

BP-18 Rate Proceeding

Initial Proposal

Power Loads and Resources Study Documentation

BP-18-E-BPA-03A

November 2016



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

ACNR	Accumulated Calibrated Net Revenue
ACS	Ancillary and Control Area Services
AF	Advance Funding
aMW	average megawatt(s)
ANR	Accumulated Net Revenues
ASC	Average System Cost
BAA	Balancing Authority Area
BiOp	Biological Opinion
BPA	Bonneville Power Administration
Btu	British thermal unit
CDQ	Contract Demand Quantity
CGS	Columbia Generating Station
CHWM	Contract High Water Mark
CNR	Calibrated Net Revenue
COE	U.S. Army Corps of Engineers
COI	California-Oregon Intertie
Commission	Federal Energy Regulatory Commission
Corps	U.S. Army Corps of Engineers
COSA	Cost of Service Analysis
COU	consumer-owned utility
Council	Northwest Power and Conservation Council
CP	Coincidental Peak
CRAC	Cost Recovery Adjustment Clause
CSP	Customer System Peak
CT	combustion turbine
CY	calendar year (January through December)
DD	Dividend Distribution
<i>dec</i>	decrease, decrement, or decremental
DERBS	Dispatchable Energy Resource Balancing Service
DFS	Diurnal Flattening Service
DNR	Designated Network Resource
DOE	Department of Energy
DOI	Department of Interior
DSI	direct-service industrial customer or direct-service industry
DSO	Dispatcher Standing Order
EE	Energy Efficiency
EIS	Environmental Impact Statement
EN	Energy Northwest, Inc.
ESA	Endangered Species Act
ESS	Energy Shaping Service
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 and Surplus Products and Services
FPT	Formula Power Transmission
FY	fiscal year (October through September)
G&A	general and administrative (costs)
GARD	Generation and Reserves Dispatch (computer model)
GMS	Grandfathered Generation Management Service
GSR	Generation Supplied Reactive
GRSPs	General Rate Schedule Provisions
GTA	General Transfer Agreement
GWh	gigawatthour
HLH	Heavy Load Hour(s)
HOSS	Hourly Operating and Scheduling Simulator (computer model)
HYDSIM	Hydrosystem Simulator (computer model)
IE	Eastern Intertie
IM	Montana Intertie
<i>inc</i>	increase, increment, or incremental
IOU	investor-owned utility
IP	Industrial Firm Power
IPR	Integrated Program Review
IR	Integration of Resources
IRD	Irrigation Rate Discount
IRM	Irrigation Rate Mitigation
IS	Southern Intertie
kcfs	thousand cubic feet per second
kW	kilowatt
kWh	kilowatthour
LDD	Low Density Discount
LLH	Light Load Hour(s)
LPP	Large Project Program
LPTAC	Large Project Targeted Adjustment Charge
Maf	million acre-feet
Mid-C	Mid-Columbia
MMBtu	million British thermal units
MRNR	Minimum Required Net Revenue
MW	megawatt
MWh	megawatthour
NCP	Non-Coincidental Peak
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
NP-15	North of Path 15
NPCC	Pacific Northwest Electric Power and Conservation Planning Council
NPV	net present value
NR	New Resource Firm Power
NRFS	NR Resource Flattening Service
NT	Network Integration
NTSA	Non-Treaty Storage Agreement
NUG	non-utility generation
NWPP	Northwest Power Pool
OATT	Open Access Transmission Tariff
O&M	operation and maintenance
OATI	Open Access Technology International, Inc.
OS	Oversupply
OY	operating year (August through July)
PDCI	Pacific DC Intertie
Peak	Peak Reliability (assessment/charge)
PF	Priority Firm Power
PFp	Priority Firm Public
PFx	Priority Firm Exchange
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
POR	Point of Receipt
Project Act	Bonneville Project Act
PS	Power Services
PSC	power sales contract
PSW	Pacific Southwest
PTP	Point to Point
PUD	public or people's utility district
PW	WECC and Peak Service
RAM	Rate Analysis Model (computer model)
RCD	Regional Cooperation Debt
RD	Regional Dialogue
REC	Renewable Energy Certificate
Reclamation	U.S. Bureau of Reclamation
RDC	Reserves Distribution Clause
REP	Residential Exchange Program
REPSIA	REP Settlement Implementation Agreement
RevSim	Revenue Simulation Model
RFA	Revenue Forecast Application (database)
RHWM	Rate Period High Water Mark

ROD	Record of Decision
RPSA	Residential Purchase and Sale Agreement
RR	Resource Replacement
RRS	Resource Remarketing Service
RSC	Resource Shaping Charge
RSS	Resource Support Services
RT1SC	RHWM Tier 1 System Capability
SCD	Scheduling, System Control, and Dispatch rate
SCS	Secondary Crediting Service
SDD	Short Distance Discount
SILS	Southeast Idaho Load Service
Slice	Slice of the System (product)
T1SFCO	Tier 1 System Firm Critical Output
TCMS	Transmission Curtailment Management Service
TGT	Townsend-Garrison Transmission
TOCA	Tier 1 Cost Allocator
TPP	Treasury Payment Probability
TRAM	Transmission Risk Analysis Model
Transmission System Act	Federal Columbia River Transmission System Act
Treaty	Columbia River Treaty
TRL	Total Retail Load
TRM	Tiered Rate Methodology
TS	Transmission Services
TSS	Transmission Scheduling Service
UAI	Unauthorized Increase
UFT	Use of Facilities Transmission
UIC	Unauthorized Increase Charge
ULS	Unanticipated Load Service
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USFWS	U.S. Fish & Wildlife Service
VERBS	Variable Energy Resources Balancing Service
VOR	Value of Reserves
VR1-2014	First Vintage Rate of the BP-14 rate period (PF Tier 2 rate)
VR1-2016	First Vintage Rate of the BP-16 rate period (PF Tier 2 rate)
WECC	Western Electricity Coordinating Council
WSPP	Western Systems Power Pool

POWER LOADS AND RESOURCES STUDY DOCUMENTATION

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Table 1.1.1
Load Following Service Customers

Albion, City of	Ellensburg, City of	Minidoka, City of
Alder Mutual	Elmhurst Mutual P & L	Mission Valley Power
Ashland, City of	Energy Northwest	Missoula Elec Coop
Asotin County PUD #1	Fairchild AFB	Modern Elec Coop
Bandon, City of	Fall River Rural Elec Coop	Monmouth, City of
Benton REA	Farmers Elec Coop	Nespelem Valley Elec Coop
Big Bend Elec Coop	Ferry County PUD #1	Northern Lights
Blachly-Lane Electric Coop	Flathead Elec Coop	Northern Wasco County PUD
Blaine, City of	Forest Grove, City of	Ohop Mutual Light Company
Bonniers Ferry, City of	Glacier Elec Coop	Okanogan County Elec Coop
Burley, City of	Grant County PUD #2	Orcas P & L
Canby, City of	Harney Elec Coop	Oregon Trail Coop
Cascade Locks, City of	Hermiston, City of	Parkland L & W
Central Lincoln	Heyburn, City of	Peninsula Light Company
Central MT Elec Power Coop	Hood River Elec Coop	Plummer, City of
Centralia, City of	Idaho County L & P	Port Angeles, City of
Cheney, City of	Inland P & L	Port of Seattle
Chewelah, City of	Jefferson County PUD	Puget Sound Naval Shipyard (Bremerton)
Clallam County PUD #1	Kalispel Tribe Utility	Raft River Rural Elec Coop
Clearwater Power	Kittitas County PUD #1	Ravalli Elec Coop
Columbia Basin Elec Coop	Kootenai Electric Coop	Richland, City of
Columbia Power Coop	Lakeview L & P (WA)	Riverside Elec Coop
Columbia REA	Lane Elec Coop	Rupert, City of
Columbia River PUD	Lincoln Elec Coop	Salem Elec Coop
Consol Irrig Dist #19	Lost River Elec Coop	Salmon River Elec Coop
Consumer's Power	Lower Valley P & L	Skamania County PUD #1
Coos-Curry Electric Coop	Mason County PUD #1	Soda Springs, City of
Coulee Dam, City of	Mason County PUD #3	South Side Elec
Declo, City of	McCleary, City of	Springfield Utiltiy Board
Douglas Electric Coop	McMinnville, City of	Steilacoom, Town of
Drain, City of	Midstate Elec Coop	Sumas, Town of
East End Mutual Electric	Milton Freewater, City of	Surprise Valley Elec Coop
Eatonville, City of	Milton, Town of	Tanner Elec Coop

Table 1.1.1 - continued
Load Following Service Customers

Tillamook PUD #1	United Electric Coop	Wasco Elec Coop
Troy, City of	USBIA Wapato	Weiser, City of
U.S. Bureau of Reclamation (Roza)	USDOE-Albany	Wells Rural Elec Co
U.S. Naval Station, Everett (Jim Creek)	USDOE-Richland	West Oregon Elec Coop
U.S. Naval Submarine Base,(Bangor)	Vera Irrigation District	Whatcom County PUD #1
Umatilla Elec Coop	Vigilante Elec Coop	Yakama Power
Umpqua Indian Utility Cooperative	Wahkiakum County PUD #1	

Table 1.1.2
Tier 1 Block Service Customers

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Table 1.1.3
Slice Service Customers

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

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Table 1.1.4
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 Sales to Preference and Legacy Customers
Fiscal Year 2018 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

Energy-aMW	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
Pacific Northwest															
1 Load Following	2808	3285	3715	3667	3506	3089	3116	3138	3146	3249	3546	3359	3362	3043	3295
2 Cooperative	1454	1733	2004	1953	1875	1602	1554	1567	1615	1721	1905	1809	1811	1580	1734
3 Municipality	486	593	661	674	638	553	519	525	483	480	521	518	518	480	550
4 Public Utility District	664	811	883	884	836	745	682	687	616	605	612	614	614	621	714
5 Federal Entities	96.6	126.1	145.2	144.3	141.2	120.1	102.4	103.0	94.8	91.2	101.8	102.7	102.8	95.9	113.4
6 USBR	108	22	21	11	16	69	259	255	338	352	406	316	315	266	183
7 Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Public Utility District	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Slice Block	1608	1984	2205	2233	2062	1919	1616	1616	1429	1338	1556	1550	1550	1620	1759
10 Municipality	526	735	800	830	786	758	521	521	341	269	441	462	462	584	587
11 Public Utility District	1083	1249	1404	1403	1276	1161	1095	1095	1088	1069	1114	1088	1088	1035	1172
12 Slice Output from T1 System	1675	2136	2045	1747	1585	1699	1565	1804	2490	2094	1676	1982	1694	1725	1868
13 Municipality	562	717	687	587	532	570	525	606	836	703	563	666	569	579	627
14 Public Utility District	1113	1419	1358	1160	1053	1129	1039	1198	1654	1391	1113	1317	1125	1146	1241
Total Power Sales Contracts															
15 Cooperative	1454	1733	2004	1953	1875	1602	1554	1567	1615	1721	1905	1809	1811	1580	1734
16 Federal Entities	96.6	126.1	145.2	144.3	141.2	120.1	102.4	103.0	94.8	91.2	101.8	102.7	102.8	95.9	113.4
17 Municipality	1575	2046	2148	2091	1957	1881	1565	1651	1660	1452	1525	1645	1549	1644	1764
18 Public Utility District	2859	3478	3646	3448	3164	3034	2816	2981	3358	3065	2840	3018	2827	2802	3126
19 USBR	108	22	21	11	16	69	259	255	338	352	406	316	315	266	183
20 Total Power Sales Contracts	6091	7405	7965	7647	7153	6707	6297	6558	7065	6681	6779	6892	6606	6388	6921

Table 1.2.1
BPA Sales to Preference and Legacy Customers
Fiscal Year 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

Energy-aMW	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
Pacific Northwest															
1 Load Following	2825	3305	3734	3684	3524	3103	3142	3142	3161	3265	3563	3375	3378	3055	3311
2 Cooperative	1449	1730	2002	1950	1872	1598	1557	1557	1613	1720	1905	1808	1810	1578	1732
3 Municipality	491	598	666	675	638	552	521	521	481	479	520	516	517	478	551
4 Public Utility District	667	815	886	889	840	750	690	690	620	610	616	618	619	622	718
5 Federal Entities	110.6	140.7	159.5	158.6	157.0	134.3	117.2	117.2	108.8	105.7	115.9	116.8	116.9	110.3	127.8
6 USBR	108	22	21	11	16	69	257	257	338	352	406	316	315	266	183
7 Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Public Utility District	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Slice Block	1657	2044	2272	2300	2125	1977	1665	1665	1473	1379	1602	1596	1596	1668	1812
10 Municipality	540	755	822	852	807	778	535	535	351	277	454	475	475	600	603
11 Public Utility District	1117	1289	1450	1449	1317	1199	1130	1130	1122	1102	1148	1121	1121	1068	1209
12 Slice Output from T1 System	1677	2137	2046	1748	1587	1699	1564	1808	2298	1809	1641	1975	1696	1727	1826
13 Municipality	563	718	687	587	533	570	525	607	772	607	551	663	570	580	613
14 Public Utility District	1114	1420	1359	1161	1054	1129	1039	1201	1527	1202	1090	1312	1127	1147	1213
Total Power Sales Contracts															
15 Cooperative	1449	1730	2002	1950	1872	1598	1557	1557	1613	1720	1905	1808	1810	1578	1732
16 Federal Entities	110.6	140.7	159.5	158.6	157.0	134.3	117.2	117.2	108.8	105.7	115.9	116.8	116.9	110.3	127.8
17 Municipality	1594	2070	2174	2113	1979	1900	1581	1663	1604	1363	1524	1654	1562	1658	1767
18 Public Utility District	2898	3523	3695	3499	3212	3077	2859	3021	3269	2913	2854	3051	2867	2837	3140
19 USBR	108	22	21	11	16	69	257	257	338	352	406	316	315	266	183
20 Total Power Sales Contracts	6160	7486	8052	7732	7236	6779	6371	6615	6933	6454	6806	6947	6670	6450	6949

Table 1.2.2
BPA Sales to Preference and Legacy Customers
Fiscal Year 2018 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

HLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
Pacific Northwest															
1 Load Following	1260443	1404449	1613662	1615847	1425811	1398421	642378	695835	1387134	1431156	1529718	737969	794727	1262691	17200240
2 Cooperative	666156	739975	873066	855610	758828	725245	325959	353123	712210	762029	841775	402212	433151	676184	9125524
3 Municipality	225388	256843	291987	300950	263165	255960	110905	120147	220959	221101	238072	119702	128910	210218	2964307
4 Public Utility District	301086	347517	384151	391866	342392	342015	142323	154109	275245	271009	269246	138502	149147	262906	3771514
5 Federal Entities	43059.7	51989.6	61316.0	61301.8	55791.4	52907.5	20923.0	22666.6	41054.6	40159.8	44847.2	22741.1	24490.4	39989.0	583237.6
6 USBR	24754	8125	3142	6118	5635	22295	42267	45789	137664	136858	135777	54812	59029	73393	755657
7 Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Public Utility District	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Slice Block	669091	793554	881851	928937	791965	829062	310281	336137	594474	556467	622331	322448	347251	621991	8605841
10 Municipality	218741	294130	320112	345196	301968	327445	99998	108331	141869	111912	176587	96160	103557	224445	2870449
11 Public Utility District	450350	499424	561740	583741	489997	501617	210283	227806	452605	444555	445744	226288	243695	397547	5735392
12 Slice Output from T1 System	806982	970222	947877	804902	673193	797330	354411	425173	1191771	973166	813490	493562	419175	791958	10463211
13 Municipality	270947	325756	318253	270249	226027	267706	118995	142753	400142	326744	273132	165715	140740	265903	3513063
14 Public Utility District	536034	644466	629624	534653	447166	529623	235416	282419	791629	646422	540358	327847	278435	526055	6950148
Total Power Sales Contracts															
15 Cooperative	666156	739975	873066	855610	758828	725245	325959	353123	712210	762029	841775	402212	433151	676184	9125524
16 Federal Entities	43059.7	51989.6	61316.0	61301.8	55791.4	52907.5	20923.0	22666.6	41054.6	40159.8	44847.2	22741.1	24490.4	39989.0	583237.6
17 Municipality	715076	876729	930352	916395	791161	851111	329898	371232	762970	659757	687792	381577	373206	700566	9347820
18 Public Utility District	1287470	1491407	1575514	1510261	1279555	1373255	588023	664335	1519480	1361986	1255347	692637	671277	1186508	16457054
19 USBR	24754	8125	3142	6118	5635	22295	42267	45789	137664	136858	135777	54812	59029	73393	755657
20 Total Power Sales Contracts	2736515	3168225	3443390	3349686	2890970	3024813	1307070	1457145	3173379	2960790	2965538	1553979	1561153	2676640	36269292

Table 1.2.2
BPA Sales to Preference and Legacy Customers
Fiscal Year 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

HLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
Pacific Northwest															
1 Load Following	1292083	1412651	1622839	1623223	1433091	1380678	688966	688966	1393708	1407176	1572800	741925	798987	1268489	17325584
2 Cooperative	670377	739195	872729	854866	758082	717559	341933	341933	711556	756180	848420	402128	433061	676149	9124168
3 Municipality	232292	258947	294090	301283	263313	250430	117847	117847	220405	216026	242919	119468	128658	209592	2973118
4 Public Utility District	309977	348676	385698	393854	344350	336408	153086	153086	277236	267040	277312	139738	150478	263438	3800375
5 Federal Entities	49626.4	57708.4	67180.0	67102.0	61710.7	58123.9	25028.2	25028.2	46846.2	45769.6	51482.9	25779.3	27762.3	45917.6	655065.9
6 USBR	29810	8125	3142	6118	5635	18158	51072	51072	137664	122160	152666	54812	59029	73393	772856
7 Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Public Utility District	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Slice Block	715933	817446	908680	956942	815821	822293	346392	346392	612946	551676	666516	332052	357594	640426	8891108
10 Municipality	233250	301810	328624	354301	309938	323636	111329	111329	146068	110974	188815	98821	106423	230382	2955701
11 Public Utility District	482683	515636	580056	602640	505883	498657	235063	235063	466879	440702	477701	233230	251171	410044	5935408
12 Slice Output from T1 System	815164	971265	948411	801814	673486	799337	355612	425476	1078539	865375	799882	492298	420014	795000	10241672
13 Municipality	273694	326106	318433	269212	226125	268381	119398	142855	362124	290553	268563	165291	141021	266924	3438680
14 Public Utility District	541470	645159	629978	532602	447360	530957	236214	282621	716416	574822	531318	327007	278992	528075	6802992
Total Power Sales Contracts															
15 Cooperative	670377	739195	872729	854866	758082	717559	341933	341933	711556	756180	848420	402128	433061	676149	9124168
16 Federal Entities	49626.4	57708.4	67180.0	67102.0	61710.7	58123.9	25028.2	25028.2	46846.2	45769.6	51482.9	25779.3	27762.3	45917.6	655065.9
17 Municipality	739237	886863	941147	924796	799376	842446	348575	372032	728596	617554	700297	383580	376102	706898	9367499
18 Public Utility District	1334130	1509471	1595733	1529096	1297593	1366022	624363	670769	1460531	1282563	1286331	699975	680641	1201557	16538774
19 USBR	29810	8125	3142	6118	5635	18158	51072	51072	137664	122160	152666	54812	59029	73393	772856
20 Total Power Sales Contracts	2823180	3201362	3479931	3381978	2922397	3002309	1390970	1460834	3085194	2824226	3039197	1566275	1576595	2703914	36458364

Table 1.2.3
BPA Sales to Preference and Legacy Customers
Fiscal Year 2018 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

LLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
Pacific Northwest															
1 Load Following	828502	963987	1150241	1112357	930200	896706	479428	433824	953795	907844	1108841	471340	496156	928311	11661532
2 Cooperative	415349	509473	618073	597501	500861	465051	233372	211146	489316	476902	575767	249097	262207	461472	6065587
3 Municipality	136477	170828	199995	200827	165844	154806	75985	68748	138127	124393	149552	66635	70142	135469	1857828
4 Public Utility District	192562	237231	272789	265800	219070	211305	103112	93348	183116	164402	186070	82416	86762	183985	2481969
5 Federal Entities	28782.3	38934.4	46683.6	46043.0	39080.7	36294.9	15931.1	14413.9	29479.3	25533.9	30916.7	14223.9	14972.5	29050.2	410340.3
6 USBR	55333	7521	12700	2186	5345	29249	51027	46167	113757	116613	166535	58968	62072	118334	845808
7 Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Public Utility District	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Slice Block	527552	636815	758406	732431	593970	596840	271491	245634	468720	406646	535214	235630	248032	544248	6801629
10 Municipality	172469	236035	275301	272173	226475	235727	87496	79163	111858	81781	151868	70269	73968	196391	2270975
11 Public Utility District	355083	400780	483105	460257	367495	361114	183994	166471	356862	324864	383346	165361	174064	347857	4530654
12 Slice Output from T1 System	439197	569799	573600	494923	391741	465129	208849	224327	660490	534741	433620	220025	231267	449983	5897690
13 Municipality	147462	191312	192588	166172	131529	156169	70122	75319	221762	179541	145589	73874	77649	151083	1980172
14 Public Utility District	291735	378487	381011	328751	260213	308960	138727	149009	438728	355200	288030	146151	153618	298899	3917518
Total Power Sales Contracts															
15 Cooperative	415349	509473	618073	597501	500861	465051	233372	211146	489316	476902	575767	249097	262207	461472	6065587
16 Federal Entities	28782.3	38934.4	46683.6	46043.0	39080.7	36294.9	15931.1	14413.9	29479.3	25533.9	30916.7	14223.9	14972.5	29050.2	410340.3
17 Municipality	456407	598175	667884	639172	523847	546702	233603	223231	471746	385716	447009	210779	221759	482944	6108975
18 Public Utility District	839380	1016498	1136905	1054808	846778	881378	425834	408828	978706	844466	857447	393928	414445	830741	10930141
19 USBR	55333	7521	12700	2186	5345	29249	51027	46167	113757	116613	166535	58968	62072	118334	845808
20 Total Power Sales Contracts	1795251	2170601	2482247	2339710	1915911	1958675	959767	903786	2083004	1849231	2077675	926995	975455	1922542	24360851

Table 1.2.3
BPA Sales to Preference and Legacy Customers
Fiscal Year 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

LLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
Pacific Northwest															
1 Load Following	809770	970159	1155249	1117469	934870	925003	442159	442159	958179	943944	1078082	473127	498037	930907	11679113
2 Cooperative	407869	507861	616413	596223	499938	469803	218676	218676	488533	481913	568911	248863	261961	460191	6045828
3 Municipality	133018	172254	201238	200794	165735	159628	69592	69592	137461	128514	143716	66317	69808	134711	1852377
4 Public Utility District	185967	238757	273437	267374	220090	220559	95175	95175	184320	171895	181047	82717	87078	184137	2487728
5 Federal Entities	32641.4	43766.1	51461.4	50892.5	43762.2	41626.1	17162.8	17162.8	34108.1	30312.0	34762.4	16262.6	17118.6	33533.8	464572.7
6 USBR	50275	7521	12700	2186	5345	33387	41553	41553	113757	131310	149645	58968	62072	118334	828608
7 Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Public Utility District	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Slice Block	517051	655987	781478	754512	611862	646376	253130	253130	483284	441332	525522	242649	255420	560380	6982112
10 Municipality	168454	242198	282621	279353	232452	254399	81355	81355	115169	88778	148873	72214	76015	201587	2324824
11 Public Utility District	348597	413789	498856	475159	379410	391977	171775	171775	368115	352554	376649	170434	179404	358794	4657288
12 Slice Output from T1 System	432679	569604	573936	498788	393293	462987	207457	225372	631286	437110	420769	218695	231405	448748	5752130
13 Municipality	145274	191247	192701	167470	132050	155449	69655	75669	211957	146761	141275	73428	77695	150669	1931300
14 Public Utility District	287406	378357	381235	331318	261243	307537	137803	149702	419329	290349	279494	145268	153710	298079	3820831
Total Power Sales Contracts															
15 Cooperative	407869	507861	616413	596223	499938	469803	218676	218676	488533	481913	568911	248863	261961	460191	6045828
16 Federal Entities	32641.4	43766.1	51461.4	50892.5	43762.2	41626.1	17162.8	17162.8	34108.1	30312.0	34762.4	16262.6	17118.6	33533.8	464572.7
17 Municipality	446746	605699	676560	647617	530236	569477	220602	226617	464586	364053	433864	211960	223518	486967	6108500
18 Public Utility District	821969	1030903	1153528	1073851	860744	920073	404753	416652	971765	814798	837190	398418	420192	841010	10965847
19 USBR	50275	7521	12700	2186	5345	33387	41553	41553	113757	131310	149645	58968	62072	118334	828608
20 Total Power Sales Contracts	1759500	2195750	2510663	2370769	1940025	2034365	902746	920661	2072749	1822386	2024373	934471	984861	1940036	24413356

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2. OTHER CONTRACT DELIVERIES AND PURCHASE FORECASTS

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Table 2.1.1
Bonneville Power Administration - Power Services Exports
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

Energy-aMW	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	Jun Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
Canada															
Contracts															
¹ BPA-P to BCHP Trty CEA	469	469	469	469	469	469	451	488	469	469	469	462	466	464	468
² BPA-P to BCHP NTSA Del	0	0	0	0	0	0	0	0	0	0	15.5	91.7	91.7	0	9.11
³ Total Exports to CAN	469	469	469	469	469	469	451	488	469	469	485	553	558	464	478
East Continental Divide															
Contracts															
⁴ BPA-P to Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁵ Total Exports to ECD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific Southwest															
Contracts															
⁶ BPA-P to PASA CNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁷ BPA-P to PASA SNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ BPA-P to Other Entities	23.4	18.3	13.8	15.2	12.3	19.1	33.9	30.6	33.4	37.9	39.3	39.1	38.6	29.4	26.2
⁹ BPA-P to RVSD CNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹⁰ BPA-P to RVSD SNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹¹ Intertie Losses	0.7	0.5	0.4	0.5	0.4	0.6	1.0	0.9	1.0	1.1	1.2	1.2	1.2	0.9	0.8
¹² Total Exports to PSW	24.1	18.8	14.3	15.6	12.7	19.7	34.9	31.6	34.4	39.0	40.5	40.2	39.7	30.3	27.0
Total Exports															
¹³ Federal Entities	493	488	484	485	482	489	485	520	504	508	525	594	598	494	505
¹⁴ Total Exports	493	488	484	485	482	489	485	520	504	508	525	594	598	494	505

Table 2.1.1
Bonneville Power Administration - Power Services Exports
Fiscal Year 2019
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

Energy-aMW	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	Jun Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
Canada															
Contracts															
¹ BPA-P to BCHP Trty CEA	464	464	464	464	464	464	464	464	464	464	464	452	456	454	462
² BPA-P to BCHP NTSA Del	0	0	0	0	0	0	0	0	0	0	15.5	91.7	91.7	0	9.10
³ Total Exports to CAN	464	464	464	464	464	464	464	464	464	464	480	544	548	454	472
East Continental Divide															
Contracts															
⁴ BPA-P to Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁵ Total Exports to ECD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific Southwest															
Contracts															
⁶ BPA-P to PASA CNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁷ BPA-P to PASA SNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ BPA-P to Other Entities	22.1	18.4	14.0	13.6	11.6	0.28	0	0	0	0	0	0	0	0	6.65
⁹ BPA-P to RVSD CNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹⁰ BPA-P to RVSD SNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹¹ Intertie Losses	0.7	0.6	0.4	0.4	0.3	0.01	0	0	0	0	0	0	0	0	0.20
¹² Total Exports to PSW	22.7	18.9	14.4	14.0	12.0	0.29	0	0	0	0	0	0	0	0	6.85
Total Exports															
¹³ Federal Entities	487	483	479	478	476	464	464	464	464	464	480	544	548	454	478
¹⁴ Total Exports	487	483	479	478	476	464	464	464	464	464	480	544	548	454	478

Table 2.1.2
Bonneville Power Administration - Power Services Exports
Fiscal Year 2018

BP 18 Initial Proposal Report Date: **9/8/2016**
S137-RC-20161011-130500

HLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Canada															
Contracts															
¹ BPA-P to BCHP Trty CEA	349218	338422	349218	349218	315423	348749	162218	175736	349218	337953	349218	166239	179027	334128	4103985
² BPA-P to BCHP NTSA Del	0	0	0	0	0	0	0	0	0	0	6448	19108	20578	0	46135
³ Total Exports to CAN	349218	338422	349218	349218	315423	348749	162218	175736	349218	337953	355666	185347	199605	334128	4150120
East Continental Divide															
Contracts															
⁴ BPA-P to Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁵ Total Exports to ECD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific Southwest															
Contracts															
⁶ BPA-P to PASA CNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁷ BPA-P to PASA SNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ BPA-P to Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁹ BPA-P to RVSD CNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹⁰ BPA-P to RVSD SNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹¹ Intertie Losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹² Total Exports to PSW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Exports															
¹³ Federal Entities	349218	338422	349218	349218	315423	348749	162218	175736	349218	337953	355666	185347	199605	334128	4150120
¹⁴ Total Exports	349218	338422	349218	349218	315423	348749	162218	175736	349218	337953	355666	185347	199605	334128	4150120

Table 2.1.2
Bonneville Power Administration - Power Services Exports
Fiscal Year 2019

BP 18 Initial Proposal Report Date: **9/8/2016**
S137-RC-20161011-130500

HLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Canada															
Contracts															
¹ BPA-P to BCHP Trty CEA	345265	334592	345265	345265	311853	344801	167064	167064	345265	334128	345265	162740	175259	327096	4050924
² BPA-P to BCHP NTSA Del	0	0	0	0	0	0	0	0	0	0	6448	19098	20567	0	46114
³ Total Exports to CAN	345265	334592	345265	345265	311853	344801	167064	167064	345265	334128	351713	181839	195826	327096	4097037
East Continental Divide															
Contracts															
⁴ BPA-P to Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁵ Total Exports to ECD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific Southwest															
Contracts															
⁶ BPA-P to PASA CNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁷ BPA-P to PASA SNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ BPA-P to Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁹ BPA-P to RVSD CNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹⁰ BPA-P to RVSD SNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹¹ Intertie Losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹² Total Exports to PSW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Exports															
¹³ Federal Entities	345265	334592	345265	345265	311853	344801	167064	167064	345265	334128	351713	181839	195826	327096	4097037
¹⁴ Total Exports	345265	334592	345265	345265	311853	344801	167064	167064	345265	334128	351713	181839	195826	327096	4097037

Table 2.1.3
Bonneville Power Administration - Power Services Exports
Fiscal Year 2018

BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

LLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Canada															
Contracts															
¹ BPA-P to BCHP Trty CEA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
² BPA-P to BCHP NTSA Del	0	0	0	0	0	0	0	0	0	0	5084	13911	14644	0	33639
³ Total Exports to CAN	0	0	0	0	0	0	0	0	0	0	5084	13911	14644	0	33639
East Continental Divide															
Contracts															
⁴ BPA-P to Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁵ Total Exports to ECD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific Southwest															
Contracts															
⁶ BPA-P to PASA CNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁷ BPA-P to PASA SNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ BPA-P to Other Entities	17400	13160	10304	11296	8256	14184	12188	11028	24880	27288	29248	14066	14806	21152	229255
⁹ BPA-P to RVSD CNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹⁰ BPA-P to RVSD SNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹¹ Intertie Losses	522	395	309	339	248	426	366	331	746	819	877	422	444	635	6878
¹² Total Exports to PSW	17922	13555	10613	11635	8504	14609	12554	11358	25626	28107	30125	14488	15250	21786	236133
Total Exports															
¹³ Federal Entities	17922	13555	10613	11635	8504	14609	12554	11358	25626	28107	35209	28399	29894	21786	269772
¹⁴ Total Exports	17922	13555	10613	11635	8504	14609	12554	11358	25626	28107	35209	28399	29894	21786	269772

Table 2.1.3
Bonneville Power Administration - Power Services Exports
Fiscal Year 2019

BP 18 Initial Proposal Report Date: **9/8/2016**
S137-RC-20161011-130500

LLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Canada															
Contracts															
¹ BPA-P to BCHP Trty CEA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
² BPA-P to BCHP NTSA Del	0	0	0	0	0	0	0	0	0	0	5084	13904	14636	0	33624
³ Total Exports to CAN	0	0	0	0	0	0	0	0	0	0	5084	13904	14636	0	33624
East Continental Divide															
Contracts															
⁴ BPA-P to Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁵ Total Exports to ECD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific Southwest															
Contracts															
⁶ BPA-P to PASA CNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁷ BPA-P to PASA SNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ BPA-P to Other Entities	16416	13240	10432	10136	7816	208	0	0	0	0	0	0	0	0	58248
⁹ BPA-P to RVSD CNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹⁰ BPA-P to RVSD SNX Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹¹ Intertie Losses	492	397	313	304	234	6	0	0	0	0	0	0	0	0	1747
¹² Total Exports to PSW	16908	13637	10745	10440	8051	214	0	0	0	0	0	0	0	0	59995
Total Exports															
¹³ Federal Entities	16908	13637	10745	10440	8051	214	0	0	0	0	5084	13904	14636	0	93619
¹⁴ Total Exports	16908	13637	10745	10440	8051	214	0	0	0	0	5084	13904	14636	0	93619

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Table 2.2.1
Bonneville Power Administration - Power Services Imports
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016
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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Canada															
Contracts															
¹ BCHP to BPA-P Trty LcAlgcYRtn	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
² Total Imports From CAN	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Pacific Southwest															
Contracts															
³ PASA to BPA-P CNX EER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁴ PASA to BPA-P CNX Repl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁵ PASA to BPA-P SNX Ret	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁶ RVSD to BPA-P CNX EER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁷ RVSD to BPA-P CNX Repl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ RVSD to BPA-P SNX Ret	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
Total Imports															
¹⁰ Federal Entities	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
¹¹ Total Imports	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Table 2.2.1
Bonneville Power Administration - Power Services Imports
Fiscal Year 2019
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

Energy-aMW	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Canada															
Contracts															
¹ BCHP to BPA-P Trty LCALgcyRtn	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
² Total Imports From CAN	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Pacific Southwest															
Contracts															
³ PASA to BPA-P CNX EER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁴ PASA to BPA-P CNX Repl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁵ PASA to BPA-P SNX Ret	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁶ RVSD to BPA-P CNX EER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁷ RVSD to BPA-P CNX Repl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ RVSD to BPA-P SNX Ret	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
Total Imports															
¹⁰ Federal Entities	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
¹¹ Total Imports	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Table 2.2.2
Bonneville Power Administration - Power Services Imports
Fiscal Year 2018
BP 18 Initial Proposal Report Date: **9/8/2016**
S137-RC-20161011-130500

HLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Canada															
Contracts															
¹ BCHP to BPA-P Trty LCAIgcyrtn	416	400	400	416	384	432	192	208	416	416	400	208	224	384	4896
² Total Imports From CAN	416	400	400	416	384	432	192	208	416	416	400	208	224	384	4896
Pacific Southwest															
Contracts															
³ PASA to BPA-P CNX EER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁴ PASA to BPA-P CNX Repl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁵ PASA to BPA-P SNX Ret	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁶ RVSD to BPA-P CNX EER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁷ RVSD to BPA-P CNX Repl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ RVSD to BPA-P SNX Ret	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
Total Imports															
¹⁰ Federal Entities	416	400	400	416	384	432	192	208	416	416	400	208	224	384	4896
¹¹ Total Imports	416	400	400	416	384	432	192	208	416	416	400	208	224	384	4896

Table 2.2.2
Bonneville Power Administration - Power Services Imports
Fiscal Year 2019
BP 18 Initial Proposal Report Date: **9/8/2016**
S137-RC-20161011-130500

HLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Canada															
Contracts															
¹ BCHP to BPA-P Trty LCALgcyRtn	432	400	400	416	384	416	208	208	416	400	416	208	224	384	4912
² Total Imports From CAN	432	400	400	416	384	416	208	208	416	400	416	208	224	384	4912
Pacific Southwest															
Contracts															
³ PASA to BPA-P CNX EER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁴ PASA to BPA-P CNX Repl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁵ PASA to BPA-P SNX Ret	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁶ RVSD to BPA-P CNX EER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁷ RVSD to BPA-P CNX Repl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ RVSD to BPA-P SNX Ret	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
Total Imports															
¹⁰ Federal Entities	432	400	400	416	384	416	208	208	416	400	416	208	224	384	4912
¹¹ Total Imports	432	400	400	416	384	416	208	208	416	400	416	208	224	384	4912

Table 2.2.3
Bonneville Power Administration - Power Services Imports
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

LLH-MWh	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Canada															
Contracts															
¹ BCHP to BPA-P Trty LCALgcyRtn	328	321	344	328	288	311	168	152	328	304	344	152	160	336	3864
² Total Imports From CAN	328	321	344	328	288	311	168	152	328	304	344	152	160	336	3864
Pacific Southwest															
Contracts															
³ PASA to BPA-P CNX EER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁴ PASA to BPA-P CNX Repl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁵ PASA to BPA-P SNX Ret	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁶ RVSD to BPA-P CNX EER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁷ RVSD to BPA-P CNX Repl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ RVSD to BPA-P SNX Ret	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
Total Imports															
¹⁰ Federal Entities	328	321	344	328	288	311	168	152	328	304	344	152	160	336	3864
¹¹ Total Imports	328	321	344	328	288	311	168	152	328	304	344	152	160	336	3864

Table 2.2.3
Bonneville Power Administration - Power Services Imports
Fiscal Year 2019
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

LLH-MWh	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Canada															
Contracts															
¹ BCHP to BPA-P Trty LCALgcyRtn	312	321	344	328	288	327	152	152	328	320	328	152	160	336	3848
² Total Imports From CAN	312	321	344	328	288	327	152	152	328	320	328	152	160	336	3848
Pacific Southwest															
Contracts															
³ PASA to BPA-P CNX EER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁴ PASA to BPA-P CNX Repl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁵ PASA to BPA-P SNX Ret	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁶ RVSD to BPA-P CNX EER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁷ RVSD to BPA-P CNX Repl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ RVSD to BPA-P SNX Ret	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
Total Imports															
¹⁰ Federal Entities	312	321	344	328	288	327	152	152	328	320	328	152	160	336	3848
¹¹ Total Imports	312	321	344	328	288	327	152	152	328	320	328	152	160	336	3848

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2.3	Intra-Regional Transfers	39
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Table 2.3.1
Bonneville Power Administration - Power Services: Intra-Regional Transfers
Fiscal Year 2018
BP 18 Initial Proposal Report Date: **9/8/2016**
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Energy-aMW	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Intra-Regional Transfers															
Contracts	39.4	152	144	148	141	98.5	109	110	52.2	63.7	55.7	57.4	57.3	43.6	91.7
1 BPA-P to AVWP Setl WNP3 Del	0	113	113	113	113	55.8	55.8	55.8	0	0	0	0	0	0	46.4
2 BPA-P to BPA-T Ops IntrlAgmt	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44
3 BPA-P to PPL NSP RIn	4.41	5.31	3.68	3.24	2.77	2.17	4.69	4.72	5.03	4.97	6.35	5.33	5.33	4.26	4.36
4 BPA-P to PPL SNX SprgDel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 BPA-P to PPL SNX SumrDel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 BPA-P to PSE Ops UBkr Repl	0	3.89	3.77	3.92	4.01	0	0	0	0	0	0	0	0	0	1.28
7 BPA-P to PSE Setl WNP3 Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Other Entities to BPA-P	20.4	16.9	11.1	16.2	8.95	26.5	34.2	34.4	32.9	42.8	34.6	38.5	38.5	25.3	25.8
9 Other Entities to Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 PPL to BPA-P NSP SOut	5.15	3.80	3.24	2.50	2.40	4.56	5.18	5.21	4.81	6.56	5.33	4.13	4.12	4.57	4.36
11 PPL to BPA-P SNX SprgRtn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 PPL to BPA-P SNX SumrRtn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Intra-Regional Transfers	39.4	152	144	148	141	98.5	109	110	52.2	63.7	55.7	57.4	57.3	43.6	91.7
Intra-Regional Contracts Out															
14 Federal Entities	13.8	131	130	130	129	67.4	69.9	70.0	14.5	14.4	15.8	14.8	14.8	13.7	61.5
15 Investor Owned Utilities	25.6	20.7	14.4	18.7	11.4	31.1	39.4	39.7	37.7	49.3	39.9	42.6	42.6	29.9	30.2
16 Total Regional Contracts Out	39.4	152	144	148	141	98.5	109	110	52.2	63.7	55.7	57.4	57.3	43.6	91.7
Intra-Regional Contracts In															
17 Federal Entities	35.0	30.1	23.8	28.1	20.8	40.5	48.8	49.1	47.1	58.8	49.3	52.0	52.0	39.4	39.6
18 Investor Owned Utilities	4.41	122	120	120	120	58.0	60.5	60.5	5.03	4.97	6.35	5.33	5.33	4.26	52.1
19 Total Regional Contracts In	39.4	152	144	148	141	98.5	109	110	52.2	63.7	55.7	57.4	57.3	43.6	91.7

