

2012 BPA Final Rate Proposal

**Power Loads and Resources
Study Documentation**

July 2011

BP-12-FS-BPA-03A



**LOADS AND RESOURCES STUDY DOCUMENTATION
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COMMONLY USED ACRONYMS AND SHORT FORMS

AGC	Automatic Generation Control
ALF	Agency Load Forecast (computer model)
aMW	average megawatt(s)
AMNR	Accumulated Modified Net Revenues
ANR	Accumulated Net Revenues
ASC	Average System Cost
BiOp	Biological Opinion
BPA	Bonneville Power Administration
Btu	British thermal unit
CDD	cooling degree day(s)
CDQ	Contract Demand Quantity
CGS	Columbia Generating Station
CHWM	Contract High Water Mark
Commission	Federal Energy Regulatory Commission
COSA	Cost of Service Analysis
COU	consumer-owned utility
Corps or USACE	U.S. Army Corps of Engineers
Council	Northwest Power and Conservation Council
CRAC	Cost Recovery Adjustment Clause
CSP	Customer System Peak
CT	combustion turbine
CY	calendar year (January through December)
DDC	Dividend Distribution Clause
<i>dec</i>	decrease, decrement, or decremental
DERBS	Dispatchable Energy Resource Balancing Service
DFS	Diurnal Flattening Service
DOE	Department of Energy
DSI	direct-service industrial customer or direct-service industry
DSO	Dispatcher Standing Order
EIA	Energy Information Administration
EIS	Environmental Impact Statement
EN	Energy Northwest, Inc.
EPP	Environmentally Preferred Power
ESA	Endangered Species Act
e-Tag	electronic interchange transaction information
FBS	Federal base system
FCRPS	Federal Columbia River Power System
FCRTS	Federal Columbia River Transmission System
FELCC	firm energy load carrying capability
FORS	Forced Outage Reserve Service
FPS	Firm Power Products and Services (rate)
FY	fiscal year (October through September)
GARD	Generation and Reserves Dispatch (computer model)

GEP	Green Energy Premium
GRSPs	General Rate Schedule Provisions
GTA	General Transfer Agreement
GWh	gigawatthour
HDD	heating degree day(s)
HLH	Heavy Load Hour(s)
HOSS	Hourly Operating and Scheduling Simulator (computer model)
HYDSIM	Hydro Simulation (computer model)
ICE	IntercontinentalExchange
<i>inc</i>	increase, increment, or incremental
IOU	investor-owned utility
IP	Industrial Firm Power (rate)
IPR	Integrated Program Review
IRD	Irrigation Rate Discount
JOE	Joint Operating Entity
kW	kilowatt (1000 watts)
kWh	kilowatthour
LDD	Low Density Discount
LLH	Light Load Hour(s)
LRA	Load Reduction Agreement
Maf	million acre-feet
Mid-C	Mid-Columbia
MMBtu	million British thermal units
MNR	Modified Net Revenues
MRNR	Minimum Required Net Revenue
MW	megawatt (1 million watts)
MWh	megawatthour
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NFB	National Marine Fisheries Service (NMFS) Federal Columbia River Power System (FCRPS) Biological Opinion (BiOp)
NLSL	New Large Single Load
NMFS	National Marine Fisheries Service
NOAA Fisheries	National Oceanographic and Atmospheric Administration Fisheries
NORM	Non-Operating Risk Model (computer model)
Northwest Power Act	Pacific Northwest Electric Power Planning and Conservation Act
NPV	net present value
NR	New Resource Firm Power (rate)
NT	Network Transmission
NTSA	Non-Treaty Storage Agreement
NUG	non-utility generation
NWPP	Northwest Power Pool
OATT	Open Access Transmission Tariff
O&M	operation and maintenance

OMB	Office of Management and Budget
OY	operating year (August through July)
PF	Priority Firm Power (rate)
PFp	Priority Firm Public (rate)
PFx	Priority Firm Exchange (rate)
PNCA	Pacific Northwest Coordination Agreement
PNRR	Planned Net Revenues for Risk
PNW	Pacific Northwest
POD	Point of Delivery
POI	Point of Integration or Point of Interconnection
POM	Point of Metering
POR	Point of Receipt
Project Act	Bonneville Project Act
PRS	Power Rates Study
PS	BPA Power Services
PSW	Pacific Southwest
PTP	Point to Point Transmission (rate)
PUD	public or people's utility district
RAM	Rate Analysis Model (computer model)
RAS	Remedial Action Scheme
RD	Regional Dialogue
REC	Renewable Energy Certificate
Reclamation or USBR	U.S. Bureau of Reclamation
REP	Residential Exchange Program
RevSim	Revenue Simulation Model (component of RiskMod)
RFA	Revenue Forecast Application (database)
RHWM	Rate Period High Water Mark
RiskMod	Risk Analysis Model (computer model)
RiskSim	Risk Simulation Model (component of RiskMod)
ROD	Record of Decision
RPSA	Residential Purchase and Sale Agreement
RR	Resource Replacement (rate)
RSS	Resource Support Services
RT1SC	RHWM Tier 1 System Capability
RTO	Regional Transmission Operator
SCADA	Supervisory Control and Data Acquisition
SCS	Secondary Crediting Service
Slice	Slice of the System (product)
T1SFCO	Tier 1 System Firm Critical Output
TCMS	Transmission Curtailment Management Service
TOCA	Tier 1 Cost Allocator
TPP	Treasury Payment Probability
Transmission System Act	Federal Columbia River Transmission System Act
TRL	Total Retail Load
TRM	Tiered Rate Methodology
TS	BPA Transmission Services

TSS	Transmission Scheduling Service
UAI	Unauthorized Increase
ULS	Unanticipated Load Service
USACE or Corps	U.S. Army Corps of Engineers
USBR or Reclamation	U.S. Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service
VERBS	Variable Energy Resources Balancing Service (rate)
VOR	Value of Reserves
WECC	Western Electricity Coordinating Council (formerly WSCC)
WIT	Wind Integration Team
WSPP	Western Systems Power Pool

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**Table 1.1.1
Load Following Service Customers**

Albion, City of	Flathead Elec Coop	Plummer, City of
Alder Mutual	Forest Grove, City of	Port Angeles, City of
Ashland, City of	Glacier Elec Coop	Port of Seattle
Asotin County PUD #1	Grant County PUD #2	Puget Sound Naval Shipyard (Bremerton)
Bandon, City of	Harney Elec Coop	Raft River Rural Elec Coop
Benton REA	Hermiston, City of	Ravalli Elec Coop
Big Bend Elec Coop	Heyburn, City of	Richland, City of
Blachly-Lane Electric Coop	Hood River Elec Coop	Riverside Elec Coop
Blaine, City of	Idaho County L & P	Rupert, City of
Bonnors Ferry, City of	Inland P & L	Salem Elec Coop
Burley, City of	Jefferson County PUD	Salmon River Elec Coop
Canby, City of	Kittitas County PUD #1	Skamania County PUD #1
Cascade Locks, City of	Kootenai Electric Coop	Soda Springs, City of
Central Lincoln	Lakeview L & P (WA)	South Side Elec
Central MT Elec Power Coop	Lane Elec Coop	Springfield Utiltiy Board
Centralia, City of	Lincoln Elec Coop	Steilacoom, Town of
Cheney, City of	Lost River Elec Coop	Sumas, Town of
Chewelah, City of	Lower Valley P & L	Surprise Valley Elec Coop
Clallam County PUD #1	Mason County PUD #1	Tanner Elec Coop
Clearwater Power	Mason County PUD #3	Tillamook PUD #1
Columbia Basin Elec Coop	McCleary, City of	Troy, City of
Columbia Power Coop	McMinnville, City of	U.S. Bureau of Reclamation (Roza)
Columbia REA	Midstate Elec Coop	U.S. Naval Station, Everett (Jim Creek)
Columbia River PUD	Milton Freewater, City of	U.S. Naval Submarine Base,(Bangor)
Consol Irrig Dist #19	Milton, Town of	Umatilla Elec Coop
Consumer's Power	Minidoka, City of	Umpqua Indian Utility Cooperative
Coos-Curry Electric Coop	Mission Valley Power	United Electric Coop
Coulee Dam, City of	Missoula Elec Coop	USBIA Wapato
Declo, City of	Modern Elec Coop	USDOE-Albany
Douglas Electric Coop	Monmouth, City of	USDOE-Richland
Drain, City of	Nespelem Valley Elec Coop	Vera Irrigation District
East End Mutual Electric	Northern Lights	Vigilante Elec Coop
Eatonville, City of	Northern Wasco County PUD	Wahkiakum County PUD #1

Table 1.1.1 - continued
Load Following Service Customers

Ellensburg, City of	Ohop Mutual Light Company	Wasco Elec Coop
Elmhurst Mutual P & L	Okanogan County Elec Coop	Weiser, City of
Energy Northwest	Orcas P & L	Wells Rural Elec Co
Fairchild AFB	Oregon Trail Coop	West Oregon Elec Coop
Fall River Rural Elec Coop	Parkland L & W	Whatcom County PUD #1
Farmers Elec Coop	Peninsula Light Company	Yakama Power
Ferry County PUD #1		

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Table 1.1.2
Slice Service Customers

Benton PUD	Franklin	Pacific
Clark	Grays Harbor	Pend Oreille
Clatskanie	Idaho Falls	Seattle
Cowlitz	Klickitat	Snohomish
Emerald	Lewis	Tacoma
EWEB	Okanogan PUD	

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Table 1.1.3
USBR Obligation Customers

USBR Chief Joseph Project	USBR Rathdrum Prairie Project	USBR Tualatin Valley Project
USBR Columbia Basin Project	USBR Southern Idaho Projects	USBR Owyhee Project
USBR Crooked River Project	USBR Spokane Indian Development Project	USBR Umatilla Project
USBR The Dalles Reclamation Project	USBR Spokane Valley Project	USBR Yakima Project

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Table 1.2.1
 BPA Power Sale Contracts
 PNW Loads and Resource Study
 2011 - 2012 Fiscal Years
 1937 Water Year

6/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

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	100	124	149	144	131	129	108	109	97	101	111	107	107	94	116
2 Total Federal Entities	100	124	149	144	131	129	108	109	97	101	111	107	107	94	116
U.S. Bureau of Reclamation															
3 U.S. Bureau of Reclamation	96	17	18	3	7	57	228	218	322	314	416	310	308	293	173
4 Total U.S. Bureau of Reclamation	96	17	18	3	7	57	228	218	322	314	416	310	308	293	173
Direct Service Industry															
5 Direct Service Industry	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341
6 Total Direct Service Industry	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341
Public Entities															
Load Following 2012 PSC															
7 Load Following 2012 PSC	2,700	3,114	3,596	3,515	3,263	2,954	2,829	2,854	2,799	2,906	3,107	3,016	3,019	2,791	3,051
8 Total Load Following 2012 PSC	2,700	3,114	3,596	3,515	3,263	2,954	2,829	2,854	2,799	2,906	3,107	3,016	3,019	2,791	3,051
Block Only 2012 PSC															
9 Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Total Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slice 2012 PSC															
11 Slice 2012 PSC	1,660	2,101	2,030	2,038	1,809	1,708	1,388	1,363	2,469	2,208	2,149	1,954	1,683	1,831	1,934
12 Total Slice 2012 PSC	1,660	2,101	2,030	2,038	1,809	1,708	1,388	1,363	2,469	2,208	2,149	1,954	1,683	1,831	1,934
Slice Block 2012 PSC															
13 Slice Block 2012 PSC	1,629	2,013	2,239	2,273	2,031	1,958	1,636	1,636	1,421	1,320	1,561	1,563	1,563	1,635	1,773
14 Total Slice Block 2012 PSC	1,629	2,013	2,239	2,273	2,031	1,958	1,636	1,636	1,421	1,320	1,561	1,563	1,563	1,635	1,773
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	100	124	149	144	131	129	108	109	97	101	111	107	107	94	116
20 U.S. Bureau of Reclamation	96	17	18	3	7	57	228	218	322	314	416	310	308	293	173
21 Direct Service Industry	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341
22 Public Entities	5,989	7,228	7,865	7,826	7,104	6,621	5,852	5,852	6,689	6,434	6,817	6,533	6,265	6,257	6,758
23 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 Total Power Sales Contracts	6,525	7,710	8,372	8,313	7,583	7,147	6,528	6,520	7,448	7,190	7,685	7,290	7,020	6,984	7,388

Table 1.2.1 - continued
 BPA Power Sale Contracts
 PNW Loads and Resource Study
 2012 - 2013 Fiscal Years
 1937 Water Year

6/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

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	103	129	156	146	136	130	109	109	98	102	112	108	108	95	119
2 Total Federal Entities	103	129	156	146	136	130	109	109	98	102	112	108	108	95	119
U.S. Bureau of Reclamation															
3 U.S. Bureau of Reclamation	96	17	18	3	7	57	223	223	322	314	416	310	308	293	174
4 Total U.S. Bureau of Reclamation	96	17	18	3	7	57	223	223	322	314	416	310	308	293	174
Direct Service Industry															
5 Direct Service Industry	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341
6 Total Direct Service Industry	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341
Public Entities															
Load Following 2012 PSC															
7 Load Following 2012 PSC	2,735	3,146	3,631	3,545	3,372	2,997	2,873	2,873	2,837	2,943	3,179	3,086	3,089	2,858	3,100
8 Total Load Following 2012 PSC	2,735	3,146	3,631	3,545	3,372	2,997	2,873	2,873	2,837	2,943	3,179	3,086	3,089	2,858	3,100
Block Only 2012 PSC															
9 Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Total Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slice 2012 PSC															
11 Slice 2012 PSC	1,665	2,106	2,035	2,043	1,814	1,713	1,394	1,367	2,291	1,936	2,128	1,953	1,683	1,831	1,898
12 Total Slice 2012 PSC	1,665	2,106	2,035	2,043	1,814	1,713	1,394	1,367	2,291	1,936	2,128	1,953	1,683	1,831	1,898
Slice Block 2012 PSC															
13 Slice Block 2012 PSC	1,693	2,093	2,330	2,365	2,189	2,037	1,700	1,700	1,479	1,376	1,624	1,625	1,625	1,699	1,849
14 Total Slice Block 2012 PSC	1,693	2,093	2,330	2,365	2,189	2,037	1,700	1,700	1,479	1,376	1,624	1,625	1,625	1,699	1,849
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	103	129	156	146	136	130	109	109	98	102	112	108	108	95	119
20 U.S. Bureau of Reclamation	96	17	18	3	7	57	223	223	322	314	416	310	308	293	174
21 Direct Service Industry	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341
22 Public Entities	6,092	7,346	7,995	7,953	7,376	6,747	5,967	5,940	6,607	6,255	6,931	6,664	6,397	6,387	6,847
23 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 Total Power Sales Contracts	6,632	7,833	8,509	8,442	7,859	7,274	6,640	6,613	7,367	7,013	7,800	7,422	7,153	7,115	7,480

Table 1.2.2
BPA Power Sale Contracts
PNW Loads and Resource Study
2011 - 2012 Fiscal Years
1937 Water Year

6/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

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	45,133	50,782	63,363	62,208	53,705	56,785	22,295	24,153	41,902	45,072	49,491	23,423	25,225	39,948	603,483
2 Total Federal Entities	45,133	50,782	63,363	62,208	53,705	56,785	22,295	24,153	41,902	45,072	49,491	23,423	25,225	39,948	603,483
U.S. Bureau of Reclamation															
3 U.S. Bureau of Reclamation	14,825	1,022	990	1,070	1,076	4,488	24,033	26,025	117,385	89,108	105,649	35,383	38,105	58,752	517,912
4 Total U.S. Bureau of Reclamation	14,825	1,022	990	1,070	1,076	4,488	24,033	26,025	117,385	89,108	105,649	35,383	38,105	58,752	517,912
Direct Service Industry															
5 Direct Service Industry	141,648	136,200	141,648	136,200	136,200	147,096	65,376	70,824	141,648	141,648	136,200	70,824	76,272	130,752	1,672,536
6 Total Direct Service Industry	141,648	136,200	141,648	136,200	136,200	147,096	65,376	70,824	141,648	141,648	136,200	70,824	76,272	130,752	1,672,536
Public Entities															
Load Following 2012 PSC															
7 Load Following 2012 PSC	1,233,988	1,320,904	1,576,912	1,537,491	1,367,884	1,340,264	594,100	643,608	1,232,948	1,293,217	1,374,907	668,682	720,119	1,196,755	16,101,780
8 Total Load Following 2012 PSC	1,233,988	1,320,904	1,576,912	1,537,491	1,367,884	1,340,264	594,100	643,608	1,232,948	1,293,217	1,374,907	668,682	720,119	1,196,755	16,101,780
Block Only 2012 PSC															
9 Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Total Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slice 2012 PSC															
11 Slice 2012 PSC	791,461	934,516	928,290	921,850	770,467	768,794	301,886	292,806	1,161,002	1,011,797	1,081,123	478,585	412,127	834,611	10,689,313
12 Total Slice 2012 PSC	791,461	934,516	928,290	921,850	770,467	768,794	301,886	292,806	1,161,002	1,011,797	1,081,123	478,585	412,127	834,611	10,689,313
Slice Block 2012 PSC															
13 Slice Block 2012 PSC	677,766	805,176	967,434	945,370	812,525	846,050	314,047	340,218	590,975	549,190	624,380	325,080	350,086	627,871	8,776,170
14 Total Slice Block 2012 PSC	677,766	805,176	967,434	945,370	812,525	846,050	314,047	340,218	590,975	549,190	624,380	325,080	350,086	627,871	8,776,170
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	45,133	50,782	63,363	62,208	53,705	56,785	22,295	24,153	41,902	45,072	49,491	23,423	25,225	39,948	603,483
20 U.S. Bureau of Reclamation	14,825	1,022	990	1,070	1,076	4,488	24,033	26,025	117,385	89,108	105,649	35,383	38,105	58,752	517,912
21 Direct Service Industry	141,648	136,200	141,648	136,200	136,200	147,096	65,376	70,824	141,648	141,648	136,200	70,824	76,272	130,752	1,672,536
22 Public Entities	2,703,215	3,060,597	3,472,635	3,404,711	2,950,877	2,955,108	1,210,033	1,276,633	2,984,925	2,854,204	3,080,410	1,472,347	1,482,332	2,659,237	35,567,264
23 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 Total Power Sales Contracts	2,904,821	3,248,601	3,678,637	3,604,189	3,141,858	3,163,476	1,321,737	1,397,634	3,285,861	3,130,032	3,371,751	1,601,977	1,621,934	2,888,689	38,361,195

Table 1.2.2 - continued
 BPA Power Sale Contracts - continued
 PNW Loads and Resource Study
 2012 - 2013 Fiscal Years
 1937 Water Year

6/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

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	46,634	52,797	66,224	62,810	53,727	57,536	23,376	23,376	42,365	45,752	49,838	23,671	25,492	40,355	613,955
2 Total Federal Entities	46,634	52,797	66,224	62,810	53,727	57,536	23,376	23,376	42,365	45,752	49,838	23,671	25,492	40,355	613,955
U.S. Bureau of Reclamation															
3 U.S. Bureau of Reclamation	14,916	1,022	986	1,075	1,039	4,448	25,085	25,085	117,371	88,784	106,011	35,368	38,088	58,743	518,021
4 Total U.S. Bureau of Reclamation	14,916	1,022	986	1,075	1,039	4,448	25,085	25,085	117,371	88,784	106,011	35,368	38,088	58,743	518,021
Direct Service Industry															
5 Direct Service Industry	147,096	136,200	136,200	141,648	130,752	141,648	70,824	70,824	141,648	136,200	141,648	70,824	76,272	130,752	1,672,536
6 Total Direct Service Industry	147,096	136,200	136,200	141,648	130,752	141,648	70,824	70,824	141,648	136,200	141,648	70,824	76,272	130,752	1,672,536
Public Entities															
Load Following 2012 PSC															
7 Load Following 2012 PSC	1,258,321	1,334,516	1,581,691	1,561,599	1,363,479	1,350,188	630,260	630,260	1,249,656	1,302,218	1,416,188	684,311	736,950	1,226,594	16,326,233
8 Total Load Following 2012 PSC	1,258,321	1,334,516	1,581,691	1,561,599	1,363,479	1,350,188	630,260	630,260	1,249,656	1,302,218	1,416,188	684,311	736,950	1,226,594	16,326,233
Block Only 2012 PSC															
9 Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Total Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slice 2012 PSC															
11 Slice 2012 PSC	788,490	936,917	931,620	908,213	748,310	772,656	301,969	290,824	1,047,917	907,170	1,060,446	476,212	405,284	830,386	10,406,415
12 Total Slice 2012 PSC	788,490	936,917	931,620	908,213	748,310	772,656	301,969	290,824	1,047,917	907,170	1,060,446	476,212	405,284	830,386	10,406,415
Slice Block 2012 PSC															
13 Slice Block 2012 PSC	731,312	837,354	931,810	983,701	840,600	847,311	353,639	353,639	615,281	550,342	675,454	338,041	364,044	652,406	9,074,934
14 Total Slice Block 2012 PSC	731,312	837,354	931,810	983,701	840,600	847,311	353,639	353,639	615,281	550,342	675,454	338,041	364,044	652,406	9,074,934
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	46,634	52,797	66,224	62,810	53,727	57,536	23,376	23,376	42,365	45,752	49,838	23,671	25,492	40,355	613,955
20 U.S. Bureau of Reclamation	14,916	1,022	986	1,075	1,039	4,448	25,085	25,085	117,371	88,784	106,011	35,368	38,088	58,743	518,021
21 Direct Service Industry	147,096	136,200	136,200	141,648	130,752	141,648	70,824	70,824	141,648	136,200	141,648	70,824	76,272	130,752	1,672,536
22 Public Entities	2,778,123	3,108,788	3,445,121	3,453,513	2,952,389	2,970,155	1,285,869	1,274,724	2,912,854	2,759,730	3,152,089	1,498,564	1,506,279	2,709,386	35,807,582
23 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 Total Power Sales Contracts	2,986,769	3,298,808	3,648,531	3,659,047	3,137,907	3,173,787	1,405,154	1,394,009	3,214,238	3,030,465	3,449,586	1,628,426	1,646,131	2,939,236	38,612,094

Table 1.2.3
BPA Power Sale Contracts
PNW Loads and Resource Study
2011 - 2012 Fiscal Years
1937 Water Year

6/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

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	28,965	38,490	47,486	45,240	37,792	38,817	16,489	14,918	30,303	27,925	33,303	15,096	15,891	27,497	418,210
2 Total Federal Entities	28,965	38,490	47,486	45,240	37,792	38,817	16,489	14,918	30,303	27,925	33,303	15,096	15,891	27,497	418,210
U.S. Bureau of Reclamation															
3 U.S. Bureau of Reclamation	56,619	11,411	12,489	813	3,875	37,735	57,989	52,474	121,866	137,246	203,734	76,082	80,086	152,090	1,004,507
4 Total U.S. Bureau of Reclamation	56,619	11,411	12,489	813	3,875	37,735	57,989	52,474	121,866	137,246	203,734	76,082	80,086	152,090	1,004,507
Direct Service Industry															
5 Direct Service Industry	111,684	109,301	111,684	117,132	100,788	105,896	57,204	51,756	111,684	103,512	117,132	51,756	54,480	114,408	1,318,416
6 Total Direct Service Industry	111,684	109,301	111,684	117,132	100,788	105,896	57,204	51,756	111,684	103,512	117,132	51,756	54,480	114,408	1,318,416
Public Entities															
Load Following 2012 PSC															
7 Load Following 2012 PSC	774,841	924,319	1,098,279	1,077,645	903,464	854,830	424,246	383,841	849,153	799,306	936,562	417,197	439,154	812,672	10,695,507
8 Total Load Following 2012 PSC	774,841	924,319	1,098,279	1,077,645	903,464	854,830	424,246	383,841	849,153	799,306	936,562	417,197	439,154	812,672	10,695,507
Block Only 2012 PSC															
9 Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Total Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slice 2012 PSC															
11 Slice 2012 PSC	443,525	580,326	581,703	594,615	488,671	500,132	197,634	197,799	676,213	577,702	518,034	224,753	234,233	484,043	6,299,382
12 Total Slice 2012 PSC	443,525	580,326	581,703	594,615	488,671	500,132	197,634	197,799	676,213	577,702	518,034	224,753	234,233	484,043	6,299,382
Slice Block 2012 PSC															
13 Slice Block 2012 PSC	534,393	646,154	698,703	745,388	601,269	609,077	274,791	248,621	465,961	401,331	536,967	237,559	250,062	549,387	6,799,663
14 Total Slice Block 2012 PSC	534,393	646,154	698,703	745,388	601,269	609,077	274,791	248,621	465,961	401,331	536,967	237,559	250,062	549,387	6,799,663
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	28,965	38,490	47,486	45,240	37,792	38,817	16,489	14,918	30,303	27,925	33,303	15,096	15,891	27,497	418,210
20 U.S. Bureau of Reclamation	56,619	11,411	12,489	813	3,875	37,735	57,989	52,474	121,866	137,246	203,734	76,082	80,086	152,090	1,004,507
21 Direct Service Industry	111,684	109,301	111,684	117,132	100,788	105,896	57,204	51,756	111,684	103,512	117,132	51,756	54,480	114,408	1,318,416
22 Public Entities	1,752,759	2,150,798	2,378,685	2,417,647	1,993,403	1,964,039	896,671	830,261	1,991,327	1,778,339	1,991,563	879,508	923,449	1,846,103	23,794,553
23 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 Total Power Sales Contracts	1,950,027	2,309,999	2,550,343	2,580,832	2,135,858	2,146,486	1,028,352	949,409	2,255,180	2,047,022	2,345,732	1,022,442	1,073,906	2,140,097	26,535,686

Table 1.2.3 - continued
BPA Power Sale Contracts
PNW Loads and Resource Study
2012 - 2013 Fiscal Years
1937 Water Year

6/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

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	30,304	40,217	49,534	45,877	37,783	39,139	15,958	15,958	30,633	28,044	33,839	15,254	16,057	27,776	426,373
2 Total Federal Entities	30,304	40,217	49,534	45,877	37,783	39,139	15,958	15,958	30,633	28,044	33,839	15,254	16,057	27,776	426,373
U.S. Bureau of Reclamation															
3 U.S. Bureau of Reclamation	56,528	11,411	12,494	809	3,744	37,774	55,174	55,175	121,880	137,570	203,371	76,097	80,102	152,099	1,004,229
4 Total U.S. Bureau of Reclamation	56,528	11,411	12,494	809	3,744	37,774	55,174	55,175	121,880	137,570	203,371	76,097	80,102	152,099	1,004,229
Direct Service Industry															
5 Direct Service Industry	106,236	109,301	117,132	111,684	98,064	111,344	51,756	51,756	111,684	108,960	111,684	51,756	54,480	114,408	1,310,244
6 Total Direct Service Industry	106,236	109,301	117,132	111,684	98,064	111,344	51,756	51,756	111,684	108,960	111,684	51,756	54,480	114,408	1,310,244
Public Entities															
Load Following 2012 PSC															
7 Load Following 2012 PSC	776,274	934,069	1,119,409	1,075,979	902,836	876,624	404,110	404,110	860,739	817,097	949,133	426,667	449,123	830,913	10,827,082
8 Total Load Following 2012 PSC	776,274	934,069	1,119,409	1,075,979	902,836	876,624	404,110	404,110	860,739	817,097	949,133	426,667	449,123	830,913	10,827,082
Block Only 2012 PSC															
9 Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Total Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slice 2012 PSC															
11 Slice 2012 PSC	450,104	581,469	582,302	611,640	470,747	500,185	199,763	201,142	656,536	486,642	523,093	226,813	240,843	487,728	6,219,006
12 Total Slice 2012 PSC	450,104	581,469	582,302	611,640	470,747	500,185	199,763	201,142	656,536	486,642	523,093	226,813	240,843	487,728	6,219,006
Slice Block 2012 PSC															
13 Slice Block 2012 PSC	528,170	671,977	801,357	775,610	630,450	666,035	258,429	258,429	485,125	440,273	532,570	247,030	260,032	570,856	7,126,342
14 Total Slice Block 2012 PSC	528,170	671,977	801,357	775,610	630,450	666,035	258,429	258,429	485,125	440,273	532,570	247,030	260,032	570,856	7,126,342
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	30,304	40,217	49,534	45,877	37,783	39,139	15,958	15,958	30,633	28,044	33,839	15,254	16,057	27,776	426,373
20 U.S. Bureau of Reclamation	56,528	11,411	12,494	809	3,744	37,774	55,174	55,175	121,880	137,570	203,371	76,097	80,102	152,099	1,004,229
21 Direct Service Industry	106,236	109,301	117,132	111,684	98,064	111,344	51,756	51,756	111,684	108,960	111,684	51,756	54,480	114,408	1,310,244
22 Public Entities	1,754,547	2,187,514	2,503,068	2,463,229	2,004,034	2,042,844	862,301	863,680	2,002,401	1,744,012	2,004,795	900,510	949,997	1,889,497	24,172,429
23 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 Total Power Sales Contracts	1,947,615	2,348,443	2,682,228	2,621,599	2,143,624	2,231,101	985,189	986,569	2,266,598	2,018,587	2,353,690	1,043,617	1,100,636	2,183,781	26,913,276

Table 1.2.4
 BPA Power Sale Contracts - Customer System Peaks
 PNW Loads and Resource Study
 2011 - 2012 Fiscal Years
 1937 Water Year
 [77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

6/27/2011

Customer System Peak (MW)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Federal Entities															
1 Federal Entities	131	131	170	162	153	157	121	121	103	110	115	115	115	106	173
2 Total Federal Entities	131	131	170	162	153	157	121	121	103	110	115	115	115	106	173
Public Entities															
Load Following 2012 PSC															
3 Load Following 2012 PSC	3,855	3,977	4,794	4,614	4,502	4,072	3,764	3,764	3,291	3,348	3,716	3,645	3,645	3,299	5,364
4 Total Load Following 2012 PS	3,855	3,977	4,794	4,614	4,502	4,072	3,764	3,764	3,291	3,348	3,716	3,645	3,645	3,299	5,364
Block Only 2012 PSC															
5 Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Total Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slice Block 2012 PSC															
7 Slice Block 2012 PSC	1,629	2,013	2,239	2,273	2,031	1,958	1,636	1,636	1,421	1,320	1,561	1,563	1,563	1,635	2,366
8 Total Slice Block 2012 PSC	1,629	2,013	2,239	2,273	2,031	1,958	1,636	1,636	1,421	1,320	1,561	1,563	1,563	1,635	2,366

