2007 Supplemental Wholesale Power Rate Case
Final Proposal

FY 2009 LOAD RESOURCE STUDY DOCUMENTATION

September 2008

WP-07-FS-BPA-09A

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COMMONLY USED ACRONYMS

AC	Alternating Current
AEP	American Electric Power Company, Inc.
AER	Actual Energy Regulation
AFUDC	Allowance for Funds Used During Construction
AGC	Automatic Generation Control
aMW	Average Megawatt
Alcoa	Alcoa Inc.
AMNR	Accumulated Modified Net Revenues
ANR	Accumulated Net Revenues
AOP	Assured Operating Plan
ASC	Average System Cost
Avista	Avista Corporation
BASC	BPA Average System Cost
BiOp	Biological Opinion
BPA	Bonneville Power Administration
Btu	British thermal unit
C&R Discount	Conservation and Renewables Discount
CAISO	California Independent System Operator
CBFWA	Columbia Basin Fish & Wildlife Authority
CCCT	Combined-Cycle Combustion Turbine
CEC	California Energy Commission
CFAC	Columbia Falls Aluminum Company
Cfs	Cubic feet per second
CGS	Columbia Generating Station
COB	California-Oregon Border
COE	U.S. Army Corps of Engineers
Con Aug	Conservation Augmentation
ConMod	Conservation Modernization Program
COSA	Cost of Service Analysis
Council	Northwest Power Planning and Conservation Council
CP	Coincidental Peak
CRAC	Cost Recovery Adjustment Clause
CRC	Conservation Rate Credit
CRFM	Columbia River Fish Mitigation
CRITFC	Columbia River Inter-Tribal Fish Commission
CT	Combustion Turbine
CY	Calendar Year (Jan-Dec)
DC	Direct Current
DDC	Dividend Distribution Clause
DJ	Dow Jones
DOE	Department of Energy
DOP	Debt Optimization Program
DROD	Draft Record of Decision
DSI	Direct Service Industrial Customer or Direct Service Industry

ECC	Energy Content Curve
EIA	Energy Information Administration
EIS	Environmental Impact Statement
EN	Energy Northwest, Inc.
Energy Northwest, Inc.	Formerly Washington Public Power Supply System (Nuclear)
EPA	Environmental Protection Agency
EPP	Environmentally Preferred Power
EQR	Electric Quarterly Report
ESA	Endangered Species Act
EWEB	Eugene Water & Electric Board
F&O	Financial and Operating Reports
FB CRAC	Financial-Based Cost Recovery Adjustment Clause
FBS	Federal Base System
FCCF	Fish Cost Contingency Fund
FCRPS	Federal Columbia River Power System
FCRTS	Federal Columbia River Transmission System
FERC	Federal Energy Regulatory Commission
FERC SR	Federal Energy Regulatory Commission Special Rule
FELCC	Firm Energy Load Carrying Capability
Fifth Power Plan	Council's Fifth Northwest Conservation and Electric Power Plan
FPA	Federal Power Act
FPS	Firm Power Products and Services (rate)
FY	Fiscal Year (Oct-Sep)
GAAP	Generally Accepted Accounting Principles
GCPs	General Contract Provisions
GEP	Green Energy Premium
GI	Generation Integration
GSR	Generation Supplied Reactive and Voltage Control
GRI	Gas Research Institute
GRSPs	General Rate Schedule Provisions
GSP	Generation System Peak
GSU	Generator Step-Up Transformers
GTA	General Transfer Agreement
GWh	Gigawatthour
HLH	Heavy Load Hour
HOSS	Hourly Operating and Scheduling Simulator
ICNU	Industrial Customers of Northwest Utilities
ICUA	Idaho Consumer-Owned Utilities Association, Inc.
IOU	Investor-Owned Utility
IP	Industrial Firm Power (rate)
IP TAC	Industrial Firm Power Targeted Adjustment Charge
IPC	Idaho Power Company
ISO	Independent System Operator
JP	Joint Party

JP1	Cowlitz County Public Utility District, Northwest Requirements Utilities and Members, Western Public Agencies Group and Members, Public Power Council, Industrial Customers of Northwest Utilities
JP2	Grant County Public Utility District No. 2, Benton County Public Utility District, Eugene Water & Electric Board, Franklin County Public Utility District No. 1, Pacific Northwest Generating Cooperative and Members, Pend Oreille County Public Utility District No. 1, Seattle City Light, City of Tacoma, Western Public Agencies Group and Members, Western Public Agencies Group and Members(Grays Harbor)
JP3	Benton County Public Utility District, Eugene Water & Electric Board, Franklin County Public Utility District No. 1, Grant County Public Utilities District No. 2, Pacific Northwest Generating Cooperative and Members, Pend Oreille County Public Utility District No. 1, Seattle City Light, Western Public Agencies Group and Members (Grays Harbor)
JP4	Cowlitz County Public Utility District, Eugene Water & Electric Board, Pacific Northwest Generating Cooperative and Members, Pend Oreille County Public Utility District No. 1, Seattle City Light, City of Tacoma, Grant County Public Utility District No. 2
JP5	Benton County Public Utility District, Cowlitz County Public Utility District, Eugene Water & Electric Board, Franklin County Public Utility District No. 1, Grant County Public Utilities District No. 2, Northwest Requirements Utilities and Members, Pacific Northwest Generating Cooperative and Members, Pend Oreille County Public Utility District No. 1, Seattle City Light, City of Tacoma, specified members of WA[1]
JP6	Avista Corporation, Idaho Power Corporation, PacifiCorp, Portland General Electric Company, Puget Sound Energy, Inc.
JP7	NONE
JP8	Northwest Energy Coalition, Save Our *Wild* Salmon
JP9	Alcoa, Inc., Industrial Customers of Northwest Utilities, Public Power Council, Northwest Requirements Utilities and Members, Pacific Northwest Generating Cooperative and Members, PacifiCorp, Western Public Agencies Group and Members, Avista Corporation, Portland General Electric Company

[1] The members of Western Public Agencies Group and Members (WA) that are participating in the JP5 designation include: Benton REA, the cities of Ellensburg and Milton, the towns of Eatonville and Steilacoom, Washington, Alder Mutual Light Co., Elmhurst Mutual Power and Light Co., Lakeview Light and Power Co., Parkland Light and Water Co., Peninsula Light Co., the Public Utility Districts of Grays Harbor, Kittitas, Lewis and Mason Counties, the Public Utility District No. 3 of Mason County, and the Public Utility District No. 2 of Pacific County, Washington.

JP10	Alcoa, Inc., Cowlitz County Public Utility District, Industrial Customers of Northwest Utilities
JP11	Cowlitz County Public Utility District, Eugene Water & Electric Board, Grant County Public Utilities District No. 2, Pacific Northwest Generating Cooperative and Members, Pend Oreille County Public Utility District No. 1, Seattle City Light, City of Tacoma
JP12	Alcoa, Inc., Industrial Customers of Northwest Utilities, Public Power Council, Western Public Agencies Group and Members, Northwest Requirements Utilities and Members, Pacific Northwest Generating Cooperative and Members
JP13	Columbia River Inter-Tribal Fish Commission, Confederated Tribes and Bands of the Yakama Nation, Nez Perce Tribe
JP14	Benton County Public Utility District, Cowlitz County Public Utility District, Eugene Water & Electric Board, Franklin County Public Utility District No. 1, Grant County Public Utilities District No. 2, Industrial Customers of Northwest Utilities, Northwest Requirements Utilities and Members , Public Power Council, Seattle City Light, City of Tacoma, Western Public Agencies Group and Members, Springfield Utility Board, Pacific Northwest Generating Cooperative and Members
JP15	Calpine Corporation, Northwest Independent Power Producers Coalition, PPM Energy, Inc., TransAlta Centralia Generation, LLC
kAf	Thousand Acre Feet
kcfs	kilo (thousands) of cubic feet per second
ksfd	thousand second foot day
kV	Kilovolt (1000 volts)
kW	Kilowatt (1000 watts)
kWh	Kilowatt-hour
LB CRAC	Load-Based Cost Recovery Adjustment Clause
LCP	Least-Cost Plan
LDD	Low Density Discount
LLH	Light Load Hour
LOLP	Loss of Load Probability
m/kWh	Mills per kilowatt-hour
MAC	Market Access Coalition Group
MAf	Million Acre Feet
MCA	Marginal Cost Analysis
Mid-C	Mid-Columbia
MIP	Minimum Irrigation Pool
MMBTUMMBtu	Million British Thermal Units
MNR	Modified Net Revenues
MOA	Memorandum of Agreement
MOP	Minimum Operating Pool

MORC	Minimum Operating Reliability Criteria
MT	Market Transmission (rate)
MVAr	Mega Volt Ampere Reactive
MW	Megawatt (1 million watts)
MWh	Megawatt-hour
NCD	Non-coincidental Demand
NWEC	Northwest Energy Coalition
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Council
NF	Nonfirm Energy (rate)
NFB Adjustment	National Marine Fisheries Service (NMFS) Federal Columbia River Power System (FCRPS) Biological Opinion (BiOp) Adjustment
NLSL	New Large Single Load
NMFS	National Marine Fisheries Service
NOAA Fisheries	National Oceanographic and Atmospheric Administration Fisheries
NOB	Nevada-Oregon Border
NORM	Non-Operating Risk Model
Northwest Power Act	Pacific Northwest Electric Power Planning and Conservation Act
NPA	Northwest Power Act
NPCC	Northwest Power and Conservation Council
NPV	Net Present Value
NR	New Resource
NR (rate)	New Resource Firm Power (rate)
NRU	Northwest Requirements Utilities
NTSA	Non-Treaty Storage Agreement
NUG	Non-Utility Generation
NWPP	Northwest Power Pool
NWPPC	Northwest Power Planning Council
OATT	Open Access Transmission Tariff
O&M	Operation and Maintenance
OMB	Office of Management and Budget
OPUC	Oregon Public Utility Commission
ORC	Operating Reserves Credit
OY	Operating Year (Aug-Jul)
PA	Public Agency
PacifiCorp	PacifiCorp
PBL	Power Business Line
PDP	Proportional Draft Points
PF	Priority Firm Power (rate)
PFR	Power Function Review
PGE	Portland General Electric Company
PGP	Public Generating Pool
PMA	Power Marketing Agencies

PNCA	Pacific Northwest Coordination Agreement
PNGC	Pacific Northwest Generating Cooperative
PNRR	Planned Net Revenues for Risk
PNW	Pacific Northwest
POD	Point of Delivery
POI	Point of Integration/Point of Interconnection
POM	Point of Metering
PPC	Public Power Council
PPLM	PP&L Montana, LLC
Project Act	Bonneville Project Act
PSA	Power Sales Agreement
PSC	Power Sales Contract
PSE	Puget Sound Energy
PSW	Pacific Southwest
PTP	Point-to-Point Transmission
PUD	Public or People's Utility District
RAM	Rate Analysis Model (computer model)
RAS	Remedial Action Scheme
Reclamation	Bureau of Reclamation
Renewable Northwest	Renewable Northwest Project
RD	Regional Dialogue
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
RTO	Regional Transmission Operator
SCCT	Single-Cycle Combustion Turbine
Slice	Slice of the System (product)
SME	Subject Matter Expert
SN CRAC	Safety-Net Cost Recovery Adjustment Clause
SOS	Save Our *Wild* Salmon
SUB	Springfield Utility Board
SUMY	Stepped-Up Multiyear
SWPA	Southwestern Power Administration
TAC	Targeted Adjustment Charge
TBL	Transmission Business Line
Tcf	Trillion Cubic Feet
TPP	Treasury Payment Probability
Transmission System Act	Federal Columbia River Transmission System Act
TRL	Total Retail Load
Tribes	Columbia River Inter-Tribal Fish Commission, Nez Perce, Yakama Nation, collectively

UAI Charge	Unauthorized Increase Charge
UAMPS	Utah Associated Municipal Power Systems
UDC	Utility Distribution Company
UP&L	Utah Power & Light
URC	Upper Rule Curve
USBR	U.S. Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service
VOR	Value of Reserves
WAPA	Western Area Power Administration
WECC	Western Electricity Coordinating Council (formally called WSCC)
WMG&T	Western Montana Electric Generating and Transmission Cooperative
WPAG	Western Public Agencies Group
WPRDS	Wholesale Power Rate Development Study
WSCC	Western Systems Coordination Council (now WECC)
WSPP	Western Systems Power Pool
WUTC	Washington Utilities and Transportation Commission
Yakama	Confederated Tribes and Bands of the Yakama Nation

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1. LOAD RESOURCE OVERVIEW

The FY 2009 Load Resouce Study Documentation presents the load, sales, contract, and resource data necessary for developing BPA wholesale power rates used in the FY 2009 Load Resource Study, WP-07-FS-BPA-09. This data is used to:

(1) Provide base data to determine resource costs for the FY 2009 Revenue Requirement Study, WP-07-FS-BPA-10;

(2) Provide regional hydro data for use in the secondary revenue forecast for the FY 2009 Market Price Forecast Study, WP-07-FS-BPA-11;

(3) Provide load and resource data for use in calculating risk in the FY 2009 Risk Analysis Study, WP-07-FS-BPA-12; and

(4) Provide base data to derive billing determinants for the revenue forecast in the FY 2009 Wholesale Power Rate Development Study (WPRDS), WP-07-FS-BPA-13.

2. DOCUMENTATION FOR THE FY 2009 LOAD RESOURCE STUDY

2.1 Federal System Load Resource Study

The Load Resource Study incorporates the following interrelated components: (1) a forecast of the Federal system load obligations comprised of BPA's firm requirements power sales contract (PSC) obligations and other additional BPA contract obligations; (2) Federal system resource estimates that include the output from hydro and other generating resources purchased by BPA and other BPA contract purchases; (3) the Federal system load resource balance that relates Federal system sales, loads and contract obligations to the Federal system generating resources and contract purchases; (4) total Pacific Northwest (PNW) regional hydro resources; and (5) estimated power purchases, in megawatts (MW), that are eligible for section 4(h)(10)(C) credit.

2.1.1 Federal System Load Obligations

Bonneville Power Administration (BPA) forecasts power sales contracts to three main customer groups: public body and cooperative utilities and Federal agencies (Public Agencies), investor-owned utilities (IOU), and direct service industrial customers (DSI). These power sales contract forecasts, together with additional inter-regional contracts obligations, termed imports, and intra-regional contractual obligations, constitute the Federal system firm load forecast used in BPA's 2007 Supplemental Wholesale Power Rate Case Final Proposal, FY 2009 Load Resource Study, WP-07-FS-BPA-09. The following tables document (1) BPA's customers and power sales contract obligations forecast; (2) BPA's supporting forecast of loads, resources and contracts; and (3) the forecast of BPA's load resource balance.

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2.2 PUBLIC AGENCIES SALES OBLIGATION FORECAST

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Table 2.2.1
PF Full and Partial Service Sales Forecast

FY	Full Service			Partial Service			Load Variance
	HLH (aMW)	LLH (aMW)	GSP (MW)	HLH (aMW)	LLH (aMW)	GSP (MW)	
2009	1,278	832	3,372	993	562	2,560	4,253
Month	**HLH (MWh)**	**LLH (MWh)**	**GSP (MW)**	**HLH (MWh)**	**LLH (MWh)**	**GSP (MW)**	**Load Variance**
Oct-08	926,301	561,886	2,765	702,582	371,910	2,172	2,900,309
Nov-08	976,414	683,245	3,028	761,794	427,000	2,329	3,213,885
Dec-08	1,134,694	769,404	3,109	875,950	443,175	2,487	3,619,690
Jan-09	1,153,567	772,736	3,372	862,259	472,556	2,560	3,657,390
Feb-09	1,010,810	655,967	3,292	760,796	432,410	2,531	3,232,622
Mar-09	998,344	641,949	2,819	785,192	421,121	2,290	3,208,496
Apr-09	907,977	571,581	2,528	700,158	395,148	2,055	2,918,071
May-09	797,474	546,985	2,219	652,663	393,461	1,859	2,896,306
Jun-09	783,210	484,380	2,344	627,758	358,781	1,669	2,837,530
Jul-09	810,819	532,648	2,538	648,333	419,567	1,755	3,026,169
Aug-09	847,807	516,054	2,425	671,405	395,458	1,711	2,991,597
Sep-09	844,671	555,693	2,233	648,102	390,494	1,736	2,754,349

Table 2.2.2
PF Block/Slice Block Sales Forecast

FY	Block			Slice Block			Load Variance
	HLH (aMW)	LLH (aMW)	GSP (MW)	HLH (aMW)	LLH (aMW)	GSP (MW)	
2009	346	271	850	644	513	1,576	0
Month	**HLH (MWh)**	**LLH (MWh)**	**GSP (MW)**	**HLH (MWh)**	**LLH (MWh)**	**GSP (MW)**	**Load Variance**
Oct-08	215,525	155,657	623	490,363	354,151	1,135	0
Nov-08	229,978	201,829	768	532,570	467,385	1,387	0
Dec-08	282,214	222,515	829	640,723	505,186	1,540	0
Jan-09	276,723	218,186	850	655,574	516,895	1,576	0
Feb-09	261,158	195,869	850	589,363	442,022	1,533	0
Mar-09	279,094	219,384	850	582,275	457,702	1,400	0
Apr-09	282,173	206,203	798	428,730	313,302	1,031	0
May-09	269,240	231,546	824	272,545	251,745	909	0
Jun-09	261,789	191,307	693	257,783	204,814	952	0
Jul-09	249,766	196,931	658	308,989	262,928	1,109	0
Aug-09	213,533	168,362	580	375,895	316,971	1,209	0
Sep-09	205,600	164,480	593	502,600	402,080	1,257	0