Table 2.3.1
Bonneville Power Administration - Power Services: Intra-Regional Transfers
Fiscal Year 2019
BP 18 Initial Proposal Report Date: **9/8/2016**
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Energy-aMW	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
Intra-Regional Transfers															
Contracts	39.4	152	144	148	136	72.0	75.2	75.2	19.3	21.0	21.2	18.9	18.9	18.3	71.7
¹ BPA-P to AVWP Setl WNP3 Del	0	113	113	113	113	55.8	55.8	55.8	0	0	0	0	0	0	46.4
² BPA-P to BPA-T Ops IntrAgmt	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44
³ BPA-P to PPL NSP RIn	4.42	5.27	3.68	3.24	2.77	2.17	4.73	4.73	5.05	4.97	6.38	5.37	5.37	4.26	4.37
⁴ BPA-P to PPL SNX SprgDel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁵ BPA-P to PPL SNX SumrDel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁶ BPA-P to PSE Ops UBkr Repl	0	3.89	3.77	3.92	4.01	0	0	0	0	0	0	0	0	0	1.28
⁷ BPA-P to PSE Setl WNP3 Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ Other Entities to BPA-P	20.4	16.9	11.1	16.2	4.48	0	0	0	0	0	0	0	0	0	5.79
⁹ Other Entities to Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹⁰ PPL to BPA-P NSP SOut	5.11	3.80	3.24	2.50	2.40	4.58	5.22	5.22	4.81	6.59	5.37	4.13	4.12	4.57	4.37
¹¹ PPL to BPA-P SNX SprgRtn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹² PPL to BPA-P SNX SumrRtn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹³ Total Intra-Regional Transfers	39.4	152	144	148	136	72.0	75.2	75.2	19.3	21.0	21.2	18.9	18.9	18.3	71.7
Intra-Regional Contracts Out															
¹⁴ Federal Entities	13.9	131	130	130	129	67.4	70.0	70.0	14.5	14.4	15.8	14.8	14.8	13.7	61.5
¹⁵ Investor Owned Utilities	25.5	20.7	14.4	18.7	6.87	4.58	5.22	5.22	4.81	6.59	5.37	4.13	4.12	4.57	10.2
¹⁶ Total Regional Contracts Out	39.4	152	144	148	136	72.0	75.2	75.2	19.3	21.0	21.2	18.9	18.9	18.3	71.7
Intra-Regional Contracts In															
¹⁷ Federal Entities	35.0	30.1	23.8	28.1	16.3	14.0	14.7	14.7	14.2	16.0	14.8	13.6	13.6	14.0	19.6
¹⁸ Investor Owned Utilities	4.42	122	120	120	120	58.0	60.5	60.5	5.05	4.97	6.38	5.37	5.37	4.26	52.1
¹⁹ Total Regional Contracts In	39.4	152	144	148	136	72.0	75.2	75.2	19.3	21.0	21.2	18.9	18.9	18.3	71.7

Table 2.3.2
Bonneville Power Administration - Power Services: Intra-Regional Transfers
Fiscal Year 2018
BP 18 Initial Proposal Report Date: **9/8/2016**
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HLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Intra-Regional Transfers															
Contracts	16212	58078	58023	61873	53980	41589	21643	23447	21365	25238	21513	11586	12477	17031	444055
1 BPA-P to AVWP Setl WNP3 Del	0	41573	45072	45072	41605	22519	10793	11692	0	0	0	0	0	0	218326
2 BPA-P to BPA-T Ops IntrlAgmt	3926	3775	3775	3926	3624	4077	1812	1963	3926	3926	3775	1963	2114	3624	46204
3 BPA-P to PPL NSP RIn	1840	2122	1360	1240	1206	806	954	1033	2197	1706	2746	1098	1182	1550	21040
4 BPA-P to PPL SNX SprgDel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 BPA-P to PPL SNX SumrDel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 BPA-P to PSE Ops UBkr Repl	0	2800	2800	2912	2688	0	0	0	0	0	0	0	0	0	11200
7 BPA-P to PSE Setl WNP3 Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Other Entities to BPA-P	8324	6448	3776	7517	4051	12200	7030	7616	13537	16860	12712	7779	8377	10015	126242
9 Other Entities to Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 PPL to BPA-P NSP SOut	2122	1360	1240	1206	806	1987	1054	1142	1706	2746	2280	746	804	1843	21043
11 PPL to BPA-P SNX SprgRtn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 PPL to BPA-P SNX SumrRtn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Intra-Regional Transfers	16212	58078	58023	61873	53980	41589	21643	23447	21365	25238	21513	11586	12477	17031	444055
Intra-Regional Contracts Out															
14 Federal Entities	5766	50270	53007	53150	49123	27402	13559	14689	6123	5632	6521	3061	3296	5174	296770
15 Investor Owned Utilities	10446	7808	5016	8723	4857	14187	8085	8758	15243	19606	14992	8525	9181	11858	147285
16 Total Regional Contracts Out	16212	58078	58023	61873	53980	41589	21643	23447	21365	25238	21513	11586	12477	17031	444055
Intra-Regional Contracts In															
17 Federal Entities	14372	11583	8791	12649	8481	18264	9897	10721	19168	23532	18767	10488	11295	15481	193489
18 Investor Owned Utilities	1840	46495	49232	49224	45499	23325	11747	12726	2197	1706	2746	1098	1182	1550	250566
19 Total Regional Contracts In	16212	58078	58023	61873	53980	41589	21643	23447	21365	25238	21513	11586	12477	17031	444055

Table 2.3.2
Bonneville Power Administration - Power Services: Intra-Regional Transfers
Fiscal Year 2019
BP 18 Initial Proposal Report Date: **9/8/2016**
S137-RC-20161011-130500

HLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Intra-Regional Transfers															
Contracts	16681	58073	58023	61873	51954	29248	15306	15306	7837	8241	8974	3811	4104	7016	346447
1 BPA-P to AVWP Setl WNP3 Del	0	41573	45072	45072	41605	22519	11242	11242	0	0	0	0	0	0	218326
2 BPA-P to BPA-T Ops IntrlAgmt	4077	3775	3775	3926	3624	3926	1963	1963	3926	3775	3926	1963	2114	3624	46355
3 BPA-P to PPL NSP RIn	1843	2117	1360	1240	1206	806	998	998	2205	1706	2760	1102	1186	1550	21078
4 BPA-P to PPL SNX SprgDel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 BPA-P to PPL SNX SumrDel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 BPA-P to PSE Ops UBkr Repl	0	2800	2800	2912	2688	0	0	0	0	0	0	0	0	0	11200
7 BPA-P to PSE Setl WNP3 Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Other Entities to BPA-P	8644	6448	3776	7517	2026	0	0	0	0	0	0	0	0	0	28411
9 Other Entities to Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 PPL to BPA-P NSP SOut	2117	1360	1240	1206	806	1997	1102	1102	1706	2760	2288	746	804	1843	21077
11 PPL to BPA-P SNX SprgRtn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 PPL to BPA-P SNX SumrRtn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Intra-Regional Transfers	16681	58073	58023	61873	51954	29248	15306	15306	7837	8241	8974	3811	4104	7016	346447
Intra-Regional Contracts Out															
14 Federal Entities	5920	50265	53007	53150	49123	27251	14204	14204	6131	5481	6686	3064	3300	5174	296958
15 Investor Owned Utilities	10761	7808	5016	8723	2832	1997	1102	1102	1706	2760	2288	746	804	1843	49488
16 Total Regional Contracts Out	16681	58073	58023	61873	51954	29248	15306	15306	7837	8241	8974	3811	4104	7016	346447
Intra-Regional Contracts In															
17 Federal Entities	14838	11583	8791	12649	6455	5923	3065	3065	5632	6535	6214	2709	2918	5467	95843
18 Investor Owned Utilities	1843	46490	49232	49224	45499	23325	12241	12241	2205	1706	2760	1102	1186	1550	250604
19 Total Regional Contracts In	16681	58073	58023	61873	51954	29248	15306	15306	7837	8241	8974	3811	4104	7016	346447

Table 2.3.3
Bonneville Power Administration - Power Services: Intra-Regional Transfers
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

LLH-MWh	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Intra-Regional Transfers															
Contracts	13113	51606	49247	48406	40460	31622	17705	16019	17450	20653	19905	9066	9543	14369	359163
1 BPA-P to AVWP Setl WNP3 Del	0	39739	38941	38941	34309	18958	9285	8401	0	0	0	0	0	0	188574
2 BPA-P to BPA-T Ops IntrlAgmt	3095	3029	3246	3095	2718	2935	1585	1434	3095	2869	3246	1434	1510	3171	36465
3 BPA-P to PPL NSP RIn	1440	1706	1380	1170	656	806	735	665	1546	1870	1976	821	865	1518	17154
4 BPA-P to PPL SNX SprgDel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 BPA-P to PPL SNX SumrDel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 BPA-P to PSE Ops UBkr Repl	0	7.06	6.88	6.89	6.91	0	0	0	0	0	0	0	0	0	27.7
7 BPA-P to PSE Setl WNP3 Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Other Entities to BPA-P	6872	5744	4503	4536	1964	7522	5288	4784	10939	13938	12996	6071	6390	8235	99784
9 Other Entities to Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 PPL to BPA-P NSP SOut	1706	1380	1170	656	806	1400	812	734	1870	1976	1686	739	778	1445	17159
11 PPL to BPA-P SNX SprgRtn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 PPL to BPA-P SNX SumrRtn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Intra-Regional Transfers	13113	51606	49247	48406	40460	31622	17705	16019	17450	20653	19905	9066	9543	14369	359163
Intra-Regional Contracts Out															
14 Federal Entities	4535	44482	43574	43213	37690	22699	11606	10500	4641	4739	5222	2256	2375	4689	242221
15 Investor Owned Utilities	8578	7124	5673	5192	2770	8923	6100	5519	12809	15914	14682	6810	7169	9680	116942
16 Total Regional Contracts Out	13113	51606	49247	48406	40460	31622	17705	16019	17450	20653	19905	9066	9543	14369	359163
Intra-Regional Contracts In															
17 Federal Entities	11673	10153	8919	8288	5488	11857	7685	6953	15904	18783	17929	8245	8679	12851	153407
18 Investor Owned Utilities	1440	41452	40328	40118	34972	19764	10020	9066	1546	1870	1976	821	865	1518	205756
19 Total Regional Contracts In	13113	51606	49247	48406	40460	31622	17705	16019	17450	20653	19905	9066	9543	14369	359163

Table 2.3.3
Bonneville Power Administration - Power Services: Intra-Regional Transfers
Fiscal Year 2019
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

LLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Intra-Regional Transfers															
Contracts	12611	51584	49247	48406	39478	24256	11756	11756	6515	6874	6785	3005	3163	6134	281570
1 BPA-P to AVWP Setl WNP3 Del	0	39739	38941	38941	34309	18958	8843	8843	0	0	0	0	0	0	188575
2 BPA-P to BPA-T Ops IntrlAgmt	2944	3029	3246	3095	2718	3086	1434	1434	3095	3020	3095	1434	1510	3171	36314
3 BPA-P to PPL NSP RIn	1445	1685	1380	1170	656	806	703	703	1550	1870	1984	831	875	1518	17176
4 BPA-P to PPL SNX SprgDel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 BPA-P to PPL SNX SumrDel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 BPA-P to PSE Ops UBkr Repl	0	7.06	6.88	6.89	6.91	0	0	0	0	0	0	0	0	0	27.7
7 BPA-P to PSE Setl WNP3 Del	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Other Entities to BPA-P	6536	5744	4503	4536	982	0	0	0	0	0	0	0	0	0	22302
9 Other Entities to Other Entities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 PPL to BPA-P NSP SOut	1685	1380	1170	656	806	1406	775	775	1870	1984	1706	739	778	1445	17176
11 PPL to BPA-P SNX SprgRtn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 PPL to BPA-P SNX SumrRtn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Total Intra-Regional Transfers	12611	51584	49247	48406	39478	24256	11756	11756	6515	6874	6785	3005	3163	6134	281570
Intra-Regional Contracts Out															
14 Federal Entities	4389	44460	43574	43213	37690	22850	10980	10980	4645	4890	5079	2266	2385	4689	242092
15 Investor Owned Utilities	8222	7124	5673	5192	1788	1406	775	775	1870	1984	1706	739	778	1445	39478
16 Total Regional Contracts Out	12611	51584	49247	48406	39478	24256	11756	11756	6515	6874	6785	3005	3163	6134	281570
Intra-Regional Contracts In															
17 Federal Entities	11166	10153	8919	8288	4506	4492	2209	2209	4965	5004	4801	2174	2288	4616	75791
18 Investor Owned Utilities	1445	41431	40328	40118	34972	19764	9546	9546	1550	1870	1984	831	875	1518	205779
19 Total Regional Contracts In	12611	51584	49247	48406	39478	24256	11756	11756	6515	6874	6785	3005	3163	6134	281570

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2.4	Non-Federal CER Deliveries to BPA	47
	Table 2.4.1 Non-Federal CER Deliveries to BPA - Energy	48
	Table 2.4.2 Non-Federal CER Deliveries to BPA - HLH MWh	50
	Table 2.4.3 Non-Federal CER Deliveries to BPA - LLH MWh.....	52

Table 2.4.1
Non-Federal CER Deliveries to BPA
Fiscal Year: 2018
2016 White Book Report Date: 9/20/2016
S140-WB-20160920-070600

Energy-aMW	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Pacific Northwest															
1 CHPD to BPA CEAEA for Rock Island	17.8	17.9	17.3	18.0	17.7	18.0	16.5	17.9	18.0	17.9	17.3	17.9	18.1	17.2	17.7
2 CHPD to BPA CEAEA for Rocky Reach	36.6	37.5	36.3	37.7	37.1	37.8	34.7	37.6	37.7	37.6	36.3	37.6	37.9	36.1	37.1
3 DOPD to BPA CEAEA for Wells	23.5	24.2	23.5	24.4	24.0	23.9	22.4	24.3	24.4	24.3	23.5	24.3	24.5	23.3	23.9
4 GCPD to BPA CEAEA for Priest Rapids	28.5	29.4	28.5	29.8	29.7	30.2	27.2	29.5	29.6	29.5	28.5	29.5	29.8	28.3	29.2
5 GCPD to BPA CEAEA for Wanpum	27.8	28.8	28.0	29.0	28.6	29.1	26.1	28.3	28.5	28.3	27.4	28.3	28.6	27.2	28.2
6 Total Imports From PNW	134	138	134	139	137	139	127	138	138	138	133	138	139	132	136
Total Imports															
7 Federal Entities	134	138	134	139	137	139	127	138	138	138	133	138	139	132	136
8 Total Imports	134	138	134	139	137	139	127	138	138	138	133	138	139	132	136

Table 2.4.1
Non-Federal CER Deliveries to BPA
Fiscal Year: 2019
2016 White Book Report Date: 9/20/2016
S140-WB-20160920-070600

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Pacific Northwest															
1 CHPD to BPA CEAEA for Rock Island	18.1	18.5	17.9	18.6	18.3	17.9	18.5	18.5	18.6	17.8	18.6	18.5	18.7	17.8	18.3
2 CHPD to BPA CEAEA for Rocky Reach	37.7	37.5	36.3	38.3	37.7	37.0	38.1	38.1	38.3	36.7	38.3	38.1	38.5	36.7	37.6
3 DOPD to BPA CEAEA for Wells	24.4	24.2	23.4	23.8	23.4	23.0	23.7	23.7	23.8	22.8	23.8	23.7	23.9	22.8	23.6
4 GCPD to BPA CEAEA for Priest Rapids	29.6	29.4	28.5	29.6	29.1	28.3	28.9	28.9	29.0	27.8	29.0	28.9	29.2	27.8	28.8
5 GCPD to BPA CEAEA for Wanpum	28.5	28.3	27.5	29.0	28.6	28.0	28.9	28.9	29.0	27.8	29.0	28.9	29.2	27.8	28.4
6 Total Imports From PNW	138	138	134	139	137	134	138	138	139	133	139	138	139	133	137
Total Imports															
7 Federal Entities	138	138	134	139	137	134	138	138	139	133	139	138	139	133	137
8 Total Imports	138	138	134	139	137	134	138	138	139	133	139	138	139	133	137

Table 2.4.2
Non-Federal CER Deliveries to BPA
Fiscal Year: 2018
2016 White Book Report Date: 9/20/2016
S140-WB-20160920-070600

HLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Pacific Northwest															
1 CHPD to BPA CEAEA for Rock Island	13240	12400	12400	12896	11904	13392	5952	6448	12896	12896	12400	6448	6944	11904	152120
2 CHPD to BPA CEAEA for Rocky Reach	27224	26000	26000	27040	24960	28080	12480	13520	27040	27040	26000	13520	14560	24960	318424
3 DOPD to BPA CEAEA for Wells	17472	16800	16800	17472	16128	17787	8064	8736	17472	17472	16800	8736	9408	16128	205275
4 GCPD to BPA CEAEA for Priest Rapids	21216	20400	20400	21338	19968	22464	9792	10608	21216	21216	20400	10608	11424	19584	250634
5 GCPD to BPA CEAEA for Wanpum	20696	20000	20000	20800	19200	21600	9408	10192	20384	20384	19600	10192	10976	18816	242248
6 Total Imports From PNW	99848	95600	95600	99546	92160	103323	45696	49504	99008	99008	95200	49504	53312	91392	1168701
Total Imports															
7 Federal Entities	99848	95600	95600	99546	92160	103323	45696	49504	99008	99008	95200	49504	53312	91392	1168701
8 Total Imports	99848	95600	95600	99546	92160	103323	45696	49504	99008	99008	95200	49504	53312	91392	1168701

Table 2.4.2
Non-Federal CER Deliveries to BPA
Fiscal Year: 2019
2016 White Book Report Date: 9/20/2016
S140-WB-20160920-070600

HLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Pacific Northwest															
1 CHPD to BPA CEAEA for Rock Island	13468	12800	12800	13312	12288	13312	6656	6656	13312	12800	13312	6656	7168	12288	156828
2 CHPD to BPA CEAEA for Rocky Reach	28080	26000	26000	27456	25344	27456	13728	13728	27456	26400	27456	13728	14784	25344	322960
3 DOPD to BPA CEAEA for Wells	18144	16800	16737	17056	15744	17056	8528	8528	17056	16400	17056	8528	9184	15744	202561
4 GCPD to BPA CEAEA for Priest Rapids	22032	20400	20400	21216	19584	21006	10400	10400	20800	20000	20800	10400	11200	19200	247838
5 GCPD to BPA CEAEA for Wanpum	21168	19600	19645	20800	19200	20800	10400	10400	20800	20000	20800	10400	11200	19200	244413
6 Total Imports From PNW	102892	95600	95582	99840	92160	99630	49712	49712	99424	95600	99424	49712	53536	91776	1174600
Total Imports															
7 Federal Entities	102892	95600	95582	99840	92160	99630	49712	49712	99424	95600	99424	49712	53536	91776	1174600
8 Total Imports	102892	95600	95582	99840	92160	99630	49712	49712	99424	95600	99424	49712	53536	91776	1174600

Table 2.4.3
Non-Federal CER Deliveries to BPA
Fiscal Year: 2018
2016 White Book Report Date: 9/20/2016
S140-WB-20160920-070600

LLH-MWh	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Pacific Northwest															
1 CHPD to BPA CEAEA for Rock Island	0	496	496	496	0	0	0	0	496	0	496	0	0	496	2976
2 CHPD to BPA CEAEA for Rocky Reach	0	1040	1040	1040	0	0	0	0	1040	0	1040	0	0	1040	6240
3 DOPD to BPA CEAEA for Wells	0	672	672	672	0	0	0	0	672	0	672	0	0	672	4032
4 GCPD to BPA CEAEA for Priest Rapids	0	816	816	816	0	0	0	0	816	0	816	0	0	816	4896
5 GCPD to BPA CEAEA for Wanpum	0	800	800	800	0	0	0	0	784	0	784	0	0	784	4752
6 Total Imports From PNW	0	3824	3824	3824	0	0	0	0	3808	0	3808	0	0	3808	22896
Total Imports															
7 Federal Entities	0	3824	3824	3824	0	0	0	0	3808	0	3808	0	0	3808	22896
8 Total Imports	0	3824	3824	3824	0	0	0	0	3808	0	3808	0	0	3808	22896

Table 2.4.3
Non-Federal CER Deliveries to BPA
Fiscal Year: 2019
2016 White Book Report Date: 9/20/2016
S140-WB-20160920-070600

LLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Pacific Northwest															
1 CHPD to BPA CEAEA for Rock Island	0	512	512	512	0	0	0	0	512	0	512	0	0	512	3072
2 CHPD to BPA CEAEA for Rocky Reach	0	1040	1040	1045	0	0	0	0	1056	0	1056	0	0	1056	6293
3 DOPD to BPA CEAEA for Wells	0	672	672	656	0	0	0	0	656	0	656	0	0	656	3968
4 GCPD to BPA CEAEA for Priest Rapids	0	816	816	816	0	0	0	0	800	0	800	0	0	800	4848
5 GCPD to BPA CEAEA for Wanpum	0	784	784	800	0	0	0	0	800	0	800	0	0	800	4768
6 Total Imports From PNW	0	3824	3824	3829	0	0	0	0	3824	0	3824	0	0	3824	22949
Total Imports															
7 Federal Entities	0	3824	3824	3829	0	0	0	0	3824	0	3824	0	0	3824	22949
8 Total Imports	0	3824	3824	3829	0	0	0	0	3824	0	3824	0	0	3824	22949

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3. HYDRO RESOURCE FORECASTS FOR FY 2018 AND FY 2019

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Table 3.1.1
Bonneville Power Administration - Power Services: Regulated Hydro
Fiscal Year 2018 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

Energy-aMW	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
Regulated Hydro															
1 Albeni Falls Hydroelectric	30.5	23.3	16.1	12.8	14.4	14.5	6.39	22.7	30.5	30.6	33.2	23.9	19.4	25.3	22.3
2 Bonneville	428	542	551	480	450	467	345	243	417	328	136	183	138	442	391
3 Chief Joseph	926	1292	1233	1034	858	846	868	1247	1496	1145	1052	1425	1173	945	1100
4 Dworshak	57.9	57.7	57.5	57.3	57.0	57.0	57.4	58.3	64.0	212	440	439	344	181	142
5 Grand Coulee	1664	2330	2166	1772	1481	1463	1454	2027	2397	1956	1894	2566	2070	1672	1907
6 Hungry Horse	79.0	83.8	84.5	85.9	85.2	83.3	63.4	25.9	26.7	76.2	110	110	109	108	81.4
7 Ice Harbor	108	104	121	116	125	176	68.2	66.8	173	82.9	67.2	67.6	67.8	98.8	109
8 John Day	691	926	917	774	712	774	760	789	973	849	636	746	608	712	785
9 Libby	93.9	267	175	87.8	87.0	86.2	85.7	85.7	447	389	171	174	174	173	187
10 Little Goose	108	105	120	118	111	169	156	186	338	260	147	110	122	110	156
11 Lower Granite	102	103	121	119	112	171	83.3	134	355	245	91.4	80.4	135	115	146
12 Lower Monumental	111	106	124	119	129	182	85.4	124	346	245	99.2	84.5	85.8	104	146
13 McNary	469	597	591	504	463	481	437	439	594	478	315	355	287	488	478
14 The Dalles	549	723	744	630	585	619	571	542	704	614	447	497	404	572	599
Total Regulated Hydro															
15 Federal Entities	5416	7260	7022	5910	5269	5590	5041	5989	8362	6910	5639	6861	5738	5747	6250
16 Total Regulated Hydro	5416	7260	7022	5910	5269	5590	5041	5989	8362	6910	5639	6861	5738	5747	6250

Table 3.1.1
Bonneville Power Administration - Power Services: Regulated Hydro
Fiscal Year 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

Energy-aMW	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
Regulated Hydro															
1 Albeni Falls Hydroelectric	30.5	23.3	16.1	12.8	14.4	14.5	6.39	22.7	30.5	30.6	28.2	22.2	19.4	25.3	21.9
2 Bonneville	428	542	551	480	450	467	345	242	417	328	136	183	138	442	391
3 Chief Joseph	926	1292	1233	1034	860	846	868	1245	1496	1145	1052	1425	1173	945	1100
4 Dworshak	57.9	57.7	57.5	57.3	57.0	57.0	57.4	58.3	64.0	212	404	403	344	181	137
5 Grand Coulee	1664	2330	2166	1772	1483	1463	1454	2024	2397	1956	1894	2566	2070	1672	1907
6 Hungry Horse	79.0	83.8	84.5	85.9	85.2	83.3	63.4	25.9	26.7	76.2	110	110	109	108	81.4
7 Ice Harbor	108	104	121	116	125	176	68.2	66.8	173	82.9	67.2	67.6	67.8	98.8	109
8 John Day	691	926	917	774	713	774	760	788	973	849	636	746	608	712	785
9 Libby	93.9	267	175	87.8	87.0	86.2	85.7	85.7	447	389	171	174	174	173	187
10 Little Goose	108	105	120	118	111	169	156	186	338	260	147	110	122	110	156
11 Lower Granite	102	103	121	119	112	171	83.3	134	356	245	91.4	80.4	135	115	146
12 Lower Monumental	111	106	124	119	129	182	85.4	124	346	245	99.2	84.5	85.8	104	146
13 McNary	469	597	591	504	463	481	437	439	594	478	315	355	287	488	478
14 The Dalles	549	723	744	629	586	619	571	542	704	614	447	497	404	572	599
Total Regulated Hydro															
15 Federal Entities	5416	7260	7022	5909	5275	5589	5041	5981	8363	6910	5598	6823	5738	5747	6245
16 Total Regulated Hydro	5416	7260	7022	5909	5275	5589	5041	5981	8363	6910	5598	6823	5738	5747	6245

Table 3.1.2
Bonneville Power Administration - Power Services: Regulated Hydro
Fiscal Year 2018 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
HLH-MWh	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Regulated Hvdro															
1 Albeni Falls Hydroelectric	12970	9191	6568	5227	5538	6174	1315	4663	12983	12597	13523	4918	4258	9985	109908
2 Bonneville	181623	211005	220167	195080	172789	198955	80776	48392	185722	131768	58302	39518	32941	171129	1928167
3 Chief Joseph	507518	659573	648235	514921	393691	429906	213954	330293	805646	607569	610076	405679	322547	501709	6951317
4 Dworshak	24609	22788	23416	23329	21858	24204	11812	11997	27203	86969	179279	90241	75409	71507	694619
5 Grand Coulee	912078	1189539	1138385	882675	679125	743289	358530	537201	1291237	1037674	1098358	730757	569194	887897	12055938
6 Hungry Horse	33605	33116	34421	34995	32682	35358	13046	5322	11371	31322	44849	22529	23890	42514	399022
7 Ice Harbor	51168	46258	67300	63340	63123	90115	15822	14528	76406	35449	29050	14057	16085	43809	626510
8 John Day	337842	425415	412105	374691	317752	378153	179791	182403	473310	401226	290881	175583	146681	335486	4431320
9 Libby	39924	105687	71496	35791	33357	36611	17630	17620	190169	159980	69715	35761	38120	68026	919889
10 Little Goose	51135	46807	66424	64612	56134	86244	36190	40505	149176	111202	63697	22824	28988	48749	872686
11 Lower Granite	48287	45686	67108	64879	56692	87160	19329	29064	156484	104969	39495	16708	32115	51051	819029
12 Lower Monumental	52618	47255	68618	64978	65144	92822	19818	26922	152752	104883	42868	17567	20349	46133	822727
13 McNary	229508	274485	265505	244041	206578	235181	103519	101584	288831	226126	143849	83601	69214	230050	2702071
14 The Dalles	268426	332220	334406	304622	261397	302269	135253	125453	342474	290270	204289	117063	97418	269240	3384800
Total Regulated Hvdro															
15 Federal Entities	2751311	3449025	3424155	2873182	2365860	2746441	1206784	1475948	4163763	3342005	2888230	1776805	1477211	2777285	36718003
16 Total Regulated Hydro	2751311	3449025	3424155	2873182	2365860	2746441	1206784	1475948	4163763	3342005	2888230	1776805	1477211	2777285	36718003

Table 3.1.2
Bonneville Power Administration - Power Services: Regulated Hydro
Fiscal Year 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

HLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Regulated Hydro															
1 Albeni Falls Hydroelectric	12970	9191	6568	5227	5538	6174	1315	4663	12442	12597	11486	4574	4258	9985	106986
2 Bonneville	182098	211176	220006	194884	172806	198321	80593	48976	180136	133358	59712	39886	33745	171136	1926833
3 Chief Joseph	511712	658565	643408	509969	392535	433063	212774	330117	778654	609293	604796	405161	322770	501926	6914742
4 Dworshak	24609	22788	23416	23329	21858	24204	11812	11997	26069	86969	164644	82874	75409	71507	671484
5 Grand Coulee	919614	1187721	1129908	874196	677123	748613	356483	536822	1247976	1040617	1088853	729824	569589	888281	11995620
6 Hungry Horse	33605	33116	34421	34995	32682	35358	13046	5322	10897	31322	44849	22529	23890	42514	398548
7 Ice Harbor	51168	46087	67110	63457	63123	90567	15822	14528	73260	35449	29106	14057	16315	43506	623556
8 John Day	337545	426980	417238	373581	318140	383292	179865	181146	463203	410564	296541	175719	145048	337561	4446422
9 Libby	39924	105687	71496	35791	33357	36611	17630	17620	182246	159980	69715	35761	38120	68026	911965
10 Little Goose	51135	46634	66236	64731	56134	86677	36190	40505	143035	111202	63820	22824	29402	48413	866936
11 Lower Granite	48287	45517	66918	64998	56692	87597	19329	29064	150804	104969	39571	16708	32574	50699	813729
12 Lower Monumental	52618	47080	68425	65098	65144	93287	19818	26922	146463	104883	42951	17567	20639	45815	816710
13 McNary	229306	275494	268812	243317	206834	238377	103562	100876	282664	231389	146648	83665	68443	231472	2710860
14 The Dalles	268190	333442	338571	303721	261701	306376	135309	124589	335161	297025	208264	117153	96334	270905	3396742
Total Regulated Hydro															
15 Federal Entities	2762781	3449477	3422535	2857295	2363667	2768517	1203547	1473147	4033012	3369618	2870957	1768303	1476537	2781744	36601135
16 Total Regulated Hydro	2762781	3449477	3422535	2857295	2363667	2768517	1203547	1473147	4033012	3369618	2870957	1768303	1476537	2781744	36601135

Table 3.1.3
Bonneville Power Administration - Power Services: Regulated Hydro
Fiscal Year 2018 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

LLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Regulated Hydro															
1 Albeni Falls Hydroelectric	9727	7576	5426	4318	4169	4630	986	3497	9737	9461	11171	3689	3194	8248	85829
2 Bonneville	136771	179681	189744	161770	129331	148384	43551	38936	124735	104639	42904	26357	20164	147414	1494382
3 Chief Joseph	181246	271839	269376	254235	183130	198951	98417	118464	307157	216808	172503	107245	127919	178678	2685968
4 Dworshak	18457	18783	19344	19272	16455	18153	8859	8998	20402	65317	148100	67681	56557	59071	545448
5 Grand Coulee	325723	490261	473059	435809	315904	343977	164920	192675	492291	370289	310569	193182	225737	316214	4650609
6 Hungry Horse	25204	27297	28435	28909	24604	26519	9784	3992	8528	23524	37050	16897	17917	35120	313780
7 Ice Harbor	29163	28719	22867	22982	20764	40944	8713	9503	52396	24215	20960	10292	9962	27317	328796
8 John Day	176095	241973	270458	201423	160511	196870	93632	101494	250661	209805	182439	92913	86943	177391	2442608
9 Libby	29943	87115	59062	29567	25111	27458	13222	13215	142627	120153	57591	26820	28590	56196	716671
10 Little Goose	29144	29060	22570	23444	18465	39185	19929	26494	102299	75960	45957	16710	17953	30397	497567
11 Lower Granite	27521	28364	22802	23540	18649	39601	10644	19011	107310	71702	28496	12233	19889	31833	461596
12 Lower Monumental	29989	29338	23315	23576	21429	42174	10914	17610	104751	71643	30929	12862	12602	28766	459898
13 McNary	119628	156124	174247	131190	104352	122437	53911	56524	152963	118243	90221	44239	41025	121640	1486745
14 The Dalles	139913	188964	219465	163756	132044	157364	70438	69806	181372	151785	128129	61946	57743	142362	1865086
Total Regulated Hydro															
15 Federal Entities	1278522	1785095	1800169	1523792	1174918	1406647	607921	680219	2057228	1633546	1307019	693064	726195	1360648	18034983
16 Total Regulated Hydro	1278522	1785095	1800169	1523792	1174918	1406647	607921	680219	2057228	1633546	1307019	693064	726195	1360648	18034983

Table 3.1.3
Bonneville Power Administration - Power Services: Regulated Hydro
Fiscal Year 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

LLH-MWh	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
		Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Regulated Hydro																
1 Albeni Falls Hydroelectric		9727	7576	5426	4318	4169	4630	986	3497	10278	9461	9488	3431	3194	8248	84429
2 Bonneville		136296	179510	189905	161917	129605	149017	43734	38118	130321	103049	41494	25990	19360	147407	1495724
3 Chief Joseph		177052	272847	274203	259034	185186	195794	99597	117919	334149	215085	177783	107762	127695	178461	2722568
4 Dworshak		18457	18783	19344	19272	16455	18153	8859	8998	21535	65317	136010	62156	56557	59071	528966
5 Grand Coulee		318186	492079	481536	444041	319446	338459	166866	191754	535552	367346	320074	194114	225343	315830	4710627
6 Hungry Horse		25204	27297	28435	28909	24604	26519	9784	3992	9002	23524	37050	16897	17917	35120	314254
7 Ice Harbor		29163	28890	23057	22865	20764	40492	8713	9503	55541	24215	20904	10292	9732	27619	331750
8 John Day		176392	240408	265325	202441	160667	191731	93558	102456	260767	200467	176779	92777	88576	175316	2427660
9 Libby		29943	87115	59062	29567	25111	27458	13222	13215	150551	120153	57591	26820	28590	56196	724595
10 Little Goose		29144	29233	22757	23324	18465	38753	19929	26494	108440	75960	45834	16710	17539	30734	503317
11 Lower Granite		27521	28533	22991	23421	18649	39164	10644	19011	114330	71702	28419	12233	19431	32185	468235
12 Lower Monumental		29989	29513	23509	23457	21429	41708	10914	17610	111039	71643	30846	12862	12312	29085	465915
13 McNary		119830	155115	170939	131852	104456	119242	53868	57055	159130	112980	87422	44174	41796	120218	1478077
14 The Dalles		140149	187742	215300	164584	132165	153256	70382	70468	188684	145029	124154	61855	58828	140698	1853293
Total Regulated Hydro																
15 Federal Entities		1267052	1784643	1801789	1539001	1181170	1384377	611058	680090	2189319	1605932	1293848	688073	726869	1356189	18109410
16 Total Regulated Hydro		1267052	1784643	1801789	1539001	1181170	1384377	611058	680090	2189319	1605932	1293848	688073	726869	1356189	18109410

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3.2	Independent Hydro.....	65
Table 3.2.1	BPA–Power Services: Independent Hydro - Energy	66
Table 3.2.2	BPA–Power Services: Independent Hydro - HLH MWh	68
Table 3.2.3	BPA–Power Services: Independent Hydro - LLH MWh	70

Table 3.2.1
Bonneville Power Administration - Power Services: Independent Hydro
Fiscal Year 2018 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Independent Hydro															
1 Anderson Ranch	4.19	4.36	4.27	4.31	4.76	4.31	9.41	9.41	11.8	37.0	33.2	20.1	20.1	8.78	12.2
2 Big Cliff	8.00	13.0	6.00	4.00	6.00	7.00	9.00	11.0	20.0	20.0	7.00	6.00	6.00	9.00	9.66
3 Black Canyon	5.45	3.61	2.98	3.27	3.53	4.19	8.53	8.53	8.53	8.53	8.53	8.53	8.53	8.31	6.18
4 Boise River Diversion	0.73	0	0	0	0	0	0.87	0.87	2.50	2.50	2.50	2.46	2.46	2.50	1.18
5 Chandler	5.70	7.34	3.38	5.51	7.47	9.80	6.06	6.06	5.97	5.80	6.09	4.60	4.60	5.59	6.10
6 Cougar	27.0	23.0	9.00	6.00	8.00	10.00	29.0	29.0	29.0	29.0	17.0	25.0	24.0	16.0	19.0
7 Cowlitz Falls	6.20	3.10	23.1	10.00	13.7	33.3	46.1	50.3	63.6	66.3	28.9	13.3	10.5	9.50	26.5
8 Detroit	44.9	47.5	20.9	21.7	17.7	25.3	34.6	37.2	102	37.9	13.0	12.0	11.8	26.0	33.8
9 Dexter	12.0	16.0	4.00	3.00	5.00	5.00	12.0	17.0	17.0	17.0	6.00	5.00	5.00	8.00	9.36
10 Foster	10.00	7.00	9.00	4.00	9.00	21.0	19.0	18.0	21.0	23.0	6.00	6.00	6.00	12.0	12.2
11 Green Peter	18.0	16.0	18.0	8.00	0	33.0	88.0	45.0	58.0	49.0	11.0	15.0	15.0	29.0	26.9
12 Green Springs	5.02	5.95	6.34	6.94	6.74	7.97	8.26	8.26	8.78	8.98	8.01	7.94	7.94	6.90	7.32
13 Hills Creek	23.0	27.0	5.00	4.00	6.00	7.00	20.0	31.0	35.0	35.0	14.0	9.00	9.00	25.0	17.9
14 Idaho Falls - City Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Idaho Falls - Lower Plant #1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 Idaho Falls - Lower Plant #2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Idaho Falls - Upper Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Lookout Point	45.0	47.0	9.00	8.00	12.0	15.0	45.0	74.0	85.0	73.0	24.0	19.0	19.0	33.0	35.8
19 Lost Creek	37.0	19.0	19.0	18.0	13.0	14.0	15.0	16.0	56.0	56.0	46.0	44.0	39.0	24.0	30.1
20 Minidoka	6.48	2.39	2.32	2.32	2.57	2.32	10.3	10.3	24.6	22.7	21.7	19.0	19.0	11.5	10.7
21 Palisades	45.5	11.3	11.2	11.4	12.8	28.2	51.7	51.7	152	151	127	144	144	56.9	67.4
22 Roza	4.08	1.15	4.09	2.59	3.12	9.41	11.4	11.4	10.8	10.9	10.6	10.5	10.5	3.39	6.87
Total Independent Hydro															
23 Federal Entities	308	255	158	123	131	237	424	435	711	654	391	372	363	295	339
24 Total Independent Hydro	308	255	158	123	131	237	424	435	711	654	391	372	363	295	339

Table 3.2.1
Bonneville Power Administration - Power Services: Independent Hydro
Fiscal Year 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Independent Hydro															
1 Anderson Ranch	4.19	4.36	4.27	4.31	4.76	4.31	9.41	9.41	11.8	37.0	33.2	20.1	20.1	8.78	12.2
2 Big Cliff	8.00	13.0	6.00	4.00	6.00	7.00	9.00	11.0	20.0	20.0	7.00	6.00	6.00	9.00	9.66
3 Black Canyon	5.45	3.61	2.98	3.27	3.53	4.19	8.53	8.53	8.53	8.53	8.53	8.53	8.53	8.31	6.18
4 Boise River Diversion	0.73	0	0	0	0	0	0.87	0.87	2.50	2.50	2.50	2.46	2.46	2.50	1.18
5 Chandler	5.70	7.34	3.38	5.51	7.47	9.80	6.06	6.06	5.97	5.80	6.09	4.60	4.60	5.59	6.10
6 Cougar	27.0	23.0	9.00	6.00	8.00	10.00	29.0	29.0	29.0	29.0	17.0	25.0	24.0	16.0	19.0
7 Cowlitz Falls	6.20	3.10	23.1	10.00	13.7	33.3	46.1	50.3	63.6	66.3	28.9	13.3	10.5	9.50	26.5
8 Detroit	44.9	47.5	20.9	21.7	17.7	25.3	34.6	37.2	102	37.9	13.0	12.0	11.8	26.0	33.8
9 Dexter	12.0	16.0	4.00	3.00	5.00	5.00	12.0	17.0	17.0	17.0	6.00	5.00	5.00	8.00	9.36
10 Foster	10.00	7.00	9.00	4.00	9.00	21.0	19.0	18.0	21.0	23.0	6.00	6.00	6.00	12.0	12.2
11 Green Peter	18.0	16.0	18.0	8.00	0	33.0	88.0	45.0	58.0	49.0	11.0	15.0	15.0	29.0	26.9
12 Green Springs	5.02	5.95	6.34	6.94	6.74	7.97	8.26	8.26	8.78	8.98	8.01	7.94	7.94	6.90	7.32
13 Hills Creek	23.0	27.0	5.00	4.00	6.00	7.00	20.0	31.0	35.0	35.0	14.0	9.00	9.00	25.0	17.9
14 Idaho Falls - City Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Idaho Falls - Lower Plant #1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 Idaho Falls - Lower Plant #2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Idaho Falls - Upper Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Lookout Point	45.0	47.0	9.00	8.00	12.0	15.0	45.0	74.0	85.0	73.0	24.0	19.0	19.0	33.0	35.8
19 Lost Creek	37.0	19.0	19.0	18.0	13.0	14.0	15.0	16.0	56.0	56.0	46.0	44.0	39.0	24.0	30.1
20 Minidoka	6.48	2.39	2.32	2.32	2.57	2.32	10.3	10.3	24.6	22.7	21.7	19.0	19.0	11.5	10.7
21 Palisades	45.5	11.3	11.2	11.4	12.8	28.2	51.7	51.7	152	151	127	144	144	56.9	67.4
22 Roza	4.08	1.15	4.09	2.59	3.12	9.41	11.4	11.4	10.8	10.9	10.6	10.5	10.5	3.39	6.87
Total Independent Hydro															
23 Federal Entities	308	255	158	123	131	237	424	435	711	654	391	372	363	295	339
24 Total Independent Hydro	308	255	158	123	131	237	424	435	711	654	391	372	363	295	339

Table 3.2.2
Bonneville Power Administration - Power Services: Independent Hydro
Fiscal Year 2018 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016