Table 1.2.4 - continued
 BPA Power Sale Contracts - Customer System Peaks
 PNW Loads and Resource Study
 2012 - 2013 Fiscal Years
 1937 Water Year
 [77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

6/27/2011

Customer System Peak (MW)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Federal Entities															
1 Federal Entities	136	136	177	164	158	159	122	122	104	112	117	117	117	108	180
2 Total Federal Entities	136	136	177	164	158	159	122	122	104	112	117	117	117	108	180
Public Entities															
Load Following 2012 PSC															
3 Load Following 2012 PSC	3,914	4,034	4,859	4,670	4,604	4,126	3,819	3,819	3,350	3,407	3,817	3,746	3,746	3,390	5,477
4 Total Load Following 2012 PS	3,914	4,034	4,859	4,670	4,604	4,126	3,819	3,819	3,350	3,407	3,817	3,746	3,746	3,390	5,477
Block Only 2012 PSC															
5 Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Total Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slice Block 2012 PSC															
7 Slice Block 2012 PSC	1,693	2,093	2,330	2,365	2,189	2,037	1,700	1,700	1,479	1,376	1,624	1,625	1,625	1,699	2,462
8 Total Slice Block 2012 PSC	1,693	2,093	2,330	2,365	2,189	2,037	1,700	1,700	1,479	1,376	1,624	1,625	1,625	1,699	2,462

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	Table 1.3.2 Federal Exports - Table A-2 - HLH MWHr	22
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Table 1.3.1
Table A-2: Federal Exports
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-Exports East of Continental Divide-															
1 BPA to Other Entities	5.1	5.2	6.1	5.4	5.3	4.6	3.4	3.4	4.9	5.3	6.6	5.8	5.8	4.6	5.2
2 Total Exports to ECD	5.1	5.2	6.1	5.4	5.3	4.6	3.4	3.4	4.9	5.3	6.6	5.8	5.8	4.6	5.2
-Exports to Pacific Southwest-															
3 BPA to Other Entities	23	19	14	14	13	18	30	34	34	38	39	40	39	29	26
4 BPA to PASA C/N/X	0	0	0	0	0	0	0	0	0	0	4.5	4.5	4.5	4.5	1.1
5 BPA to PASA S/N/X	0	0	0	0	0	0	0	0	2.2	2.2	0	0	0	0	0.4
6 BPA to RVSD C/N/X	10	2.8	2.7	2.7	2.7	2.7	2.5	2.8	0	0	11	11	11	9.5	4.8
7 BPA to RVSD S/Pwr/X	0	0	0	0	0	0	0	0	26	26	0	0	0	0	4.3
8 BPA NW-SW Intertie Losses	1.0	0.6	0.5	0.5	0.5	0.6	1.0	1.1	1.9	2.0	1.6	1.7	1.6	1.3	1.1
9 Total Exports To PSW	34	22	17	17	16	21	33	38	64	68	55	57	56	44	38
-Exports to Inland Southwest-															
10 BPA to SPP PwrS	45	45	45	45	45	45	75	75	75	75	75	75	75	75	60
11 Total Exports To ISW	45	45	45	45	45	45	75	75	75	75	75	75	75	75	60
-Exports to Canada-															
12 BPA to BCHP CanEnt	526	526	526	526	526	526	526	526	526	526	526	504	504	504	522
13 Total Exports To Canada	526	526	526	526	526	526	526	526	526	526	526	504	504	504	522
-Exports to Other Entities-															
14 Total Exports To Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total Exports-															
15 Federal Entities	610	598	594	593	592	596	638	642	669	674	663	642	641	628	625
16 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total Exports.	610	598	594	593	592	596	638	642	669	674	663	642	641	628	625

Table 1.3.1 - continued
Table A-2: Federal Exports
PNW Loads and Resource Study
2012 - 2013 Fiscal Year

5/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-Exports East of Continental Divide-															
1 BPA to Other Entities	5.1	5.2	6.1	5.5	5.3	4.6	3.4	3.4	5	5.3	6.6	5.8	5.8	4.6	5.2
2 Total Exports to ECD	5.1	5.2	6.1	5.5	5.3	4.6	3.4	3.4	5	5.3	6.6	5.8	5.8	4.6	5.2
-Exports to Pacific Southwest-															
3 BPA to Other Entities	23	19	14	14	13	18	30	34	34	38	39	40	39	29	26
4 BPA to PASA C/N/X	0	0	0	0	0	0	0	0	0	0	4.5	4.5	4.5	4.5	1.1
5 BPA to PASA S/N/X	0	0	0	0	0	0	0	0	2.2	2.2	0	0	0	0	0.4
6 BPA to RVSD C/N/X	11	2.8	2.5	2.8	2.7	2.5	2.8	2.8	0	0	11	11	10	10	4.9
7 BPA to RVSD S/Pwr/X	0	0	0	0	0	0	0	0	26	26	0	0	0	0	4.3
8 BPA NW-SW Intertie Losses	1	0.6	0.5	0.5	0.5	0.6	1.0	1.1	1.9	2.0	1.6	1.7	1.6	1.3	1.1
9 Total Exports To PSW	35	22	17	17	16	21	34	38	64	68	56	57	55	45	38
-Exports to Inland Southwest-															
10 BPA to SPP PwrS	45	45	45	45	45	45	75	75	75	75	75	75	75	75	60
11 Total Exports To ISW	45	45	45	45	45	45	75	75	75	75	75	75	75	75	60
-Exports to Canada-															
12 BPA to BCHP CanEnt	504	504	504	504	504	504	504	504	504	504	504	506	506	506	505
13 Total Exports To Canada	504	504	504	504	504	504	504	504	504	504	504	506	506	506	505
-Exports to Other Entities-															
14 Total Exports To Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total Exports-															
15 Federal Entities	590	577	573	572	571	575	617	621	648	653	642	643	641	630	608
16 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total Exports.	590	577	573	572	571	575	617	621	648	653	642	643	641	630	608

Table 1.3.2
Table A-2: Federal Exports
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Exports East of Continental Divide-															
1 BPA to Other Entities	2326	2222	2621	2403	2146	1936	727	727	2283	2381	3106	1345	1435	2079	27735
2 Total Exports to ECD	2326	2222	2621	2403	2146	1936	727	727	2283	2381	3106	1345	1435	2079	27735
-Exports to Pacific Southwest-															
3 BPA to Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 BPA to PASA C/N/X	0	0	0	0	0	0	0	0	0	0	3318	1606	1713	3211	9848
5 BPA to PASA S/N/X	0	0	0	0	0	0	0	0	1659	1606	0	0	0	0	3265
6 BPA to RVSD C/N/X	7550	1983	1980	1980	1890	1977	903	990	0	0	7920	3960	4320	6840	42292
7 BPA to RVSD S/Pwr/X	0	0	0	0	0	0	0	0	12420	11340	0	0	0	0	23760
8 BPA NW-SW Intertie Losses	226	59	59	59	57	59	27	30	422	388	337	167	181	302	2375
9 Total Exports To PSW	7776	2042	2039	2039	1947	2037	930	1020	14501	13334	11575	5733	6214	10353	81540
-Exports to Inland Southwest-															
10 BPA to SPP PwrS	18720	18000	18720	18000	18000	19440	14400	15600	31200	31200	30000	15600	16800	28800	294480
11 Total Exports To ISW	18720	18000	18720	18000	18000	19440	14400	15600	31200	31200	30000	15600	16800	28800	294480
-Exports to Canada-															
12 BPA to BCHP CanEnt	391270	379174	391270	391270	366026	390744	189324	189324	391270	378648	391270	181620	193728	363240	4588176
13 Total Exports To Canada	391270	379174	391270	391270	366026	390744	189324	189324	391270	378648	391270	181620	193728	363240	4588176
-Exports to Other Entities-															
14 Total Exports To Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total Exports-															
15 Federal Entities	420092	401438	414650	413712	388119	414156	205380	206670	439254	425563	435951	204298	218177	404472	4991930
16 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total Exports.	420092	401438	414650	413712	388119	414156	205380	206670	439254	425563	435951	204298	218177	404472	4991930

Table 1.3.2 - continued
Table A-2: Federal Exports
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Exports East of Continental Divide-															
1 BPA to Other Entities	2326	2222	2621	2447	2072	1936	727	727	2329	2381	3106	1345	1435	2079	27752
2 Total Exports to ECD	2326	2222	2621	2447	2072	1936	727	727	2329	2381	3106	1345	1435	2079	27752
-Exports to Pacific Southwest-															
3 BPA to Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 BPA to PASA C/N/X	0	0	0	0	0	0	0	0	0	0	3318	1606	1713	3211	9848
5 BPA to PASA S/N/X	0	0	0	0	0	0	0	0	1659	1606	0	0	0	0	3265
6 BPA to RVSD C/N/X	8269	1983	1890	2070	1800	1887	993	990	0	0	8280	3960	3960	7200	43282
7 BPA to RVSD S/Pwr/X	0	0	0	0	0	0	0	0	12420	10800	0	0	0	0	23220
8 BPA NW-SW Intertie Losses	248	59	57	62	54	57	30	30	422	372	348	167	170	312	2388
9 Total Exports To PSW	8517	2042	1947	2132	1854	1944	1023	1020	14501	12778	11946	5733	5843	10724	82003
-Exports to Inland Southwest-															
10 BPA to SPP PwrS	19440	18000	18000	18720	17280	18720	15600	15600	31200	30000	31200	15600	16800	28800	294960
11 Total Exports To ISW	19440	18000	18000	18720	17280	18720	15600	15600	31200	30000	31200	15600	16800	28800	294960
-Exports to Canada-															
12 BPA to BCHP CanEnt	375348	363744	375348	375348	339024	374844	181620	181620	375348	363240	375348	181980	194112	363960	4420884
13 Total Exports To Canada	375348	363744	375348	375348	339024	374844	181620	181620	375348	363240	375348	181980	194112	363960	4420884
-Exports to Other Entities-															
14 Total Exports To Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total Exports-															
15 Federal Entities	405631	386009	397916	398647	360230	397443	198969	198966	423379	408399	421600	204658	218190	405563	4825598
16 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total Exports.	405631	386009	397916	398647	360230	397443	198969	198966	423379	408399	421600	204658	218190	405563	4825598

Table 1.3.3
Table A-2: Federal Exports
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Exports East of Continental Divide-															
1 BPA to Other Entities	1469	1527	1917	1615	1543	1482	497	497	1363	1435	1805	743	792	1233	17919
2 Total Exports to ECD	1469	1527	1917	1615	1543	1482	497	497	1363	1435	1805	743	792	1233	17919
-Exports to Pacific Southwest-															
3 BPA to Other Entities	16993	13503	10372	10107	8801	13134	10780	12282	25115	27312	28690	14377	14897	20772	227136
4 BPA to PASA C/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 BPA to PASA S/N/X	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 S/Pwr/X	0	0	0	0	0	0	0	0	6768	7344	0	0	0	0	14112
8 BPA NW-SW Intertie Losses	510	405	311	303	264	394	323	368	956	1040	861	431	447	623	7237
9 Total Exports To PSW	17503	13908	10684	10411	9065	13528	11104	12651	32839	35696	29550	14808	15344	21396	248485
-Exports to Inland Southwest-															
10 BPA to SPP PwrS	14760	14445	14760	15480	13320	13995	12600	11400	24600	22800	25800	11400	12000	25200	232560
11 Total Exports To ISW	14760	14445	14760	15480	13320	13995	12600	11400	24600	22800	25800	11400	12000	25200	232560
-Exports to Canada-															
12 BPA to BCHP CanEnt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Exports To Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Exports to Other Entities-															
14 Total Exports To Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total Exports-															
15 Federal Entities	33732	29880	27361	27506	23928	29005	24201	24548	58802	59931	57155	26951	28137	47829	498964
16 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total Exports.	33732	29880	27361	27506	23928	29005	24201	24548	58802	59931	57155	26951	28137	47829	498964

Table 1.3.3 - continued
Table A-2: Federal Exports
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Exports East of Continental Divide-															
1 BPA to Other Entities	1469	1527	1917	1645	1490	1482	497	497	1391	1435	1805	743	792	1233	17923
2 Total Exports to ECD	1469	1527	1917	1645	1490	1482	497	497	1391	1435	1805	743	792	1233	17923
-Exports to Pacific Southwest-															
3 BPA to Other Entities	16973	13495	10402	10171	8562	13065	10806	12336	25115	27355	28685	14348	14897	20772	226982
4 BPA to PASA C/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 BPA to PASA S/N/X	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 S/Pwr/X	0	0	0	0	0	0	0	0	6768	7632	0	0	0	0	14400
8 BPA NW-SW Intertie Losses	509	405	312	305	257	392	324	370	956	1050	861	430	447	623	7241
9 Total Exports To PSW	17482	13900	10714	10476	8819	13457	11131	12706	32839	36036	29546	14778	15344	21396	248623
-Exports to Inland Southwest-															
10 BPA to SPP PwrS	14040	14445	15480	14760	12960	14715	11400	11400	24600	24000	24600	11400	12000	25200	231000
11 Total Exports To ISW	14040	14445	15480	14760	12960	14715	11400	11400	24600	24000	24600	11400	12000	25200	231000
-Exports to Canada-															
12 BPA to BCHP CanEnt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Exports To Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Exports to Other Entities-															
14 Total Exports To Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total Exports-															
15 Federal Entities	32990	29872	28111	26881	23268	29654	23028	24603	58830	61472	55951	26921	28137	47829	497546
16 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total Exports.	32990	29872	28111	26881	23268	29654	23028	24603	58830	61472	55951	26921	28137	47829	497546

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2.	RESOURCE FORECASTS	27
2.1	Regulated Hydro	
	Table 2.1.1 Federal Regulated Hydro Projects	
	Table A-3 - Energy	28
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	Table 2.1.3 Federal Regulated Hydro Projects	
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Table 2.1.1
Table A-3: Federal Regulated Hydro Projects
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
1937 Water Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-Regulated Hydro Projects-															
1 Albeni Falls	36	20	22	16	14	14	25	23	41	43	38	28	22	26	27
2 Bonneville	435	548	557	569	536	500	301	138	377	354	272	161	141	483	416
3 Chief Joseph	867	1281	1200	1294	1072	916	617	675	1294	1156	1439	1312	1048	988	1112
4 Dworshak	51	51	51	51	50	50	51	53	56	300	448	448	409	179	148
5 Grand Coulee	1610	2380	2181	2276	1769	1386	877	978	1991	2013	2705	2424	1900	1809	1936
6 Hungry Horse	87	92	93	94	93	90	69	28	29	85	122	121	120	119	89
7 Ice Harbor	132	95	141	108	137	175	204	201	332	266	157	120	140	114	166
8 John Day	678	907	895	914	846	805	663	586	972	928	828	703	574	760	816
9 Libby	113	245	173	86	85	84	84	83	495	212	179	182	182	180	177
10 Little Goose	132	97	141	111	124	168	247	306	522	289	155	134	146	124	190
11 Lower Granite	131	98	144	113	127	172	244	315	528	293	104	124	150	132	188
12 Lower Monumental	134	94	142	108	139	178	263	318	528	301	112	80	145	119	188
13 McNary	468	596	587	607	561	512	384	320	564	499	402	340	275	530	498
14 The Dalles	533	706	727	738	687	642	501	399	656	626	554	468	379	604	612
Total Regulated Hydro Projects	5409	7211	7054	7086	6240	5692	4529	4422	8385	7364	7513	6645	5633	6170	6565
-Idle Capacity-															
15 Operational Peaking Adj.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Idle Capacity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Hydro Maintenance-															
16 Federal Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total Regulated Hydro w/Enc.-															
17 Federal System	5409	7211	7054	7086	6240	5692	4529	4422	8385	7364	7513	6645	5633	6170	6565
18 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 Total Regulated Hydro w/Enc.	5409	7211	7054	7086	6240	5692	4529	4422	8385	7364	7513	6645	5633	6170	6565

Table 2.1.1 - continued
Table A-3: Federal Regulated Hydro Projects
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
1937 Water Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-Regulated Hydro Projects-															
1 Albeni Falls	36	20	22	16	14	14	25	23	41	43	38	28	22	26	27
2 Bonneville	435	548	557	569	536	500	301	138	377	354	272	161	141	483	416
3 Chief Joseph	867	1281	1200	1294	1072	916	617	675	1294	1156	1439	1312	1048	988	1112
4 Dworshak	51	51	51	51	50	50	51	53	56	300	448	448	409	179	148
5 Grand Coulee	1610	2380	2181	2276	1769	1386	877	978	1991	2013	2705	2424	1900	1809	1937
6 Hungry Horse	87	92	93	94	93	90	69	28	29	85	122	121	120	119	89
7 Ice Harbor	132	95	141	108	137	175	204	201	332	266	157	120	140	114	166
8 John Day	678	907	895	914	846	805	663	586	972	928	828	703	574	760	816
9 Libby	113	245	173	86	85	84	84	83	495	212	179	182	182	180	177
10 Little Goose	132	97	141	111	124	168	247	306	522	289	155	134	146	124	191
11 Lower Granite	131	98	144	113	127	172	244	315	528	293	104	124	150	132	189
12 Lower Monumental	134	94	142	108	139	178	263	318	528	301	112	80	145	119	189
13 McNary	468	596	587	607	561	512	384	320	562	472	402	340	275	530	496
14 The Dalles	533	706	727	738	687	642	501	399	656	626	554	468	379	604	612
Total Regulated Hydro Projects	5409	7211	7054	7086	6240	5692	4529	4422	8383	7337	7513	6645	5633	6170	6563
-Idle Capacity-															
15 Operational Peaking Adj.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Idle Capacity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Hydro Maintenance-															
16 Federal Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total Regulated Hydro w/Enc.-															
17 Federal System	5409	7211	7054	7086	6240	5692	4529	4422	8383	7337	7513	6645	5633	6170	6563
18 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 Total Regulated Hydro w/Enc.	5409	7211	7054	7086	6240	5692	4529	4422	8383	7337	7513	6645	5633	6170	6563

Table 2.1.2
Table A-3: Federal Regulated Hydro Projects
PNW Loads and Resource Study
2011 - 2012 Fiscal Years
1937 Water Year

6/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Regulated Hydro Projects															
1 Regulated Hydro Projects	2,730,840	3,348,866	3,377,426	3,371,576	2,785,713	2,677,879	1,039,407	985,903	4,087,640	3,474,076	3,918,311	1,684,287	1,423,921	2,932,943	37,838,789
Total Regulated Hydro w/Enc.	2,730,840	3,348,866	3,377,426	3,371,576	2,785,713	2,677,879	1,039,407	985,903	4,087,640	3,474,076	3,918,311	1,684,287	1,423,921	2,932,943	37,838,789
Idle Capacity															
2 Operational Peaking Adj.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Idle Capacity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydro Maintenance															
3 Federal Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Regulated Hydro w/Enc.															
4 Federal System	2,730,840	3,348,866	3,377,426	3,371,576	2,785,713	2,677,879	1,039,407	985,903	4,087,640	3,474,076	3,918,311	1,684,287	1,423,921	2,932,943	37,838,789
5 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Total Regulated Hydro w/Enc.	2,730,840	3,348,866	3,377,426	3,371,576	2,785,713	2,677,879	1,039,407	985,903	4,087,640	3,474,076	3,918,311	1,684,287	1,423,921	2,932,943	37,838,789

Table 2.1.2 - continued
Table A-3: Federal Regulated Hydro Projects
PNW Loads and Resource Study
2011 - 2012 Fiscal Years
1937 Water Year

6/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Regulated Hydro Projects															
1 Regulated Hydro Projects	2,688,764	3,344,593	3,390,966	3,290,953	2,695,968	2,695,078	1,017,299	970,099	3,931,882	3,488,553	3,850,086	1,676,242	1,398,521	2,919,246	37,358,250
Total Regulated Hydro w/Enc.	2,688,764	3,344,593	3,390,966	3,290,953	2,695,968	2,695,078	1,017,299	970,099	3,931,882	3,488,553	3,850,086	1,676,242	1,398,521	2,919,246	37,358,250
Idle Capacity															
2 Operational Peaking Adj.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Idle Capacity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydro Maintenance															
3 Federal Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Regulated Hydro w/Enc.															
4 Federal System	2,688,764	3,344,593	3,390,966	3,290,953	2,695,968	2,695,078	1,017,299	970,099	3,931,882	3,488,553	3,850,086	1,676,242	1,398,521	2,919,246	37,358,250
5 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Total Regulated Hydro w/Enc.	2,688,764	3,344,593	3,390,966	3,290,953	2,695,968	2,695,078	1,017,299	970,099	3,931,882	3,488,553	3,850,086	1,676,242	1,398,521	2,919,246	37,358,250

Table 2.1.3
Table A-3: Federal Regulated Hydro Projects
PNW Loads and Resource Study
2011 - 2012 Fiscal Years
1937 Water Year

6/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Regulated Hydro Projects															
1 Regulated Hydro Projects	1,293,605	1,849,976	1,870,973	1,900,184	1,557,606	1,550,980	591,069	606,197	2,150,800	1,828,364	1,671,659	707,985	738,997	1,509,097	19,827,492
Total Regulated Hydro w/Enc.	1,293,605	1,849,976	1,870,973	1,900,184	1,557,606	1,550,980	591,069	606,197	2,150,800	1,828,364	1,671,659	707,985	738,997	1,509,097	19,827,492
Idle Capacity															
2 Operational Peaking Adj.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Idle Capacity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydro Maintenance															
3 Federal Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Regulated Hydro w/Enc.															
4 Federal System	1,293,605	1,849,976	1,870,973	1,900,184	1,557,606	1,550,980	591,069	606,197	2,150,800	1,828,364	1,671,659	707,985	738,997	1,509,097	19,827,492
5 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Total Regulated Hydro w/Enc.	1,293,605	1,849,976	1,870,973	1,900,184	1,557,606	1,550,980	591,069	606,197	2,150,800	1,828,364	1,671,659	707,985	738,997	1,509,097	19,827,492

Table 2.1.3 - continued
Table A-3: Federal Regulated Hydro Projects
PNW Loads and Resource Study
2011 - 2012 Fiscal Years
1937 Water Year

6/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Regulated Hydro Projects															
1 Regulated Hydro Projects	1,335,681	1,854,249	1,857,434	1,980,808	1,497,581	1,533,781	613,177	622,001	2,304,772	1,794,447	1,739,884	716,030	764,397	1,522,794	20,137,035
Total Regulated Hydro w/Enc.	1,335,681	1,854,249	1,857,434	1,980,808	1,497,581	1,533,781	613,177	622,001	2,304,772	1,794,447	1,739,884	716,030	764,397	1,522,794	20,137,035
Idle Capacity															
2 Operational Peaking Adj.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Idle Capacity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydro Maintenance															
3 Federal Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Regulated Hydro w/Enc.															
4 Federal System	1,335,681	1,854,249	1,857,434	1,980,808	1,497,581	1,533,781	613,177	622,001	2,304,772	1,794,447	1,739,884	716,030	764,397	1,522,794	20,137,035
5 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Total Regulated Hydro w/Enc.	1,335,681	1,854,249	1,857,434	1,980,808	1,497,581	1,533,781	613,177	622,001	2,304,772	1,794,447	1,739,884	716,030	764,397	1,522,794	20,137,035

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Table 2.2.1
Table A-4: Federal Independent Hydro Projects
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
1937 Water Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-Independent Hydro Projects-															
1 Anderson Ranch	6.3	6.2	6.2	6.2	6.2	6.2	6.3	6.5	34	33	32	27	16	11	15
2 Big Cliff	11	13	6.6	7.1	5.9	7.4	8.8	8.8	21	21	7.2	5.9	5.9	8	10
3 Black Canyon	9	5.9	7.1	8.8	4.8	7.9	10	10	10	8.1	7.5	10	10	7.9	8.1
4 Boise River Diversion	0.4	0	0	0	0	0	0	2.3	3	2.6	3	3	3	2.5	1.3
5 Chandler	6.7	12	13	9.5	9.3	13	10	10	8.4	8.1	4.6	5.2	5.2	4.1	8.6
6 Cougar	26	25	6.4	4.7	6.5	7.3	8.3	29	29	29	12	9.2	9.2	26	17
7 Cowlitz Falls	6.2	3.1	23	10	14	33	46	50	64	66	29	12	8.5	7.9	26
8 Detroit	45	48	21	22	18	25	35	37	102	95	32	26	26	34	42
9 Dexter	9.8	16	3.9	3.8	4.6	4.6	10	16	17	17	5.8	10	11	4.6	9.2
10 Foster	10	7.5	10	4.6	10	20	19	18	20	23	6.6	6.6	6.6	12	13
11 Green Peter	19	17	19	8.2	0.9	34	90	45	59	50	12	16	16	30	28
12 Green Springs - USBR	2.6	3.3	5.2	6.2	5.8	4.9	4.6	4.6	5.0	7.5	9.1	9.9	8.8	6.5	5.8
13 Hills Creek	24	29	6	6.1	6.1	7.1	12	32	34	34	14	9.1	9.1	24	18
14 Idaho Falls - City Plant	2.1	3.1	4.0	3.1	3.4	4.2	5.3	5.3	6.8	7.1	6.7	4.6	4.6	3.1	4.5
15 Idaho Falls - Lower Plant	2.2	3.3	4.2	3.2	3.5	4.4	5.5	5.5	7.5	7.7	7	4.8	4.8	3.3	4.7
16 Idaho Falls - Upper Plant	2.4	3.4	4.3	3.4	3.7	4.6	5.6	5.6	7.3	7.4	7.0	5.0	5.0	3.4	4.8
17 Lookout Point	38	49	9.8	9.6	12	16	40	66	83	78	26	43	44	18	36
18 Lost Creek	18	19	19	19	13	14	15	16	55	55	46	40	38	30	29
19 Minidoka	12	3.1	9	2.8	2.4	2.2	14	14	30	30	30	30	30	28	16
20 Palisades	56	19	16	34	28	22	19	19	97	165	162	141	135	132	74
21 Roza	3.6	0	5	4	4.3	13	13	13	13	13	13	13	13	0	7.9
Total Independent Hydro w/Enc.	311	284	198	176	162	251	377	414	705	759	472	432	412	396	378
-Total Independent Hydro W/Enc.-															
22 Federal System	311	284	198	176	162	251	377	414	705	759	472	432	412	396	378
23 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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 Independent Hydro w/Enc.	311	284	198	176	162	251	377	414	705	759	472	432	412	396	378

Table 2.2.1 - continued
Table A-4: Federal Independent Hydro Projects
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
1937 Water Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-Independent Hydro Projects-															
1 Anderson Ranch	6.3	6.2	6.2	6.2	6.2	6.2	6.3	6.5	34	33	32	27	16	11	15
2 Big Cliff	11	13	6.6	7.1	5.9	7.4	8.8	8.8	21	21	7.2	5.9	5.9	8	10
3 Black Canyon	9	5.9	7.1	8.8	4.8	7.9	10	10	10	8.1	7.5	10	10	7.9	8.1
4 Boise River Diversion	0.4	0	0	0	0	0	0	2.3	3	2.6	3	3	3	2.5	1.3
5 Chandler	6.7	12	13	9.5	9.3	13	10	10	8.4	8.1	4.6	5.2	5.2	4.1	8.6
6 Cougar	26	25	6.4	4.7	6.5	7.3	8.3	29	29	29	12	9.2	9.2	26	17
7 Cowlitz Falls	6.2	3.1	23	10	14	33	46	50	64	66	29	12	8.5	7.9	26
8 Detroit	45	48	21	22	18	25	35	37	102	95	32	26	26	34	42
9 Dexter	9.8	16	3.9	3.8	4.6	4.6	10	16	17	17	5.8	10	11	4.6	9.2
10 Foster	10	7.5	10	4.6	10	20	19	18	20	23	6.6	6.6	6.6	12	13
11 Green Peter	19	17	19	8.2	0.9	34	90	45	59	50	12	16	16	30	28
12 Green Springs - USBR	2.6	3.3	5.2	6.2	5.8	4.9	4.6	4.6	5.0	7.5	9.1	9.9	8.8	6.5	5.8
13 Hills Creek	24	29	6	6.1	6.1	7.1	12	32	34	34	14	9.1	9.1	24	18
14 Idaho Falls - City Plant	2.1	3.1	4.0	3.1	3.4	4.2	5.3	5.3	6.8	7.1	6.7	4.6	4.6	3.1	4.5
15 Idaho Falls - Lower Plant	2.2	3.3	4.2	3.2	3.5	4.4	5.5	5.5	7.5	7.7	7	4.8	4.8	3.3	4.7
16 Idaho Falls - Upper Plant	2.4	3.4	4.3	3.4	3.7	4.6	5.6	5.6	7.3	7.4	7.0	5.0	5.0	3.4	4.8
17 Lookout Point	38	49	9.8	9.6	12	16	40	66	83	78	26	43	44	18	36
18 Lost Creek	18	19	19	19	13	14	15	16	55	55	46	40	38	30	29
19 Minidoka	12	3.1	9	2.8	2.4	2.2	14	14	30	30	30	30	30	28	16
20 Palisades	56	19	16	34	28	22	19	19	97	165	162	141	135	132	74
21 Roza	3.6	0	5	4	4.3	13	13	13	13	13	13	13	13	0	7.9
Total Independent Hydro w/Enc.	311	284	198	176	162	251	377	414	705	759	472	432	412	396	379
-Total Independent Hydro W/Enc.-															
22 Federal System	311	284	198	176	162	251	377	414	705	759	472	432	412	396	379
23 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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 Independent Hydro w/Enc.	311	284	198	176	162	251	377	414	705	759	472	432	412	396	379