Table 2.2.3
Full Service Customers

Albion, City of	Fairchild AFB	Peninsula Light Company
Alder Mutual	Farmers Elec Coop	Plummer, City of
Ashland, City of	Ferry County PUD #1	Port Angeles, City of
Asotin County PUD #1	Forest Grove, City of	Port of Seattle
Bandon, City of	Harney Elec Coop	Puget Sound Naval Shipyard (Bremerton)
Benton REA	Hermiston, City of	Richland, City of
Big Bend Elec Coop	Heyburn, City of	Riverside Elec Coop
Blaine, City of	Hood River Elec Coop	Rupert, City of
Bonners Ferry, City of	Idaho County L & P	Salem Elec Coop
Burley, City of	Inland P & L	Skamania County PUD #1
Canby, City of	Kittitas County PUD #1	Soda Springs, City of
Cascade Locks, City of	Kootenai Electric Coop	Southern MT G&T
Central MT Elec Power Coop	Lakeview L & P (WA)	Southside Elec Lines
Centralia, City of	Lewis County PUD #1	Steilacoom, Town of
Cheney, City of	Lower Valley P & L	Sumas, Town of
Chewelah, City of	Mason County PUD #1	Surprise Valley Elec Coop
Clallam County PUD #1	Mason County PUD #3	Tanner Elec Coop
Columbia Basin Elec Coop	McCleary, City of	Tillamook PUD #1
Columbia Power Coop	Midstate Elec Coop	U.S. Bureau of Mines
Columbia REA	Milton Freewater, City of	U.S. Naval Station, Everett (Jim Creek)
Columbia River PUD	Milton, Town of	U.S. Naval Submarine Base, (Bangor)
Consol Irrig Dist #19	Minidoka, City of	Umpqua Indian Utility Cooperative
Coulee Dam, City of	Modern Elec Coop	United Electric Coop
Declo, City of	Monmouth, City of	USBIA Wapato
Drain, City of	Nespelem Valley Elec Coop	USDOE-Richland
East End Mutual Electric	Northern Wasco County PUD	Vera Irrigation District
Eatonville, City of	Ohop Mutual Light Company	Wahkiakum County PUD #1
Ellensburg, City of	Orcas P & L	Wasco Elec Coop
Elmhurst Mutual P & L	Oregon Trail Coop	Whatcom County PUD #1
Emerald County PUD	Pacific County PUD #2	Weiser, City of
Energy Northwest	Parkland L & W	Yakama Power

Table 2.2.4
Partial Service Customers

Central Lincoln Co PUD	Flathead Elec Coop	Springfield Uitlity Board
Clark Public Utilities	Klickitat Co PUD	Wells Rural Elec. Coop
Cowlitz Co PUD	McMinnville	

Table 2.2.5
Slice/Slice Block Service Customers

Benton Co PUD	Fall River Elec Coop	Okanogan Co PUD
Blachly-Lane Elec Coop	Franklin Co PUD	Pend Oreille Co PUD
Central Electric Coop	Grays Harbor Co PUD	Raft River Rural Elec Coop
Clatskanie Co PUD	Idaho Falls Power	Salmon River Elec Coop
Clearwater Power	Lane Electric Coop	Seattle City Light
Consumers Power	Lost River Elec Coop	Snohomish Co PUD
Coos-Curry Elec Coop	Northern Lights Elec Coop	Umatilla Elec Coop
Douglas Electric Coop	Okanogan Elec Coop	West Oregon Elec Coop
Eugene Water & Elec Board		

Table 2.2.6
PF Block Service Customers

Grant Co PUD	Tacoma Public Utilities	

ENERGY ANALYSIS

2.3 FEDERAL SYSTEM LOAD RESOURCE BALANCE - ENERGY ANALYSIS
Monthly Energy in Average Megawatts

Page

Table 2.3.1

Loads and Resources - Federal System

PNW Loads and Resource Study

2008 - 2009 Fiscal Years 8/15/2008

1937 Water Year

[51] 2007 Final Supplemental Rate Case (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Avg
Non-Utility Obligations															
Fed. Agencies 2002 PSC	131	150	163	166	160	146	130	130	126	128	138	140	139	127	142
USBR 2002 PSC	94	14	31	70	79	50	224	224	290	287	310	256	256	219	160
DSI 2002 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Firm Non-Utility Obligations	225	165	195	237	239	197	355	355	416	414	448	396	395	346	303
Transfers Out															
NGP 2002 PSC	2,896	3,284	3,645	3,695	3,577	3,190	2,998	2,999	2,965	3,084	3,231	3,175	3,153	2,869	3,216
GPU 2002 PSC	2,105	2,578	2,834	2,857	2,824	2,638	2,207	2,207	1,981	1,885	2,025	2,076	2,062	2,211	2,351
NGP 2002 Slice PSC	606	680	670	516	545	579	579	543	595	755	668	671	563	558	613
GPU 2002 Slice PSC	1,010	1,133	1,117	860	907	964	965	904	991	1,258	1,113	1,118	937	929	1,020
IOU 2002 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exports	579	573	583	580	578	572	591	591	619	620	614	713	713	710	611
Regional Transfers (Out)	308	609	622	619	564	411	379	379	414	244	394	419	419	253	436
Federal Diversity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Transfers Out	7,503	8,857	9,471	9,127	8,994	8,353	7,719	7,621	7,565	7,847	8,045	8,172	7,848	7,530	8,248
Total Firm Obligations	7,728	9,021	9,665	9,364	9,233	8,550	8,074	7,976	7,981	8,261	8,494	8,568	8,243	7,876	8,550
Hydro Resources															
Regulated Hydro	6,295	7,179	7,164	5,381	5,702	5,969	6,019	5,507	6,757	8,936	7,188	7,267	5,964	5,881	6,569
Independent Hydro	366	296	213	169	197	284	425	493	711	747	457	428	421	405	394
Operational Peaking Adj.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non-Fed CER (Canada)	130	130	130	130	130	130	137	137	137	137	137	137	137	137	133
Total Hydro Resources	6,791	7,604	7,507	5,680	6,029	6,383	6,581	6,137	7,604	9,819	7,782	7,831	6,521	6,423	7,097
Other Resources															
Small Thermal & Misc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Combustion Turbines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Renewables	83	87	83	81	82	115	97	97	96	86	92	83	83	82	89
Cogeneration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Imports	180	251	305	278	234	204	204	173	83	101	132	109	111	145	184
Regional Transfers (In)	269	316	219	242	230	206	200	200	197	201	180	207	208	236	225
Large Thermal	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	266	0	997	1,030	1,030	1,030	878
Non-Utility Generation	13	26	30	29	26	25	45	45	41	27	19	27	25	9	26
Augmentation Purchases	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299
Augmentation Resources	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Other Resources	1,875	2,010	1,967	1,959	1,900	1,880	1,874	1,844	982	714	1,720	1,755	1,756	1,801	1,702
Total Resources	8,667	9,615	9,473	7,639	7,929	8,263	8,455	7,981	8,586	10,533	9,502	9,586	8,277	8,223	8,798
Reserves & Maintenance															
Hydro Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small Thermal & Misc. Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contract Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Large Thermal Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Federal Hydro Maint.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spinning Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Federal Trans. Losses	-244	-271	-267	-215	-224	-233	-238	-225	-242	-297	-268	-270	-233	-232	-248
Total Reserves, Maintenance & Losses	-244	-271	-267	-215	-224	-233	-238	-225	-242	-297	-268	-270	-233	-232	-248
Total Net Resources	8,422	9,344	9,206	7,424	7,705	8,030	8,217	7,756	8,344	10,236	9,234	9,316	8,044	7,991	8,550
Total Firm Surplus/Deficit	694	322	-459	-1,940	-1,527	-520	143	-220	363	1,975	740	748	-199	116	0

ENERGY ANALYSIS

2.4 FEDERAL LOAD RESOURCE STUDY - ENERGY ANALYSIS
Monthly Energy in Average Megawatts
For FY 2009

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Table A-2: Federal Exports
PNW Loads and Resource Study
2008 - 2009 Fiscal Years 8/15/2008
[51] 2007 Final Supplemental Rate Case (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Avg
Exports East of Continental Divide															
1 BPA to Other Entities	50	56	65	62	61	54	43	43	44	44	51	49	49	45	52
2 Total Exports to ECD	50	56	65	62	61	54	43	43	44	44	51	49	49	45	52
Exports to Pacific Southwest															
3 BPA to PASA C/N/X	0	0	0	0	0	0	0	0	0	0	4	4	4	4	1
4 BPA to PASA S/N/X	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0
5 BPA to RVSD CapS	0	4	5	5	5	5	5	5	6	0	0	0	0	0	3
6 BPA to RVSD C/N/X	7	0	0	0	0	0	0	0	0	7	7	7	6	7	3
7 BPA to RVSD C/N/X	11	3	3	3	3	3	3	3	0	0	11	10	10	11	5
8 BPA to RVSD S/Pwr/X	0	0	0	0	0	0	0	0	25	26	0	0	0	0	4
9 BPA NW-SW Intertie Losses	1	0	0	0	0	0	0	0	1	1	1	1	1	1	0
10 Total Exports To PSW	19	7	8	8	8	8	8	8	35	37	23	22	22	23	17
Exports to Inland Southwest															
11 BPA to SPP PwrS	45	45	45	45	45	45	75	75	75	75	75	75	75	75	60
12 Total Exports To ISW	45	45	45	45	45	45	75	75	75	75	75	75	75	75	60
Exports to Canada															
13 BPA to BCHP CanEnt	465	465	465	465	465	465	465	465	465	465	465	567	567	567	482
14 Total Exports To Canada	465	465	465	465	465	465	465	465	465	465	465	567	567	567	482
Exports to Other Entities															
15 Total Exports To Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Exports															
16 Total Exports.	579	573	583	580	578	572	591	591	619	620	614	713	713	710	611

Table A-3: Federal Regulated Hydro Projects

PNW Loads and Resource Study

2008 - 2009 Fiscal Years 8/15/2008

1937 Water Year

[51] 2007 Final Supplemental Rate Case (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Avg
Regulated Hydro Projects															
1 Albeni Falls	39	27	16	17	14	16	18	19	35	44	40	28	21	22	26
2 Bonneville	491	552	561	439	483	471	396	185	260	463	232	198	140	463	406
3 Chief Joseph	1,047	1,298	1,186	894	902	922	916	920	834	1,506	1,277	1,429	1,121	928	1,082
4 Dworshak	52	51	51	51	51	51	51	53	71	285	451	444	415	180	148
5 Grand Coulee	1,955	2,404	2,145	1,633	1,659	1,634	1,546	1,514	1,458	2,845	2,400	2,644	2,034	1,697	1,975
6 Hungry Horse	87	92	93	94	93	90	69	28	29	50	169	123	108	103	89
7 Ice Harbor	136	97	145	110	139	179	216	221	366	279	166	136	147	117	174
8 John Day	792	923	913	685	756	821	828	656	750	993	742	752	616	726	794
9 Libby	113	111	288	86	85	84	84	83	303	264	409	251	196	165	185
10 Little Goose	139	101	148	116	130	177	259	321	551	302	169	150	154	132	201
11 Lower Granite	136	101	148	116	131	177	251	324	547	300	116	126	156	137	195
12 Lower Monumental	137	97	147	112	144	183	269	326	544	306	123	122	149	122	196
13 McNary	549	610	601	455	501	524	495	387	469	579	379	366	298	509	496
14 The Dalles	624	715	721	572	616	641	620	471	541	720	517	498	408	582	604
Total Regulated Hydro w/Enc.	6,295	7,179	7,164	5,381	5,702	5,969	6,019	5,507	6,757	8,936	7,188	7,267	5,964	5,881	6,569
Total Regulated Hydro w/Enc.															
15 Federal System	6,295	7,179	7,164	5,381	5,702	5,969	6,019	5,507	6,757	8,936	7,188	7,267	5,964	5,881	6,569

Table A-4: Federal Independent Hydro Projects

PNW Loads and Resource Study

2008 - 2009 Fiscal Years 8/15/2008

1937 Water Year

[51] 2007 Final Supplemental Rate Case (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Avg
Independent Hydro Projects															
1 Anderson Ranch	4	5	11	16	16	5	25	27	11	38	27	25	25	25	17
2 Big Cliff	11	15	7	4	7	8	10	14	21	21	8	7	7	11	11
3 Black Canyon	9	6	7	9	5	8	10	10	10	8	8	3	3	2	7
4 Boise River Diversion	0	0	0	0	0	0	0	2	3	3	3	3	2	2	1
5 Bonneville Fishway	25	12	12	12	25	25	25	25	25	25	25	25	25	25	21
6 Chandler	7	12	13	10	9	13	10	10	8	8	5	5	5	4	9
7 Cougar	24	17	6	4	6	7	21	29	29	29	11	14	17	17	16
8 Cowlitz Falls	6	3	23	10	14	33	48	48	64	66	29	12	12	10	26
9 Detroit	38	46	20	11	18	25	34	51	106	91	30	25	24	42	41
10 Dexter	12	16	5	3	6	6	6	15	17	17	6	6	7	9	10
11 Foster	9	7	9	4	8	21	22	23	23	23	6	6	6	11	12
12 Green Peter	19	17	18	8	1	34	89	45	59	49	12	15	15	30	27
13 Green Springs - USBR	3	3	5	6	6	5	5	5	5	8	9	10	9	6	6
14 Hills Creek	23	27	5	4	6	7	20	31	35	35	14	9	9	25	18
15 Idaho Falls - City Plant	6	6	5	6	5	5	5	5	7	7	7	7	7	6	6
16 Idaho Falls - Lower Plant	7	6	5	6	6	5	6	6	7	7	7	7	7	6	6
17 Idaho Falls - Upper Plant	7	6	5	6	6	5	6	6	7	7	7	7	7	6	6
18 Lookout Point	45	47	10	7	13	17	22	62	80	75	24	26	28	37	35
19 Lost Creek	40	26	18	17	12	13	14	15	56	56	46	44	35	24	30
20 Minidoka	12	3	9	3	2	2	14	14	31	31	31	29	29	26	16
21 Packwood	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22 Palisades	55	15	15	20	23	27	21	38	95	131	131	130	130	82	63
23 Roza	4	0	5	4	4	13	13	13	13	13	13	13	13	0	8
Total Independent Hydro w/Enc.	366	296	213	169	197	284	425	493	711	747	457	428	421	405	394
Total Independent Hydro W/Enc.															
24 Federal System	366	296	213	169	197	284	425	493	711	747	457	428	421	405	394

Table A-5: Federal Imports

PNW Loads and Resource Study

2008 - 2009 Fiscal Years 8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Avg
Imports From East of Continental Divide															
1 PPL to BPA PwrS	108	161	215	189	145	117	90	90	0	18	34	13	13	42	94
2 Total Imports From ECD	108	161	215	189	145	117	90	90	0	18	34	13	13	42	94
Imports From Pacific Southwest															
3 PASA to BPA XchgNrg	3	3	3	3	3	2	0	0	0	0	0	0	0	3	2
4 PASA to BPA S/N/X	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0
5 PASA to BPA PkRepl	0	0	0	0	0	0	0	0	0	0	4	4	4	4	1
6 RVSD to BPA XchgNrg	4	6	6	6	6	6	6	0	0	0	0	0	0	0	3
7 RVSD to BPA PkRepl	0	4	5	5	5	5	5	5	6	0	0	0	0	0	3
8 RVSD to BPA PkRepl	7	0	0	0	0	0	0	0	0	7	7	6	7	7	3
9 RVSD to BPA XchgNrg	0	17	16	16	16	16	15	0	0	0	0	0	0	0	7
10 RVSD to BPA S/Pwr/X	0	10	9	9	9	9	9	0	0	0	0	0	0	0	4
11 RVSD to BPA PkRepl	11	3	3	3	3	3	3	3	0	0	11	10	11	11	5
12 Total Imports From PSW	26	45	44	43	43	41	38	8	6	7	23	20	22	27	29
Imports From Inland Southwest															
13 SPP to BPA PwrS	45	45	45	45	45	45	75	75	75	75	75	75	75	75	60
14 Total Imports From ISW	45	45	45	45	45	45	75	75	75	75	75	75	75	75	60
Imports From Canada															
15 BCHP to BPA PwrS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
16 Total Imports From Canada	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Imports From Other Entities															
17 Total Imports From Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Imports															
18 Federal System	180	251	305	278	234	204	204	173	83	101	132	109	111	145	184

Table A-8: Federal Renewable Resources

PNW Loads and Resource Study

2008 - 2009 Fiscal Years 8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Avg
Federal System															
1 Condon Wind Project	11	13	12	10	9	15	9	9	9	8	8	7	7	8	10
2 Foote Creek 1	6	6	8	8	8	7	6	6	4	4	2	3	3	4	6
3 Foote Creek 2	0	1	1	1	1	1	1	1	1	1	0	0	0	0	1
4 Foote Creek 4	5	8	8	9	9	6	7	7	5	5	4	3	3	3	6
5 Georgia-Pacific Paper (Wauna)	22	25	26	27	27	26	25	25	22	12	20	20	20	21	23
6 Klondike I	7	5	4	3	5	8	8	8	10	11	11	9	9	8	7
7 Klondike III	12	9	7	6	10	17	16	16	20	20	23	19	19	16	15
8 Stateline Wind Project	20	21	18	15	12	35	24	25	25	25	24	21	22	21	22
9 Total Federal System	83	87	83	81	82	115	97	97	96	86	92	83	83	82	89
Renewable Resources															
10 Federal System	83	87	83	81	82	115	97	97	96	86	92	83	83	82	89

Table A-10: Federal Large Thermal
PNW Loads and Resource Study
2008 - 2009 Fiscal Years 8/15/2008
[51] 2007 Final Supplemental Rate Case (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Avg
Columbia Generating Station: Uranium															
1 BPA - Power Business	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	266	0	997	1,030	1,030	1,030	878
2 Columbia Generating Station: Regional Total	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	266	0	997	1,030	1,030	1,030	878
Total Large Thermal															
3 Federal System	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	266	0	997	1,030	1,030	1,030	878

