

SUMMARY OF PACIFIC NORTHWEST REGIONAL LOADS AND RESOURCES  
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS											
1999 WHITE BOOK: 12/31/99											
RUN DATE: 12/31/99											
	OPERATING YEAR	2000-1	2001-2	2002-3	2003-4	2004-5	2005-6	2006-7	2007-8	2008-9	2009-10
MEGAWATTS	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG
FIRM LOADS											
1 REGIONAL FIRM LOADS	1/	21438	21532	21658	21802	21958	22076	22240	22436	22608	22798
2 EXPORTS	2/	1920	2062	2063	2042	1782	1554	1354	1157	1074	1072
3 FED DIVERSITY	3/	0	0	0	0	0	0	0	0	0	0
4 FIRM LOADS		23358	23593	23721	23844	23741	23630	23594	23594	23682	23870
NON-FIRM LOADS											
5 REGIONAL NON-FIRM LOADS	4/	0	0	0	0	0	0	0	0	0	0
6 TOTAL LOADS		23358	23593	23721	23844	23741	23630	23594	23594	23682	23870
HYDRO RESOURCES											
7 REGULATED HYDRO	5/	10375	10387	10395	10404	10410	10417	10428	10433	10436	10438
8 INDEPENDENT HYDRO	6/	1113	1120	1120	1121	1120	1120	1121	1121	1121	1122
9 SUS. PKNG. ADJUSTMENT	7/	0	0	0	0	0	0	0	0	0	0
10 TOTAL HYDRO		11488	11507	11514	11525	11529	11537	11549	11553	11557	11561
OTHER RESOURCES											
11 SMALL THERMAL & MISC	8/	53	52	52	53	52	52	53	53	53	54
12 COMBUSTION TURBINES	9/	688	689	688	683	691	689	688	689	688	683
13 RENEWABLES	10/	76	76	76	76	76	76	76	76	76	76
14 COGENERATION	11/	674	674	674	674	674	674	674	674	674	674
15 IMPORTS	12/	1737	1611	1650	1628	1452	1436	1390	1262	1263	1256
16 CENTRALIA		1204	1204	1204	1180	1180	1204	1204	1204	1204	1180
17 JIM BRIDGER		606	611	612	597	606	600	605	607	611	613
18 COLSTRIP 1 & 2		361	359	358	361	358	358	344	343	343	346
19 BOARDMAN		385	385	385	385	385	385	385	385	385	385
20 VALMY		195	195	195	195	195	195	195	195	195	195
21 COLSTRIP 3		514	561	560	514	560	560	514	562	562	515
22 WNP 2		875	1000	875	1000	875	1000	875	1000	875	1000
23 COLSTRIP 4		720	720	660	720	720	660	720	720	660	720
24 NON-UTILITY GENERATION	13/	1056	1026	1023	1031	1028	1019	1018	1017	1018	1018
25 FED RESOURCE ACQUIS	14/	0	0	0	0	0	0	0	0	0	0
26 TOTAL RESOURCES		20633	20671	20528	20622	20383	20446	20291	20342	20166	20276

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MEDIUM LOADS

1999 WHITE BOOK: 12/31/99  
 RUN DATE: 12/31/99

MEGAWATTS	2000-1 AVG	2001-2 AVG	2002-3 AVG	2003-4 AVG	2004-5 AVG	2005-6 AVG	2006-7 AVG	2007-8 AVG	2008-9 AVG	2009-10 AVG
RESERVES & MAINTENANCE										
27 HYD SM THRM & MISC RES 15/	0	0	0	0	0	0	0	0	0	0
28 LARGE THERMAL RESERVES 16/	0	0	0	0	0	0	0	0	0	0
29 REG SPINNING RESERVES 17/	0	0	0	0	0	0	0	0	0	0
30 HYDRO MAINTENANCE 18/	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12
31 REG TRANSMISSION LOSSES 19/	-581	-583	-579	-581	-574	-576	-572	-573	-568	-571
32 NET RESOURCES	20039	20076	19937	20029	19796	19857	19707	19756	19585	19692
SURPLUS/DEFICITS										
33 FIRM SURPLUS/DEFICIT	-3319	-3517	-3784	-3815	-3945	-3773	-3887	-3837	-4097	-4178
34 TOTAL SURPLUS/DEFICIT	-3319	-3517	-3784	-3815	-3945	-3773	-3887	-3837	-4097	-4178