Table 2.2.2
Table A-4: Federal Independent Hydro Projects
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
1937 Water Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Independent Hydro Projects-															
1 Anderson Ranch	2665	2582	2698	2632	2452	2660	1281	1322	14372	13798	13526	5570	3591	4328	73476
2 Big Cliff	4687	5224	2622	2913	2326	3124	1802	1802	8560	8369	2877	1184	1263	3191	49946
3 Black Canyon	3710	2411	3035	3730	1880	3374	2036	2036	4249	3323	3167	2017	2151	3255	40374
4 Boise River Diversion	176	0	0	0	0	0	0	471	1289	1084	1274	617	658	1020	6589
5 Chandler	2808	4961	5024	3958	3676	5504	2028	2028	3541	3251	1825	1115	1189	1658	42567
6 Cougar	10793	10005	2534	1910	2575	3082	1654	5739	11488	11839	4766	1914	2041	10169	80510
7 Cowlitz Falls	2625	1213	9421	4112	5403	14115	9398	10254	26188	27333	11502	2409	1835	3308	129117
8 Detroit	26259	26124	9974	11046	8620	14099	9615	10337	54964	50907	19744	8061	8434	18990	277174
9 Dexter	4091	6259	1553	1551	1815	1970	2090	3228	6901	6994	2346	2107	2443	1767	45116
10 Foster	4227	2977	4151	1883	4007	8470	3984	3736	8363	9336	2665	1360	1451	4972	61582
11 Green Peter	11608	8241	8658	3932	434	18083	23678	11931	28750	25900	7160	4733	5146	17336	175591
12 Green Springs - USBR	1366	2240	3763	4288	3642	3134	1285	1285	2560	3805	4552	2451	2321	2966	39658
13 Hills Creek	10064	11392	2408	2499	2382	3009	2396	6594	13983	14099	5683	1872	1997	9212	87590
14 Idaho Falls - City Plant	894	1295	1688	1325	1334	1802	1093	1093	2923	2967	2860	955	1018	1289	22537
15 Idaho Falls - Lower Plant	936	1355	1766	1387	1395	1885	1144	1144	3202	3194	2992	999	1065	1349	23813
16 Idaho Falls - Upper Plant	996	1425	1836	1459	1463	1953	1166	1166	3117	3082	2970	1028	1097	1417	24174
17 Lookout Point	23650	27190	4807	4714	6317	9683	11258	18364	46661	47131	15256	13104	14433	10485	253052
18 Lost Creek	7596	7918	7649	7730	5171	5895	3143	3389	22451	22687	18499	8247	8466	11757	140598
19 Minidoka	5129	1284	3838	1199	1053	936	2760	2760	13030	12533	12857	6245	6661	11838	82125
20 Palisades	23830	7687	6696	14796	10906	9408	3861	3861	41349	67662	68213	29114	29822	54332	371536
21 Roza	1483	0	2014	1681	1711	5482	2667	2667	5426	5338	5245	2707	2887	0	39310
Total Independent Hydro w/Enc.	149594	131784	86136	78745	68560	117670	88341	95211	323366	344632	209982	97807	99969	174639	2066436
-Total Independent Hydro W/Enc.-															
22 Federal System	149594	131784	86136	78745	68560	117670	88341	95211	323366	344632	209982	97807	99969	174639	2066436
23 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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 Independent Hydro w/Enc.	149594	131784	86136	78745	68560	117670	88341	95211	323366	344632	209982	97807	99969	174639	2066436

Table 2.2.2 - continued
Table A-4: Federal Independent Hydro Projects
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
1937 Water Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Independent Hydro Projects-															
1 Anderson Ranch	2665	2582	2698	2632	2367	2660	1281	1322	14372	13798	13526	5570	3591	4328	73391
2 Big Cliff	4687	5224	2622	2913	2246	3124	1802	1802	8560	8369	2877	1184	1263	3191	49866
3 Black Canyon	3710	2411	3035	3730	1815	3374	2036	2036	4249	3323	3167	2017	2151	3255	40309
4 Boise River Diversion	176	0	0	0	0	0	0	471	1289	1084	1274	617	658	1020	6589
5 Chandler	2808	4961	5024	3958	3549	5504	2028	2028	3541	3251	1825	1115	1189	1658	42440
6 Cougar	10793	10005	2534	1910	2486	3082	1654	5739	11488	11839	4766	1914	2041	10169	80421
7 Cowlitz Falls	2625	1213	9421	4112	5217	14115	9398	10254	26188	27333	11502	2409	1835	3308	128931
8 Detroit	26259	26124	9974	11046	8322	14099	9615	10337	54964	50907	19744	8061	8434	18990	276877
9 Dexter	4091	6259	1553	1551	1752	1970	2090	3228	6901	6994	2346	2107	2443	1767	45054
10 Foster	4227	2977	4151	1883	3869	8470	3984	3736	8363	9336	2665	1360	1451	4972	61444
11 Green Peter	11608	8241	8658	3932	419	18083	23678	11931	28750	25900	7160	4733	5146	17336	175577
12 Green Springs - USBR	1366	2240	3763	4288	3516	3134	1285	1285	2560	3805	4552	2451	2321	2966	39532
13 Hills Creek	10064	11392	2408	2499	2300	3009	2396	6594	13983	14099	5683	1872	1997	9212	87508
14 Idaho Falls - City Plant	894	1295	1688	1325	1288	1802	1093	1093	2923	2967	2860	955	1018	1289	22491
15 Idaho Falls - Lower Plant	936	1355	1766	1387	1347	1885	1144	1144	3202	3194	2992	999	1065	1349	23765
16 Idaho Falls - Upper Plant	996	1425	1836	1459	1412	1953	1166	1166	3117	3082	2970	1028	1097	1417	24124
17 Lookout Point	23650	27190	4807	4714	6099	9683	11258	18364	46661	47131	15256	13104	14433	10485	252834
18 Lost Creek	7596	7918	7649	7730	4993	5895	3143	3389	22451	22687	18499	8247	8466	11757	140420
19 Minidoka	5129	1284	3838	1199	1017	936	2760	2760	13030	12533	12857	6245	6661	11838	82089
20 Palisades	23830	7687	6696	14796	10530	9408	3861	3861	41349	67662	68213	29114	29822	54332	371160
21 Roza	1483	0	2014	1681	1652	5482	2667	2667	5426	5338	5245	2707	2887	0	39251
Total Independent Hydro w/Enc.	149594	131784	86136	78745	66196	117670	88341	95211	323366	344632	209982	97807	99969	174639	2064072
-Total Independent Hydro W/Enc.-															
22 Federal System	149594	131784	86136	78745	66196	117670	88341	95211	323366	344632	209982	97807	99969	174639	2064072
23 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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 Independent Hydro w/Enc.	149594	131784	86136	78745	66196	117670	88341	95211	323366	344632	209982	97807	99969	174639	2064072

Table 2.2.3
Table A-4: Federal Independent Hydro Projects
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
1937 Water Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Independent Hydro Projects-															
1 Anderson Ranch	2023	1889	1915	1981	1864	1947	987	1018	10700	10178	10356	4258	2745	3304	55164
2 Big Cliff	3646	4365	2288	2369	1780	2374	1366	1366	7064	6463	2479	940	1002	2569	40072
3 Black Canyon	2986	1843	2248	2818	1461	2496	1564	1564	3191	2509	2413	1583	1689	2433	30796
4 Boise River Diversion	149	0	0	0	0	0	0	354	943	801	958	463	494	756	4919
5 Chandler	2177	3330	4425	3110	2797	4155	1572	1572	2709	2581	1597	757	808	1294	32883
6 Cougar	8551	8020	2227	1586	1949	2342	1334	4629	9940	8897	4013	1398	1492	8407	64785
7 Cowlitz Falls	1988	1022	7765	3328	4132	10627	7198	7854	21130	20403	10000	1875	1429	2380	101130
8 Detroit	7146	8123	5576	5099	3700	4699	2841	3055	20627	17349	4436	1335	1397	5274	90655
9 Dexter	3200	5132	1348	1276	1387	1448	1546	2388	5747	5246	1969	1601	1857	1545	35691
10 Foster	3288	2430	3513	1539	3092	6390	2964	2780	6889	7224	2245	1016	1083	4028	48481
11 Green Peter	2603	3799	5254	2169	193	7030	8686	4377	14997	9740	1693	883	960	3976	66359
12 Green Springs - USBR	586	139	105	348	376	496	368	368	1138	1627	2232	1126	1066	1699	11675
13 Hills Creek	7792	9445	2056	2040	1864	2266	1816	4998	11685	10741	4807	1404	1498	7708	70119
14 Idaho Falls - City Plant	683	962	1278	978	1016	1331	813	813	2148	2177	2130	711	758	970	16772
15 Idaho Falls - Lower Plant	715	1007	1337	1024	1063	1392	851	851	2353	2344	2229	744	793	1015	17719
16 Idaho Falls - Upper Plant	761	1059	1390	1077	1115	1443	867	867	2291	2261	2212	766	817	1066	17993
17 Lookout Point	4547	8067	2484	2428	2175	2205	3286	5360	14868	9245	3790	2376	2617	2691	66140
18 Lost Creek	5945	5925	6413	6182	4016	4358	2365	2551	18320	17057	15353	6117	6279	9987	110869
19 Minidoka	4096	951	2858	884	617	698	2136	2136	9662	9427	9835	4735	5051	8682	61768
20 Palisades	18057	5796	5133	10797	8234	6938	2943	2943	30596	51354	51943	21646	22172	40996	279549
21 Roza	1196	0	1706	1295	1282	4102	1977	1977	4172	3950	4352	1937	2066	0	30011
Total Independent Hydro w/Enc.	82135	73306	61320	52330	44112	68737	47479	53819	201170	201574	141044	57672	58073	110780	1253551
-Total Independent Hydro W/Enc.-															
22 Federal System	82135	73306	61320	52330	44112	68737	47479	53819	201170	201574	141044	57672	58073	110780	1253551
23 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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 Independent Hydro w/Enc.	82135	73306	61320	52330	44112	68737	47479	53819	201170	201574	141044	57672	58073	110780	1253551

Table 2.2.3 - continued
Table A-4: Federal Independent Hydro Projects
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
1937 Water Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Independent Hydro Projects-															
1 Anderson Ranch	2023	1889	1915	1981	1799	1947	987	1018	10700	10178	10356	4258	2745	3304	55100
2 Big Cliff	3646	4365	2288	2369	1719	2374	1366	1366	7064	6463	2479	940	1002	2569	40010
3 Black Canyon	2986	1843	2248	2818	1410	2496	1564	1564	3191	2509	2413	1583	1689	2433	30746
4 Boise River Diversion	149	0	0	0	0	0	0	354	943	801	958	463	494	756	4919
5 Chandler	2177	3330	4425	3110	2700	4155	1572	1572	2709	2581	1597	757	808	1294	32787
6 Cougar	8551	8020	2227	1586	1882	2342	1334	4629	9940	8897	4013	1398	1492	8407	64718
7 Cowlitz Falls	1988	1022	7765	3328	3990	10627	7198	7854	21130	20403	10000	1875	1429	2380	100988
8 Detroit	7146	8123	5576	5099	3572	4699	2841	3055	20627	17349	4436	1335	1397	5274	90528
9 Dexter	3200	5132	1348	1276	1339	1448	1546	2388	5747	5246	1969	1601	1857	1545	35643
10 Foster	3288	2430	3513	1539	2986	6390	2964	2780	6889	7224	2245	1016	1083	4028	48374
11 Green Peter	2603	3799	5254	2169	186	7030	8686	4377	14997	9740	1693	883	960	3976	66353
12 Green Springs - USBR	586	139	105	348	364	496	368	368	1138	1627	2232	1126	1066	1699	11662
13 Hills Creek	7792	9445	2056	2040	1799	2266	1816	4998	11685	10741	4807	1404	1498	7708	70055
14 Idaho Falls - City Plant	683	962	1278	978	981	1331	813	813	2148	2177	2130	711	758	970	16737
15 Idaho Falls - Lower Plant	715	1007	1337	1024	1026	1392	851	851	2353	2344	2229	744	793	1015	17682
16 Idaho Falls - Upper Plant	761	1059	1390	1077	1076	1443	867	867	2291	2261	2212	766	817	1066	17954
17 Lookout Point	4547	8067	2484	2428	2100	2205	3286	5360	14868	9245	3790	2376	2617	2691	66065
18 Lost Creek	5945	5925	6413	6182	3878	4358	2365	2551	18320	17057	15353	6117	6279	9987	110731
19 Minidoka	4096	951	2858	884	596	698	2136	2136	9662	9427	9835	4735	5051	8682	61747
20 Palisades	18057	5796	5133	10797	7950	6938	2943	2943	30596	51354	51943	21646	22172	40996	279265
21 Roza	1196	0	1706	1295	1237	4102	1977	1977	4172	3950	4352	1937	2066	0	29967
Total Independent Hydro w/Enc.	82135	73306	61320	52330	42591	68737	47479	53819	201170	201574	141044	57672	58073	110780	1252029
-Total Independent Hydro W/Enc.-															
22 Federal System	82135	73306	61320	52330	42591	68737	47479	53819	201170	201574	141044	57672	58073	110780	1252029
23 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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 Independent Hydro w/Enc.	82135	73306	61320	52330	42591	68737	47479	53819	201170	201574	141044	57672	58073	110780	1252029

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Table 2.3.1
Table A-5: Federal Imports
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-Imports From East of Continental Divide-															
1 PPL to BPA PwrS	145	206	277	277	256	246	216	187	54	58	74	79	65	59	160
2 Total Imports From ECD	145	206	277	277	256	246	216	187	54	58	74	79	65	59	160
-Imports From Pacific Southwest-															
3 PASA to BPA XchgNrg	3.5	3.5	3.5	3.5	3.5	1.7	0	0	0	0	0	0	0	3.5	1.9
4 PASA to BPA S/N/X	0.7	0.7	0.7	0.7	0.7	0.3	0	0	0	0	0	0	0	0.7	0.4
5 PASA to BPA PkRepl	0	0	0	0	0	0	0	0	0	0	4.5	4.5	4.5	4.5	1.1
6 RVSD to BPA XchgNrg	0	16	16	17	16	16	17	0	0	0	0	0	0	0	7.3
7 RVSD to BPA S/Pwr/X	0	9.3	9.2	9.7	9.4	9.3	10	0	0	0	0	0	0	0	4.3
8 RVSD to BPA PkRepl	10	2.7	2.7	2.7	2.7	2.7	2.7	2.5	0	0	11	11	11	9.5	4.8
9 Total Imports From PSW	14	32	32	33	32	30	30	2.5	0	0	15	16	16	18	20
-Imports From Inland Southwest-															
10 SPP to BPA PwrS	45	45	45	45	45	45	75	75	75	75	75	75	75	75	60
11 Total Imports From ISW	45	45	45	45	45	45	75	75	75	75	75	75	75	75	60
-Imports From Canada-															
12 BCHP to BPA PwrS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13 Total Imports From Canada	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-Imports From Other Entities-															
14 Total Imports From Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total Imports-															
15 Federal System	206	284	355	356	334	321	322	265	130	134	165	171	156	153	241
16 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total Imports.	206	284	355	356	334	321	322	265	130	134	165	171	156	153	241

Table 2.3.1 - continued
Table A-5: Federal Imports
PNW Loads and Resource Study
2012 - 2013 Fiscal Year

5/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-Imports From East of Continental Divide-															
1 PPL to BPA PwrS	145	206	277	277	256	246	216	187	54	58	74	79	65	59	160
2 Total Imports From ECD	145	206	277	277	256	246	216	187	54	58	74	79	65	59	160
-Imports From Pacific Southwest-															
3 PASA to BPA XchgNrg	3.5	3.5	3.5	3.5	3.5	1.7	0	0	0	0	0	0	0	3.5	1.9
4 PASA to BPA S/N/X	0.7	0.7	0.7	0.7	0.7	0.3	0	0	0	0	0	0	0	0.7	0.4
5 PASA to BPA PkRepl	0	0	0	0	0	0	0	0	0	0	4.5	4.5	4.5	4.5	1.1
6 RVSD to BPA XchgNrg	0	16	17	16	16	17	16	0	0	0	0	0	0	0	7.3
7 RVSD to BPA S/Pwr/X	0	9.3	9.8	9.3	9.5	9.8	9.3	0	0	0	0	0	0	0	4.3
8 RVSD to BPA PkRepl	11	2.7	2.5	2.8	2.7	2.5	2.7	2.8	0	0	11	11	11	10	4.9
9 Total Imports From PSW	15	32	33	32	32	31	28	2.8	0	0	16	15	15	19	20
-Imports From Inland Southwest-															
10 SPP to BPA PwrS	45	45	45	45	45	45	75	75	75	75	75	75	75	75	60
11 Total Imports From ISW	45	45	45	45	45	45	75	75	75	75	75	75	75	75	60
-Imports From Canada-															
12 BCHP to BPA PwrS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13 Total Imports From Canada	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-Imports From Other Entities-															
14 Total Imports From Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total Imports-															
15 Federal System	207	284	356	355	334	323	320	266	130	134	166	170	156	154	241
16 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total Imports.	207	284	356	355	334	323	320	266	130	134	166	170	156	154	241

Table 2.3.2
Table A-5: Federal Imports
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Imports From East of Continental Divide-															
1 PPL to BPA PwrS	77230	103094	142159	140748	119797	125777	52542	46450	32366	34496	46014	23370	20725	35022	999790
2 Total Imports From ECD	77230	103094	142159	140748	119797	125777	52542	46450	32366	34496	46014	23370	20725	35022	999790
-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 S/Pwr/X	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 Total Imports From PSW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Imports From Inland Southwest-															
10 SPP to BPA PwrS	18720	18000	18720	18000	18000	19440	14400	15600	31200	31200	30000	15600	16800	28800	294480
11 Total Imports From ISW	18720	18000	18720	18000	18000	19440	14400	15600	31200	31200	30000	15600	16800	28800	294480
-Imports From Canada-															
12 BCHP to BPA PwrS	416	416	432	416	400	432	192	208	432	416	416	208	224	400	5008
13 Total Imports From Canada	416	416	432	416	400	432	192	208	432	416	416	208	224	400	5008
-Imports From Other Entities-															
14 Total Imports From Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total Imports-															
15 Federal System	96366	121510	161311	159164	138197	145649	67134	62258	63998	66112	76430	39178	37749	64222	1299278
16 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total Imports.	96366	121510	161311	159164	138197	145649	67134	62258	63998	66112	76430	39178	37749	64222	1299278

Table 2.3.2 - continued
Table A-5: Federal Imports
PNW Loads and Resource Study
2012 - 2013 Fiscal Year

5/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Imports From East of Continental Divide-															
1 PPL to BPA PwrS	77230	103094	142159	140748	115666	125777	52542	46450	32366	34496	46014	23370	20725	35022	995659
2 Total Imports From ECD	77230	103094	142159	140748	115666	125777	52542	46450	32366	34496	46014	23370	20725	35022	995659
-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 S/Pwr/X	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 Total Imports From PSW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Imports From Inland Southwest-															
10 SPP to BPA PwrS	19440	18000	18000	18720	17280	18720	15600	15600	31200	30000	31200	15600	16800	28800	294960
11 Total Imports From ISW	19440	18000	18000	18720	17280	18720	15600	15600	31200	30000	31200	15600	16800	28800	294960
-Imports From Canada-															
12 BCHP to BPA PwrS	432	416	416	432	384	416	208	208	432	400	432	208	224	400	5008
13 Total Imports From Canada	432	416	416	432	384	416	208	208	432	400	432	208	224	400	5008
-Imports From Other Entities-															
14 Total Imports From Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total Imports-															
15 Federal System	97102	121510	160575	159900	133330	144913	68350	62258	63998	64896	77646	39178	37749	64222	1295627
16 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total Imports.	97102	121510	160575	159900	133330	144913	68350	62258	63998	64896	77646	39178	37749	64222	1295627

Table 2.3.3
Table A-5: Federal Imports
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Imports From East of Continental Divide-															
1 PPL to BPA PwrS	30834	45348	64251	65317	58174	56656	25119	20797	7633	7046	8990	5085	4083	7709	407042
2 Total Imports From ECD	30834	45348	64251	65317	58174	56656	25119	20797	7633	7046	8990	5085	4083	7709	407042
-Imports From Pacific Southwest-															
3 PASA to BPA XchgNrg	2589	2509	2589	2589	2422	1293	0	0	0	0	0	0	0	2506	16497
4 PASA to BPA S/N/X	513	497	513	513	480	238	0	0	0	0	0	0	0	497	3252
5 PASA to BPA PkRepl	0	0	0	0	0	0	0	0	0	0	3318	1606	1713	3211	9848
6 RVSD to BPA XchgNrg	0	11380	11680	12279	11081	11680	6252	0	0	0	0	0	0	0	64352
7 RVSD to BPA S/Pwr/X	0	6698	6874	7226	6521	6874	3679	0	0	0	0	0	0	0	37872
8 RVSD to BPA PkRepl	7560	1980	1980	1980	1890	1980	989	901	0	0	7920	4034	4246	6840	42300
9 Total Imports From PSW	10662	23065	23636	24587	22394	22065	10920	901	0	0	11238	5640	5959	13054	174121
-Imports From Inland Southwest-															
10 SPP to BPA PwrS	14760	14445	14760	15480	13320	13995	12600	11400	24600	22800	25800	11400	12000	25200	232560
11 Total Imports From ISW	14760	14445	14760	15480	13320	13995	12600	11400	24600	22800	25800	11400	12000	25200	232560
-Imports From Canada-															
12 BCHP to BPA PwrS	328	305	312	328	296	311	168	152	312	304	328	152	160	320	3776
13 Total Imports From Canada	328	305	312	328	296	311	168	152	312	304	328	152	160	320	3776
-Imports From Other Entities-															
14 Total Imports From Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total Imports-															
15 Federal System	56584	83163	102959	105712	94184	93027	48807	33250	32545	30150	46356	22277	22202	46283	817499
16 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total Imports.	56584	83163	102959	105712	94184	93027	48807	33250	32545	30150	46356	22277	22202	46283	817499

Table 2.3.3 - continued
Table A-5: Federal Imports
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Imports From East of Continental Divide-															
1 PPL to BPA PwrS	30834	45348	64251	65317	56168	56656	25119	20797	7633	7046	8990	5085	4083	7709	405036
2 Total Imports From ECD	30834	45348	64251	65317	56168	56656	25119	20797	7633	7046	8990	5085	4083	7709	405036
-Imports From Pacific Southwest-															
3 PASA to BPA XchgNrg	2589	2509	2589	2589	2339	1293	0	0	0	0	0	0	0	2506	16413
4 PASA to BPA S/N/X	513	497	513	513	464	238	0	0	0	0	0	0	0	497	3236
5 PASA to BPA PkRepl	0	0	0	0	0	0	0	0	0	0	3318	1606	1713	3211	9848
6 RVSD to BPA XchgNrg	0	11433	12336	11734	10832	12336	5679	0	0	0	0	0	0	0	64350
7 RVSD to BPA S/Pwr/X	0	6729	7260	6906	6375	7260	3342	0	0	0	0	0	0	0	37872
8 RVSD to BPA PkRepl	8280	1980	1890	2070	1800	1890	987	993	0	0	8280	3858	4062	7200	43290
9 Total Imports From PSW	11382	23149	24588	23812	21809	23017	10008	993	0	0	11598	5464	5775	13414	175009
-Imports From Inland Southwest-															
10 SPP to BPA PwrS	14040	14445	15480	14760	12960	14715	11400	11400	24600	24000	24600	11400	12000	25200	231000
11 Total Imports From ISW	14040	14445	15480	14760	12960	14715	11400	11400	24600	24000	24600	11400	12000	25200	231000
-Imports From Canada-															
12 BCHP to BPA PwrS	312	305	328	312	288	327	152	152	312	320	312	152	160	320	3752
13 Total Imports From Canada	312	305	328	312	288	327	152	152	312	320	312	152	160	320	3752
-Imports From Other Entities-															
14 Total Imports From Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total Imports-															
15 Federal System	56568	83247	104647	104201	91225	94715	46679	33342	32545	31366	45500	22101	22018	46643	814797
16 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total Imports.	56568	83247	104647	104201	91225	94715	46679	33342	32545	31366	45500	22101	22018	46643	814797

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	Table 2.4.1 Federal Renewable Resources - Table A-8 - Energy.....	52
	Table 2.4.2 Federal Renewable Resources - Table A-8 - HLH MWHr.....	54
	Table 2.4.3 Federal Renewable Resources - Table A-8 - LLH MWHr.....	56

Table 2.4.1
Table A-8: Federal Renewable Resources
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-Federal System-															
1 Condon Wind Project	9.7	13	12	13	11	14	12	9.8	9.7	9.4	7.1	7.4	7.6	7.8	10
2 Foote Creek 1	5	7	7.1	7.1	7.3	6.6	5.5	4.6	4.1	3.5	2.3	2.8	2.7	3.5	5.1
3 Foote Creek 2	0.6	0.8	0.8	0.8	0.9	0.8	0.7	0.5	0.5	0.4	0.3	0.3	0.3	0.4	0.6
4 Foote Creek 4	5.5	7.7	7.8	7.7	8.0	7.2	6.1	5	4.5	3.8	2.5	3	3.0	3.9	5.6
5 Klondike I	6	4.8	4.1	5.2	4.6	7.4	8.8	9.6	9.8	12	10	11	9.5	7.7	7.6
6 Klondike III	13	10.0	8.6	11	9.7	15	18	20	20	25	22	23	20	16	16
7 Stateline Wind Project	20	23	18	20	15	31	28	23	24	26	21	20	21	18	22
8 Total Federal System	59	66	59	65	56	83	80	72	73	80	65	68	64	57	67
-Renewable Resources-															
9 Federal System	59	66	59	65	56	83	80	72	73	80	65	68	64	57	67
10 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Renewable Resources	59	66	59	65	56	83	80	72	73	80	65	68	64	57	67

Table 2.4.1 - continued
Table A-8: Federal Renewable Resources
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-Federal System-															
1 Condon Wind Project	9.7	13	12	13	11	14	12	9.8	9.7	9.4	7.1	7.4	7.6	7.8	10
2 Foote Creek 1	5	7	7.1	7.1	7.3	6.6	5.6	4.6	4.1	3.4	2.3	2.8	2.7	3.5	5.1
3 Foote Creek 2	0.6	0.8	0.8	0.8	0.9	0.8	0.7	0.5	0.5	0.4	0.3	0.3	0.3	0.4	0.6
4 Foote Creek 4	5.5	7.7	7.8	7.7	8.0	7.2	6.1	5	4.5	3.8	2.6	3	3.0	3.9	5.6
5 Klondike I	6	4.8	4.2	5.2	4.6	7.4	8.9	9.6	9.8	12	10	11	9.5	7.7	7.7
6 Klondike III	13	10.0	8.7	11	9.7	15	18	20	20	25	22	23	20	16	16
7 Stateline Wind Project	20	23	18	20	15	31	28	23	24	26	20	20	21	18	22
8 Total Federal System	59	66	59	65	56	83	80	72	73	81	65	68	64	57	67
-Renewable Resources-															
9 Federal System	59	66	59	65	56	83	80	72	73	81	65	68	64	57	67
10 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Renewable Resources	59	66	59	65	56	83	80	72	73	81	65	68	64	57	67

Table 2.4.2
Table A-8: Federal Renewable Resources
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Federal System-															
1 Condon Wind Project	3952	4960	4867	5440	4280	5962	2400	2163	4202	3994	2920	1602	1747	3110	51598
2 Foote Creek 1	2109	2782	2924	2856	2960	2957	1115	939	1709	1585	1051	623	630	1407	25648
3 Foote Creek 2	249	326	344	336	348	348	131	110	201	187	123	73	74	165	3016
4 Foote Creek 4	2320	3044	3215	3138	3246	3244	1226	1027	1880	1747	1149	681	689	1542	28149
5 Klondike I	2501	1920	1644	2172	2017	3309	1797	1956	3842	4579	3724	2314	1966	2970	36711
6 Klondike III	5221	4000	3432	4520	4200	6890	3744	4077	8008	9526	7760	4826	4099	6182	76486
7 Stateline Wind Project	7654	9000	6989	8040	5640	12830	4973	4077	8403	8736	6480	3203	4122	6221	96368
8 Total Federal System	24006	26033	23416	26503	22690	35541	15386	14350	28245	30354	23207	13323	13326	21597	317975
-Renewable Resources-															
9 Federal System	24006	26033	23416	26503	22690	35541	15386	14350	28245	30354	23207	13323	13326	21597	317975
10 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Renewable Resources	24006	26033	23416	26503	22690	35541	15386	14350	28245	30354	23207	13323	13326	21597	317975

Table 2.4.2 - continued
Table A-8: Federal Renewable Resources
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Federal System-															
1 Condon Wind Project	4104	4960	4680	5658	4109	5741	2600	2163	4202	3840	3037	1602	1747	3110	51552
2 Foote Creek 1	2190	2782	2812	2971	2842	2848	1208	939	1709	1524	1093	623	630	1407	25577
3 Foote Creek 2	258	326	331	350	334	335	142	110	201	180	128	73	74	165	3008
4 Foote Creek 4	2410	3044	3091	3264	3116	3124	1328	1027	1880	1680	1195	681	689	1542	28071
5 Klondike I	2597	1920	1581	2259	1936	3187	1946	1956	3842	4402	3873	2314	1966	2970	36750
6 Klondike III	5422	4000	3300	4701	4032	6635	4056	4077	8008	9160	8070	4826	4099	6182	76568
7 Stateline Wind Project	7949	9000	6720	8362	5414	12355	5387	4077	8403	8400	6739	3203	4122	6221	96352
8 Total Federal System	24929	26033	22515	27563	21783	34224	16668	14350	28245	29187	24135	13323	13326	21597	317877
-Renewable Resources-															
9 Federal System	24929	26033	22515	27563	21783	34224	16668	14350	28245	29187	24135	13323	13326	21597	317877
10 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Renewable Resources	24929	26033	22515	27563	21783	34224	16668	14350	28245	29187	24135	13323	13326	21597	317877

Table 2.4.3
Table A-8: Federal Renewable Resources
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Federal System-															
1 Condon Wind Project	3280	4334	4264	4541	3138	4447	1882	1368	3018	2797	2374	1049	1152	2520	40162
2 Foote Creek 1	1614	2292	2330	2393	2092	1956	876	709	1311	911	675	377	408	1144	19088
3 Foote Creek 2	190	269	273	281	246	230	103	83	154	108	80	44	48	135	2243
4 Foote Creek 4	1769	2508	2551	2624	2297	2142	962	776	1438	1006	746	411	446	1259	20936
5 Klondike I	1996	1525	1439	1660	1213	2186	1381	1500	3443	4046	4053	1743	1672	2558	30414
6 Klondike III	4166	3178	3001	3457	2531	4556	2873	3124	7167	8436	8445	3633	3488	5326	63380
7 Stateline Wind Project	7183	7576	6494	7121	4825	10481	5191	4028	9315	10093	8875	3861	4032	6821	95896
8 Total Federal System	20197	21681	20354	22076	16341	25998	13268	11587	25846	27397	25247	11117	11246	19761	272117
-Renewable Resources-															
9 Federal System	20197	21681	20354	22076	16341	25998	13268	11587	25846	27397	25247	11117	11246	19761	272117
10 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Renewable Resources	20197	21681	20354	22076	16341	25998	13268	11587	25846	27397	25247	11117	11246	19761	272117