Table A-15: Canadian Entitlement Return For Canada

PNW Loads and Resource Study

2008 - 2009 Fiscal Years 8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Avg
BPA Canada															
1 BPA: Regional Totals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Priest Rapids CER for Canada															
2 AVWP to BPA	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.94
3 COPD to BPA	0.43	0.43	0.43	0.43	0.43	0.43	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.44
4 CWPC to BPA	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
5 EWEB to BPA	0.26	0.26	0.26	0.26	0.26	0.26	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.26
6 FGRV to BPA	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
7 FREC to BPA	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
8 GCPD to BPA	17.42	17.42	17.42	17.42	17.42	17.42	18.29	18.29	18.29	18.29	18.29	18.29	18.29	18.29	17.86
9 ICLP to BPA	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
10 KITT to BPA	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
11 KOOT to BPA	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05
12 LREC to BPA	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
13 LVE to BPA	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
14 MCMN to BPA	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
15 MTFR to BPA	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
16 NLEC to BPA	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
17 PGE to BPA	2.10	2.10	2.10	2.10	2.10	2.10	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.15
18 PPL to BPA	2.10	2.10	2.10	2.10	2.10	2.10	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.15
19 PSE to BPA	1.21	1.21	1.21	1.21	1.21	1.21	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.24
20 RREC to BPA	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
21 SCL to BPA	0.15	0.15	0.15	0.15	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
22 SLEC to BPA	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
23 TPU to BPA	1.14	1.14	1.14	1.14	1.14	1.14	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.17
24 UNEC to BPA	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
25 UnknMKT to BPA	1.69	1.69	1.69	1.69	1.69	1.69	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.73
26 Priest Rapids: Regional Totals	28.10	28.10	28.10	28.10	28.10	28.10	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	28.80

Table A-15: Canadian Entitlement Return For Canada

PNW Loads and Resource Study

Continued 2008 - 2009 Fiscal Years 8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Avg
Wanapum CER for Canada															
27 AVWP to BPA	2.20	2.20	2.20	2.20	2.20	2.20	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.26
28 COPD to BPA	0.72	0.72	0.72	0.72	0.72	0.72	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.74
29 CWPC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30 EWEB to BPA	0.62	0.62	0.62	0.62	0.62	0.62	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.63
31 FGRV to BPA	0.19	0.19	0.19	0.19	0.19	0.19	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.19
32 FREC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33 GCPD to BPA	9.78	9.78	9.78	9.78	9.78	9.78	10.29	10.29	10.29	10.29	10.29	10.29	10.29	10.29	10.04
34 ICLP to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35 KITT to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36 KOOT to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37 LREC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38 LVE to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39 MCMN to BPA	0.19	0.19	0.19	0.19	0.19	0.19	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.19
40 MTFR to BPA	0.19	0.19	0.19	0.19	0.19	0.19	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.19
41 NLEC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42 PGE to BPA	5.01	5.01	5.01	5.01	5.01	5.01	5.27	5.27	5.27	5.27	5.27	5.27	5.27	5.27	5.14
43 PPL to BPA	5.01	5.01	5.01	5.01	5.01	5.01	5.27	5.27	5.27	5.27	5.27	5.27	5.27	5.27	5.14
44 PSE to BPA	2.89	2.89	2.89	2.89	2.89	2.89	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	2.97
45 RREC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46 SCL to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
47 SLEC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48 TPU to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49 UNEC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50 UnknMKT to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51 Wanapum: Regional Totals	26.80	26.80	26.80	26.80	26.80	26.80	28.20	28.20	28.20	28.20	28.20	28.20	28.20	28.20	27.50

Table A-15: Canadian Entitlement Return For Canada

PNW Loads and Resource Study

Continued 2008 - 2009 Fiscal Years 8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Avg
Rock Island P.H. #1 CER for Canada															
52 CHPD to BPA	5.20	5.20	5.20	5.20	5.20	5.20	5.45	5.45	5.45	5.45	5.45	5.45	5.45	5.45	5.33
53 PSE to BPA	5.20	5.20	5.20	5.20	5.20	5.20	5.45	5.45	5.45	5.45	5.45	5.45	5.45	5.45	5.33
54 Rock Island P.H. #1: Regional Totals	10.40	10.40	10.40	10.40	10.40	10.40	10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.65
Rock Island P.H. #2 CER for Canada															
55 CHPD to BPA	3.32	3.32	3.32	3.32	3.32	3.32	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.40
56 PSE to BPA	3.32	3.32	3.32	3.32	3.32	3.32	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.40
57 Rock Island P.H. #2: Regional Totals	6.63	6.63	6.63	6.63	6.63	6.63	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.81
Rocky Reach CER for Canada															
58 AVWP to BPA	1.02	1.02	1.02	1.02	1.02	1.02	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.05
59 CHPD to BPA	5.33	5.33	5.33	5.33	5.33	5.33	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.47
60 CLKM to BPA	8.12	8.12	8.12	8.12	8.12	8.12	8.53	8.53	8.53	8.53	8.53	8.53	8.53	8.53	8.33
61 DOPD to BPA	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98
62 PGE to BPA	4.27	4.27	4.27	4.27	4.27	4.27	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.38
63 PPL to BPA	1.87	1.87	1.87	1.87	1.87	1.87	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.92
64 PSE to BPA	13.73	13.73	13.73	13.73	13.73	13.73	14.43	14.43	14.43	14.43	14.43	14.43	14.43	14.43	14.08
65 Rocky Reach: Regional Totals	35.30	35.30	35.30	35.30	35.30	35.30	37.10	37.10	37.10	37.10	37.10	37.10	37.10	37.10	36.20
Wells CER for Canada															
66 AVWP to BPA	0.76	0.76	0.76	0.76	0.76	0.76	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.78
67 COLV to BPA	1.03	1.03	1.03	1.03	1.03	1.03	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.05
68 DOPD to BPA	6.53	6.53	6.53	6.53	6.53	6.53	6.88	6.88	6.88	6.88	6.88	6.88	6.88	6.88	6.70
69 OKPD to BPA	1.74	1.74	1.74	1.74	1.74	1.74	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.79
70 PGE to BPA	4.42	4.42	4.42	4.42	4.42	4.42	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.54
71 PPL to BPA	1.50	1.50	1.50	1.50	1.50	1.50	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.54
72 PSE to BPA	6.81	6.81	6.81	6.81	6.81	6.81	7.17	7.17	7.17	7.17	7.17	7.17	7.17	7.17	6.99
73 Wells: Regional Totals	22.80	22.80	22.80	22.80	22.80	22.80	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	23.40
Total CER For Canada															
74 Federal System	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75 Public Entities	55.86	55.86	55.86	55.86	55.86	55.86	58.70	58.70	58.70	58.70	58.70	58.70	58.70	58.70	57.28
76 Investor-Owned Entities	64.36	64.36	64.36	64.36	64.36	64.36	67.67	67.67	67.67	67.67	67.67	67.67	67.67	67.67	66.02
77 Other Entities	9.81	9.81	9.81	9.81	9.81	9.81	10.31	10.31	10.31	10.31	10.31	10.31	10.31	10.31	10.06
78 Non-NW Entities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79 Total CER For Canada	130.03	130.03	130.03	130.03	130.03	130.03	136.68	136.68	136.68	136.68	136.68	136.68	136.68	136.68	133.35

Table A-16: Federal Intra-Regional Transfers

PNW Loads and Resource Study

2008 - 2009 Fiscal Years

8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Avg
Intra-Regional Transfers															
1 BPA To AVWP WP3Set	0	101	101	101	101	50	50	50	0	0	0	0	0	0	42
2 BPA To CCPD PwrS	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
3 BPA To Other Entities	0	0	0	0	0	0	0	0	230	0	151	205	205	0	49
4 BPA To PPL PwrS	108	161	215	189	145	117	90	90	0	18	34	13	13	42	94
5 BPA To PPL S/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 BPA To PPL CapS	183	229	187	211	199	177	173	173	167	174	159	184	184	194	186
7 BPA To PPL S/Pwr/X	0	0	0	0	0	0	0	0	0	35	34	0	0	0	6
8 BPA To PSE WP3Set	0	101	101	101	101	50	50	50	0	0	0	0	0	0	42
9 Other Entities To BPA	20	21	22	20	20	19	17	17	20	22	22	23	23	19	20
10 PPL To BPA S/Pwr/X	57	57	0	0	0	0	0	0	0	0	0	0	0	23	11
11 PPL To BPA S/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 PPL To BPA PkRepl	183	229	187	211	199	177	173	173	167	174	159	184	184	194	186
13 PPL To BPA PwrS	10	10	10	10	10	10	10	10	10	5	0	0	0	0	7
14 Total Contracts	577	925	841	861	793	617	579	579	611	445	575	625	627	489	662
Total Contracts Out															
15 Federal System	308	609	622	619	564	411	379	379	414	244	394	419	419	253	436
16 Public Entities	13	14	15	13	13	12	10	10	13	15	15	16	16	12	13
17 Investor-Owned Entities	257	303	204	228	216	194	190	190	184	186	166	191	191	224	212
18 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total Contracts Out	577	925	841	861	793	617	579	579	611	445	575	625	627	489	662
Total Contracts In															
20 Federal System	269	316	219	242	230	206	200	200	197	201	180	207	208	236	225
21 Public Entities	17	17	17	17	17	17	17	17	247	17	168	222	222	17	66
22 Investor-Owned Entities	291	592	605	602	547	394	362	362	167	227	226	197	197	236	370
23 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 Total Contracts In	577	925	841	861	793	617	579	579	611	445	575	625	627	489	662

Table A-22: BPA Power Sale Contracts
PNW Loads and Resource Study
2008 - 2009 Fiscal Years
1937 Water Year
[51] 2007 Final Supplemental Rate Case (Final)

8/15/2008

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Avg
Federal Entities															
1 Federal Entities	131	150	163	166	160	146	130	130	126	128	138	140	139	127	142
2 Total Federal Entities	131	150	163	166	160	146	130	130	126	128	138	140	139	127	142
U.S. Bureau of Reclamation															
3 U.S. Bureau of Reclamation	94	14	31	70	79	50	224	224	290	287	310	256	256	219	160
4 Total U.S. Bureau of Reclamation	94	14	31	70	79	50	224	224	290	287	310	256	256	219	160
Direct Service Industry															
5 Direct Service Industry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Total Direct Service Industry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Generating Public Entities															
7 Generating Public Entities	2,105	2,578	2,834	2,857	2,824	2,638	2,207	2,207	1,981	1,885	2,025	2,076	2,062	2,211	2,351
8 Total Generating Public Entities	2,105	2,578	2,834	2,857	2,824	2,638	2,207	2,207	1,981	1,885	2,025	2,076	2,062	2,211	2,351
Generating Public Entities (Slice)															
9 Generating Public Entities (Slice)	1,010	1,133	1,117	860	907	964	965	904	991	1,258	1,113	1,118	937	929	1,020
10 Total Generating Public Entities (Slice)	1,010	1,133	1,117	860	907	964	965	904	991	1,258	1,113	1,118	937	929	1,020
Non-Generating Public Entities															
11 Non-Generating Public Entities	2,896	3,284	3,645	3,695	3,577	3,190	2,998	2,999	2,965	3,084	3,231	3,175	3,153	2,869	3,216
12 Total Non-Generating Public Entities	2,896	3,284	3,645	3,695	3,577	3,190	2,998	2,999	2,965	3,084	3,231	3,175	3,153	2,869	3,216
Non-Generating Public Entities (Slice)															
13 Non-Generating Public Entities (Slice)	606	680	670	516	545	579	579	543	595	755	668	671	563	558	613
14 Total Non-Generating Public Entities (Slice)	606	680	670	516	545	579	579	543	595	755	668	671	563	558	613
Investor-Owned Entities															
15 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 Total Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Entities															
17 Other PNW Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Total Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Power Sales Contracts															
19 Federal Entities	131	150	163	166	160	146	130	130	126	128	138	140	139	127	142
20 U.S. Bureau of Reclamation	94	14	31	70	79	50	224	224	290	287	310	256	256	219	160
21 Direct Service Industry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22 Generating Public Entities	3,115	3,711	3,951	3,717	3,730	3,602	3,171	3,110	2,972	3,143	3,138	3,194	3,000	3,140	3,371
23 Non-Generating Public Entities	3,502	3,964	4,315	4,212	4,121	3,768	3,578	3,541	3,561	3,839	3,899	3,846	3,716	3,426	3,829
24 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 Total Power Sales Contracts	6842	7840	8461	8165	8091	7567	7104	7006	6948	7397	7485	7436	7110	6912	7503

Table A-24: Federal NUG Resources By Project And Project Type

PNW Loads and Resource Study

2008 - 2009 Fiscal Years 8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Avg
NUG: Hydro															
1 Dworshak/Clearwater Small Hydropower	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
2 Elwha Hydro	4	10	11	12	9	9	17	17	9	8	5	8	8	2	9
3 Glines Canyon Hydro	7	14	16	15	14	14	25	25	30	16	11	16	15	4	15
4 Total NUG: Hydro	13	26	30	29	26	25	45	45	41	27	19	27	25	9	26
NUG: Renewables															
5 Ashland Solar Project	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 White Bluffs Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Total NUG: Renewables	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Non-Utility Generating Resources															
8 Federal Entities	13	26	30	29	26	25	45	45	41	27	19	27	25	9	26

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HLH MWhs ANALYSIS

2.5 FEDERAL LOAD RESOURCE STUDY – HLH MWhs ANALYSIS
Monthly HLH MWhs Energy
For FY 2009

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Table A-2: Federal Exports
PNW Loads and Resource Study
2008 - 2009 Fiscal Years 8/15/2008
[51] 2007 Final Supplemental Rate Case (Final)

Heavy (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Exports East of Continental Divide															
1 BPA to Other Entities	22,762	24,302	28,280	28,067	24,226	23,636	9,383	9,383	20,382	19,626	24,345	11,288	12,040	20,221	277,939
2 Total Exports to ECD	22,762	24,302	28,280	28,067	24,226	23,636	9,383	9,383	20,382	19,626	24,345	11,288	12,040	20,221	277,939
Exports to Pacific Southwest															
3 BPA to PASA C/N/X	0	0	0	0	0	0	0	0	0	0	3,318	1,606	1,713	3,211	9,848
4 BPA to PASA S/N/X	0	0	0	0	0	0	0	0	1,659	1,606	0	0	0	0	3,265
5 BPA to RVSD CapS	0	3,200	3,680	3,520	3,200	3,520	1,760	1,760	4,830	0	0	0	0	0	25,470
6 BPA to RVSD C/N/X	5,290	0	0	0	0	0	0	0	0	5,060	5,290	2,415	2,415	5,060	25,530
7 BPA to RVSD C/N/X	8,280	1,800	2,070	1,980	1,800	1,980	990	990	0	0	8,280	3,600	3,960	7,920	43,650
8 BPA to RVSD S/Pwr/X	0	0	0	0	0	0	0	0	11,340	11,880	0	0	0	0	23,220
9 BPA NW-SW Intertie Losses	407	150	173	165	150	165	83	83	535	556	507	229	243	486	3,929
10 Total Exports To PSW	13,977	5,150	5,923	5,665	5,150	5,665	2,833	2,833	18,364	19,102	17,395	7,849	8,330	16,677	134,912
Exports to Inland Southwest															
11 BPA to SPP PwrS	19,440	17,280	18,720	18,720	17,280	18,720	15,600	15,600	30,000	31,200	31,200	15,600	15,600	30,000	294,960
12 Total Exports To ISW	19,440	17,280	18,720	18,720	17,280	18,720	15,600	15,600	30,000	31,200	31,200	15,600	15,600	30,000	294,960
Exports to Canada															
13 BPA to BCHP CanEnt	346,351	334,728	345,886	345,886	312,413	345,886	166,899	167,364	345,886	334,728	345,886	204,156	217,766	408,312	4,222,145
14 Total Exports To Canada	346,351	334,728	345,886	345,886	312,413	345,886	166,899	167,364	345,886	334,728	345,886	204,156	217,766	408,312	4,222,145
Exports to Other Entities															
15 Total Exports To Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Exports															
16 Federal Entities	402,529	381,460	398,808	398,337	359,069	393,906	194,714	195,179	414,631	404,656	418,825	238,893	253,737	475,210	4,929,956

Table A-5: Federal Imports

PNW Loads and Resource Study

2008 - 2009 Fiscal Years 8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Heavy (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Imports From East of Continental Divide															
1 PPL to BPA PwrS	46,742	64,320	93,010	81,562	55,680	48,630	18,637	18,637	42	7,571	14,602	2,683	2,683	17,514	472,312
2 Total Imports From ECD	46,742	64,320	93,010	81,562	55,680	48,630	18,637	18,637	42	7,571	14,602	2,683	2,683	17,514	472,312
Imports From Pacific Southwest															
3 PASA to BPA XchgNrg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 PASA to BPA S/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 PASA to BPA PkRepl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 RVSD to BPA XchgNrg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 RVSD to BPA PkRepl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 RVSD to BPA PkRepl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 RVSD to BPA XchgNrg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 RVSD to BPA S/Pwr/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 RVSD to BPA PkRepl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Total Imports From PSW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Imports From Inland Southwest															
13 SPP to BPA PwrS	19,440	17,280	18,720	18,720	17,280	18,720	15,600	15,600	30,000	31,200	31,200	15,600	15,600	30,000	294,960
14 Total Imports From ISW	19,440	17,280	18,720	18,720	17,280	18,720	15,600	15,600	30,000	31,200	31,200	15,600	15,600	30,000	294,960
Imports From Canada															
15 BCHP to BPA PwrS	432	400	432	432	384	416	208	208	416	416	432	208	208	416	5,008
16 Total Imports From Canada	432	400	432	432	384	416	208	208	416	416	432	208	208	416	5,008
Imports From Other Entities															
17 Total Imports From Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Imports															
18 Federal System	66,614	82,000	112,162	100,714	73,344	67,766	34,445	34,445	30,458	39,187	46,234	18,491	18,491	47,930	772,280