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HLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Independent Hydro															
1 Anderson Ranch	1773	1814	1858	1829	1817	1848	1913	1913	5032	15312	14005	4107	4381	3585	61188
2 Big Cliff	3348	5106	2384	1641	2284	2955	1843	2253	8153	8125	2797	1204	1285	3590	46969
3 Black Canyon	2247	1476	1276	1387	1334	1788	1737	1737	3624	3499	3601	1720	1835	3423	30684
4 Boise River Diversion	295	0	0	0	0	0	0	180	1073	1033	1060	505	539	1032	5718
5 Chandler	2390	3168	1337	2297	2851	4150	1229	1229	2518	2328	2418	985	1051	2260	30211
6 Cougar	11208	9204	3564	2439	3060	4222	5779	5779	11567	11921	6867	5200	5325	6307	92441
7 Cowlitz Falls	2625	1213	9421	4112	5217	14115	9398	10254	26188	27333	11502	2693	2267	3979	130316
8 Detroit	26259	26124	9974	11046	8322	14099	9615	10337	54964	20352	7898	3706	3887	14651	221235
9 Dexter	5010	6339	1593	1224	1905	2141	2483	3518	6901	6994	2427	1023	1091	3072	45722
10 Foster	4185	2779	3627	1638	3413	8894	3922	3716	8567	9336	2423	1237	1319	4773	59827
11 Green Peter	10939	7896	8334	3836	0	17655	23178	11852	28359	25639	6619	4551	4855	16985	170697
12 Green Springs	2613	4036	4588	4776	4108	5115	2311	2311	4521	4529	3998	1958	2088	3161	50111
13 Hills Creek	9645	10643	2007	1639	2262	2967	4096	6349	14185	14303	5643	1851	1975	9800	87364
14 Idaho Falls - City Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Idaho Falls - Lower Plant #1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 Idaho Falls - Lower Plant #2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Idaho Falls - Upper Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Lookout Point	28081	26133	4414	3929	5999	9078	12540	20621	47959	43940	14303	5790	6176	18907	247870
19 Lost Creek	15443	7836	7689	7441	4917	5981	3081	3286	22942	23016	18703	9094	8598	9343	147371
20 Minidoka	2682	992	988	992	1087	986	2097	2097	10493	9332	9127	3882	4141	4759	53656
21 Palisades	19262	4630	4699	4896	4909	12059	10567	10567	65062	61993	53674	29820	31808	23344	337290
22 Roza	1679	0	1647	1090	1200	3998	2359	2359	4546	4523	4314	2206	2353	0	32273
Total Independent Hydro															
23 Federal Entities	149685	119389	69401	56211	54685	112051	98147	100357	326652	293510	171377	81533	84974	132970	1850943
24 Total Independent Hydro	149685	119389	69401	56211	54685	112051	98147	100357	326652	293510	171377	81533	84974	132970	1850943

Table 3.2.2
Bonneville Power Administration - Power Services: Independent Hydro
Fiscal Year 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
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HLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Independent Hydro															
1 Anderson Ranch	1773	1814	1858	1829	1817	1848	1913	1913	5032	15312	14005	4107	4381	3585	61188
2 Big Cliff	3348	5106	2384	1641	2284	2955	1843	2253	8153	8125	2797	1204	1285	3590	46969
3 Black Canyon	2247	1476	1276	1387	1334	1788	1737	1737	3624	3499	3601	1720	1835	3423	30684
4 Boise River Diversion	295	0	0	0	0	0	0	180	1073	1033	1060	505	539	1032	5718
5 Chandler	2390	3168	1337	2297	2851	4150	1229	1229	2518	2328	2418	985	1051	2260	30211
6 Cougar	11208	9204	3564	2439	3060	4222	5779	5779	11567	11921	6867	5200	5325	6307	92441
7 Cowlitz Falls	2625	1213	9421	4112	5217	14115	9398	10254	26188	27333	11502	2693	2267	3979	130316
8 Detroit	26259	26124	9974	11046	8322	14099	9615	10337	54964	20352	7898	3706	3887	14651	221235
9 Dexter	5010	6339	1593	1224	1905	2141	2483	3518	6901	6994	2427	1023	1091	3072	45722
10 Foster	4185	2779	3627	1638	3413	8894	3922	3716	8567	9336	2423	1237	1319	4773	59827
11 Green Peter	10939	7896	8334	3836	0	17655	23178	11852	28359	25639	6619	4551	4855	16985	170697
12 Green Springs	2613	4036	4588	4776	4108	5115	2311	2311	4521	4529	3998	1958	2088	3161	50111
13 Hills Creek	9645	10643	2007	1639	2262	2967	4096	6349	14185	14303	5643	1851	1975	9800	87364
14 Idaho Falls - City Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Idaho Falls - Lower Plant #1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 Idaho Falls - Lower Plant #2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Idaho Falls - Upper Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Lookout Point	28081	26133	4414	3929	5999	9078	12540	20621	47959	43940	14303	5790	6176	18907	247870
19 Lost Creek	15443	7836	7689	7441	4917	5981	3081	3286	22942	23016	18703	9094	8598	9343	147371
20 Minidoka	2682	992	988	992	1087	986	2097	2097	10493	9332	9127	3882	4141	4759	53656
21 Palisades	19262	4630	4699	4896	4909	12059	10567	10567	65062	61993	53674	29820	31808	23344	337290
22 Roza	1679	0	1647	1090	1200	3998	2359	2359	4546	4523	4314	2206	2353	0	32273
Total Independent Hydro															
23 Federal Entities	149685	119389	69401	56211	54685	112051	98147	100357	326652	293510	171377	81533	84974	132970	1850943
24 Total Independent Hydro	149685	119389	69401	56211	54685	112051	98147	100357	326652	293510	171377	81533	84974	132970	1850943

Table 3.2.3
Bonneville Power Administration - Power Services: Independent Hydro
Fiscal Year 2018 Water Year: 1937
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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
LLH-MWh	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Independent Hydro															
1 Anderson Ranch	1346	1327	1319	1377	1381	1352	1473	1473	3746	11295	10723	3140	3349	2736	46039
2 Big Cliff	2604	4267	2080	1335	1748	2246	1397	1707	6727	6275	2411	956	1019	2890	37661
3 Black Canyon	1809	1128	945	1048	1037	1323	1334	1334	2721	2641	2744	1350	1440	2558	23413
4 Boise River Diversion	250	0	0	0	0	0	315	135	785	764	797	380	405	765	4596
5 Chandler	1853	2126	1177	1805	2169	3134	952	952	1926	1848	2115	670	714	1763	23205
6 Cougar	8880	7379	3132	2025	2316	3208	4661	4661	10009	8959	5781	3800	3891	5213	73916
7 Cowlitz Falls	1988	1022	7765	3328	3990	10627	7198	7854	21130	20403	10000	2095	1765	2861	102026
8 Detroit	7146	8123	5576	5099	3572	4699	2841	3055	20627	6936	1774	614	644	4069	74774
9 Dexter	3918	5197	1383	1008	1455	1574	1837	2602	5747	5246	2037	777	829	2688	36297
10 Foster	3255	2268	3069	1338	2635	6709	2918	2764	7057	7224	2041	923	985	3867	47055
11 Green Peter	2453	3640	5058	2116	0	6864	8502	4348	14793	9641	1565	849	905	3895	64630
12 Green Springs	1121	250	128	388	425	809	662	662	2009	1937	1960	899	959	1811	14021
13 Hills Creek	7467	8824	1713	1337	1770	2234	3104	4811	11855	10897	4773	1389	1481	8200	69856
14 Idaho Falls - City Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Idaho Falls - Lower Plant #1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 Idaho Falls - Lower Plant #2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Idaho Falls - Upper Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Lookout Point	5399	7754	2282	2023	2065	2067	3660	6019	15281	8620	3553	1050	1120	4853	65746
19 Lost Creek	12085	5863	6447	5951	3819	4421	2319	2474	18722	17304	15521	6746	6378	7937	115986
20 Minidoka	2142	735	736	732	637	736	1622	1622	7780	7019	6982	2944	3140	3490	40317
21 Palisades	14596	3491	3602	3573	3706	8894	8055	8055	48141	47051	40872	22171	23649	17614	253470
22 Roza	1353	829	1395	839	898	2992	1748	1748	3496	3347	3579	1579	1684	2437	27925
Total Independent Hydro															
23 Federal Entities	79666	64225	47807	35323	33623	63887	54598	56275	202553	177406	119230	52331	54358	79649	1120932
24 Total Independent Hydro	79666	64225	47807	35323	33623	63887	54598	56275	202553	177406	119230	52331	54358	79649	1120932

Table 3.2.3
Bonneville Power Administration - Power Services: Independent Hydro
Fiscal Year 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
LLH-MWh	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Independent Hydro															
1 Anderson Ranch	1346	1327	1319	1377	1381	1352	1473	1473	3746	11295	10723	3140	3349	2736	46039
2 Big Cliff	2604	4267	2080	1335	1748	2246	1397	1707	6727	6275	2411	956	1019	2890	37661
3 Black Canyon	1809	1128	945	1048	1037	1323	1334	1334	2721	2641	2744	1350	1440	2558	23413
4 Boise River Diversion	250	0	0	0	0	0	315	135	785	764	797	380	405	765	4596
5 Chandler	1853	2126	1177	1805	2169	3134	952	952	1926	1848	2115	670	714	1763	23205
6 Cougar	8880	7379	3132	2025	2316	3208	4661	4661	10009	8959	5781	3800	3891	5213	73916
7 Cowlitz Falls	1988	1022	7765	3328	3990	10627	7198	7854	21130	20403	10000	2095	1765	2861	102026
8 Detroit	7146	8123	5576	5099	3572	4699	2841	3055	20627	6936	1774	614	644	4069	74774
9 Dexter	3918	5197	1383	1008	1455	1574	1837	2602	5747	5246	2037	777	829	2688	36297
10 Foster	3255	2268	3069	1338	2635	6709	2918	2764	7057	7224	2041	923	985	3867	47055
11 Green Peter	2453	3640	5058	2116	0	6864	8502	4348	14793	9641	1565	849	905	3895	64630
12 Green Springs	1121	250	128	388	425	809	662	662	2009	1937	1960	899	959	1811	14021
13 Hills Creek	7467	8824	1713	1337	1770	2234	3104	4811	11855	10897	4773	1389	1481	8200	69856
14 Idaho Falls - City Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Idaho Falls - Lower Plant #1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 Idaho Falls - Lower Plant #2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Idaho Falls - Upper Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Lookout Point	5399	7754	2282	2023	2065	2067	3660	6019	15281	8620	3553	1050	1120	4853	65746
19 Lost Creek	12085	5863	6447	5951	3819	4421	2319	2474	18722	17304	15521	6746	6378	7937	115986
20 Minidoka	2142	735	736	732	637	736	1622	1622	7780	7019	6982	2944	3140	3490	40317
21 Palisades	14596	3491	3602	3573	3706	8894	8055	8055	48141	47051	40872	22171	23649	17614	253470
22 Roza	1353	829	1395	839	898	2992	1748	1748	3496	3347	3579	1579	1684	2437	27925
Total Independent Hydro															
23 Federal Entities	79666	64225	47807	35323	33623	63887	54598	56275	202553	177406	119230	52331	54358	79649	1120932
24 Total Independent Hydro	79666	64225	47807	35323	33623	63887	54598	56275	202553	177406	119230	52331	54358	79649	1120932

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	Table 3.3.3 BPA– Power Services: Small Hydro - LLH MWh.....	78

Table 3.3.1
Bonneville Power Administration - Power Services: Small Hydro
Fiscal Year 2018 Water Year: 1937
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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Small Hydro															
1 Dworshak-Clearwater Hatchery	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63
2 Rocky Brook	0.04	0.21	0.56	0.58	0.42	0.47	0.46	0.46	0.20	0.09	0.00	0.00	0.00	0	0.25
Total Small Hydro															
3 Federal Entities	2.67	2.84	3.19	3.21	3.05	3.10	3.09	3.09	2.83	2.72	2.63	2.63	2.63	2.63	2.88
4 Total Small Hydro	2.67	2.84	3.19	3.21	3.05	3.10	3.09	3.09	2.83	2.72	2.63	2.63	2.63	2.63	2.88

Table 3.3.1
Bonneville Power Administration - Power Services: Small Hydro
Fiscal Year 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
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Energy-aMW	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
Small Hydro															
1 Dworshak-Clearwater Hatchery	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63
2 Rocky Brook	0.04	0.21	0.56	0.58	0.42	0.47	0.46	0.46	0.20	0.09	0.00	0.00	0.00	0	0.25
Total Small Hydro															
3 Federal Entities	2.67	2.84	3.19	3.21	3.05	3.10	3.09	3.09	2.83	2.72	2.63	2.63	2.63	2.63	2.88
4 Total Small Hydro	2.67	2.84	3.19	3.21	3.05	3.10	3.09	3.09	2.83	2.72	2.63	2.63	2.63	2.63	2.88

Table 3.3.2
Bonneville Power Administration - Power Services: Small Hydro
Fiscal Year 2018 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016

S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
HLH-MWh	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Small Hydro															
1 Dworshak-Clearwater Hatchery	1094	1052	1052	1094	1010	1136	505	547	1094	1094	1052	547	589	1010	12876
2 Rocky Brook	19.0	88.0	239	247	162	199	95.0	95.0	85.0	36.0	1.00	1.00	1.00	0	1268
Total Small Hydro															
3 Federal Entities	1113	1140	1291	1341	1172	1335	600	642	1179	1130	1053	548	590	1010	14144
4 Total Small Hydro	1113	1140	1291	1341	1172	1335	600	642	1179	1130	1053	548	590	1010	14144

Table 3.3.2
Bonneville Power Administration - Power Services: Small Hydro
Fiscal Year 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
HLH-MWh	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Small Hydro															
1 Dworshak-Clearwater Hatchery	1136	1052	1052	1094	1010	1094	547	547	1094	1052	1094	547	589	1010	12919
2 Rocky Brook	19.0	88.0	239	247	162	199	95.0	95.0	85.0	36.0	1.00	1.00	1.00	0	1268
Total Small Hydro															
3 Federal Entities	1155	1140	1291	1341	1172	1293	642	642	1179	1088	1095	548	590	1010	14187
4 Total Small Hydro	1155	1140	1291	1341	1172	1293	642	642	1179	1088	1095	548	590	1010	14187

Table 3.3.3
Bonneville Power Administration - Power Services: Small Hydro
Fiscal Year 2018 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
LLH-MWh	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Small Hydro															
1 Dworshak-Clearwater Hatchery	863	844	905	863	757	818	442	400	863	800	905	400	421	884	10162
2 Rocky Brook	14.0	61.0	175	181	121	149	70.0	70.0	67.0	26.0	1.00	0	0	0	935
Total Small Hydro															
3 Federal Entities	877	905	1080	1044	878	967	512	470	930	826	906	400	421	884	11097
4 Total Small Hydro	877	905	1080	1044	878	967	512	470	930	826	906	400	421	884	11097

Table 3.3.3
Bonneville Power Administration - Power Services: Small Hydro
Fiscal Year 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

LLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Small Hydro															
1 Dworshak-Clearwater Hatchery	821	844	905	863	757	860	400	400	863	842	863	400	421	884	10120
2 Rocky Brook	14.0	61.0	175	181	121	149	70.0	70.0	67.0	26.0	1.00	0	0	0	935
Total Small Hydro															
3 Federal Entities	835	905	1080	1044	878	1009	470	470	930	868	864	400	421	884	11055
4 Total Small Hydro	835	905	1080	1044	878	1009	470	470	930	868	864	400	421	884	11055

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4. OTHER RESOURCE FORECASTS FOR FY 2018 AND FY 2019

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Table 4.1.1
Bonneville Power Administration - Power Services: Large Thermal Resources
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016

S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Large Thermal Resources															
Columbia Generating Station	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100
Total Large Thermal Resources															
Federal Entities	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100
Total	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100

Table 4.1.1
Bonneville Power Administration - Power Services: Large Thermal Resources
Fiscal Year 2019
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Large Thermal Resources															
Columbia Generating Station	1100	1100	1100	1100	1100	1100	1100	1100	355	0	994	1100	1100	1100	937
Total Large Thermal Resources															
Federal Entities	1100	1100	1100	1100	1100	1100	1100	1100	355	0	994	1100	1100	1100	937
Total	1100	1100	1100	1100	1100	1100	1100	1100	355	0	994	1100	1100	1100	937

Table 4.1.2
Bonneville Power Administration - Power Services: Large Thermal Resources
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
HLH-MWh	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Large Thermal Resources															
Columbia Generating Station	457600	440000	440000	457600	422400	475200	211200	228800	457600	457600	440000	228800	246400	422400	5385600
Total Large Thermal Resources															
Federal Entities	457600	440000	440000	457600	422400	475200	211200	228800	457600	457600	440000	228800	246400	422400	5385600
Total	457600	440000	440000	457600	422400	475200	211200	228800	457600	457600	440000	228800	246400	422400	5385600

Table 4.1.2

Bonneville Power Administration - Power Services: Large Thermal Resources

Fiscal Year 2019

BP 18 Initial Proposal Report Date: 9/8/2016

S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
HLH-MWh	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Large Thermal Resources															
Columbia Generating Station	475200	440000	440000	457600	422400	457600	228800	228800	147613	0	413316	228800	246400	422400	4608929
Total Large Thermal Resources															
Federal Entities	475200	440000	440000	457600	422400	457600	228800	228800	147613	0	413316	228800	246400	422400	4608929
Total	475200	440000	440000	457600	422400	457600	228800	228800	147613	0	413316	228800	246400	422400	4608929

Table 4.1.3
Bonneville Power Administration - Power Services: Large Thermal Resources
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016

S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
LLH-MWh	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Large Thermal Resources															
Columbia Generating Station	360800	353100	378400	360800	316800	342100	184800	167200	360800	334400	378400	167200	176000	369600	4250400
Total Large Thermal Resources															
Federal Entities	360800	353100	378400	360800	316800	342100	184800	167200	360800	334400	378400	167200	176000	369600	4250400
Total	360800	353100	378400	360800	316800	342100	184800	167200	360800	334400	378400	167200	176000	369600	4250400

Table 4.1.3
Bonneville Power Administration - Power Services: Large Thermal Resources
Fiscal Year 2019
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
LLH-MWh	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Large Thermal Resources															
Columbia Generating Station	343200	353100	378400	360800	316800	359700	167200	167200	116387	0	325884	167200	176000	369600	3601471
Total Large Thermal Resources															
Federal Entities	343200	353100	378400	360800	316800	359700	167200	167200	116387	0	325884	167200	176000	369600	3601471
Total	343200	353100	378400	360800	316800	359700	167200	167200	116387	0	325884	167200	176000	369600	3601471

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Table 4.2.1
Bonneville Power Administration - Power Services: Renewable Resources
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

Energy-aMW	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
Renewable Resources															
1 Ashland Solar Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
2 City Council	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 N. Mountain Park	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 Police Station	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5 Public Works	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6 Condon Wind	8.98	12.9	9.81	5.25	8.68	9.98	17.8	15.0	16.1	15.9	15.5	8.02	12.0	11.2	11.7
7 Condon 1	4.44	6.36	4.85	2.59	4.29	4.93	8.82	7.42	7.93	7.84	7.67	3.96	5.94	5.52	5.79
8 Condon 2	4.54	6.51	4.96	2.65	4.39	5.05	9.03	7.60	8.13	8.04	7.85	4.06	6.08	5.65	5.93
9 Foote Creek 1 Wind	2.76	3.96	3.02	1.61	2.67	3.07	5.49	4.62	4.94	4.88	4.77	2.47	3.70	3.44	3.61
11 Foote Creek 2 Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Foote Creek 4 Wind	3.03	4.34	3.31	1.77	2.93	3.37	6.02	5.07	5.42	5.36	5.24	2.70	4.06	3.77	3.96
15 Fourmile Hill Geothermal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Klondike Wind 1	4.33	6.20	4.73	2.53	4.18	4.81	8.60	7.24	7.74	7.65	7.48	3.86	5.80	5.39	5.65
19 Klondike Wind 3	9.03	12.9	9.86	5.28	8.73	10.0	17.9	15.1	16.2	16.0	15.6	8.06	12.1	11.2	11.8
21 Stateline Wind	16.2	23.3	17.7	9.49	15.7	18.0	32.3	27.2	29.1	28.7	28.1	14.5	21.8	20.2	21.2
22 Stateline-OR	6.55	9.38	7.15	3.83	6.33	7.28	13.0	10.9	11.7	11.6	11.3	5.84	8.77	8.15	8.55
23 Stateline-WA	9.69	13.9	10.6	5.66	9.37	10.8	19.3	16.2	17.3	17.1	16.8	8.66	13.0	12.1	12.7
24 White Bluffs Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Renewable Resources															
26 Federal Entities	44.4	63.6	48.5	25.9	42.9	49.3	88.2	74.2	79.4	78.5	76.7	39.6	59.4	55.2	57.9
27 Total	44.4	63.6	48.5	25.9	42.9	49.3	88.2	74.2	79.4	78.5	76.7	39.6	59.4	55.2	57.9

Table 4.2.1
Bonneville Power Administration - Power Services: Renewable Resources
Fiscal Year 2019
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

Energy-aMW	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
Renewable Resources															
1 Ashland Solar Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
2 City Council	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 N. Mountain Park	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 Police Station	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5 Public Works	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6 Condon Wind	8.98	12.9	9.81	5.25	8.68	9.98	17.8	15.0	16.1	15.9	15.5	8.02	12.0	11.2	11.7
7 Condon 1	4.44	6.36	4.85	2.59	4.29	4.93	8.82	7.42	7.93	7.84	7.67	3.96	5.94	5.52	5.79
8 Condon 2	4.54	6.51	4.96	2.65	4.39	5.05	9.03	7.60	8.13	8.04	7.85	4.06	6.08	5.65	5.93
9 Foote Creek 1 Wind	2.76	3.96	3.02	1.61	2.67	3.07	5.49	4.62	4.94	4.88	4.77	2.47	3.70	3.44	3.61
11 Foote Creek 2 Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Foote Creek 4 Wind	3.03	4.34	3.31	1.77	2.93	3.37	6.02	5.07	5.42	5.36	5.24	2.70	4.06	3.77	3.96
15 Fourmile Hill Geothermal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Klondike Wind 1	4.33	6.20	4.73	2.53	4.18	4.81	8.60	7.24	7.74	7.65	7.48	3.86	5.80	5.39	5.65
19 Klondike Wind 3	9.03	12.9	9.86	5.28	8.73	10.0	17.9	15.1	16.2	16.0	15.6	8.06	12.1	11.2	11.8
21 Stateline Wind	16.2	23.3	17.7	9.49	15.7	18.0	32.3	27.2	29.1	28.7	28.1	14.5	21.8	20.2	21.2
22 Stateline-OR	6.55	9.38	7.15	3.83	6.33	7.28	13.0	10.9	11.7	11.6	11.3	5.84	8.77	8.15	8.55
23 Stateline-WA	9.69	13.9	10.6	5.66	9.37	10.8	19.3	16.2	17.3	17.1	16.8	8.66	13.0	12.1	12.7
24 White Bluffs Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Renewable Resources															
26 Federal Entities	44.4	63.6	48.5	25.9	42.9	49.3	88.2	74.2	79.4	78.5	76.7	39.6	59.4	55.2	57.9
27 Total	44.4	63.6	48.5	25.9	42.9	49.3	88.2	74.2	79.4	78.5	76.7	39.6	59.4	55.2	57.9

Table 4.2.2
Bonneville Power Administration - Power Services: Renewable Resources
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

HLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Renewable Resources															
1 Ashland Solar Project	1.90	1.23	1.26	1.26	1.43	1.90	1.07	1.07	2.85	2.75	3.16	1.38	1.47	2.75	25.5
2 City Council	0.32	0.31	0.32	0.32	0.29	0.32	0.15	0.15	0.32	0.31	0.32	0.15	0.16	0.31	3.72
3 N. Mountain Park	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 Police Station	0.32	0.31	0.32	0.32	0.29	0.32	0.15	0.15	0.63	0.61	0.63	0.31	0.33	0.61	5.28
5 Public Works	1.27	0.61	0.63	0.63	0.86	1.26	0.77	0.77	1.90	1.84	2.21	0.92	0.98	1.84	16.5
6 Condon Wind	3594	4119	3700	2037	3621	4396	3867	3259	6680	6551	6398	1535	2623	4803	57183
7 Condon 1	1775	2035	1828	1006	1789	2172	1910	1610	3300	3236	3161	758	1296	2372	28248
8 Condon 2	1818	2084	1872	1031	1832	2224	1957	1649	3380	3315	3237	777	1327	2430	28935
9 Foote Creek 1 Wind	1105	1267	1138	627	1114	1352	1190	1003	2055	2015	1968	472	807	1477	17589
11 Foote Creek 2 Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Foote Creek 4 Wind	1212	1390	1248	687	1222	1483	1305	1100	2253	2210	2159	518	885	1620	19291
15 Fourmile Hill Geothermal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Klondike Wind 1	1732	1985	1783	982	1745	2118	1864	1571	3219	3157	3083	740	1264	2315	27558
19 Klondike Wind 3	3614	4143	3721	2049	3642	4421	3890	3278	6718	6589	6435	1544	2638	4830	57513
21 Stateline Wind	6501	7451	6693	3685	6551	7953	6996	5896	12084	11852	11575	2777	4744	8688	103448
22 Stateline-OR	2621	3004	2698	1486	2641	3206	2820	2377	4871	4778	4666	1119	1912	3502	41700
23 Stateline-WA	3881	4448	3995	2200	3911	4747	4176	3520	7213	7074	6909	1658	2832	5186	61748
24 White Bluffs Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Renewable Resources															
26 Federal Entities	17761	20356	18284	10068	17898	21725	19112	16108	33012	32378	31621	7587	12961	23736	282607
27 Total	17761	20356	18284	10068	17898	21725	19112	16108	33012	32378	31621	7587	12961	23736	282607

Table 4.2.2
Bonneville Power Administration - Power Services: Renewable Resources
Fiscal Year 2019
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

HLH-MWh	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Renewable Resources															
1 Ashland Solar Project	1.90	0.92	1.26	1.26	1.43	1.90	1.07	1.07	2.85	2.75	3.16	1.38	1.47	2.75	25.2
2 City Council	0.32	0	0.32	0.32	0.29	0.32	0.15	0.15	0.32	0.31	0.32	0.15	0.16	0.31	3.42
3 N. Mountain Park	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 Police Station	0.32	0.31	0.32	0.32	0.29	0.32	0.15	0.15	0.63	0.61	0.63	0.31	0.33	0.61	5.28
5 Public Works	1.27	0.61	0.63	0.63	0.86	1.26	0.77	0.77	1.90	1.84	2.21	0.92	0.98	1.84	16.5
6 Condon Wind	3594	4119	3700	2037	3621	4396	3867	3259	6680	6551	6398	1535	2623	4803	57183
7 Condon 1	1775	2035	1828	1006	1789	2172	1910	1610	3300	3236	3161	758	1296	2372	28248
8 Condon 2	1818	2084	1872	1031	1832	2224	1957	1649	3380	3315	3237	777	1327	2430	28935
9 Foote Creek 1 Wind	1105	1267	1138	627	1114	1352	1190	1003	2055	2015	1968	472	807	1477	17589
11 Foote Creek 2 Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Foote Creek 4 Wind	1212	1390	1248	687	1222	1483	1305	1100	2253	2210	2159	518	885	1620	19291
15 Fourmile Hill Geothermal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Klondike Wind 1	1732	1985	1783	982	1745	2118	1864	1571	3219	3157	3083	740	1264	2315	27558
19 Klondike Wind 3	3614	4143	3721	2049	3642	4421	3890	3278	6718	6589	6435	1544	2638	4830	57513
21 Stateline Wind	6501	7451	6693	3685	6551	7953	6996	5896	12084	11852	11575	2777	4744	8688	103448
22 Stateline-OR	2621	3004	2698	1486	2641	3206	2820	2377	4871	4778	4666	1119	1912	3502	41700
23 Stateline-WA	3881	4448	3995	2200	3911	4747	4176	3520	7213	7074	6909	1658	2832	5186	61748
24 White Bluffs Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Renewable Resources															
26 Federal Entities	17761	20356	18284	10068	17898	21725	19112	16108	33012	32378	31621	7587	12961	23736	282607
27 Total	17761	20356	18284	10068	17898	21725	19112	16108	33012	32378	31621	7587	12961	23736	282607

Table 4.2.3
Bonneville Power Administration - Power Services: Renewable Resources
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

LLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Sum
Renewable Resources															
1 Ashland Solar Project	0.34	0.22	0.22	0.22	0.25	0.33	0.19	0.19	0.50	0.49	0.56	0.24	0.26	0.49	4.50
2 City Council	0.06	0.05	0.06	0.06	0.05	0.06	0.03	0.03	0.06	0.05	0.06	0.03	0.03	0.05	0.66
3 N. Mountain Park	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 Police Station	0.06	0.05	0.06	0.06	0.05	0.06	0.03	0.03	0.11	0.11	0.11	0.05	0.06	0.11	0.93
5 Public Works	0.22	0.11	0.11	0.11	0.15	0.22	0.14	0.14	0.34	0.32	0.39	0.16	0.17	0.32	2.91
6 Condon Wind	3086	5158	3597	1865	2210	3017	2557	2146	5270	4882	5151	1350	1995	3242	45527
7 Condon 1	1524	2548	1777	921	1092	1490	1263	1060	2603	2412	2545	667	985	1602	22490
8 Condon 2	1562	2610	1820	944	1118	1527	1294	1086	2666	2470	2606	683	1009	1640	23036
9 Foote Creek 1 Wind	949	1586	1107	574	680	928	786	660	1621	1502	1584	415	614	997	14004
11 Foote Creek 2 Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Foote Creek 4 Wind	1041	1740	1214	629	746	1018	863	724	1778	1647	1738	456	673	1094	15359
15 Fourmile Hill Geothermal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Klondike Wind 1	1487	2486	1734	899	1065	1454	1232	1034	2540	2353	2482	651	961	1563	21941
19 Klondike Wind 3	3104	5188	3618	1876	2223	3035	2571	2158	5300	4910	5181	1358	2006	3261	45789
21 Stateline Wind	5583	9331	6508	3375	3998	5458	4625	3882	9533	8832	9318	2443	3608	5865	82360
22 Stateline-OR	2250	3761	2623	1360	1612	2200	1864	1565	3843	3560	3756	985	1455	2364	33200
23 Stateline-WA	3332	5570	3885	2014	2387	3258	2761	2317	5690	5272	5562	1458	2154	3501	49161
24 White Bluffs Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Renewable Resources															
26 Federal Entities	15251	25489	17778	9218	10922	14910	12635	10605	26042	24127	25455	6674	9857	16021	224983
27 Total	15251	25489	17778	9218	10922	14910	12635	10605	26042	24127	25455	6674	9857	16021	224983

Table 4.2.3
Bonneville Power Administration - Power Services: Renewable Resources
Fiscal Year 2019
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

LLH-MWh	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Sum
Renewable Resources															
1 Ashland Solar Project	0.34	0.52	0.22	0.22	0.25	0.33	0.19	0.19	0.50	0.49	0.56	0.24	0.26	0.49	4.80
2 City Council	0.06	0.36	0.06	0.06	0.05	0.06	0.03	0.03	0.06	0.05	0.06	0.03	0.03	0.05	0.96
3 N. Mountain Park	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 Police Station	0.06	0.05	0.06	0.06	0.05	0.06	0.03	0.03	0.11	0.11	0.11	0.05	0.06	0.11	0.93
5 Public Works	0.22	0.11	0.11	0.11	0.15	0.22	0.14	0.14	0.34	0.32	0.39	0.16	0.17	0.32	2.91
6 Condon Wind	3086	5158	3597	1865	2210	3017	2557	2146	5270	4882	5151	1350	1995	3242	45527
7 Condon 1	1524	2548	1777	921	1092	1490	1263	1060	2603	2412	2545	667	985	1602	22490
8 Condon 2	1562	2610	1820	944	1118	1527	1294	1086	2666	2470	2606	683	1009	1640	23036
9 Foote Creek 1 Wind	949	1586	1107	574	680	928	786	660	1621	1502	1584	415	614	997	14004
11 Foote Creek 2 Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Foote Creek 4 Wind	1041	1740	1214	629	746	1018	863	724	1778	1647	1738	456	673	1094	15359
15 Fourmile Hill Geothermal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Klondike Wind 1	1487	2486	1734	899	1065	1454	1232	1034	2540	2353	2482	651	961	1563	21941
19 Klondike Wind 3	3104	5188	3618	1876	2223	3035	2571	2158	5300	4910	5181	1358	2006	3261	45789
21 Stateline Wind	5583	9331	6508	3375	3998	5458	4625	3882	9533	8832	9318	2443	3608	5865	82360
22 Stateline-OR	2250	3761	2623	1360	1612	2200	1864	1565	3843	3560	3756	985	1455	2364	33200
23 Stateline-WA	3332	5570	3885	2014	2387	3258	2761	2317	5690	5272	5562	1458	2154	3501	49161
24 White Bluffs Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Renewable Resources															
26 Federal Entities	15251	25490	17778	9218	10922	14910	12635	10605	26042	24127	25455	6674	9857	16021	224984
27 Total	15251	25490	17778	9218	10922	14910	12635	10605	26042	24127	25455	6674	9857	16021	224984

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5. PNW REGIONAL HYDRO FORECASTS BY WATER YEAR

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	Table 5.1.1 Total Regional Hydro Resources by Water Year - Energy.....	103

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Table 5.1.1
Total Regional Hydro Resources by Water Year
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
1	1929	10,826.3	13,040.7	13,483.7	12,125.5	11,703.3	10,920.6	10,362.6	14,033.4	15,126.5	15,430.4	11,074.7	11,959.7	10,460.9	10,613.3	12,310.4
2	1930	10,267.6	12,602.0	12,670.0	11,429.2	12,335.8	10,991.0	11,535.8	15,423.0	13,687.7	11,338.4	13,480.5	12,257.0	10,568.1	10,418.6	12,005.1
3	1931	10,289.3	12,677.5	13,223.6	11,662.7	9,689.9	10,525.4	10,769.6	9,570.0	15,972.5	11,010.2	13,131.5	11,934.6	10,780.9	9,908.5	11,657.2
4	1932	10,115.0	12,164.3	13,233.9	10,511.1	9,803.7	14,304.3	17,922.0	20,843.0	21,803.4	21,556.5	16,080.1	13,880.3	12,366.8	11,234.7	14,460.6
5	1933	10,416.2	12,895.5	15,765.7	18,582.8	17,102.0	15,631.2	14,075.5	15,331.3	18,739.9	23,535.0	20,910.4	16,595.2	14,894.0	11,374.2	16,281.2
6	1934	12,696.8	18,055.3	22,543.8	23,584.9	21,695.8	20,667.4	20,782.5	20,226.0	19,851.8	18,521.9	14,149.4	11,401.6	10,015.0	10,040.9	17,727.7
7	1935	10,258.2	12,568.5	13,712.3	17,869.7	16,325.8	15,341.3	11,298.5	15,470.2	18,080.7	17,779.3	17,429.6	15,188.9	11,353.2	9,860.1	14,651.3
8	1936	10,337.1	12,420.6	12,825.6	10,837.8	11,066.7	11,708.8	12,154.8	18,948.2	21,847.9	21,162.3	14,204.8	12,322.6	10,396.5	10,147.0	13,627.8
9	1937	10,201.1	12,633.0	13,335.1	10,745.5	9,967.9	10,311.7	10,518.7	11,740.5	15,845.7	15,135.5	11,714.2	12,397.4	10,360.7	10,358.2	11,905.1
10	1938	10,377.7	13,553.3	14,229.3	17,481.0	16,344.9	16,374.5	17,079.4	22,389.9	21,884.3	19,081.3	16,414.5	11,865.8	10,547.5	10,811.1	15,614.5
11	1939	10,345.9	12,475.8	13,387.6	14,686.9	13,192.8	12,512.3	14,290.2	18,085.9	18,245.9	14,414.1	13,792.9	11,832.1	10,153.8	10,530.1	13,396.4
12	1940	10,382.3	13,050.4	14,237.4	15,331.3	12,011.6	17,214.1	14,259.5	16,097.3	17,565.5	13,393.6	12,929.9	10,893.8	9,774.4	10,072.1	13,491.1
13	1941	9,898.7	12,491.4	13,708.1	12,030.0	12,023.5	11,268.0	9,175.8	12,326.5	15,765.7	13,735.9	12,603.3	11,965.8	10,405.2	10,585.7	12,172.9
14	1942	10,221.6	13,639.8	15,765.9	16,803.4	14,793.2	14,010.9	10,820.0	16,251.4	17,312.6	18,283.9	17,431.9	13,590.4	12,460.1	11,683.8	14,711.3
15	1943	10,322.8	12,332.8	14,195.5	18,878.4	17,056.3	16,651.8	22,215.8	22,646.8	20,336.0	23,370.0	20,945.8	15,372.5	12,523.9	10,390.0	16,726.9
16	1944	10,486.1	12,952.5	13,730.5	12,338.8	12,183.3	11,533.0	10,048.6	12,767.4	13,243.2	10,720.6	11,562.2	11,715.4	10,494.5	9,941.3	11,767.7
17	1945	9,957.2	12,218.4	13,096.0	12,012.6	11,490.7	10,992.8	10,730.4	9,512.5	18,720.6	19,805.5	11,980.7	11,805.1	10,348.9	10,287.7	12,649.3
18	1946	10,426.7	13,653.7	14,933.2	16,594.5	15,345.8	16,044.4	18,559.2	22,493.7	22,161.3	19,873.1	18,968.4	14,269.2	13,154.6	11,160.6	16,119.2
19	1947	10,584.4	13,755.9	20,441.3	20,728.8	19,374.3	17,746.0	16,523.6	18,182.9	20,894.2	19,923.4	17,537.8	13,695.2	12,060.2	10,956.4	16,839.1
20	1948	15,709.2	16,330.9	17,365.3	20,189.6	17,208.2	15,913.1	14,886.7	19,835.7	23,087.3	23,774.2	20,025.4	17,304.6	15,774.7	11,975.8	17,967.3
21	1949	11,305.1	13,136.0	14,780.2	15,789.6	15,253.1	17,264.6	16,619.3	21,205.7	22,324.9	20,348.9	13,334.3	11,959.4	10,027.1	10,191.6	15,296.4
22	1950	10,405.8	13,472.3	14,139.4	20,042.6	20,058.0	18,429.9	19,773.0	20,199.6	20,269.4	23,633.1	22,357.8	17,579.1	15,940.8	11,771.9	17,591.9
23	1951	13,287.9	17,622.8	21,400.6	22,915.8	22,674.7	22,141.6	20,634.5	21,030.5	22,008.5	20,023.8	19,841.1	15,455.4	12,580.1	11,328.4	18,990.4
24	1952	14,774.9	15,006.4	17,820.6	18,975.8	18,015.6	17,309.0	19,063.8	23,020.8	23,402.4	21,029.6	17,133.3	14,256.8	11,110.8	9,803.5	17,244.7
25	1953	10,421.2	12,168.1	13,251.1	15,202.7	17,623.3	14,488.1	12,648.9	15,142.8	19,825.6	23,503.9	20,786.4	14,903.4	13,315.3	11,123.6	15,517.6
26	1954	11,200.8	13,917.5	16,896.9	20,054.6	19,308.0	18,075.0	16,186.8	17,904.2	21,243.8	22,476.9	22,076.4	18,241.6	17,703.6	15,197.1	17,951.8
27	1955	11,519.8	15,346.6	16,320.9	14,575.1	13,988.4	11,114.4	12,122.1	14,083.4	17,713.9	23,688.2	21,665.5	16,758.6	13,739.7	10,741.4	15,423.6
28	1956	12,577.6	16,683.2	20,794.3	22,628.9	21,284.9	20,285.8	19,156.4	22,987.7	23,141.6	23,861.9	20,535.4	16,065.4	14,816.4	11,382.0	19,130.7
29	1957	12,008.7	13,324.8	17,099.9	16,887.3	15,239.3	16,126.4	18,398.4	17,100.9	23,567.3	23,718.3	15,981.0	12,861.3	11,322.3	10,889.3	16,227.2
30	1958	10,433.2	12,812.3	14,114.2	17,591.3	16,914.0	15,864.4	14,731.0	18,384.2	22,279.0	22,553.2	15,298.6	13,370.2	11,074.1	10,380.8	15,570.8
31	1959	10,829.7	15,175.5	19,524.8	21,597.9	19,943.3	18,932.0	17,980.1	17,725.5	20,241.8	22,273.3	20,766.4	16,580.7	15,529.6	16,130.9	18,266.0
32	1960	17,260.0	18,364.3	18,792.5	17,828.0	16,857.3	16,467.0	22,817.0	19,851.7	18,206.1	20,711.4	17,499.9	14,210.7	11,439.3	10,499.1	17,214.3
33	1961	10,842.7	13,794.8	15,309.6	17,950.0	19,067.2	18,315.3	16,178.5	15,703.5	20,885.9	22,385.8	15,761.9	13,919.3	11,545.0	10,226.8	16,078.6
34	1962	10,243.0	12,938.1	14,633.9	17,147.7	15,775.2	12,465.5	19,643.9	22,330.9	20,178.2	18,645.0	15,660.5	13,671.4	12,490.7	10,194.7	15,150.1
35	1963	12,094.6	15,469.8	18,669.9	18,362.4	17,621.7	14,687.0	12,125.0	15,082.1	18,851.1	19,080.7	16,788.2	12,998.3	11,822.5	11,382.9	15,744.5
36	1964	10,468.3	13,142.8	15,201.8	15,184.8	14,248.7	13,014.3	16,879.4	14,841.0	19,603.3	23,698.2	21,408.6	16,758.9	15,049.1	12,650.5	15,871.3
37	1965	12,466.6	14,263.3	20,996.7	23,768.9	22,170.2	20,871.3	15,505.9	22,719.9	22,228.9	20,375.6	17,487.4	15,860.0	14,925.6	10,735.9	18,313.0