Table 2.4.3 - continued
Table A-8: Federal Renewable Resources
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Federal System-															
1 Condon Wind Project	3120	4334	4472	4330	3053	4676	1702	1368	3018	2944	2263	1049	1152	2520	40000
2 Foote Creek 1	1535	2292	2444	2282	2035	2057	793	709	1311	959	643	377	408	1144	18989
3 Foote Creek 2	180	269	287	268	240	241	93	83	154	113	76	44	48	135	2231
4 Foote Creek 4	1683	2508	2676	2502	2235	2252	871	776	1438	1059	711	411	446	1259	20827
5 Klondike I	1898	1525	1509	1582	1180	2299	1249	1500	3443	4259	3864	1743	1672	2558	30282
6 Klondike III	3962	3178	3148	3296	2462	4791	2599	3124	7167	8880	8052	3633	3488	5326	63106
7 Stateline Wind Project	6833	7576	6811	6790	4694	11020	4697	4028	9315	10624	8462	3861	4032	6821	95563
8 Total Federal System	19212	21681	21346	21049	15900	27336	12005	11587	25846	28839	24073	11117	11246	19761	270998
-Renewable Resources-															
9 Federal System	19212	21681	21346	21049	15900	27336	12005	11587	25846	28839	24073	11117	11246	19761	270998
10 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Renewable Resources	19212	21681	21346	21049	15900	27336	12005	11587	25846	28839	24073	11117	11246	19761	270998

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2.5	Cogeneration	59
Table 2.5.1	Federal Cogeneration - Table A-9 - Energy	60
Table 2.5.2	Federal Cogeneration - Table A-9 - HLH MWHr	62
Table 2.5.3	Federal Cogeneration - Table A-9 - LLH MWHr.....	64

Table 2.5.1
Table A-9: Federal Cogeneration
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-Federal System-															
1 Georgia-Pacific Paper (Wauna)	18	20	23	24	23	23	22	22	19	14	18	12	12	14	19
2 Total Federal System	18	20	23	24	23	23	22	22	19	14	18	12	12	14	19
-Cogeneration-															
3 Federal System	18	20	23	24	23	23	22	22	19	14	18	12	12	14	19
4 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Total Cogeneration	18	20	23	24	23	23	22	22	19	14	18	12	12	14	19

Table 2.5.1 - continued
Table A-9: Federal Cogeneration
PNW Loads and Resource Study
2012 - 2013 Fiscal Year

5/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-Federal System-															
1 Georgia-Pacific Paper (Wauna)	18	20	23	24	23	23	22	22	19	14	18	12	12	14	19
2 Total Federal System	18	20	23	24	23	23	22	22	19	14	18	12	12	14	19
-Cogeneration-															
3 Federal System	18	20	23	24	23	23	22	22	19	14	18	12	12	14	19
4 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Total Cogeneration	18	20	23	24	23	23	22	22	19	14	18	12	12	14	19

Table 2.5.2
**Table A-9: Federal Cogeneration
 PNW Loads and Resource Study
 2011 - 2012 Fiscal Year**
 [77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Federal System-															
1 Georgia-Pacific Paper (Wauna)	7642	7840	9406	9580	9212	9919	4222	4574	7929	5907	7248	2583	2782	5545	94389
2 Total Federal System	7642	7840	9406	9580	9212	9919	4222	4574	7929	5907	7248	2583	2782	5545	94389
-Cogeneration-															
3 Federal System	7642	7840	9406	9580	9212	9919	4222	4574	7929	5907	7248	2583	2782	5545	94389
4 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Total Cogeneration	7642	7840	9406	9580	9212	9919	4222	4574	7929	5907	7248	2583	2782	5545	94389

Table 2.5.2 - continued
Table A-9: Federal Cogeneration
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Federal System-															
1 Georgia-Pacific Paper (Wauna)	7936	7840	9044	9963	8844	9551	4574	4574	7929	5680	7538	2583	2782	5545	94383
2 Total Federal System	7936	7840	9044	9963	8844	9551	4574	4574	7929	5680	7538	2583	2782	5545	94383
-Cogeneration-															
3 Federal System	7936	7840	9044	9963	8844	9551	4574	4574	7929	5680	7538	2583	2782	5545	94383
4 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Total Cogeneration	7936	7840	9044	9963	8844	9551	4574	4574	7929	5680	7538	2583	2782	5545	94383

Table 2.5.3
**Table A-9: Federal Cogeneration
 PNW Loads and Resource Study
 2011 - 2012 Fiscal Year**
 [77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Federal System-															
1 Georgia-Pacific Paper (Wauna)	6025	6292	7416	8239	6817	7141	3694	3342	6252	4317	6233	1888	1987	4852	74495
2 Total Federal System	6025	6292	7416	8239	6817	7141	3694	3342	6252	4317	6233	1888	1987	4852	74495
-Cogeneration-															
3 Federal System	6025	6292	7416	8239	6817	7141	3694	3342	6252	4317	6233	1888	1987	4852	74495
4 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Total Cogeneration	6025	6292	7416	8239	6817	7141	3694	3342	6252	4317	6233	1888	1987	4852	74495

Table 2.5.3 - continued
Table A-9: Federal Cogeneration
PNW Loads and Resource Study
2012 - 2013 Fiscal Year

5/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Federal System-															
1 Georgia-Pacific Paper (Wauna)	5731	6292	7778	7856	6633	7508	3342	3342	6252	4544	5943	1888	1987	4852	73948
2 Total Federal System	5731	6292	7778	7856	6633	7508	3342	3342	6252	4544	5943	1888	1987	4852	73948
-Cogeneration-															
3 Federal System	5731	6292	7778	7856	6633	7508	3342	3342	6252	4544	5943	1888	1987	4852	73948
4 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Total Cogeneration	5731	6292	7778	7856	6633	7508	3342	3342	6252	4544	5943	1888	1987	4852	73948

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2.6	Large Thermal.....	67
	Table 2.6.1	Federal Large Thermal - Table A-10 - Energy68
	Table 2.6.2	Federal Large Thermal - Table A-10 - HLH MWHr70
	Table 2.6.3	Federal Large Thermal - Table A-10 - LLH MWHr72

Table 2.6.1
**Table A-10: Federal Large Thermal
 PNW Loads and Resource Study
 2011 - 2012 Fiscal Year**
 [77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-Columbia Generating Station: Uranium-															
1 BPA - Power Business	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030
2 Columbia Generating Station: Regional Total	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030
-Total Large Thermal-															
3 Federal System	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030
4 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Non-NW Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Total Large Thermal	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030

Table 2.6.1 - continued
**Table A-10: Federal Large Thermal
 PNW Loads and Resource Study
 2012 - 2013 Fiscal Year**

5/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-Columbia Generating Station: Uranium-															
1 BPA - Power Business	1030	1030	1030	1030	1030	1030	1030	1030	332	0	930	1030	1030	1030	878
2 Columbia Generating Station: Regional Total	1030	1030	1030	1030	1030	1030	1030	1030	332	0	930	1030	1030	1030	878
-Total Large Thermal-															
3 Federal System	1030	1030	1030	1030	1030	1030	1030	1030	332	0	930	1030	1030	1030	878
4 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Non-NW Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Total Large Thermal	1030	1030	1030	1030	1030	1030	1030	1030	332	0	930	1030	1030	1030	878

Table 2.6.2
**Table A-10: Federal Large Thermal
 PNW Loads and Resource Study
 2011 - 2012 Fiscal Year**

5/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Columbia Generating Station: Uranium-															
1 BPA - Power Business	428480	412000	428480	412000	412000	444960	197760	214240	428480	428480	412000	214240	230720	395520	5059360
2 Columbia Generating Station: Regional	428480	412000	428480	412000	412000	444960	197760	214240	428480	428480	412000	214240	230720	395520	5059360
-Total Large Thermal-															
3 Federal System	428480	412000	428480	412000	412000	444960	197760	214240	428480	428480	412000	214240	230720	395520	5059360
4 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Non-NW Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Total Large Thermal	428480	412000	428480	412000	412000	444960	197760	214240	428480	428480	412000	214240	230720	395520	5059360

Table 2.6.2 - continued
**Table A-10: Federal Large Thermal
 PNW Loads and Resource Study
 2012 - 2013 Fiscal Year**

5/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Columbia Generating Station: Uranium-															
1 BPA - Power Business	444960	412000	412000	428480	395520	428480	214240	214240	138112	0	386880	214240	230720	395520	4315392
2 Columbia Generating Station: Regional Total	444960	412000	412000	428480	395520	428480	214240	214240	138112	0	386880	214240	230720	395520	4315392
-Total Large Thermal-															
3 Federal System	444960	412000	412000	428480	395520	428480	214240	214240	138112	0	386880	214240	230720	395520	4315392
4 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Non-NW Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Total Large Thermal	444960	412000	412000	428480	395520	428480	214240	214240	138112	0	386880	214240	230720	395520	4315392

Table 2.6.3
**Table A-10: Federal Large Thermal
 PNW Loads and Resource Study
 2011 - 2012 Fiscal Year**

5/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Columbia Generating Station: Uranium-															
1 BPA - Power Business	337840	330630	337840	354320	304880	320330	173040	156560	337840	313120	354320	156560	164800	346080	3988160
2 Columbia Generating Station: Regional Total	337840	330630	337840	354320	304880	320330	173040	156560	337840	313120	354320	156560	164800	346080	3988160
-Total Large Thermal-															
3 Federal System	337840	330630	337840	354320	304880	320330	173040	156560	337840	313120	354320	156560	164800	346080	3988160
4 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Non-NW Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Total Large Thermal	337840	330630	337840	354320	304880	320330	173040	156560	337840	313120	354320	156560	164800	346080	3988160

Table 2.6.3 - continued
**Table A-10: Federal Large Thermal
 PNW Loads and Resource Study
 2012 - 2013 Fiscal Year**

5/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Columbia Generating Station: Uranium-															
1 BPA - Power Business	321360	330630	354320	337840	296640	336810	156560	156560	108896	0	305040	156560	164800	346080	3372096
2 Columbia Generating Station: Regional Total	321360	330630	354320	337840	296640	336810	156560	156560	108896	0	305040	156560	164800	346080	3372096
-Total Large Thermal-															
3 Federal System	321360	330630	354320	337840	296640	336810	156560	156560	108896	0	305040	156560	164800	346080	3372096
4 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Non-NW Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Total Large Thermal	321360	330630	354320	337840	296640	336810	156560	156560	108896	0	305040	156560	164800	346080	3372096

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2.7	Canadian Entitlement Return.....	75
Table 2.7.1	Canadian Entitlement Return for Canada Table A-15-Energy	76
Table 2.7.2	Canadian Entitlement Return for Canada Table A-15-HLH MWHr	78
Table 2.7.3	Canadian Entitlement Return for Canada Table A-15-LLH MWHr.....	80

Table 2.7.1
Table A-15: Canadian Entitlement Return For Canada
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-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 GCPD to BPA	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
3 Priest Rapids: Regional Totals	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
-Wanapum CER for Canada-															
4 GCPD to BPA	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
5 Wanapum: Regional Totals	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
-Rock Island P.H. #1 CER for Canada-															
6 CHPD to BPA	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
7 Rock Island P.H. #1: Regional Totals	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
-Rock Island P.H. #2 CER for Canada-															
8 CHPD to BPA	7.3	7.3	7.3	7.3	7.3	7.3	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.2
9 Rock Island P.H. #2: Regional Totals	7.3	7.3	7.3	7.3	7.3	7.3	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.2
-Rocky Reach CER for Canada-															
10 CHPD to BPA	39	39	39	39	39	39	38	38	38	38	38	38	38	38	38
11 Rocky Reach: Regional Totals	39	39	39	39	39	39	38	38	38	38	38	38	38	38	38
-Wells CER for Canada-															
12 DOPD to BPA	25	25	25	25	25	25	24	24	24	24	24	24	24	24	25
13 Wells: Regional Totals	25	25	25	25	25	25	24	24	24	24	24	24	24	24	25
-Total CER For Canada-															
14 Federal System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Public Entities	142	142	142	142	142	142	139	139	139	139	139	139	139	139	141
16 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Non-NW Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total CER For Canada	142	142	142	142	142	142	139	139	139	139	139	139	139	139	141

Table 2.7.1 - continued
Table A-15: Canadian Entitlement Return For Canada
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-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 GCPD to BPA	30	30	30	30	30	30	29	29	29	29	29	29	29	29	29
3 Priest Rapids: Regional Totals	30	30	30	30	30	30	29	29	29	29	29	29	29	29	29
-Wanapum CER for Canada-															
4 GCPD to BPA	29	29	29	29	29	29	28	28	28	28	28	28	28	28	28
5 Wanapum: Regional Totals	29	29	29	29	29	29	28	28	28	28	28	28	28	28	28
-Rock Island P.H. #1 CER for Canada-															
6 CHPD to BPA	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
7 Rock Island P.H. #1: Regional Totals	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
-Rock Island P.H. #2 CER for Canada-															
8 CHPD to BPA	7.1	7.1	7.1	7.1	7.1	7.1	7	7	7	7	7	7	7	7	7
9 Rock Island P.H. #2: Regional Totals	7.1	7.1	7.1	7.1	7.1	7.1	7	7	7	7	7	7	7	7	7
-Rocky Reach CER for Canada-															
10 CHPD to BPA	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
11 Rocky Reach: Regional Totals	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
-Wells CER for Canada-															
12 DOPD to BPA	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
13 Wells: Regional Totals	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
-Total CER For Canada-															
14 Federal System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Public Entities	139	139	139	139	139	139	137	137	137	137	137	137	137	137	138
16 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Non-NW Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total CER For Canada	139	139	139	139	139	139	137	137	137	137	137	137	137	137	138

Table 2.7.2
Table A-15: Canadian Entitlement Return For Canada
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	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 GCPD to BPA	22618	21918	22618	22618	21158	22587	10656	10656	22022	21312	22022	10656	11366	21312	263520
3 Priest Rapids: Regional Totals	22618	21918	22618	22618	21158	22587	10656	10656	22022	21312	22022	10656	11366	21312	263520
-Wanapum CER for Canada-															
4 GCPD to BPA	21874	21197	21874	21874	20462	21844	10332	10332	21353	20664	21353	10332	11021	20664	255175
5 Wanapum: Regional Totals	21874	21197	21874	21874	20462	21844	10332	10332	21353	20664	21353	10332	11021	20664	255175
-Rock Island P.H. #1 CER for Canada-															
6 CHPD to BPA	8482	8219	8482	8482	7934	8470	4032	4032	8333	8064	8333	4032	4301	8064	99259
7 Rock Island P.H. #1: Regional Totals	8482	8219	8482	8482	7934	8470	4032	4032	8333	8064	8333	4032	4301	8064	99259
-Rock Island P.H. #2 CER for Canada-															
8 CHPD to BPA	5431	5263	5431	5431	5081	5424	2556	2556	5282	5112	5282	2556	2726	5112	63245
9 Rock Island P.H. #2: Regional Totals	5431	5263	5431	5431	5081	5424	2556	2556	5282	5112	5282	2556	2726	5112	63245
-Rocky Reach CER for Canada-															
10 CHPD to BPA	28942	28047	28942	28942	27074	28903	13680	13680	28272	27360	28272	13680	14592	27360	337745
11 Rocky Reach: Regional Totals	28942	28047	28942	28942	27074	28903	13680	13680	28272	27360	28272	13680	14592	27360	337745
-Wells CER for Canada-															
12 DOPD to BPA	18526	17953	18526	18526	17330	18501	8748	8748	18079	17496	18079	8748	9331	17496	216086
13 Wells: Regional Totals	18526	17953	18526	18526	17330	18501	8748	8748	18079	17496	18079	8748	9331	17496	216086
-Total CER For Canada-															
14 Federal System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Public Entities	105871	102598	105871	105871	99041	105729	50004	50004	103342	100008	103342	50004	53338	100008	1235030
16 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Non-NW Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total CER For Canada	105871	102598	105871	105871	99041	105729	50004	50004	103342	100008	103342	50004	53338	100008	1235030

Table 2.7.2 - continued
Table A-15: Canadian Entitlement Return For Canada
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	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 GCPD to BPA	22022	21342	22022	22022	19891	21993	10548	10548	21799	21096	21799	10548	11251	21096	257978
3 Priest Rapids: Regional Totals	22022	21342	22022	22022	19891	21993	10548	10548	21799	21096	21799	10548	11251	21096	257978
-Wanapum CER for Canada-															
4 GCPD to BPA	21353	20693	21353	21353	19286	21324	10188	10188	21055	20376	21055	10188	10867	20376	249655
5 Wanapum: Regional Totals	21353	20693	21353	21353	19286	21324	10188	10188	21055	20376	21055	10188	10867	20376	249655
-Rock Island P.H. #1 CER for Canada-															
6 CHPD to BPA	8333	8075	8333	8333	7526	8322	3960	3960	8184	7920	8184	3960	4224	7920	97234
7 Rock Island P.H. #1: Regional Totals	8333	8075	8333	8333	7526	8322	3960	3960	8184	7920	8184	3960	4224	7920	97234
-Rock Island P.H. #2 CER for Canada-															
8 CHPD to BPA	5282	5119	5282	5282	4771	5275	2520	2520	5208	5040	5208	2520	2688	5040	61757
9 Rock Island P.H. #2: Regional Totals	5282	5119	5282	5282	4771	5275	2520	2520	5208	5040	5208	2520	2688	5040	61757
-Rocky Reach CER for Canada-															
10 CHPD to BPA	28272	27398	28272	28272	25536	28234	13500	13500	27900	27000	27900	13500	14400	27000	330684
11 Rocky Reach: Regional Totals	28272	27398	28272	28272	25536	28234	13500	13500	27900	27000	27900	13500	14400	27000	330684
-Wells CER for Canada-															
12 DOPD to BPA	18079	17520	18079	18079	16330	18055	8640	8640	17856	17280	17856	8640	9216	17280	211550
13 Wells: Regional Totals	18079	17520	18079	18079	16330	18055	8640	8640	17856	17280	17856	8640	9216	17280	211550
-Total CER For Canada-															
14 Federal System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Public Entities	103342	100147	103342	103342	93341	103203	49356	49356	102002	98712	102002	49356	52646	98712	1208858
16 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Non-NW Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total CER For Canada	103342	100147	103342	103342	93341	103203	49356	49356	102002	98712	102002	49356	52646	98712	1208858

Table 2.7.3
Table A-15: Canadian Entitlement Return For Canada
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	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 GCPD to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 Priest Rapids: Regional Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Wanapum CER for Canada-															
4 GCPD to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Wanapum: Regional Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Rock Island P.H. #1 CER for Canada-															
6 CHPD to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Rock Island P.H. #1: Regional Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Rock Island P.H. #2 CER for Canada-															
8 CHPD to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Rock Island P.H. #2: Regional Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Rocky Reach CER for Canada-															
10 CHPD to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 Rocky Reach: Regional Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Wells CER for Canada-															
12 DOPD to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Wells: Regional Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total CER For Canada-															
14 Federal System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Non-NW Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total CER For Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 2.7.3 - continued
Table A-15: Canadian Entitlement Return For Canada
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	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 GCPD to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 Priest Rapids: Regional Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Wanapum CER for Canada-															
4 GCPD to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Wanapum: Regional Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Rock Island P.H. #1 CER for Canada-															
6 CHPD to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Rock Island P.H. #1: Regional Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Rock Island P.H. #2 CER for Canada-															
8 CHPD to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Rock Island P.H. #2: Regional Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Rocky Reach CER for Canada-															
10 CHPD to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 Rocky Reach: Regional Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Wells CER for Canada-															
12 DOPD to BPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Wells: Regional Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total CER For Canada-															
14 Federal System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Non-NW Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Total CER For Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Table 2.8.1
Table A-16: Federal Intra-Regional Transfers
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-Intra-Regional Transfers-															
1 BPA To AVWP WP3Set	0	101	101	101	101	50	50	49	0	0	0	0	0	0	42
2 BPA To COPD PwrS	17	18	17	18	15	22	28	29	25	27	22	23	23	18	21
3 BPA To EMPD PwrS	3.9	4.2	4	4.2	3.6	5	6.4	6.7	5.8	6.2	5.2	5.4	5.3	4.2	4.9
4 BPA To PPL S/Pwr/X	0	0	0	0	0	0	0	0	0	35	34	0	0	0	5.7
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 PwrS	145	206	277	277	256	246	216	187	54	58	74	79	65	59	160
7 BPA To PSE PwrS	0	2.4	2.4	2.4	2.5	0	0	0	0	0	0	0	0	0	0.8
8 BPA To PSE WP3Set	0	101	101	101	101	50	50	49	0	0	0	0	0	0	42
9 BPA To SHPD PwrS	5.2	5.6	5.4	5.5	4.8	6.7	8.6	8.9	7.7	8.3	6.9	7.1	7	5.6	6.5
10 BPA To TBL PwrS	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1
11 COPD To BPA PwrS	17	19	17	18	14	25	30	28	24	27	21	25	22	17	21
12 EMPD To BPA PwrS	3.9	4.3	4.0	4.2	3.3	5.7	7.0	6.4	5.6	6.3	4.8	5.7	5.2	3.8	4.8
13 Other Entities To BPA	42	39	33	38	30	49	57	56	55	65	56	67	54	47	48
14 PPL To BPA S/Pwr/X	57	57	0	0	0	0	0	0	0	0	0	0	0	23	11
15 PPL To BPA S/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 SHPD To BPA PwrS	5.3	5.7	5.3	5.6	4.3	7.6	9.3	8.6	7.5	8.5	6.5	7.6	6.9	5.1	6.5
17 Total Contracts	306	572	577	584	545	475	471	438	193	250	240	229	197	192	383
-Total Contracts Out-															
18 Federal System	180	448	518	518	493	388	368	339	101	143	151	124	109	97	291
19 Public Entities	26	29	27	28	22	38	46	43	37	42	32	38	34	25	32
20 Investor-Owned Entities	78	74	11	16	8.3	27	35	34	33	43	34	45	32	48	37
21 Other Entities	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
22 Total Contracts Out	306	572	577	584	545	475	471	438	193	250	240	229	197	192	383
-Total Contracts In-															
23 Federal System	135	134	68	75	61	96	112	108	101	116	98	114	97	104	100
24 Public Entities	26	28	27	28	24	34	43	45	38	41	34	36	35	28	32
25 Investor-Owned Entities	145	411	482	482	460	345	316	285	54	92	108	79	65	59	250
26 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27 Total Contracts In	306	572	577	584	545	475	471	438	193	250	240	229	197	192	383

Table 2.8.1 - continued
Table A-16: Federal Intra-Regional Transfers
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	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 COPD PwrS	17	18	18	18	16	22	28	29	25	27	22	23	23	18	21
3 BPA To EMPD PwrS	3.9	4.2	4	4.2	3.6	5	6.4	6.7	5.8	6.2	5.1	5.3	5.3	4.2	4.8
4 BPA To PPL S/Pwr/X	0	0	0	0	0	0	0	0	0	35	34	0	0	0	5.7
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 PwrS	145	206	277	277	256	246	216	187	54	58	74	79	65	59	160
7 BPA To PSE PwrS	0	2.4	2.4	2.4	2.6	0	0	0	0	0	0	0	0	0	0.8
8 BPA To PSE WP3Set	0	101	101	101	101	50	50	50	0	0	0	0	0	0	42
9 BPA To SHPD PwrS	5.2	5.6	5.4	5.6	4.8	6.7	8.5	8.9	7.7	8.3	6.9	7.1	7	5.6	6.5
10 BPA To TBL PwrS	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1
11 COPD To BPA PwrS	17	19	17	18	14	25	30	28	24	28	21	25	22	17	21
12 EMPD To BPA PwrS	3.9	4.3	4	4.2	3.2	5.7	6.9	6.4	5.6	6.4	4.8	5.7	5.2	3.8	4.8
13 Other Entities To BPA	78	75	69	74	66	85	93	92	91	101	92	103	90	83	84
14 PPL To BPA S/Pwr/X	23	23	0	0	0	0	0	0	0	0	0	0	0	23	5.7
15 PPL To BPA S/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 SHPD To BPA PwrS	5.2	5.7	5.3	5.6	4.3	7.6	9.2	8.6	7.5	8.5	6.4	7.6	6.9	5.1	6.5
17 Total Contracts	308	574	613	621	582	511	506	475	229	286	275	265	233	228	413
-Total Contracts Out-															
18 Federal System	180	448	518	519	494	388	367	340	101	143	151	124	109	97	291
19 Public Entities	26	29	27	28	22	38	46	43	37	42	32	38	34	25	32
20 Investor-Owned Entities	43	40	11	16	8.3	27	35	34	33	43	34	45	32	48	31
21 Other Entities	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
22 Total Contracts Out	308	574	613	621	582	511	506	475	229	286	275	265	233	228	413
-Total Contracts In-															
23 Federal System	137	135	104	111	97	132	148	144	137	152	133	150	133	140	131
24 Public Entities	26	28	27	28	24	33	43	45	38	42	34	36	35	28	32
25 Investor-Owned Entities	145	411	482	482	461	345	315	286	54	92	108	79	65	59	250
26 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27 Total Contracts In	308	574	613	621	582	511	506	475	229	286	275	265	233	228	413

Table 2.8.2
Table A-16: Federal Intra-Regional Transfers
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Intra-Regional Transfers-															
1 BPA To AVWP WP3Set	0	34112	35424	34112	32800	17712	7872	8528	0	0	0	0	0	0	170560
2 BPA To COPD PwrS	6567	7035	6702	7323	6233	9252	5385	5741	10228	10366	7969	4259	4821	6684	98566
3 BPA To EMPD PwrS	1516	1624	1547	1690	1438	2135	1243	1325	2360	2392	1839	983	1113	1542	22746
4 BPA To PPL S/Pwr/X	0	0	0	0	0	0	0	0	0	14444	13441	0	0	0	27885
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 PwrS	77230	103094	142159	140748	119797	125777	52542	46450	32366	34496	46014	23370	20725	35022	999790
7 BPA To PSE PwrS	0	1750	1750	1750	1750	0	0	0	0	0	0	0	0	0	7000
8 BPA To PSE WP3Set	0	34112	35424	34112	32800	17712	7872	8528	0	0	0	0	0	0	170560
9 BPA To SHPD PwrS	2021	2165	2062	2253	1918	2847	1657	1767	3147	3190	2452	1311	1483	2056	30328
10 BPA To TBL PwrS	3779	3633	3779	3633	3633	3924	1744	1889	3779	3779	3633	1889	2035	3488	44616
11 COPD To BPA PwrS	6743	7133	6558	7578	5785	10408	5566	5917	9692	10591	7094	4972	4671	5798	98505
12 EMPD To BPA PwrS	1556	1646	1513	1749	1335	2402	1284	1365	2237	2444	1637	1147	1078	1338	22732
13 Other Entities To BPA	17616	15285	12905	15906	12740	21794	11405	12056	22672	26013	21461	14376	11294	18266	233788
14 PPL To BPA S/Pwr/X	24250	23501	0	0	0	0	0	0	0	0	0	0	0	8787	56538
15 PPL To BPA S/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 SHPD To BPA PwrS	2075	2195	2018	2332	1780	3202	1713	1821	2982	3259	2183	1530	1437	1784	30309
17 Total Contracts	143353	237284	251841	253185	222009	217166	98282	95388	89463	110974	107723	53837	48656	84764	2013922
-Total Contracts Out-															
18 Federal System	91112	187525	228846	225621	200369	179359	78314	74228	51879	68667	75348	31812	30177	48792	1572050
19 Public Entities	10375	10973	10090	11658	8900	16013	8563	9103	14911	16294	10914	7649	7186	8919	151546
20 Investor-Owned Entities	32714	29986	3753	7106	3940	12290	7181	7480	13520	16861	12661	9800	6366	18605	182262
21 Other Entities	9152	8800	9152	8800	8800	9504	4224	4576	9152	9152	8800	4576	4928	8448	108064
22 Total Contracts Out	143353	237284	251841	253185	222009	217166	98282	95388	89463	110974	107723	53837	48656	84764	2013922
-Total Contracts In-															
23 Federal System	56019	53392	26773	31197	25273	41730	21711	23049	41362	46085	36008	23914	20514	39460	486487
24 Public Entities	10104	10824	10311	11266	9589	14234	8284	8833	15735	15948	12259	6553	7417	10282	151639
25 Investor-Owned Entities	77230	173068	214757	210722	187147	161201	68286	63506	32366	48940	59455	23370	20725	35022	1375795
26 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27 Total Contracts In	143353	237284	251841	253185	222009	217166	98282	95388	89463	110974	107723	53837	48656	84764	2013922

Table 2.8.2 - continued
Table A-16: Federal Intra-Regional Transfers
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-Intra-Regional Transfers-															
1 BPA To AVWP WP3Set	0	34112	34112	35424	31488	17056	8528	8528	0	0	0	0	0	0	169248
2 BPA To COPD PwrS	6702	7100	6513	7487	6135	8905	5520	5973	10228	10061	8080	4330	4821	6684	98539
3 BPA To EMPD PwrS	1546	1638	1503	1728	1416	2055	1274	1378	2360	2322	1864	999	1113	1542	22740
4 BPA To PPL S/Pwr/X	0	0	0	0	0	0	0	0	0	13889	13978	0	0	0	27867
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 PwrS	77230	103094	142159	140748	115666	125777	52542	46450	32366	34496	46014	23370	20725	35022	995659
7 BPA To PSE PwrS	0	1750	1750	1750	1750	0	0	0	0	0	0	0	0	0	7000
8 BPA To PSE WP3Set	0	34112	34112	35424	31488	17056	8528	8528	0	0	0	0	0	0	169248
9 BPA To SHPD PwrS	2062	2185	2004	2304	1888	2740	1699	1838	3147	3096	2486	1332	1483	2056	30320
10 BPA To TBL PwrS	3924	3633	3633	3779	3488	3779	1889	1889	3779	3633	3779	1889	2035	3488	44616
11 COPD To BPA PwrS	7003	7133	6306	7881	5553	10023	6029	5917	9692	10184	7378	4972	4671	5798	98539
12 EMPD To BPA PwrS	1616	1646	1455	1819	1282	2313	1391	1365	2237	2350	1703	1147	1078	1338	22740
13 Other Entities To BPA	33845	29685	26808	31518	26054	35963	19843	19544	37648	39412	37295	21864	19358	32090	410929
14 PPL To BPA S/Pwr/X	9886	9153	0	0	0	0	0	0	0	0	0	0	0	8787	27826
15 PPL To BPA S/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 SHPD To BPA PwrS	2155	2195	1940	2425	1709	3084	1855	1821	2982	3134	2270	1530	1437	1784	30320
17 Total Contracts	145969	237436	262296	272285	227917	228750	109099	103232	104439	122576	124847	61434	56720	98588	2155588
-Total Contracts Out-															
18 Federal System	91464	187624	225786	228643	193319	177368	79980	74585	51879	67497	76201	31921	30177	48792	1565235
19 Public Entities	10774	10973	9702	12124	8544	15419	9276	9103	14911	15667	11351	7649	7186	8919	151598
20 Investor-Owned Entities	18675	15638	3608	7390	3782	11835	7779	7480	13520	16212	13167	9800	6366	18605	153859
21 Other Entities	25056	23200	23200	24128	22272	24128	12064	12064	24128	23200	24128	12064	12992	22272	284896
22 Total Contracts Out	145969	237436	262296	272285	227917	228750	109099	103232	104439	122576	124847	61434	56720	98588	2155588
-Total Contracts In-															
23 Federal System	58429	53445	40143	47421	38086	55161	31008	30537	56338	58713	52425	31402	28578	53284	634968
24 Public Entities	10310	10923	10020	11518	9439	13700	8493	9190	15735	15478	12430	6662	7417	10282	151598
25 Investor-Owned Entities	77230	173068	212133	213346	180392	159889	69598	63506	32366	48385	59992	23370	20725	35022	1369022
26 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27 Total Contracts In	145969	237436	262296	272285	227917	228750	109099	103232	104439	122576	124847	61434	56720	98588	2155588