Table A-8: Federal Renewable Resources
PNW Loads and Resource Study
2008 - 2009 Fiscal Years 8/15/2008
[51] 2007 Final Supplemental Rate Case (Final)

Heavy (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Federal System															
1 Condon Wind Project	4,536	5,078	5,071	4,473	3,182	6,362	1,965	1,960	3,746	3,343	3,317	1,580	1,580	3,432	49,626
2 Foote Creek 1	2,594	2,695	3,419	3,667	2,969	2,760	1,196	1,196	2,042	1,822	1,026	693	693	1,752	28,524
3 Foote Creek 2	190	294	304	556	423	278	211	211	235	250	172	59	59	136	3,378
4 Foote Creek 4	2,083	3,180	3,230	3,800	3,685	2,595	1,426	1,426	2,112	2,258	1,885	671	671	1,464	30,486
5 Georgia-Pacific Paper (Wauna)	9,629	9,466	10,858	11,415	10,207	10,770	5,267	5,267	8,848	5,104	8,491	4,185	4,185	8,304	111,994
6 Klondike I	3,015	1,957	1,415	1,438	1,792	3,780	1,544	1,544	4,461	3,954	4,497	1,752	1,752	3,065	35,966
7 Klondike III	5,565	4,064	2,853	2,544	3,733	7,713	3,354	3,087	8,823	6,978	9,280	3,759	4,048	6,309	72,110
8 Stateline Wind Project	7,826	8,420	6,971	6,482	3,608	14,324	4,403	4,403	9,102	7,911	7,706	3,466	3,466	7,621	95,708
9 Total Federal System	35,438	35,154	34,121	34,375	29,597	48,584	19,366	19,094	39,369	31,619	36,373	16,165	16,454	32,083	427,793
Renewable Resources															
10 Federal System	35,438	35,154	34,121	34,375	29,597	48,584	19,366	19,094	39,369	31,619	36,373	16,165	16,454	32,083	427,793

Table A-10: Federal Large Thermal
PNW Loads and Resource Study
2008 - 2009 Fiscal Years 8/15/2008
[51] 2007 Final Supplemental Rate Case (Final)

Heavy (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Columbia Generating Station: Uranium															
1 BPA - Power Business	444,960	395,520	428,480	428,480	395,520	428,480	214,240	214,240	106,400	0	414,752	214,240	214,240	412,000	4,311,552
2 Columbia Generating Station: Regional Total	444,960	395,520	428,480	428,480	395,520	428,480	214,240	214,240	106,400	0	414,752	214,240	214,240	412,000	4,311,552
Total Large Thermal															
3 Federal System	444,960	395,520	428,480	428,480	395,520	428,480	214,240	214,240	106,400	0	414,752	214,240	214,240	412,000	4,311,552

Table A-15: Canadian Entitlement Return For Canada

PNW Loads and Resource Study

2008 - 2009 Fiscal Years

8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Heavy (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
BPA Canada															
1 BPA: Regional Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Priest Rapids CER for Canada															
2 AVWP to BPA	687	664	686	686	619	686	347	348	720	697	720	348	372	697	8,276
3 COPD to BPA	318	308	318	318	287	318	161	161	334	323	334	161	172	323	3,835
4 CWPC to BPA	23	22	23	23	21	23	12	12	24	23	24	12	12	23	278
5 EWEB to BPA	193	186	192	192	174	192	97	98	202	195	202	98	104	195	2,321
6 FGRV to BPA	73	71	73	73	66	73	37	37	77	74	77	37	40	74	883
7 FREC to BPA	29	28	29	29	26	29	15	15	31	30	31	15	16	30	353
8 GCPD to BPA	12,979	12,544	12,962	12,962	11,708	12,962	6,566	6,584	13,608	13,169	13,608	6,584	7,023	13,169	156,428
9 ICLP to BPA	8	8	8	8	8	8	4	4	9	8	9	4	5	8	101
10 KITT to BPA	59	57	59	59	53	59	30	30	61	59	61	30	32	59	706
11 KOOT to BPA	40	38	40	40	36	40	20	20	42	40	42	20	22	40	479
12 LREC to BPA	6	6	6	6	6	6	3	3	7	6	7	3	3	6	76
13 LVE to BPA	52	51	52	52	47	52	26	27	55	53	55	27	28	53	631
14 MCMN to BPA	73	71	73	73	66	73	37	37	77	74	77	37	40	74	883
15 MTFR to BPA	73	71	73	73	66	73	37	37	77	74	77	37	40	74	883
16 NLEC to BPA	36	34	36	36	32	36	18	18	37	36	37	18	19	36	429
17 PGE to BPA	1,566	1,513	1,564	1,564	1,412	1,564	792	794	1,642	1,589	1,642	794	847	1,589	18,872
18 PPL to BPA	1,566	1,513	1,564	1,564	1,412	1,564	792	794	1,642	1,589	1,642	794	847	1,589	18,872
19 PSE to BPA	902	872	901	901	814	901	456	458	946	915	946	458	488	915	10,874
20 RREC to BPA	8	8	8	8	8	8	4	4	9	8	9	4	5	8	101
21 SCL to BPA	113	109	113	113	102	113	57	57	119	115	119	57	61	115	1,362
22 SLEC to BPA	6	6	6	6	6	6	3	3	7	6	7	3	3	6	76
23 TPU to BPA	848	819	847	847	765	847	429	430	889	860	889	430	459	860	10,218
24 UNEC to BPA	15	14	15	15	13	15	7	7	15	15	15	7	8	15	177
25 UnknMKT to BPA	1,258	1,216	1,256	1,256	1,135	1,256	636	638	1,319	1,277	1,319	638	681	1,277	15,163
26 Priest Rapids: Regional Totals	20,932	20,230	20,904	20,904	18,881	20,904	10,589	10,619	21,946	21,238	21,946	10,619	11,327	21,238	252,278

Table A-15: Canadian Entitlement Return For Canada

PNW Loads and Resource Study

Continued 2008 - 2009 Fiscal Years 8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Heavy (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Wanapum CER for Canada															
27 AVWP to BPA	1,637	1,582	1,635	1,635	1,477	1,635	830	832	1,720	1,665	1,720	832	888	1,665	19,755
28 COPD to BPA	539	521	538	538	486	538	273	274	566	548	566	274	292	548	6,505
29 CWPC to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 EWEB to BPA	459	444	459	459	414	459	233	233	483	467	483	233	249	467	5,541
31 FGRV to BPA	140	135	140	140	126	140	71	71	147	142	147	71	76	142	1,686
32 FREC to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33 GCPD to BPA	7,288	7,043	7,278	7,278	6,574	7,278	3,695	3,705	7,658	7,411	7,658	3,705	3,953	7,411	87,934
34 ICLP to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35 KITT to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 KOOT to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37 LREC to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38 LVE to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39 MCMN to BPA	140	135	140	140	126	140	71	71	147	142	147	71	76	142	1,686
40 MTFR to BPA	140	135	140	140	126	140	71	71	147	142	147	71	76	142	1,686
41 NLEC to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42 PGE to BPA	3,734	3,608	3,729	3,729	3,368	3,729	1,893	1,898	3,923	3,797	3,923	1,898	2,025	3,797	45,051
43 PPL to BPA	3,734	3,608	3,729	3,729	3,368	3,729	1,893	1,898	3,923	3,797	3,923	1,898	2,025	3,797	45,051
44 PSE to BPA	2,156	2,084	2,153	2,153	1,945	2,153	1,093	1,096	2,266	2,193	2,266	1,096	1,170	2,193	26,019
45 RREC to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46 SCL to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47 SLEC to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48 TPU to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49 UNEC to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50 UnknMKT to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 Wanapum: Regional Totals	19,966	19,296	19,939	19,939	18,010	19,939	10,124	10,152	20,981	20,304	20,981	10,152	10,829	20,304	240,915

Table A-15: Canadian Entitlement Return For Canada

PNW Loads and Resource Study

Continued 2008 - 2009 Fiscal Years 8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Heavy (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Rock Island P.H. #1 CER for Canada															
52 CHPD to BPA	3,874	3,744	3,869	3,869	3,494	3,869	1,957	1,962	4,055	3,924	4,055	1,962	2,093	3,924	46,650
53 PSE to BPA	3,874	3,744	3,869	3,869	3,494	3,869	1,957	1,962	4,055	3,924	4,055	1,962	2,093	3,924	46,650
54 Rock Island P.H. #1: Regional Totals	7,748	7,488	7,738	7,738	6,989	7,738	3,913	3,924	8,110	7,848	8,110	3,924	4,186	7,848	93,300
Rock Island P.H. #2 CER for Canada															
55 CHPD to BPA	2,470	2,387	2,466	2,466	2,228	2,466	1,253	1,256	2,597	2,513	2,597	1,256	1,340	2,513	29,808
56 PSE to BPA	2,470	2,387	2,466	2,466	2,228	2,466	1,253	1,256	2,597	2,513	2,597	1,256	1,340	2,513	29,808
57 Rock Island P.H. #2: Regional Totals	4,939	4,774	4,933	4,933	4,455	4,933	2,506	2,513	5,193	5,026	5,193	2,513	2,680	5,026	59,616
Rocky Reach CER for Canada															
58 AVWP to BPA	763	737	762	762	688	762	386	387	800	775	800	387	413	775	9,197
59 CHPD to BPA	3,971	3,838	3,966	3,966	3,582	3,966	2,011	2,017	4,168	4,034	4,168	2,017	2,151	4,034	47,887
60 CLKM to BPA	6,049	5,846	6,041	6,041	5,456	6,041	3,063	3,072	6,349	6,144	6,349	3,072	3,277	6,144	72,940
61 DOPD to BPA	710	686	709	709	640	709	360	361	745	721	745	361	385	721	8,563
62 PGE to BPA	3,182	3,075	3,178	3,178	2,870	3,178	1,612	1,616	3,340	3,232	3,340	1,616	1,724	3,232	38,373
63 PPL to BPA	1,394	1,347	1,392	1,392	1,257	1,392	706	708	1,463	1,416	1,463	708	755	1,416	16,808
64 PSE to BPA	10,230	9,887	10,216	10,216	9,228	10,216	5,181	5,195	10,737	10,391	10,737	5,195	5,542	10,391	123,364
65 Rocky Reach: Regional Totals	26,299	25,416	26,263	26,263	23,722	26,263	13,319	13,356	27,602	26,712	27,602	13,356	14,246	26,712	317,132
Wells CER for Canada															
66 AVWP to BPA	567	548	567	567	512	567	288	289	596	577	596	289	308	577	6,847
67 COLV to BPA	764	739	763	763	689	763	388	389	804	778	804	389	415	778	9,225
68 DOPD to BPA	4,866	4,703	4,860	4,860	4,390	4,860	2,468	2,475	5,116	4,951	5,116	2,475	2,640	4,951	58,732
69 OKPD to BPA	1,298	1,254	1,296	1,296	1,171	1,296	658	660	1,364	1,320	1,364	660	704	1,320	15,662
70 PGE to BPA	3,294	3,183	3,289	3,289	2,971	3,289	1,671	1,675	3,462	3,351	3,462	1,675	1,787	3,351	39,749
71 PPL to BPA	1,119	1,082	1,118	1,118	1,010	1,118	568	569	1,177	1,139	1,177	569	607	1,139	13,509
72 PSE to BPA	5,077	4,907	5,070	5,070	4,580	5,070	2,575	2,582	5,337	5,165	5,337	2,582	2,755	5,165	61,274
73 Wells: Regional Totals	16,986	16,416	16,963	16,963	15,322	16,963	8,616	8,640	17,856	17,280	17,856	8,640	9,216	17,280	204,997
Total CER For Canada															
74 Federal System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75 Public Entities	41,612	40,216	41,556	41,556	37,535	41,556	21,073	21,132	43,673	42,264	43,673	21,132	22,541	42,264	501,785
76 Investor-Owned Entities	47,951	46,342	47,887	47,887	43,253	47,887	24,294	24,361	50,347	48,723	50,347	24,361	25,986	48,723	578,349
77 Other Entities	7,307	7,062	7,297	7,297	6,591	7,297	3,700	3,710	7,668	7,420	7,668	3,710	3,957	7,420	88,104
78 Non-NW Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79 Total CER For Canada	96,870	93,620	96,740	96,740	87,378	96,740	49,067	49,204	101,688	98,407	101,688	49,204	52,484	98,407	1,168,238

Table A-16: Federal Intra-Regional Transfers

PNW Loads and Resource Study

2008 - 2009 Fiscal Years 8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Heavy (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Intra-Regional Transfers															
1 BPA To AVWP WP3Set	0	32,800	35,424	35,424	31,488	17,056	8,528	8,528	0	0	0	0	0	0	169,248
2 BPA To CCPD PwrS	7,344	6,528	7,072	7,072	6,528	7,072	3,536	3,536	6,800	7,072	7,072	3,536	3,536	6,800	83,504
3 BPA To Other Entities	0	0	0	0	0	0	0	0	92,000	0	62,816	42,640	42,640	0	240,096
4 BPA To PPL PwrS	46,742	61,747	89,565	78,541	55,680	48,630	18,637	18,637	40	7,571	14,061	2,683	2,683	16,840	462,058
5 BPA To PPL CapS	98,345	107,732	99,806	107,575	88,709	92,535	43,568	43,568	96,866	94,043	83,544	49,342	53,137	96,424	1,155,193
6 BPA To PPL S/Pwr/X	0	0	0	0	0	0	0	0	0	14,444	13,978	0	0	0	28,422
7 BPA To PPL S/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 BPA To PSE WP3Set	0	32,800	35,424	35,424	31,488	17,056	8,528	8,528	0	0	0	0	0	0	169,248
9 Other Entities To BPA	8,439	7,876	9,074	8,508	7,763	7,803	3,547	3,547	8,077	9,228	9,009	4,789	4,789	7,724	100,173
10 PPL To BPA S/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 PPL To BPA PkRepl	8,122	27,537	21,018	13,841	22,112	25,333	5,643	5,621	10,345	12,088	26,146	14,806	16,136	15,653	224,402
12 PPL To BPA PwrS	4,320	3,840	4,160	4,160	3,840	4,160	2,080	2,080	4,000	1,920	0	0	0	0	34,560
13 PPL To BPA S/Pwr/X	24,710	21,965	0	0	0	0	0	0	0	0	0	0	0	9,153	55,828
14 Total Contracts	198,023	302,825	301,544	290,545	247,608	219,645	94,067	94,044	218,128	146,366	216,625	117,797	122,922	152,594	2,722,732
Total Contracts Out															
15 Federal System	152,432	241,607	267,291	264,036	213,893	182,349	82,797	82,797	195,706	123,130	181,471	98,201	101,997	120,064	2,307,769
16 Public Entities	5,415	5,188	6,162	5,596	5,075	4,891	2,091	2,091	5,277	6,316	6,097	3,333	3,333	4,924	65,789
17 Investor-Owned Entities	40,176	56,030	28,090	20,913	28,640	32,405	9,179	9,157	17,145	16,920	29,058	16,262	17,592	27,606	349,174
18 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total Contracts Out	198,023	302,825	301,544	290,545	247,608	219,645	94,067	94,044	218,128	146,366	216,625	117,797	122,922	152,594	2,722,732
Total Contracts In															
20 Federal System	45,591	61,218	34,253	26,509	33,715	37,296	11,270	11,248	22,422	23,236	35,155	19,596	20,926	32,530	414,963
21 Public Entities	7,344	6,528	7,072	7,072	6,528	7,072	3,536	3,536	98,800	7,072	69,888	46,176	46,176	6,800	323,600
22 Investor-Owned Entities	145,088	235,079	260,219	256,964	207,365	175,277	79,261	79,261	96,906	116,058	111,583	52,025	55,821	113,264	1,984,169
23 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 Total Contracts In	198,023	302,825	301,544	290,545	247,608	219,645	94,067	94,044	218,128	146,366	216,625	117,797	122,922	152,594	2,722,732

Table A-22: BPA Power Sale Contracts
PNW Loads and Resource Study
2008 - 2009 Fiscal Years
1937 Water Year
[51] 2007 Final Supplemental Rate Case (Final)