Table 5.1.1
Total Regional Hydro Resources by Water Year
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
38	1966	11,517.5	13,292.5	15,675.1	16,233.1	15,103.8	13,514.0	19,967.9	16,841.2	16,759.9	18,553.0	17,152.1	14,480.1	11,501.7	10,431.7	14,961.6
39	1967	10,432.5	12,716.1	16,534.0	20,728.4	19,564.0	18,240.0	14,552.4	12,205.0	19,234.0	23,667.6	20,352.6	14,873.9	13,576.8	11,159.1	16,675.9
40	1968	11,711.3	14,045.7	15,935.9	19,247.8	18,389.1	17,424.6	11,549.3	13,570.0	16,221.7	21,588.2	18,216.8	15,034.7	13,717.4	13,815.3	16,113.7
41	1969	13,113.0	16,456.5	17,881.7	21,951.1	20,621.9	18,384.0	20,193.8	22,381.5	23,061.0	21,318.9	17,604.3	13,347.1	11,300.1	10,847.2	17,883.5
42	1970	11,194.1	13,364.5	14,116.5	18,187.3	16,521.9	14,109.9	12,584.9	14,213.5	19,536.4	22,398.7	13,992.6	12,975.8	11,247.7	10,442.8	14,933.1
43	1971	10,460.8	13,085.6	14,947.7	22,662.8	22,871.8	20,688.0	19,319.2	20,949.7	23,108.1	24,198.5	21,896.9	16,833.4	16,403.6	11,733.3	18,510.4
44	1972	11,920.2	13,696.5	16,579.8	21,928.1	22,617.5	24,420.0	23,168.7	19,216.8	22,764.4	24,110.1	21,510.5	17,793.3	16,944.9	12,266.5	19,182.6
45	1973	11,789.2	13,346.5	16,280.2	16,954.8	13,755.2	12,228.6	9,947.5	12,860.3	16,033.7	13,083.5	13,206.4	11,749.7	10,292.0	10,223.4	13,285.2
46	1974	10,474.2	13,111.0	17,557.5	24,848.7	23,476.3	22,890.9	21,040.6	22,475.8	22,261.8	24,046.5	22,487.1	17,469.6	16,872.9	11,883.3	19,312.4
47	1975	10,475.1	13,202.9	14,525.4	18,254.4	17,132.6	16,403.5	12,931.7	14,807.4	21,308.3	23,337.7	22,060.0	15,015.3	14,664.7	12,237.7	16,473.2
48	1976	13,378.4	17,174.6	22,629.5	22,039.8	20,805.4	19,672.1	20,275.7	20,471.8	22,870.9	21,455.0	20,823.9	18,932.8	18,727.9	16,747.9	19,732.8
49	1977	11,527.3	12,934.1	13,487.3	12,904.4	12,367.4	11,516.3	9,381.0	11,807.2	12,837.4	9,942.0	11,406.5	11,765.5	10,179.2	9,024.6	11,629.0
50	1978	9,438.0	12,714.9	15,234.2	16,542.3	15,678.8	15,221.4	19,201.7	17,917.3	21,030.8	17,286.1	17,917.0	13,038.2	11,633.1	14,115.4	15,500.8
51	1979	11,566.9	13,181.6	13,972.9	14,827.7	12,751.8	15,395.1	11,284.1	15,290.8	19,645.9	16,867.2	11,487.0	11,752.1	10,420.9	10,825.5	13,749.6
52	1980	10,361.7	12,533.6	13,061.0	14,545.6	13,421.8	12,208.9	14,597.9	18,336.2	22,613.7	21,495.7	15,290.6	12,104.6	10,477.4	11,120.8	14,531.7
53	1981	10,359.7	13,252.9	19,234.9	20,701.9	19,372.9	14,800.8	9,703.5	15,020.5	18,797.6	22,704.9	19,196.2	16,582.8	14,916.4	11,085.8	16,459.7
54	1982	10,940.4	13,807.2	16,068.7	19,096.8	23,080.2	22,419.5	18,940.7	18,773.5	22,290.2	22,927.0	22,182.4	16,751.9	16,009.4	13,294.6	18,418.7
55	1983	12,790.9	14,003.3	17,291.7	20,947.2	20,294.1	20,579.0	17,172.6	17,295.1	20,812.5	21,516.6	20,827.8	16,683.8	14,414.2	11,888.1	17,805.0
56	1984	11,374.5	17,693.7	17,618.8	19,918.9	18,831.0	17,327.5	19,554.5	20,719.5	20,467.6	22,603.8	19,477.2	16,037.0	12,958.4	12,020.1	17,645.3
57	1985	11,497.6	14,446.5	15,573.7	15,662.7	14,385.0	13,248.3	16,288.2	19,095.1	19,779.7	16,896.8	13,206.8	11,037.6	9,724.8	10,914.6	14,467.2
58	1986	10,715.9	16,262.1	15,728.8	18,956.7	19,267.2	21,876.0	20,397.9	21,408.4	18,985.5	19,722.1	15,051.0	12,738.7	10,732.8	10,256.4	16,594.8
59	1987	10,323.6	13,690.2	15,784.8	14,941.1	13,955.1	13,831.5	11,082.5	14,827.5	18,173.8	16,133.5	12,543.8	11,132.3	9,804.3	9,852.0	13,553.6
60	1988	9,996.6	12,297.4	12,858.7	12,271.7	10,122.8	11,620.4	10,718.8	14,412.0	15,732.8	12,750.6	14,188.5	11,968.3	10,367.5	9,938.3	12,142.9
61	1989	10,041.8	13,756.4	13,802.5	12,734.3	11,686.6	14,113.8	14,742.9	21,902.8	19,186.7	17,067.3	13,400.9	11,929.8	10,514.4	10,527.2	13,825.4
62	1990	10,466.5	13,957.2	16,609.4	19,115.8	17,836.4	16,538.9	14,824.6	20,229.6	18,450.2	21,107.0	17,003.7	15,207.9	14,165.4	10,232.8	16,116.5
63	1991	10,300.9	17,534.7	17,790.2	20,057.1	18,908.1	17,650.5	16,032.2	16,382.1	19,368.2	20,576.4	20,480.3	16,739.2	14,302.4	10,200.7	17,041.0
64	1992	10,338.6	13,033.4	12,926.7	13,764.3	13,038.8	14,470.5	10,432.4	12,012.7	15,248.1	12,026.3	11,500.8	11,301.0	9,860.5	9,778.2	12,328.3
65	1993	9,952.4	12,435.5	12,528.0	11,536.7	9,586.0	12,944.3	12,665.6	15,360.6	19,722.9	18,358.2	14,099.7	13,175.5	11,300.3	10,847.7	13,207.6
66	1994	10,342.3	12,922.1	13,370.2	11,053.9	10,940.1	11,388.3	10,546.1	14,704.3	17,609.4	15,655.4	13,398.0	11,849.1	9,942.5	10,166.7	12,537.8
67	1995	10,196.3	12,117.0	13,810.3	15,003.8	16,394.2	17,323.0	13,175.8	14,427.2	18,315.5	21,663.0	16,104.1	13,056.2	11,203.5	11,406.7	14,840.9
68	1996	12,127.5	19,270.7	24,022.7	24,354.3	23,429.3	23,471.5	20,410.7	23,251.3	22,453.9	21,518.4	20,385.1	16,344.4	14,258.6	11,229.5	19,934.0
69	1997	10,998.8	13,929.3	17,969.9	24,018.7	23,652.8	23,384.7	21,040.9	23,164.4	22,963.6	23,860.0	21,540.4	16,660.7	16,536.4	13,753.0	19,542.2
70	1998	16,350.4	16,184.2	15,984.3	17,259.7	16,268.4	14,992.5	14,229.2	16,850.9	22,682.4	23,055.9	17,249.9	14,170.6	11,487.3	10,594.3	16,584.2
71	1999	10,565.2	12,636.2	17,545.2	21,986.6	21,198.4	20,923.9	17,172.9	20,216.0	20,356.4	23,276.7	21,680.2	18,438.3	16,823.1	12,054.3	18,201.6
72	2000	11,067.8	18,040.6	18,910.7	18,050.2	16,578.6	16,150.4	18,909.3	21,998.5	20,420.1	16,559.4	16,189.5	13,745.9	10,545.2	9,998.2	16,206.0
73	2001	10,479.2	12,358.9	13,266.9	11,938.5	11,618.9	11,136.4	10,083.9	12,062.3	14,219.9	9,613.2	11,803.8	11,531.6	10,190.8	8,979.1	11,452.9
74	2002	9,276.8	12,156.4	13,553.2	13,428.9	12,393.3	12,690.1	13,815.1	19,228.9	18,420.2	22,398.9	19,286.6	13,212.9	11,433.3	10,706.2	14,432.8

Table 5.1.1
Total Regional Hydro Resources by Water Year
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
75	2003	10,257.7	12,905.9	12,890.6	12,523.2	11,666.3	15,372.1	13,463.7	15,909.5	17,789.0	19,927.4	13,090.0	11,264.4	9,788.1	9,397.1	13,422.6
76	2004	10,371.9	13,709.0	14,336.6	14,277.1	12,365.8	12,883.5	12,215.9	14,911.8	17,370.4	15,953.1	14,136.6	12,190.5	11,350.5	12,383.3	13,599.1
77	2005	11,344.6	13,065.8	15,994.5	17,743.1	13,074.4	11,860.2	9,747.6	13,943.0	18,051.4	16,869.5	14,477.1	12,822.3	10,214.8	10,222.0	13,850.9
78	2006	9,968.9	12,744.5	15,332.2	19,839.1	18,116.6	16,280.6	19,457.5	21,696.9	21,917.8	22,338.4	15,714.8	12,177.0	10,859.7	9,725.3	16,152.7
79	2007	10,013.9	14,831.8	14,660.8	17,728.7	16,626.7	17,280.9	17,516.8	16,282.6	18,606.2	18,378.3	16,232.8	12,454.5	9,974.1	9,504.9	15,152.1
80	2008	10,492.5	13,307.3	13,287.1	13,560.5	13,150.6	12,764.4	12,817.0	11,473.7	20,372.2	23,954.0	18,174.8	13,717.8	13,575.6	10,120.7	14,589.7

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Table 5.1.1
Total Regional Hydro Resources by Water Year
Fiscal Year 2019
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

	Energy-aMW	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
		Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
1	1929	10,828.3	13,042.7	13,486.1	12,126.4	11,706.9	10,924.0	10,356.1	14,031.4	15,124.5	15,483.7	11,032.2	11,923.0	10,459.2	10,609.4	12,309.9
2	1930	10,269.6	12,604.0	12,672.3	11,429.0	12,339.5	10,994.5	11,529.4	15,385.4	13,686.8	11,322.3	13,440.7	12,232.3	10,566.5	10,414.7	11,998.2
3	1931	10,291.3	12,679.5	13,225.9	11,662.5	9,693.7	10,530.0	10,763.1	9,568.0	15,970.5	10,994.2	13,094.0	11,898.8	10,779.3	9,904.6	11,651.4
4	1932	10,117.0	12,166.3	13,236.2	10,511.9	9,807.4	14,425.5	18,002.8	20,376.3	22,158.2	21,844.5	16,037.6	13,838.9	12,329.8	11,230.8	14,502.4
5	1933	10,418.2	12,897.5	15,768.0	18,517.5	17,157.2	15,612.8	14,159.3	15,310.6	18,843.7	24,080.0	21,682.9	16,552.0	14,853.2	11,370.1	16,396.8
6	1934	12,698.8	18,079.8	22,919.3	23,785.3	21,492.6	20,362.1	20,461.3	19,881.4	19,808.6	18,573.8	14,108.4	11,365.8	10,013.4	10,037.0	17,705.2
7	1935	10,260.2	12,570.5	13,714.7	17,798.8	16,353.5	15,467.7	11,221.7	15,432.7	18,155.5	17,777.2	17,387.1	15,149.1	11,351.6	9,856.2	14,654.5
8	1936	10,339.1	12,422.6	12,827.9	10,838.6	11,076.8	11,712.0	12,148.0	18,987.7	22,170.7	21,352.3	14,164.4	12,286.8	10,394.8	10,143.1	13,668.5
9	1937	10,203.1	12,635.0	13,337.4	10,745.0	9,980.2	10,314.8	10,511.9	11,726.7	15,845.5	15,119.4	11,671.7	12,359.9	10,359.1	10,354.3	11,899.1
10	1938	10,379.7	13,555.3	14,231.6	17,471.8	16,360.5	16,428.7	17,231.2	21,947.3	21,981.4	19,166.3	16,372.2	11,827.2	10,545.8	10,807.2	15,617.8
11	1939	10,347.9	12,477.8	13,390.0	14,687.7	13,196.4	12,515.7	14,218.1	18,063.6	18,238.7	14,453.6	13,750.4	11,796.3	10,152.1	10,526.2	13,390.9
12	1940	10,384.3	13,052.4	14,239.7	15,330.9	12,015.3	17,307.4	14,263.3	16,059.7	17,594.3	13,377.5	12,928.4	10,893.8	9,772.7	10,068.2	13,499.0
13	1941	9,900.7	12,493.4	13,710.4	12,030.8	12,027.1	11,271.4	9,169.3	12,324.6	15,766.1	13,719.9	12,564.5	11,930.0	10,403.5	10,581.8	12,167.2
14	1942	10,223.6	13,641.8	15,768.3	16,804.2	14,796.8	14,014.3	10,813.5	16,249.5	17,312.4	18,392.9	17,322.5	13,409.9	12,455.4	11,679.8	14,703.9
15	1943	10,324.8	12,334.8	14,197.9	18,871.2	17,056.4	16,616.3	22,499.6	22,764.2	20,456.8	23,887.9	20,956.3	15,326.7	12,480.2	10,386.1	16,789.9
16	1944	10,488.1	12,954.5	13,732.8	12,339.6	12,187.0	11,536.4	10,042.1	12,765.5	13,241.0	10,704.5	11,531.5	11,713.9	10,492.8	9,937.4	11,764.0
17	1945	9,959.2	12,220.4	13,098.4	12,012.2	11,494.5	10,996.3	10,726.6	9,620.1	18,680.4	19,924.4	11,938.2	11,768.4	10,347.2	10,283.8	12,655.5
18	1946	10,428.7	13,655.7	14,935.5	16,595.3	15,349.4	16,174.9	18,614.0	22,031.0	22,080.1	19,973.1	18,927.9	14,229.3	13,137.3	11,156.3	16,109.5
19	1947	10,586.4	13,757.9	20,387.0	20,678.4	19,419.1	17,965.7	16,685.4	18,109.2	21,155.0	20,018.3	17,495.4	13,651.1	12,041.0	10,952.2	16,879.6
20	1948	15,711.2	16,332.9	17,374.7	20,164.2	17,176.5	15,885.7	14,835.4	19,656.7	23,096.1	24,424.2	20,067.0	17,258.8	15,727.3	11,971.9	18,005.5
21	1949	11,307.1	13,138.0	14,782.5	15,790.4	15,264.1	17,361.0	16,636.1	21,040.1	22,731.7	20,494.8	13,292.0	11,920.7	10,025.6	10,187.3	15,340.8
22	1950	10,407.8	13,474.3	14,141.7	19,931.7	20,282.1	18,798.6	20,062.8	20,127.9	20,382.2	24,266.0	23,253.3	17,533.3	15,893.4	11,768.0	17,773.9
23	1951	13,289.9	17,624.8	21,392.4	23,139.2	23,069.2	21,955.3	20,805.3	20,707.8	22,010.3	20,164.8	20,082.6	14,921.9	12,570.2	11,321.2	19,026.6
24	1952	14,776.9	15,008.4	17,826.6	18,980.3	18,007.3	17,348.6	18,966.6	22,664.2	23,359.2	21,152.6	17,091.9	14,213.5	11,073.5	9,799.3	17,229.2
25	1953	10,423.2	12,170.1	13,253.5	15,155.1	17,671.9	14,499.4	12,642.4	15,140.9	19,973.4	24,207.9	20,757.0	14,736.2	13,273.4	11,119.6	15,577.3
26	1954	11,202.8	13,919.5	16,899.2	19,988.5	19,336.7	18,059.7	16,316.0	17,988.6	21,143.6	22,863.9	23,030.9	18,245.6	17,656.2	15,258.2	18,063.9
27	1955	11,521.8	15,348.6	16,323.2	14,574.9	13,993.2	11,117.8	12,185.4	14,016.0	17,847.7	24,291.2	22,377.1	16,718.2	13,607.0	10,737.5	15,538.2
28	1956	12,579.6	16,685.2	20,794.5	22,668.9	21,420.1	20,557.5	19,393.2	22,560.1	23,086.4	24,459.9	20,692.9	16,019.6	14,772.9	11,378.1	19,213.8
29	1957	12,010.7	13,326.8	17,102.2	16,898.6	15,237.5	16,288.8	18,469.2	17,063.2	23,572.1	24,311.3	15,938.6	12,824.4	11,300.1	10,885.4	16,286.4
30	1958	10,435.2	12,814.3	14,116.6	17,592.2	16,917.6	15,867.8	14,743.2	18,400.6	22,832.8	22,886.1	15,256.1	13,334.4	11,072.4	10,376.9	15,642.0
31	1959	10,831.7	15,177.5	19,538.4	21,549.2	20,029.0	19,006.6	18,166.9	17,644.9	20,027.6	22,620.2	21,514.0	16,091.7	15,483.2	16,189.6	18,337.1
32	1960	17,262.0	18,388.8	18,819.9	17,823.8	16,861.0	16,416.8	22,400.8	19,545.1	18,239.9	20,895.4	17,457.4	14,166.6	11,396.9	10,495.2	17,195.1
33	1961	10,844.7	13,796.8	15,311.9	17,950.8	19,081.1	18,327.4	16,235.3	15,737.9	20,595.6	22,818.7	15,719.5	13,880.9	11,543.4	10,222.9	16,090.4
34	1962	10,245.0	12,940.1	14,636.2	17,148.6	15,778.9	12,507.3	19,831.7	21,920.3	20,304.0	18,677.0	15,618.0	13,628.8	12,456.1	10,190.8	15,151.5
35	1963	12,096.6	15,471.8	18,683.5	18,363.3	17,625.3	14,690.4	12,118.5	15,044.3	18,950.9	19,146.7	16,744.8	12,958.3	11,819.2	11,378.9	15,752.9
36	1964	10,470.3	13,144.8	15,204.1	15,185.7	14,252.4	13,056.2	16,933.6	14,840.3	19,795.1	24,619.2	22,107.2	16,173.1	15,004.5	12,643.7	16,002.6
37	1965	12,468.6	14,265.3	20,969.6	23,995.7	22,748.7	21,128.0	15,683.7	22,234.3	22,294.7	20,609.6	17,445.4	15,814.2	14,911.8	10,727.5	18,401.9

Table 5.1.1
Total Regional Hydro Resources by Water Year
Fiscal Year 2019
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Energy-aMW		Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
38	1966	11,519.5	13,294.5	15,677.4	16,233.9	15,107.5	13,553.2	20,033.7	16,805.6	16,808.0	18,611.9	17,109.7	14,442.1	11,498.8	10,427.8	14,970.4
39	1967	10,434.5	12,718.1	16,536.3	20,766.3	19,576.9	18,423.7	14,567.6	12,080.8	19,309.8	24,143.5	20,606.2	14,830.2	13,537.6	11,155.2	16,755.0
40	1968	11,713.3	14,047.7	15,938.2	19,248.6	18,392.7	17,428.0	11,584.3	13,517.4	16,288.5	21,934.1	18,174.0	14,991.1	13,691.4	13,829.3	16,142.9
41	1969	13,115.0	16,458.5	17,889.2	21,930.5	20,705.4	18,425.8	20,148.6	21,990.9	23,103.8	21,592.8	17,562.0	13,304.9	11,298.5	10,843.3	17,895.2
42	1970	11,196.1	13,366.5	14,118.8	18,175.6	16,525.6	13,911.7	12,740.6	14,211.1	19,828.2	22,734.7	13,950.1	12,929.9	11,208.6	10,438.8	14,967.3
43	1971	10,462.8	13,087.6	14,950.0	22,684.3	23,508.2	20,837.7	19,647.0	20,607.1	22,810.9	24,703.4	21,953.5	16,787.6	16,360.0	11,729.3	18,590.6
44	1972	11,922.2	13,698.5	16,582.1	22,008.5	22,828.7	24,163.7	22,724.5	19,316.1	22,683.2	24,462.1	22,394.0	17,747.5	16,897.5	12,262.6	19,263.0
45	1973	11,791.2	13,348.5	16,282.5	16,955.7	13,758.9	12,232.0	9,941.0	12,858.4	16,030.5	13,131.1	13,164.0	11,713.9	10,290.4	10,219.4	13,284.2
46	1974	10,476.2	13,113.0	17,559.8	25,081.5	23,348.2	22,865.6	21,241.4	22,099.2	22,348.6	24,584.5	23,393.6	17,423.7	16,827.2	11,879.4	19,437.9
47	1975	10,477.1	13,204.9	14,527.7	18,255.2	17,136.3	16,331.5	12,975.6	14,838.9	21,322.1	23,922.7	22,268.6	14,969.5	14,617.3	12,229.4	16,533.4
48	1976	13,380.4	17,176.6	22,681.2	21,964.5	20,875.9	19,959.8	20,485.5	20,143.1	22,828.7	21,759.9	21,334.4	19,268.6	18,657.4	16,518.3	19,812.8
49	1977	11,529.3	12,936.1	13,489.6	12,905.2	12,371.0	11,519.7	9,374.5	11,805.2	12,835.4	9,926.0	11,404.9	11,765.5	10,177.6	9,020.7	11,627.8
50	1978	9,440.0	12,716.9	15,236.6	16,520.8	15,682.4	15,316.1	19,353.5	17,870.6	20,913.6	17,318.8	17,876.2	12,992.4	11,585.6	14,155.4	15,500.7
51	1979	11,568.9	13,183.6	13,975.2	14,827.3	12,764.3	15,391.8	11,256.1	15,282.2	19,801.7	16,851.2	11,444.5	11,716.0	10,419.3	10,821.6	13,755.6
52	1980	10,363.7	12,535.6	13,063.3	14,546.4	13,425.5	12,212.3	14,597.7	18,333.5	22,810.5	21,762.7	15,248.2	12,063.2	10,464.2	11,116.4	14,565.2
53	1981	10,361.7	13,254.9	19,248.5	20,735.9	19,478.7	14,804.2	9,610.9	15,023.6	18,825.4	23,168.8	19,586.7	16,103.0	14,875.7	11,081.7	16,520.6
54	1982	10,942.4	13,809.2	16,071.0	19,110.5	23,267.2	22,642.3	19,144.5	18,925.9	22,324.0	23,395.9	22,859.0	16,260.8	15,965.1	13,303.4	18,545.8
55	1983	12,792.9	14,005.3	17,294.1	20,965.1	20,532.7	20,719.7	17,268.4	17,278.5	21,115.3	21,767.6	20,873.3	16,637.9	14,367.9	11,884.2	17,886.5
56	1984	11,376.5	17,707.4	17,621.2	19,853.2	18,923.1	17,455.7	19,610.3	20,828.9	20,752.4	23,152.7	19,436.8	15,994.8	12,918.6	12,016.2	17,728.0
57	1985	11,499.6	14,448.5	15,576.0	15,663.5	14,388.6	13,253.1	16,384.0	19,147.4	19,939.5	16,881.2	13,165.9	11,001.7	9,722.1	10,908.1	14,481.2
58	1986	10,717.9	16,264.1	15,731.2	18,957.6	19,362.4	21,959.7	20,549.0	21,424.8	19,021.3	19,935.1	15,010.0	12,701.4	10,731.2	10,252.5	16,631.8
59	1987	10,325.6	13,692.2	15,787.1	14,941.9	13,966.1	13,827.8	10,836.6	14,910.9	18,226.6	16,117.1	12,505.6	11,096.5	9,803.2	9,847.7	13,546.1
60	1988	9,998.6	12,299.4	12,861.0	12,272.5	10,126.5	11,623.8	10,712.3	14,410.1	15,730.8	12,734.6	14,149.9	11,932.5	10,365.8	9,934.4	12,137.1
61	1989	10,043.8	13,758.4	13,804.8	12,735.2	11,690.3	14,102.8	14,858.7	21,568.2	19,295.5	17,051.1	13,358.3	11,910.3	10,494.9	10,523.3	13,818.7
62	1990	10,468.5	13,959.2	16,611.7	18,980.4	17,635.4	16,727.8	14,747.4	20,127.4	18,505.0	21,401.0	16,961.5	15,162.5	14,121.4	10,228.5	16,119.8
63	1991	10,302.9	17,541.8	17,803.8	20,132.4	18,926.0	17,693.3	16,049.7	16,472.7	19,470.0	20,694.3	21,211.8	16,258.5	14,261.0	10,196.8	17,117.4
64	1992	10,340.6	13,035.4	12,929.1	13,763.8	13,043.9	14,473.9	10,425.9	12,010.8	15,255.6	12,010.2	11,461.5	11,265.2	9,858.8	9,774.3	12,323.3
65	1993	9,954.4	12,437.5	12,530.3	11,536.2	9,589.7	12,957.6	12,659.2	15,358.8	19,907.7	18,425.1	14,049.1	13,129.7	11,255.8	10,842.4	13,221.8
66	1994	10,344.3	12,924.1	13,372.5	11,054.7	11,212.6	13,410.8	10,394.4	14,713.4	16,333.0	14,678.7	13,358.1	11,813.5	9,941.0	10,162.4	12,531.1
67	1995	10,198.3	12,119.0	13,812.7	15,004.6	15,959.5	15,258.3	16,277.7	14,904.0	19,151.3	22,104.0	16,061.6	13,011.4	11,197.8	11,402.8	14,881.3
68	1996	12,129.5	19,295.2	24,305.5	24,439.2	24,062.2	23,331.2	20,524.5	22,884.6	22,490.7	21,730.4	20,973.6	15,870.0	14,246.5	11,225.6	20,043.8
69	1997	11,000.8	13,931.3	17,972.2	24,316.9	23,955.4	23,334.4	21,202.7	22,757.8	22,891.4	24,306.0	22,258.9	16,151.4	16,490.3	13,754.3	19,645.6
70	1998	16,352.4	16,186.2	15,986.6	17,259.6	16,273.2	14,995.9	14,223.0	16,849.0	22,954.2	23,507.9	17,207.3	14,128.8	11,485.6	10,590.4	16,639.6
71	1999	10,567.2	12,638.2	17,547.5	22,129.8	21,423.0	21,013.4	17,164.1	20,315.4	20,581.2	23,786.7	22,441.7	18,411.0	16,779.6	12,050.4	18,365.2
72	2000	11,069.8	18,065.1	18,924.3	18,051.0	16,736.6	16,034.0	18,978.1	21,552.9	20,648.9	16,544.2	16,146.5	13,710.0	10,543.6	9,994.3	16,208.9
73	2001	10,481.2	12,360.9	13,269.3	11,939.4	11,622.6	11,139.8	10,077.4	12,060.4	14,217.9	9,597.1	11,765.7	11,495.8	10,189.1	8,975.1	11,447.2
74	2002	9,278.8	12,158.4	13,555.5	13,441.2	12,396.5	12,720.2	13,670.1	19,253.4	18,463.0	22,722.9	19,242.2	13,170.8	11,394.3	10,702.3	14,454.9

Table 5.1.1
Total Regional Hydro Resources by Water Year
Fiscal Year 2019
BP 18 Initial Proposal Report Date: 9/8/2016

S137-RC-20161011-130500

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
75	2003	10,259.7	12,907.9	12,893.0	12,522.7	11,670.0	15,412.2	13,365.9	15,878.6	17,805.8	20,122.4	13,049.4	11,228.6	9,786.5	9,393.2	13,433.6
76	2004	10,373.9	13,711.0	14,338.9	14,277.9	12,376.3	12,880.2	12,195.4	14,879.0	17,437.2	15,939.1	14,094.1	12,151.1	11,342.4	12,374.4	13,596.3
77	2005	11,346.6	13,067.8	15,996.9	17,137.3	14,020.5	11,841.9	9,763.9	14,006.4	18,038.2	16,888.7	14,435.1	12,784.6	10,213.2	10,218.1	13,869.2
78	2006	9,970.9	12,746.5	15,334.5	19,807.3	18,120.3	16,341.6	19,395.3	21,476.2	22,478.6	22,681.4	15,672.3	12,141.2	10,858.1	9,721.4	16,214.7
79	2007	10,015.9	14,833.8	14,663.2	17,729.6	16,630.3	17,292.7	17,719.0	16,219.6	18,737.0	18,409.3	16,193.9	12,418.7	9,972.5	9,501.0	15,168.2
80	2008	10,494.5	13,309.3	13,289.4	13,561.3	13,177.5	12,782.6	12,741.9	11,471.8	20,730.0	24,530.0	18,132.4	13,676.0	13,534.7	10,116.7	14,661.0

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6. 4(H)(10)(C) CREDIT

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6.1	Estimated Purchase MW Eligible For 4(h)(10)(C) Credit.....	113
Table 6.1.1	FY 2018 - 4(h)(10)(C) Power Purchase Amount.....	114
Table 6.1.2	FY 2019 - 4(h)(10)(C) Power Purchase Amount.....	116

Table 6.1.1
4(h)(10)(C) Power Purchase Amounts
Fiscal Year 2018

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
1	1929	978	464	1,492	2,060	1,710	778	-685	-1,020	744	44	1,239	-5	0	211	739
2	1930	203	0	1,661	3,136	2,090	-1,573	94	-230	1,236	2,966	0	0	0	289	818
3	1931	257	0	1,333	2,730	3,803	-225	511	2,674	-265	2,717	-116	0	0	571	1,008
4	1932	437	244	1,459	2,448	-1,164	430	0	0	0	0	0	-50	0	68	340
5	1933	1,128	1,065	0	0	0	0	0	0	0	0	0	0	0	423	218
6	1934	259	0	0	0	0	0	0	0	0	-511	-94	27	-41	46	-25
7	1935	822	1,652	1,661	0	0	0	0	437	0	-189	0	0	0	1,152	444
8	1936	1,036	476	1,615	3,370	2,190	1,294	0	0	0	0	0	0	0	713	887
9	1937	1,059	34	1,269	2,927	2,982	1,926	1,098	797	19	486	788	-272	-273	-248	984
10	1938	570	402	1,320	0	0	0	0	0	0	0	0	100	-108	74	199
11	1939	1,100	606	1,541	772	1,064	977	0	0	0	816	0	0	0	0	571
12	1940	760	536	1,023	810	1,351	0	0	0	0	1,757	0	636	80	-84	535
13	1941	766	358	1,152	2,792	1,056	1,050	2,042	393	0	839	0	0	0	111	778
14	1942	528	0	0	0	643	904	655	0	0	0	0	0	0	-624	147
15	1943	882	1,293	1,189	0	0	0	0	0	0	0	0	0	0	988	363
16	1944	1,330	412	1,471	1,927	1,547	1,619	1,372	387	1,756	3,051	527	-73	0	535	1,250
17	1945	413	-58	1,362	2,884	3,067	2,094	80	2,550	0	0	463	-34	-220	-280	917
18	1946	656	43	855	531	0	0	0	0	0	0	0	0	0	312	203
19	1947	1,302	359	0	0	0	0	0	0	0	0	0	0	0	507	182
20	1948	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	1949	748	667	323	0	0	0	0	0	0	0	-42	-145	-192	80	134
22	1950	969	862	946	0	0	0	0	0	0	0	0	0	0	151	246
23	1951	64	0	0	0	0	0	0	0	0	0	0	0	0	512	48
24	1952	0	0	0	0	0	0	0	0	0	0	0	0	0	1,263	104
25	1953	1,178	687	1,541	1,115	0	0	0	0	0	0	0	0	0	470	421
26	1954	823	357	0	0	0	0	0	0	0	0	0	0	0	0	99
27	1955	719	0	0	1,003	695	1,377	-30	0	0	0	0	0	0	722	375
28	1956	549	0	0	0	0	0	0	0	0	0	0	0	0	442	83
29	1957	594	646	0	0	245	0	0	0	0	0	0	-15	-63	411	153
30	1958	1,256	336	1,333	0	0	0	0	0	0	0	0	-37	0	708	304
31	1959	1,001	0	0	0	0	0	0	0	0	0	0	0	0	0	85
32	1960	0	0	0	0	0	0	0	0	0	0	-286	0	0	837	45
33	1961	847	497	32	0	0	0	0	0	0	0	-183	-234	0	647	144
34	1962	1,442	432	334	0	0	808	0	0	0	0	0	0	0	1,076	343
35	1963	265	0	0	0	0	0	108	0	0	0	0	0	0	198	43
36	1964	1,272	765	81	919	516	145	0	0	0	0	0	0	0	0	308
37	1965	0	0	0	0	0	0	0	0	0	0	0	0	0	819	67
38	1966	537	436	0	0	0	454	0	0	18	0	0	0	0	753	183
39	1967	1,171	719	0	0	0	0	0	1,013	0	0	0	0	0	298	225
40	1968	714	106	0	0	0	0	305	-314	233	0	0	0	0	0	89

Table 6.1.1
4(h)(10)(C) Power Purchase Amounts
Fiscal Year 2018

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
41	1969	0	0	0	0	0	0	0	0	0	0	-197	0	0	647	36
42	1970	823	221	982	0	0	0	0	-256	0	0	0	-62	0	734	219
43	1971	1,218	613	468	0	0	0	0	0	0	0	0	0	0	212	211
44	1972	556	537	0	0	0	0	0	0	0	0	0	0	0	0	91
45	1973	592	372	0	0	771	797	2,010	-81	20	1,865	-62	141	-117	-106	429
46	1974	655	826	0	0	0	0	0	0	0	0	0	0	0	84	130
47	1975	1,362	429	1,184	0	0	0	0	0	0	0	0	0	0	0	251
48	1976	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	1977	511	296	1,422	1,564	1,126	1,439	1,581	727	2,045	3,295	250	-147	-78	1,094	1,171
50	1978	939	-310	355	0	50	527	0	0	0	0	0	-10	0	0	133
51	1979	157	714	1,270	1,071	941	0	0	748	0	-366	1,040	0	-42	-225	412
52	1980	805	857	1,661	1,748	662	1,378	0	0	0	0	-234	-171	-106	0	565
53	1981	906	794	0	0	0	0	875	1,029	0	0	0	0	0	296	245
54	1982	938	52	0	0	0	0	0	0	0	0	0	0	0	0	84
55	1983	0	51	0	0	0	0	0	0	0	0	0	0	0	0	4
56	1984	758	0	0	0	0	0	0	0	0	0	0	0	0	0	64
57	1985	771	196	0	28	214	527	0	0	0	-421	-155	453	-8	0	116
58	1986	1,170	0	-56	0	0	0	0	0	0	0	-28	0	-47	958	169
59	1987	1,477	308	0	654	736	144	804	0	0	-96	-26	105	0	326	329
60	1988	879	940	1,935	3,240	2,210	1,535	395	1,588	100	2,386	-217	0	0	16	1,160
61	1989	648	-138	906	3,056	1,283	59	0	0	0	-1,197	-720	-96	0	93	328
62	1990	809	776	0	0	0	0	0	0	0	0	0	0	0	873	204
63	1991	1,350	0	0	0	0	0	0	0	0	0	0	0	0	908	189
64	1992	964	413	1,783	1,141	1,142	-168	1,205	314	155	1,954	237	-56	-250	299	705
65	1993	491	-44	1,501	3,327	2,252	406	415	0	0	0	0	-119	0	-60	663
66	1994	840	309	958	3,941	1,763	1,790	466	1,632	0	193	0	-29	0	-47	897
67	1995	755	1,209	1,064	1,540	0	0	0	1,300	0	0	0	0	0	60	443
68	1996	168	0	0	0	0	0	0	0	0	0	0	0	0	444	51
69	1997	927	320	0	0	0	0	0	0	0	0	0	0	0	0	105
70	1998	0	0	0	0	0	0	0	0	0	0	0	0	0	878	72
71	1999	1,209	1,052	0	0	0	0	0	0	0	0	0	0	0	0	189
72	2000	912	0	0	0	0	0	0	0	0	-409	0	0	-31	1,113	134
73	2001	1,137	461	1,441	1,932	1,547	1,310	1,486	769	1,064	3,807	218	-93	-151	1,082	1,244
74	2002	1,035	-177	1,152	1,924	2,175	595	0	0	0	0	0	-149	-36	487	584
75	2003	912	29	1,131	2,536	2,109	0	0	0	0	0	-7	126	0	592	606
76	2004	828	175	495	1,936	948	616	0	1,048	0	81	0	-135	0	0	460
77	2005	462	416	0	0	1,003	646	1,268	0	0	0	0	0	0	615	308
78	2006	1,536	337	0	0	0	0	0	0	0	0	0	-209	-253	1,072	227
79	2007	1,119	0	743	0	0	0	0	0	0	0	0	-174	-290	1,143	232
80	2008	891	0	1,427	1,487	734	366	-281	1,209	0	0	0	0	0	1,139	542
81	Average	752	330	585	757	543	300	197	209	89	288	30	-9	-28	361	351
82	Median	816	309	57	0	0	0	0	0	0	0	0	0	0	293	226

Table 6.1.2
4(h)(10)(C) Power Purchase Amounts
Fiscal Year 2019

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
1	1929	1,014	472	1,492	2,060	1,710	791	-685	-1,020	805	-29	1,301	0	0	175	746
2	1930	256	0	1,661	3,103	2,258	-1,591	68	-206	1,260	2,941	0	0	0	290	831
3	1931	279	0	1,333	2,649	3,808	-191	511	2,630	-238	2,700	-117	0	0	567	1,005
4	1932	437	256	1,512	2,398	-1,125	392	0	0	0	0	0	-50	0	34	338
5	1933	1,128	1,079	0	0	0	0	0	0	0	0	0	0	0	423	219
6	1934	259	0	0	0	0	0	0	0	0	-513	-115	-14	-31	46	-28
7	1935	822	1,651	1,787	0	0	0	0	473	0	0	0	0	0	1,152	471
8	1936	1,036	476	1,678	3,325	2,087	1,294	0	0	0	0	0	0	0	691	879
9	1937	1,059	34	1,348	2,928	3,006	1,848	1,008	799	59	484	823	-413	-390	-217	981
10	1938	667	366	1,430	0	0	0	0	0	0	0	0	133	-126	83	215
11	1939	1,091	606	1,690	772	1,064	977	0	0	0	770	0	0	0	0	579
12	1940	760	521	1,105	811	1,351	0	0	23	0	1,757	0	564	2	-173	528
13	1941	882	372	1,269	2,792	1,056	1,035	2,023	393	0	839	0	0	0	111	797
14	1942	528	0	0	0	643	904	655	0	0	0	0	0	0	0	198
15	1943	844	1,699	1,462	0	0	0	0	0	0	0	0	0	0	958	414
16	1944	1,330	412	1,577	1,894	1,547	1,609	1,358	387	1,756	3,051	556	-94	0	535	1,256
17	1945	479	13	1,362	2,812	3,054	2,155	78	2,441	0	0	502	-136	-329	-338	912
18	1946	752	70	987	531	0	0	0	0	0	0	0	0	0	312	224
19	1947	1,302	359	0	0	0	0	0	0	0	0	0	0	0	507	182
20	1948	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	1949	748	667	323	0	0	0	0	0	0	0	-24	-151	-275	30	128
22	1950	1,080	872	951	0	0	0	0	0	0	0	0	0	0	151	257
23	1951	64	0	0	0	0	0	0	0	0	0	0	0	0	516	48
24	1952	0	0	0	0	0	0	0	0	0	0	0	0	0	1,181	97
25	1953	1,178	687	1,601	1,153	0	0	0	0	0	0	0	0	0	470	429
26	1954	823	357	0	0	0	0	0	0	0	0	0	0	0	0	99
27	1955	719	0	0	1,004	688	1,316	257	0	0	0	0	0	0	722	381
28	1956	549	0	0	0	0	0	0	0	0	0	0	0	0	442	83
29	1957	594	646	0	0	249	0	0	0	0	0	0	-56	-125	411	149
30	1958	1,256	336	1,409	0	0	0	0	0	0	0	0	-152	0	755	310
31	1959	1,001	0	0	0	0	0	0	0	0	0	0	0	0	0	85
32	1960	0	0	0	0	0	0	0	0	0	0	-293	0	0	837	44
33	1961	847	497	32	0	0	0	0	0	0	0	-135	0	0	709	162
34	1962	1,442	432	558	0	0	770	0	0	0	0	0	0	0	1,057	358
35	1963	265	0	0	0	0	0	108	0	0	0	0	0	0	198	43
36	1964	1,272	765	81	919	516	200	0	0	0	0	0	0	0	0	312
37	1965	0	0	0	0	0	0	0	0	0	0	0	0	0	823	68
38	1966	537	436	0	0	0	419	0	0	0	0	0	0	0	753	179
39	1967	1,171	719	0	0	0	0	0	1,060	0	0	0	0	0	298	227
40	1968	714	106	0	0	0	0	264	-319	164	0	0	0	0	0	81

Table 6.1.2
4(h)(10)(C) Power Purchase Amounts
Fiscal Year 2019

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
41	1969	0	0	0	0	0	0	0	0	0	0	-182	0	0	647	38
42	1970	823	221	982	0	0	36	0	-243	0	0	0	-66	0	734	222
43	1971	1,218	613	468	0	0	0	0	0	0	0	0	0	0	212	211
44	1972	556	537	0	0	0	0	0	0	0	0	0	0	0	0	91
45	1973	592	372	0	0	771	755	1,857	-194	21	1,801	-91	78	-173	-15	409
46	1974	746	857	0	0	0	0	0	0	0	0	0	0	0	84	141
47	1975	1,362	429	1,184	0	0	0	0	0	0	0	0	0	0	0	251
48	1976	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	1977	511	296	1,422	1,564	1,126	1,438	1,581	727	2,045	3,295	225	-309	-185	1,091	1,157
50	1978	1,021	-188	558	0	50	435	0	0	0	0	0	-14	0	0	159
51	1979	373	279	1,317	300	1,042	0	295	0	0	-161	820	-221	-47	-88	322
52	1980	885	867	1,864	1,748	662	1,324	0	0	0	0	-226	-225	-139	0	582
53	1981	906	778	0	0	0	0	923	961	0	0	0	0	0	296	243
54	1982	938	52	0	0	0	0	0	0	0	0	0	0	0	0	84
55	1983	0	51	0	0	0	0	0	0	0	0	0	0	0	0	4
56	1984	758	0	0	0	0	0	0	0	0	0	0	0	0	0	64
57	1985	771	196	0	28	214	526	0	0	0	-77	-343	405	-87	-39	119
58	1986	1,180	0	0	0	0	0	0	0	0	0	-31	0	-48	958	174
59	1987	1,477	308	0	654	731	149	964	0	0	-96	-22	7	-61	251	323
60	1988	879	940	2,041	3,248	2,210	1,535	395	1,588	115	2,404	-199	-78	0	25	1,172
61	1989	721	-217	981	3,056	1,283	0	0	0	0	-946	-721	-85	0	93	350
62	1990	809	776	0	0	0	0	0	0	0	0	0	0	0	869	204
63	1991	1,350	0	0	0	0	0	0	0	0	0	0	0	0	908	189
64	1992	964	405	1,852	1,142	1,141	-168	1,174	299	167	1,954	275	-88	-342	160	696
65	1993	597	9	1,674	3,328	2,252	408	415	0	0	0	0	-132	0	-142	684
66	1994	840	306	1,116	3,905	1,573	381	600	1,652	0	885	0	-109	-86	-156	820
67	1995	778	1,246	1,228	1,540	0	0	0	966	0	0	0	0	0	60	448
68	1996	168	0	0	0	0	0	0	0	0	0	0	0	0	444	51
69	1997	927	320	0	0	0	0	0	0	0	0	0	0	0	0	105
70	1998	0	0	0	0	0	0	0	0	0	0	0	0	0	878	72
71	1999	1,209	1,052	0	0	0	0	0	0	0	0	0	0	0	0	189
72	2000	912	0	0	0	0	0	0	0	0	-89	0	0	-74	1,113	158
73	2001	1,137	461	1,480	1,932	1,502	1,279	1,486	769	1,064	3,807	247	-259	-213	1,082	1,234
74	2002	1,095	-118	1,223	1,886	2,124	1,155	0	0	0	0	0	-124	0	389	635
75	2003	912	29	1,234	2,506	2,109	0	0	0	0	0	-29	87	-19	570	606
76	2004	863	190	714	1,936	944	621	0	1,078	0	79	0	-225	0	0	481
77	2005	462	416	0	0	321	629	1,222	0	0	0	0	0	0	622	253
78	2006	1,536	337	0	0	0	0	0	0	0	0	0	-213	-291	992	218
79	2007	1,119	0	743	0	0	0	0	0	0	0	0	-175	-371	1,123	227
80	2008	891	0	1,492	1,487	718	307	-236	1,209	0	0	0	0	0	1,081	539
81	Average	768	334	628	743	534	284	204	193	90	311	28	-26	-43	359	353
82	Median	823	301	57	0	0	0	0	0	0	0	0	0	0	232	225

These 4(h)(10)(C) Power Purchase Amounts are used to calculate the credit for power purchase expenses in the Power and Transmission Risk Study.