Table 2.8.3
Table A-16: Federal Intra-Regional Transfers
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
<i>-Intra-Regional Transfers-</i>															
1 BPA To AVWP WP3Set	0	38781	39794	41106	37566	19364	10164	9184	0	0	0	0	0	0	195959
2 BPA To COPD PwrS	5906	6169	6276	6090	4519	6965	4630	4704	8331	8997	8690	4103	3937	6529	85846
3 BPA To EMPD PwrS	1363	1424	1448	1405	1043	1607	1068	1086	1923	2076	2006	947	908	1507	19810
4 BPA To PPL S/Pwr/X	0	0	0	0	0	0	0	0	0	10556	11559	0	0	0	22115
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 PwrS	30834	45348	64251	65317	58174	56656	25119	20797	7633	7046	8990	5085	4083	7709	407042
7 BPA To PSE PwrS	0	7	7	7	7	0	0	0	0	0	0	0	0	0	28
8 BPA To PSE WP3Set	0	38781	39794	41106	37566	19364	10164	9184	0	0	0	0	0	0	195959
9 BPA To SHPD PwrS	1817	1898	1931	1874	1390	2143	1425	1447	2564	2768	2674	1262	1211	2009	26414
10 BPA To TBL PwrS	2979	2916	2979	3125	2689	2825	1526	1381	2979	2761	3125	1381	1453	3052	35169
11 COPD To BPA PwrS	5942	6244	6287	6025	4017	7948	5286	4121	8361	9208	8518	3947	3926	6087	85918
12 EMPD To BPA PwrS	1371	1441	1451	1390	927	1834	1220	951	1930	2125	1966	911	906	1405	19827
13 Other Entities To BPA	13959	12633	11368	12201	8367	14670	8998	8153	18081	20662	20397	9822	9382	15479	184171
14 PPL To BPA S/Pwr/X	18313	17746	0	0	0	0	0	0	0	0	0	0	0	7689	43748
15 PPL To BPA S/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 SHPD To BPA PwrS	1828	1921	1934	1854	1236	2445	1627	1268	2573	2833	2621	1215	1208	1873	26436
17 Total Contracts	84313	175309	177520	181500	157501	135821	71227	62275	54374	69033	70544	28673	27014	53338	1348444
<i>-Total Contracts Out-</i>															
18 Federal System	42900	135323	156481	160030	142954	108924	54096	47782	23430	34204	37043	12778	11593	20805	988343
19 Public Entities	9142	9606	9672	9269	6181	12227	8133	6340	12863	14167	13104	6073	6040	9365	132182
20 Investor-Owned Entities	25055	23318	4152	4633	1855	7828	5302	4809	10865	13974	12829	6478	5862	15776	142735
21 Other Entities	7216	7062	7216	7568	6512	6842	3696	3344	7216	6688	7568	3344	3520	7392	85184
22 Total Contracts Out	84313	175309	177520	181500	157501	135821	71227	62275	54374	69033	70544	28673	27014	53338	1348444
<i>-Total Contracts In-</i>															
23 Federal System	44393	42902	24019	24595	17236	29722	18657	15873	33923	37590	36625	17275	16875	35585	395270
24 Public Entities	9087	9490	9655	9369	6953	10715	7123	7237	12818	13841	13370	6312	6056	10044	132070
25 Investor-Owned Entities	30834	122917	143846	147536	133313	95384	45447	39165	7633	17602	20549	5085	4083	7709	821103
26 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27 Total Contracts In	84313	175309	177520	181500	157501	135821	71227	62275	54374	69033	70544	28673	27014	53338	1348444

Table 2.8.3 - continued
Table A-16: Federal Intra-Regional Transfers
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
<i>-Intra-Regional Transfers-</i>															
1 BPA To AVWP WP3Set	0	38781	41106	39794	36451	20020	9328	9364	0	0	0	0	0	0	194844
2 BPA To COPD PwrS	5761	6096	6506	5957	4368	7245	4481	4452	8331	9360	8514	4004	3937	6529	85540
3 BPA To EMPD PwrS	1330	1407	1501	1375	1008	1672	1034	1027	1923	2160	1965	924	908	1507	19740
4 BPA To PPL S/Pwr/X	0	0	0	0	0	0	0	0	0	11111	11022	0	0	0	22133
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 PwrS	30834	45348	64251	65317	56168	56656	25119	20797	7633	7046	8990	5085	4083	7709	405036
7 BPA To PSE PwrS	0	7	7	7	7	0	0	0	0	0	0	0	0	0	28
8 BPA To PSE WP3Set	0	38781	41106	39794	36451	20020	9328	9364	0	0	0	0	0	0	194844
9 BPA To SHPD PwrS	1773	1876	2002	1833	1344	2229	1379	1370	2564	2880	2620	1232	1211	2009	26320
10 BPA To TBL PwrS	2834	2916	3125	2979	2616	2970	1381	1381	2979	2907	2979	1381	1453	3052	34951
11 COPD To BPA PwrS	5653	6244	6593	5744	3909	8356	4783	4121	8361	9693	8121	3947	3926	6087	85540
12 EMPD To BPA PwrS	1304	1441	1522	1326	902	1928	1104	951	1930	2237	1874	911	906	1405	19740
13 Other Entities To BPA	24510	24189	24306	23442	18509	27196	13613	13625	29889	33270	31256	15294	15142	27575	321815
14 PPL To BPA S/Pwr/X	7162	7323	0	0	0	0	0	0	0	0	0	0	0	7689	22174
15 PPL To BPA S/N/X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 SHPD To BPA PwrS	1739	1921	2029	1768	1203	2571	1472	1268	2573	2982	2499	1215	1208	1873	26320
17 Total Contracts	82900	176330	194054	189335	162935	150864	73020	67720	66182	83646	79841	33992	32774	65434	1459026
<i>-Total Contracts Out-</i>															
18 Federal System	42531	135212	159604	157055	138412	110812	52049	47755	23430	35464	36090	12626	11593	20805	983436
19 Public Entities	8696	9606	10143	8838	6013	12856	7358	6340	12863	14912	12494	6073	6040	9365	131600
20 Investor-Owned Entities	13576	12894	4354	4418	1805	8230	4797	4809	10865	14710	12232	6478	5862	15776	120805
21 Other Entities	18096	18618	19952	19024	16704	18966	8816	8816	19024	18560	19024	8816	9280	19488	223184
22 Total Contracts Out	82900	176330	194054	189335	162935	150864	73020	67720	66182	83646	79841	33992	32774	65434	1459026
<i>-Total Contracts In-</i>															
23 Federal System	43202	44034	37574	35259	27138	43023	22352	21345	45731	51089	46730	22747	22635	47681	510541
24 Public Entities	8864	9379	10009	9164	6720	11146	6893	6849	12818	14400	13099	6160	6056	10044	131600
25 Investor-Owned Entities	30834	122917	146470	144912	129077	96696	43775	39525	7633	18157	20012	5085	4083	7709	816885
26 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27 Total Contracts In	82900	176330	194054	189335	162935	150864	73020	67720	66182	83646	79841	33992	32774	65434	1459026

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Table 2.9.1
Table A-24: Federal NUG Resources By Project And Project Type
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-NUG: Hydro-															
1 Dworshak/Clearwater Small Hydropower	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
2 Elwha Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 Glines Canyon Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 Rocky Brook	0	0.2	0.6	0.6	0.4	0.5	0.5	0.5	0.2	0.1	0	0	0	0	0.3
5 Total NUG: Hydro	2.7	2.8	3.2	3.2	3	3.1	3.1	3.1	2.8	2.7	2.6	2.6	2.6	2.6	2.9
-NUG: Renewables-															
6 Ashland Solar Project	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Fourmile Hill Geothermal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 White Bluffs Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Total NUG: Renewables	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total Non-Utility Generating Resources-															
10 Federal Entities	2.7	2.8	3.2	3.2	3	3.1	3.1	3.1	2.8	2.7	2.6	2.6	2.6	2.6	2.9
11 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 Total Non-Utility Generation	2.7	2.8	3.2	3.2	3	3.1	3.1	3.1	2.8	2.7	2.6	2.6	2.6	2.6	2.9

Table 2.9.1 - continued
Table A-24: Federal NUG Resources By Project And Project Type
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
-NUG: Hydro-															
1 Dworshak/Clearwater Small Hydropower	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
2 Rocky Brook	0	0.2	0.6	0.6	0.4	0.5	0.5	0.5	0.2	0.1	0	0	0	0	0.3
3 Total NUG: Hydro	2.7	2.8	3.2	3.2	3.1	3.1	3.1	3.1	2.8	2.7	2.6	2.6	2.6	2.6	2.9
-NUG: Renewables-															
4 Ashland Solar Project	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Fourmile Hill Geothermal	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	2.7	2.8	3.2	3.2	3.1	3.1	3.1	3.1	2.8	2.7	2.6	2.6	2.6	2.6	2.9
9 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Total Non-Utility Generation	2.7	2.8	3.2	3.2	3.1	3.1	3.1	3.1	2.8	2.7	2.6	2.6	2.6	2.6	2.9

Table 2.9.2
Table A-24: Federal NUG Resources By Project And Project Type
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-NUG: Hydro-															
1 Dworshak/Clearwater Small Hydropower	1094	1052	1094	1052	1052	1136	505	547	1094	1094	1052	547	589	1010	12919
2 Elwha Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 Glines Canyon Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 Rocky Brook	19	88	239	247	162	199	95	95	85	36	1	1	1	0	1268
5 Total NUG: Hydro	1113	1140	1333	1299	1214	1335	600	642	1179	1130	1053	548	590	1010	14187
-NUG: Renewables-															
6 Ashland Solar Project	1.2	0.6	0.4	0.5	0.8	1.2	0.7	0.7	1.7	1.8	1.9	0.9	1	1.5	15
7 Fourmile Hill Geothermal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 White Bluffs Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Total NUG: Renewables	1.2	0.6	0.4	0.5	0.8	1.2	0.7	0.7	1.7	1.8	1.9	0.9	1	1.5	15
-Total Non-Utility Generating Resources-															
10 Federal Entities	1114	1141	1334	1300	1215	1336	601	643	1181	1132	1055	549	591	1011	14202
11 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 Total Non-Utility Generation	1114	1141	1334	1300	1215	1336	601	643	1181	1132	1055	549	591	1011	14202

Table 2.9.2 - continued
Table A-24: Federal NUG Resources By Project And Project Type
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-NUG: Hydro-															
1 Dworshak/Clearwater Small Hydropower	1136	1052	1052	1094	1010	1094	547	547	1094	1052	1094	547	589	1010	12919
2 Rocky Brook	19	88	239	247	162	199	95	95	85	36	1	1	1	0	1268
3 Total NUG: Hydro	1155	1140	1291	1341	1172	1293	642	642	1179	1088	1095	548	590	1010	14187
-NUG: Renewables-															
4 Ashland Solar Project	1.2	0.6	0.4	0.5	0.8	1.2	0.7	0.7	1.7	1.8	2	0.9	1	1.5	15
5 Fourmile Hill Geothermal	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	1.2	0.6	0.4	0.5	0.8	1.2	0.7	0.7	1.7	1.8	2	0.9	1	1.5	15
-Total Non-Utility Generating Resources-															
8 Federal Entities	1156	1141	1291	1342	1173	1294	643	643	1181	1090	1097	549	591	1011	14202
9 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Total Non-Utility Generation	1156	1141	1291	1342	1173	1294	643	643	1181	1090	1097	549	591	1011	14202

Table 2.9.3
Table A-24: Federal NUG Resources By Project And Project Type
PNW Loads and Resource Study
2011 - 2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-NUG: Hydro-															
1 Dworshak/Clearwater Small Hydropower	863	844	863	905	778	818	442	400	863	800	905	400	421	884	10183
2 Elwha Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 Glines Canyon Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 Rocky Brook	14	61	175	181	121	149	70	70	67	26	1	0	0	0	935
5 Total NUG: Hydro	877	905	1038	1086	899	967	512	470	930	826	906	400	421	884	11118
-NUG: Renewables-															
6 Ashland Solar Project	0.9	0.5	0.3	0.5	0.6	0.9	0.6	0.5	1.4	1.3	1.7	0.7	0.7	1.3	12
7 Fourmile Hill Geothermal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 White Bluffs Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Total NUG: Renewables	0.9	0.5	0.3	0.5	0.6	0.9	0.6	0.5	1.4	1.3	1.7	0.7	0.7	1.3	12
-Total Non-Utility Generating Resources-															
10 Federal Entities	878	906	1038	1086	900	968	512	470	931	827	907	400	422	885	11130
11 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 Total Non-Utility Generation	878	906	1038	1086	900	968	512	470	931	827	907	400	422	885	11130

Table 2.9.3 - continued
Table A-24: Federal NUG Resources By Project And Project Type
PNW Loads and Resource Study
2012 - 2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

5/27/2011

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
-NUG: Hydro-															
1 Dworshak/Clearwater Small Hydropower	821	844	905	863	757	860	400	400	863	842	863	400	421	884	10120
2 Rocky Brook	14	61	175	181	121	149	70	70	67	26	1	0	0	0	935
3 Total NUG: Hydro	835	905	1080	1044	878	1009	470	470	930	868	864	400	421	884	11055
-NUG: Renewables-															
4 Ashland Solar Project	0.9	0.5	0.4	0.4	0.6	0.9	0.5	0.5	1.4	1.4	1.6	0.7	0.7	1.3	12
5 Fourmile Hill Geothermal	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	0.9	0.5	0.4	0.4	0.6	0.9	0.5	0.5	1.4	1.4	1.6	0.7	0.7	1.3	12
-Total Non-Utility Generating Resources-															
8 Federal Entities	835	906	1080	1044	879	1010	470	470	931	869	865	400	422	885	11067
9 Public Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Investor-Owned Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Total Non-Utility Generation	835	906	1080	1044	879	1010	470	470	931	869	865	400	422	885	11067

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2.10	Total PNW Regional Hydro Resources	99
	Table 2.10.1 FY 2012 Total PNW Regional Resources	100
	Table 2.10.2 FY 2013 Total PNW Regional Resources	102

Table 2.10.1
Pacific Northwest Regional Hydro Resources
Includes Regulated, Independent, and NUG Hydro
2011-2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)
Energy in Average Maegawatts

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr 1	Apr 16	May	Jun	Jul	Aug 1	Aug 16	Sep	Avg
1929	11,320	12,999	12,920	12,185	12,033	10,525	11,968	12,969	15,052	16,127	12,721	12,607	10,727	11,241	12,599
1930	9,982	11,688	12,510	12,951	11,789	10,982	11,355	11,863	14,263	13,496	13,781	12,360	10,885	10,879	12,132
1931	9,520	12,348	12,751	12,980	11,925	8,664	11,479	9,540	15,894	11,962	12,970	10,915	9,589	10,733	11,710
1932	9,692	11,002	12,943	11,586	10,639	13,348	15,407	20,715	21,842	21,869	14,083	12,984	11,400	11,502	14,063
1933	10,606	12,504	15,601	17,749	17,020	15,663	16,616	15,378	19,450	22,639	20,883	16,317	14,831	11,614	16,275
1934	13,197	18,180	23,169	24,400	22,244	18,985	21,730	20,291	20,458	18,319	13,903	11,162	10,564	10,502	17,922
1935	10,277	12,092	13,619	17,068	16,845	13,601	16,618	14,830	18,797	17,386	16,528	14,021	11,846	10,419	14,600
1936	10,141	12,189	12,763	11,030	11,554	10,935	13,565	19,192	21,497	20,184	13,939	12,886	11,033	10,650	13,597
1937	9,880	12,011	12,561	12,615	11,491	10,237	10,513	9,496	15,682	15,475	13,911	12,531	10,583	10,872	12,194
1938	10,226	12,210	14,740	17,141	16,022	15,262	18,589	20,982	21,780	19,165	15,942	12,464	11,222	10,917	15,413
1939	10,838	12,310	13,348	13,242	12,315	11,828	17,548	17,109	20,127	15,700	14,047	11,861	10,370	11,130	13,610
1940	10,497	12,225	13,916	12,423	13,120	14,263	16,960	17,574	18,547	16,819	12,892	11,011	9,857	10,282	13,551
1941	10,815	11,608	13,551	11,828	11,713	10,814	11,903	12,897	16,381	14,333	13,541	11,677	10,852	11,002	12,441
1942	10,076	12,593	15,510	16,659	12,556	10,882	12,341	16,462	17,645	19,449	17,265	13,365	11,973	12,079	14,320
1943	10,562	12,292	14,244	18,925	17,944	14,599	23,014	23,073	21,689	22,456	16,891	12,901	12,031	11,267	16,345
1944	10,594	12,566	13,138	12,586	12,142	11,361	11,887	13,913	14,439	12,130	12,283	11,232	10,456	10,754	12,144
1945	9,727	11,799	12,019	12,413	11,299	10,190	9,881	8,971	18,859	18,199	12,693	12,788	11,113	11,050	12,471
1946	9,879	12,516	14,901	16,872	15,047	15,774	19,782	21,870	22,112	20,777	16,717	13,396	11,971	11,633	15,807
1947	10,720	13,716	19,898	20,827	20,701	17,122	17,837	17,329	20,316	20,689	16,953	13,161	12,287	11,182	16,858
1948	15,649	16,369	17,039	20,416	16,940	14,473	17,334	19,831	22,860	22,994	18,900	16,078	14,866	12,145	17,657
1949	11,662	13,191	14,646	15,763	13,041	17,628	19,435	20,990	22,538	20,548	13,667	11,532	10,158	10,852	15,384
1950	10,356	12,582	13,535	20,194	19,062	19,791	20,993	19,586	21,152	21,784	18,661	15,969	14,467	11,687	17,017
1951	13,501	17,590	21,312	23,423	22,919	21,216	21,542	20,961	21,680	20,233	19,246	15,211	12,973	11,988	19,027
1952	14,639	15,055	17,449	19,250	17,420	15,965	20,762	21,849	22,762	20,799	16,707	13,202	12,222	10,791	17,069
1953	10,211	12,041	13,363	15,179	15,699	14,196	15,743	16,058	20,899	22,435	19,020	14,334	13,058	11,602	15,348
1954	11,581	13,706	16,737	20,390	19,319	16,021	18,733	17,687	21,226	21,714	21,811	17,559	17,559	15,342	17,799
1955	11,839	15,185	15,542	14,068	12,194	11,460	12,611	14,141	18,409	22,653	21,604	16,298	13,519	11,475	15,234
1956	12,302	16,456	20,554	23,225	21,637	19,650	20,455	22,678	22,400	23,150	19,903	14,230	13,013	11,431	18,815
1957	12,312	13,177	16,802	16,430	13,662	16,202	21,365	17,905	23,265	22,846	14,838	12,565	11,125	11,178	16,019
1958	10,607	12,665	13,313	17,507	16,965	14,600	18,595	18,762	22,793	21,538	14,632	12,687	11,579	10,985	15,520
1959	10,330	14,622	18,745	21,686	20,114	17,583	19,471	17,526	20,129	21,634	17,277	15,655	13,500	16,087	17,589
1960	17,324	18,391	18,820	18,534	16,130	15,881	23,121	19,984	19,716	20,087	16,339	13,339	12,143	10,704	17,184
1961	10,938	13,617	14,608	17,960	17,726	18,060	18,421	15,819	20,554	21,715	14,881	12,627	11,446	11,278	15,861
1962	9,720	12,529	14,163	16,534	15,444	11,447	21,815	21,835	20,817	20,644	13,179	12,749	11,919	10,906	14,942
1963	11,563	14,956	18,345	17,981	16,897	14,226	14,772	15,124	18,997	18,982	16,533	13,339	11,870	11,435	15,619
1964	10,635	12,901	14,887	15,199	14,019	11,989	18,943	15,744	20,041	23,089	20,590	16,051	13,202	12,668	15,662
1965	12,652	14,259	20,571	24,519	22,431	19,047	17,445	22,289	21,808	20,309	16,718	15,486	14,380	11,097	18,179
1966	11,860	13,615	15,155	16,328	14,770	11,717	21,453	17,057	19,179	18,126	16,887	13,410	12,421	11,447	15,100
1967	10,258	12,351	15,616	21,309	20,547	16,563	16,176	12,708	20,207	22,396	18,096	14,492	12,204	11,296	16,356
1968	11,810	13,933	15,479	19,613	18,255	16,517	14,385	13,410	17,062	20,153	17,790	14,990	13,861	13,906	16,063
1969	13,181	16,445	17,513	22,362	20,578	16,463	21,390	21,568	22,674	20,934	17,442	12,948	11,505	11,180	17,691

Table 2.10.1 - continued
Pacific Northwest Regional Hydro Resources
Includes Regulated, Independent, and NUG Hydro
2011-2012 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)
Energy in Average Maegawatts

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr 1	Apr 16	May	Jun	Jul	Aug 1	Aug 16	Sep	Avg
1970	10,953	13,173	13,387	17,109	14,942	13,684	16,720	14,761	19,795	21,368	14,731	13,223	11,562	11,214	14,866
1971	10,276	12,177	13,713	23,062	24,119	18,798	20,696	20,030	22,499	23,074	20,904	16,920	14,299	11,950	18,020
1972	12,118	13,885	15,807	22,655	22,690	24,697	23,164	19,320	22,472	23,055	21,283	17,690	16,361	12,803	19,137
1973	11,678	13,596	15,862	16,908	13,252	11,820	11,320	13,228	16,792	16,243	13,125	11,856	10,439	11,352	13,675
1974	9,944	12,263	16,173	26,023	24,178	21,429	21,919	22,234	21,965	22,815	22,228	16,681	15,170	11,928	18,898
1975	10,489	13,084	14,870	18,544	16,400	15,026	15,196	15,363	21,435	22,518	21,376	14,686	13,846	12,649	16,331
1976	13,457	17,218	22,774	22,165	20,955	19,569	21,524	21,039	22,180	21,383	19,996	18,312	18,248	16,696	19,661
1977	11,527	12,993	12,920	12,416	12,218	11,416	10,718	13,022	13,403	11,585	11,238	11,206	9,855	9,516	11,802
1978	9,559	11,651	16,349	16,047	15,373	14,141	20,367	16,835	20,524	17,537	16,922	12,974	11,787	14,300	15,277
1979	11,720	12,926	13,169	15,105	12,528	15,232	14,432	15,572	20,944	16,277	13,305	11,041	10,215	10,852	13,983
1980	9,795	11,888	12,617	13,479	12,784	10,896	17,424	18,940	22,509	20,937	13,708	12,177	10,584	11,147	14,100
1981	10,856	12,982	19,833	20,372	18,079	15,530	12,599	15,176	19,278	22,301	18,772	16,012	14,909	11,561	16,581
1982	11,185	13,866	16,600	18,466	23,433	22,099	19,490	17,682	21,787	22,208	19,204	16,190	14,869	13,653	18,030
1983	13,131	14,319	17,339	21,167	19,340	20,889	19,803	18,091	21,687	20,801	19,149	15,923	13,867	12,345	17,836
1984	11,594	17,630	17,018	21,074	19,585	17,827	21,618	20,379	20,299	21,920	18,416	13,792	12,625	11,644	17,584
1985	11,428	14,601	15,093	17,212	14,023	11,693	18,689	18,792	21,405	18,109	11,900	10,842	9,794	10,634	14,588
1986	10,700	14,872	13,537	17,840	18,671	23,881	20,496	19,683	18,805	19,698	15,119	13,013	11,507	11,319	16,383
1987	9,841	13,249	14,883	13,674	11,411	14,008	13,724	15,012	20,241	16,931	12,652	10,717	9,226	10,885	13,515
1988	9,270	11,430	12,439	12,159	11,158	10,755	10,965	13,969	16,183	14,634	13,183	11,585	10,449	10,186	12,076
1989	9,414	12,200	13,352	13,423	12,618	13,004	18,189	20,214	19,506	17,857	13,383	12,063	10,701	11,181	13,868
1990	9,747	13,306	15,612	19,085	18,254	14,880	16,686	20,761	19,290	20,722	16,094	14,361	12,660	11,359	15,865
1991	9,684	17,553	17,260	20,003	19,725	16,174	18,982	17,262	20,508	19,623	19,758	16,224	14,596	11,607	17,107
1992	9,751	12,634	13,350	14,790	12,772	15,120	12,434	13,466	16,001	15,498	11,931	10,288	9,178	9,917	12,871
1993	9,439	11,959	13,004	12,930	9,618	11,022	13,663	13,461	19,850	16,706	14,644	12,237	11,223	10,884	12,959
1994	9,652	12,612	13,177	13,363	12,602	11,459	11,146	14,525	16,375	15,829	12,583	11,507	9,993	10,719	12,658
1995	9,157	11,629	12,591	13,340	16,533	16,507	18,519	15,167	19,044	20,348	16,582	12,493	11,481	11,854	14,684
1996	11,720	19,207	24,770	24,864	24,975	22,064	21,055	23,299	22,255	21,607	20,379	15,978	13,395	10,948	19,956
1997	11,381	13,891	16,971	25,050	23,886	22,983	21,418	22,795	22,110	22,896	21,221	16,314	14,496	14,006	19,309
1998	16,428	16,176	16,272	17,477	16,470	15,449	15,781	17,431	22,239	21,895	16,289	13,320	11,506	12,225	16,660

Table 2.10.2
Pacific Northwest Regional Hydro Resources
Includes Regulated, Independent, and NUG Hydro
2012-2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)
Energy in Average Maegawatts

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr 1	Apr 16	May	Jun	Jul	Aug 1	Aug 16	Sep	Avg
1929	11,320	13,000	12,922	12,185	12,035	10,525	11,968	12,969	15,047	16,064	12,721	12,607	10,727	11,241	12,595
1930	9,982	11,688	12,511	12,951	11,791	10,982	11,356	11,863	14,262	13,485	13,781	12,359	10,885	10,879	12,132
1931	9,520	12,348	12,752	12,980	11,927	8,664	11,479	9,539	15,853	11,962	12,970	10,914	9,589	10,733	11,706
1932	9,692	11,002	12,944	11,587	10,641	13,348	15,407	20,689	21,704	21,291	14,083	12,984	11,400	11,502	14,012
1933	10,606	12,504	15,602	17,749	17,022	15,663	16,616	15,378	19,391	22,003	20,742	16,292	14,831	11,614	16,203
1934	13,197	18,158	23,110	24,333	22,185	18,948	21,609	20,213	20,346	18,124	13,903	11,161	10,564	10,502	17,856
1935	10,278	12,092	13,621	17,481	16,302	13,601	16,619	14,830	18,768	17,296	16,491	14,021	11,846	10,419	14,574
1936	10,141	12,189	12,764	11,030	11,556	10,936	13,566	19,191	21,429	19,749	13,939	12,886	11,033	10,651	13,561
1937	9,880	12,011	12,562	12,615	11,492	10,237	10,514	9,495	15,678	15,448	13,912	12,531	10,583	10,872	12,193
1938	10,226	12,210	14,741	17,525	15,935	14,871	18,586	20,953	21,699	18,900	15,915	12,463	11,222	10,917	15,372
1939	10,838	12,310	13,350	13,242	12,317	11,828	17,549	17,108	20,102	15,697	14,048	11,861	10,370	11,130	13,612
1940	10,497	12,225	13,917	12,423	13,121	14,263	16,960	17,565	18,533	16,760	12,893	11,011	9,857	10,282	13,546
1941	10,815	11,608	13,552	11,828	11,714	10,814	11,903	12,897	16,359	14,314	13,541	11,676	10,852	11,002	12,440
1942	10,076	12,593	15,512	16,659	12,558	10,882	12,341	16,461	17,604	19,130	17,208	13,365	11,973	12,079	14,290
1943	10,562	12,292	14,245	18,914	17,935	14,599	22,857	22,889	21,605	21,752	16,831	12,901	12,031	11,267	16,255
1944	10,594	12,566	13,139	12,586	12,144	11,361	11,887	13,912	14,437	12,130	12,283	11,231	10,457	10,754	12,144
1945	9,727	11,799	12,020	12,413	11,301	10,190	9,882	8,971	18,850	18,020	12,693	12,787	11,114	11,050	12,459
1946	9,879	12,516	14,902	16,873	15,049	15,774	19,741	21,908	21,968	20,089	16,509	13,395	11,971	11,633	15,722
1947	10,720	13,716	19,889	20,796	20,691	17,123	17,837	17,328	20,280	20,208	16,898	13,161	12,287	11,182	16,797
1948	15,627	16,369	17,040	20,406	16,931	14,473	17,334	19,805	22,563	22,322	18,786	16,052	14,866	12,145	17,564
1949	11,662	13,191	14,648	15,764	13,042	17,617	19,417	20,946	22,372	20,066	13,667	11,532	10,158	10,852	15,334
1950	10,356	12,582	13,536	20,166	19,052	19,780	20,953	19,566	21,086	21,240	18,552	15,963	14,467	11,687	16,945
1951	13,501	17,579	21,302	23,376	22,910	21,180	21,468	20,881	21,560	19,805	19,106	15,211	12,973	11,988	18,943
1952	14,631	15,055	17,451	19,240	17,910	15,437	20,716	21,797	22,552	20,300	16,659	13,202	12,222	10,791	16,992
1953	10,212	12,041	13,364	15,179	15,902	14,001	15,744	16,058	20,832	22,082	18,908	14,334	13,059	11,602	15,302
1954	11,581	13,706	16,738	20,379	19,310	16,021	18,733	17,686	21,153	21,067	21,615	17,534	17,534	15,320	17,713
1955	11,839	15,185	15,543	14,069	12,196	11,460	12,611	14,140	18,330	22,043	21,418	16,272	13,519	11,475	15,169
1956	12,302	16,456	20,544	23,203	21,577	19,639	20,389	22,562	22,187	22,413	19,774	14,230	13,013	11,431	18,702
1957	12,312	13,177	16,804	16,431	13,664	16,202	21,341	17,900	22,916	22,050	14,839	12,564	11,125	11,178	15,930
1958	10,607	12,665	13,314	17,500	16,956	14,600	18,595	18,762	22,521	20,944	14,632	12,686	11,579	10,985	15,444
1959	10,330	14,622	18,735	21,665	20,104	17,583	19,471	17,500	20,013	21,151	17,209	15,630	13,501	16,065	17,519
1960	17,302	18,368	18,810	18,526	16,132	15,881	23,012	19,921	19,672	19,704	16,302	13,339	12,143	10,704	17,136
1961	10,938	13,617	14,609	17,950	17,717	18,049	18,421	15,818	20,467	21,205	14,878	12,627	11,446	11,278	15,804
1962	9,720	12,529	14,165	16,535	15,446	11,447	21,736	21,776	20,777	20,016	13,180	12,749	11,919	10,906	14,880
1963	11,563	14,956	18,336	17,970	16,888	14,226	14,772	15,123	18,982	18,734	16,498	13,338	11,870	11,435	15,589
1964	10,635	12,901	14,889	15,199	14,021	11,989	18,943	15,743	19,966	22,409	20,464	16,026	13,202	12,668	15,593
1965	12,652	14,259	20,561	24,452	22,395	19,036	17,425	22,233	21,675	19,861	16,684	15,460	14,379	10,927	18,088
1966	11,860	13,615	15,157	16,328	14,772	11,717	21,394	17,042	19,135	17,958	16,822	13,410	12,421	11,447	15,075
1967	10,258	12,351	15,618	21,262	20,538	16,563	16,176	12,707	20,142	21,843	17,965	14,466	12,204	11,296	16,277
1968	11,810	13,933	15,480	19,603	18,668	16,054	14,386	13,410	17,001	19,789	17,685	14,964	13,861	13,895	16,003
1969	13,181	16,445	17,514	22,340	20,559	16,463	21,341	21,493	22,405	20,380	17,348	12,948	11,505	11,180	17,598