8/15/2008

Heavy (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Federal Entities															
1 Federal Entities	59,162	62,492	71,003	72,756	63,682	64,410	28,235	28,235	55,080	56,457	61,844	31,717	31,717	54,186	740,975
2 Total Federal Entities	59,162	62,492	71,003	72,756	63,682	64,410	28,235	28,235	55,080	56,457	61,844	31,717	31,717	54,186	740,975
U.S. Bureau of Reclamation															
3 U.S. Bureau of Reclamation	41,569	5,468	12,996	29,220	30,349	21,310	47,128	47,128	118,502	120,867	130,529	54,444	54,444	88,699	802,655
4 Total U.S. Bureau of Reclamation	41,569	5,468	12,996	29,220	30,349	21,310	47,128	47,128	118,502	120,867	130,529	54,444	54,444	88,699	802,655
Direct Service Industry															
5 Direct Service Industry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Total Direct Service Industry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Generating Public Entities															
7 Generating Public Entities	986,434	1,124,483	1,331,667	1,312,128	1,169,185	1,209,333	494,062	494,021	889,231	843,562	902,069	464,674	467,951	963,282	12,652,082
8 Total Generating Public Entities	986,434	1,124,483	1,331,667	1,312,128	1,169,185	1,209,333	494,062	494,021	889,231	843,562	902,069	464,674	467,951	963,282	12,652,082
Generating Public Entities (Slice)															
9 Generating Public Entities (Slice)	500,448	526,427	529,535	404,208	373,504	440,298	201,349	207,337	455,672	627,541	564,200	255,949	257,157	446,595	5,790,217
10 Total Generating Public Entities (Slic	500,448	526,427	529,535	404,208	373,504	440,298	201,349	207,337	455,672	627,541	564,200	255,949	257,157	446,595	5,790,217
Non-Generating Public Entities															
11 Non-Generating Public Entities	1,322,890	1,375,222	1,597,823	1,628,023	1,440,106	1,424,532	654,162	654,162	1,303,444	1,364,121	1,444,872	724,128	725,002	1,224,460	16,882,949
12 Total Non-Generating Public Entities	1,322,890	1,375,222	1,597,823	1,628,023	1,440,106	1,424,532	654,162	654,162	1,303,444	1,364,121	1,444,872	724,128	725,002	1,224,460	16,882,949
Non-Generating Public Entities (Slice)															
13 Non-Generating Public Entities (Slice	300,494	316,093	317,959	242,706	224,270	264,377	120,900	124,496	273,608	376,807	338,774	153,684	154,410	268,158	3,476,735
14 Total Non-Generating Public Entities	300,494	316,093	317,959	242,706	224,270	264,377	120,900	124,496	273,608	376,807	338,774	153,684	154,410	268,158	3,476,735
Investor-Owned Entities															
15 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 Total Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Entities															
17 Other PNW Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Total Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Power Sales Contracts															
19 Federal Entities	59,162	62,492	71,003	72,756	63,682	64,410	28,235	28,235	55,080	56,457	61,844	31,717	31,717	54,186	740,975
20 U.S. Bureau of Reclamation	41,569	5,468	12,996	29,220	30,349	21,310	47,128	47,128	118,502	120,867	130,529	54,444	54,444	88,699	802,655
21 Direct Service Industry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22 Generating Public Entities	1,486,882	1,650,910	1,861,201	1,716,336	1,542,689	1,649,631	695,411	701,358	1,344,902	1,471,103	1,466,269	720,622	725,107	1,409,877	18,442,299
23 Non-Generating Public Entities	1,623,384	1,691,315	1,915,782	1,870,730	1,664,377	1,688,909	775,062	778,658	1,577,052	1,740,928	1,783,646	877,813	879,412	1,492,618	20,359,684
24 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 Total Power Sales Contracts	3,210,996	3,410,184	3,860,983	3,689,042	3,301,097	3,424,259	1,545,836	1,555,379	3,095,537	3,389,355	3,442,289	1,684,596	1,690,680	3,045,380	40,345,613

Table A-24: Federal NUG Resources By Project And Project Type

PNW Loads and Resource Study

2008 - 2009 Fiscal Years 8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Heavy (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
NUG: Hydro															
1 Dworshak/Clearwater Small Hydropower	1,136	1,010	1,094	1,094	1,010	1,094	547	547	1,052	1,094	1,094	547	547	1,052	12,919
2 Elwha Hydro	1,586	4,027	4,584	5,057	3,507	3,703	3,531	3,531	3,848	3,526	2,202	1,731	1,731	895	43,458
3 Glines Canyon Hydro	2,864	6,028	6,726	6,314	5,379	5,638	5,285	5,285	12,801	6,452	4,317	3,367	3,367	1,533	75,355
4 Total NUG: Hydro	5,586	11,065	12,405	12,465	9,896	10,435	9,363	9,363	17,701	11,072	7,614	5,644	5,644	3,480	131,732
NUG: Renewables															
5 Ashland Solar Project	1	1	0	1	1	1	1	1	2	2	2	1	1	2	15
6 White Bluffs Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Total NUG: Renewables	1	1	0	1	1	1	1	1	2	2	2	1	1	2	15
Total Non-Utility Generating Resources															
8 Federal Entities	5,587	11,066	12,405	12,466	9,897	10,437	9,364	9,364	17,702	11,074	7,616	5,645	5,645	3,482	131,747

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LLH MWhs ANALYSIS

2.6 FEDERAL LOAD RESOURCE STUDY – LLH MWhs ANALYSIS
Monthly LLH MWhs Energy
For FY 2009

Page

Table A-2: Federal Exports
PNW Loads and Resource Study
2008 - 2009 Fiscal Years 8/15/2008
[51] 2007 Final Supplemental Rate Case (Final)

Light (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Exports East of Continental Divide															
1 BPA to Other Entities	14,399	15,632	19,831	18,041	16,672	16,571	6,121	6,121	12,239	11,922	13,718	6,362	6,786	12,136	176,553
2 Total Exports to ECD	14,399	15,632	19,831	18,041	16,672	16,571	6,121	6,121	12,239	11,922	13,718	6,362	6,786	12,136	176,553
Exports to Pacific Southwest															
3 BPA to PASA C/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 BPA to PASA S/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 BPA to RVSD CapS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 BPA to RVSD C/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 BPA to RVSD C/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 BPA to RVSD S/Pwr/X	0	0	0	0	0	0	0	0	7,344	7,056	0	0	0	0	14,400
9 BPA NW-SW Intertie Losses	0	0	0	0	0	0	0	0	220	212	0	0	0	0	432
10 Total Exports To PSW	0	0	0	0	0	0	0	0	7,564	7,268	0	0	0	0	14,832
Exports to Inland Southwest															
11 BPA to SPP PwrS	14,040	15,165	14,760	14,760	12,960	14,715	11,400	11,400	25,800	22,800	24,600	11,400	13,200	24,000	231,000
12 Total Exports To ISW	14,040	15,165	14,760	14,760	12,960	14,715	11,400	11,400	25,800	22,800	24,600	11,400	13,200	24,000	231,000
Exports to Canada															
13 BPA to BCHP CanEnt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 Total Exports To Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exports to Other Entities															
15 Total Exports To Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Exports															
16 Federal Entities	28,439	30,797	34,591	32,801	29,632	31,286	17,521	17,521	45,603	41,990	38,318	17,762	19,986	36,136	422,385

Table A-5: Federal Imports
PNW Loads and Resource Study
2008 - 2009 Fiscal Years 8/15/2008
[51] 2007 Final Supplemental Rate Case (Final)

Light (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Imports From East of Continental Divide															
1 PPL to BPA PwrS	33,758	51,617	67,174	58,906	41,760	38,226	13,619	13,619	33	5,533	10,546	1,961	2,270	12,798	351,820
2 Total Imports From ECD	33,758	51,617	67,174	58,906	41,760	38,226	13,619	13,619	33	5,533	10,546	1,961	2,270	12,798	351,820
Imports From Pacific Southwest															
3 PASA to BPA XchgNrg	2,593	2,506	2,589	2,589	2,339	1,295	0	0	0	0	0	0	0	2,506	16,415
4 PASA to BPA S/N/X	514	497	513	513	464	238	0	0	0	0	0	0	0	497	3,236
5 PASA to BPA PkRepl	0	0	0	0	0	0	0	0	0	0	3,318	1,606	1,713	3,211	9,848
6 RVSD to BPA XchgNrg	2,785	4,641	4,525	4,525	4,177	4,757	2,190	0	0	0	0	0	0	0	27,600
7 RVSD to BPA PkRepl	0	3,200	3,680	3,520	3,200	3,520	1,754	1,766	4,830	0	0	0	0	0	25,470
8 RVSD to BPA PkRepl	5,290	0	0	0	0	0	0	0	0	5,060	5,290	2,238	2,592	5,060	25,530
9 RVSD to BPA XchgNrg	0	12,292	11,999	11,999	10,536	11,999	5,524	0	0	0	0	0	0	0	64,349
10 RVSD to BPA S/Pwr/X	0	7,186	7,015	7,015	6,159	7,015	3,229	0	0	0	0	0	0	0	37,619
11 RVSD to BPA PkRepl	8,280	1,800	2,070	1,980	1,800	1,980	987	993	0	0	8,280	3,503	4,057	7,920	43,650
12 Total Imports From PSW	19,462	32,121	32,391	32,141	28,674	30,804	13,684	2,759	4,830	5,060	16,888	7,347	8,362	19,194	253,717
Imports From Inland Southwest															
13 SPP to BPA PwrS	14,040	15,165	14,760	14,760	12,960	14,715	11,400	11,400	25,800	22,800	24,600	11,400	13,200	24,000	231,000
14 Total Imports From ISW	14,040	15,165	14,760	14,760	12,960	14,715	11,400	11,400	25,800	22,800	24,600	11,400	13,200	24,000	231,000
Imports From Canada															
15 BCHP to BPA PwrS	312	321	312	312	288	327	152	152	328	304	312	152	176	304	3,752
16 Total Imports From Canada	312	321	312	312	288	327	152	152	328	304	312	152	176	304	3,752
Imports From Other Entities															
17 Total Imports From Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Imports															
18 Federal System	67,572	99,224	114,637	106,119	83,682	84,072	38,855	27,930	30,991	33,697	52,346	20,859	24,008	56,296	840,289

Table A-8: Federal Renewable Resources

PNW Loads and Resource Study

2008 - 2009 Fiscal Years 8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Light (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Federal System															
1 Condon Wind Project	3,348	4,028	3,915	2,822	2,716	4,767	1,432	1,438	2,745	2,713	2,482	982	1,136	2,535	37,058
2 Foote Creek 1	1,826	1,902	2,461	2,632	2,374	2,214	958	965	1,282	1,259	632	445	515	1,196	20,662
3 Foote Creek 2	126	216	284	397	377	258	143	144	248	145	107	43	50	96	2,634
4 Foote Creek 4	1,278	2,321	2,354	2,704	2,698	1,933	1,007	1,013	1,322	1,417	947	350	405	961	20,710
5 Georgia-Pacific Paper (Wauna)	6,954	8,307	8,561	9,000	7,655	8,466	3,849	3,849	7,609	3,730	6,694	3,058	3,541	6,643	87,917
6 Klondike I	2,034	1,297	1,230	1,008	1,574	2,473	1,246	1,254	3,184	3,823	3,881	1,504	1,742	2,563	28,813
7 Klondike III	3,701	2,708	2,400	1,964	3,211	5,273	2,499	2,772	6,302	7,071	7,482	3,020	3,179	5,427	57,008
8 Stateline Wind Project	7,415	6,743	6,651	4,994	4,638	11,590	4,396	4,426	9,215	9,893	9,820	4,212	4,877	7,218	96,085
9 Total Federal System	26,681	27,522	27,855	25,521	25,244	36,974	15,530	15,860	31,907	30,051	32,045	13,614	15,445	26,639	350,887
Renewable Resources															
10 Federal System	26,681	27,522	27,855	25,521	25,244	36,974	15,530	15,860	31,907	30,051	32,045	13,614	15,445	26,639	350,887

Table A-10: Federal Large Thermal
PNW Loads and Resource Study
2008 - 2009 Fiscal Years
[51] 2007 Final Supplemental Rate Case (Final)

8/15/2008

Light (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Columbia Generating Station: Uranium															
1 BPA - Power Business	321,360	347,110	337,840	337,840	296,640	336,810	156,560	156,560	91,504	0	327,016	156,560	181,280	329,600	3,376,680
2 Columbia Generating Station: Regional Total	321,360	347,110	337,840	337,840	296,640	336,810	156,560	156,560	91,504	0	327,016	156,560	181,280	329,600	3,376,680
Total Large Thermal															
3 Federal System	321,360	347,110	337,840	337,840	296,640	336,810	156,560	156,560	91,504	0	327,016	156,560	181,280	329,600	3,376,680

Table A-15: Canadian Entitlement Return For Canada

PNW Loads and Resource Study

2008 - 2009 Fiscal Years

8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Light Load Hours in MwHr	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
BPA Canada															
1 BPA: Regional Totals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Priest Rapids CER for Canada															
2 AVWP to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 COPD to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4 CWPC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5 EWEB to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6 FGRV to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7 FREC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8 GCPD to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 ICLP to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 KITT to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11 KOOT to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12 LREC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13 LVE to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14 MCMN to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15 MTFR to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16 NLEC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17 PGE to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18 PPL to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19 PSE to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20 RREC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21 SCL to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22 SLEC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23 TPU to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24 UNEC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25 UNKMKT to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26 Priest Rapids: Regional Totals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-15: Canadian Entitlement Return For Canada
PNW Loads and Resource Study
Continued 2008 - 2009 Fiscal Years 8/15/2008
[51] 2007 Final Supplemental Rate Case (Final)

Light Load Hours in MwHr	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Wanapum CER for Canada															
27 AVWP to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28 COPD to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29 CWPC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30 EWEB to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31 FGRV to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32 FREC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33 GCPD to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34 ICLP to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35 KITT to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36 KOOT to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37 LREC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38 LVE to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39 MCMN to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40 MTFR to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41 NLEC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42 PGE to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43 PPL to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44 PSE to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45 RREC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46 SCL to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
47 SLEC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48 TPU to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49 UNEC to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50 UNKMKT to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51 Wanapum: Regional Totals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-15: Canadian Entitlement Return For Canada
PNW Loads and Resource Study
Continued 2008 - 2009 Fiscal Years 8/15/2008
[51] 2007 Final Supplemental Rate Case (Final)

Light Load Hours in MwHr	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Rock Island P.H. #1 CER for Canada															
52 CHPD to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53 PSE to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54 Rock Is. P.H. #1: Reg. Totals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rock Island P.H. #2 CER for Canada															
55 CHPD to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56 PSE to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57 Rock Is. P.H. #2: Reg. Totals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rocky Reach CER for Canada															
58 AVWP to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59 CHPD to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60 CLKM to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
61 DOPD to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62 PGE to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
63 PPL to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64 PSE to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65 Rocky Reach: Regional Totals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wells CER for Canada															
66 AVWP to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
67 COLV to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68 DOPD to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69 OKPD to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70 PGE to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
71 PPL to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72 PSE to BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73 Wells: Regional Totals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total CER For Canada															
74 Federal System	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75 Public Entities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
76 Investor-Owned Entities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77 Other Entities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78 Non-NW Entities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79 Total CER For Canada	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-16: Federal Intra-Regional Transfers

PNW Loads and Resource Study

2008 - 2009 Fiscal Years 8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Light (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Intra-Regional Transfers															
1 BPA To AVWP WP3Set	0	40,093	39,794	39,794	36,451	20,020	9,328	9,364	0	0	0	0	0	0	194,844
2 BPA To CCPD PwrS	5,304	5,729	5,576	5,576	4,896	5,559	2,584	2,584	5,848	5,168	5,576	2,584	2,992	5,440	65,416
3 BPA To Other Entities	0	0	0	0	0	0	0	0	79,120	0	49,528	31,160	36,080	0	195,888
4 BPA To PPL PwrS	33,867	54,029	70,618	61,926	41,760	38,343	13,530	13,619	34	5,533	11,086	1,961	2,270	13,472	362,049
5 BPA To PPL CapS	37,759	56,976	39,677	49,775	45,234	39,422	18,521	18,643	27,231	31,283	34,621	16,819	17,704	43,279	476,943
6 BPA To PPL S/Pwr/X	0	0	0	0	0	0	0	0	0	10,556	11,022	0	0	0	21,578
7 BPA To PPL S/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 BPA To PSE WP3Set	0	40,093	39,794	39,794	36,451	20,020	9,328	9,364	0	0	0	0	0	0	194,844
9 Other Entities To BPA	6,095	6,912	7,155	6,708	5,822	6,134	2,592	2,592	6,946	6,743	7,103	3,500	4,052	6,179	78,534
10 PPL To BPA S/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 PPL To BPA PkRepl	127,982	137,171	118,465	143,510	111,830	106,624	56,445	56,590	113,752	113,237	92,019	51,355	54,705	124,050	1,407,735
12 PPL To BPA PwrS	3,130	3,360	3,280	3,280	2,880	3,280	1,510	1,520	3,440	1,440	0	0	0	0	27,120
13 PPL To BPA S/Pwr/X	17,846	19,276	0	0	0	0	0	0	0	0	0	0	0	7,323	44,446
14 Total Contracts	231,983	363,639	324,359	350,363	285,324	239,403	113,837	114,277	236,371	173,960	210,956	107,378	117,804	199,743	3,069,397
Total Contracts Out															
15 Federal System	76,929	196,920	195,459	196,866	164,792	123,365	53,290	53,575	112,233	52,539	111,834	52,524	59,047	62,191	1,511,562
16 Public Entities	3,911	4,553	4,859	4,412	3,806	3,845	1,528	1,528	4,538	4,615	4,807	2,436	2,820	3,939	51,598
17 Investor-Owned Entities	151,143	162,166	124,041	149,086	116,726	112,193	59,019	59,174	119,600	116,805	94,315	52,419	55,937	133,613	1,506,237
18 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total Contracts Out	231,983	363,639	324,359	350,363	285,324	239,403	113,837	114,277	236,371	173,960	210,956	107,378	117,804	199,743	3,069,397
Total Contracts In															
20 Federal System	155,053	166,719	128,900	153,498	120,532	116,038	60,547	60,702	124,138	121,420	99,122	54,854	58,758	137,552	1,557,835
21 Public Entities	5,304	5,729	5,576	5,576	4,896	5,559	2,584	2,584	84,968	5,168	55,104	33,744	39,072	5,440	261,304
22 Investor-Owned Entities	71,625	191,191	189,883	191,290	159,896	117,806	50,706	50,991	27,265	47,371	56,730	18,780	19,975	56,751	1,250,258
23 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 Total Contracts In	231,983	363,639	324,359	350,363	285,324	239,403	113,837	114,277	236,371	173,960	210,956	107,378	117,804	199,743	3,069,397

Table A-22: BPA Power Sale Contracts
PNW Loads and Resource Study
2008 - 2009 Fiscal Years
1937 Water Year
[51] 2007 Final Supplemental Rate Case (Final)