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7. FEDERAL TIER 1 SYSTEM FIRM CRITICAL OUTPUT

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Table 7.1.1
Federal Tier 1 System Firm Critical Output Projection - 2-Year Average
RHWM Process for BP-18 Rate Period

S135-RC-20160803-165201

	A	B	C	D
1.	T1SFCO Projections Energy in aMW	2018	2019	Average
2.	Total Federal System Hydro Generation (<i>TRM Table 3.1</i>)	6,589.6	6,584.8	6,587.2
3.	Total Designated Non-Federally Owned Resources (<i>TRM Table 3.2</i>)	1,148.8	986.0	1,067.4
4.	Total Designated BPA Contract Purchases (<i>TRM Table 3.3</i>)	137.0	137.7	137.4
5.	Total Designated System Obligations (<i>TRM Table 3.4</i>)	-917.2	-907.9	-912.5
6.	Federal Tier 1 System Firm Critical Output (sum of Lines 2-5)	6,958.2	6,800.6	6,879.4

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Table 7.1.2
Federal System Hydro Generation for use in the T1SFCO Calculation
RHWM Process for BP-18 Rate Period
TRM Table 3.1
S135-RC-20160803-165201

	A	B	C	D
1.	Regulated Hydro	2018	2019	Average
2.	Albeni Falls	22.3	21.9	22.1
3.	Bonneville	390.7	390.7	390.7
4.	Chief Joseph	1,100.1	1,100.1	1,100.1
5.	Dworshak	141.6	137.0	139.3
6.	Grand Coulee	1,907.1	1,907.1	1,907.1
7.	Hungry Horse	81.4	81.4	81.4
8.	Ice Harbor	109.1	109.1	109.1
9.	John Day	784.7	784.7	784.7
10.	Libby	186.8	186.8	186.8
11.	Little Goose	156.4	156.4	156.4
12.	Lower Granite	146.2	146.3	146.3
13.	Lower Monumental	146.4	146.4	146.4
14.	McNary	478.2	478.2	478.2
15.	The Dalles	599.3	599.3	599.3
16.	Independent Hydro	2018	2019	Average
17.	Anderson Ranch	12.2	12.2	12.2
18.	Big Cliff	9.7	9.7	9.7
19.	Black Canyon	6.2	6.2	6.2
20.	Boise River Diversion	1.2	1.2	1.2
21.	Chandler	6.1	6.1	6.1
22.	Cougar	19.0	19.0	19.0
23.	Cowlitz Falls	26.5	26.5	26.5
24.	Detroit	33.8	33.8	33.8
25.	Dexter	9.4	9.4	9.4
26.	Foster	12.2	12.2	12.2
27.	Green Peter	26.9	26.9	26.9
28.	Green Springs - USBR	7.3	7.3	7.3
29.	Hills Creek	17.9	17.9	17.9
30.	<i>Idaho Falls - City Plant (expires 9/30/2016)</i>	0.0	0.0	0.0
31.	<i>Idaho Falls - Lower Plants #1 & #2 (expires 9/30/2016)</i>	0.0	0.0	0.0
32.	<i>Idaho Falls - Upper Plant (expires 9/30/2016)</i>	0.0	0.0	0.0
33.	Lookout Point	35.8	35.8	35.8
34.	Lost Creek	30.1	30.1	30.1
35.	Minidoka	10.7	10.7	10.7
36.	Palisades	67.4	67.4	67.4
37.	Roza	6.9	6.9	6.9
38.	Total Tier 1 Federal System Hydro Generation	6,589.6	6,584.8	6,587.2

^{1/} Reference Tiered Rate Methodology, November 2008. TRM-12-A-02, Table 3.1, page 121.

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Table 7.1.3
Designated Non-Federally Owned Resources for use in the T1SFCO Calculation
RHWM Process for BP-18 Rate Period
TRM Table 3.2
S135-RC-20160803-165201

	A	B	C	D
1.	Project	2018	2019	Average
2.	Ashland Solar Project	0.0	0.0	0.0
3.	Columbia Generating Station	1,100.0	937.3	1,018.6
4.	Condon Wind Project	11.7	11.7	11.7
5.	Dworshak/Clearwater Small Hydropower	2.6	2.6	2.6
6.	Foote Creek 1	3.6	3.6	3.6
7.	Foote Creek 2	0.0	0.0	0.0
8.	Foote Creek 4	4.0	4.0	4.0
9.	<i>Fourmile Hill Geothermal (Not included)</i>	0.0	0.0	0.0
10.	<i>Georgia-Pacific Paper (Wauna) (Acquisition Expired 4/5/2016)</i>	0.0	0.0	0.0
11.	Klondike I	5.7	5.7	5.7
12.	Stateline Wind Project	21.2	21.2	21.2
13.	White Bluffs Solar	0.0	0.0	0.0
14.	Total Designated Non-Federally Owned Resources	1,148.8	986.0	1,067.4

^{1/} Reference Tiered Rate Methodology, November 2008. TRM-12-A-02, Table 3.2, page 122.

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Table 7.1.4
Designated BPA Contract Purchases for use in the T1SFCO Calculation
Preliminary RHWB Process for BP-18 Rate Period
TRM Table 3.3

S135-RC-20160803-165201

	A	B	C	D	E
1.	Contract Purchases	Contract #	2018	2019	Average
2.	Priest Rapids CER for Canada	97PB-10099	29.2	28.8	29.0
3.	Rock Island #1 CER for Canada	97PB-10102	17.7	18.3	18.0
4.	Rock Reach CER for Canada	97PB-10103	37.1	37.6	37.3
5.	Wanapum CER for Canada	97PB-10100	28.2	28.4	28.3
6.	Wells CER for Canada	97PB-10101	23.9	23.6	23.7
7.	BCHP to BPA PwrS	99PB-22685	1.0	1.0	1.0
8.	BCHP to BPA LCA (<i>settled financially</i>)	99PB-22685	0.0	0.0	0.0
9.	PASA to BPA Pk Repl (<i>expired 4/30/2015</i>)	94BP-93658	0.0	0.0	0.0
10.	PASA to BPA S/N/X (<i>expired 4/30/2015</i>)	94BP-93658	0.0	0.0	0.0
11.	PASA to BPA Xchg Nrg (<i>expired 4/30/2015</i>)	94BP-93658	0.0	0.0	0.0
12.	RVSD to BPA Pk Repl (<i>expired 4/30/2016</i>)	94BP-93958	0.0	0.0	0.0
13.	RVSD to BPA Seas Xchg (<i>expired 4/30/2016</i>)	94BP-93958	0.0	0.0	0.0
14.	RVSD to BPA Xchg Nrg (<i>expired 4/30/2016</i>)	94BP-93958	0.0	0.0	0.0
15.	PPL to BPA SNX (Spring Return) (<i>expired 6/1/2014</i>)	94BP-94332	0.0	0.0	0.0
16.	PPL to BPA SPX (Summer Return) (<i>expired 6/1/2014</i>)	94BP-94332	0.0	0.0	0.0
17.	Total Designated BPA Contract Purchases		137.0	137.7	137.4

^{1/} Reference Tiered Rate Methodology, November 2008. TRM-12-A-02, Table 3.3, page 123.

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Table 7.1.5
Designated BPA System Obligations for use in the T1SFCO Calculation
Preliminary RHEM Process for BP-18 Rate Period

TRM Table 3.4 (Negative numbers indicate obligations)

S135-RC-20160803-165201

	A	B	C	D	E
1.	System Obligation	Contract #	2018	2019	Average
2.	BPA to BRCJ Chief Joseph	14-03-17506; 14-03-49151	-8.8	-8.8	-8.8
3.	BPA to BRCB Columbia Basin Project	lbp-4512; 14-03-001-12160	-142.9	-142.9	-142.9
4.	BPA to BRCR Crooked River Project	14-03-73152	-0.7	-0.7	-0.7
5.	BPA to BROP Owyhee Project	EW-78-Y-83-00019	-1.7	-1.7	-1.7
6.	BPA to BRRP Rathdrum Prairie Project	14-03-49151	-0.6	-0.6	-0.6
7.	BPA to BRSID Southern Idaho Projects	EW-78-Y-83-00019	-20.0	-20.0	-20.0
8.	BPA to BRSIN Spokane Indian Develop.	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	-0.8	-0.8	-0.8
12.	BPA to BRUB Umatilla Basin Project	10GS-75345	-2.4	-2.4	-2.4
13.	BPA to BRYK Yakima Project	DE-MS79-88BP92591	-1.8	-1.8	-1.8
14.	BPA to BCHP LCA (settled financially)	99PB-22685	0.0	0.0	0.0
15.	BPA to BCHA Can Ent	99EO-40003	-468.5	-462.4	-465.5
16.	BPA to BCHA NTSA	12PG-10002	-9.1	-9.1	-9.1
17.	BPA to BHEC 2012PSC (expired 6/30/2017)	97PB-10051	0.0	0.0	0.0
18.	BPA to PASA C/N/X (expired 4/30/2015)	94BP-93658	0.0	0.0	0.0
19.	BPA to PASA S/N/X (expired 4/30/2015)	94BP-93658	0.0	0.0	0.0
20.	BPA to RVSD C/N/X (expired 4/30/2016)	94BP-93958	0.0	0.0	0.0
21.	BPA to RVSD Seas Xchg (expired 4/30/2016)	94BP-93958	0.0	0.0	0.0
22.	Federal Intertie Losses (Calculated: 3.0% of Intertie Sales Table 2.12.5 lines 18-21)	n/a	0.0	0.0	0.0
23.	BPA to AVWP WP3 S (expires 6/30/2019)	85BP-92186	-44.8	-44.8	-44.8
24.	BPA to PPL SNX (Spring Delivery) (expired 6/1/2014)	94BP-94332	0.0	0.0	0.0
25.	BPA to PPL SPX (Summer Delivery) (expired 6/1/2014)	94BP-94332	0.0	0.0	0.0
26.	BPA to PSE WP3 S (expired 6/30/2017)	85BP-92185	0.0	0.0	0.0
27.	BPA to PSE Upper Baker 2	09PB-12126	-1.3	-1.3	-1.3
28.	BPAP to BPAT (Dittmer/Substation Service)	09PB-12128	-9.4	-9.4	-9.4
29.	Federal Power Trans. Losses	n/a	-236.8	-232.7	-234.7
30.	Slice Transmission Loss Returns	n/a	35.5	34.7	35.1
31.	Total Designated System Obligations		-917.2	-907.9	-912.5

^{1/} Reference Tiered Rate Methodology, November 2008. TRM-12-A-02, Table 3.4, page 124-125.

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8. HYDRO REGULATION ASSUMPTIONS

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8.1	HYDSIM Hydro Regulation Study Assumptions for 2018 and 2019	135
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STUDY NUMBER: 16_RateCase18_RHWM & 16_RateCase19_RHWM

Requested By: BPA Rates Process

Due Date: March 31, 2016

Purpose of Study: This is an 80-year continuous study of the system operation for the initial proposal BP-18 Rate Case for FY 2018 and FY 2019.

Study Directories: **DOP Step:** X:\RATES\16_RateCase18_RHWM\DOP18
\FY18_Rate_APOC18

AER Step: X:\RATES\16_RateCase18_RHWM\AER &
X:\RATES\16_RateCase19_RHWM\AER

OPER Step: X:\RATES\16_RateCase18_RHWM\OPER_final &
X:\RATES\16_RateCase19_RHWM\OPER_final

Name of Regulator: Jennie Tran

The Rate Case HYDSIM studies are run in three steps or layers. The first step determines the Canadian Treaty operations; the second step includes those Treaty operations and adds a layer that determines the U.S. non-federal operations and an approximation of the federal operations; and the third step includes those operations and adds a layer of fine-tuning to determine the federal operations.

There are two separate 80-year studies—one for Fiscal Year (FY) 2018 (October 2017 through September 2018) and one for FY 2019 (October 2018 through September 2019). For simplicity the two 80-year studies are often referred to as a singular study, and the three steps are often referred to as a singular step. However, in reality there is a Detailed Operating Plan (DOP) Step for each one, an Actual Energy Regulation (AER) Step for each one, and an operational (OPER) Step for each one, which is a total of six studies, and these are collectively referred to as the HYDSIM study for the Rate Case.

DOP STEP

- This Step is used to determine the Canadian Treaty project elevations following procedures from the Columbia River Treaty.
- Since the official DOP studies for Treaty storage operations are typically completed just 1-2 months prior to the operating year, they are not available in time for the rate case study. Therefore, surrogate DOP studies are used to reflect expected study results and determine the Canadian Treaty storage operations for the AER step.
- The surrogate DOP studies start with the official Assured Operating Plans (AOP): AOP18 and AOP19 (roll over from AOP18) studies. The surrogate DOP converts the AOP from perfect-knowledge to forecast-based and from operating-year to fiscal-year, and includes all the data updates that are expected to be included in the official DOP studies.
- These updates include plant data from the 2016 Pacific Northwest Coordination Agreement (PNCA) data submittal and the portion of the 2017 PNCA data submittal known at the time of study. This continuous 80-year study begins on October 1, 1928, and ends on September 30, 2008.

AER STEP

- This AER Step is used to determine the project minimum storage elevations using load equal to the 2016 operating year (OY16) Firm Energy Load Carrying Capability (FELCC) and unlimited secondary market. Minimum elevations from the AER Step are input into the OPER Step.
- This is a **continuous** 80-year study based on the OY16 PNCA data submittal.
- The Coordinated System generation does not include the Tacoma projects, PacifiCorp projects, Brownlee, Oxbow, and Hells Canyon.
- **Streamflow Data** are from “Modified Streamflows 2010 Level of Irrigation”. They contain estimated irrigation depletions from the year 2010. (See “2010 Level Modified Streamflow: Seasonal Volumes and Statistics, 1928-2008” and “2010 Level Modified Streamflow, 1928-2008” both dated August 2011.) Adjustments to these 2010 level modified streamflows are made in this study according to the Bureau of Reclamation’s updated **Grand Coulee pumping schedule** for the Columbia Basin Project in the February 1, 2016 preliminary PNCA data submittal for OY17.
- **Plant Data** are from the PNCA plant data for OY16 for all projects except Hungry Horse, which is from the Bureau of Reclamation’s February 1, 2016 preliminary PNCA data submittal for OY17.
- **Loads** are from the FELCC OY16 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 April 30, 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) is not used to meet PNCA FELCC in these studies. Also, in this study the generation from Tacoma and PacifiCorp projects is not included because they are not in the PNCA Coordinated System FELCC computation. The PNCA hydro FELCC includes Hydro-Independent generation from 1936-37 so BPA revises the FELCC to reflect the Hydro-Independent generation for each of the 80 years and uses this modified FELCC as the hydro-residual load required for this study. There is no limit assumed in the secondary market, which is consistent with PNCA studies.
- **Unit Outages** for all projects are from the PNCA OY16 data.
- **Initial Contents** for all projects came from the September 30, 1929, storage ending content from the final Rates study for 2007 (X:\RATES\06Rate07-09\04Rate_07\AER), except Mica, Arrow, and Duncan are initialized to the content from the surrogate DOP studies. (X:\RATES\16_RateCase18_RHWM\DOP18\FY18_Rate_APOC18). The initial conditions do not significantly affect the study results since this is a continuous study.
- **Critical Rule Curves** (CRCs) are in accordance with PNCA OY16 adopted system critical rule curves.
- **Flood Control Rule Curves**, also known as Upper Rule Curves (URCs), 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); shift from Dworshak 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 March 2013 for 1929-2008. These flood control curves include the variable flood control in December at Libby, BC Hydro’s updated storage reservation diagram for Duncan, and a 1600 cubic feet per second (cfs) minimum flow at Dworshak. The Mica, Arrow, and Duncan flood control requirements are from the DOP18 study. The flood control 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 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 OY16 Power Discharge Requirements (PDRs), distribution factors, and forecast errors, which are used in PNCA planning. The Grand Coulee Energy Content Curve (ECC) lower limits are 1225 feet (441.5 ksfd) January through April and 1240 feet (884.4 ksfd) in May. The unit ‘ksfd’ is a volume equal to

1000 cfs for 24 hours. The Canadian projects' DOP18 VECCs are based on forecasts, the ratio of 3.6/4.08 Arrow/Mica split, non-shifted flood control, and VarQ flood control at Hungry Horse.

Project Specific Data:

- **Mica, Duncan, and Arrow** are fixed to the 80-year surrogate DOP18 study run by BPA on February 5, 2016, specifically for the BP-18 Rate Case.
- **Libby** operates to meet Coordinated System FELCC in October and November with a minimum flow of 4,000 cfs. Libby has a maximum outflow of 4,000 cfs January through April and 25,000 cfs May through August. The 25,000 cfs May through August maximum outflow is powerhouse hydraulic capacity without spill, but a higher outflow including spill can be provided to maintain the required VarQ flood control space. Libby has a minimum outflow of 6,000 cfs May 15 through September. Libby can be drafted to meet FELCC in October and 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 thousand acre feet (KAF), the flood control at Libby in December is 2426.7 feet (1805.8 ksfd). When the forecast is greater than 5900 KAF, the flood control in December is 2411.0 feet (1501.9 ksfd). The flood control data is interpolated between 1805.8 ksfd and 1501.9 ksfd when the forecast is between 5500 and 5900 KAF. 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 Biological Opinion's (BiOp) April 10 objective). During May and June Libby operates for Sturgeon and during May 15 through September 30 it operates for Bull Trout. Sturgeon and Bull Trout flow requirements May through August are based on the May final April-August Kuehl-Moffitt forecast at Libby and are summarized as follows from the PNCA OY16 Corps of Engineers data submittal based on the U.S. Fish and Wildlife Service BiOp dated February 18, 2006, where MAF is one million acre-feet and KAF is one thousand acre-feet of water volume.

<u>Libby May1 Apr-Aug</u> <u>Forecast Volume (MAF)</u>	<u>Sturgeon Flow Volume</u> <u>Provided from 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-Aug31 (CFS)</u>
<4800	6000
4800-6000	7000
6000-6700	8000
>6700	9000

Libby can draft below the 2,449 feet (2280.3 ksfd) August 31 draft limit to meet the Bull Trout flow objective. The project attempts to operate along a computed straight line between the June 30 content and an August 31 draft limit of 2449 feet (2280.3 ksfd) to minimize occurrences of a second peak flow in the summer. The summer draft is then shaped to provide flat flows July through August where possible. Libby targets to 6000 cfs outflow in September.

- **Hungry Horse** operates to meet the following minimum flow requirements at the project and at Columbia Falls as shown in the PNCA OY16 data submittal. The minimum flows are determined each month based on the January, February, and March forecasts of April-August streamflow volumes. The March forecast also determines the minimum flows for April through December.

<u>Hungry Horse</u> <u>Apr-Aug Forecast (KAF)</u>	<u>Hungry Horse</u> <u>Minimum Flow (CFS)</u>	<u>Columbia Falls</u> <u>Minimum Flow (CFS)</u>
<1190	400	3200
1190-1790	400-900	3200-3500
>1790	900	3500

Hungry Horse will draft to 3555.7 feet (1453.5 ksf) in October and November and 3549.2 feet (1376.8 ksf) in December for winter flood control. However, due to the minimum flow requirement at Columbia Falls, Hungry Horse often operates below these elevations in October through December. From January through March, Hungry Horse operates between the variable draft limit, which assures a 75 percent chance of filling to April flood control elevation, and the VarQ flood control elevation except in periods when minimum flow requirements draft the project deeper. The variable draft limits 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 draft limit of 3545 feet (1330.2 ksf) or VarQ flood control upper rule curve in April. In May and June, Hungry Horse operates on flood control when possible but drafts below flood control to meet minimum flows when necessary. January through April outflows are reshaped to reduce forced spill. In years when the May 1 April-August volume forecast for The Dalles is less than 72.2 MAF (20th percentile), the project operates along a computed straight line between the June 30 content and a September 30 draft limit of 3540.0 feet (1275.1 ksf) to minimize occurrences of a second peak flow in the summer. In years when the May 1 April-August volume forecast for The Dalles is greater than or equal to 72.2 MAF (20th percentile), the September 30 draft limit is 3550.0 feet (1386.7 ksf). The summer draft is then shaped to provide flat flows July through September where possible. The maximum discharge at Hungry Horse is 9,000 cfs during September through April 15, and 11,956 cfs during April 16 through August 31, unless the URC causes more discharge.

- **Albeni Falls** targets 2062 feet (559.1 ksf) from June through August, 2060 feet (465.7 ksf) in September, 2056 feet (279.0 ksf) in October, 2051 feet (57.6 ksf) November through March, 2056 feet (279.0 ksf) in April, and 2060 feet (465.7 ksf) in May.
- **Kerr** targets 2891 feet (488.6 ksf) in October, 2890 feet (426.3 ksf) in November, 2888 feet (302.8 ksf) in December, 2886.3 feet (198.8 ksf) in January, 2884.7 feet (101.8 ksf) in February, 2883.5 feet (29.9 ksf) in March, 2883.8 feet (47.8 ksf) on April 15, 2885.3 feet (138.1 ksf) on April 30, 2890 feet (426.3 ksf) in May, full at 2893 feet (614.7 ksf) June through August, and 2892.5 feet (583.1 ksf) in September. This operation is based on best estimated operations from Kerr project.
- **Grand Coulee** operates to meet FELCC September through December subject to the draft limits of 1283 feet (2413.9 ksf) in September and October, 1275 feet (2102.4 ksf) in November, and 1270 feet (1915.1 ksf) in December. January through March, Grand Coulee can be drafted to the higher of winter draft limits [1260 feet (1553.3 ksf), 1250 feet (1209.0 ksf), 1240 feet (884.4 ksf), respectively] or the variable draft limit. The variable draft limit 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 variable draft limits are calculated using the regulated inflows calculated in the hydro regulation model which are exceeded 85 percent of the time, perfect knowledge of the minimum outflow, and the requirement to be at flood control elevation on April 10. On April 15, Grand Coulee operates on flood control. From April 30 through May, Grand Coulee may be drafted to the lower of flood control or 1280 feet (2295.3 ksf) to support Priest Rapids and McNary flow augmentation targets. In June, Grand Coulee operates to 1288 feet (2615.3 ksf) or flood control elevations. In July, Grand Coulee has a draft limit of 1285 feet (2493.0 ksf) to support Priest Rapids and McNary flow augmentation targets. In August 1-15, the draft limit for BiOp flow augmentation is 1280 feet (2295.3 ksf) if the July 1 forecast April through August volume runoff at The Dalles is less than 92 MAF; otherwise the draft limit is 1282 feet (2374.4 ksf). In August 16-31, the

draft limit is 1278 feet (2217.5 ksfd) 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 (2295.3 ksfd). At-site minimum flow is equal to 30,000 cfs. Grand Coulee is subject to a draw down limit of 1.5 feet per day when Grand Coulee is above 1260 feet, 1.3 feet per day when Grand Coulee is between 1260 feet and 1240 feet, and 1.0 feet per day when Grand 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 either 68 percent of the largest of the October or November flow at Wanapum or 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. These Vernita Bar flow requirements are modeled as requirements at Priest Rapids, and Grand Coulee will draft to meet them.
- **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.
- **Upper Snake** reservoirs and river reaches above Brownlee are not simulated in this study. Upper Snake operations are embedded in the Brownlee inflow data, as described in the 2010 Level Modified Streamflow documentation.
- **Brownlee** operates to the fixed target elevations provided to BPA from the NWPP on October 11, 2013. They are 2059 feet (373.5 ksfd) in August, 2045 feet (293.8 ksfd) in September, 2053 feet (337.4 ksfd) in October, 2069.8 feet (441.8 ksfd) in December, 2059.7 feet (377.7 ksfd) in January, 2075 feet (477.8 ksfd) in June, and 2062 feet (391.5 ksfd) in July and supports a minimum flow requirement of 6500 cfs at Hells Canyon. Brownlee drafts to support the flow objective at Hells Canyon of between 6500 to 13000 cfs in October, and between 8000 to 13000 cfs in November for Fall Chinook operation. In February through May, Brownlee operates to flood control unless drafted for Hells Canyon minimum flow requirement.
- **Dworshak** is on minimum flow of 1,500 cfs or at flood control elevations in all periods with the exception of July-September. Dworshak's outflow is limited to 14,000 cfs in July-August except when exceeded to meet the URC-- the maximum flow is 25,000 cfs for flood control operations. During the July-August flow augmentation period, Dworshak will release no more water than necessary to meet the Lower Granite flow target, though the target is rarely met and instead Dworshak most often operates to target elevations based on a straight-line draft between end of June and end of August target elevations: usually 1600 feet (1016.0 ksfd) on June 30 and 1535 feet (497.0 ksfd) on August 31. The summer draft is then shaped to provide flat flows July through August where possible. Dworshak is drafted to 1520 feet (395.8 ksfd) on September 30 subject to a maximum outflow of 9,833 cfs.
- **Lower Snake projects operate at MOP** (minimum operating pool) in accordance with the PNCA data submittal. As identified in the Federal Columbia River Power System 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 (April-October in HYDSIM modeling). MOPs for Lower Granite, Little Goose, Lower Monumental and Ice Harbor are elevations 733 (224.9 ksfd), 633 (260.4 ksfd), 537 (180.4 ksfd) and 437 feet (193.4 ksfd), respectively. During the rest of the year Lower Granite, Little Goose, Lower Monumental and Ice Harbor operate at elevations 738 (245.7 ksfd), 638 (285.0 ksfd), 540 (190.1 ksfd) and 440 feet (204.8 ksfd), respectively.
- **Spill for Fish Passage** is included at the eight lower Snake River and lower Columbia River projects (Lower Granite, Little Goose, Lower Monumental, Ice Harbor, McNary, John Day, The Dalles and Bonneville) based on the OY16 PNCA data, summarized below. The spill is limited at times by 120 percent Total Dissolved Gas (TDG) Caps and minimum turbine flow requirements.

- **Juvenile Passage Spill and Total Dissolved Gas Caps from OY16 PNCA Planning**

SPILL CRITERIA FOR PNCA OY16 (Feb 1, 2015 Submittal Appendix A-25)						
	Spill	Min Turb	Min Spill	Days	Hour Ending	Notes
LWG	20 kcfs; 18 kcfs	11.5 kcfs		Apr 3 - May 31; Jun 1 - Aug 31	All hours	Gas Cap: 40 kcfs
LGS	30% flow	11.5 kcfs	8kcfs if flow<32 kcfs	Apr 3 - May 31; Jun 1 - Aug 31	All hours	Gas Cap: Ap1-Ap2: 30 kcfs; May 28 kcfs; June 30 kcfs; Jul-Au2: 28 kcfs
LMN	spill cap; 17 kcfs	11.5 kcfs		Apr 3 - May 31; Jun 1 - Aug 31	All hours	Gas Cap: Ap1: 26 kcfs; Ap2: 25 kcfs; May: 22 kcfs; Jun 19 kcfs; Jul-Au2: 24 kcfs
IHR	45 kcfs day/gas cap night	9.5 kcfs	8.4 kcfs	Apr 3 - 28;	All hours (13 hrs day/11 hrs night)	Gas Cap: 97 kcfs
	30% vs 45 kcfs day/gas cap night			Apr 29 - Jul 12;	All hours (13 hrs day/11 hrs night)	
	45 kcfs day/gas cap night			Jul 13 - Aug 31	All hours (13 hrs day/11 hrs night)	
MCN	40% flow	50 kcfs		April 10 - Jun 15	All hours	Gas Cap: Ap1-Ap2: 117 kcfs; May 122 kcfs; Jun 125 kcfs; Jul 138 kcfs; Au1-Au2: 148 kcfs
	50% flow			Jun 16 - Aug 31	All hours	
JDA	30% flow	50 kcfs	25%	Apr 10 - 27	All hours	Gas Cap: Ap1: 96 kcfs; Ap2: 90 kcfs; May-Jul 95 kcfs; Au1-Au2: 98 kcfs
	30% vs 40% flow			Apr 28 - Jul 20		
	30% flow			Jul 21 - Aug 31		
TDA	40% flow	50 kcfs		Apr 10 - Aug 31	All hours	Gas Cap: Ap1: 124 kcfs; Ap2: 131 kcfs; May 132 kcfs; Jun 137 kcfs; Jul 139 kcfs; Au1-Au2: 125 kcfs
BON	Min (100 kcfs, spill cap)	30 kcfs	50 kcfs	Apr 10 - Jun 15	All hours	Gas Cap: Ap1: 106 kcfs; Ap2: 108 kcfs; May: 109 kcfs; Jun: 98 kcfs; Jul: 111 kcfs; Au1: 116 kcfs; Au2: 120 kcfs
	95 kcfs vs 85 kcfs day/121 kcfs night			Jun 16 - Aug 31	All hours (16 hrs day/8 hrs night)	

LWG = Lower Granite; LGS = Little Goose; LMN = Lower Monumental; IHR = Ice Harbor; MCN = McNary;
JDA = John Day; TDA = The Dalles; BON = Bonneville

- **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 (2102.4 ksfd) in November and 1270 feet (1915.1 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 - 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 the summer flow objective, subject to draft limits.
- **John Day** is operated at 262.5 feet (127.8 ksfd) from April through September. From October through March, John Day operates to 265 feet (190.4 ksfd).
- **Bonneville** second powerhouse corner collector is modeled as “other spill” in HYDSIM, using the “other spill” data from PNCA OY16.
- **Spill at non-Federal projects** is summarized below from OY16 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.

<u>Non-Federal Spill for Fish (Percent of Total Outflow or cfs)</u>							
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	0.0	9.0	9.0	9.0	2.8
Rock Island (%)	0.0	9.3	10.0	18.0	20.0	20.0	6.3
Wanapum (cfs)	1,700	20,000	20,000	20,000	20,000	20,000	11,700
Priest Rapids (cfs)	1,800	24,000	24,000	24,000	24,000	24,000	13,400
PROJECTS:	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Wanapum (cfs)	3,400	3,400	2,550	800	800	1,200	1,458
Priest Rapids (cfs)	2,800	2,800	2,300	200	200	1,100	1,461

- **Kootenay Lake** is operated as necessary, up to free flow, to maintain the lake level below the International Joint Commission (IJC) rule curve and the calculated “allowable elevation at Queens Bay”. 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 1743.32 feet.

OPER STEP

- All AER Step criteria apply in the OPER Step unless specifically amended below.
- **Loads** in the OPER Step are the 2018 and 2019 Coordinated System firm residual hydro loads from BPA's LORA Study (S132-INV-20160314-104000) on March 15, 2016. 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 analysis is also included in March through July periods 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, except in periods when Grand Coulee is able to store water and avoid spill. The Coordinated System independent hydro generation from BPA's LORA Study (S132-INV-20160314-104000) is also used in this study to develop the residual hydro load. In this OPER study, the generation from the Tacoma and PacifiCorp projects is included in the HYDSIM Coordinated System total generation because Tacoma and PacifiCorp are included in the Coordinated System firm residual hydro loads from BPA's LORA.
- **Availability Factors** are used in HYDSIM to simulate unit outages and units held for reserve requirements. Unit outages are based on the latest information for all plants provided by BPA's Federal Hydro Projects Ops group. The availability factors are calculated using a combination of planned outages plus forced outages that are based on historical data and forecast equipment condition. The following tables show availability factors based on these outage assumptions for FY 2018 and FY 2019.

FY 2018:

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
LIB	99%	99%	99%	83%	91%	80%	90%	99%	99%	82%	77%	85%
HGH	73%	73%	81%	79%	71%	48%	48%	48%	55%	58%	48%	48%
ALF	99%	79%	99%	99%	99%	99%	99%	72%	65%	65%	65%	71%
DWR	70%	69%	47%	98%	98%	98%	98%	98%	98%	98%	98%	87%
GCL	68%	68%	68%	65%	66%	65%	68%	70%	71%	66%	72%	69%
CHJ	97%	97%	98%	97%	97%	91%	92%	98%	97%	98%	98%	90%
LWG	79%	82%	88%	98%	98%	95%	97%	97%	97%	67%	57%	66%
LGS	75%	75%	74%	80%	81%	96%	96%	96%	95%	83%	87%	96%
LMN	64%	64%	64%	65%	70%	89%	98%	98%	90%	75%	79%	81%
IHR	74%	74%	79%	81%	68%	63%	65%	54%	65%	37%	46%	56%
MCN	71%	75%	78%	81%	82%	81%	76%	78%	67%	70%	76%	79%
JDA	79%	89%	71%	71%	64%	86%	90%	93%	94%	93%	89%	81%
TDA	77%	80%	77%	75%	79%	78%	78%	72%	74%	74%	75%	78%
BON	90%	95%	87%	90%	89%	84%	92%	96%	89%	91%	93%	92%

FY 2019:

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
LIB	98%	98%	98%	82%	95%	84%	98%	98%	94%	73%	84%	85%
HGH	48%	60%	81%	78%	79%	73%	73%	73%	73%	66%	75%	73%
ALF	99%	79%	99%	99%	99%	99%	99%	71%	65%	48%	44%	64%
DWR	67%	62%	82%	91%	91%	91%	91%	91%	91%	91%	91%	62%
GCL	69%	68%	68%	67%	58%	58%	57%	62%	74%	80%	80%	79%
CHJ	92%	93%	92%	92%	91%	86%	93%	96%	95%	96%	95%	74%
LWG	64%	65%	63%	78%	80%	78%	96%	96%	96%	82%	71%	82%
LGS	80%	85%	84%	91%	89%	89%	90%	89%	88%	77%	76%	90%
LMN	74%	74%	74%	83%	92%	89%	92%	91%	84%	77%	70%	80%
IHR	64%	59%	64%	62%	67%	83%	94%	94%	94%	78%	87%	87%
MCN	72%	78%	80%	82%	82%	81%	94%	95%	92%	96%	87%	86%
JDA	73%	83%	87%	86%	85%	86%	85%	81%	86%	86%	81%	72%
TDA	72%	72%	72%	76%	79%	80%	76%	81%	88%	84%	85%	85%
BON	88%	83%	85%	87%	86%	86%	86%	91%	85%	86%	81%	77%

- The availability factors are also used to reflect reserve requirements because HYDSIM has no other mechanism to account for incremental reserves, which require the system to have units available to increase generation within a few minutes. After calculating availability factors based on unit outage information, the availability factors are further decreased to reflect units needed for meeting reserve requirements. The availability factors assume the federal hydro system will provide 89 percent of the estimated operating contingency reserves required. The availability factors reflect operating contingency reserve requirements at 3 percent of the total control area generation and 3 percent of the total loads. Balancing reserve requirements of 400 MW in April-July and 750 MW in August-March are also included in the availability factors. The availability factors also reflect the 1 percent of peak efficiency turbine operating requirements at the four lower Snake River projects and the four lower Columbia River projects in April - November. The following tables show availability factors after considering these reserve and turbine operating requirements in addition to the outage assumptions.

FY 2018:

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
LIB	99%	99%	99%	83%	91%	80%	90%	99%	99%	82%	77%	85%
HGH	74%	74%	81%	79%	70%	48%	48%	48%	55%	57%	48%	48%
ALF	92%	82%	92%	92%	92%	92%	92%	71%	61%	61%	61%	71%
DWR	71%	69%	46%	98%	98%	98%	98%	98%	98%	98%	98%	87%
GCL	64%	64%	64%	62%	62%	60%	62%	65%	66%	63%	64%	63%
CHJ	81%	81%	81%	78%	78%	76%	78%	82%	83%	79%	81%	80%
LWG	56%	74%	80%	89%	89%	87%	78%	78%	78%	54%	46%	46%
LGS	54%	66%	65%	72%	73%	88%	80%	78%	78%	69%	72%	72%
LMN	49%	56%	55%	57%	62%	81%	89%	88%	82%	68%	71%	65%
IHR	59%	63%	68%	69%	56%	53%	61%	51%	61%	35%	43%	43%
MCN	50%	68%	71%	74%	75%	74%	60%	61%	53%	55%	59%	55%
JDA	72%	82%	63%	64%	57%	79%	83%	86%	87%	86%	80%	74%
TDA	57%	72%	69%	67%	71%	70%	56%	52%	54%	54%	52%	58%
BON	70%	86%	78%	81%	80%	75%	76%	80%	74%	75%	76%	75%

FY 2019:

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
LIB	98%	98%	98%	82%	95%	84%	98%	98%	93%	74%	83%	85%
HGH	48%	60%	82%	78%	79%	74%	74%	74%	74%	67%	75%	74%
ALF	92%	82%	92%	92%	92%	92%	92%	71%	61%	51%	41%	61%
DWR	67%	62%	83%	90%	90%	90%	90%	90%	90%	90%	90%	61%
GCL	63%	63%	62%	61%	55%	55%	55%	59%	67%	71%	69%	65%
CHJ	80%	79%	78%	78%	70%	69%	70%	75%	85%	90%	87%	73%
LWG	44%	56%	54%	69%	72%	70%	78%	78%	78%	66%	58%	59%
LGS	58%	77%	75%	82%	80%	81%	74%	74%	73%	63%	62%	67%
LMN	59%	66%	65%	74%	83%	81%	82%	82%	76%	70%	63%	72%
IHR	50%	48%	53%	51%	56%	72%	89%	89%	89%	74%	82%	71%
MCN	50%	70%	72%	74%	75%	74%	73%	75%	72%	75%	69%	61%
JDA	66%	75%	79%	78%	78%	79%	78%	74%	79%	79%	73%	68%
TDA	53%	64%	64%	68%	72%	73%	56%	60%	65%	62%	60%	66%
BON	68%	74%	76%	78%	77%	77%	71%	75%	71%	71%	65%	67%

- **Initial Contents** for the major federal projects are based on the 70-year average of September 30 storage ending content from the 08_RateCase10_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 while still meeting Dworshak's local flood control requirements and following Corps procedures.
- **Non-federal projects** are run to the resulting contents from the AER Step. This allows the federal projects to operate differently 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 subject to the draft limits described under Grand Coulee.
- **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 forecast errors can cause projects to miss this refill objective. The objective is for Grand Coulee to operate with an 85 percent chance of reaching the April 10 elevation and for Libby and Hungry Horse to operate with a 75 percent chance. The April 10 objectives are modeled as April 15 objectives in HYDSIM.
- **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 80-year DOP18 study for 2018 and 2019 rate case studies with the following additions: 1) One MAF of flow augmentation is stored in January and is released in February and March in dry years or released in May, June, and July in non-dry years. The 1 MAF storage in January is limited by a minimum flow of 30,000 cfs for whitefish 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 storage is not allowed to decrease Arrow February or March outflows more than 19,000 cfs below the January outflow. 2) The trout spawning operation is included at Arrow where April flows are at least 18,000 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 in the April through June trout spawning period. 3) Arrow and Duncan balance operations to ensure that both projects are on DOP18 contents by 31 July. 4) Mica balances to the DOP18 contents July-December when Arrow and Duncan cannot.
- **Duncan** targets outflow of 6,700 cfs to support Cora Linn and Brilliant flows but does not draft below 1,845 feet (316.2 ksfd) in September. Duncan targets outflow of 2,900 cfs in October, 7,300 cfs in November and December (to support Kootenay Lake elevation), 2,500 cfs in January, and 2,400 cfs or a minimum elevation of 1800 feet (25.1 ksfd) if possible in February (to support Arrow whitefish operation). Duncan operates between 1,500 cfs and 2,500 cfs in March unless it is empty. Duncan has a maximum elevation of 1812.5 feet (93.1 ksfd) in February and 1805 feet (50.2 ksfd) in March. In April, Duncan drafts to empty (1794.2 ft, 0.0 ksfd) unless the March 1 forecast of May through July volume 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 and June Duncan operates to a flow of 100 cfs unless the URC requires more discharge. In July, Duncan refills to full at 1892 feet (705.8 ksfd), and in August targets 1890 feet (688.2 ksfd) or full unless it is on a minimum flow constraint.
- **Mica** stores up to 1 MAF for flow augmentation in January in all years. Mica releases this storage up to 1 MAF (15 percent in May, 15 percent in June, and 70 percent in July) in years with a February 1 and March 1 forecast April through August volume at The Dalles greater than 75 MAF. In years when February 1 and March 1 forecast April through August volume at The Dalles is less than 75 MAF this storage is released half in February and the remainder in March.