Table 2.10.2 - continued
Pacific Northwest Regional Hydro Resources
Includes Regulated, Independent, and NUG Hydro
2012-2013 Fiscal Year
[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)
Energy in Average Megawatts

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr 1	Apr 16	May	Jun	Jul	Aug 1	Aug 16	Sep	Avg
1970	10,953	13,173	13,389	17,098	15,146	13,489	16,720	14,761	19,759	20,944	14,732	13,223	11,562	11,214	14,826
1971	10,276	12,177	13,714	23,041	24,038	18,798	20,650	19,977	22,298	22,343	20,771	16,895	14,299	11,950	17,902
1972	12,118	13,885	15,808	22,608	22,681	24,628	23,027	19,253	22,276	22,327	21,128	17,665	16,336	12,803	19,017
1973	11,678	13,596	15,863	16,908	13,254	11,820	11,320	13,227	16,777	16,205	13,125	11,855	10,439	11,352	13,672
1974	9,944	12,263	16,174	25,940	24,098	21,418	21,817	22,119	21,824	22,123	22,063	16,655	15,170	11,836	18,769
1975	10,489	13,084	14,871	18,533	16,401	15,026	15,196	15,363	21,348	21,845	21,185	14,686	13,846	12,649	16,251
1976	13,457	17,218	22,764	22,143	20,946	19,558	21,457	20,967	22,049	20,805	19,838	18,286	18,223	16,623	19,567
1977	11,527	12,993	12,922	12,417	12,220	11,416	10,718	13,022	13,401	11,585	11,238	11,206	9,855	9,516	11,801
1978	9,559	11,651	16,340	16,047	15,374	14,141	20,325	16,834	20,495	17,420	16,883	12,974	11,787	14,278	15,257
1979	11,720	12,926	13,170	15,106	12,529	15,232	14,432	15,571	20,911	16,294	13,305	11,040	10,215	10,852	13,986
1980	9,795	11,888	12,618	13,479	12,786	10,896	17,424	18,922	22,272	20,464	13,708	12,176	10,584	11,147	14,044
1981	10,856	12,982	19,823	20,350	18,070	15,530	12,600	15,175	19,241	21,718	18,635	15,986	14,883	11,561	16,509
1982	11,185	13,866	16,602	18,455	23,397	22,078	19,477	17,670	21,641	21,586	19,061	16,164	14,869	13,635	17,931
1983	13,131	14,319	17,340	21,145	19,331	20,869	19,763	18,072	21,589	20,318	19,038	15,897	13,867	12,345	17,767
1984	11,594	17,620	17,020	21,057	19,576	17,816	21,559	20,322	20,266	21,453	18,296	13,791	12,625	11,644	17,518
1985	11,428	14,601	15,094	17,212	14,024	11,693	18,690	18,791	21,385	17,966	11,901	10,842	9,794	10,634	14,577
1986	10,700	14,872	13,538	17,829	18,655	23,812	20,428	19,633	18,772	19,362	15,113	13,013	11,507	11,319	16,333
1987	9,841	13,249	14,884	13,674	11,413	14,008	13,725	15,020	20,235	16,882	12,652	10,716	9,181	10,871	13,514
1988	9,270	11,430	12,440	12,159	11,160	10,755	10,965	13,968	16,170	14,612	13,183	11,584	10,449	10,186	12,076
1989	9,414	12,200	13,353	13,424	12,620	13,004	18,170	20,169	19,447	17,720	13,384	12,063	10,701	11,181	13,853
1990	9,747	13,306	15,613	19,413	17,789	14,880	16,686	20,777	19,344	20,185	16,054	14,355	12,660	11,359	15,808
1991	9,684	17,553	17,261	20,322	19,660	15,685	18,982	17,237	20,486	19,244	19,597	16,198	14,579	11,607	17,031
1992	9,751	12,634	13,352	14,791	12,774	15,120	12,434	13,465	15,998	15,483	11,931	10,288	9,178	9,917	12,870
1993	9,440	11,959	13,005	12,930	9,620	11,022	13,663	13,460	19,844	16,676	14,638	12,237	11,223	10,884	12,965
1994	9,652	12,612	13,179	13,364	12,604	11,459	11,146	14,524	16,371	15,797	12,583	11,507	9,993	10,719	12,655
1995	9,157	11,629	12,592	13,341	16,523	16,507	18,519	15,166	19,027	19,959	16,539	12,492	11,481	11,854	14,641
1996	11,720	19,190	24,695	24,797	24,889	22,027	20,955	23,174	22,145	20,950	20,179	15,953	13,395	10,948	19,829
1997	11,381	13,891	16,972	24,966	23,800	22,913	21,312	22,637	21,929	22,186	21,085	16,288	14,496	13,994	19,179
1998	16,406	16,176	16,273	17,478	16,804	15,121	15,781	17,431	22,063	21,222	16,289	13,320	11,506	12,225	16,586

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2.11 Estimated Purchase MW Eligible For 4(h)(10)C Credit.....105
4(h)(10)C Power Purchase Amount.....106

Table 2.11
4(h)(10)(C) Power Purchase Amounts
Energy in Average Megawatts

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr 1	Apr 16	May	Jun	Jul	Aug 1	Aug 16	Sep
1929	1,064	664	1,640	2,052	1,856	1,644	825	569	333	0	25	-136	72	413
1930	1,296	703	1,685	1,857	1,527	1,102	438	1,301	413	754	0	448	236	-37
1931	1,031	238	1,794	2,419	1,196	2,630	580	2,678	-128	1,367	0	78	474	589
1932	680	802	1,728	2,645	2,343	785	0	0	0	0	0	0	0	-96
1933	1,119	1,218	90	0	0	0	0	0	0	0	0	0	0	326
1934	136	0	0	0	0	0	0	0	0	-376	0	791	0	-94
1935	768	1,943	1,783	243	0	0	0	913	0	0	-149	0	0	1,025
1936	1,261	630	1,648	3,144	1,652	1,541	0	0	0	0	0	0	0	816
1937	1,354	292	1,463	1,757	2,036	1,665	1,507	2,395	0	174	-378	-488	-26	-208
1938	913	1,443	778	258	0	0	0	0	0	0	-296	70	-172	365
1939	961	849	1,841	1,701	1,602	1,055	0	0	0	-346	0	347	337	591
1940	926	168	659	2,031	1,151	0	0	0	0	0	0	1,183	526	-56
1941	219	900	1,275	2,727	1,185	1,135	380	0	0	96	0	0	0	-33
1942	646	92	71	0	1,629	2,287	0	0	0	0	0	0	0	-161
1943	587	1,527	1,162	0	0	0	0	0	0	0	0	0	0	791
1944	1,309	704	1,735	1,885	1,509	1,011	882	0	333	1,821	114	24	222	99
1945	840	498	2,315	2,404	2,673	1,683	1,031	2,630	0	0	-331	-590	-298	-272
1946	1,045	742	930	399	0	0	0	0	0	0	0	0	0	227
1947	1,350	625	0	0	0	0	0	0	0	0	0	0	0	454
1948	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1949	796	783	651	0	1,231	0	0	0	0	0	-405	356	219	48
1950	814	796	1,495	0	0	0	0	0	0	0	0	0	0	291
1951	204	0	0	0	0	0	0	0	0	0	0	0	0	297
1952	0	0	0	0	0	0	0	0	0	0	0	0	0	995
1953	1,346	764	1,649	1,015	59	0	0	0	0	0	0	0	0	361
1954	803	514	0	0	0	0	0	0	0	0	0	0	0	0
1955	779	0	95	1,326	1,731	893	616	-78	0	0	0	0	0	663
1956	713	0	0	0	0	0	0	0	0	0	0	0	0	453
1957	616	819	0	0	1,285	0	0	0	0	0	0	203	-37	439
1958	1,152	600	1,614	0	0	0	0	0	0	0	-67	-83	0	475
1959	1,338	0	0	0	0	0	0	0	0	0	0	0	0	0
1960	0	0	0	0	0	0	0	0	0	0	-285	0	0	862
1961	966	667	611	0	0	0	0	0	0	0	-344	-137	0	601
1962	1,633	680	710	0	0	890	0	0	0	0	-30	-82	0	812
1963	558	0	0	0	0	0	0	-88	0	0	0	0	0	244
1964	1,164	1,029	494	895	561	675	0	0	0	0	0	0	0	0
1965	96	0	0	0	0	0	0	0	0	0	0	0	0	778
1966	555	256	127	0	0	1,414	0	0	0	0	0	0	0	694
1967	1,192	970	229	0	0	0	0	735	0	0	0	0	0	326
1968	859	250	167	0	0	0	0	-573	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	-182	0	0	464

Table 2.11
4(h)(10)(C) Power Purchase Amounts
Energy in Average Megawatts

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr 1	Apr 16	May	Jun	Jul	Aug 1	Aug 16	Sep
1970	1,028	454	1,514	0	226	0	0	-670	0	0	0	-156	0	839
1971	1,274	846	1,327	0	0	0	0	0	0	0	0	0	0	0
1972	670	579	127	0	0	0	0	0	0	0	0	0	0	0
1973	813	397	426	0	1,171	700	1,209	-211	0	0	-27	678	536	-11
1974	890	1,071	398	0	0	0	0	0	0	0	0	0	0	0
1975	1,537	673	937	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	751	539	1,500	1,912	1,282	844	1,378	160	1,067	2,052	458	-272	542	833
1978	1,030	1,046	-195	0	0	474	0	0	0	0	0	0	0	0
1979	36	623	1,692	982	1,350	0	0	223	0	-605	-27	761	302	212
1980	979	1,024	1,853	2,567	1,243	1,793	0	0	0	0	-298	227	59	0
1981	475	736	0	0	0	0	-35	477	0	0	0	0	0	195
1982	939	103	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	39	0	0	0	0	0	0	0	0	0	0	0	0
1984	786	0	0	0	0	0	0	0	0	0	0	0	0	213
1985	966	178	326	0	456	1,332	0	0	0	0	352	1,088	672	173
1986	951	7	1,058	10	0	0	0	0	0	0	-232	0	-62	803
1987	1,661	412	321	1,682	2,285	-133	0	0	0	-230	59	882	624	-63
1988	1,238	1,174	2,165	3,134	1,553	1,745	17	1,226	-77	631	-143	392	0	-62
1989	1,111	888	1,453	2,705	954	571	0	0	0	-1,030	-1,071	277	169	-10
1990	1,161	808	255	0	0	0	0	0	0	0	-296	0	0	674
1991	1,683	0	0	0	0	0	0	0	0	0	0	0	0	546
1992	1,515	730	1,364	691	1,861	-131	-628	-118	0	0	433	1,496	840	0
1993	940	532	1,843	2,441	2,420	1,476	69	374	0	0	0	-188	-60	-408
1994	1,335	609	1,404	2,828	737	1,457	213	1,210	0	-191	303	308	96	-210
1995	1,262	1,263	1,949	2,840	0	0	0	664	0	0	0	0	0	-182
1996	732	0	0	0	0	0	0	0	0	0	0	0	0	841
1997	999	480	0	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0	0	-97	210
Average	855	534	745	722	582	436	121	197	28	59	-40	107	74	259

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Table 2.12.1
Federal Tier 1 System Firm Critical Output Projection
PNW Loads and Resource Study
2012-2013 Fiscal Years
CHWM Process - Study 75

1.	T1SFCO Projections Energy in aMW	2012	2013	Average
2.	Total Federal System Hydro Generation (Table 2.12.2)	6,943	6,942	6,942
3.	Total Designated Non-Federally Owned Resources (Table 2.12.3)	1,103	951	1,027
4.	Total Designated BPA Contract Purchases (Table 2.12.4)	387	385	386
5.	Total Designated System Obligations (Table 3.12.5)	-1,231	-1,210	-1,221
6.	<i>Federal Tier 1 System Firm Critical Output</i>	7,202	7,067	7,135

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Table 2.12.2
Federal System Hydro Generation for use in the T1SFCO Calculation
Corresponds with TRM Table 3.1
PNW Loads and Resources Study
2012-2013 Fiscal Years
CHWM Process - Study 75

1.	Regulated Hydro	2012	2013	Average
2.	Albeni Falls	26.6	26.6	26.6
3.	Bonneville Hydro	416.4	416.0	416.2
4.	Chief Joseph Hydro	1,111.9	1,112.0	1,112.0
5.	Dworshak Hydro	147.8	148.1	148.0
6.	Grand Coulee Hydro	1,936.1	1,936.6	1,936.4
7.	Hungry Horse	89.4	89.4	89.4
8.	Ice Harbor Hydro	166.1	166.2	166.1
9.	John Day Hydro	816.2	816.1	816.2
10.	Libby	176.9	177.2	177.1
11.	Little Goose Hydro	190.3	190.5	190.4
12.	Lower Granite Hydro	188.4	188.5	188.5
13.	Lower Monumental Hydro	188.4	188.6	188.5
14.	Mc Nary Hydro	498.4	495.8	497.1
15.	The Dalles Hydro	612.0	611.7	611.8
16.	Independent Hydro			
17.	Anderson Ranch	14.6	14.7	14.7
18.	Big Cliff	10.2	10.3	10.3
19.	Black Canyon	8.1	8.1	8.1
20.	Boise River Diversion	1.3	1.3	1.3
21.	Bonneville Fishway (included in Bonneville H/K)	0.0	0.0	0.0
22.	Chandler	8.6	8.6	8.6
23.	Cougar	16.5	16.6	16.6
24.	Cowlitz Falls	26.2	26.2	26.2
25.	Detroit	41.9	41.9	41.9
26.	Dexter	9.2	9.2	9.2
27.	Foster	12.5	12.5	12.5
28.	Green Peter	27.5	27.6	27.6
29.	Green Springs - USBR	5.8	5.8	5.8
30.	Hills Creek	18.0	18.0	18.0
31.	Idaho Falls - Upper, City, and Lower Plants	4.5	4.5	4.5
32.	Idaho Falls - Upper, City, and Lower Plants	4.7	4.7	4.7
33.	Idaho Falls - Upper, City, and Lower Plants	4.8	4.8	4.8
34.	Lookout Point	36.3	36.4	36.4
35.	Lost Creek	28.6	28.7	28.6
36.	Minidoka	16.4	16.4	16.4
37.	Palisades	74.1	74.2	74.2
38.	Roza	7.9	7.9	7.9
39.	Total Federal System Hydro Generation	6,942.9	6,941.9	6,942.4

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Table 2.12.3
Designated Non-Federally Owned Resources for use in the T1SFCO Calculation
Corresponds with TRM Table 3.2
PNW Loads and Resources Study
2012-2013 Fiscal Years
CHWM Process - Study 75

1.	Project	2012	2013	Average
2.	Ashland Solar Project	0.0	0.0	0.0
3.	Columbia Generating Station	1,030.0	877.6	953.8
4.	Condon Wind Project	10.4	10.5	10.4
5.	Dworshak/Clearwater Small Hydropower	2.6	2.6	2.6
6.	Elwha Hydro (Generation off-line beginning 6/1/2011)	0.0	0.0	0.0
7.	Foote Creek 1	5.1	5.1	5.1
8.	Foote Creek 2	0.6	0.6	0.6
9.	Foote Creek 4	5.6	5.6	5.6
10.	Fourmile Hill Geothermal (Not included)	0.0	0.0	0.0
11.	Georgia-Pacific Paper (Wauna)	19.2	19.2	19.2
12.	Glines Canyon Hydro (Generation off-line beginning 6/1/2011)	0.0	0.0	0.0
13.	Klondike I	7.6	7.7	7.6
14.	Stateline Wind Project	21.9	21.9	21.9
15.	White Bluffs Solar	0.0	0.0	0.0
16.	Total Designated Non-Federally Owned Resources	1,103.1	950.7	1,026.9

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Table 2.12.4
Designated BPA Contract Purchases for use in the T1SFCO Calculation
Corresponds with TRM Table 3.3
PNW Loads and Resources Study
2012-2013 Fiscal Years
CHWM Process - Study 75

1.	Contract Purchases	Contract #	2012	2013	Average
2.	Priest Rapids CER for Canada	97PB-10099	30.0	29.4	29.7
3.	Rock Island #1 CER for Canada	97PB-10102	11.3	11.1	11.2
4.	Rock Island #2 CER for Canada	97PB-10102	7.2	7.0	7.1
5.	Rock Reach CER for Canada	97PB-10103	38.5	37.7	38.1
6.	Wanapum CER for Canada	97PB-10100	29.0	28.5	28.8
7.	Wells CER for Canada	97PB-10101	24.6	24.1	24.4
8.	BCHP to BPA PwrS	99PB-22685	1.0	1.0	1.0
9.	PASA to BPA Pk Repl	94BP-93658	1.1	1.1	1.1
10.	PASA to BPA S/N/X	94BP-93658	0.4	0.4	0.4
11.	PASA to BPA Xchg Nrg	94BP-93658	1.9	1.9	1.9
12.	PPL to BPA So Idaho	89BP-92524	160.2	159.9	160.0
13.	RVSD to BPA Pk Repl	94BP-93958	4.8	4.9	4.9
14.	RVSD to BPA Seas Xchg	94BP-93958	4.3	4.3	4.3
15.	RVSD to BPA Xchg Nrg	94BP-93958	7.3	7.3	7.3
16.	SPP to BPA Harney Wells	88BP-92436	60.0	60.0	60.0
17.	PPL to BPA SNX (Spring Return)	94BP-94332	0.0	0.0	0.0
18.	PPL to BPA SPX (Summer Return)	94BP-94332	5.7	5.7	5.7
19.	Total Designated BPA Contract Purchases		387.3	384.6	385.9

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Table 2.12.5
Designated BPA System Obligations for use in the T1SFCO Calculation
Corresponds with TRM Table 3.4
PNW Loads and Resources Study
2012-2013 Fiscal Years
CHWM Process - Study 75

1.	System Obligation	Contract #	2012	2013	Average
2.	BPA to BRCJ Chief Joseph	14-03-17506; 14-03-49151	135.2	135.5	135.4
3.	BPA to BRCB Columbia Basin Project	lbp-4512; 14-03-001-12160	8.1	8.2	8.1
4.	BPA to BRRCR Crooked River Project	14-03-73152	1.1	1.1	1.1
5.	BPA to BROP Owyhee Project	EW-78-Y-83-00019	3.4	3.4	3.4
6.	BPA to BRRP Rathdrum Prairie Project	14-03-49151	0.7	0.7	0.7
7.	BPA to BRSID Southern Idaho Projects	EW-78-Y-83-00019	19.5	19.6	19.5
8.	BPA to BRSIN Spokane Indian Development	14-03-49151	0.3	0.3	0.3
9.	BPA to BRSV Spokane Valley	14-03-63656	0.7	0.7	0.7
10.	BPA to BRTD The Dallas Reclamation Project	14-03-32210	2.0	2.0	2.0
11.	BPA to BRTV Tualatin Project	14-03-49151	0.6	0.6	0.6
12.	BPA to BRUB Umatilla Basin Project	10GS-75345	0.0	0.0	0.0
13.	BPA to BRYK Yakima Project	DE-MS79-88BP92591	1.7	1.7	1.7
14.	BPA To BCHA Can Ent	99EO-40003	522.3	504.7	513.5
15.	BPA to BHEC 2012PSC	97PB-10051	5.2	5.2	5.2
16.	BPA to PASA C/N/X	94BP-93658	1.1	1.1	1.1
17.	BPA to PASA S/N/X	94BP-93658	0.4	0.4	0.4
18.	BPA to RVSD C/N/X	94BP-93958	4.8	4.9	4.9
19.	BPA to RVSD Seas Xchg	94BP-93958	4.3	4.3	4.3
20.	BPA to SPP Pwr S	88BP-92436	0.3	0.3	0.3
21.	Federal Intertie Losses (Calculated: 3.0% of Intertie Sales in Table 2.12.5 lines 16- 19)	n/a	60.0	60.0	60.0
22.	BPA to AVWP WP3 S	85BP-92186	41.7	41.6	41.6
23.	BPA to PPL SNX (Spring Delivery)	94BP-94332	0.0	0.0	0.0
24.	BPA to PPL SPX (Summer Delivery)	94BP-94332	5.7	5.7	5.7
25.	BPA to PPL SoID	89BP-92524	160.2	159.9	160.0
26.	BPA to PSE WP3 S	85BP-92185	41.7	41.6	41.6
27.	BPAP to BPAT (Dittmer/Substation Service)	09PB-12128	9.1	9.1	9.1
28.	Federal Power Trans. Losses (Calculated: 2.82% of totals in Tables 2.12.2, 2.12.3 & 2.12.4)	n/a	237.8	233.4	235.6
29.	Transmission Returns (Slice) (Calculated: 27.027%*1.9%* sum of Tables 2.12.2, 2.12.3 & 2.12.4 less sum of Table 2.12.5 lines 1-28)	n/a	-36.8	-36.1	-36.5
30.	Total Designated System Obligations		1,231.2	1,209.9	1,220.5

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3. HYDRO REGULATION ASSUMPTIONS121
3.1 HYDSIM Hydro Regulation Study Assumptions for 2012 and 2013123

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STUDY NUMBER: 10_RateCase12_final & 10_RateCase13_final

Requested By: BPA, Rates Process

Due Date: March 1, 2011

Purpose of Study: This is a 70-year continuous study of the system operation for the initial proposal WP-12 Rate Case for FY 2012 and FY 2013.

Directory of Study: **AER Step:** Q:\RATES\10_RateCase12_final\AER &
Q:\RATES\10_RateCase13_final\AER

OPER Step: Q:\RATES\10_RateCase12_final\OPER &
Q:\RATES\10_RateCase13_final\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 the 2010 operating year (OY10) 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** 70-year study mostly based on the OY10 PNCA data submittal. The study begins on October 1, 1928, and ends on September 30, 1998. The study is run for Fiscal Year (FY) 2012 (October 2012 through September 2013) and FY 2013 (October 2012 through September 2013).
- The Coordinated System generation does not include the Tacoma projects, Brownlee, Oxbow, and Hells Canyon.
- **Stream Flow Data** are from “Modified Streamflows 2000 Level of Irrigation”. They contain irrigation depletions from the year 2000. (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.” The data on page 203, for instance, is used at Grand Coulee.) Adjustments to these 2000 level modified stream flows are made due to the Bureau of Reclamation’s updated **Grand Coulee pumping schedule** for the Columbia Basin Project. This pumping schedule is from Reclamation’s February 1, 2009, preliminary PNCA data submittal for OY10. No adjustments are made for **NTSA** storage and release. The inflows to Brownlee are adjusted to reflect the regulation of the Upper Snake reservoirs including the Upper Snake BiOp operation and the release of up to 487 thousand acre feet (KAF) for flow augmentation. The Brownlee inflow data were provided by the Bureau of Reclamation on June 1, 2007. (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** are from the PNCA plant data for operating year 2010 (OY10) for all projects.
- **Loads** are from the FELCC OY10 Critical Period study run by the Northwest Power Pool (NWPP) for the PNCA. 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** for all projects are from the PNCA OY10 data.
- **Initial Contents** for all projects came from the September 30, 1929, storage ending content from the final Rates study for 2007 (Q:\RATES\06\04RATE_07), except Mica, Arrow, Duncan projects are initialized to the content from the TSR DOP10 study. (Q:\TREATY\DOP10\FY10_RATE).
- **Critical Rule Curves (CRC)** are in accordance with PNCA 2010 adopted system critical rule curves where the 1st year critical rule curve = OY10 CRC1; 2nd year = empty; 3rd year = empty; and 4th year = empty.
- **Flood Control Rule Curves**, also known as Upper Rule Curves (URC), are the highest contents allowed for each reservoir and supersede all other reservoir elevation and content operating objectives. The curves are based on: forecasts (not actuals); no shift to Grand Coulee; a ratio of 3.6/4.08 Arrow/Mica split; and variable flood control (VARQ) at Hungry Horse and Libby. They were provided by the Corps of Engineers to BPA in April 2010. These flood control curves included the variable flood control in December at Libby, BC Hydro's updated storage reservation diagram for Duncan, a 1600 cfs minimum flow at Dworshak. (The unit 'cfs' is a common measure of flow, cubic feet per second.) The Mica, Arrow, and Duncan flood control requirements are from the TSR DOP10 study updated in July 2010. (Q:\RATES\10_RateCase12_initial\DOP10forRATE_JUL2010\bpa_tsr_dop10.dat). The flood control curves for Coulee are adjusted for the amount of storage capability available below the 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.
- **Variable Energy Content Curves (VECCs)** are calculated using OY10 Power Discharge Requirements (PDR's), distribution factors, and forecast errors, which are used in PNCA planning. The Grand Coulee ECC lower limits are 1225 feet (420.5 ksf) in January-April 30 and 1240 feet (843.9 ksf) in May. (The unit 'ksf' is a volume of water equal to 1000 cfs for 1 day.) The Canadian projects' TSR DOP10 VECCs are based on forecasts, the ratio of 3.6/4.08 Arrow/Mica split, non-shifted flood control, and VarQ flood control at Horse only. The VECCs for the Federal projects are based on the 70-year volume forecasts.

Project Specific Data:

- **Mica, Duncan, and Arrow:** The Canadian Treaty projects are fixed to the 70-year TSR DOP12 study run by BPA on February 4, 2011. Mica data logic in the HYDSIM program is turned off. Mica's minimum storage content is reset to 0.0 ksf so that drafting below 2295.9 ksf (normal minimum content) can occur.
- **Libby** has a maximum outflow of 4,000 cfs January through April, 25,000 cfs May through August, and 14,000 cfs September through December. The 25,000 cfs May through August maximum outflow is powerhouse hydraulic capacity without spill, but a higher outflow can be provided to maintain the required VARQ flood control space. It can be drafted to meet FELCC September through November as long as it does not draft below the December Variable URC. When the December forecast at Libby for April through August is less than 5500 KAF, the flood control at Libby in December is 2426.6 feet (1804.7 ksf), When the forecast is greater than 5900 KAF, the flood control in December is 2411.0 feet (1502.2 ksf). The flood control data is interpolated between 1804.7 ksf and 1502.2 ksf when the forecast is between 5500 and 5900 KAF. Libby does violate the flood control URC at times for Corra Linn's IJC operation. Otherwise, the drafting for flood control space at Libby would actually cause downstream flooding near Corra Linn. January-April, Libby operates to minimum flow (4,000 cfs) or at the flood control URC in attempt to reach the flood control URC on April 15 (as a surrogate for the BiOp's April 10 objective). During May 1 through June 30 Libby operates for Sturgeon and during May 15 through September 30 it operates for Bull Trout. Sturgeon and Bull Trout flow requirements May through July are based on May 1 April-August Kuehl-Moffit forecast at Libby and are

summarized as follows from the PNCA OY10 Corps of Engineers Data Submittal based on the USFWS BiOp dated February 18, 2006.

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

<u>Libby May1 Apr-Aug</u> <u>Forecast Interval (MAF)</u>	<u>Bull Trout Minimum Flow</u> <u>May15-Sep30 (KCFS)</u>
<4800	6.0
4800-6000	7.0
6000-6700	8.0
>6700	9.0

Libby can draft below the 2439 feet draft limit to meet the Bull Trout flow objective. In years when the May-1 April through August volume forecast for The Dalles is less than 71.8 million acre feet (MAF), which is the lowest 20th percentile, the project attempts to operate along a computed straight line between June 30 content and a September 30 draft limit of 2439.0 feet (2061.3 ksf) during July and August to minimize occurrences of a second peak flow in the summer. In years when the forecast is greater than or equal to 71.8 MAF the September 30 draft limit is 2449 feet (2280.3 ksf). Libby can not exceed the maximum powerhouse hydraulic capacity of 25,000 cfs in July-August. However, due to minimum flow for sturgeon and bull trout, the project often operates below the computed straight line.