8/15/2008

Light (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Federal Entities															
1 Federal Entities	38,101	46,014	50,593	50,950	43,825	44,334	18,673	18,673	38,590	35,399	40,968	18,764	21,727	37,107	503,721
2 Total Federal Entities	38,101	46,014	50,593	50,950	43,825	44,334	18,673	18,673	38,590	35,399	40,968	18,764	21,727	37,107	503,721
U.S. Bureau of Reclamation															
3 U.S. Bureau of Reclamation	28,530	4,810	10,248	23,040	22,736	16,015	33,639	33,639	97,118	85,457	100,248	37,765	43,728	68,988	605,963
4 Total U.S. Bureau of Reclamation	28,530	4,810	10,248	23,040	22,736	16,015	33,639	33,639	97,118	85,457	100,248	37,765	43,728	68,988	605,963
Direct Service Industry															
5 Direct Service Industry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Total Direct Service Industry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Generating Public Entities															
7 Generating Public Entities	579,914	734,293	777,058	813,317	728,359	750,825	300,388	300,357	584,429	513,761	604,479	282,774	324,047	628,921	7,922,921
8 Total Generating Public Entities	579,914	734,293	777,058	813,317	728,359	750,825	300,388	300,357	584,429	513,761	604,479	282,774	324,047	628,921	7,922,921
Generating Public Entities (Slice)															
9 Generating Public Entities (Slice)	250,711	290,339	301,180	235,528	235,846	275,892	145,931	118,000	281,782	278,247	263,662	146,364	102,746	222,094	3,148,321
10 Total Generating Public Entities (Slice	250,711	290,339	301,180	235,528	235,846	275,892	145,931	118,000	281,782	278,247	263,662	146,364	102,746	222,094	3,148,321
Non-Generating Public Entities															
11 Non-Generating Public Entities	831,492	992,716	1,113,959	1,121,278	963,523	945,357	425,316	425,316	902,870	856,214	958,764	418,867	485,743	841,020	11,282,436
12 Total Non-Generating Public Entities	831,492	992,716	1,113,959	1,121,278	963,523	945,357	425,316	425,316	902,870	856,214	958,764	418,867	485,743	841,020	11,282,436
Non-Generating Public Entities (Slice)															
13 Non-Generating Public Entities (Slice)	150,548	174,344	180,854	141,431	141,622	165,669	87,629	70,857	169,206	167,083	158,325	87,890	61,698	133,364	1,890,520
14 Total Non-Generating Public Entities (	150,548	174,344	180,854	141,431	141,622	165,669	87,629	70,857	169,206	167,083	158,325	87,890	61,698	133,364	1,890,520
Investor-Owned Entities															
15 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 Total Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Entities															
17 Other PNW Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Total Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Power Sales Contracts															
19 Federal Entities	38,101	46,014	50,593	50,950	43,825	44,334	18,673	18,673	38,590	35,399	40,968	18,764	21,727	37,107	503,721
20 U.S. Bureau of Reclamation	28,530	4,810	10,248	23,040	22,736	16,015	33,639	33,639	97,118	85,457	100,248	37,765	43,728	68,988	605,963
21 Direct Service Industry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22 Generating Public Entities	830,625	1,024,632	1,078,238	1,048,845	964,205	1,026,717	446,318	418,357	866,210	792,008	868,141	429,138	426,793	851,015	11,071,242
23 Non-Generating Public Entities	982,040	1,167,060	1,294,813	1,262,709	1,105,146	1,111,026	512,945	496,173	1,072,075	1,023,298	1,117,089	506,756	547,440	974,385	13,172,956
24 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 Total Power Sales Contracts	1,879,295	2,242,516	2,433,893	2,385,545	2,135,912	2,198,092	1,011,576	966,843	2,073,994	1,936,162	2,126,446	992,424	1,039,688	1,931,494	25,353,881

Table A-24: Federal NUG Resources By Project And Project Type

PNW Loads and Resource Study

2008 - 2009 Fiscal Years 8/15/2008

[51] 2007 Final Supplemental Rate Case (Final)

Light (MWHr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
NUG: Hydro															
1 Dworshak/Clearwater Small Hydropower	823	884	863	863	757	863	397	400	905	800	863	400	463	842	10,120
2 Elwha Hydro	1,125	2,826	3,697	3,709	2,593	2,808	2,508	2,508	2,815	2,566	1,790	1,222	1,222	744	32,131
3 Glines Canyon Hydro	2,109	4,246	5,288	4,767	3,983	4,415	3,766	3,766	9,288	4,755	3,529	2,404	2,404	1,411	56,132
4 Total NUG: Hydro	4,057	7,956	9,848	9,338	7,332	8,086	6,671	6,674	13,007	8,120	6,182	4,026	4,089	2,997	98,384
NUG: Renewables															
5 Ashland Solar Project	1	0	0	0	1	1	1	1	1	1	2	1	1	1	12
6 White Bluffs Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Total NUG: Renewables	1	0	0	0	1	1	1	1	1	1	2	1	1	1	12
Total Non-Utility Generating Resources															
8 Federal Entities	4,058	7,956	9,848	9,339	7,333	8,087	6,672	6,674	13,009	8,122	6,184	4,026	4,090	2,998	98,396

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TOTAL PNW REGIONAL HYDRO ANALYSIS

2.7 TOTAL PNW REGIONAL HYDRO RESOURCES (Includes PNW Regulated, Independent, and NUG Hydro) Monthly Energy in Average Megawatts for each of the 50 Water Years For FY 2009

Page

Table 2.7.1
2008-2009 Fiscal Year
Pacific Northwest Regional Hydro Resources
Includes Regulated, Independent, and NUG Hydro **8/15/2008**
[51] 2007 Final Supplemental Rate Case (Final)
Energy in Average Megawatts

WY	Oct	Nov	Dec	Jan	Feb	Mar	Apr 1	Apr 16	May	Jun	Jul	Aug 1	Aug 16	Sep	Avg
1929	11,283	13,088	13,507	12,536	10,151	12,458	10,898	10,161	12,522	18,164	14,487	12,321	9,793	10,072	12,488
1930	11,508	12,827	13,387	10,144	12,423	10,925	11,519	12,208	12,408	15,947	14,402	11,417	10,124	10,218	12,235
1931	11,112	12,857	13,079	10,682	9,979	10,821	11,997	10,272	11,977	16,366	14,038	12,288	10,383	10,579	11,997
1932	10,439	12,496	12,833	11,021	10,395	14,150	18,019	20,013	22,304	20,152	15,653	12,445	11,417	11,065	14,288
1933	11,671	13,370	14,356	20,477	16,719	13,231	15,949	15,983	18,886	20,301	18,808	16,587	14,061	12,164	15,939
1934	13,715	16,733	21,194	21,713	20,587	19,460	19,477	19,280	19,927	17,782	14,551	10,904	9,632	10,011	17,110
1935	11,521	13,506	13,160	19,264	19,899	11,577	13,435	15,485	18,752	17,209	17,057	14,716	11,307	10,226	14,970
1936	11,411	12,946	13,009	11,561	11,053	12,676	12,456	17,462	21,166	19,927	13,905	12,969	10,646	9,709	13,678
1937	11,377	12,761	13,581	10,356	10,269	10,764	11,905	10,937	13,164	17,294	13,392	13,365	11,075	10,328	12,244
1938	11,519	13,554	14,255	19,794	15,498	16,176	17,268	20,354	22,531	19,755	16,009	12,112	10,189	10,980	15,836
1939	11,759	12,984	12,960	14,332	11,258	12,994	14,625	17,676	20,530	15,852	13,941	11,025	9,382	9,444	13,534
1940	11,700	12,725	14,736	12,873	13,534	17,595	16,127	17,730	16,779	16,737	12,661	10,280	9,462	10,145	13,857
1941	11,237	12,407	13,781	14,280	11,359	13,013	11,230	10,484	11,573	16,467	13,618	11,879	10,541	11,373	12,598
1942	10,656	12,297	15,793	17,905	13,451	9,615	11,773	16,363	16,412	20,029	17,687	14,862	11,254	10,662	14,303
1943	11,742	13,574	14,123	18,721	18,560	17,382	20,740	20,547	22,158	20,544	17,992	14,642	11,028	10,083	16,530
1944	11,240	13,171	13,684	13,494	10,487	10,277	11,023	9,469	12,452	15,674	12,446	11,665	10,127	10,801	12,072
1945	10,432	12,258	12,429	10,975	11,536	10,499	10,621	9,634	17,765	20,047	13,069	11,965	10,338	10,070	12,530
1946	11,328	13,650	14,991	17,815	15,546	17,881	19,217	20,414	23,018	20,143	18,109	14,142	11,647	11,020	16,351
1947	11,648	13,697	19,177	20,262	20,288	19,569	17,975	17,863	20,936	19,950	17,619	13,407	11,150	10,850	17,016
1948	16,250	16,499	17,102	21,675	16,219	15,367	15,633	20,012	23,025	20,770	18,765	16,574	14,108	12,068	17,576
1949	12,662	13,553	14,224	14,763	14,209	18,533	18,574	20,244	23,157	20,026	13,396	12,102	9,674	9,436	15,355
1950	11,660	13,407	14,098	19,250	20,036	21,239	20,200	20,084	21,229	20,072	19,092	15,509	13,240	11,567	17,180
1951	14,298	16,413	21,229	22,222	21,745	21,111	20,399	20,467	22,751	20,031	18,725	16,091	11,989	11,031	18,669
1952	15,189	14,354	17,380	21,650	18,029	14,289	20,174	20,552	23,163	20,636	16,776	13,378	11,352	10,227	17,035
1953	11,483	12,931	12,898	14,976	19,861	14,261	11,699	15,187	20,824	20,662	19,044	14,772	11,821	10,972	15,388
1954	12,545	13,668	16,138	18,855	21,166	16,201	17,459	17,919	21,746	19,934	18,984	18,240	17,391	15,296	17,503
1955	12,750	14,500	16,390	14,066	12,725	12,377	12,660	11,861	17,235	20,161	18,877	16,730	13,550	10,845	14,777
1956	13,655	16,068	20,813	22,469	21,257	21,266	20,525	20,367	22,890	20,668	19,012	14,832	12,880	11,381	18,648
1957	13,168	13,563	15,307	18,504	12,493	17,640	18,699	18,323	23,226	20,423	15,135	12,743	10,112	10,319	15,810
1958	11,661	13,104	13,663	16,945	18,036	15,440	16,791	19,182	23,137	20,315	14,859	12,679	10,842	10,262	15,597
1959	12,211	14,212	18,878	21,583	20,602	17,819	19,595	18,087	20,713	19,747	16,637	14,549	12,458	15,525	17,523
1960	17,237	18,541	19,364	19,833	16,668	16,352	20,351	19,841	19,764	19,820	17,053	13,758	10,599	10,799	17,309
1961	11,889	13,716	13,416	19,107	17,570	17,183	18,949	15,796	20,977	19,604	16,085	12,990	11,746	9,920	15,767
1962	11,116	13,541	14,140	19,595	13,747	12,341	17,728	20,485	20,781	19,851	14,384	13,275	11,059	10,083	15,071
1963	13,138	14,594	18,411	20,334	16,398	11,269	13,910	15,564	18,964	20,290	17,176	14,498	11,624	10,843	15,768
1964	11,456	13,925	13,852	18,115	13,640	10,647	15,275	15,474	19,981	20,879	18,861	16,687	12,437	12,795	15,341
1965	13,591	13,957	20,409	22,410	21,601	20,433	17,990	20,536	22,714	20,252	16,663	14,698	13,266	11,553	18,069
1966	12,864	13,469	13,781	19,569	12,925	11,720	20,044	16,713	18,983	18,464	17,298	14,654	11,349	10,206	15,055
1967	11,527	13,337	14,572	21,735	20,957	17,705	15,375	12,780	19,813	20,661	18,782	15,379	11,977	11,134	16,498
1968	12,624	13,554	14,605	20,625	18,219	16,291	11,703	12,931	17,248	19,959	18,583	15,384	12,962	13,939	16,011
1969	14,250	16,031	17,533	21,966	21,064	18,411	20,428	20,289	23,173	20,179	18,206	13,195	10,682	10,672	17,815
1970	12,517	13,567	13,395	17,417	16,352	13,967	13,854	13,529	19,905	20,563	15,612	12,721	10,150	9,986	14,867
1971	11,700	13,050	14,220	22,585	21,457	21,232	20,480	20,338	22,935	20,741	19,353	17,222	14,203	12,041	17,953
1972	13,089	14,062	14,893	22,662	21,812	21,639	20,616	19,876	22,820	20,727	19,068	17,925	15,981	12,254	18,352
1973	12,576	13,550	16,041	18,763	11,584	10,561	10,129	10,557	15,144	17,217	14,253	10,692	9,089	9,560	13,290
1974	11,420	12,743	17,430	22,680	21,783	21,534	20,400	20,353	22,655	20,603	19,157	16,847	14,431	11,755	18,148
1975	11,254	13,390	13,780	18,512	15,563	16,817	12,872	15,517	21,668	20,731	19,406	14,075	12,988	12,071	15,910
1976	14,302	16,276	21,880	22,373	21,245	19,411	20,512	20,275	22,930	20,419	18,891	18,599	18,365	16,718	19,443
1977	12,438	13,131	13,549	13,484	10,291	9,815	10,587	8,915	12,160	14,256	11,979	11,808	10,544	10,329	11,863
1978	9,515	12,710	14,332	17,800	14,396	15,086	19,724	17,549	21,174	17,979	17,463	13,601	12,060	14,015	15,495

ESTIMATED PURCHASE MW ELIGIBLE FOR 4(h)(10)C CREDIT

2.8 ESTIMATED PURCHASE MW ELIGIBLE FOR 4(h)(10)C CREDIT Monthly Energy in Average Megawatts for each of the 50 Water Years

Page

Table 2.8.1
4(h)(10)(C) Power Purchase Amounts
Energy in Average Megawatts

Water	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr2	May	Jun	Jul	Aug1	Aug2	Sep	Avg
1929	1227	891	1597	1968	1702	-80	402	738	705	0	0	-752	624	293	731
1930	-870	-1067	1343	3605	-929	997	-119	596	710	0	0	1085	446	0	416
1931	-281	-345	924	2455	2282	838	14	1180	1432	-1620	-26	-1069	-99	134	479
1932	98	581	1897	3504	2609	971	0	0	0	0	0	365	0	97	820
1933	48	1215	1009	0	0	442	0	0	0	0	0	0	0	50	231
1934	0	0	0	0	0	0	0	0	0	0	-1553	1009	348	107	-66
1935	110	1629	2340	0	0	1683	0	290	0	0	-162	0	0	928	559
1936	-212	-307	1293	3207	220	543	62	0	0	0	0	0	20	587	454
1937	-716	-991	721	2765	1049	1495	-798	314	1461	0	0	-1830	-830	128	364
1938	96	1391	1415	0	0	0	0	0	0	0	0	-1293	259	0	201
1939	58	375	2413	1852	1976	799	0	0	0	-1530	-1136	949	783	843	538
1940	44	495	334	2074	1339	0	0	0	0	-2601	-1455	65	375	0	33
1941	3	629	1095	1263	1738	-1426	540	1484	979	-1521	-853	-1236	0	0	183
1942	453	784	0	0	1371	1285	-318	0	0	0	0	0	0	97	312
1943	-138	1384	1775	0	0	0	0	0	0	0	0	0	252	1224	364
1944	1000	557	1766	451	2840	930	292	1119	337	-1577	-1886	-1412	-555	-759	268
1945	393	550	2116	3471	2333	1821	534	1331	0	0	0	-1065	-730	-411	854
1946	479	818	1046	65	0	0	0	0	0	0	0	0	0	499	243
1947	863	931	0	0	0	0	0	0	0	0	0	0	137	657	210
1948	0	0	0	0	0	0	0	0	0	0	0	0	0	145	12
1949	322	894	1127	659	640	0	0	0	0	0	-55	-702	-101	614	314
1950	143	1606	1632	0	0	0	0	0	0	0	0	0	0	455	320
1951	0	0	0	0	0	0	0	0	0	0	0	0	0	762	63
1952	0	622	0	0	0	0	0	0	0	0	0	0	0	759	114
1953	-271	-200	2004	1598	0	0	675	0	0	0	0	0	0	699	352
1954	313	855	136	0	0	0	0	0	0	0	0	0	0	0	108
1955	306	461	0	1578	-837	-495	298	1026	0	0	0	0	0	952	224
1956	192	0	0	0	0	0	0	0	0	0	0	0	0	538	61
1957	148	971	727	0	2323	0	0	0	0	0	0	77	496	582	405
1958	541	714	1625	0	0	0	0	0	0	0	0	81	0	952	324
1959	360	763	0	0	0	0	0	0	0	0	0	0	0	0	93
1960	0	0	0	0	0	0	0	0	0	0	0	0	278	553	58
1961	481	992	1393	0	0	0	0	0	0	0	0	0	0	451	278
1962	627	601	1588	0	261	611	0	0	0	0	0	0	0	981	390
1963	0	454	0	0	0	1808	0	-142	0	0	0	0	0	606	235
1964	624	779	1230	0	1063	1123	0	0	0	0	0	0	0	0	398
1965	0	605	0	0	0	0	0	0	0	0	0	0	0	462	88
1966	94	771	1007	0	1360	1653	0	0	0	0	0	0	0	1073	490
1967	330	885	1073	0	0	0	0	948	0	0	0	0	0	404	264
1968	388	1000	766	0	0	0	606	-1547	0	0	0	0	0	0	142
1969	0	0	0	0	0	0	0	0	0	0	0	0	309	830	82
1970	284	619	1541	0	0	0	0	-2160	0	0	0	-530	475	1048	202
1971	342	1115	1405	0	0	0	0	0	0	0	0	0	0	184	255
1972	199	861	644	0	0	0	0	0	0	0	0	0	0	134	153
1973	340	812	195	0	2544	213	673	880	-1297	-971	0	110	109	-95	201
1974	136	1443	0	0	0	0	0	0	0	0	0	0	0	394	163
1975	924	815	1684	0	12	0	0	0	0	0	0	0	0	108	298
1976	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	279	666	1575	1311	2204	864	417	991	280	-2641	-1650	-1445	-840	-1240	92
1978	1102	615	1189	0	691	0	0	0	0	0	0	0	0	0	298
Average	217	585	913	637	576	322	66	141	92	-249	-176	-152	35	337	273

HYDSIM HYDRO REGUALTION STUDY ASSUMPTIONS

2.9 HYDSIM HYDRO REGULATION STUDY ASSUMPTIONS

Page

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2.9.1 HYDSIM Assumptions for 2009

Date Requested: Apr. 14, 2008 **STUDY NUMBER: 08_RateCase09**

Requested By: BPA

Due Date: May 2008 (ASAP)

Purpose of Study: This is a 70-year continuous study of the system operation under the May 5, 2008, final BiOp RPA for 2009 rate case study. For rate development purposes, only the first 50 years of this study were applied since other models used in the rates process are not yet capable of using 70 years.