In years when February 1 forecast is less than 75 MAF and March 1 forecast is greater than 75 MAF, this storage is released half in February and re-stored up to 1 MAF in March to release during May through July. The flow augmentation will all be released by July 31 allowing Mica to be on DOP18 elevation by 31 July. The minimum flow at Mica is 0 cfs in January, 5,000 cfs in February and March, 12,000 cfs April 1-15, 10,000 cfs April 16-30, 8,000 cfs in May and June, 10,000 kcfs in July, 15,000 cfs in August, and 10,000 cfs in September-December. The flow augmentation storage in January-March periods is subject to these minimum outflows.

- **Arrow** operates to a minimum flow of 18,000 cfs in April, between 18,000 cfs and 25,000 cfs in May, and between 18,000 cfs and 60,000 cfs in June for trout spawning. During April through June the outflow at Arrow cannot decline unless the June 30 composite content is too far below the DOP18 composite content. Then the outflow is allowed to decrease by up to 10,000 cfs in the April through June trout spawning period. The outflow at Arrow can be increased in May and June to keep the July discharge below 80,000 cfs.
- **Non-Treaty Storage Agreement (NTSA):** A total of 3 MAF NTSA storage and release is included in the study. Modeling the NTSA operations required plant data updates at Mica and Arrow to increase their maximum storage contents and their upper rule curves. The study includes the NTSA dry-year operations and spring-summer operations. The NTSA also includes operations driven by price, but this operation is not included in this study due to the complexities of incorporating price-based operating decisions.
 - **For Dry Year NTSA operation**
 - Store ½ MAF into Mica (or Arrow) in November-June if the April Final April-August volume forecast at The Dalles is 91.4 MAF or higher.
 - Release ½ MAF from Mica (or Arrow) in May-June if the April Final April-August volume forecast at The Dalles is less than 71.8 MAF.
 - Water that is stored in November-June should not violate the minimum flow requirements at Priest Rapids, Bonneville, and McNary and the Arrow trout/whitefish operations. Water that is released in May or June should not violate the Arrow trout spawning operation.
 - **For Spring-Summer NTSA operation**
 - Store up to 2½ MAF at Mica (or Arrow) in April 16 – June 30 if meeting Arrow trout operation and exceeding 300,000 cfs outflow at McNary and minimum flow requirement at Priest. Do not store in May-June for years that Arrow's outflow from the DOP study exceeds 80,000 cfs in August. The Canadians would not likely agree to the spring-summer provision when flows are forecasted to be that high.
 - Release in July-August the amount that was stored in April 16 – June 30 at Mica (or Arrow). If the release in July would result in McNary exceeding its flow target, then the release occurs in August without violating the 80,000 cfs maximum flow.
- **Priest Rapids** flow augmentation targets for Steelhead are modeled as 120,000 cfs during April 16-30 and 135,000 cfs in May.
- **Brownlee** drafts to 2062.0 feet (391.5 ksfd) in July, 2059.0 feet (373.5 ksfd) on August 15, 2055.0 feet (349.4 ksfd) on August 31, 2048.0 feet (309.7 ksfd) in September, and 2050.0 feet (320.4 ksfd) in October. In November, Brownlee operates to meet the flow target of 9,000 cfs at Hells Canyon for Idaho Power Company Fall Chinook operation, and Hells Canyon only exceeds the 9,000 cfs flow when Brownlee drafts more due to the flood control URC. In December Brownlee targets 2065.0 feet (409.5 ksfd) but will draft deeper in order to meet the minimum flow of 9,000 cfs at Hells Canyon. In January Brownlee targets 2060.0 feet (379.5 ksfd) but, again, will draft deeper in order to meet the minimum flow of 9,000 cfs at Hells Canyon. In February-May Brownlee remains full at 2077.0 ft (491.7 ksfd) except when the URC or minimum flow at Hells Canyon of 9,000 cfs requires deeper drafts. In June Brownlee targets full except when draft is needed to maintain a minimum flow of 7,000 cfs at Hells Canyon.

- **Dworshak** has a maximum discharge of 17,000 cfs April-December and 14,000 cfs January-March to reflect typical actual operations and avoid exceeding 110 percent TDG. January through June outflows are reshaped to reduce forced spill. July and August outflows are smoothed to reflect typical actual operations by using 11,000 cfs minimum in July and August 1-15, and a maximum 25 percent reduction from the first half of August to the second half of August. Dworshak has a maximum elevation of 1590 feet (922.8 ksfd) in July, and a target elevation of 1519 feet (389.4 ksfd) in September.
- **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 4,000 cfs in October-November, and limiting outflow to 20,000 cfs maximum October-December. Libby can release above 4,000 cfs in October-November if the outflow in December exceeds 20,000 cfs. Libby cannot fill above 2435 ft (1977.1 ksfd) in November and 2454 ft (2394.9 ksfd) in June. January through April outflows are reshaped to reduce forced spill. Libby's outflow in May is based on a VarQ allowable refill calculation as used in actual operations. Libby's May through September operation includes the sturgeon pulse, bull trout minimum required flows, and summer flow augmentation. Libby is allowed to fill above flood control to avoid spilling in January through March to reflect the actual operation. Libby can draft below the September 30 draft limit to meet the bull trout flow objective. In years when the May 1 forecast of April through August volume at The Dalles is less than 71.8 MAF, which is the lowest 20th percentile, the September 30 draft limit is 2439 feet (2061.3 ksfd) and in years when the forecast is greater than or equal to 71.8 MAF the September 30 draft limit is 2449 feet (2280.3 ksfd).
- **Hungry Horse** will violate the flood control URC to keep its maximum outflow at 20,000 cfs or below. Hungry Horse has a maximum elevation of 3558 feet (1480.1 ksfd) in June.
- **Grand Coulee** operates at 1285 feet (2493.0 ksfd) in September and between 1283 feet (2413.9 ksfd) and 1288 feet (2615.5 ksfd) in October. The draft limits for Chum flow in November and December are 1275 feet (2102.4 ksfd) and 1270 feet (1915.1 ksfd), respectively. Grand Coulee cannot fill above 1288 feet (2615.5 ksfd) October – February. Grand Coulee drafts to support the Chum flow target January through March subject to the draft limits of about 10 feet below the computed variable draft limit. Grand Coulee can draft further if needed to support the Vernita Bar flow requirement at Priest Rapids. The deepest draft limits at Grand Coulee for Vernita Bar minimum flow requirement and for Steelhead and Chum flow targets are: 1270 feet (1915.1 ksfd) in December, 1260 feet (1553.3 ksfd) in January, 1250 feet (1209.0 ksfd) in February, and 1240 feet (884.4 ksfd) March-May. In all periods, Grand Coulee cannot draft below 1228 feet (525.6 ksfd) unless it is on flood control operation. In June, Grand Coulee operates between 1285 feet (2493.0 ksfd) and 1288 feet (2615.5 ksfd) unless it is on flood control. July through August, Grand Coulee only fills above 1288 feet (2615.5 ksfd) in order to reduce forced spill. Grand Coulee's April-August operation includes additional draft as allowed by the Washington Columbia River Water Management Program. Also, the Bureau performs maintenance during the spring on the spillway drum gates at least one of every three years, at least two of every five years, and at least three of every seven years. Therefore, in the rate case for FY 2018 and FY 2019 the drum gate modeling requirement is included. For modeling, this maintenance requires a maximum Lake Roosevelt elevation of 1277.5 feet (2198.3 ksfd) at the end of February and 1255 feet (1380.2 ksfd) from March through April 30. After meeting all modeling requirements, Grand Coulee's January through March operation is re-evaluated to put more generation in January and February or evenly distribute the secondary energy when possible without violating the one foot per day draft rate limit and 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 ksfd) flow augmentation in August and the associated increase in pumping the following March-May period to return those 5 feet to Banks Lake. In years when this flow augmentation is not needed to meet the McNary flow augmentation target of 200,000 cfs, the pumping is increased by the equivalent of 5 feet in August and the following year's March-May pumping is decreased.

- **Juvenile Fish Bypass Spill** for the federal projects is summarized in the following table.

Spill Criteria for BP18 Initial Proposal					
Projects	Spill	Min Turb	Days	Hour Ending	Notes
LWG	20 kcfs	11.5 kcfs	Apr 3 - Jun 20	All hours	All years
	18 kcfs		Jun 21 - Aug 13		
LGS	30% of total flow	11.5 kcfs	Apr 3 - Aug 19	All hours	All years
LMN	gas cap (23 kcfs)	11.5 kcfs	Apr 3 - Jun 20	All hours	All years
	17 kcfs		Jun 21 - Aug 21		
IHR	45 kcfs day/gas cap (97 kcfs) night	9.5 kcfs	Apr 3 - Apr 28	All hours	All years; Night 1800-0500 (11 hrs) day 0500-1800 (13 hrs)
	alternate 30% of total flow and 45 kcfs day/gas cap (97 kcfs) night		Apr 29 - Jul 13		
	45 kcfs day/gas cap (97 kcfs) night		Jul 14 - Aug 22		
MCN	40% of total flow	50 kcfs	April 10 - Jun 15	All hours	All years
	50% of total flow		Jun 16 - Aug 31		
JDA	30% of total flow	50 kcfs	Apr 10 - Apr 27	All hours	All years
	alternate 30% and 40% of total flow		Apr 28 - Jul 20		
	30% of total flow		Jul 21 - Aug 31		
TDA	40% of total flow	50 kcfs	Apr 10 - Aug 31	All hours	All years
BON	100 kcfs	30 kcfs	Apr 10 - Jun 15	All hours	All years
	alternate 85 kcfs day/121 kcfs night and 95 kcfs		Jun 16 - Aug 31	All hours; day/night spill hours vary	All years; Jun1-30 day hrs: 0430-2130; Jul1-31 day hrs: 0430-2200; Aug1-15 day hrs: 0500-2145; Aug16-31 day hrs: 0500-2030.

LWG = Lower Granite; LGS = Little Goose; LMN = Lower Monumental; IHR = Ice Harbor; MCN = McNary;
JDA = John Day; TDA = The Dalles; BON = Bonneville

- **Overgeneration Spill Priorities and TDG Caps** are summarized in the following table. One kcfs equals one thousand cfs. Spill up to the TDG levels is modeled in the order listed below to avoid generation levels that exceed the secondary market limit. This is called ‘overgen spill’ in HYDSIM. 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. The following are rough approximations of the typical amounts of spill that cause TDG to reach the specified percentage levels. (In actual operations, the spill at a certain gas level can vary significantly and operations are adjusted in real time to manage to the appropriate gas level.)

Spring/Summer:

	120%	122%	125%	127%	130%	135%
LWG:	45 kcfs	52 kcfs	63 kcfs	85 kcfs	90 kcfs	200 kcfs
LGS:	52 kcfs	59 kcfs	70 kcfs	95 kcfs	125 kcfs	177 kcfs
LMN:	44 kcfs	60 kcfs	80 kcfs	120 kcfs	180 kcfs	250 kcfs
IHR:	82 kcfs	92 kcfs	110 kcfs	124 kcfs	145 kcfs	240 kcfs
MCN:	146 kcfs	152 kcfs	230 kcfs	280 kcfs	321 kcfs	375 kcfs
JDA:	146 kcfs	177 kcfs	190 kcfs	206 kcfs	250 kcfs	300 kcfs
TDA:	135 kcfs	160 kcfs	269 kcfs	294 kcfs	360 kcfs	400 kcfs
BON:	130 kcfs	160 kcfs	183 kcfs	234 kcfs	250 kcfs	280 kcfs
CHJ:	60 kcfs	100 kcfs	160 kcfs	190 kcfs	250 kcfs	280 kcfs
GCL (a):	5 kcfs	15 kcfs	20 kcfs	25 kcfs	32 kcfs	42 kcfs
GCL (b):	15 kcfs	40 kcfs	50 kcfs	80 kcfs	93 kcfs	120 kcfs

(a) Spill through outlet tubes is assumed to occur April through June when the reservoir is more likely below the spillway crest.

(b) Spill through drumgates is assumed to occur July through August.

Winter:

	110%	115%	120%
BON:	70 kcfs	100 kcfs	140 kcfs
TDA:	45 kcfs	60 kcfs	135 kcfs
JDA:	20 kcfs	80 kcfs	144 kcfs
MCN:	48 kcfs	80 kcfs	140 kcfs
IHR:	25 kcfs	35 kcfs	75 kcfs
LMN:	18 kcfs	23 kcfs	44 kcfs
LGS:	18 kcfs	23 kcfs	52 kcfs
LWG:	20 kcfs	30 kcfs	45 kcfs
DWR*:	35%		
CHJ:	25 kcfs	61 kcfs	150 kcfs
GCL**:	5 kcfs	10 kcfs	15 kcfs

*DWR only spills to 110% and is typically managed as a percentage of outflow.

**Spill through drumgates.

9. FEDERAL LOADS AND RESOURCES FOR FY 2018 AND FY 2019

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Table 9.1.1
Loads and Resources - Federal System
Fiscal Year: 2018 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Firm Obligations															
1 Load Following	2808	3285	3715	3667	3506	3089	3116	3138	3146	3249	3546	3359	3362	3043	3295
2 Preference Customers	2604	3137	3548	3511	3348	2900	2755	2780	2714	2805	3038	2940	2944	2681	2998
3 Federal Agencies	96.6	126	145	144	141	120	102	103	94.8	91.2	102	103	103	95.9	113
4 USBR	108	21.7	21.3	11.2	16.3	69.4	259	255	338	352	406	316	315	266	183
5 Federal Diversity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Slice	3283	4120	4250	3980	3647	3618	3181	3420	3919	3432	3232	3532	3244	3345	3627
9 Slice Block	1608	1984	2205	2233	2062	1919	1616	1616	1429	1338	1556	1550	1550	1620	1759
10 Slice Output from T1 System	1675	2136	2045	1747	1585	1699	1565	1804	2490	2094	1676	1982	1694	1725	1868
11 Direct Service Industries	22.9	22.7	22.7	22.8	22.5	87.5	87.7	88.1	87.4	87.2	87.2	87.5	87.5	87.4	60.7
12 DSI	22.9	22.7	22.7	22.8	22.5	87.5	87.7	88.1	87.4	87.2	87.2	87.5	87.5	87.4	60.7
13 Contract Deliveries	674	787	781	782	778	724	722	757	685	690	708	776	780	675	733
14 Exports	493	488	484	485	482	489	485	520	504	508	525	594	598	494	505
15 Intra-Regional Transfers (Out)	13.8	131	130	130	129	67.4	69.9	70.0	14.5	14.4	15.8	14.8	14.8	13.7	61.5
16 Firm Surplus Sale	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167
17 Total Firm Obligations	6788	8214	8768	8452	7954	7518	7107	7403	7838	7458	7574	7755	7473	7150	7715
Net Resources															
18 Hydro Resources	5727	7517	7183	6036	5403	5830	5468	6428	9076	7567	6032	7235	6104	6045	6592
19 Regulated Hydro - Net	5416	7260	7022	5910	5269	5590	5041	5989	8362	6910	5639	6861	5738	5747	6250
20 Independent Hydro - Net	308	255	158	123	131	237	424	435	711	654	391	372	363	295	339
21 Small Hydro - Net	2.67	2.84	3.19	3.21	3.05	3.10	3.09	3.09	2.83	2.72	2.63	2.63	2.63	2.63	2.88
22 Other Resources	1144	1164	1148	1126	1143	1149	1188	1174	1179	1178	1177	1140	1159	1155	1158
23 Cogeneration Resources	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 Combustion Turbines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 Large Thermal Resources	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100
26 Renewable Resources	44.4	63.6	48.5	25.9	42.9	49.3	88.2	74.2	79.4	78.5	76.7	39.6	59.4	55.2	57.9
27 Small Thermal & Misc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 9.1.1
Loads and Resources - Federal System
Fiscal Year: 2018 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
²⁸ Contract Purchases	193	200	188	192	180	203	197	212	224	228	206	219	215	196	203
²⁹ Imports	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
³⁰ Intra-Regional Transfers (In)	25.6	20.7	14.4	18.7	11.4	31.1	39.4	39.7	37.7	49.3	39.9	42.6	42.6	29.9	30.2
³¹ Non-Federal CER	134	138	134	139	137	139	127	138	138	138	133	138	139	132	136
³² Slice Transmission Loss Return	31.8	40.6	38.9	33.2	30.1	32.3	29.7	34.3	47.3	39.8	31.9	37.7	32.2	32.8	35.5
³³ Augmentation Purchases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁴ Reserves & Losses	-212	-265	-254	-220	-201	-214	-205	-233	-314	-270	-223	-258	-224	-221	-238
³⁵ Contingency Reserves (Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁶ Contingency Reserves (Non-Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁷ Load Following Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁸ Generation Imbalance Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁹ Transmission Losses	-212	-265	-254	-220	-201	-214	-205	-233	-314	-270	-223	-258	-224	-221	-238
⁴⁰ Total Net Resources	6853	8616	8265	7134	6525	6968	6649	7581	10165	8704	7192	8336	7253	7175	7715
⁴¹ Total Surplus/Deficit	64	402	-503	-1,317	-1,429	-551	-458	178	2,327	1,246	-382	581	-219	25	-0

Table 9.1.1
Loads and Resources - Federal System
Fiscal Year: 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Firm Obligations															
1 Load Following	2825	3305	3734	3684	3524	3103	3142	3142	3161	3265	3563	3375	3378	3055	3311
2 Preference Customers	2607	3142	3553	3514	3350	2900	2768	2768	2714	2808	3041	2942	2945	2678	3000
3 Federal Agencies	111	141	159	159	157	134	117	117	109	106	116	117	117	110	128
4 USBR	108	21.7	21.3	11.2	16.3	69.4	257	257	338	352	406	316	315	266	183
5 Federal Diversity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Slice	3334	4181	4318	4048	3712	3676	3229	3473	3772	3188	3243	3571	3293	3395	3638
9 Slice Block	1657	2044	2272	2300	2125	1977	1665	1665	1473	1379	1602	1596	1596	1668	1812
10 Slice Output from T1 System	1677	2137	2046	1748	1587	1699	1564	1808	2298	1809	1641	1975	1696	1727	1826
11 Direct Service Industries	87.9	87.7	87.7	87.8	87.5	87.5	87.9	87.9	87.4	87.2	87.2	87.5	87.5	87.4	87.6
12 DSI	87.9	87.7	87.7	87.8	87.5	87.5	87.9	87.9	87.4	87.2	87.2	87.5	87.5	87.4	87.6
13 Contract Deliveries	501	614	608	608	605	532	534	534	479	478	495	559	563	468	540
14 Exports	487	483	479	478	476	464	464	464	464	464	480	544	548	454	478
15 Intra-Regional Transfers (Out)	13.9	131	130	130	129	67.4	70.0	70.0	14.5	14.4	15.8	14.8	14.8	13.7	61.5
16 Firm Surplus Sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Total Firm Obligations	6748	8188	8748	8428	7928	7398	6993	7237	7499	7019	7388	7593	7321	7005	7576
Net Resources															
18 Hydro Resources	5727	7517	7183	6035	5410	5829	5468	6419	9077	7567	5991	7198	6104	6045	6588
19 Regulated Hydro - Net	5416	7260	7022	5909	5275	5589	5041	5981	8363	6910	5598	6823	5738	5747	6245
20 Independent Hydro - Net	308	255	158	123	131	237	424	435	711	654	391	372	363	295	339
21 Small Hydro - Net	2.67	2.84	3.19	3.21	3.05	3.10	3.09	3.09	2.83	2.72	2.63	2.63	2.63	2.63	2.88
22 Other Resources	1144	1164	1148	1126	1143	1149	1188	1174	434	78.5	1070	1140	1159	1155	995
23 Cogeneration Resources	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 Combustion Turbines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 Large Thermal Resources	1100	1100	1100	1100	1100	1100	1100	1100	355	0	994	1100	1100	1100	937
26 Renewable Resources	44.4	63.6	48.5	25.9	42.9	49.3	88.2	74.2	79.4	78.5	76.7	39.6	59.4	55.2	57.9
27 Small Thermal & Misc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 9.1.1
Loads and Resources - Federal System
Fiscal Year: 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Energy-aMW	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
²⁸ Contract Purchases	241	245	233	237	220	217	219	223	233	219	221	225	221	216	227
²⁹ Imports	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
³⁰ Intra-Regional Transfers (In)	25.5	20.7	14.4	18.7	6.87	4.58	5.22	5.22	4.81	6.59	5.37	4.13	4.12	4.57	10.2
³¹ Non-Federal CER	138	138	134	139	137	134	138	138	139	133	139	138	139	133	137
³² Slice Transmission Loss Return	31.9	40.6	38.9	33.2	30.2	32.3	29.7	34.4	43.7	34.4	31.2	37.5	32.2	32.8	34.7
³³ Augmentation Purchases	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7
³⁴ Reserves & Losses	-213	-266	-256	-221	-202	-215	-205	-233	-293	-237	-219	-257	-224	-222	-234
³⁵ Contingency Reserves (Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁶ Contingency Reserves (Non-Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁷ Load Following Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁸ Generation Imbalance Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁹ Transmission Losses	-213	-266	-256	-221	-202	-215	-205	-233	-293	-237	-219	-257	-224	-222	-234
⁴⁰ Total Net Resources	6900	8659	8308	7177	6570	6980	6669	7583	9452	7628	7064	8306	7260	7194	7576
⁴¹ Total Surplus/Deficit	152	472	-440	-1,250	-1,358	-418	-324	346	1,953	609	-325	714	-61	189	-0

Table 9.1.2
Loads and Resources - Federal System
Fiscal Year: 2018 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
HLH-MWh	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Firm Obligations															
¹ Load Following	1260443	1404449	1613662	1615847	1425811	1398421	642378	695835	1387134	1431156	1529718	737969	794727	1262691	17200240
² Preference Customers	1192630	1344335	1549204	1548427	1364385	1323219	579188	627379	1208415	1254138	1349094	660416	711208	1149308	15861345
³ Federal Agencies	43060	51990	61316	61302	55791	52907	20923	22667	41055	40160	44847	22741	24490	39989	583238
⁴ USBR	24754	8125	3142	6118	5635	22295	42267	45789	137664	136858	135777	54812	59029	73393	755657
⁵ Federal Diversity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁶ Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁷ Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ Slice	1476072	1763776	1829728	1733839	1465159	1626392	664692	761310	1786245	1529634	1435821	816010	766426	1413949	19069052
⁹ Slice Block	669091	793554	881851	928937	791965	829062	310281	336137	594474	556467	622331	322448	347251	621991	8605841
¹⁰ Slice Output from T1 System	806982	970222	947877	804902	673193	797330	354411	425173	1191771	973166	813490	493562	419175	791958	10463211
¹¹ Direst Service Industries	9769	9071	9006	9287	8563	36514	17465	18920	36156	35054	35700	18212	19613	33393	296724
¹² DSI	9769	9071	9006	9287	8563	36514	17465	18920	36156	35054	35700	18212	19613	33393	296724
¹³ Contract Deliveries	424500	455535	469068	471884	428715	448341	207861	225182	424857	413101	429030	223166	240333	403470	5265043
¹⁴ Exports	349218	338422	349218	349218	315423	348749	162218	175736	349218	337953	355666	185347	199605	334128	4150120
¹⁵ Intra-Regional Transfers (Out)	5766	50270	53007	53150	49123	27402	13559	14689	6123	5632	6521	3061	3296	5174	296770
¹⁶ Firm Surplus Sale	69516	66843	66843	69516	64169	72190	32084	34758	69516	69516	66843	34758	37432	64169	818153
¹⁷ Total Firm Obligations	3170785	3632831	3921463	3830858	3328248	3509668	1532395	1701248	3634392	3408945	3430268	1795358	1821099	3113502	41831059
Net Resources															
¹⁸ Hydro Resources	2902108	3569554	3494847	2930734	2421717	2859827	1305531	1576947	4491594	3636645	3060661	1858887	1562775	2911264	38583091
¹⁹ Regulated Hydro - Net	2751311	3449025	3424155	2873182	2365860	2746441	1206784	1475948	4163763	3342005	2888230	1776805	1477211	2777285	36718003
²⁰ Independent Hydro - Net	149685	119389	69401	56211	54685	112051	98147	100357	326652	293510	171377	81533	84974	132970	1850943
²¹ Small Hydro - Net	1113	1140	1291	1341	1172	1335	600	642	1179	1130	1053	548	590	1010	14144
²² Other Resources	475361	460356	458284	467668	440298	496925	230312	244908	490612	489978	471621	236387	259361	446136	5668207
²³ Cogeneration Resources	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
²⁴ Combustion Turbines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
²⁵ Large Thermal Resources	457600	440000	440000	457600	422400	475200	211200	228800	457600	457600	440000	228800	246400	422400	5385600
²⁶ Renewable Resources	17761	20356	18284	10068	17898	21725	19112	16108	33012	32378	31621	7587	12961	23736	282607
²⁷ Small Thermal & Misc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 9.1.2
Loads and Resources - Federal System
Fiscal Year: 2018 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
HLH-MWh	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
²⁸ Contract Purchases	126046	122246	119029	123981	110194	133094	60708	66550	137314	137524	126051	67616	70683	118683	1519719
²⁹ Imports	416	400	400	416	384	432	192	208	416	416	400	208	224	384	4896
³⁰ Intra-Regional Transfers (In)	10446	7808	5016	8723	4857	14187	8085	8758	15243	19606	14992	8525	9181	11858	147285
³¹ Non-Federal CER	99848	95600	95600	99546	92160	103323	45696	49504	99008	99008	95200	49504	53312	91392	1168701
³² Slice Transmission Loss Return	15335	18438	18013	15296	12793	15152	6735	8080	22648	18494	15459	9379	7966	15050	198837
³³ Augmentation Purchases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁴ Reserves & Losses	-104871	-123853	-121537	-105179	-88702	-104213	-47705	-56386	-153403	-128008	-109720	-64743	-56704	-103816	-1368839
³⁵ Contingency Reserves (Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁶ Contingency Reserves (Non-Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁷ Load Following Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁸ Generation Imbalance Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁹ Transmission Losses	-104871	-123853	-121537	-105179	-88702	-104213	-47705	-56386	-153403	-128008	-109720	-64743	-56704	-103816	-1368839
⁴⁰ Total Net Resources	3398644	4028302	3950623	3417204	2883506	3385634	1548846	1832019	4966118	4136140	3548613	2098147	1836116	3372268	44402179
⁴¹ Total Surplus/Deficit	227,859	395,471	29,160	-413,654	-444,742	-124,034	16,452	130,772	1,331,726	727,195	118,345	302,790	15,016	258,765	2,571,119

Table 9.1.2
Loads and Resources - Federal System
Fiscal Year: 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
HLH-MWh	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
Firm Obligations															
¹ Load Following	1292083	1412651	1622839	1623223	1433091	1380678	688966	688966	1393708	1407176	1572800	741925	798987	1268489	17325584
² Preference Customers	1212646	1346818	1552518	1550003	1365745	1304397	612866	612866	1209198	1239246	1368651	661334	712196	1149178	15897662
³ Federal Agencies	49626	57708	67180	67102	61711	58124	25028	25028	46846	45770	51483	25779	27762	45918	655066
⁴ USBR	29810	8125	3142	6118	5635	18158	51072	51072	137664	122160	152666	54812	59029	73393	772856
⁵ Federal Diversity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁶ Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁷ Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ Slice	1531097	1788711	1857092	1758755	1489307	1621631	702004	771868	1691486	1417051	1466397	824350	777608	1435425	19132780
⁹ Slice Block	715933	817446	908680	956942	815821	822293	346392	346392	612946	551676	666516	332052	357594	640426	8891108
¹⁰ Slice Output from T1 System	815164	971265	948411	801814	673486	799337	355612	425476	1078539	865375	799882	492298	420014	795000	10241672
¹¹ Direst Service Industries	37700	34998	34721	36337	33575	36514	18193	18193	36156	35054	35700	18212	19613	33393	428360
¹² DSI	37700	34998	34721	36337	33575	36514	18193	18193	36156	35054	35700	18212	19613	33393	428360
¹³ Contract Deliveries	351185	384857	398272	398415	360975	372052	181268	181268	351396	339608	358399	184903	199127	332270	4393996
¹⁴ Exports	345265	334592	345265	345265	311853	344801	167064	167064	345265	334128	351713	181839	195826	327096	4097037
¹⁵ Intra-Regional Transfers (Out)	5920	50265	53007	53150	49123	27251	14204	14204	6131	5481	6686	3064	3300	5174	296958
¹⁶ Firm Surplus Sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹⁷ Total Firm Obligations	3212065	3621218	3912924	3816731	3316948	3410875	1590431	1660294	3472746	3198888	3433297	1769391	1795335	3069577	41280719
Net Resources															
¹⁸ Hydro Resources	2913621	3570006	3493227	2914847	2419524	2881861	1302335	1574146	4360843	3664216	3043429	1850384	1562101	2915723	38466264
¹⁹ Regulated Hydro - Net	2762781	3449477	3422535	2857295	2363667	2768517	1203547	1473147	4033012	3369618	2870957	1768303	1476537	2781744	36601135
²⁰ Independent Hydro - Net	149685	119389	69401	56211	54685	112051	98147	100357	326652	293510	171377	81533	84974	132970	1850943
²¹ Small Hydro - Net	1155	1140	1291	1341	1172	1293	642	642	1179	1088	1095	548	590	1010	14187
²² Other Resources	492961	460356	458284	467668	440298	479325	247912	244908	180625	32378	444937	236387	259361	446136	4891536
²³ Cogeneration Resources	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
²⁴ Combustion Turbines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
²⁵ Large Thermal Resources	475200	440000	440000	457600	422400	457600	228800	228800	147613	0	413316	228800	246400	422400	4608929
²⁶ Renewable Resources	17761	20356	18284	10068	17898	21725	19112	16108	33012	32378	31621	7587	12961	23736	282607
²⁷ Small Thermal & Misc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 9.1.2
Loads and Resources - Federal System
Fiscal Year: 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
HLH-MWh	Oct	Nov	Dec	Jan	Feb	Mar	Apr1	Apr16	May	Jun	Jul	Aug1	Aug16	Sep	Avg
²⁸ Contract Purchases	148872	140132	136888	142798	125326	135815	67071	68399	140624	133072	135910	69313	72551	126263	1643034
²⁹ Imports	432	400	400	416	384	416	208	208	416	400	416	208	224	384	4912
³⁰ Intra-Regional Transfers (In)	10761	7808	5016	8723	2832	1997	1102	1102	1706	2760	2288	746	804	1843	49488
³¹ Non-Federal CER	102892	95600	95582	99840	92160	99630	49712	49712	99424	95600	99424	49712	53536	91776	1174600
³² Slice Transmission Loss Return	15491	18457	18023	15237	12799	15190	6758	8086	20496	16445	15201	9355	7982	15108	194627
³³ Augmentation Purchases	19296	17867	17867	18582	17152	18582	9291	9291	18582	17867	18582	9291	10006	17152	219407
³⁴ Reserves & Losses	-106414	-124398	-122019	-105266	-89087	-104425	-48321	-56358	-140411	-115104	-108709	-64541	-56739	-104174	-1345964
³⁵ Contingency Reserves (Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁶ Contingency Reserves (Non-Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁷ Load Following Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁸ Generation Imbalance Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁹ Transmission Losses	-106414	-124398	-122019	-105266	-89087	-104425	-48321	-56358	-140411	-115104	-108709	-64541	-56739	-104174	-1345964
⁴⁰ Total Net Resources	3449041	4046096	3966380	3420046	2896061	3392576	1568997	1831095	4541681	3714563	3515568	2091543	1837274	3383949	43654870
⁴¹ Total Surplus/Deficit	236,976	424,878	53,456	-396,684	-420,887	-18,299	-21,433	170,801	1,068,934	515,675	82,271	322,152	41,939	314,372	2,374,151

Table 9.1.3
Loads and Resources - Federal System
Fiscal Year: 2018 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

LLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
Firm Obligations															
¹ Load Following	828502	963987	1150241	1112357	930200	896706	479428	433824	953795	907844	1108841	471340	496156	928311	11661532
² Preference Customers	744387	917531	1090857	1064128	885774	831162	412469	373243	810559	765697	911390	398148	419112	780926	10405383
³ Federal Agencies	28782	38934	46684	46043	39081	36295	15931	14414	29479	25534	30917	14224	14972	29050	410340
⁴ USBR	55333	7521	12700	2186	5345	29249	51027	46167	113757	116613	166535	58968	62072	118334	845808
⁵ Federal Diversity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁶ Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁷ Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ Slice	966749	1206614	1332006	1227353	985712	1061969	480340	469962	1129209	941387	968834	455655	479299	994231	12699319
⁹ Slice Block	527552	636815	758406	732431	593970	596840	271491	245634	468720	406646	535214	235630	248032	544248	6801629
¹⁰ Slice Output from T1 System	439197	569799	573600	494923	391741	465129	208849	224327	660490	534741	433620	220025	231267	449983	5897690
¹¹ Direst Service Industries	7292	7321	7878	7713	6547	28509	14124	12778	28835	27753	29151	13279	13978	29524	234682
¹² DSI	7292	7321	7878	7713	6547	28509	14124	12778	28835	27753	29151	13279	13978	29524	234682
¹³ Contract Deliveries	77268	111678	111672	109659	94320	89278	52234	47259	85078	83646	97916	56055	59006	82623	1157692
¹⁴ Exports	17922	13555	10613	11635	8504	14609	12554	11358	25626	28107	35209	28399	29894	21786	269772
¹⁵ Intra-Regional Transfers (Out)	4535	44482	43574	43213	37690	22699	11606	10500	4641	4739	5222	2256	2375	4689	242221
¹⁶ Firm Surplus Sale	54811	53641	57485	54811	48127	51970	28074	25400	54811	50800	57485	25400	26737	56148	645699
¹⁷ Total Firm Obligations	1879811	2289600	2601796	2457082	2016779	2076462	1026124	963823	2196918	1960629	2204742	996330	1048439	2034689	25753225
Net Resources															
¹⁸ Hydro Resources	1359065	1850225	1849056	1560158	1209419	1471501	663030	736964	2260710	1811777	1427155	745795	780974	1441181	19167012
¹⁹ Regulated Hydro - Net	1278522	1785095	1800169	1523792	1174918	1406647	607921	680219	2057228	1633546	1307019	693064	726195	1360648	18034983
²⁰ Independent Hydro - Net	79666	64225	47807	35323	33623	63887	54598	56275	202553	177406	119230	52331	54358	79649	1120932
²¹ Small Hydro - Net	877	905	1080	1044	878	967	512	470	930	826	906	400	421	884	11097
²² Other Resources	376051	378589	396178	370018	327722	357010	197435	177805	386842	358527	403855	173874	185857	385621	4475383
²³ Cogeneration Resources	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
²⁴ Combustion Turbines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
²⁵ Large Thermal Resources	360800	353100	378400	360800	316800	342100	184800	167200	360800	334400	378400	167200	176000	369600	4250400
²⁶ Renewable Resources	15251	25489	17778	9218	10922	14910	12635	10605	26042	24127	25455	6674	9857	16021	224983
²⁷ Small Thermal & Misc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 9.1.3
Loads and Resources - Federal System
Fiscal Year: 2018 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
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LLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
²⁸ Contract Purchases	17252	22097	20741	18750	10503	18073	10236	9934	29496	26380	27074	11143	11724	22376	255779
²⁹ Imports	328	321	344	328	288	311	168	152	328	304	344	152	160	336	3864
³⁰ Intra-Regional Transfers (In)	8578	7124	5673	5192	2770	8923	6100	5519	12809	15914	14682	6810	7169	9680	116942
³¹ Non-Federal CER	0	3824	3824	3824	0	0	0	0	3808	0	3808	0	0	3808	22896
³² Slice Transmission Loss Return	8346	10828	10900	9405	7444	8839	3969	4263	12552	10162	8240	4181	4395	8551	112077
³³ Augmentation Purchases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁴ Reserves & Losses	-52643	-67129	-67631	-58182	-46174	-55129	-26028	-27642	-80537	-66200	-56013	-27996	-29398	-55369	-716071
³⁵ Contingency Reserves (Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁶ Contingency Reserves (Non-Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁷ Load Following Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁸ Generation Imbalance Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁹ Transmission Losses	-52643	-67129	-67631	-58182	-46174	-55129	-26028	-27642	-80537	-66200	-56013	-27996	-29398	-55369	-716071
⁴⁰ Total Net Resources	1699725	2183782	2198344	1890744	1501471	1791454	844673	897060	2596512	2130484	1802071	902816	949157	1793809	23182103
⁴¹ Total Surplus/Deficit	-180,086	-105,817	-403,452	-566,338	-515,308	-285,008	-181,451	-66,763	399,594	169,855	-402,672	-93,514	-99,282	-240,880	-2,571,122

Table 9.1.3
Loads and Resources - Federal System
Fiscal Year: 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

LLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
Firm Obligations															
¹ Load Following	809770	970159	1155249	1117469	934870	925003	442159	442159	958179	943944	1078082	473127	498037	930907	11679113
² Preference Customers	726853	918872	1091087	1064391	885763	849990	383442	383442	810314	782322	893674	397896	418847	779039	10385933
³ Federal Agencies	32641	43766	51461	50892	43762	41626	17163	17163	34108	30312	34762	16263	17119	33534	464573
⁴ USBR	50275	7521	12700	2186	5345	33387	41553	41553	113757	131310	149645	58968	62072	118334	828608
⁵ Federal Diversity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁶ Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁷ Tier 1 Block	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⁸ Slice	949731	1225591	1355414	1253300	1005155	1109363	460587	478502	1114570	878442	946291	461344	486825	1009129	12734242
⁹ Slice Block	517051	655987	781478	754512	611862	646376	253130	253130	483284	441332	525522	242649	255420	560380	6982112
¹⁰ Slice Output from T1 System	432679	569604	573936	498788	393293	462987	207457	225372	631286	437110	420769	218695	231405	448748	5752130
¹¹ Direst Service Industries	27720	28259	30523	29023	25215	28509	13451	13451	28835	27753	29151	13279	13978	29524	338671
¹² DSI	27720	28259	30523	29023	25215	28509	13451	13451	28835	27753	29151	13279	13978	29524	338671
¹³ Contract Deliveries	21298	58098	54319	53653	45740	23064	10980	10980	4645	4890	10163	16170	17021	4689	335711
¹⁴ Exports	16908	13637	10745	10440	8051	214	0	0	0	0	5084	13904	14636	0	93619
¹⁵ Intra-Regional Transfers (Out)	4389	44460	43574	43213	37690	22850	10980	10980	4645	4890	5079	2266	2385	4689	242092
¹⁶ Firm Surplus Sale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
¹⁷ Total Firm Obligations	1808518	2282106	2595505	2453445	2010980	2085938	927178	945092	2106230	1855029	2063687	963920	1015860	1974249	25087738
Net Resources															
¹⁸ Hydro Resources	1347553	1849773	1850676	1575368	1215672	1449273	666125	736835	2392801	1784206	1413941	740804	781648	1436721	19241397
¹⁹ Regulated Hydro - Net	1267052	1784643	1801789	1539001	1181170	1384377	611058	680090	2189319	1605932	1293848	688073	726869	1356189	18109410
²⁰ Independent Hydro - Net	79666	64225	47807	35323	33623	63887	54598	56275	202553	177406	119230	52331	54358	79649	1120932
²¹ Small Hydro - Net	835	905	1080	1044	878	1009	470	470	930	868	864	400	421	884	11055
²² Other Resources	358451	378590	396178	370018	327722	374610	179835	177805	142429	24127	351339	173874	185857	385621	3826455
²³ Cogeneration Resources	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
²⁴ Combustion Turbines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
²⁵ Large Thermal Resources	343200	353100	378400	360800	316800	359700	167200	167200	116387	0	325884	167200	176000	369600	3601471
²⁶ Renewable Resources	15251	25490	17778	9218	10922	14910	12635	10605	26042	24127	25455	6674	9857	16021	224984
²⁷ Small Thermal & Misc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 9.1.3
Loads and Resources - Federal System
Fiscal Year: 2019 Water Year: 1937
BP 18 Initial Proposal Report Date: 9/8/2016
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LLH-MWh	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
²⁸ Contract Purchases	30692	36431	36113	33479	22414	25138	11659	11999	32670	24904	28505	11837	12483	29141	347465
²⁹ Imports	312	321	344	328	288	327	152	152	328	320	328	152	160	336	3848
³⁰ Intra-Regional Transfers (In)	8222	7124	5673	5192	1788	1406	775	775	1870	1984	1706	739	778	1445	39478
³¹ Non-Federal CER	0	3824	3824	3829	0	0	0	0	3824	0	3824	0	0	3824	22949
³² Slice Transmission Loss Return	8222	10824	10907	9479	7474	8798	3942	4283	11997	8307	7996	4156	4397	8528	109310
³³ Augmentation Purchases	13936	14338	15366	14651	12864	14606	6789	6789	14651	14294	14651	6789	7147	15008	171880
³⁴ Reserves & Losses	-52177	-67542	-68135	-59071	-46713	-55202	-25640	-27700	-77295	-55405	-54103	-27868	-29441	-55437	-701730
³⁵ Contingency Reserves (Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁶ Contingency Reserves (Non-Spinning)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁷ Load Following Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁸ Generation Imbalance Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
³⁹ Transmission Losses	-52177	-67542	-68135	-59071	-46713	-55202	-25640	-27700	-77295	-55405	-54103	-27868	-29441	-55437	-701730
⁴⁰ Total Net Resources	1684518	2197252	2214831	1919794	1519096	1793819	831979	898939	2490605	1777831	1739682	898646	950547	1796047	22713587
⁴¹ Total Surplus/Deficit	-124,000	-84,854	-380,674	-533,651	-491,885	-292,119	-95,198	-46,153	384,375	-77,198	-324,006	-65,274	-65,313	-178,202	-2,374,151