- Hungry Horse** can not draft below Integrated Rule Curve (IRC) curves 3545 feet (1330.2 ksf), 3545 feet (1330.2 ksf), and 3542 feet (1297.1 ksf) during September through November, respectively unless drafting to meet Columbia Falls minimum flow requirements. Hungry Horse will draft to 3549.2 feet (1377.7 ksf) for winter flood control and Chum flow in December. However, due to the minimum flow requirement at Columbia Falls, Hungry Horse often operates below 3549.2 feet in December. From January through March, Hungry Horse operates between the Biological Rule Curve (Fish VECC) and the VarQ rule curve for flood control except in periods when minimum flow requirements draft the project deeper. The Biological rule curves are calculated using assumed inflows that are exceeded 75 percent of the time, the minimum outflow, and the requirement to be at flood control elevation on April 10. Hungry Horse operates to the lower of 3545 feet (1330.2 ksf) or VarQ flood control upper rule curve. In May-June, Hungry Horse operates on flood control when possible but drafts below flood control to meet minimum flows when necessary. In years when the May 1 April-August volume forecast for The Dalles is less than 71.8 MAF (20th percentile), the project operates along the computed straight line between June 30 content and a September 30 draft limit of 3540.0 feet (1275.0 ksf) 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 71.8 MAF (20th percentile), the project operates along the computed straight line between June 30 content and a September 30 draft limit of 3550.0 feet (1386.7 ksf) during July and August to minimize occurrences of a second peak flow in the summer. Hungry Horse can not exceed 11,400 cfs in July-August, the maximum powerhouse hydraulic capacity plus 20 percent allowable spill. Hungry Horse operates to meet the Columbia Falls minimum flow between 3,200 cfs and 3,500 cfs based on the April to August volume runoff between 1190 KAF and 1790 KAF at

Hungry Horse as shown in the PNCA data submittal. The outflow at Hungry Horse is limited to maximum turbine capacity of 9,500 cfs, and no spill is allowed unless required to maintain the required flood control space. Hungry Horse's at-site minimum flow is computed between 400 cfs and 900 cfs based on the April to August volume runoff between 1190 KAF and 1790 KAF at Hungry Horse as shown in the PNCA data submittal.

- **Albeni Falls** operates at 2062.0 feet (559.1 ksf) from June through August, 2061.5 feet (535.7 ksf) in September, 2056 feet (279.0 ksf) in October, 2055 feet (234.7 ksf) November through March, 2056.0 feet (279.0 ksf) in April, and 2060.0 feet (465.7 ksf) in May.
- **Grand Coulee** operates to meet FELCC September through December subject to the draft limits of 1283 feet (2332.2 ksf) in September and October, 1275 feet (2026.8 ksf) in November, and 1270 feet (1843.0 ksf) in December. January through March, Coulee can be drafted to the higher of winter draft limits [1260 feet (1492.2 ksf), 1250 feet (1155.8 ksf), 1240 feet (843.7 ksf), respectively] or the Biological Rule Curve (fish VECC). The fish VECC 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 fish VECCs 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 operates on flood control. From April 30 through May, Grand Coulee may be drafted to the lower of flood control or 1280 feet (2215.5 ksf) to support Priest Rapids and McNary flow augmentation targets. In June - July, Grand Coulee draft limits are 1288 feet (2532.4 ksf), 1285 feet (2411.4 ksf), respectively to support Priest Rapids and McNary flow augmentation targets. In Au1, the draft limit for BIOP flow augmentation is 1280 feet (2215.5 ksf) if July 1 April-August runoff at The Dalles is less than 92 MAF; otherwise the draft limit is 1282 feet (2293.5 ksf). In Au2, the draft limit is 1278 feet (2139.8 ksf) if the July 1 forecast April through August volume runoff at The Dalles is less than 92 MAF, otherwise the draft limit is 1280 feet (2215.5 ksf). 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 percent 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** has a flow augmentation target of 135,000 cfs for Steelhead April 10 through June 30. From April 1-9 the minimum flow for Priest Rapids is the same as the Vernita Bar minimum flow.
- **Brownlee** operates to the 70-yr rule curves provided to BPA from the Northwest Power Pool on March 15, 2007. They are 432.1 ksf in Au1, 380.7 ksf in Au2, 293.8 ksf in Sep, 491.7 ksf in Nov, 436.3 ksf in Dec, 385.4 ksf in Jan, 484.7 ksf in Jun and Jul. The rule curves vary between 226.0 ksf, 113.2 ksf, 62.9 ksf, 0.0 ksf and 74.7 ksf to full content of 491.7 ksf in Oct, Feb, Mar, Ap1, Ap2 and May, respectively.
- **Dworshak** is on minimum flow of 1300 cfs or flood control objectives in all periods with the exception of July-August when it operates to meet Lower Granite flow augmentation targets. 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. On July 31, it operates to the midpoint of the straight line drawn from the end of June elevation to the end of August target elevation of 1535 feet (497.0 ksf). Dworshak is drafted to 1520 feet (395.8 ksf) on September 15 and run to the minimum flow of 1300 cfs for the remainder of the month. In July and August Dworshak's outflow cannot exceed 14,000 cfs, and Dworshak's outflow cannot exceed 7,650 cfs in September (7,650 cfs derived by assuming the

project discharge is 14,000 cfs in the first half of the month and 1,300 cfs in the second half of the month).

- **Lower Snake projects operate at MOP** in accordance with the PNCA data submittal. As identified in the 2008 BiOp, the Corps operates Little Goose, Lower Monumental, and Ice Harbor within one foot of minimum operating pool (MOP) during the period from approximately April 3 through August 31. Lower Granite operates 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 ksf), 633 (260.5 ksf), 537 (180.5 ksf) and 437 feet (193.4 ksf), respectively. During the rest of the year Lower Granite, Little Goose, Lower Monumental and Ice Harbor operate at elevation 738 (245.8 ksf), 638 (285.1 ksf), 540 (190.1 ksf) and 440 feet (204.8 ksf), respectively.
- **Turbine operations** at 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) are within **1 percent of peak efficiency** March through November. This requirement is reflected in the HYDSIM hydro availability file.
- **Spill for Fish Passage** is included at the eight federal mainstem projects (Lower Granite, Little Goose, Lower Monumental, Ice Harbor, McNary, John Day, The Dalles and Bonneville) based on the OY10 PNCA data, summarized below. The spill is limited at times by Spill TDG Gas Caps and minimum turbine flow requirements.
- **Juvenile Passage Spill and Total Dissolved Gas Caps from OY10 PNCA Planning**

PNCA OY10 SPILL CRITERIA (Feb 1, 2009 Data Submittal)					
Project	Spill	Min Turb	Days	Hour Ending	Gas Caps
Lower Granite	20 kcfs 18 kcfs	11.5 kcfs	Apr 3 - May 6, May 21 - 31; Jun 1 - Aug 15	All hours	40 kcfs
Little Goose	30% flow	11.5 kcfs	Apr 5 - May 6, May 21 - Aug 15	All hours	30kcfs Ap1-Ap2; 28kcfs May; 30kcfs June; 28kcfs Jul-Aug
Lower Monumental	gas cap; 17 kcfs	11.5 kcfs	Apr 7 - May 6, May 21-31; Jun 1 - Aug 15	All hours	26kcfs Ap1; 25kcfs Ap2; 22kcfs May; 19kcfs Jun; 24kcfs Jul-Aug
Ice Harbor	30% flow vs 45 kcfs day/gas cap night	9.5 kcfs	Apr 7 - May 31 Jun 1 - Aug 15	13 hrs day/11 hrs night	97 kcfs
McNary	40% flow	50 kcfs	April 10 - Jun 15	All hours	117kcfs Ap1-Ap2; 122kcfs May; 125kcfs Jun; 138kcfs Jul; 148 kcfs Aug
	40% vs 60% flow		Jun 16 - Aug 31	All hours	
John Day	30% vs 40% flow	50 kcfs	Apr 10 - Jun 15	All hours	96kcfs Ap1; 90 kcfs Ap2; 95 kcfs May-Jul; 98kcfs Aug
	30% flow		Jun 16 - Aug 31		
The Dalles	40% flow	50 kcfs	Apr 10 - Aug 31	All hours	124kcfs Ap1; 131kcfs Ap2; 132kcfs May ; 137kcfs Jun; 139kcfs Jul; 125kcfs Aug
Bonneville	lower of gas cap or 100 kcfs	30 kcfs Min Turbine: 50 kcfs Min Spill	Apr 10 - Jun 15	All hours	100kcfs Ap1, 98kcfs Ap2; 95kcfs May; 100kfs Jun; 130kcfs Jul; 135kcfs Aug
	85 kcfs day / gas cap night		Jun 16 - Jul 31	18 hrs Day/ 6 hrs night	
	75 kcfs day / gas cap night		Aug 1 - Aug 31	16 hrs Day/ 8 hrs night	

- **Chum Flow Objectives at Bonneville** are from November 1 through April 10 and estimated at 125,000 cfs in the PNCA data submittal. Grand Coulee drafts for this Chum flow requirement with draft limits of 1275 feet (2026.8 ksfd) in November and 1270 feet (1843.0 ksfd) in December.
- **McNary Flow Targets** for April 10 through June 30 are 220,000 to 260,000 cfs based on The Dalles April 1, April - August volume runoff forecasts. When the forecast is 80 MAF or less the target is 220,000 cfs, and when the forecast is 92 MAF or greater the target is 260,000 cfs. Straight-line interpolation determines the flow targets for volume forecasts between 80 and 92 MAF. McNary summer flow targets are 200,000 cfs in July and August. Grand Coulee drafts for this flow augmentation target, subject to draft limits.
- **Lower Granite Flow Targets** also vary depending on the forecast. 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 is 50,000 cfs. When the April 1 Lower Granite April through July forecast is greater than 20 MAF, 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. Dworshak drafts to meet this flow objective, subject to draft limits.

- **John Day** is operated at 262.5 feet (127.8 ksf) from April through September. From October through March, John Day operates to elevation 265 feet (191.0 ksf).
- **The Dalles** is modeled as a reservoir instead of a run-of-river project to eliminate a minor programming bug in HYDSIM's energy calculation. The new reservoir input data was selected to very closely match the PNCA data.
- **Bonneville** second powerhouse corner collector is modeled as "other spill" in HYDSIM, using the "other spill" data from PNCA OY10.
- **Spill at non-Federal projects** is summarized below from OY10 PNCA planning data. Wells dam spills the percentage shown below if Chief Joseph's outflow is less than 140,000 cfs; otherwise Wells spills 10,200 cfs April 12 through 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	7.0	10.0	10.0	19.3	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	0.0	19.5	39.0	39.0	19.5

- **Kootenay Lake** is 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 5-step method developed by BPA and the Corps. After August 31, the lake level may rise 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 on February 1, elevation 1742.4 on March 1, and 1739.32 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 in the OPER step are the 2012 and 2013 Coordinated System firm residual hydro loads from BPA's 2010 LARIS Study 74 on February 15, 2011. These residual hydro loads are the total coordinated system firm load less all the other firm non-hydro resources. A variable secondary market limit based on an AURORA market analyses is also included in every period of every year. The secondary market limit is calculated as necessary to force the HYDSIM 'overgen' spill to equal the spill due to lack of market estimated by AURORA. The Coordinated System independent hydro generation from LARIS Study 68 is also used in this study to develop the residual hydro load.
- **Unit Outages & Availability Factors** for federal projects are based on the average of 2001-2009 actual outages, plus further reduced hydro availability due to large planned outages from April 2010 through August 2014 at Chief Joseph (for breaker replacements and two 88-MW units out of service for runner replacement) and March 2013 through September 2022 at Grand Coulee (for runner replacements and one 805-MW unit out of service for overhaul). The Grand Coulee outages were also increased based on information provided by PGF to reflect high levels of outages that are being experienced and are expected to continue during the rate period for the replacement of governors, exciters, transformers, and high-voltage power lines. The Grand Coulee availability factors assume average actual outages from FY09 through FY10 with one additional 805-MW unit out of service. The availability factors are also used to reflect reserve

requirements because HYDSIM has no other mechanism to account for *inc* reserves. The availability factors assume the federal hydro system will provide 74 percent of the estimated reserves required. The availability factors reflect operating contingency reserve requirements at 5.3 percent of control area generation, which represents the requirement for 7 percent of thermal generation and 5 percent for all other generation resources. Balancing reserve requirements for wind are also included in the availability factors and are consistent with the estimates provided by Transmission staff assuming the 99.5% level and self supply. The 66 aMW estimates of firm contingent tagging and 33.4 aMW of DSI contracted reserves are also reflected in the HYDSIM availability factors. These reserve assumptions do not exactly match the final decisions in the rate case proposal. The final decisions are not exactly reflected in this HYDSIM study because they are not available in time for incorporation in the HYDSIM studies and would not have a significant effect on HYDSIM's month-average generation estimates.

- **Initial Contents** for the major federal projects are based on the 70-yr average of September 30 storage ending content from the 08RateCase10_final study.
- **Flood Control Rule Curves** for Grand Coulee are adjusted for the amount of storage capability available below the URC on April 30 each year for Mica, Arrow, and Duncan and are also adjusted to shift some Dworshak flood control space to Grand Coulee when possible.
- **Non-federal** projects are run to the resulting contents from the AER step. This allows the federal projects to operate without causing the non-federal projects to adjust operations to meet the system load.
- **Bonneville Chum Flow Objectives** are determined each period based on 11.5 or 11.3 feet tailwater elevation requirements below Bonneville November through March and 16.5 feet tailwater in April. Grand Coulee operates to meet the chum flow objectives November through March.
- **April 10 URC** objectives are included in the study. The BiOp objective is for the federal reservoirs to be at their April 10 URC elevations each year, as full as possible in preparation for providing flows to meet the spring flow objectives, although minimum flow requirements and . The objective is for Grand Coulee to operate with a 85 percent chance of reaching this April 10 elevation and for Libby and Hungry Horse to operate with a 75 percent chance.
- **Lower Granite flow targets** are removed from the OPER step because Dworshak is the only project available to help meet them and other operating requirements determine its operation.

Project Specific Data:

- **Mica, Duncan, and Arrow** are fixed to the 70-year TSR DOP10 study with the following additions: 1) One MAF of flow augmentation is stored in January. 2) The trout spawning operation is included at Arrow where April 16 through April 30 flows are at least 15,000 cfs and May and June flows are equal to or greater than the preceding month whenever possible. No more than a 10,000 cfs decrease is allowed from one month to the next. 3) Arrow and Duncan balance operations to ensure that both projects are on TSR DOP10 contents by 31 July. 4) Mica balances to the TSR DOP10 contents in July when Arrow and Duncan can not. 5) The Libby Coordination Agreement Provisional Draft is included at Arrow.
- **Duncan** targets outflow of 8,000 cfs (to support Cora Linn and Brilliant flows) but does not draft below 1,845 feet (316.2 ksf) in September, targets 2,000 cfs in October, 2,900 cfs in November, 4,700 cfs in December (to support Kootenay Lake elevation), and 7,000 cfs in January (to support Arrow whitefish operation). In February and March, Duncan drafts for power with a draft limit of 1812.5 feet (93.1 ksf) in February and a maximum elevation of 1807.7 feet (65.3 ksf) in March. Duncan has a minimum flow of 3,000 cfs and 2,000 cfs in February-March, respectively. In April, Duncan drafts to empty unless the March 1 May through July forecast at Duncan is less than 1,480 KAF when Duncan operates to 1,000 cfs outflow in the first half of April and 100 cfs outflow in the second half of April. In May Duncan operates to minimum flow of 100 cfs to return to the TSR DOP10 elevation. In June and August, Duncan targets the higher of TSR DOP10 elevation or 1890 feet (688.2 ksf),

- **Arrow** stores up to 1 MAF for flow augmentation in January in all years, and releases the 1 MAF (15 percent in May, 15 percent in June, and 70 percent in July) in years with a Feb-1 forecast April through August volume at The Dalles less than 75.0 MAF. In drier years this storage of up to 1 MAF is released in February. Arrow has a minimum flow of 30,000 cfs in January if the January 1 forecast of April through August volume at The Dalles is less than 75 MAF; otherwise the minimum flow is 20,000 cfs. The flow augmentation will all be released by July 31 allowing Arrow to be on TSR DOP10 elevation by 31 July. For trout spawning, Arrow outflow operates to minimum flow of 15,000 cfs in April 15, between 15,000 cfs and 25,000 cfs in April 30, between 15,000 cfs and 35,000 cfs in May-June. During April through June the outflow at Arrow can not decline unless the TSR DOP10 balance by June 30 is too negative. Then the outflow is allowed to reduce up to 10,000 cfs in Trout Spawning periods. The Outflow at Arrow can be increased in May-June to keep the July discharge below 80,000 cfs. Under the Libby Coordination Agreement (LCA) Arrow is allowed to draft below TSR DOP10 contents from August through December at most two times per year up to 120,000 cfs and return all the water by March (draft 30 ksf August 1 through August 15, 30 ksf in August 16 through August 31, 60 ksf in September, and return all in October. Then draft 120 ksf in December and return 60 ksf in February and 60 ksf in March).
- **Priest Rapids** has a flow augmentation target of 120,000 cfs April 10 through April 30, and in May and June Priest Rapids has a flow augmentation target of 135,000 cfs for Steelhead. The April 1 through April 9 minimum flow for Priest Rapids is the same as the Vernita Bar minimum for each year.
- **Brownlee** drafts to 2059.0 feet (373.5 ksf) in July-August, 2051.5 feet (328.4 ksf) in September. In October, Brownlee operates to variable target contents without violating a minimum flow of 9,700 cfs for IPC Fall Chinook operation. Brownlee will fill to full content of 491.7 ksf in November without violating the 8,500 cfs minimum flow. In December through April 15, Brownlee operates to 8,700 cfs outflow unless a higher discharge is required to maintain flood control space. In April 16 through April 30 and June, Brownlee maintains full content of 491.7 ksf without violating a minimum flow of 8,500 cfs. In May Brownlee targets the elevation of 2069 feet (436.3 ksf) without violating a minimum flow of 8,500 cfs.
- **Dworshak** has a maximum discharge of 17,000 cfs in September-June to reflect actual operations and avoid exceeding 110 percent TDG level. February through June outflows are shaped to reduce forced spill. July and August outflows are updated to reflect actual operations by using 10,000 cfs minimum in July, 13,000 cfs minimum August 1-15, and a maximum 25 percent reduction from the first half of August to the second half of August.
- **Libby** has a September minimum flow of 6,000 cfs. In the fall, Libby minimizes October draft and maximizes December draft by targeting outflow of 4,800 cfs in October, limiting November content to 2435 feet (1977.1 ksf), and limiting outflow to 20,000 cfs maximum in October-December to avoid fall spill in all years. Libby's outflow in May is based on a VarQ allowable refill calculation as used in actual operations. Libby's June through September operation includes the sturgeon pulse with 7 days of 10,000 cfs spill during June, bull trout minimum required flows, and summer flow augmentation according to the Montana Proposal.
- **Hungry Horse** has maximum outflow of 9,000 cfs during June, July, and August. Hungry Horse will violate the flood control upper rule curve to keep its maximum outflow at 20,000 cfs or below. Hungry Horse has a maximum elevation of 3558 feet (1480.1 ksf) in June. Hungry Horse's summer draft is shaped to provide flat flows July through September where possible.
- **Albeni Falls** drafts to 2053 feet (146.1 ksf) by November 30, maintains this elevation through April 15, then fills to 2056.0 feet (279.0 ksf) by April 30, and fills to 2060.0 feet (465.7 ksf) in May.
- **Kerr** operates to elevation 2891 feet (488.6 ksf) in October and November, 2888 feet (302.8 ksf) in December, 2886.5 feet (211.0 ksf) in January, 2886.4 feet (204.9 ksf) in February, 2887 feet (241.5 ksf) in March, 2884.8 feet (107.9 ksf) in April 15, 2884.1 feet (65.7 ksf) in April 30, 2890 feet (426.3 ksf) in May, full at 2893 feet (614.7 ksf) June through

August, and 2891.8 feet (538.8 ksf) in September. This operation is based on actual operations in recent past years.

- **Grand Coulee** operates at elevation 1285 feet (2411.4 ksf) in September and between 1283 feet (2332.0 ksf) and 1288 feet (2532.0 ksf) in October. Grand Coulee can not fill above 1288 feet (2532.0 ksf) in November-December and 1287 feet (2491.4 ksf) in January and February. The draft limits at Grand Coulee for Priest Rapids and McNary flow targets are: 1220 feet (289.2 ksf) on April 15, 1225 feet (418.7 ksf) on April 30, 1240 feet (843.7 ksf) in May, and 1285 feet (2411.4 ksf) in June. July through August 15, Grand Coulee can not fill above 1288 feet (2532.0 ksf). Also, the Bureau performs maintenance during the spring on the spillway drum gates at least one year of every three years, at least two of every five years, and at least three of every seven years. For modeling, this maintenance requires a maximum Lake Roosevelt elevation of 1277.5 feet (2120.9 ksf) at the end of February (so as not to exceed the 1.5 feet/day draft limit in drafting to 1255 feet (1319.7 ksf) by March 15, and then elevation 1255 feet (1319.7 ksf) is held through April 30. After meeting all modeling requirements, Grand Coulee's January through March operation is reevaluated to put more generation in January and February to evenly distribute the secondary energy when possible without violating other constraints in the study.
- **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 ksf) 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 200,000 cfs, the pumping is increased by the equivalent of 5 feet in August and the following year's March-May pumping is decreased. Additionally, the Washington Columbia River Water Management Program (WCRWMP) is included in the OPER step. The WCRWMP includes the following:
 - Grand Coulee Summer Draft
 - In years when the July 1 April-August volume forecast for The Dalles is less than 92 MAF (50th percentile), Grand Coulee drafts to the BiOp's August 31 draft limit of 1278.0 feet (2140.9 ksf).
 - In years when the July 1 April-August volume forecast for The Dalles is greater than 92 MAF (50th percentile), Grand Coulee drafts to the BiOp's August 31 draft limit of 1280.0 feet. (2216.3 ksf).
 - Also for years with less than 57,582 KAF (lower 5th percentile), Grand Coulee releases an additional 132 KAF for the Washington State Columbia River Partnership (WSCR). 47 KAF is for fish flow enhancement, 25 KAF is for municipal used in Tri-Cities, of which about 60 percent may return promptly to the river in the McNary pool as treated municipal effluent, and 33 KAF would support irrigation in MCN and JDA.
 - Also for years with greater than 57,582 KAF (lower 5th percentile) Grand Coulee releases an additional 82 KAF for the WCRWMP. 30 KAF is for fish flow enhancement and 22 KAF is for municipal used in the Tri-Cities, of which about 60 percent may return promptly to the river in the McNary pool as treated municipal effluent.
 - Columbia Basin Project Pumping Increase
 - In all water years, Grand Coulee's inflows are reduced to reflect a pumping increase of 30 KAF in July and August (244 cfs July 1 through August 31). The study also accounts for the increased pumping load (~7 aMW July 1 through August 31).
 - McNary Inflow Reductions
 - In all water years, McNary inflows are reduced to reflect an increase of 25 KAF to the Tri-Cities municipal water supply in July and August (81 cfs July 1 through August 31 assuming 60 percent effluent return).

- In years with less than 57,582 KAF (lower 5th percentile), McNary inflows are reduced to reflect 16.5 KAF increased irrigation support in July and August (134 cfs July 1 through August 31).
 - John Day Inflow Reductions
 - In years with less than 57,582 KAF (lower 5th percentile), John Day inflows are reduced to reflect 16.5 KAF increased irrigation support in July and August (134 cfs July 1 through August 31).
- **The Dalles** is modeled as a reservoir instead of a run-of-river project to eliminate a minor programming bug in HYDSIM's energy calculation. (The Dalles was the last project still modeled using HYDSIM's run-of-river project logic.) The reservoir-type input data in HYDSIM for The Dalles very nearly matches the PNCA run-of-river project data. The miscellaneous flow "Project spill" data is the same as PNCA OY10 data except for an additional 3,000 cfs in March to reflect the expected sluiceway operation in this study.
- **Juvenile Fish Bypass Spill** for the federal projects are summarized in the following tables. Forecasts of less than 12.8 MAF April through June at Lower Granite are used to estimate when average spring flows are likely less than 65,000 cfs and less spill will be provided at the three Snake River projects. There are 13 years in the 70-year study that meet this criterion and do not include planned spill for fish passage at the three Snake River projects.

Spill Criteria for BP12 Rate Case Final Proposal

Projects	Spill	Min Turb	Days	Hour Ending	Notes			
Lower Granite	20 kcfs(Apr3-Jun4) 18 kcfs(Jun5-Aug7)	11.5 kcfs	Apr 3 - May 6, May 21 - Jun 4; Jun 5 - Aug 7	All hours	Also see spring transport criteria.			
Little Goose	30% of total flow	11.5 kcfs	Apr 5 - May 6, May 21 - Aug 12	All hours	Some years have no spring spill at the three Snake River transport projects.			
Lower Monumental	gas cap(Apr7-Jun4) 17 kcfs(Jun5-Aug15)	11.5 kcfs	Apr 7 - May 6, May 21 - Jun 4; Jun 5 - Aug 15	All hours				
Ice Harbor	35% of total flow 30% of total flow	9.5 kcfs	Apr 7 - Jun 15 Jun 16 - Aug 16	All hours		All years		
McNary	40% of total flow 50% of total flow		50 kcfs		April 10 - Jun 15 Jun 16 - Aug 31		All hours	All years
John Day	30% of total flow 30% of total flow 30% of total flow	50 kcfs		Apr 10 - 19 Apr 20 - Jul 20 Jul 21 - Aug 31	All hours	All years		
The Dalles	40% of total flow		50 kcfs	Apr 10 - Aug 31			All hours	All years
Bonneville	100 kcfs alternating, every 2 days: 85 kcfs day / 121 kcfs night 95 kcfs		30 kcfs	Apr 10 - Jun 15 Jun 16 - Aug 31			All hours 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.
Libby	10kcfs			7 days in June	All hours	Spill same dates as sturgeon pulse.		

Summary: 2008 BiOp Snake River spring spill / max transport decisions.

Lower Granite Dam				
	Apr1	Apr2	May	June*
Seasonal Average Flows < 65	no spill	no spill	no spill	spill Jun1-30
Seasonal Average Flows > 65	spill Apr3-15	spill Apr16-30	spill May1-6,21-31	spill Jun1-30
Little Goose Dam				
	Apr1	Apr2	May	June*
Seasonal Average Flows < 65	no spill	no spill	no spill	spill Jun1-30
Seasonal Average Flows > 65	spill Apr5-15	spill Apr16-30	spill May1-6,21-31	spill Jun1-30
Lower Monumental Dam				
	Apr1	Apr2	May	June*
Seasonal Average Flows < 65	no spill	no spill	no spill	spill Jun1-30
Seasonal Average Flows > 65	spill Apr7-15	spill Apr16-30	spill May1-6,21-31	spill Jun1-30

* Fed agreement that summer spill criteria starts June 5th on average.

- Overgeneration Spill Priorities and TDG Gas Caps** are summarized in the following table. One kcfs equals one thousand cfs. Spill up to the TDG gas caps in the order listed below to avoid generation levels that exceed the secondary market limit. This is called ‘overgen spill’ in HYDSIM. First, starting with McNary, spill all projects up to the 120 percent TDG gas caps in the order shown below, then spill all projects up to the 125 percent TDG gas caps in the order shown, and then up to 130 percent, etc. A variable secondary market limit is calculated in HYDSIM as needed to force the ‘overgen’ spill in each period to equal the estimated energy spilled due to lack of market from the AURORA model.

	120%	125%	130%	135%
MCN:	138 kcfs	230 kcfs	310 kcfs	450 kcfs
TDA:	128 kcfs	250 kcfs	360 kcfs	600 kcfs
JDA:	94 kcfs	240 kcfs	450 kcfs	600 kcfs
BON:	120 kcfs	150 kcfs	225 kcfs	270 kcfs
LWG:	40 kcfs	70 kcfs	90 kcfs	150 kcfs
LGS:	27 kcfs	80 kcfs	150 kcfs	250 kcfs
LMN:	23 kcfs	95 kcfs	180 kcfs	250 kcfs
IHR:	97 kcfs	125 kcfs	180 kcfs	240 kcfs
CHJ ¹ :	150 kcfs	200 kcfs	300 kcfs	450 kcfs
GCL ² :	30 kcfs	75 kcfs	120 kcfs	170 kcfs
GCL ³ :	10 kcfs	20 kcfs	35 kcfs	55 kcfs

¹ 50 kcfs minimum turbine flow for CHJ included during ‘overgen’ spill.

² During all periods except May.

³ During May when the reservoir is more likely below the spillway crest elevation 1260 feet and the regulating outlets must be used to spill.

