the utilities at BPA’s Priority Firm Power Exchange rate. The benefits are then passed on to the utilities’ residential and small farm customers.

Residual Hydro Load - The system firm load remaining after deduction for fixed non-hydro resources (i.e., thermal and miscellaneous resources). This is the load remaining to be met by the projects simulated in the hydroregulation model.

Resource Acquisitions - Conservation or generating resources acquired in order to meet projected Firm Energy deficits.

Retail Access - The ability of electricity consumers to directly purchase their power offsite from suppliers other than their local electric utility.

Rule Curves - A set of numbers that specify end-of-month reservoir storage contents for a given period of time.

Run-of-the-River Plant - Hydroelectric plant with limited storage capacity restricting the operation to daily or weekly shaping of energy and flow.

Seasonal Reservoir - A reservoir that commonly takes more than one year to refill.

Spill - An amount of water that could have been used to generate electricity at a hydro project but was not, due to lack of an available market and an inability to store for later use, or due to other reasons.

Surplus Power - Energy in excess of that required to meet BPA's contractual obligations to provide firm service.

Sustained Peak - The peaking capacity necessary to sustain a load for a given period of time.

System Augmentation - Increasing the Federal system's resources through additional power purchases.

Tailwater Elevation - The elevation of the water surface at the outlet, downstream of a reservoir.