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10. FEDERAL LOADS AND RESOURCES SURPLUS/DEFICIT BY WATER YEAR

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Table 10.1.1
Federal Report Surplus Deficit By Water Year
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016
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Energy-aMW - Surplus Deficit	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	M Aug1	N Aug16	O Sep	P Avg
1 1929 Federal Report Surplus Deficit	28.7	167	-573	-615	-471	-295	-793	929	1608	1861	-668	459	-162	248	125
2 1930 Federal Report Surplus Deficit	112	321	-549	-1390	-426	-264	320	1747	1163	-266	769	772	-49.2	70.2	78.6
3 1931 Federal Report Surplus Deficit	61.6	332	-419	-1106	-1464	-532	59.8	-818	2232	-164	812	723	82.5	-140	-18.6
4 1932 Federal Report Surplus Deficit	-75.7	-30.5	-487	-1800	-1683	1191	3253	4204	5102	4634	1777	1062	724	513	1158
5 1933 Federal Report Surplus Deficit	23.3	-195	730	2201	2016	1838	1302	1737	3450	5761	3728	2438	1705	290	1952
6 1934 Federal Report Surplus Deficit	688	2268	3831	4277	4010	4255	4379	4103	3913	3516	1055	158	-360	-91.1	2645
7 1935 Federal Report Surplus Deficit	-23.9	-612	-516	1915	1415	1832	129	1960	2911	2644	2438	2023	121	-239	1157
8 1936 Federal Report Surplus Deficit	56.4	103	-730	-1430	-846	16.0	412	3607	4961	4311	900	653	-157	4.24	804
9 1937 Federal Report Surplus Deficit	64.2	402	-503	-1317	-1429	-551	-458	178	2327	1246	-382	581	-219	24.8	-0.00
10 1938 Federal Report Surplus Deficit	53.6	240	-97.9	1585	1600	2301	2844	4931	4637	3542	1973	120	-344	301	1655
11 1939 Federal Report Surplus Deficit	14.8	77.0	-666	347	11.4	331	1505	2958	3280	1071	820	390	-291	137	644
12 1940 Federal Report Surplus Deficit	85.0	507	-162	818	-586	2647	1625	2325	2983	911	595	130	-478	17.4	811
13 1941 Federal Report Surplus Deficit	-139	219	-7.98	-821	-511	-74.8	-797	506	2375	1150	567	702	-57.7	248	269
14 1942 Federal Report Surplus Deficit	-127	692	824	1561	853	1278	-34.7	2059	2883	3150	2518	1265	722	734	1367
15 1943 Federal Report Surplus Deficit	27.0	-292	-235	2417	1794	2264	4738	5166	3975	5669	3824	1810	582	-92.5	2121
16 1944 Federal Report Surplus Deficit	-58.1	256	-595	-530	-399	-301	-680	465	1012	-358	-76.6	525	-127	-67.7	-83.9
17 1945 Federal Report Surplus Deficit	-50.7	219	-452	-1149	-836	-355	-590	-1211	3686	3925	-226	391	-181	19.6	336
18 1946 Federal Report Surplus Deficit	-44.6	441	207	954	906	1951	3438	5033	4830	3577	3001	1447	939	336	1801
19 1947 Federal Report Surplus Deficit	-24.6	388	2787	3378	2735	2722	2294	2670	4624	3839	2536	1198	390	202	2205
20 1948 Federal Report Surplus Deficit	2120	1500	1519	3043	2016	2091	1696	3771	5614	5663	3638	2819	2043	641	2757
21 1949 Federal Report Surplus Deficit	327	84.8	402	1006	954	2573	2427	4326	5249	3741	204	94.0	-601	-145	1459
22 1950 Federal Report Surplus Deficit	-101	70.9	-149	2733	3060	2965	3704	3518	4020	5559	4382	2791	1940	502	2411
23 1951 Federal Report Surplus Deficit	971	1821	2896	4130	4016	4852	4050	3971	4805	3735	3419	1872	485	206	2999
24 1952 Federal Report Surplus Deficit	1656	863	1618	2413	2207	2582	3858	5251	5681	4202	2310	1173	24.4	-307	2365
25 1953 Federal Report Surplus Deficit	26.7	-26.3	-656	298	1962	1245	508	1590	3687	5774	3978	1628	901	285	1567
26 1954 Federal Report Surplus Deficit	269	376	1051	2670	2679	2836	1996	2683	4664	5139	4286	3191	2908	2108	2622
27 1955 Federal Report Surplus Deficit	376	946	1016	173	259	-313	140	1308	3175	5832	4203	2515	1136	55.0	1527
28 1956 Federal Report Surplus Deficit	549	1429	2859	3905	3864	3972	3385	4984	5580	5556	3603	2161	1576	309	3136
29 1957 Federal Report Surplus Deficit	488	95.6	1152	1298	676	1910	3276	2434	5889	5910	1708	721	197	245	1895
30 1958 Federal Report Surplus Deficit	-30.3	273	-360	1676	1560	1910	1434	3141	5222	5210	1403	1008	35.5	-32.0	1633
31 1959 Federal Report Surplus Deficit	149	909	2311	3550	3238	3440	2854	2432	3997	5151	3858	2634	2076	2455	2834
32 1960 Federal Report Surplus Deficit	2825	2342	2126	1920	1493	2210	5244	3679	3022	4373	2457	1345	56.3	-77.5	2321
33 1961 Federal Report Surplus Deficit	211	261	548	1704	2512	3167	2212	1907	4615	5313	1733	1159	337	-26.8	1897
34 1962 Federal Report Surplus Deficit	-201	254	257	1460	1338	394	3778	4778	4084	3274	1646	1054	581	-177	1447
35 1963 Federal Report Surplus Deficit	731	1019	2013	2232	1670	1364	349	1627	3491	3345	2230	954	305	436	1681
36 1964 Federal Report Surplus Deficit	-63.6	51.9	497	335	399	530	2553	1441	3765	5498	4075	2517	1731	899	1680
37 1965 Federal Report Surplus Deficit	873	692	3011	4649	4110	4267	1654	4958	4954	4119	2380	2078	1635	-70.8	2843
38 1966 Federal Report Surplus Deficit	440	180	775	1007	992	671	3892	2235	2329	3094	2343	1691	169	-38.5	1313

Table 10.1.1
Federal Report Surplus Deficit By Water Year
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016
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Energy-aMW - Surplus Deficit	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	M Aug1	N Aug16	O Sep	P Avg
39 1967 Federal Report Surplus Deficit	-59.8	8.05	931	3114	2910	3054	1348	-98.4	3440	5486	3658	1677	1139	325	2072
40 1968 Federal Report Surplus Deficit	325	444	796	2296	2163	2380	121	1012	2114	4408	2758	1825	1004	1368	1749
41 1969 Federal Report Surplus Deficit	963	1503	1623	3888	3648	3183	3760	4712	5473	4396	2523	791	148	127	2661
42 1970 Federal Report Surplus Deficit	304	352	-109	1829	1448	1050	632	1364	3609	5364	791	572	160	-3.98	1328
43 1971 Federal Report Surplus Deficit	-49.1	154	272	3942	4289	4065	3518	4004	5577	5665	4100	2391	2424	497	2882
44 1972 Federal Report Surplus Deficit	526	262	1091	3618	4168	5437	4841	2922	5392	5484	3995	2897	2602	648	3100
45 1973 Federal Report Surplus Deficit	467	270	709	1325	223	223	-1187	639	2257	499	563	377	-288	-58.0	527
46 1974 Federal Report Surplus Deficit	-0.67	6.66	1430	4781	4478	5069	4169	4721	4992	5487	4459	2711	2583	573	3192
47 1975 Federal Report Surplus Deficit	-123	209	-168	1788	1724	2164	542	1339	4402	5583	4401	1643	1406	713	1932
48 1976 Federal Report Surplus Deficit	1092	1746	3580	3589	3518	3786	4138	3871	5620	4469	3705	3416	3413	2912	3454
49 1977 Federal Report Surplus Deficit	524	271	-573	-323	-179	-246	-975	123	716	-528	34.5	619	-212	-491	-82.7
50 1978 Federal Report Surplus Deficit	-468	262	380	1283	1300	1624	3568	2632	4307	2732	2563	751	60.0	1494	1580
51 1979 Federal Report Surplus Deficit	550	275	-356	681	-307	1658	217	1810	4111	2334	-349	414	-234	221	834
52 1980 Federal Report Surplus Deficit	3.76	250	-837	343	-145	86.7	1493	2912	5219	4581	1451	295	-235	287	1125
53 1981 Federal Report Surplus Deficit	-29.0	191	1947	3210	2725	1448	-727	1541	3513	5606	3380	2789	1920	308	2087
54 1982 Federal Report Surplus Deficit	172	506	777	2447	4445	4954	3485	3223	5070	5567	4500	2575	2319	1297	2951
55 1983 Federal Report Surplus Deficit	1012	550	1260	2928	3028	4051	2641	2428	4277	4537	3847	2437	1390	630	2547
56 1984 Federal Report Surplus Deficit	347	2019	1549	2373	2530	2652	4079	4471	4405	5401	3360	2164	719	625	2575
57 1985 Federal Report Surplus Deficit	404	544	710	868	634	592	2311	3303	3752	2207	532	-94.4	-698	129	1064
58 1986 Federal Report Surplus Deficit	-131	1480	887	2134	2796	4627	4043	4518	3396	3740	1463	645	-82.4	-137	2058
59 1987 Federal Report Surplus Deficit	-218	405	787	445	209	648	-147	1259	3106	2330	270	101	-545	-223	676
60 1988 Federal Report Surplus Deficit	-43.0	181	-842	-869	-1281	-23.8	-287	1188	2144	473	1079	596	-128	-36.3	131
61 1989 Federal Report Surplus Deficit	-109	480	-34.6	-690	-618	1130	1627	4694	3493	2423	395	251	-309	50.5	807
62 1990 Federal Report Surplus Deficit	104	397	963	2091	2168	2251	1407	4073	3189	4479	2089	1941	1450	-56.4	1838
63 1991 Federal Report Surplus Deficit	-165	1733	1742	2980	2531	2757	1946	2071	3682	4150	3670	2640	1403	-93.0	2251
64 1992 Federal Report Surplus Deficit	117	269	-780	25.7	-48.5	1394	-807	305	2086	404	76.4	415	-285	-472	244
65 1993 Federal Report Surplus Deficit	-5.12	324	-362	-1236	-1380	541	651	1734	3904	3138	807	702	136	285	645
66 1994 Federal Report Surplus Deficit	76.5	521	-189	-1370	-963	-286	-367	1153	2924	2026	768	544	-281	33.5	344
67 1995 Federal Report Surplus Deficit	5.30	-125	-325	467	1330	2467	817	1429	3179	4625	1797	639	95.4	544	1284
68 1996 Federal Report Surplus Deficit	768	2614	4456	4586	4253	5219	3796	5040	5078	4603	3749	2439	1398	296	3494
69 1997 Federal Report Surplus Deficit	225	440	1719	4501	4695	5290	4057	5072	5337	5545	3973	2349	2441	1260	3321
70 1998 Federal Report Surplus Deficit	2304	1365	687	1229	1290	1278	1222	2338	5469	5327	2350	1464	163	0.40	1994
71 1999 Federal Report Surplus Deficit	33.9	-133	1361	3562	3660	4299	2438	3697	3950	5276	3985	3165	2499	704	2713
72 2000 Federal Report Surplus Deficit	220	2149	2077	1780	1687	2133	3477	4611	4218	1973	1978	1242	-311	-254	1871
73 2001 Federal Report Surplus Deficit	57.3	137	-562	-576	-419	-52.8	-743	198	1505	-898	129	542	-152	-461	-96.8
74 2002 Federal Report Surplus Deficit	-496	172	-206	-636	-397	468	1305	3613	3253	5233	3188	986	176	226	1156
75 2003 Federal Report Surplus Deficit	132	419	-398	-847	-737	1803	1258	2055	3189	4198	560	186	-471	-369	793
76 2004 Federal Report Surplus Deficit	-44.4	628	219	132	-343	637	678	1534	2956	2118	871	548	126	855	794

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77 2005 Federal Report Surplus Deficit	501	185	945	1878	22.9	189	-695	1158	3438	2559	1286	844	-185	94.2	980
78 2006 Federal Report Surplus Deficit	-327	283	700	2401	2361	2196	3988	4699	5068	5056	1774	357	-118	-185	1974
79 2007 Federal Report Surplus Deficit	11.5	613	144	1729	1622	2337	2759	2038	3408	3167	2075	535	-343	-315	1437
80 2008 Federal Report Surplus Deficit	134	587	-578	-129	247	564	823	-33.5	4363	5995	2548	1186	1091	-227	1256
Ranked Averages															
81 Bottom 10 pct	93.4	258	-577	-841	-759	-283	-444	501	1588	171	212	602	-121	-107	6.55
82 Middle 80 pct	255	511	602	1441	1306	1808	1794	2658	3934	3999	2154	1243	499	254	1613
83 Top 10 pct	538	1103	2351	3945	4180	4822	3990	4225	5234	5056	3925	2552	2102	937	3206

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Federal Report Surplus Deficit By Water Year
Fiscal Year 2019
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1 1929 Federal Report Surplus Deficit	116	237	-509	-548	-405	-162	-658	1103	1233	1274	-611	592	-3.48	412	129
2 1930 Federal Report Surplus Deficit	199	391	-486	-1324	-360	-131	454	1895	789	-903	828	913	109	234	78.0
3 1931 Federal Report Surplus Deficit	149	402	-356	-1039	-1398	-398	194	-644	1857	-800	873	856	241	24.3	-18.4
4 1932 Federal Report Surplus Deficit	11.9	39.3	-424	-1732	-1617	1408	3450	4046	4982	4215	1834	1192	857	677	1192
5 1933 Federal Report Surplus Deficit	111	-125	793	2228	2112	1961	1497	1918	3143	5525	4368	2566	1835	454	2040
6 1934 Federal Report Surplus Deficit	775	2354	4161	4487	3925	4194	4295	4033	3507	2928	1113	291	-202	73.2	2635
7 1935 Federal Report Surplus Deficit	63.7	-542	-453	1938	1498	2039	213	2108	2591	2017	2495	2153	279	-74.6	1163
8 1936 Federal Report Surplus Deficit	144	173	-667	-1363	-777	149	546	3811	4819	3821	958	786	1.25	169	837
9 1937 Federal Report Surplus Deficit	152	472	-440	-1250	-1358	-418	-324	346	1953	609	-325	714	-60.9	189	-0.00
10 1938 Federal Report Surplus Deficit	141	310	-34.6	1648	1672	2477	3091	4785	4333	2978	2030	251	-185	466	1662
11 1939 Federal Report Surplus Deficit	102	147	-603	414	77.4	464	1648	3137	2903	467	878	524	-132	301	647
12 1940 Federal Report Surplus Deficit	173	576	-98.4	885	-520	2844	1767	2473	2630	274	682	289	-319	182	821
13 1941 Federal Report Surplus Deficit	-51.0	289	55.3	-753	-445	58.1	-663	681	2002	513	627	836	101	412	270
14 1942 Federal Report Surplus Deficit	-39.1	762	888	1628	919	1411	99.8	2233	2509	2585	2531	1324	879	898	1366
15 1943 Federal Report Surplus Deficit	115	-222	-172	2479	1857	2409	5086	5253	3685	5415	3920	1937	710	71.8	2167
16 1944 Federal Report Surplus Deficit	29.5	326	-532	-463	-333	-168	-545	639	637	-995	-10.8	683	31.5	96.6	-82.3
17 1945 Federal Report Surplus Deficit	36.9	289	-388	-1083	-770	-222	-454	-959	3284	3385	-169	524	-21.9	184	345
18 1946 Federal Report Surplus Deficit	43.0	511	270	1021	972	2175	3654	4885	4399	3024	3060	1577	1086	500	1801
19 1947 Federal Report Surplus Deficit	63.0	457	2809	3409	2831	2967	2496	2842	4440	3282	2593	1325	536	367	2234
20 1948 Federal Report Surplus Deficit	2208	1570	1588	3091	2056	2202	1817	3839	5247	5464	3753	2945	2169	806	2787
21 1949 Federal Report Surplus Deficit	415	155	465	1074	1023	2774	2597	4388	5047	3220	261	225	-442	18.9	1486
22 1950 Federal Report Surplus Deficit	-13.4	141	-85.5	2741	3270	3283	4011	3695	3730	5386	5110	2917	2066	666	2541
23 1951 Federal Report Surplus Deficit	1058	1891	2952	4358	4364	4878	4310	3890	4433	3210	3648	1743	638	368	3032
24 1952 Federal Report Surplus Deficit	1744	933	1684	2482	2267	2741	3982	5132	5274	3664	2368	1302	157	-143	2358
25 1953 Federal Report Surplus Deficit	114	43.6	-592	338	2053	1382	642	1764	3419	5636	4047	1693	1031	449	1614
26 1954 Federal Report Surplus Deficit	357	445	1114	2696	2763	2983	2200	2867	4218	4791	5057	3353	3034	2319	2707
27 1955 Federal Report Surplus Deficit	464	1016	1080	239	325	-180	324	1435	2897	5590	4800	2644	1220	219	1610
28 1956 Federal Report Surplus Deficit	637	1499	2920	4001	4036	4245	3675	4852	5167	5358	3803	2288	1705	473	3195
29 1957 Federal Report Surplus Deficit	575	165	1216	1371	740	2158	3466	2583	5519	5709	1766	854	341	410	1942
30 1958 Federal Report Surplus Deficit	57.4	343	-296	1744	1626	2042	1581	3329	5021	4823	1460	1141	194	132	1669
31 1959 Federal Report Surplus Deficit	237	979	2383	3582	3362	3624	3127	2550	3470	4774	4474	2500	2203	2664	2891
32 1960 Federal Report Surplus Deficit	2912	2428	2208	1984	1559	2339	5084	3618	2669	3879	2514	1472	186	86.8	2314
33 1961 Federal Report Surplus Deficit	298	331	611	1771	2588	3305	2390	2107	4034	4998	1790	1291	496	138	1910
34 1962 Federal Report Surplus Deficit	-113	324	320	1528	1404	555	4052	4660	3801	2672	1703	1183	716	-12.5	1453
35 1963 Federal Report Surplus Deficit	818	1089	2084	2299	1736	1497	484	1776	3189	2766	2287	1085	463	601	1691
36 1964 Federal Report Surplus Deficit	24.1	122	561	403	465	690	2731	1616	3529	5530	4655	2332	1859	1062	1781
37 1965 Federal Report Surplus Deficit	961	762	3053	4878	4594	4576	1894	4785	4627	3662	2437	2204	1785	90.3	2910

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38 1966 Federal Report Surplus Deficit	527	250	838	1074	1058	829	4078	2385	1990	2510	2400	1823	327	126	1324
39 1967 Federal Report Surplus Deficit	27.9	77.9	994	3208	2985	3290	1494	42.2	3121	5201	3927	1805	1270	490	2133
40 1968 Federal Report Surplus Deficit	413	513	859	2364	2229	2513	285	1150	1788	4030	2815	1953	1145	1545	1774
41 1969 Federal Report Surplus Deficit	1050	1573	1690	3940	3764	3342	3925	4613	4989	3966	2580	920	306	291	2664
42 1970 Federal Report Surplus Deficit	392	422	-45.5	1887	1514	1106	847	1514	3431	4788	849	698	292	160	1343
43 1971 Federal Report Surplus Deficit	38.6	224	335	4031	4808	4314	3873	3919	4989	5402	4228	2518	2552	661	2944
44 1972 Federal Report Surplus Deficit	613	331	1155	3742	4383	5400	4663	3169	4868	5097	4715	3023	2727	812	3155
45 1973 Federal Report Surplus Deficit	554	340	773	1393	289	356	-1052	813	1881	-92.7	621	511	-130	106	530
46 1974 Federal Report Surplus Deficit	87.0	76.5	1493	5014	4450	5181	4452	4627	4681	5247	5195	2838	2710	737	3286
47 1975 Federal Report Surplus Deficit	-35.8	279	-105	1855	1790	2280	703	1526	4028	5376	4638	1769	1532	875	1981
48 1976 Federal Report Surplus Deficit	1180	1816	3678	3602	3647	4056	4415	3841	5074	4063	4152	3811	3522	2974	3504
49 1977 Federal Report Surplus Deficit	612	341	-510	-256	-113	-113	-840	297	341	-1165	121	778	-53.1	-327	-79.3
50 1978 Federal Report Surplus Deficit	-380	332	443	1334	1366	1823	3816	2775	3850	2130	2622	877	186	1689	1584
51 1979 Federal Report Surplus Deficit	638	345	-293	748	-237	1787	344	1972	3849	1698	-292	547	-75.9	385	842
52 1980 Federal Report Surplus Deficit	91.4	320	-773	410	-79.0	220	1632	3086	4987	4147	1509	424	-85.0	451	1153
53 1981 Federal Report Surplus Deficit	58.6	261	2018	3301	2864	1581	-627	1764	3174	5299	3715	2666	2050	472	2138
54 1982 Federal Report Surplus Deficit	260	576	840	2524	4651	5255	3769	3461	4720	5165	5066	2449	2447	1470	3039
55 1983 Federal Report Surplus Deficit	1100	620	1323	3008	3263	4282	2854	2587	4120	4092	3967	2563	1517	794	2610
56 1984 Federal Report Surplus Deficit	435	2097	1613	2392	2658	2877	4258	4725	4235	5100	3419	2293	850	790	2632
57 1985 Federal Report Surplus Deficit	492	614	773	936	700	726	2519	3516	3493	1570	591	38.9	-540	291	1078
58 1986 Federal Report Surplus Deficit	-43.1	1550	950	2202	2992	4795	4258	4701	3049	3261	1521	777	76.2	27.1	2090
59 1987 Federal Report Surplus Deficit	-130	475	851	512	279	777	-128	1509	2757	1693	330	234	-387	-59.0	677
60 1988 Federal Report Surplus Deficit	44.7	251	-779	-802	-1215	109	-152	1362	1769	-164	1139	729	30.3	128	131
61 1989 Federal Report Surplus Deficit	-21.1	549	28.7	-623	-552	1316	1812	4632	3194	1786	452	397	-163	215	810
62 1990 Federal Report Surplus Deficit	191	467	1027	2080	2119	2482	1545	4132	2847	4064	2146	2068	1579	108	1846
63 1991 Federal Report Surplus Deficit	-77.3	1806	1813	3115	2601	2942	2096	2272	3379	3610	4272	2516	1533	71.2	2312
64 1992 Federal Report Surplus Deficit	205	339	-717	92.5	18.3	1527	-673	479	1718	-233	136	548	-127	-308	245
65 1993 Federal Report Surplus Deficit	82.5	394	-299	-1170	-1313	681	786	1908	3663	2559	860	829	264	448	659
66 1994 Federal Report Surplus Deficit	164	591	-125	-1303	-761	858	-329	1313	1871	894	827	677	-122	198	337
67 1995 Federal Report Surplus Deficit	92.9	-55.5	-262	534	1177	1577	2544	1843	3236	4316	1854	766	251	708	1318
68 1996 Federal Report Surplus Deficit	856	2700	4721	4724	4761	5244	4022	4953	4730	4130	4251	2314	1549	461	3579
69 1997 Federal Report Surplus Deficit	313	510	1782	4797	4970	5378	4312	4939	4911	5233	4569	2222	2568	1428	3401
70 1998 Federal Report Surplus Deficit	2391	1435	750	1296	1357	1410	1357	2512	5216	5025	2408	1593	322	165	2031
71 1999 Federal Report Surplus Deficit	122	-62.8	1425	3737	3877	4494	2608	3957	3727	5016	4618	3305	2627	869	2835
72 2000 Federal Report Surplus Deficit	308	2235	2149	1848	1831	2213	3692	4472	4000	1337	2035	1375	-152	-89.4	1878
73 2001 Federal Report Surplus Deficit	145	207	-499	-509	-353	80.1	-608	372	1130	-1535	190	676	6.83	-296	-96.6
74 2002 Federal Report Surplus Deficit	-408	242	-142	-563	-331	623	1370	3815	2902	4840	3244	1115	308	390	1177

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75 2003 Federal Report Surplus Deficit	220	489	-335	-780	-671	1962	1331	2210	2826	3711	619	320	-313	-205	805
76 2004 Federal Report Surplus Deficit	43.2	698	282	199	-273	767	805	1687	2629	1482	928	679	280	1015	796
77 2005 Federal Report Surplus Deficit	589	255	1009	1596	578	316	-550	1369	3053	1948	1343	976	-26.6	258	991
78 2006 Federal Report Surplus Deficit	-240	353	764	2445	2427	2370	4142	4726	4917	4676	1831	490	40.7	-20.6	2011
79 2007 Federal Report Surplus Deficit	99.2	683	207	1796	1688	2475	3043	2169	3128	2564	2134	668	-185	-151	1453
80 2008 Federal Report Surplus Deficit	222	657	-514	-61.8	325	712	909	141	4245	5782	2605	1315	1221	-62.6	1312
Ranked Averages															
81 Bottom 10 pct	181	328	-514	-774	-692	-150	-310	671	1214	-460	276	743	37.7	57.7	7.68
82 Middle 80 pct	343	582	669	1504	1405	1968	1979	2775	3612	3540	2299	1356	643	420	1643
83 Top 10 pct	625	1175	2443	4095	4408	4955	4202	4217	4823	4688	4425	2586	2233	1090	3274

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Table 10.1.2
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1 1929 Federal Report Surplus Deficit	204201	266069	-4941	-57867	10814	858	-67433	293028	978369	966320	-75114	264518	22701	362192	3163714
2 1930 Federal Report Surplus Deficit	260939	365252	8196	-459823	-7492	24579	190387	484047	787995	-5619	777857	357206	61154	290013	3134689
3 1931 Federal Report Surplus Deficit	233038	366823	80139	-309902	-465881	-111422	131424	-133812	1314150	74876	732444	356010	123940	181779	2573606
4 1932 Federal Report Surplus Deficit	157648	186525	30213	-678186	-579157	649519	883398	818362	2351285	2016152	1095842	435619	331744	502944	8201910
5 1933 Federal Report Surplus Deficit	202593	66095	651254	1046381	1099431	1035955	419564	470288	1703055	2357576	1438153	586146	575639	390818	12042948
6 1934 Federal Report Surplus Deficit	582494	1248477	1719713	1681437	1552086	1915066	994292	778534	1832048	1534973	786003	201705	35949	225606	15088380
7 1935 Federal Report Surplus Deficit	192294	-125593	6936	962588	901061	1024897	144137	495188	1531128	1300697	1174015	547273	127479	110900	8393000
8 1936 Federal Report Surplus Deficit	229256	252044	-74254	-504708	-157572	142395	201240	902697	2352449	1870657	845484	325172	34167	238430	6657458
9 1937 Federal Report Surplus Deficit	227859	395471	29160	-413654	-444742	-124034	16452	130772	1331726	727195	118345	302790	15016	258765	2571119
10 1938 Federal Report Surplus Deficit	221812	315787	200035	1041956	867080	1232901	739286	999269	2079222	1654353	1140775	181953	24109	398816	11097355
11 1939 Federal Report Surplus Deficit	195226	231688	-66594	453285	235819	289454	488823	726590	1744965	704010	815985	255378	-1381	311813	6385060
12 1940 Federal Report Surplus Deficit	240231	442128	176195	668712	-73634	1381671	505064	636455	1641735	606234	690861	187302	-50021	251845	7304777
13 1941 Federal Report Surplus Deficit	115213	303039	259272	-179884	-32543	104948	-61520	212776	1380779	719853	705929	336706	58264	355454	4278286
14 1942 Federal Report Surplus Deficit	118550	511535	671967	1068831	662226	770067	87785	612047	1595033	1536775	1316681	439026	272143	582264	10244929
15 1943 Federal Report Surplus Deficit	212618	26054	119672	1320068	994613	1185415	1129293	1064242	1975851	2311746	1696164	592449	295523	173349	13097056
16 1944 Federal Report Surplus Deficit	145691	301022	-34860	-17586	59027	8360	-40315	178600	720490	-68454	309258	302034	50867	206370	2120504
17 1945 Federal Report Surplus Deficit	166050	313589	53359	-349632	-180347	-26352	-15653	-251228	1926859	1845164	168352	249640	19945	235396	4155142
18 1946 Federal Report Surplus Deficit	157095	399938	350466	705034	615971	1056806	873099	1015622	1977973	1654327	1373152	515295	406085	394909	11495770
19 1947 Federal Report Surplus Deficit	158426	356479	1613940	1516854	1474113	1444434	627761	672077	2153453	1748121	1236315	470778	243647	329723	14046122
20 1948 Federal Report Surplus Deficit	1363416	920865	1077148	1585923	1205222	1148059	493027	844634	2300866	2172597	1512297	645443	643821	544479	16457795
21 1949 Federal Report Surplus Deficit	382129	215848	480040	705548	687802	1337002	679974	938723	2399460	1752655	483842	174494	-92941	163817	10308393
22 1950 Federal Report Surplus Deficit	127828	210539	184690	1273803	1520217	1536245	925804	824214	1880328	2178403	1665983	658945	631953	472246	14091198
23 1951 Federal Report Surplus Deficit	726343	1065434	1529101	1684662	1846951	2124851	1002344	820200	2106891	1724113	1439610	558710	278079	327817	17235104
24 1952 Federal Report Surplus Deficit	1090119	591942	1130301	1312924	1311520	1264388	945434	1031759	2415931	1959723	1226029	464993	133501	73508	14952072
25 1953 Federal Report Surplus Deficit	193318	179797	-50272	395738	1089033	760590	238074	421735	1838512	2348309	1662547	533817	377125	366444	10354767
26 1954 Federal Report Surplus Deficit	344043	369013	836534	1248611	1442860	1462212	567778	653628	2118535	1960491	1612067	699359	723260	1308549	15346940
27 1955 Federal Report Surplus Deficit	406427	656402	813154	361495	378954	6216	156739	384527	1733656	2361749	1623592	621786	404379	246421	10155497
28 1956 Federal Report Surplus Deficit	509843	888894	1596576	1826280	1696180	1841990	872194	946831	2297998	2159991	1471184	584440	563064	373790	17629255
29 1957 Federal Report Surplus Deficit	460581	215517	882442	911085	550772	1021511	849747	597899	2564923	2307302	1070260	348228	178902	361586	12320754
30 1958 Federal Report Surplus Deficit	156425	311315	57776	1024968	964082	1078967	475733	760975	2415396	2135538	979187	426843	139254	224668	11151127
31 1959 Federal Report Surplus Deficit	271838	613855	1431062	1713559	1575870	1628217	758160	600681	1827048	2114531	1505281	634042	638545	1446633	16759323
32 1960 Federal Report Surplus Deficit	1667801	1291773	1267392	1177527	995385	1236272	1167891	744393	1640111	1963906	1183749	494959	148092	207958	15187209
33 1961 Federal Report Surplus Deficit	313523	318316	559406	949417	1349136	1663048	651512	501247	2085690	2047210	990051	454777	228476	224521	12336330
34 1962 Federal Report Surplus Deficit	74122	301307	412365	1020159	890332	334992	982146	920878	1969927	1572844	1056502	432756	303749	138772	10410851
35 1963 Federal Report Surplus Deficit	584286	682088	1276765	1078752	1015836	810628	200280	467753	1851691	1597830	1181056	409236	169771	444187	11770161
36 1964 Federal Report Surplus Deficit	143986	205063	534357	461935	445224	398487	680281	399425	1901705	2140636	1595640	617272	588123	662808	10774942
37 1965 Federal Report Surplus Deficit	683964	523752	1683116	1932862	1799148	2016899	503918	967452	2046729	1769660	1326002	588876	574525	185192	16602093
38 1966 Federal Report Surplus Deficit	435273	274947	681347	804504	732420	492631	966790	559146	1363858	1528884	1167889	500828	142183	212111	9862811

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39 1967 Federal Report Surplus Deficit	156317	177819	767432	1373942	1491492	1516312	429172	70712	1715344	2107900	1497476	529493	457704	402562	12693676
40 1968 Federal Report Surplus Deficit	369609	393635	693231	1196941	1250154	1328530	153688	312706	1270414	1922135	1310474	530144	348273	888116	11968049
41 1969 Federal Report Surplus Deficit	734533	923624	1112041	1756022	1602492	1581311	972374	895599	2354436	1880017	1228931	367057	176046	301464	15885948
42 1970 Federal Report Surplus Deficit	362051	356578	220228	1227374	959717	655877	279800	398443	1861632	2320457	755270	304044	123121	210570	10035163
43 1971 Federal Report Surplus Deficit	146410	231132	386862	1786874	1822555	2010223	889038	850242	2314198	2259354	1667376	647020	657856	465224	16134363
44 1972 Federal Report Surplus Deficit	452392	293266	837106	1639443	1773355	2386334	1031352	673271	2226882	2105276	1526743	666815	676597	542776	16831610
45 1973 Federal Report Surplus Deficit	425121	289029	664277	977855	334823	261537	-169276	234281	1308908	352975	693976	255989	6833	207352	5843681
46 1974 Federal Report Surplus Deficit	187472	140608	1007769	1837792	1695406	2301240	1029786	894853	2045861	2128936	1686898	669437	678197	524694	16828948
47 1975 Federal Report Surplus Deficit	109803	279175	176157	1082738	1050017	1199917	253025	384003	1992532	2305273	1777273	550983	506761	572598	12240253
48 1976 Federal Report Surplus Deficit	761822	1036995	1764548	1737336	1608203	1848997	1026224	829341	2407092	1961221	1475827	680624	784622	1676887	19599739
49 1977 Federal Report Surplus Deficit	467561	307333	-5107	102072	163685	42121	-110728	95605	591510	-104555	383275	318801	23488	-20244	2254818
50 1978 Federal Report Surplus Deficit	-78045	327863	428918	872660	804464	929167	895907	660978	1950755	1282259	1348890	345429	126045	980930	10876222
51 1979 Federal Report Surplus Deficit	509840	322814	102047	627223	83422	984009	162221	490246	2063875	1290013	133668	259935	6602	350312	7386227
52 1980 Federal Report Surplus Deficit	193277	311341	-145814	434868	130947	185367	480145	666872	2343967	2003904	1047462	232652	52113	377100	8314202
53 1981 Federal Report Surplus Deficit	176807	273360	1236074	1365172	1356067	851068	-51592	447771	1825782	2259069	1377923	634702	595583	398844	12746629
54 1982 Federal Report Surplus Deficit	288868	432358	696266	1339918	1810876	2327205	902691	775663	2257861	2328120	1744663	649626	657187	864212	17075515
55 1983 Federal Report Surplus Deficit	728951	441634	962520	1462180	1475799	1906533	698449	613389	2063219	2006612	1594982	633375	519279	532654	15639577
56 1984 Federal Report Surplus Deficit	356021	1161040	1095489	1438182	1365475	1315893	1036480	951527	2152513	2335115	1538670	614615	331411	512494	16204927
57 1985 Federal Report Surplus Deficit	370556	423301	635510	715623	522279	434962	630664	781895	1892576	1171515	702499	119826	-76911	272302	8596597
58 1986 Federal Report Surplus Deficit	84867	901155	733524	1208559	1369166	2112533	1077288	1001692	1794712	1749172	997425	326564	60909	141659	13559223
59 1987 Federal Report Surplus Deficit	48920	363155	677676	497942	347272	478289	97471	456145	1682523	1245715	536211	166498	-80418	123358	6640757
60 1988 Federal Report Surplus Deficit	168949	295298	-144244	-203914	-375935	132658	56827	411761	1278311	390488	853076	311391	45354	221086	3441107
61 1989 Federal Report Surplus Deficit	136335	438724	241920	-130730	-77445	631186	448107	980269	1787109	1293276	607408	209588	-14615	251353	6802484
62 1990 Federal Report Surplus Deficit	245645	365791	764290	1009945	1159213	1226921	499456	855575	1640076	1856372	1170224	555480	492799	198684	12040470
63 1991 Federal Report Surplus Deficit	96302	1029865	1103326	1259218	1370587	1412272	576434	534442	1792601	1828319	1425851	615773	522890	184651	13752532
64 1992 Federal Report Surplus Deficit	256865	305347	-134195	256131	210763	800185	-67840	164973	1228940	396180	418495	257077	-2905	-14332	4075684
65 1993 Federal Report Surplus Deficit	208941	367712	113023	-387649	-423672	401605	258726	475226	1953977	1585494	748650	319057	92296	348718	6062104
66 1994 Federal Report Surplus Deficit	231582	455038	179633	-457939	-207635	14362	43021	419991	1640987	1149609	816904	287999	-6047	258773	4826277
67 1995 Federal Report Surplus Deficit	205595	144464	104396	464239	791972	1356364	310224	408168	1696756	2051616	1249563	311638	140615	499110	9734720
68 1996 Federal Report Surplus Deficit	604870	1413908	1872128	1809616	1878790	2244471	975766	968725	2255985	1985877	1483399	606969	520495	371714	18992714
69 1997 Federal Report Surplus Deficit	317658	393088	1201935	1880415	1841568	2326617	990194	970206	2176437	2123966	1553185	641512	675835	843194	17935810
70 1998 Federal Report Surplus Deficit	1432011	850471	629743	939030	896782	786036	468639	596893	2532496	2278559	1316619	512847	132491	205006	13577623
71 1999 Federal Report Surplus Deficit	185865	97289	1005100	1616164	1628092	2069803	657157	855505	1938370	2190676	1543023	702685	688515	599702	15777945
72 2000 Federal Report Surplus Deficit	299580	1209350	1263498	1082119	1083038	1179225	875062	908806	1994859	1040769	1062752	472484	5739	102840	12580119
73 2001 Federal Report Surplus Deficit	210694	249688	-14656	-41614	47630	124471	-59725	111149	950629	-311482	460446	303340	43899	-3759	2070709
74 2002 Federal Report Surplus Deficit	-102582	288196	160448	-100302	-1447	351510	399479	794591	1730198	2113329	1422428	403671	170342	353859	7983720
75 2003 Federal Report Surplus Deficit	266566	402737	81992	-191020	-148801	1063569	419146	636119	1749783	1928090	701099	193222	-57434	38865	7083934
76 2004 Federal Report Surplus Deficit	176003	502140	358525	325348	44334	465416	297169	501204	1636342	1155506	856217	287215	99372	635623	7340416

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77 2005 Federal Report Surplus Deficit	482923	282165	775728	977054	252486	248577	-42451	403183	1832063	1380802	957420	366721	16381	270397	8203451
78 2006 Federal Report Surplus Deficit	4727	322792	618973	1278973	1350967	1184908	996641	983043	2312804	2065822	1056940	244687	101760	138395	12661432
79 2007 Federal Report Surplus Deficit	192673	471055	337541	1010100	956807	1260102	764247	536518	1771513	1505832	1086253	296298	-4191	74393	10259142
80 2008 Federal Report Surplus Deficit	273881	475982	-37416	177142	359567	411784	297219	68419	2099789	2347315	1350473	445526	434795	103381	8807856
Ranked Averages															
81 Bottom 10 pct	239867	318369	-10789	-175286	-126612	12199	14611	196394	994147	208596	444948	314511	48302	187025	2666283
82 Middle 80 pct	327133	431186	566914	841618	789761	984670	520237	626741	1914473	1756749	1130070	422365	233282	355830	10901029
83 Top 10 pct	481158	708069	1313179	1719433	1768916	2175213	978819	859886	2221876	2064688	1547689	632267	604260	690636	17766087