Directory of Study: **AER Step:**
Q:\RATES\08_RATECASE09\AER
OPER Step:
Q:\RATES\08_RATECASE09\OPER

Name of Regulator: Jennie Tran

AER STEP

- This AER Step is used to determine the project minimum elevations (or maximum draft) using load equal to OY08 Firm Energy Load Carrying Capability (FELCC) and unlimited secondary market. Minimum elevations from the AER Step will be input into the Operational Step.

- This is a **continuous** study mostly based on the OY08 PNCA data submittal. The study will begin on October 1, 1928 and end on September 30, 1998, a 70-year study (FISCAL YEAR OCT 2007-SEP 2008); the Coordinated System generation does not include the Tacoma projects, as well as Brownlee, Oxbow, and Hell Canyon.

- **Streamflow:** The 70 years of streamflows used are from "Modified Streamflows 2000 Level of Irrigation." They contain 2000-level irrigation depletions. (See "Seasonal Volumes and Statistics, 1928-1999, 2000 Level Modified Streamflows Computed Seasonal Volumes 71-year Statistics, Columbia River Basin, Prepared for BPA, May 2004." Data on pg. 203, for instance, is used at Grand Coulee.) Adjustments to these 2000-level modified streamflows are due to the Bureau of Reclamation's updated Grand Coulee pumping schedule for the Columbia Basin Project. This pumping schedule is included in the BOR's February 1, 2007 preliminary PNCA data submittal. No adjustments are made for NTSA storage and release. The inflows to Brownlee are

adjusted by the regulation of the Upper Snake reservoirs to release up to 487 kAf provided by the Bureau of Reclamation on June 1, 2007, and reflects the Upper Snake BiOp operation. (Brownlee inflows in low water years reflect an operation of Upper Snake reservoirs that shifts some flow augmentation for salmon from summer to spring, often referred to as shifted Brownlee inflows.)

- **Plant Data:** The OY08 plant data will be used for all projects except Hungry Horse plant data from OY09 (0% storage table).

- **Loads:** All FELCC is taken from the OY08 Critical Period study run by the Northwest Power Pool (NWPP). The NWPP study has a one-year critical period (August 16, 1936, through March 31, 1937). Thus, only one year of FELCC values are used for all water conditions. This study reflects coordination between PNCA parties in meeting PNCA FELCC. Therefore, generation from projects owned by non-PNCA parties (Brownlee, Oxbow, Hells Canyon, and Canadian projects) are not used to meet PNCA FELCC in these studies. Also in this study, the generation from Tacoma projects is no longer included in the PNCA's Coordinated System FELCC computation. The PNCA hydro FELCC includes Hydro-Independent generation from 1936-37, so BPA revises it to reflect the Hydro-Independent generation for each of the 70 years to develop the hydro-residual load required for this study. There is no limit assumed in the secondary market.

- **Unit Outages:** The unit outages for all projects are from the PNCA OY08.

- **Initial Contents:** All projects are initialized to September 30, 1929, storage ending content from the 50-yr continuous final Rates study for 2007 (Q:\RATES\06\ 04RATE_07) except Mica, Arrow, and Duncan projects are initialized to the same content from DOP09 study (Q:\TREATY\DOP09\FY09_RATE).

- **CRC Rule Curves:** Critical Rule Curves (CRC) are in accordance with PNCA 2008 adopted system critical rule curves. However, CRC for Hungry Horse is adjusted down by 45.1 ksfd from full for 0% banks storage table. They are as follows: 1st year = OY2008 CRC1; 2nd year = empty; 3rd year = empty; and 4th year = empty.

- **Flood Control Rule Curves:** These curves are the highest contents allowed for each reservoir and supersede all other reservoir elevation and content objectives. The curves are based on forecasts: no shift to Coulee; 3.6/4.08 Arrow/Mica split; and VARQ at Horse and Libby. They were provided by the Corps of Engineers in April 2008. Variable flow flood control in December at Libby is computed by BPA based on Jan1 April-August forecast at Libby. The flood control target draft at Libby from full in December is 1.4 MAf if the forecast is less than 5500 kAf and 2.0 MAf if the forecast is greater than or equal to 5900 Kaf. The straight line interpolation between 1.4 – 2.0 MAf flood control draft from full when the forecast is in between 5500 – 5900 Kaf. The Mica, Arrow, Duncan projects' flood control requirements will be the same as used in the

DOP09 study which has 3/4 Arrow/Mica split; non-shifted VARQ at Hungry Horse (Q:\hydsim\dat\pnca\vurc_bpa\VQHGH11Apr08_SYN34_NS_ 70.HYMOD). The flood control curves for Coulee are adjusted for the amount of storage capability available below URC on April 30 each year for Mica, Arrow and Duncan to more closely reflect the methodology used in real-time operations. BPA adjusts the flood control curves to shift some of Dworshak's requirement to Grand Coulee when possible.

- **ECC Curves:** VECCs are calculated using OY08 Power Discharge Requirements (PDRs), distribution factors, and forecast errors which are used in PNCA planning. The Grand Coulee ECC lower limits are 1225 feet (420.5 ksfd) in January-April 30 and 1240 feet (843.9 ksfd) in May. The Canadian DOP09 VECCs are based on forecasts, 3/4 Arrow/Mica split, non-shifted, VarQ flood control at Hungry Horse only. The VECCs for the Federal projects are based on the 70-year volume forecasts.

Project-Specific Data:

- **Mica, Duncan, and Arrow** will be on their DOP09 operation. The Canadian Treaty projects are fixed to the 70-year DOP09 Treaty Storage Regulation run by BPA. Mica data logic in the Hydrosim program is turned off. Mica's minimum storage content is reset to 0.0 ksfd so that drafting below 2295.9 ksfd (normal minimum content) can occur. Hungry Horse's storage table is changed from 3% to 0% bank storage in the Treaty Storage Regulation.

- **Libby** has a maximum outflow of 26,500 cfs in all periods. It can be drafted to meet FELCC in September-November as long as it does not draft below December Variable URC. (If the December forecast at Libby for Apr-Aug periods is less than 5500 kAf, then the flood control at Libby in December is 2426.6 ft (1804.7 ksfd), If the forecast is greater than 5900 kAf, then the flood control in December is 2411.0 ft (1502.2 ksfd). The flood control data is interpolated between 1804.7 ksfd and 1502.2 ksfd if the forecast is between 5500-5900 kAf. In January through mid-April, Libby is operated on minimum flow (4,000 cfs) or VARQ flood control objectives as defined in the BiOP. It should be noted that Libby does violate URC for Corra Linn's IJC operation. Sturgeon and Bull Trout flow requirements in May-July based on May 1 April-August Kuehl-Moffit forecast at Libby are as follows:

PNCA OY 2008 COE Data Submittal (USFWS 2006 BiOp, February 18, 2006).

Libby May1, Apr-Aug Forecast Interval (MAF)	Sturgeon Flow Volume Provided from Libby (KAF)
<4800	0
4800-5400	800
5400-6350	800-1120
6350-7400	1120-1200
7400-8500	1200
8500-8900	1200-1600
>8900	1600

Libby May 1 Apr-Aug Forecast Interval (MAF)	Bull Trout minimum flow in May15-Sep30 (KCFS)
<4800	6.0
4800-6000	7.0
6000-6700	8.0
>6700	9.0

Libby is operated during May-June for Sturgeon and May 15-September 30 for Bull Trout in all years. The project draft limit for McNary flow augmentation is 2439 ft (2061.3 ksfd) in June-August. It can draft below 2439 ft to meet Bull Trout flow objective. Libby's maximum outflow from mid-April through August is powerhouse hydraulic capacity without spill unless a higher outflow is required to maintain the required VARQ flood control space. Libby should not draft below the variable computed straight-line content between June 30 and August draft limit of 2061.3 ksfd (2439 ft) during July and August in order to minimize occurrences of a second peak flow in the summer. The reservoir may draft below 2439 ft to meet the bull trout minimum flows through September.

- **Hungry Horse** cannot draft below IRC (0% storage table) curves 3545 ft (1330.2 ksfd), 3545 ft (1330.2 ksfd), 3542 ft (1297.1 ksfd), and 3533 ft (1199.4 ksfd) during September through December, respectively. From January through March, Hungry Horse operates to the higher of variable IRC or Biological Rule Curve objectives, but below a maximum content calculated to reduce the possibility of forced spill. The Biological rule curves are calculated using assumed inflows that are exceeded 75 percent of the time, perfect foreknowledge of the minimum outflow, and the requirement to be at flood control elevation on April 10. In April through June, Hungry Horse operates on or near flood control. On July 31, August 15, and August 31, Hungry Horse draft limit is 3560, 3550, and 3540.0 feet (1503.4, 1386.7, and 1275.0 ksfd) for BiOp flow augmentation. Hungry Horse will be operated to meet the Columbia Falls minimum flow between 3200 cfs and

3500 cfs based on the April-to-August volume runoff between 1190 kAf and 1790 kAf at Hungry Horse. The outflow at Hungry Horse is limited to maximum turbine capacity of 12,048 cfs and no spill is allowed unless required to maintain the required flood control space. Hungry Horse will violate the upper rule curve to keep its maximum outflow to 20 kcfs or below.

- **Albeni Falls** is operated to 2062.5 ft (582.4 ksfd) in June-August, 2061.5 ft (535.7 ksfd) in September, 2056 ft (279.0 ksfd) in October, 2055 ft (234.7 ksfd) in November-March, 2055.5 ft (256.9 ksfd) in April 15, 2056.0 ft (279.0 ksfd) in April 30, and 2058.8 ft (409.7 ksfd) in May.

- **Grand Coulee** is operated to meet FELCC September through December subject to the draft limits of 1283 feet (2329.7 ksfd), 1283 feet (2329.7 ksfd), 1275 feet (2027.7 ksfd), and 1270 feet (1839.2 ksfd). In January through March, Coulee is operated to the higher of winter draft limits [1260 feet (1491.5 ksfd), 1250 feet (1159.1 ksfd), 1240 feet (843.9 ksfd), respectively] or the Biological Rule Curve (fish VECC). The Biological Rule Curve reflects the expected April 10th URC and storage needed for the appropriate Vernita Bar minimum flow requirement. Grand Coulee is then operated to these minimum storage points. The Biological rule curves are calculated using assumed inflows which are exceeded 85 percent of the time, perfect foreknowledge of the minimum outflow, and the requirement to be at VARQ flood control elevation on April 10. On April 15, Coulee is operated on flood control. From April 30 through May, Grand Coulee may be drafted to the lower of flood control or 1280 ft (2216.3 ksfd) to support Priest Rapids and McNary flow augmentation targets. In Jun-Jul, Grand Coulee draft limits are 1288 ft (2531.9 ksfd) and 1285 feet (2408.2 ksfd), respectively, to support Priest Rapids and McNary flow augmentation targets. In Aug1, the draft limit for BiOp flow augmentation is 1280 ft (2216.4 ksfd) if July 1 April-August runoff at The Dalles is less than 92 MAf ; otherwise the draft limit is 1282 ft (2291.9 ksfd). In Aug2, the draft limit is 1278 ft (2140.9 ksfd) if the July 1 April-August volume runoff at The Dalles is less than 92 MAf , otherwise the draft limit is 1280 ft (2216.4 ksfd). At-site minimum flow is equal to 30,000 cfs. Grand Coulee is subject to a draw-down limit of 1.5 feet per day when Coulee is above 1260 feet, 1.3 feet per day when Coulee between 1260 and 1240 feet, and 1.0 feet per day when Coulee is below 1240 feet. During the flow augmentation period, Grand Coulee will release no more water than necessary to meet the minimum flow requirements.

- **Vernita Bar** minimum flows for December through May vary by water condition, with minimum flows established as the lower of (a) 68% of the largest of the October or November flow at Wanapum, or (b) 70,000 cfs. Values less than 70,000 cfs are rounded to the nearest 5,000 cfs. The minimum protection level flow at Vernita Bar in any period will be no less than 36,000 cfs.

- **Priest Rapids:** From April 10 to June 30, Priest Rapids has a flow augmentation target of 135,000 cfs for Steelhead. From April 1 to April 9, the minimum flow for Priest Rapids is the same as the Vernita Bar minimum for each year.

- **Brownlee** operates to the 70-year rule curves provided to BPA from the Northwest Power Pool on March 15, 2007. They are 432.1 ksfd in Aug1, 380.7 ksfd in Aug2, 293.8 ksfd in Sep, 491.7 ksfd in Nov, 436.3 ksfd in Dec, 385.4 ksfd in Jan, 484.7 ksfd in Jun and Jul. The rule curves vary between 226.0 ksfd, 113.2 ksfd, 62.9 ksfd, 0.0 ksfd, and 74.7 ksfd to full content of 491.7 ksfd in Oct, Feb, Mar, Apr1, Apr2 and May, respectively.

- **Dworshak** is on minimum flow of 1300 cfs all periods or flood control objectives as defined in the BiOp, with the exception of April through August, when it operates to meet Lower Granite flow augmentation targets. The NMFS BIOP place a higher priority on refilling Dworshak on June 30, so Dworshak will be operated on minimum flow or flood control during April-June. Dworshak's outflow is limited to 14,000 cfs in the flow augmentation periods and is limited to 25,000 cfs in all other periods for downstream flood control. During the flow augmentation period, Dworshak will release no more water than necessary to meet the minimum flow requirements. For July-August, Dworshak operates to a target of 1534 ft (490.0 ksfd) by the end of August. In September, draft Dworshak to 1520 ft (395.8 ksfd) on September 15 and run to the minimum flow of 1300 cfs for the remainder of the month.

- **Lower Snake** projects will be operated at minimum operating pool (MOP) in accordance with the COE data submittal and the BiOp. As identified in the BiOp, the Corps will operate Little Goose, Lower Monumental, and Ice Harbor within one foot of MOP during the period from approximately April 3 through August 31. Lower Granite will operate within one foot of MOP from approximately April 3 through November 15 (Apr1-Oct in HYDSIM modeling). MOP for Lower Granite, Little Goose, Lower Monumental, and Ice Harbor is elevation 733 (225.0 ksfd), 633 (260.5 ksfd), 537 (180.5 ksfd), and 437 feet (193.4 ksfd), respectively. During the rest of the year Lower Granite, Little Goose, Lower Monumental, and Ice Harbor will operate at elevation 738 (245.8 ksfd), 638 (285.1 ksfd), 540 (190.1 ksfd), and 440 feet (204.8 ksfd), respectively.

- The four lower Snake River projects (Lower Granite, Little Goose, Lower Monumental, and Ice Harbor) and the four lower Columbia River projects (McNary, John Day, The Dalles, and Bonneville) each are required to operate their turbines within **1% of peak efficiency** during the period of March through November. This requirement is reflected in a hydro availability file, which limits the maximum generation capability of each project in each of the fourteen periods. No other hydro outages assumed.

- Generation at these eight projects (Lower Granite, Little Goose, Lower Monumental, Ice Harbor, McNary, John Day, The Dalles, and Bonneville) is reduced further with the inclusion of **Juvenile Passage 2007-08 Expected Fish Spill Plan**. Juvenile Passage Fish Spill at Federal projects (values <1 are percent of outflow, and values >1 are cfs), limited

by Spill Caps, is as shown below. The spill caps represent completed modifications at spillways currently planned and which are used as hydroregulation modeling caps, not instantaneous. Lower Granite, Little Goose, Lower Monumental, Ice Harbor, McNary, John Day, The Dalles, and Bonneville have a minimum turbine flow of 11500, 11500, 11500, 9500, 50000, 50000, 50000, and 30000 cfs, respectively.