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4.	RATE PERIOD FY 2012-2013	
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Table 4.1.1
Loads and Resources - Federal System
PNW Loads and Resource Study
2011 - 2012 Fiscal Years
1937 Water Year

6/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Energy (aMW)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Avg
<u>Non-Utility Obligations</u>															
1 Fed. Agencies 2012 PSC	100	124	149	144	131	129	108	109	97	101	111	107	107	94	116
2 USBR Obligation	96	17	18	3	7	57	228	218	322	314	416	310	308	293	173
3 DSI Obligation	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341
4 Total Firm Non-Utility Obligations	536	482	508	487	479	526	676	667	759	756	868	757	755	727	630
<u>Transfers Out</u>															
5 Load Following 2012 PSC	2,700	3,114	3,596	3,515	3,263	2,954	2,829	2,854	2,799	2,906	3,107	3,016	3,019	2,791	3,051
6 Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Slice 2012 PSC	1,660	2,101	2,030	2,038	1,809	1,708	1,388	1,363	2,469	2,208	2,149	1,954	1,683	1,831	1,934
8 Slice Block 2012 PSC	1,629	2,013	2,239	2,273	2,031	1,958	1,636	1,636	1,421	1,320	1,561	1,563	1,563	1,635	1,773
9 IOU 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Exports	610	598	594	593	592	596	638	642	669	674	663	642	641	628	625
11 Regional Transfers (Out)	180	448	518	518	493	388	368	339	101	143	151	124	109	97	291
12 Federal Diversity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Transfers Out	6,779	8,274	8,977	8,937	8,189	7,605	6,857	6,834	7,459	7,251	7,631	7,299	7,015	6,982	7,675
14 Total Firm Obligations	7,316	8,755	9,484	9,425	8,668	8,131	7,534	7,501	8,218	8,008	8,499	8,056	7,771	7,709	8,305
<u>Hydro Resources</u>															
15 Regulated Hydro	5,409	7,211	7,054	7,086	6,240	5,692	4,529	4,423	8,385	7,365	7,513	6,645	5,633	6,170	6,565
16 Independent Hydro	311	284	198	176	162	251	377	414	705	759	472	432	412	396	378
17 Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Total Hydro Resources	5,721	7,495	7,252	7,262	6,402	5,942	4,906	4,836	9,090	8,123	7,985	7,077	6,044	6,566	6,943
<u>Other Resources</u>															
19 Small Thermal & Misc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20 Combustion Turbines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 Renewables	59	66	59	65	56	83	80	72	73	80	65	68	64	57	67
22 Cogeneration	18	20	23	24	23	23	22	22	19	14	18	12	12	14	19
23 Imports	206	284	355	356	334	321	322	265	130	134	165	171	156	153	241
24 Regional Transfers (In)	126	124	59	66	52	87	103	99	92	107	89	105	88	95	91
25 Non-Fed CER (Canada)	142	142	142	142	142	142	139	139	139	139	139	139	139	139	141
26 Transmission Loss Returns	32	40	39	39	34	32	26	26	47	42	41	37	32	35	37
27 Large Thermal	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030
28 Non-Utility Generation	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
29 Augmentation Purchases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 Augmentation Resources	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 Total Other Resources	1,616	1,709	1,710	1,725	1,675	1,722	1,725	1,656	1,532	1,549	1,549	1,565	1,524	1,527	1,629
32 Total Resources	7,336	9,204	8,962	8,987	8,077	7,664	6,631	6,493	10,622	9,672	9,534	8,642	7,569	8,093	8,572
<u>Reserves & Losses</u>															
33 Contingency Reserves (Non-Spinnin)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34 Contingency Reserves (Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35 Generation Imbalance Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 Load Following Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37 Federal Transmission Losses	-207	-260	-253	-253	-228	-216	-187	-183	-300	-273	-269	-244	-213	-228	-242
38 Total Reserves & Losses	-207	-260	-253	-253	-228	-216	-187	-183	-300	-273	-269	-244	-213	-228	-242
39 Total Net Resources	7,130	8,945	8,710	8,734	7,849	7,448	6,444	6,310	10,323	9,399	9,266	8,398	7,355	7,865	8,330
40 Total Firm Surplus/Deficit	-186	189	-775	-691	-819	-683	-1,089	-1,191	2,105	1,392	767	342	-416	155	25

Table 4.1.1 - continued
 Loads and Resources - Federal System
 PNW Loads and Resource Study
 2012 - 2013 Fiscal Years
 1937 Water Year

6/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (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																
1 Fed. Agencies 2012 PSC	103	129	156	146	136	130	109	109	98	102	112	108	108	95	119	
2 USBR Obligation	96	17	18	3	7	57	223	223	322	314	416	310	308	293	174	
3 DSI Obligation	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	
4 Total Firm Non-Utility Obligations	540	487	514	489	484	527	673	673	760	757	869	758	756	728	633	
Transfers Out																
5 Load Following 2012 PSC	2,735	3,146	3,631	3,545	3,372	2,997	2,873	2,873	2,837	2,943	3,179	3,086	3,089	2,858	3,100	
6 Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7 Slice 2012 PSC	1,665	2,106	2,035	2,043	1,814	1,713	1,394	1,367	2,291	1,936	2,128	1,953	1,683	1,831	1,898	
8 Slice Block 2012 PSC	1,693	2,093	2,330	2,365	2,189	2,037	1,700	1,700	1,479	1,376	1,624	1,625	1,625	1,699	1,849	
9 IOU 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10 Exports	590	577	573	572	571	575	617	621	648	653	642	643	641	630	608	
11 Regional Transfers (Out)	180	448	518	519	494	388	367	340	101	143	151	124	109	97	291	
12 Federal Diversity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13 Total Transfers Out	6,862	8,370	9,085	9,043	8,440	7,710	6,951	6,901	7,356	7,051	7,724	7,431	7,147	7,114	7,746	
14 Total Firm Obligations	7,402	8,857	9,600	9,532	8,924	8,237	7,623	7,574	8,116	7,808	8,593	8,189	7,903	7,842	8,379	
Hydro Resources																
15 Regulated Hydro	5,409	7,211	7,054	7,086	6,240	5,692	4,529	4,423	8,383	7,338	7,513	6,645	5,633	6,170	6,563	
16 Independent Hydro	311	284	198	176	162	251	377	414	705	759	472	432	412	396	379	
17 Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18 Total Hydro Resources	5,721	7,495	7,252	7,262	6,402	5,942	4,906	4,836	9,088	8,096	7,985	7,077	6,044	6,566	6,942	
Other Resources																
19 Small Thermal & Misc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
20 Combustion Turbines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
21 Renewables	59	66	59	65	56	83	80	72	73	81	65	68	64	57	67	
22 Cogeneration	18	20	23	24	23	23	22	22	19	14	18	12	12	14	19	
23 Imports	207	284	356	355	334	323	320	266	130	134	166	170	156	154	241	
24 Regional Transfers (In)	128	126	95	102	88	123	139	135	128	143	124	141	124	131	122	
25 Non-Fed CER (Canada)	139	139	139	139	139	139	137	137	137	137	137	137	137	137	138	
26 Transmission Loss Returns	32	40	39	39	35	33	27	26	44	37	40	37	32	35	36	
27 Large Thermal	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	332	0	930	1,030	1,030	1,030	878	
28 Non-Utility Generation	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
29 Augmentation Purchases	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	
30 Augmentation Resources	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
31 Total Other Resources	1,791	1,884	1,921	1,934	1,884	1,932	1,933	1,867	1,041	725	1,659	1,775	1,734	1,738	1,680	
32 Total Resources	7,512	9,379	9,173	9,195	8,286	7,875	6,840	6,704	10,129	8,821	9,644	8,852	7,779	8,304	8,622	
Reserves & Losses																
33 Contingency Reserves (Non-Spinnin)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
34 Contingency Reserves (Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
35 Generation Imbalance Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
36 Load Following Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
37 Federal Transmission Losses	-212	-264	-259	-259	-234	-222	-193	-189	-286	-249	-272	-250	-219	-234	-243	
38 Total Reserves & Losses	-212	-264	-259	-259	-234	-222	-193	-189	-286	-249	-272	-250	-219	-234	-243	
39 Total Net Resources	7,300	9,115	8,914	8,936	8,053	7,653	6,647	6,515	9,843	8,572	9,372	8,602	7,559	8,070	8,379	
40 Total Firm Surplus/Deficit	-102	257	-685	-596	-871	-584	-976	-1,059	1,727	764	779	413	-344	228	0	

Table 4.1.2
Loads and Resources - Federal System
PNW Loads and Resource Study
2011 - 2012 Fiscal Years
1937 Water Year

6/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Non-Utility Obligations															
1 Fed. Agencies 2012 PSC	45,133	50,782	63,363	62,208	53,705	56,785	22,295	24,153	41,902	45,072	49,491	23,423	25,225	39,948	603,483
2 USBR Obligation	14,825	1,022	990	1,070	1,076	4,488	24,033	26,025	117,385	89,108	105,649	35,383	38,105	58,752	517,912
3 DSI Obligation	141,648	136,200	141,648	136,200	136,200	147,096	65,376	70,824	141,648	141,648	136,200	70,824	76,272	130,752	1,672,536
4 Total Firm Non-Utility Obligations	201,606	188,004	206,002	199,478	190,981	208,368	111,704	121,001	300,936	275,828	291,340	129,630	139,602	229,452	2,793,931
Transfers Out															
5 Load Following 2012 PSC	1,233,988	1,320,904	1,576,912	1,537,491	1,367,884	1,340,264	594,100	643,608	1,232,948	1,293,217	1,374,907	668,682	720,119	1,196,755	16,101,780
6 Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Slice 2012 PSC	791,461	934,516	928,290	921,850	770,467	768,794	301,886	292,806	1,161,002	1,011,797	1,081,123	478,585	412,127	834,611	10,689,313
8 Slice Block 2012 PSC	677,766	805,176	967,434	945,370	812,525	846,050	314,047	340,218	590,975	549,190	624,380	325,080	350,086	627,871	8,776,170
9 IOU 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Exports	420,092	401,438	414,650	413,712	388,119	414,156	205,380	206,670	439,254	425,563	435,951	204,298	218,177	404,472	4,991,931
11 Regional Transfers (Out)	91,112	187,525	228,846	225,621	200,369	179,359	78,314	74,228	51,879	68,667	75,348	31,812	30,177	48,792	1,572,050
12 Federal Diversity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Transfers Out	3,214,419	3,649,560	4,116,132	4,044,043	3,539,365	3,548,623	1,493,727	1,557,531	3,476,058	3,348,433	3,591,708	1,708,457	1,730,686	3,112,501	42,131,244
14 Total Firm Obligations	3,416,025	3,837,564	4,322,133	4,243,521	3,730,346	3,756,991	1,605,432	1,678,532	3,776,994	3,624,261	3,883,049	1,838,087	1,870,287	3,341,953	44,925,175
Hydro Resources															
15 Regulated Hydro	2,730,840	3,348,866	3,377,426	3,371,577	2,785,713	2,677,879	1,039,407	985,903	4,087,640	3,474,076	3,918,311	1,684,287	1,423,921	2,932,943	37,838,788
16 Independent Hydro	149,594	131,784	86,136	78,745	68,560	117,670	88,341	95,211	323,366	344,632	209,982	97,807	99,969	174,639	2,066,436
17 Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Total Hydro Resources	2,880,434	3,480,650	3,463,562	3,450,321	2,854,273	2,795,549	1,127,748	1,081,114	4,411,006	3,818,709	4,128,293	1,782,094	1,523,890	3,107,582	39,905,224
Other Resources															
19 Small Thermal & Misc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20 Combustion Turbines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 Renewables	24,006	26,033	23,416	26,503	22,690	35,541	15,386	14,350	28,245	30,354	23,207	13,323	13,326	21,597	317,975
22 Cogeneration	7,642	7,840	9,406	9,580	9,212	9,919	4,222	4,574	7,929	5,907	7,248	2,583	2,782	5,545	94,389
23 Imports	96,366	121,510	161,311	159,164	138,197	145,649	67,134	62,258	63,998	66,112	76,430	39,178	37,749	64,222	1,299,278
24 Regional Transfers (In)	52,241	49,759	22,994	27,564	21,640	37,807	19,967	21,159	37,583	42,307	32,375	22,025	18,479	35,972	441,872
25 Non-Fed CER (Canada)	105,871	102,598	105,871	105,871	99,041	105,729	50,004	103,342	100,008	103,342	50,004	53,338	100,008	1,235,030	
26 Transmission Loss Returns	15,057	17,779	17,660	17,538	14,658	14,626	5,743	5,571	22,088	19,249	20,568	9,105	7,841	15,878	203,361
27 Large Thermal	428,480	412,000	428,480	412,000	412,000	444,960	197,760	214,240	428,480	428,480	412,000	214,240	230,720	395,520	5,059,360
28 Non-Utility Generation	1,114	1,141	1,334	1,300	1,215	1,336	601	643	1,181	1,132	1,055	549	591	1,011	14,202
29 Augmentation Purchases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 Augmentation Resources	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 Total Other Resources	730,777	738,660	770,472	759,519	718,653	795,566	360,817	372,798	692,845	693,549	676,225	351,007	364,826	639,754	8,665,467
32 Total Resources	3,611,211	4,219,310	4,234,034	4,209,841	3,572,925	3,591,115	1,488,565	1,453,912	5,103,852	4,512,258	4,804,517	2,133,101	1,888,716	3,747,336	48,570,691
Reserves & Losses															
33 Contingency Reserves (Non-Spinnin)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34 Contingency Reserves (Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35 Generation Imbalance Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 Load Following Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37 Federal Transmission Losses	-101,836	-118,985	-119,400	-118,718	-100,757	-101,269	-41,978	-41,000	-143,929	-127,246	-135,487	-60,153	-53,262	-105,675	-1,369,694
38 Total Reserves & Losses	-101,836	-118,985	-119,400	-118,718	-100,757	-101,269	-41,978	-41,000	-143,929	-127,246	-135,487	-60,153	-53,262	-105,675	-1,369,694
39 Total Net Resources	3,509,375	4,100,325	4,114,634	4,091,123	3,472,169	3,489,846	1,446,587	1,412,912	4,959,923	4,385,012	4,669,030	2,072,947	1,835,454	3,641,661	47,200,997
40 Total Firm Surplus/Deficit	93,350	262,761	-207,499	-152,398	-258,177	-267,146	-158,845	-265,621	1,182,929	760,751	785,981	234,860	-34,833	299,708	2,275,822

Table 4.1.2 - continued
Loads and Resources - Federal System
PNW Loads and Resource Study
2012 - 2013 Fiscal Years
1937 Water Year

6/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Heavy (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Non-Utility Obligations															
1 Fed. Agencies 2012 PSC	46,634	52,797	66,224	62,810	53,727	57,536	23,376	23,376	42,365	45,752	49,838	23,671	25,492	40,355	613,955
2 USBR Obligation	14,916	1,022	986	1,075	1,039	4,448	25,085	25,085	117,371	88,784	106,011	35,368	38,088	58,743	518,021
3 DSI Obligation	147,096	136,200	136,200	141,648	130,752	141,648	70,824	70,824	141,648	136,200	141,648	70,824	76,272	130,752	1,672,536
4 Total Firm Non-Utility Obligations	208,646	190,020	203,410	205,533	185,518	203,633	119,285	119,285	301,384	270,736	297,497	129,863	139,852	229,850	2,804,512
Transfers Out															
5 Load Following 2012 PSC	1,258,321	1,334,516	1,581,691	1,561,599	1,363,479	1,350,188	630,260	630,260	1,249,656	1,302,218	1,416,188	684,311	736,950	1,226,594	16,326,233
6 Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Slice 2012 PSC	788,490	936,917	931,620	908,213	748,310	772,656	301,969	290,824	1,047,917	907,170	1,060,446	476,212	405,284	830,386	10,406,415
8 Slice Block 2012 PSC	731,312	837,354	931,810	983,701	840,600	847,311	353,639	353,639	615,281	550,342	675,454	338,041	364,044	652,406	9,074,934
9 IOU 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Exports	405,631	386,009	397,916	398,647	360,230	397,443	198,969	198,966	423,379	408,399	421,600	204,658	218,190	405,563	4,825,599
11 Regional Transfers (Out)	91,464	187,624	225,786	228,643	193,319	177,368	79,980	74,585	51,879	67,497	76,201	31,921	30,177	48,792	1,565,235
12 Federal Diversity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Transfers Out	3,275,217	3,682,421	4,068,823	4,080,804	3,505,937	3,544,966	1,564,818	1,548,275	3,388,112	3,235,625	3,649,889	1,735,143	1,754,645	3,163,740	42,198,416
14 Total Firm Obligations	3,483,863	3,872,441	4,272,233	4,286,337	3,691,456	3,748,599	1,684,103	1,667,560	3,689,496	3,506,361	3,947,386	1,865,006	1,894,497	3,393,590	45,002,928
Hydro Resources															
15 Regulated Hydro	2,688,764	3,344,593	3,390,966	3,290,953	2,695,968	2,695,078	1,017,299	970,099	3,931,883	3,488,553	3,850,086	1,676,242	1,398,522	2,919,246	37,358,252
16 Independent Hydro	149,594	131,784	86,136	78,745	66,196	117,670	88,341	95,211	323,366	344,632	209,982	97,807	99,969	174,639	2,064,072
17 Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Total Hydro Resources	2,838,358	3,476,377	3,477,101	3,369,698	2,762,164	2,812,748	1,105,640	1,065,310	4,255,249	3,833,186	4,060,067	1,774,049	1,498,491	3,093,885	39,422,324
Other Resources															
19 Small Thermal & Misc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20 Combustion Turbines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 Renewables	24,929	26,033	22,515	27,563	21,783	34,224	16,668	14,350	28,245	29,187	24,135	13,323	13,326	21,597	317,877
22 Cogeneration	7,936	7,840	9,044	9,963	8,844	9,551	4,574	4,574	7,929	5,680	7,538	2,583	2,782	5,545	94,383
23 Imports	97,102	121,510	160,575	159,900	133,330	144,913	68,350	62,258	63,998	64,896	77,646	39,178	37,749	64,222	1,295,627
24 Regional Transfers (In)	54,505	49,812	36,510	43,642	34,598	51,382	29,119	28,647	52,559	55,080	48,646	29,513	26,543	49,796	590,352
25 Non-Fed CER (Canada)	103,342	100,147	103,342	103,342	93,341	103,203	49,356	49,356	102,002	98,712	102,002	49,356	52,646	98,712	1,208,858
26 Transmission Loss Returns	15,001	17,825	17,724	17,278	14,236	14,700	5,745	5,533	19,936	17,259	20,175	9,060	7,710	15,798	197,979
27 Large Thermal	444,960	412,000	412,000	428,480	395,520	428,480	214,240	214,240	138,112	0	386,880	214,240	230,720	395,520	4,315,392
28 Non-Utility Generation	1,156	1,141	1,291	1,342	1,173	1,294	643	643	1,181	1,090	1,097	549	591	1,011	14,202
29 Augmentation Purchases	76,155	70,513	70,513	73,334	67,693	73,334	36,667	36,667	73,334	70,513	73,334	36,667	39,488	67,693	865,905
30 Augmentation Resources	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 Total Other Resources	825,085	806,820	833,514	864,844	770,517	861,081	425,362	416,267	487,297	342,416	741,453	394,468	411,556	719,894	8,900,576
32 Total Resources	3,663,443	4,283,197	4,310,616	4,234,542	3,532,681	3,673,829	1,531,001	1,481,577	4,742,545	4,175,602	4,801,521	2,168,517	1,910,046	3,813,779	48,322,899
Reserves & Losses															
33 Contingency Reserves (Non-Spinnin)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34 Contingency Reserves (Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35 Generation Imbalance Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 Load Following Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37 Federal Transmission Losses	-103,309	-120,786	-121,559	-119,414	-99,622	-103,602	-43,174	-41,780	-133,740	-117,752	-135,403	-61,152	-53,863	-107,549	-1,362,706
38 Total Reserves & Losses	-103,309	-120,786	-121,559	-119,414	-99,622	-103,602	-43,174	-41,780	-133,740	-117,752	-135,403	-61,152	-53,863	-107,549	-1,362,706
39 Total Net Resources	3,560,134	4,162,410	4,189,056	4,115,128	3,433,060	3,570,227	1,487,827	1,439,797	4,608,806	4,057,850	4,666,118	2,107,365	1,856,183	3,706,231	46,960,194
40 Total Firm Surplus/Deficit	76,271	289,970	-83,176	-171,209	-258,396	-178,371	-196,276	-227,763	919,309	551,489	718,731	242,360	-38,314	312,640	1,957,266

Table 4.1.3
Loads and Resources - Federal System
PNW Loads and Resource Study
2011 - 2012 Fiscal Years
1937 Water Year

6/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Non-Utility Obligations															
1 Fed. Agencies 2012 PSC	28,965	38,490	47,486	45,240	37,792	38,817	16,489	14,918	30,303	27,925	33,303	15,096	15,891	27,497	418,210
2 USBR Obligation	56,619	11,411	12,489	813	3,875	37,735	57,989	52,474	121,866	137,246	203,734	76,082	80,086	152,090	1,004,507
3 DSI Obligation	111,684	109,301	111,684	117,132	100,788	105,896	57,204	51,756	111,684	103,512	117,132	51,756	54,480	114,408	1,318,416
4 Total Firm Non-Utility Obligations	197,267	159,201	171,658	163,185	142,455	182,448	131,681	119,148	263,853	268,683	354,169	142,934	150,457	293,994	2,741,133
Transfers Out															
5 Load Following 2012 PSC	774,841	924,319	1,098,279	1,077,645	903,464	854,830	424,246	383,841	849,153	799,306	936,562	417,197	439,154	812,672	10,695,507
6 Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Slice 2012 PSC	443,525	580,326	581,703	594,615	488,671	500,132	197,634	197,799	676,213	577,702	518,034	224,753	234,233	484,043	6,299,382
8 Slice Block 2012 PSC	534,393	646,154	698,703	745,388	601,269	609,077	274,791	248,621	465,961	401,331	536,967	237,559	250,062	549,387	6,799,663
9 IOU 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Exports	33,732	29,880	27,361	27,506	23,928	29,005	24,201	24,548	58,802	59,931	57,155	26,951	28,137	47,829	498,964
11 Regional Transfers (Out)	42,900	135,323	156,481	160,030	142,954	108,924	54,096	47,782	23,430	34,204	37,043	12,778	11,593	20,805	988,343
12 Federal Diversity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Transfers Out	1,829,391	2,316,001	2,562,526	2,605,183	2,160,285	2,101,968	974,969	902,591	2,073,559	1,872,474	2,085,761	919,237	963,178	1,914,736	25,281,860
14 Total Firm Obligations	2,026,658	2,475,202	2,734,184	2,768,368	2,302,741	2,284,415	1,106,650	1,021,739	2,337,412	2,141,157	2,439,931	1,062,171	1,113,635	2,208,731	28,022,993
Hydro Resources															
15 Regulated Hydro	1,293,605	1,849,976	1,870,973	1,900,184	1,557,606	1,550,980	591,069	606,197	2,150,800	1,828,364	1,671,659	707,985	738,997	1,509,097	19,827,492
16 Independent Hydro	82,135	73,306	61,320	52,330	44,112	68,737	47,479	53,819	201,170	201,574	141,044	57,672	58,073	110,780	1,253,551
17 Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Total Hydro Resources	1,375,740	1,923,283	1,932,293	1,952,515	1,601,718	1,619,717	638,548	660,016	2,351,970	2,029,938	1,812,702	765,657	797,071	1,619,877	21,081,043
Other Resources															
19 Small Thermal & Misc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20 Combustion Turbines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 Renewables	20,197	21,681	20,354	22,076	16,341	25,998	13,268	11,587	25,846	27,397	25,247	11,117	11,246	19,761	272,117
22 Cogeneration	6,025	6,292	7,416	8,239	6,817	7,141	3,694	3,342	6,252	4,317	6,233	1,888	1,987	4,852	74,495
23 Imports	56,584	83,163	102,959	105,712	94,184	93,027	48,807	33,250	32,545	30,150	46,356	22,277	22,202	46,283	817,499
24 Regional Transfers (In)	41,414	39,986	21,040	21,470	14,547	26,897	17,131	14,493	30,944	34,829	33,501	15,895	15,422	32,533	360,101
25 Non-Fed CER (Canada)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 Transmission Loss Returns	8,438	11,041	11,067	11,312	9,297	9,515	3,760	3,763	12,865	10,991	9,855	4,276	4,456	9,209	119,844
27 Large Thermal	337,840	330,630	337,840	354,320	304,880	320,330	173,040	156,560	337,840	313,120	354,320	156,560	164,800	346,080	3,988,160
28 Non-Utility Generation	878	906	1,038	1,086	900	968	512	470	931	827	907	400	422	885	11,130
29 Augmentation Purchases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 Augmentation Resources	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 Total Other Resources	471,376	493,697	501,713	524,216	446,967	483,875	260,213	223,466	447,222	421,630	476,420	212,413	220,535	459,603	5,643,346
32 Total Resources	1,847,116	2,416,980	2,434,007	2,476,731	2,048,684	2,103,592	898,761	883,482	2,799,192	2,451,567	2,289,123	978,069	1,017,605	2,079,480	26,724,389
Reserves & Losses															
33 Contingency Reserves (Non-Spinnin)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34 Contingency Reserves (Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35 Generation Imbalance Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 Load Following Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37 Federal Transmission Losses	-52,089	-68,159	-68,639	-69,844	-57,773	-59,321	-25,345	-24,914	-78,937	-69,134	-64,553	-27,582	-28,696	-58,641	-753,628
38 Total Reserves & Losses	-52,089	-68,159	-68,639	-69,844	-57,773	-59,321	-25,345	-24,914	-78,937	-69,134	-64,553	-27,582	-28,696	-58,641	-753,628
39 Total Net Resources	1,795,027	2,348,821	2,365,368	2,406,887	1,990,911	2,044,271	873,416	858,568	2,720,255	2,382,433	2,224,569	950,488	988,909	2,020,839	25,970,761
40 Total Firm Surplus/Deficit	-231,631	-126,381	-368,816	-361,481	-311,829	-240,145	-233,233	-163,171	382,843	241,276	-215,361	-111,683	-124,726	-187,892	-2,052,232

Table 4.1.3 - continued
Loads and Resources - Federal System
PNW Loads and Resource Study
2012 - 2013 Fiscal Years
1937 Water Year

6/27/2011

[77] 2012 Final Rate Case - 30 Minute Wind (99.5 + Self Supply) (Final)

Light (MWhr)	Oct	Nov	Dec	Jan	Feb	Mar	1-Apr	16-Apr	May	Jun	Jul	1-Aug	16-Aug	Sep	Sum
Non-Utility Obligations															
1 Fed. Agencies 2012 PSC	30,304	40,217	49,534	45,877	37,783	39,139	15,958	15,958	30,633	28,044	33,839	15,254	16,057	27,776	426,373
2 USBR Obligation	56,528	11,411	12,494	809	3,744	37,774	55,174	55,175	121,880	137,570	203,371	76,097	80,102	152,099	1,004,229
3 DSI Obligation	106,236	109,301	117,132	111,684	98,064	111,344	51,756	51,756	111,684	108,960	111,684	51,756	54,480	114,408	1,310,244
4 Total Firm Non-Utility Obligations	193,068	160,928	179,160	158,370	139,590	188,257	122,888	122,889	264,198	274,574	348,895	143,107	150,639	294,283	2,740,846
Transfers Out															
5 Load Following 2012 PSC	776,274	934,069	1,119,409	1,075,979	902,836	876,624	404,110	404,110	860,739	817,097	949,133	426,667	449,123	830,913	10,827,082
6 Block Only 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Slice 2012 PSC	450,104	581,469	582,302	611,640	470,747	500,185	199,763	201,142	656,536	486,642	523,093	226,813	240,843	487,728	6,219,006
8 Slice Block 2012 PSC	528,170	671,977	801,357	775,610	630,450	666,035	258,429	258,429	485,125	440,273	532,570	247,030	260,032	570,856	7,126,342
9 IOU 2012 PSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Exports	32,990	29,872	28,111	26,881	23,268	29,654	23,028	24,603	58,830	61,472	55,951	26,921	28,137	47,829	497,546
11 Regional Transfers (Out)	42,531	135,212	159,604	157,055	138,412	110,812	52,049	47,755	23,430	35,464	36,090	12,626	11,593	20,805	983,436
12 Federal Diversity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Transfers Out	1,830,069	2,352,598	2,690,782	2,647,165	2,165,714	2,183,310	937,378	936,038	2,084,660	1,840,947	2,096,836	940,056	989,726	1,958,131	25,653,412
14 Total Firm Obligations	2,023,137	2,513,527	2,869,942	2,805,534	2,305,305	2,371,567	1,060,266	1,058,927	2,348,858	2,115,522	2,445,731	1,083,163	1,140,365	2,252,414	28,394,258
Hydro Resources															
15 Regulated Hydro	1,335,681	1,854,250	1,857,434	1,980,808	1,497,581	1,533,781	613,177	622,001	2,304,772	1,794,447	1,739,884	716,030	764,397	1,522,794	20,137,036
16 Independent Hydro	82,135	73,306	61,320	52,330	42,591	68,737	47,479	53,819	201,170	201,574	141,044	57,672	58,073	110,780	1,252,029
17 Hydro Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Total Hydro Resources	1,417,815	1,927,556	1,918,754	2,033,138	1,540,172	1,602,518	660,656	675,820	2,505,942	1,996,020	1,880,928	773,702	822,470	1,633,574	21,389,065
Other Resources															
19 Small Thermal & Misc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20 Combustion Turbines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 Renewables	19,212	21,681	21,346	21,049	15,900	27,336	12,005	11,587	25,846	28,839	24,073	11,117	11,246	19,761	270,998
22 Cogeneration	5,731	6,292	7,778	7,856	6,633	7,508	3,342	3,342	6,252	4,544	5,943	1,888	1,987	4,852	73,948
23 Imports	56,568	83,247	104,647	104,201	91,225	94,715	46,679	33,342	32,545	31,366	45,500	22,101	22,018	46,643	814,797
24 Regional Transfers (In)	40,368	41,119	34,450	32,279	24,522	40,053	20,972	19,965	42,752	48,182	43,751	21,367	21,182	44,629	475,590
25 Non-Fed CER (Canada)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 Transmission Loss Returns	8,563	11,062	11,078	11,636	8,956	9,516	3,800	3,827	12,490	9,258	9,952	4,315	4,582	9,279	118,315
27 Large Thermal	321,360	330,630	354,320	337,840	296,640	336,810	156,560	156,560	108,896	0	305,040	156,560	164,800	346,080	3,372,096
28 Non-Utility Generation	835	906	1,080	1,044	879	1,010	470	470	931	869	865	400	422	885	11,067
29 Augmentation Purchases	55,000	56,587	60,642	57,821	50,770	57,645	26,795	26,795	57,821	56,411	57,821	26,795	28,205	59,231	678,339
30 Augmentation Resources	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 Total Other Resources	507,639	551,523	595,341	573,727	495,524	574,592	270,624	255,889	287,533	179,469	492,945	244,543	254,442	531,360	5,815,150
32 Total Resources	1,925,454	2,479,079	2,514,095	2,606,865	2,035,696	2,177,109	931,280	931,708	2,793,475	2,175,489	2,373,873	1,018,245	1,076,912	2,164,934	27,204,215
Reserves & Losses															
33 Contingency Reserves (Non-Spinnin)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34 Contingency Reserves (Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35 Generation Imbalance Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 Load Following Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37 Federal Transmission Losses	-54,298	-69,910	-70,897	-73,514	-57,407	-61,394	-26,262	-26,274	-78,776	-61,349	-66,943	-28,715	-30,369	-61,051	-767,159
38 Total Reserves & Losses	-54,298	-69,910	-70,897	-73,514	-57,407	-61,394	-26,262	-26,274	-78,776	-61,349	-66,943	-28,715	-30,369	-61,051	-767,159
39 Total Net Resources	1,871,157	2,409,169	2,443,198	2,533,352	1,978,289	2,115,715	905,018	905,434	2,714,699	2,114,140	2,306,930	989,530	1,046,543	2,103,883	26,437,056
40 Total Firm Surplus/Deficit	-151,981	-104,358	-426,745	-272,183	-327,016	-255,852	-155,248	-153,493	365,841	-1,382	-138,801	-93,633	-93,822	-148,531	-1,957,202

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