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1 1929 Federal Report Surplus Deficit	211985	297174	16937	-38270	36735	103786	-105834	334201	725448	773931	-122834	282497	50032	417689	2983476
2 1930 Federal Report Surplus Deficit	270015	394959	29898	-441441	23334	127840	150013	522613	538498	-231283	770936	378843	88506	345482	2968211
3 1931 Federal Report Surplus Deficit	240129	395343	103193	-289483	-445590	-6344	96070	-94622	985090	-147820	791574	376408	147787	236240	2387975
4 1932 Federal Report Surplus Deficit	166059	215289	58037	-667889	-564360	787528	855846	804153	2077788	1949657	1238823	455789	349515	559425	8285661
5 1933 Federal Report Surplus Deficit	210365	95980	684969	1079309	1016204	1139097	402002	515908	1385350	2346018	1644243	662014	627099	446244	12254801
6 1934 Federal Report Surplus Deficit	592204	1270603	1812110	1764286	1470876	1944940	847051	791639	1437688	1374640	912189	219498	60817	283701	14782242
7 1935 Federal Report Surplus Deficit	200471	-95401	30182	1017317	918439	1162887	98339	533875	1181516	1109332	1314374	624658	153378	166399	8415764
8 1936 Federal Report Surplus Deficit	237836	281754	-50633	-471054	-131429	243235	164345	880867	2073396	1778490	827069	346011	61062	294146	6535096
9 1937 Federal Report Surplus Deficit	236976	424878	53456	-396684	-420887	-18299	-21433	170801	1068934	515675	82271	322152	41939	314372	2374151
10 1938 Federal Report Surplus Deficit	230008	345299	229127	1091104	932819	1377157	731191	936933	1735856	1503457	1300503	199910	50394	455614	11119371
11 1939 Federal Report Surplus Deficit	201128	262352	-41097	491939	269234	393912	453799	712944	1383249	519005	785696	273579	25115	370511	6101365
12 1940 Federal Report Surplus Deficit	249170	469482	202190	725408	-44604	1547565	467142	642984	1303365	402921	704671	211125	-24221	311421	7168617
13 1941 Federal Report Surplus Deficit	121325	330743	287124	-158489	-2513	207695	-102456	256955	1016578	514390	651037	356650	84540	411086	3974665
14 1942 Federal Report Surplus Deficit	123008	537235	712693	1119316	714737	878289	52108	605105	1243626	1367469	1466221	442265	292489	637178	10191740
15 1943 Federal Report Surplus Deficit	220320	57145	150128	1346745	1029738	1295189	1130761	1024160	1640607	2290608	1866629	632087	310581	232722	13227420
16 1944 Federal Report Surplus Deficit	154858	332837	-12467	1811	78979	112564	-84546	220347	476422	-293981	264674	327489	76546	262445	1917977
17 1945 Federal Report Surplus Deficit	173734	342326	79316	-328541	-153250	77672	-55240	-195044	1571570	1719614	129566	267749	45419	293592	3968483
18 1946 Federal Report Surplus Deficit	165400	428989	381282	748394	657756	1210285	851073	947504	1651455	1520293	1494778	553271	428099	451132	11489713
19 1947 Federal Report Surplus Deficit	167098	386131	1577450	1544495	1427515	1614449	606840	675234	1860520	1635300	1389102	491159	265624	389360	14030278
20 1948 Federal Report Surplus Deficit	1356995	940422	1099428	1611467	1186599	1266174	458852	778729	1979606	2117752	1648376	721214	700837	601516	16467966
21 1949 Federal Report Surplus Deficit	386851	247196	509713	759806	727189	1482972	652307	888129	2120647	1637115	436418	191712	-66829	220191	10193415
22 1950 Federal Report Surplus Deficit	136940	242785	214124	1297896	1438582	1731514	928233	801225	1581648	2203334	1910589	738804	679375	529735	14434785
23 1951 Federal Report Surplus Deficit	729500	1084524	1512290	1771808	1850335	2077984	995252	762454	1697732	1628787	1587989	592215	299890	385302	16976061
24 1952 Federal Report Surplus Deficit	1089008	621570	1151166	1351314	1262112	1391471	906097	1003055	2007352	1852209	1385738	484548	153368	128028	14787036
25 1953 Federal Report Surplus Deficit	201981	213573	-25477	418881	1121129	861960	204910	461834	1519523	2379769	1778049	547801	392740	426522	10503194
26 1954 Federal Report Surplus Deficit	349334	400203	870850	1284199	1379715	1561703	550551	692104	1729693	1873635	1869516	767502	802637	1353130	15484773
27 1955 Federal Report Surplus Deficit	413079	684033	849168	397476	412702	114229	129030	417228	1425448	2351085	1830764	701115	411912	304303	10441571
28 1956 Federal Report Surplus Deficit	517033	913136	1580064	1877235	1620960	2016025	867213	928178	1949650	2124250	1635299	660625	589210	429627	17708505
29 1957 Federal Report Surplus Deficit	463853	247629	916483	965347	591725	1188741	812303	632429	2130665	2291004	1213875	368757	199833	421525	12444167
30 1958 Federal Report Surplus Deficit	165102	341692	81127	1076729	986976	1208796	445177	786454	2104134	2081939	1082102	447196	163969	281993	11253388
31 1959 Federal Report Surplus Deficit	277925	641942	1436113	1735662	1471368	1747900	751900	550016	1341049	2067030	1753045	699614	703825	1480647	16658034
32 1960 Federal Report Surplus Deficit	1658113	1315672	1256800	1222659	975361	1372042	1018729	722258	1298087	1883826	1325935	530970	167769	264371	15012591
33 1961 Federal Report Surplus Deficit	320674	347602	587093	1017101	1237017	1736480	624947	541885	1569112	1946666	1148850	484614	251391	280010	12093442
34 1962 Federal Report Surplus Deficit	82409	331819	440631	1070390	919813	449605	975334	920346	1637324	1400671	1183776	453622	321714	193215	10380669
35 1963 Federal Report Surplus Deficit	585609	709632	1275250	1119966	1026018	918569	165647	504430	1564905	1430699	1351808	428799	194885	503703	11779922
36 1964 Federal Report Surplus Deficit	152884	233881	562344	495355	482037	511106	658096	435466	1594992	2214133	1843389	680301	631300	715641	11210926
37 1965 Federal Report Surplus Deficit	693787	552566	1647156	2028474	1830243	2158213	491879	913488	1736231	1655104	1478391	665537	612283	243063	16706414
38 1966 Federal Report Surplus Deficit	438737	305127	708770	850401	778280	606219	924997	547508	1081511	1366584	1290908	575376	163966	267472	9905856

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39 1967 Federal Report Surplus Deficit	164951	209786	798192	1413291	1369366	1648655	397613	102406	1387723	2049359	1711612	589622	475880	461465	12779921
40 1968 Federal Report Surplus Deficit	374832	424576	720958	1241645	1231469	1417483	123908	347837	1008144	1883698	1393100	566104	367142	942328	12043225
41 1969 Federal Report Surplus Deficit	737815	941724	1135689	1776356	1522847	1709941	885423	899339	1912883	1809901	1376979	386376	203007	356614	15654895
42 1970 Federal Report Surplus Deficit	366562	384946	245152	1243656	977382	722733	260840	435308	1582719	2171516	702932	320768	142963	268923	9826399
43 1971 Federal Report Surplus Deficit	155024	263343	414574	1849696	1870015	2128278	896759	777830	1884264	2231270	1813827	725435	744732	523932	16278978
44 1972 Federal Report Surplus Deficit	460267	324578	866399	1696286	1763998	2346408	920492	676640	1836759	1971472	1775911	744948	762091	599855	16746102
45 1973 Federal Report Surplus Deficit	431180	321284	691518	1022995	364848	364434	-207569	275763	1000149	154866	648522	274693	33040	262037	5637762
46 1974 Federal Report Surplus Deficit	195181	171706	1041279	1898993	1693595	2291532	996641	887553	1755531	2074637	1929957	751979	768935	582018	17039538
47 1975 Federal Report Surplus Deficit	118806	310004	202658	1133984	1066710	1315585	218554	430533	1635442	2304260	1990025	575107	523583	625846	12451096
48 1976 Federal Report Surplus Deficit	758352	1064265	1735091	1764840	1541357	2001192	1015936	787759	1935832	1919556	1720782	817939	863588	1674652	19601141
49 1977 Federal Report Surplus Deficit	469991	337834	18282	126962	185986	150088	-149398	136516	330418	-359344	360095	344280	47907	34588	2034206
50 1978 Federal Report Surplus Deficit	-68889	357691	459787	904216	844411	1073126	864932	651521	1557383	1092068	1514912	363376	143640	1036505	10794680
51 1979 Federal Report Surplus Deficit	517513	351724	124798	667149	111484	1103888	123456	526602	1775396	1094589	100486	277469	33303	407919	7215774
52 1980 Federal Report Surplus Deficit	201874	340203	-127314	471650	162333	286931	445764	625291	2005262	1930826	1093354	249095	76308	436328	8197905
53 1981 Federal Report Surplus Deficit	184617	305356	1223613	1401464	1270109	965842	-98146	496975	1489274	2219636	1592062	690926	669978	458789	12870496
54 1982 Federal Report Surplus Deficit	294451	461511	726409	1375123	1754665	2383833	895505	782898	1879657	2246657	2041845	718738	742478	917147	17220916
55 1983 Federal Report Surplus Deficit	727896	471717	995781	1501853	1432975	1995356	681901	643620	1816155	1919798	1735414	710352	536810	589508	15759135
56 1984 Federal Report Surplus Deficit	361690	1190799	1121238	1447959	1297470	1414350	1009930	930880	1893310	2291107	1692911	688379	349110	568052	16257186
57 1985 Federal Report Surplus Deficit	377343	451979	663466	762046	570797	537864	607847	809977	1620485	966969	645741	140378	-51071	330069	8433890
58 1986 Federal Report Surplus Deficit	93379	918226	761378	1244689	1440799	2204719	972557	967873	1480786	1657772	1104204	346187	88084	200846	13481498
59 1987 Federal Report Surplus Deficit	56860	393708	706260	537813	389314	581981	29628	470563	1318478	1043725	485032	186257	-53567	179002	6325052
60 1988 Federal Report Surplus Deficit	177101	325061	-125607	-183617	-353790	235029	17482	440463	980201	170463	929982	330660	71795	276112	3291335
61 1989 Federal Report Surplus Deficit	144594	466597	267719	-111079	-49706	752136	420237	915019	1462908	1086387	548535	230229	8827	307153	6449555
62 1990 Federal Report Surplus Deficit	253102	395757	797453	1033723	1057159	1379453	461949	828307	1288935	1789425	1322003	634531	508674	253915	12004388
63 1991 Federal Report Surplus Deficit	103847	1052721	1111831	1321478	1299279	1461900	545488	522853	1457751	1719618	1670104	675192	545082	244146	13731290
64 1992 Federal Report Surplus Deficit	263473	338207	-115199	293051	241663	926383	-106988	208205	961480	175569	362814	274795	23953	39278	3886683
65 1993 Federal Report Surplus Deficit	217084	396193	136924	-368218	-404017	511423	219289	517176	1715465	1420105	692558	336230	112067	408473	5910751
66 1994 Federal Report Surplus Deficit	238205	483491	206283	-439871	-120159	603036	-22372	434402	1039288	734212	758570	305929	21449	312205	4554666
67 1995 Federal Report Surplus Deficit	214939	176595	125810	502775	722319	989833	664744	491135	1588580	2037979	1226551	329529	165739	555586	9792113
68 1996 Federal Report Surplus Deficit	610716	1433934	1921989	1869204	1922811	2227903	931088	968863	1828883	1897083	1757941	674178	553123	430934	19028650
69 1997 Federal Report Surplus Deficit	324953	422324	1223485	1963475	1797907	2333851	936390	956566	1822672	2023236	1822703	695390	753389	892826	17969167
70 1998 Federal Report Surplus Deficit	1422474	874923	655795	986649	916662	898593	433554	619104	2187055	2250282	1471418	529821	158646	262787	13667765
71 1999 Federal Report Surplus Deficit	195462	127373	1036358	1687787	1586777	2122419	630480	842874	1651423	2182966	1793419	778239	772169	657667	16065414
72 2000 Federal Report Surplus Deficit	307560	1237488	1249326	1133382	1103531	1280802	853166	885400	1701965	851004	1222836	508116	30826	157255	12522657
73 2001 Federal Report Surplus Deficit	219006	279206	9207	-23651	69099	226237	-93895	151228	705456	-573625	409626	323951	70673	50489	1823006
74 2002 Federal Report Surplus Deficit	-93741	317176	185670	-75507	29054	463245	346850	805736	1377872	2058233	1532042	421825	187827	413788	7970073
75 2003 Federal Report Surplus Deficit	274328	431906	107464	-169865	-120202	1188723	368313	606823	1427034	1833552	642694	212247	-31353	93270	6864934
76 2004 Federal Report Surplus Deficit	184144	529897	389088	362139	77144	569255	258506	512884	1353893	965550	801987	305382	124866	689567	7124302

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77 2005 Federal Report Surplus Deficit	487297	311275	811368	1012043	548876	349040	-81356	434512	1507641	1187693	1022311	386143	42917	325285	8345045
78 2006 Federal Report Surplus Deficit	12420	355902	649000	1307678	1262172	1328160	973716	930544	2052810	2013975	1218543	263027	126062	193228	12687237
79 2007 Federal Report Surplus Deficit	201561	500636	368506	1070205	916524	1380414	677456	545639	1483014	1353618	1254072	315828	21678	129256	10218408
80 2008 Federal Report Surplus Deficit	278747	504995	-16985	206888	409680	521539	248779	110780	1890774	2321721	1514376	461830	451786	157119	9062029
Ranked Averages															
81 Bottom 10 pct	247507	348412	11612	-155547	-103267	116363	-23943	235193	726309	-18248	435790	335785	74398	242177	2472542
82 Middle 80 pct	333412	460054	590590	880925	793236	1099767	489172	630211	1585941	1649797	1233006	457542	262016	411965	10877634
83 Top 10 pct	486307	734497	1325876	1777120	1743203	2209841	944815	843864	1838339	1985710	1784053	707001	666588	739045	17786260

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Table 10.1.3
Federal Report Surplus Deficit By Water Year
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016
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LLH-MWh - Surplus Deficit	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
1 1929 Federal Report Surplus Deficit	-182880	-145401	-421128	-399622	-327535	-219812	-217921	41263	217928	373413	-421711	-99234	-84929	-183546	-2071115
2 1930 Federal Report Surplus Deficit	-177843	-133865	-416670	-574644	-278857	-220714	-75304	144717	77626	-185840	-205955	-79336	-80030	-239465	-2446178
3 1931 Federal Report Surplus Deficit	-187188	-127503	-392026	-512811	-517779	-283546	-109889	-160683	346109	-192599	-128025	-95845	-92266	-282534	-2736586
4 1932 Federal Report Surplus Deficit	-213975	-208548	-392787	-660811	-551692	235569	287842	695105	1444360	1320495	226311	-53239	-53773	-133802	1941056
5 1933 Federal Report Surplus Deficit	-185267	-206925	-108340	591212	255300	329454	49095	154900	863419	1790095	1335231	291571	78980	-182242	5056485
6 1934 Federal Report Surplus Deficit	-70961	386560	1130530	1500294	1142873	1246266	582215	698436	1079263	996373	-1067	-144865	-174353	-291200	8080364
7 1935 Federal Report Surplus Deficit	-210087	-315451	-391160	461918	49748	336417	-97676	210263	634437	602667	639924	180920	-81065	-282908	1737948
8 1936 Federal Report Surplus Deficit	-187277	-177468	-468818	-559179	-411134	-130508	-53096	395728	1338234	1233089	-176189	-90222	-94579	-235380	383201
9 1937 Federal Report Surplus Deficit	-180086	-105817	-403452	-566338	-515308	-285008	-181451	-66763	399594	169855	-402672	-93514	-99282	-240880	-2571122
10 1938 Federal Report Surplus Deficit	-181941	-142993	-272876	137496	207896	476868	284645	776034	1370987	896007	326839	-138776	-156151	-181787	3402248
11 1939 Federal Report Surplus Deficit	-184231	-176201	-429068	-195288	-228146	-43506	52875	338120	695380	67219	-205663	-114811	-110370	-213315	-747007
12 1940 Federal Report Surplus Deficit	-176956	-76912	-296480	-59875	-320169	585022	79786	200407	577339	49778	-248001	-140451	-133439	-239343	-199293
13 1941 Federal Report Surplus Deficit	-218346	-145378	-265207	-430578	-311086	-160519	-225448	-30444	386201	107918	-283983	-83824	-80412	-177169	-1918275
14 1942 Federal Report Surplus Deficit	-212830	-12578	-58656	92479	-89122	179555	-100289	129071	549735	731388	556653	16535	5258	-54136	1733064
15 1943 Federal Report Surplus Deficit	-192494	-236847	-294502	478401	210811	496555	576515	795423	981255	1770230	1149137	59319	-72214	-239972	5481618
16 1944 Federal Report Surplus Deficit	-188926	-116646	-407763	-376719	-327462	-231796	-204412	-11161	32362	-189179	-366214	-113060	-99655	-255111	-2855742
17 1945 Federal Report Surplus Deficit	-203799	-155647	-389353	-505431	-381294	-237590	-196799	-184810	815817	981147	-336495	-108841	-89260	-221250	-1213604
18 1946 Federal Report Surplus Deficit	-190300	-81932	-196393	4675	-7353	392553	364633	796189	1615209	921037	859800	5581	-45538	-153103	4285058
19 1947 Federal Report Surplus Deficit	-176739	-77045	459238	996343	363874	578216	197914	289265	1286558	1015882	650556	-39633	-93902	-183939	5266589
20 1948 Federal Report Surplus Deficit	213923	160789	53123	677729	149336	405506	117688	512844	1875631	1904736	1194018	369253	140653	-82753	7692476
21 1949 Federal Report Surplus Deficit	-138870	-154735	-180895	43011	-47050	574593	193788	618635	1505964	940599	-332336	-140651	-137885	-268397	2475771
22 1950 Federal Report Surplus Deficit	-202986	-159432	-295398	759617	535908	666995	407795	442192	1110206	1823891	1593932	345747	112953	-111107	7030312
23 1951 Federal Report Surplus Deficit	-4057	247392	625419	1387881	851647	1480129	455567	609491	1468233	965018	1104127	115113	-91905	-179787	9034269
24 1952 Federal Report Surplus Deficit	141915	30264	73822	482436	171348	654228	443523	858478	1811045	1065474	492444	-42542	-124127	-294478	5763831
25 1953 Federal Report Surplus Deficit	-173418	-198754	-437537	-174325	229580	164134	-55244	150490	904759	1808924	1297129	52260	-31200	-161517	3375281
26 1954 Federal Report Surplus Deficit	-143893	-98266	-54933	737634	357139	644904	150843	312168	1351120	1739608	1576480	449290	393603	209523	7625221
27 1955 Federal Report Surplus Deficit	-126414	25533	-56900	-233114	-205203	-238536	-106440	86285	628254	1836963	1503579	283468	31693	-206796	3222374
28 1956 Federal Report Surplus Deficit	-101181	141344	530162	1079348	900335	1109433	346413	847354	1853621	1840243	1209212	193640	42091	-151466	9840549
29 1957 Federal Report Surplus Deficit	-97741	-146568	-25150	54637	-96228	397538	329652	278303	1816625	1947900	200687	-88715	-103208	-184960	4282773
30 1958 Federal Report Surplus Deficit	-178935	-114361	-325426	222166	84265	339823	40328	369866	1469678	1615491	64570	-64014	-125606	-247707	3150140
31 1959 Federal Report Surplus Deficit	-160801	41459	288444	927625	599802	927465	269360	274707	1146905	1594507	1365014	314178	158808	321186	8068658
32 1960 Federal Report Surplus Deficit	433791	396802	314667	251279	7903	406124	719799	580114	608449	1184319	644046	-10852	-126459	-263731	5146252
33 1961 Federal Report Surplus Deficit	-156884	-129981	-151698	318164	338816	689985	144922	185402	1348135	1778486	298980	-37474	-99067	-243785	4284000
34 1962 Federal Report Surplus Deficit	-223596	-118059	-221385	66188	8625	-42107	378083	799117	1068777	784731	167933	-53264	-80682	-266046	2268316
35 1963 Federal Report Surplus Deficit	-40534	52429	220758	581510	106499	203024	-74502	118057	745759	810241	478144	-65739	-52571	-130035	2953040
36 1964 Federal Report Surplus Deficit	-191290	-167666	-164323	-212513	-177236	-4891	238871	119186	899407	1817924	1435868	288809	76513	-15173	3943488
37 1965 Federal Report Surplus Deficit	-34246	-24637	557167	1525800	962477	1153485	91619	817365	1639272	1196233	444557	159035	53477	-236157	8305448
38 1966 Federal Report Surplus Deficit	-108025	-144922	-104997	-55558	-65625	5555	434213	245407	368780	698581	575013	108018	-77294	-239858	1639288

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Federal Report Surplus Deficit By Water Year
Fiscal Year 2018
BP 18 Initial Proposal Report Date: 9/8/2016
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LLH-MWh - Surplus Deficit	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
39 1967 Federal Report Surplus Deficit	-200795	-172017	-74971	943127	463839	752497	55945	-106150	844049	1842111	1224064	74240	-20420	-168331	5457189
40 1968 Federal Report Surplus Deficit	-127601	-73840	-101080	511634	203494	440178	-110129	51656	302193	1251288	741204	126768	37218	96783	3349766
41 1969 Federal Report Surplus Deficit	-18381	160233	95371	1136514	848793	783562	381131	800880	1717653	1285357	648039	-82273	-119373	-210376	7427132
42 1970 Federal Report Surplus Deficit	-135814	-103047	-301124	133213	13113	123912	-52169	92500	823288	1541432	-166513	-98181	-61726	-213438	1595445
43 1971 Federal Report Surplus Deficit	-182909	-120121	-184597	1145672	1059553	1009796	377564	591097	1835355	1819784	1383172	213881	272880	-107598	9113529
44 1972 Federal Report Surplus Deficit	-61324	-104715	-25147	1052463	1027533	1653256	711538	378606	1784607	1842939	1445583	376166	322424	-76310	10327619
45 1973 Federal Report Surplus Deficit	-78005	-94487	-136465	8314	-184679	-95661	-258057	-4312	370134	6032	-274897	-120100	-117524	-249138	-1228846
46 1974 Federal Report Surplus Deficit	-187968	-135807	56192	1719250	1313798	1464922	471116	804631	1668430	1821637	1630482	306685	313589	-112353	11134602
47 1975 Federal Report Surplus Deficit	-201608	-128325	-301003	247540	108537	408193	-58014	98094	1282854	1714290	1497181	40463	33150	-58919	4682434
48 1976 Federal Report Surplus Deficit	50550	221963	898608	932811	755835	964371	463562	564128	1773826	1256755	1280851	548960	526014	419766	10658001
49 1977 Federal Report Surplus Deficit	-77386	-111665	-421340	-342473	-283720	-225161	-240155	-51382	-58743	-275854	-357605	-95937	-104785	-333469	-2979676
50 1978 Federal Report Surplus Deficit	-270122	-138955	-146044	81758	69441	277812	388567	286705	1253862	685011	557948	-75189	-102994	94447	2962247
51 1979 Federal Report Surplus Deficit	-100361	-124442	-367093	-120258	-289787	247839	-84077	161358	994459	390795	-393589	-111007	-96632	-191305	-84101
52 1980 Federal Report Surplus Deficit	-190478	-130965	-476707	-180028	-228382	-120966	57353	381358	1539110	1294393	32299	-126503	-142451	-170666	1537366
53 1981 Federal Report Surplus Deficit	-198395	-135504	212612	1023050	475239	225132	-210111	107073	788201	1777144	1136913	369502	141601	-177354	5535105
54 1982 Federal Report Surplus Deficit	-160896	-67776	-118510	480636	1176163	1353586	351825	384528	1513961	1680196	1603370	277212	233393	69367	8777057
55 1983 Federal Report Surplus Deficit	24295	-45325	-25374	716180	559321	1103550	252471	260788	1118884	1260316	1267366	243820	14545	-79129	6671707
56 1984 Federal Report Surplus Deficit	-97606	294815	57227	327261	334726	654736	432070	658034	1124903	1553385	961350	164605	-55396	-62207	6347901
57 1985 Federal Report Surplus Deficit	-70012	-31252	-107526	-69560	-96454	4822	201285	407040	898760	417568	-306623	-153819	-191217	-179563	723451
58 1986 Federal Report Surplus Deficit	-182156	166098	-73446	379237	509549	1325582	378305	624720	732252	943356	91214	-94360	-92538	-240431	4467382
59 1987 Federal Report Surplus Deficit	-210821	-70977	-91909	-166995	-206511	3063	-150472	-2815	628346	432038	-335389	-130270	-129008	-284009	-715728
60 1988 Federal Report Surplus Deficit	-200909	-164701	-482359	-442674	-484908	-150374	-160066	15899	316595	-50015	-50456	-96890	-94605	-247215	-2292678
61 1989 Federal Report Surplus Deficit	-217243	-92921	-267634	-382562	-337546	208260	137474	709604	811776	451384	-313324	-119079	-104052	-215017	269120
62 1990 Federal Report Surplus Deficit	-168639	-79423	-47564	545777	297597	445413	7014	610763	732402	1368580	383811	143423	64129	-239316	4063966
63 1991 Federal Report Surplus Deficit	-218980	219274	192427	958245	330489	636014	123954	211249	946674	1159944	1304957	334459	15760	-251638	5962829
64 1992 Federal Report Surplus Deficit	-169804	-111607	-445978	-236991	-243359	235618	-222728	-55264	323266	-105599	-361640	-107716	-106583	-325699	-1934084
65 1993 Federal Report Surplus Deficit	-212753	-133932	-382515	-532169	-503389	474	-24239	148895	950865	673948	-148101	-66222	-39899	-143520	-412556
66 1994 Federal Report Surplus Deficit	-174631	-79318	-320047	-561390	-439656	-227142	-175307	-4834	534485	309013	-245877	-92174	-101728	-234659	-1813265
67 1995 Federal Report Surplus Deficit	-201651	-234845	-346143	-117103	101942	476592	-16251	106376	668069	1278724	87127	-81717	-103997	-107534	1509589
68 1996 Federal Report Surplus Deficit	-33473	470998	1443504	1602151	978924	1633102	390785	845787	1522329	1328230	1305623	271199	16445	-158254	11617351
69 1997 Federal Report Surplus Deficit	-149974	-75850	76955	1468617	1313456	1603498	470442	855780	1794391	1868676	1402986	204014	261443	63890	11158325
70 1998 Federal Report Surplus Deficit	281989	133555	-118778	-24498	-29938	163176	-28674	244804	1536109	1556798	432051	14027	-69738	-204722	3886161
71 1999 Federal Report Surplus Deficit	-160647	-192949	7800	1033994	831271	1124575	220484	475434	1000361	1608186	1421782	436849	271004	-92551	7985595
72 2000 Federal Report Surplus Deficit	-135851	340386	282071	242398	50801	405892	376753	751181	1143033	379770	408800	-25476	-125009	-285462	3809287
73 2001 Federal Report Surplus Deficit	-168083	-150902	-403535	-386929	-329257	-163733	-207625	-39963	168863	-334797	-364369	-108146	-102167	-327824	-2918467
74 2002 Federal Report Surplus Deficit	-266401	-164002	-313411	-372826	-265217	-3475	70210	506263	689859	1654764	949782	-48844	-102631	-191299	2142773
75 2003 Federal Report Surplus Deficit	-168008	-100491	-377952	-438815	-346334	275828	33630	103540	622569	1094137	-284178	-126152	-123607	-304765	-140598
76 2004 Federal Report Surplus Deficit	-209056	-49485	-195680	-227103	-274666	8026	-53241	51130	562595	369169	-208314	-89963	-50941	-20215	-387743

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77 2005 Federal Report Surplus Deficit	-110202	-148823	-72354	420413	-237104	-108178	-207645	13527	725489	461817	-699	-62774	-87490	-202593	383383
78 2006 Federal Report Surplus Deficit	-248363	-118639	-97814	507196	235537	446652	438930	708486	1457570	1574778	262688	-116292	-147013	-271521	4632194
79 2007 Federal Report Surplus Deficit	-184092	-28932	-230746	276147	133266	475926	228931	197195	764286	774514	457281	-103701	-127561	-301451	2331064
80 2008 Federal Report Surplus Deficit	-174277	-52891	-392382	-273276	-193401	6972	-850	-80496	1146172	1969142	545044	-18534	-15939	-266706	2198576
Ranked Averages															
81 Bottom 10 pct	-170413	-132063	-418534	-450276	-383103	-222518	-174603	-16009	187542	-85627	-287126	-97745	-94715	-263756	-2608945
82 Middle 80 pct	-136728	-62004	-118239	220203	89962	363916	125170	327056	1007585	1120089	476066	26267	-42436	-170223	3226686
83 Top 10 pct	-83792	80651	427637	1298524	1025135	1364813	460873	687109	1712599	1592910	1345255	278707	207873	-37764	10360531

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Federal Report Surplus Deficit By Water Year
Fiscal Year 2019
BP 18 Initial Proposal Report Date: 9/8/2016
S137-RC-20161011-130500

LLH-MWh - Surplus Deficit	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
1 1929 Federal Report Surplus Deficit	-125462	-126135	-395932	-369077	-309084	-223978	-131080	62826	191880	143002	-331400	-69395	-51367	-120759	-1855958
2 1930 Federal Report Surplus Deficit	-121716	-113200	-391297	-543279	-265289	-225187	13523	159701	48604	-418748	-154994	-50075	-46490	-176649	-2285097
3 1931 Federal Report Surplus Deficit	-129076	-105652	-368006	-483479	-493676	-289447	-26096	-137136	396199	-428475	-141900	-68209	-55220	-218710	-2548885
4 1932 Federal Report Surplus Deficit	-157183	-186941	-373537	-620966	-522117	258963	386329	652310	1628893	1085081	125918	-26814	-20356	-71998	2157582
5 1933 Federal Report Surplus Deficit	-127836	-186439	-94980	578140	402898	318211	137067	174435	953029	1632187	1605748	261813	77630	-119433	5612472
6 1934 Federal Report Surplus Deficit	-15469	426437	1283954	1573842	1166495	1170918	699031	660353	1171813	733176	-83907	-114624	-138329	-231011	8302679
7 1935 Federal Report Surplus Deficit	-153062	-295272	-367331	424396	88284	352176	-21547	225152	745978	342674	542169	150556	-46071	-220121	1767981
8 1936 Federal Report Surplus Deficit	-130654	-156807	-445364	-542691	-390724	-132718	32167	490966	1511771	972845	-114041	-63029	-60583	-172811	798326
9 1937 Federal Report Surplus Deficit	-124000	-84854	-380674	-533651	-491885	-292119	-95198	-46153	384375	-77198	-324006	-65274	-65313	-178202	-2374151
10 1938 Federal Report Surplus Deficit	-124934	-122135	-254893	134695	190682	463215	381648	785521	1487530	640573	209786	-109415	-121544	-120300	3440429
11 1939 Federal Report Surplus Deficit	-124931	-156494	-407490	-183801	-217189	-49202	139462	416523	776490	-182940	-132781	-84979	-75974	-153729	-437035
12 1940 Federal Report Surplus Deficit	-120692	-53894	-275399	-66893	-304799	565439	168803	247426	653141	-205481	-197427	-107013	-98346	-180635	24228
13 1941 Federal Report Surplus Deficit	-159255	-122711	-245984	-401832	-296744	-164503	-136072	-11887	472718	-145192	-184569	-55734	-45796	-114516	-1612076
14 1942 Federal Report Surplus Deficit	-152085	12094	-52308	92135	-97260	170095	-16173	198749	623131	493467	416829	34390	44955	9210	1777230
15 1943 Federal Report Surplus Deficit	-134993	-217566	-277883	497574	218371	495037	700048	866949	1100767	1607989	1049499	65128	-37940	-181061	5751919
16 1944 Federal Report Surplus Deficit	-132890	-98090	-383082	-345974	-303043	-237237	-111741	9829	-2645	-422224	-272730	-81649	-64442	-192900	-2638819
17 1945 Federal Report Surplus Deficit	-146281	-134013	-368235	-476871	-363993	-242821	-108294	-150034	871795	717696	-255118	-79151	-53841	-161160	-950321
18 1946 Federal Report Surplus Deficit	-133402	-60612	-180135	11456	-4765	405403	464451	810979	1621117	657329	781807	14573	-10982	-91141	4286079
19 1947 Federal Report Surplus Deficit	-120209	-56325	512641	991521	474625	589846	291544	347979	1442659	727898	540373	-14107	-59790	-125433	5543222
20 1948 Federal Report Surplus Deficit	285546	191604	81701	688330	195330	369642	195318	603342	1924275	1816172	1143987	338934	131957	-21505	7944632
21 1949 Federal Report Surplus Deficit	-78389	-135712	-163492	38895	-39632	577886	282692	691724	1634590	681073	-242268	-110590	-103083	-206587	2827106
22 1950 Federal Report Surplus Deficit	-146896	-141308	-277757	741626	759181	708028	515657	528918	1193760	1674846	1891434	311335	113849	-50312	7822362
23 1951 Federal Report Surplus Deficit	57989	278673	683719	1470362	1082046	1546552	556395	638078	1600717	682437	1126208	35408	-55069	-120693	9582820
24 1952 Federal Report Surplus Deficit	208229	51007	101983	495231	261033	645170	527323	844535	1916283	786002	375831	-16001	-92903	-230813	5872910
25 1953 Federal Report Surplus Deficit	-116878	-182159	-415258	-167199	258726	164506	26360	173128	1024552	1678497	1232815	61684	2998	-103324	3638449
26 1954 Federal Report Surplus Deficit	-83981	-79085	-42175	721403	476706	654805	241328	340171	1408699	1575575	1892559	439443	362545	316732	8224724
27 1955 Federal Report Surplus Deficit	-67863	48274	-45839	-219338	-194163	-247786	-12327	99451	729810	1673441	1740759	250607	56389	-146368	3665046
28 1956 Federal Report Surplus Deficit	-43169	167473	592630	1099393	1091094	1138332	455822	818707	1894514	1733736	1194204	162905	65359	-89018	10281982
29 1957 Federal Report Surplus Deficit	-35810	-128309	-12117	54476	-94754	414708	435454	297311	1975538	1819471	99662	-61493	-68882	-126614	4568641
30 1958 Federal Report Surplus Deficit	-122410	-94366	-301703	220546	105743	308756	124133	411839	1631358	1390372	4247	-36335	-89428	-186748	3366006
31 1959 Federal Report Surplus Deficit	-101685	63743	336469	929307	788117	944370	373869	367831	1240932	1370252	1575655	200433	142112	437715	8669119
32 1960 Federal Report Surplus Deficit	508681	434906	385692	253589	72299	365813	811514	580091	687358	908896	544449	-981	-96418	-201859	5254031
33 1961 Federal Report Surplus Deficit	-98832	-108896	-132310	300622	501858	719502	235409	216592	1432246	1651845	182783	-19938	-61090	-180990	4638801
34 1962 Federal Report Surplus Deficit	-166680	-98200	-202576	66099	23517	-37548	483402	757075	1190466	523068	83248	-27853	-46811	-202205	2345001
35 1963 Federal Report Surplus Deficit	23345	75257	275349	590438	140690	193845	8572	134870	807788	561058	349516	-38334	-17237	-71267	3033891
36 1964 Federal Report Surplus Deficit	-134985	-146114	-145235	-195791	-169677	1754	325115	146200	1030355	1767472	1620092	159058	82412	48781	4389436
37 1965 Federal Report Surplus Deficit	21134	-3080	624547	1600680	1257028	1241822	189989	809231	1706617	981426	335026	127831	73279	-178047	8787482
38 1966 Federal Report Surplus Deficit	-46286	-124731	-85345	-51313	-67113	9781	543075	311097	398806	440959	494596	80928	-38521	-176934	1688999

Table 10.1.3
Federal Report Surplus Deficit By Water Year
Fiscal Year 2019
BP 18 Initial Proposal Report Date: 9/8/2016
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LLH-MWh - Surplus Deficit	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
39 1967 Federal Report Surplus Deficit	-144226	-153612	-58656	973665	636243	796179	140116	-87228	934131	1695628	1210157	60109	11982	-108949	5905538
40 1968 Federal Report Surplus Deficit	-67621	-54410	-81732	517071	266551	449988	-21220	66229	322131	1017706	700977	136820	72552	170073	3495115
41 1969 Federal Report Surplus Deficit	43539	192505	121537	1154926	1006565	773498	527410	761281	1799260	1045497	542635	-55200	-85442	-147242	7680769
42 1970 Federal Report Surplus Deficit	-75123	-81044	-278973	160370	39821	99347	44048	109601	969841	1275627	-71587	-69455	-30971	-153506	1937996
43 1971 Federal Report Surplus Deficit	-126320	-101960	-165235	1149228	1360736	1077273	497492	633063	1827811	1657896	1331948	180914	235362	-48022	9510187
44 1972 Federal Report Surplus Deficit	-3996	-85656	-7365	1088093	1181088	1665609	758056	464075	1785261	1698365	1732132	343481	285249	-15104	10889289
45 1973 Federal Report Surplus Deficit	-18861	-76371	-116632	13316	-170332	-99796	-171324	16942	399285	-221646	-186813	-90772	-82839	-185538	-991381
46 1974 Federal Report Surplus Deficit	-130475	-116535	69757	1831671	1296620	1558130	606117	778117	1727080	1702865	1935390	269589	271648	-51392	11748582
47 1975 Federal Report Surplus Deficit	-145408	-108782	-280429	246435	136217	378137	34678	118670	1361683	1566452	1460694	61787	64647	3851	4898632
48 1976 Federal Report Surplus Deficit	119222	245065	1001402	914943	909464	1012625	573507	594857	1839490	1005579	1368647	554002	488723	466532	11094058
49 1977 Federal Report Surplus Deficit	-14614	-91795	-397654	-317222	-261649	-234366	-153044	-29557	-76620	-479638	-270041	-64155	-68312	-270016	-2728684
50 1978 Federal Report Surplus Deficit	-214075	-118412	-129838	88447	73866	281175	508773	347380	1306919	441700	435489	-47685	-72269	179759	3081229
51 1979 Federal Report Surplus Deficit	-42831	-102981	-342770	-110509	-270499	224136	313	183439	1088000	127647	-317815	-80582	-62441	-130627	162478
52 1980 Federal Report Surplus Deficit	-133872	-109456	-448133	-166668	-215395	-123768	141798	485494	1704712	1054741	28997	-96358	-108933	-111904	1901255
53 1981 Federal Report Surplus Deficit	-141003	-117128	278149	1054540	654717	209121	-127524	138139	872548	1595595	1171879	268666	117340	-119064	5855976
54 1982 Federal Report Surplus Deficit	-101276	-46557	-101578	502433	1370825	1520979	461304	463147	1632032	1471855	1727248	162897	197272	141234	9401815
55 1983 Federal Report Surplus Deficit	90553	-25038	-11561	735747	759506	1186508	345613	287854	1249292	1026155	1216399	212293	45638	-17698	7101261
56 1984 Federal Report Surplus Deficit	-38072	321479	78552	331434	488905	723081	523112	770097	1257864	1381010	850777	137225	-22684	520	6803300
57 1985 Federal Report Surplus Deficit	-11597	-9559	-88407	-65841	-100599	1426	298902	455687	978043	163700	-206367	-126367	-156437	-120341	1012242
58 1986 Federal Report Surplus Deficit	-125466	199398	-54225	393248	569763	1358317	560379	724397	787538	690274	27573	-66344	-58821	-181333	4824698
59 1987 Federal Report Surplus Deficit	-153558	-51158	-73418	-156725	-201698	-4569	-75571	72704	732592	175295	-239424	-101987	-94908	-221467	-393893
60 1988 Federal Report Surplus Deficit	-143858	-144093	-453921	-412830	-462680	-153983	-72280	49934	335736	-288563	-82694	-68125	-60154	-183956	-2141468
61 1989 Federal Report Surplus Deficit	-160300	-70423	-246359	-352070	-320913	225589	231953	752335	913203	199654	-211944	-87468	-71489	-152532	649237
62 1990 Federal Report Surplus Deficit	-110894	-59018	-33653	513749	366746	464708	94422	659156	829443	1136711	274725	109901	97483	-176362	4167116
63 1991 Federal Report Surplus Deficit	-161323	249458	236999	996339	448594	723716	209178	295074	1056475	879253	1508261	230443	43532	-192848	6523151
64 1992 Federal Report Surplus Deficit	-111209	-94096	-417900	-224241	-229387	208160	-135141	-35759	316784	-343561	-261676	-77399	-72549	-261024	-1738996
65 1993 Federal Report Surplus Deficit	-155693	-112043	-359341	-501950	-478646	-5324	63653	169710	1009883	422408	-52742	-37941	-10552	-85691	-134270
66 1994 Federal Report Surplus Deficit	-116052	-57400	-299621	-529316	-391333	34633	-95979	38296	352385	-90619	-143593	-62048	-68310	-169906	-1598863
67 1995 Federal Report Surplus Deficit	-145791	-216604	-320482	-105497	68728	181628	250920	172267	819371	1069299	152731	-53871	-69341	-45726	1757630
68 1996 Federal Report Surplus Deficit	25883	512975	1590106	1645207	1276728	1668281	516700	814394	1689871	1076368	1405170	158954	41847	-99189	12323295
69 1997 Federal Report Surplus Deficit	-92067	-54714	102479	1605249	1541896	1661712	615803	821366	1831457	1744491	1576779	104484	232566	135232	11826734
70 1998 Federal Report Surplus Deficit	356728	159474	-97756	-22353	-5033	149382	54928	285330	1693904	1367683	319787	43558	-35001	-144217	4126414
71 1999 Federal Report Surplus Deficit	-105041	-172662	23616	1092750	1018769	1216445	308311	581789	1121653	1428394	1642137	411522	236740	-32231	8772191
72 2000 Federal Report Surplus Deficit	-78628	374250	349319	241277	126987	363147	476062	724433	1273786	111334	291126	-13075	-89204	-221592	3929223
73 2001 Federal Report Surplus Deficit	-111193	-130049	-380324	-354751	-306353	-166736	-125015	-17306	135067	-531226	-268627	-80722	-68049	-263787	-2669072
74 2002 Federal Report Surplus Deficit	-210039	-142610	-291559	-343179	-251598	-402	146459	567582	780867	1426504	881706	-20569	-69468	-132944	2340750
75 2003 Federal Report Surplus Deficit	-110568	-79288	-356350	-410320	-330537	268764	111018	188628	675247	838618	-182180	-97143	-88796	-240885	186209
76 2004 Federal Report Surplus Deficit	-151995	-26871	-179168	-213752	-260777	400	31423	94541	601907	101296	-111491	-61012	-17320	41550	-151269

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LLH-MWh - Surplus Deficit	A Oct	B Nov	C Dec	D Jan	E Feb	F Mar	G Apr1	H Apr16	I May	J Jun	K Jul	L Aug1	M Aug16	N Sep	O Avg
77 2005 Federal Report Surplus Deficit	-49372	-127562	-60920	175456	-160258	-114245	-116516	58425	763525	214606	-22813	-34654	-53134	-139196	333342
78 2006 Federal Report Surplus Deficit	-190854	-101378	-80766	511251	368704	432771	517481	770843	1605745	1352910	143679	-86599	-110423	-208069	4925295
79 2007 Federal Report Surplus Deficit	-127777	-8141	-214636	266183	217921	458760	417887	235060	844586	492376	333948	-75197	-92537	-238029	2510403
80 2008 Federal Report Surplus Deficit	-113940	-31534	-365739	-252881	-191357	7544	78341	-60120	1267818	1841247	423791	11651	17180	-202159	2429842
Ranked Averages															
81 Bottom 10 pct	-112851	-111733	-393861	-420033	-361707	-227881	-87616	6517	176574	-312884	-230799	-68451	-59918	-200623	-2405267
82 Middle 80 pct	-77756	-39772	-91679	227994	150933	369134	222821	366254	1098699	895829	483827	30242	-15864	-106540	3514122
83 Top 10 pct	-24117	105665	483437	1350518	1217459	1416064	572487	695332	1774525	1412717	1458810	226217	195710	22293	10907118

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