- **Juvenile Passage Spill and Dissolved Gas Caps from OY2008 PNCA Planning:**

HRLY/DLY SPILL CRITERIA FOR PNCA OY08 AER study					
	Spill	**Min Turb**	**Days**	**Hour Ending**	**Spill Cap**
LWG	20 kcfs 18 kcfs	11.5 kcfs	Apr 3 - Jun 20; Jun 21 - Aug 31	All hours	20 kcfs in Spring 18 kcfs in Summer
LGS	30% flow	11.5 kcfs	Apr 3 - Aug 31	All hours	44 kcfs
LMN	31 kcfs 17 kcfs	11.5 kcfs	Apr 3 - Jun 20 Jun 21 - Aug 31	All hours	31 kcfs in Spring 17 kcfs in Summer
IHR	45 kcfs day/76 kcfs night	9.5 kcfs	Apr 3 - Jun 20	All hours (13 hrs day, 11hrs night)	76 kcfs in Spirng 78 kcfs in Summer
	45 kcfs day/78 kcfs night		Jun 21 - Aug 31		
MCN	40% flow	50 kcfs	Apr 20 - Jun 30	All hours	148 kcfs Apr 10-Jun 30 133 kcfs Jul 1 - Aug 31
	40% of flow alternate w/ 60% of flow		Jul 1 - Aug 31		
JDA	60% flow	50 kcfs	Apr 10 - Apr 30	12 hrs night	126 kcfs Apr-Jun 120 kcfs Jul -Aug Min Spill Req: 25% flow
	60% flow		May 1 - May 15	12 hrs night	
	60% flow		May 16 - Jun 30	13 hrs night	
	30% flow		Jul 1 - Aug 31	All hours	
TDA	40% flow	50 kcfs	Apr 10 - Aug 31	All hours	125 kcfs
BON	100 kcfs	30 kcfs	Apr 10 - Jun 30	All hours	124 kcfs
	75 kcfs day/123 kcfs night		Jul 1 - Jul 31	All hours (18 hrs day, 6 hrs night)	123 kcfs Min Spill Req: 50 kcfs
			Aug 1 - Aug 15	All hours (17 hrs day, 7 hrs night)	
			Aug 16 - Aug 31	All hours (16 hrs day, 8 hrs night)	

- **Lower Columbia fall Chum spawning** flow objectives (at Bonneville) are as follows: from November 1 through April 10, provide 125 kcfs (allow to exceed Chum flow if the projects operate to fish VECCs). The priority for releasing water from upstream reservoirs for this flow augmentation is Grand Coulee, Libby, and Hungry Horse. The draft limits for Chum flow in November-December are 1275 ft (2027.6 ksfd) and 1270 ft (1839.2 ksfd) at Coulee. The variable draft limit for Chum flow at Libby in December is in the range of 2411 ft (1502.2 ksfd) to 2426.6 ft (1804.7 ksfd) based on the Jan1 Apr-Aug forecast at Libby.

- Use a **sliding-scale flow augmentation target** of from 220,000 to 260,000 cfs **at McNary** based on The Dalles April 1, April-August volume runoff. A straight-line interpolation will be used for flow targets for volume forecasts between 80 and 92 MAf in the April 10 through June 30 period. The Apr1 period value is prorated at nine days at 155,000 cfs and six days at from 220,000 to 260,000 cfs. Maximum and minimum targets are 260,000 cfs and 220,000 cfs, respectively. July and both halves of August flow targets are 200,000 cfs. The priority for releasing water from upstream reservoirs for flow augmentation is Grand Coulee, Libby, and Hungry Horse.

- **Lower Granite** also has **sliding-scale flow augmentation targets**. When Lower Granite April 1, April-July runoff forecast is less than 16 MAf , then the April 3 through June 20 flow target is 85,000 cfs, and the June 21 through August 31 target is 50,000 cfs. When the April 1 Lower Granite April-July forecast is greater than 20 MAf , then the April 3 through June 20 target flow is 100,000 cfs. In June 21 through August 31, when the forecast is greater than 28 MAf , the flow target is 55,000 cfs. The spring flow targets are interpolated for forecasts between 16 and 20 MAf, and the summer flow targets are interpolated for forecasts between 16 and 28 MAf.

- **John Day** is operated at 262.5 feet (127.8 ksfd) from April through September. From October through March, John Day operates to elevation 265 feet (191.0 ksfd).

- Juvenile Passage **spills at non-Federal** projects will be as described below and as was submitted for OY08 PNCA planning. Wells spills the percentage described below if Chief Joe's outflow is less than 140,000 cfs; otherwise Wells spills 10, 200 cfs during April 12-August 26.

PROJECT SPILL FOR FISH IN
PERCENT OF REGULATED FLOW (%)

PROJECTS:	Apr1	Apr2	May	Jun	Jul	Aug1	Aug2
Wells	1.7	6.5	6.5	6.5	6.5	6.5	4.5
Rocky Reach	0.0	0.0	20.1	12.5	9.0	9.0	0.0
Rock Island	10	10.0	10.0	17.0	20.0	20.0	0.0
Wanapum	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Priest Rapids	0.0	61.0	61.0	50.0	39.0	39.0	19.5

- **Kootenay Lake** shall be operated as necessary, up to free flow, to maintain the lake level below the IJC rule curve and the calculated "allowable elevation at Queens Bay." This is implemented using the five-step method developed by BPA and the Corps. After August 31, the lake level may be raised to elevation 1745.32 at the Queens Bay gage. This maximum elevation at Queens Bay is in effect through January 7. After January 7 the lake will be lowered to elevation 1744 feet on February 1, elevation 1742.4 feet on March 1, and 1739.32 feet on May 1. From June 1 through August 31, after the lake exceeds elevation 1739.32 feet at the Queens Bay gage, the lake shall be operated using the "allowable elevation" calculation to determine the Queens Bay maximum allowable elevation until the elevation at the Nelson gage drafts back to elevation 1743.32 feet.\

OPER STEP

- All AER step criteria apply unless specifically amended below.

- **Loads:** The system is run to 2009 Coordinated System firm loads from BPA's 2008 draft White Book. A secondary market limit of 9,000 aMW is used in every period of every year.

- **Unit Outages:** The unit outages for non-Federal projects are from the PNCA OY08 and for Federal projects are from actual average 2001-07 computed for FY2009.

- **Kootenay Lake**: Grohman Narrows capacity table was updated to align with BC Hydro's revised information.

- **Flood Control Rule Curves:** no change in flood control at Mica and Duncan from the AER step. Arrow flood control is updated to 3.6/4.08 Arrow/Mica split set in order to have more space available for 1 MAf flow augmentation.

- **Non-Federal** projects are run to the contents that resulted in the AER step. This allows the Federal projects to fill without requiring the non-Federal projects to draft to meet load**.**

- **Lower Columbia fall spawning** flow objectives (at Bonneville) are as follows: from November 1 through December 31, provide 125 kcfs to optimize the amount of area for spawning. Grand Coulee, Libby, and Hungry Horse will release water (in that order) to meet the Lower Columbia fall spawning salmon flow objectives at Bonneville in November and December. Each reservoir has been assigned a lower draft limit in November and December so that each will draft no lower than the draft limit before the next priority reservoir is used. Protection of Chum redds from January through April has lower priority than maximizing storage in reservoirs in preparation for augmenting flows for the spring juvenile migration.

- **Lower Columbia Spring/Summer Flow Augmentation:** The January-April 15 operation of the Federal reservoirs is to achieve the BiOp April 10 URC objective. Hungry Horse, Grand Coulee, and Dworshak are on minimum flow from April through June 30 in all water years (no spring flow targets are used at Priest Rapid, Lower Granite, or McNary projects). This operation is intended to maximize storage in the Federal projects by June 30 to maximize the water available for summer flow augmentation. During the April-June period, these projects will release above minimum outflow only as needed to meet flood control requirements. Grand Coulee will draft below flood control if required to meet the Vernita Bar flow requirement. The BiOp summer flow target of 200 kcfs at MCN is in effect, but only Grand Coulee will respond to it in July, while Libby and Hungry Horse will release water to reduce occurrences of a second peak in flows without regard to the level of flow achieved at MCN.

Project-Specific Data:

- **Mica, Duncan, and Arrow** are fixed to the 70-year DOP09 Treaty Storage Regulation run by BPA). Mica data logic in the HYDSIM program is turned off. Mica's minimum storage content is reset to 0.0 ksfd so that drafting below 2295.9 ksfd (normal minimum content) can occur.

- **Arrow:** store up to 1 MAf at Arrow for flow augmentation in January and release 15% in May, 15% in June, and 70% in July. The flow augmentation will all be released by July 31.

- **Brownlee:** drafts to 2059.0 ft (373.5 ksfd) in July-August, 2051.5 ft (328.4 ksfd) in September. In October, Brownlee operates to a variable target content without violating a minimum flow of 9700 cfs for IPC Fall Chinook operation. Brownlee will fill to full content of 491.7 ksfd in November without violating minimum flow of 8500 cfs. In Dec-Ap1, Brownlee operates to 8700 cfs outflow unless a higher discharge is required to maintain flood control space. In Apr2-Jun, Brownlee is to maintain full content of 491.7 ksfd without violating a minimum flow of 8500 cfs.

- **Libby:** In years when the July 1 January-July volume forecast for The Dalles is less than 82 MAf (lowest 20th percentile), the project should attempt to operate along a computed straight line between June 30 content and a September 30 draft limit of 2439.0 ft (2061.3 ksfd) during July and August to minimize occurrences of a second peak flow in the summer. However, due to the minimum flow for Sturgeon and Bull Trout, which is summarized in the AER step documentation, the project often operates below this straight line. In years when the May1 Libby forecast for the Apr-Aug period results in a Bull Trout minimum for July and August of 9,000 cfs, the minimum July 31 content will be 2360 ksfd to assure the 9,000 cfs can be provided without drafting below elevation 2449 ft by the end of September. The Libby operation provides the Sturgeon and Bull

Trout flows, which may sometimes exceed the flood stage at Bonners Ferry. In the fall, Libby is operated with 4800 cfs maximum outflow in October and 2000 ksfd maximum content in November in order to leave more water for drafting for power purposes in December.

- **Hungry Horse** is operated to the VARQ flood control in September through December at 3560.0 feet (1503.4 ksfd), 3555.7 feet (1453.0 ksfd), 3555.7 feet (1453.0 ksfd), and 3549.2 ft (1377.4 ksfd), respectively, unless the project is trying to meet the minimum flow requirement at Columbia Falls. In years when the July 1 January-July volume forecast for The Dalles is less than 82 MAf (20th percentile), the project should not operate below the computed straight line between June 30 content and a September 30 draft limit of 3540.0 ft. (1275.0 ksfd) during July and August to minimize occurrences of a second peak flow in the summer. In years when the July 1 January-July volume forecast for The Dalles is greater than or equal to 82 MAf (20th percentile), the project should not operate below the computed straight line between June 30 content and a September 30 draft limit of 3550.0 ft (1386.7 ksfd) during July and August to minimize occurrences of a second peak flow in the summer. The outflow at Hungry Horse is limited to maximum turbine capacity of 11,667 cfs, and no spill is allowed unless required to maintain the required flood control space during the October-March period. Hungry Horse will also violate the upper rule curve to keep its maximum outflow to 20 kcfs or below. During the flow augmentation period (April-August), the outflow is limited to a maximum of 14,000 cfs so that the Montana dissolved gas standard of 110% will not be exceeded.

- **Albeni Falls:** draft Albeni to 2051 feet (57.6 ksfd) by November 30 and maintain at this elevation through April.

- **Grand Coulee** operates to 1285 and 1288 ft (2408.3 ksfd, 2531.9 ksfd) in September and October, respectively. During the November through December periods, Coulee cannot draft below limits of 1275 and 1270 feet (2027.7 ksfd and 1839.2 ksfd). When the July 1 April-August volume runoff at The Dalles is greater than 92 MAf, Grand Coulee is operated as low as 1285.0, 1280.0, and 1280.0 feet (2408.3, 2216.4, and 2216.4 ksfd) in July through August, respectively, to meet the McNary flow augmentation targets. When the July 1 April-August volume runoff at The Dalles is 92 MAf or less, Grand Coulee is operated as low as 1285.0, 1278.0, and 1278.0 feet (2408.3, 2140.9, and 2140.9 ksfd) in July through August, respectively, to meet the McNary flow augmentation targets. At-site minimum month average flow is 50,000 cfs for peaking purposes, except September is 48,500 cfs. The Bureau will perform maintenance on the spillway drum gates from March 15 to as late as May 15 to meet the following criteria: at least one year of every three, two years of every five and three years of every seven. For modeling, the maintenance requires a maximum Lake Roosevelt elevation of 1277.5 feet (2122.1 ksfd) at the end of February (so as not to exceed the 1.5 ft/day draft limit in drafting to 1255 feet (1318.5 ksfd) by March 15, and 1255 feet (1318.5 ksfd) on March 31, April 15 and April 30.

- **Columbia Basin Irrigation Project Pumping (Banks Lake)** is captured through the PNCA data submittal estimates of pumping, which are based on the average of the past five years actual pumping and include the equivalent of 5 feet (65.5 ksfd) flow augmentation in August and the associated increase in pumping the following March-May period to return those 5 feet to Banks Lake. In years when this flow augmentation is not needed to meet the McNary flow augmentation target of 200 kcfs, the pumping is increased by the equivalent of 5 feet in August and the following year's March-May pumping is decreased.

- **Dworshak**: minimum flow will be 1,300 cfs in all periods. From January through June, Dworshak operates on or near flood control. By July 31, it operates to the midpoint of the straight line drawn from the end of June reservoir content to the end of August flow augmentation draft limit of 497.0 ksfd (1535 ft). Operating to the July 31 point will have highest priority unless outflow would exceed 14,000 cfs. In August, draft to 497.0 ksfd as a target with highest priority – to be ignored only if August outflow would exceed 14,000 cfs. Dworshak will be drafted in September without exceeding a maximum outflow of 7,650 cfs and the draft limit of 1520 ft (395.8 ksfd) (7,650 cfs derived by assuming the project discharge is 14 kcfs in the first half of the month and 1,300 cfs in the second half of the month).

- **Bonneville**: The corner collector is assumed to be operated throughout March and April, in addition to the time included in the AER step.

- **Juvenile Bypass Spill and Gas Caps:** see the following tables. Forecasts of less than 12.8 MAf April-June at Lower Granite are used to forecast when flows are less than 65kcfs. Forecasts of 14.6 MAf April-June at Lower Granite are used to forecast when flows are greater than 80 kcfs.

Juvenile Bypass Spill and Gas Caps

08RateCase09 spill criteria for > 65kcfs years									
	MAR	AP1	AP2	MAY	JUN	JUL	AG1	AG2	Modeling Cap (cfs) 120%TDG spring/summer
LWG - (cfs)		17,333	20,000	10,968	18,267	18,000	6,000	0	40,000
LGS - (cfs)		0.220	0.300	0.165	0.300	0.300	0.100	0	27,000
LMN - (cfs)		13,800	23,000	12,613	17,800	17,000	5,667	0	23,000
IHR(a) - (% of outflow)		0.180	0.300	0.300	0.300	0.300	0.140	0	97,000
MCN - (% of outflow)		0.160	0.400	0.400	0.470	0.500	0.500	0.500	121,000spring 138,000Jul 148,000Aug
JDA - (% of outflow)		0.120	0.337	0.350	0.350	0.332	0.300	0.300	94,000
TDA - (% of outflow)		0.160	0.400	0.400	0.400	0.400	0.400	0.400	128,000
BON - (cfs)	6,452 or 9,677	40,000	100,000	100,000	94,104	92,854	94,031	97,313	96,000spring 114,000Jul 138,000Aug

Juvenile Bypass Spill and Gas Caps (continued)

Project	Spill	Min Turbine	Days	Hour Ending	Notes
LWG	20 kcfs 18 kcfs	11.5 kcfs	Apr 3 - May 6, May 21 - Jun 4; Jun 5 - Aug 5	All hours	see spring transport criteria
LGS	30% flow	11.5 kcfs	Apr 5 - May 6, May 21 - Aug 5	All hours	
LMN	gas cap 17 kcfs	11.5 kcfs	Apr 7 - May 6, May 21 - Jun 4; Jun 5 - Aug 5	All hours	
IHR	30% flow	9.5 kcfs	Apr 7 - Jun 15	All hours	
	30% flow		Jun 16 - Aug 7	All hours	
MCN	40% flow	50 kcfs	April 10 - Jun 15	All hours	
	40% vs 60% flow		Jun 16 - Aug 31	All hours	
JDA	0/60% flow	50 kcfs	Apr 10 - 19	12 hours	
	30% vs 40% flow		Apr 20 - Jul 20	All hours	
	30% flow		Jul 21 - Aug 31	All hours	
TDA	40% flow	50 kcfs	Apr 10 - Aug 31	All hours	
BON	50 kcfs or 75 kcfs	30 kcfs	March: 4 days	All hours	
	100 kcfs		Apr 10 - Jun 15	All hours	
	85 kcfs day / gas cap night		Jun 16 - Jul 31	All hours. Day/night spill hours vary.	Jun1-30 day hrs are 0430-2130. Jul1-31 day hrs are 0430-2200. Aug1-15 day hrs are 0500-2145. Aug16-31 day hrs are 0500-2030.
	75 kcfs day / gas cap night		Aug 1 - Aug 31		

Summary of spring spill decisions anticipated for the final BiOp, per March 17, 2008, discussion with NOAA, Corps & Reclamation.

Lower Granite Dam				
	Apr1	Apr2	May	June*
Seasonal Average Flows < 65	no spill	no spill	no spill	spill Jun5-30
Seasonal Average Flows > 65	spill Apr3-15	spill Apr16-30	spill May1-6,21-31	spill Jun5-30
Little Goose Dam				
	Apr1	Apr2	May	June*
Seasonal Average Flows < 65	no spill	no spill	no spill	spill Jun5-30
Seasonal Average Flows > 65	spill Apr5-15	spill Apr16-30	spill May1-6,21-31	spill Jun5-30
Lower Monumental Dam				
	Apr1	Apr2	May	June*
Seasonal Average Flows < 65	no spill	no spill	no spill	spill Jun5-30
Seasonal Average Flows > 65	spill Apr7-15	spill Apr16-30	spill May1-6,21-31	spill Jun5-30

* Fed agreement that summer spill starts June 5th on average based on fish passage criteria

- **Overgeneration Spill:** Spill up to TDG gas cap (in the order listed below) to avoid generation levels that exceed the secondary market limit.

Total Dissolved Gas Cap Flows
By Project (kcfs)

Project	120%	125%	130%	135%
MCN:	138	230	310	450
TDA:	128	250	360	600
JDA:	94	240	450	600
BON:	96 Spring 114 Jul 138 Aug	150	225	270
LWG:	40	70	90	150
LGS:	27	80	150	250
LMN:	23	95	180	250
IHR:	97	125	180	240
CHJ:	150	200	300	450
GCL[1]:	30	75	120	170
GCL[2]:	10	20	35	55

[1] During all periods except May.
[2] During May, when GCL is more likely below elevation 1260 feet, the spillway crest elevation, and the regulating outlets must be used to spill.

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