## **REGIONAL FOOTNOTES**

### **Regional Table 1**

1. Firm loads for the region include the sum of the estimated firm loads of Federal agencies, public agencies, direct service industries (DSIs), investor-owned utilities (IOUs), and associated transmission losses. Peak loads represent non-coincidental capacity demands adjusted to account for Federal system diversity; they are based on the prediction of normal weather and have a 50-percent chance of being exceeded.
2. Regional exports include: BPA to Azusa, capacity sale and power sale; BPA to Banning, capacity sale and power sale; BPA to BART, power sale; BPA to Burbank, power sale and capacity/energy exchange; BPA to Colton, power exchange and capacity sale; BPA to ECD entities, power sales; BPA to Farmington, power sale; BPA to Federal agencies, power sale; BPA to Glendale, power sale and capacity/energy exchange; BPA to M-S-R, power sale; BPA to other entities, power sales; BPA to Pasadena, power sale, capacity/energy exchange and seasonal energy exchange; BPA to Riverside, capacity/energy exchange, capacity sale and seasonal exchange; BPA to SCE, power sale, environmental storage and option capacity; BPA to Sierra Pacific for Harney and Wells; BPA to BC Hydro for Canadian Entitlement; and BPA's Northwest-Southwest Intertie losses; AVWP to Modesto, power sale; AVWP to West Kootenai, capacity sale; City of Idaho Falls to UPC for Gem State; IPC to ABC, power sale; IPC to Sierra Pacific, power sale; IPC to UAMPS, power sale; IPC to the city of Washington, Utah, power sale; IPC to Truckee/Donner, power sale; PP&L to CDWR, power sale; PP&L to PP&L (Northern California), transfer to PP&L's Northern California load; PP&L to Redding, power sale; PP&L to SMUD, power sale; PP&L to SCE, power sale; PP&L to WAPA, power sale; PGE to Burbank, power sale; PGE to Glendale, power sale and seasonal power exchange; PSE to PG&E, seasonal power exchange; SCL to NCPA, seasonal power exchange; Snohomish County PUD to SMUD, power sale; and TPU to WAPA, power sale.  
Also included in exports are resources purchased by utilities outside the region. These include Longview Fibre to WAPA; 14.8 percent of the Boardman coal plant sold to San Diego Gas and Electric; and 10.0 percent of the Boardman coal plant sold to the City of Turlock, CA.  
This analysis assumes that BPA's power sales and capacity/energy exchange agreements with the cities of Burbank, Glendale, Pasadena, and with SCE, are in power sales mode throughout the study period.
3. Federal diversity is a percentage reduction applied to the Federal system non-coincidental peak utility allocation requirements. This is because all peaking electrical loads do not occur simultaneously throughout the region.
4. Total loads for the region include system firm loads plus Utah Power Company's interruptible load.
5. Regulated hydro includes those hydro dams where the firm energy generation of the dam is affected by the release of stored water from upstream reservoirs. Regulated hydro generation is determined by completing a hydro regulation study of the Pacific Northwest hydro system.

## **REGIONAL FOOTNOTES (continued)**

### **Regional Table 1**

6. Independent hydro includes those hydro dams where no reservoirs exist upstream to release stored water and the firm energy is based on fixed historical flows. Hydro independents are not changed as a part of the hydro regulation study.
7. Sustained peaking adjustment is a percentage reduction applied to the Federal hydro system to meet a capacity load of 50 hours per week. This adjustment also includes reductions for Federal hydro maintenance, spinning reserves, forced outage reserves, and summer flow augmentation on the Lower Snake River and John Day hydro projects.
8. Small thermal and miscellaneous resources include: IPC: Energy Management Systems; MPC: regional Corette; PSE: Crystal Mountain and Shuffleton; and SCL: Boundary.
9. Combustion turbines include: AVWP: Northeast units 1 and 2; Clark: River Road (Cogentrix); PGE: Beaver; and PSE: Whidbey Island, Whitehorn, Fredrickson, and Fredonia units 1 and 2.
10. Renewables include: AVWP: Kettle Falls; BPA: James River Wauna; Consumers: Coffin Butte; and Emerald County PUD: Short Mountain.
11. Cogeneration includes: EWEB: Weyerhaeuser's WEYCO Energy Center; PGE: Coyote Springs; and PP&L: Hermiston. Longview Fibre output is sold outside the region to WAPA.
12. Regional imports include: Colton to BPA, power exchange; other entities to BPA, power sales; PP&L (Wyoming Division) to BPA, for Southern Idaho; Pasadena to BPA, exchange energy, peak replacement energy, and seasonal replacement energy; Riverside to BPA, exchange energy, peak replacement energy, and seasonal exchange energy; Sierra Pacific to BPA for Harney and Wells; SCE to BPA, environmental storage, option energy, and option capacity peak replacement; and PowerEx to BPA for Azusa, Banning and Colton, peak replacement; BC Hydro to PSE, power sale; BC Hydro to SCL, for Ross; Basin Electric Cooperative to MPC, power sale; Glendale to PGE, seasonal power exchange; NCPA to SCL, seasonal power exchange; PG&E to PSE, seasonal power exchange; PowerEx to Benton REA, power sale; PowerEx to Clearwater Power Company, power sale; PowerEx to Cowlitz County PUD, power sale; PowerEx to EWEB, power sale; SCE to PP&L, power sale; and West Kootenai to AVWP, peak replacement energy. In addition, imports include the following intra-company transfers: PP&L (Wyoming) to PP&L and Utah Power Company.  
This analysis assumes that BPA's power sales and capacity/energy exchange agreements with the cities of Burbank, Glendale and Pasadena, and with SCE are in power sale mode, so exchanges and supplemental energy with these utilities are zero through the study horizon.
13. Non-utility generation (NUG) resources include generation provided to utilities by independent power producers and resources included under the Public Utility Regulatory Policies Act (PURPA). This study included 180 Individual NUGs.
14. Resource acquisitions are resources BPA has identified and contracted for future purchase. When new Federal resource acquisitions are contracted for and/or on-line, they will be included in the loads and resources balance.

**REGIONAL FOOTNOTES (continued)**

**Regional Table 1**

15. Hydro, small thermal and miscellaneous resources, and combustion turbine reserve requirements are estimated at 5 percent of the capacity of these resources for all utilities in the region.
16. Large thermal reserve requirements are estimated at 15 percent of the total capacity of the Pacific Power and Light thermal import into the region plus the large thermal resources owned by utilities in the region.
17. Federal spinning reserves equal the reserve generating capacity maintained to provide a regulating margin for the automatic generation and frequency control of power generation.
18. Hydro maintenance is the sum of individual Federal system, public agency, and IOU hydro project maintenance, based on the average of the 1983-84 through 1988-89 schedules submitted to the Northwest Power Pool.
19. Regional transmission losses are estimated for the region assuming the total resources, less hydro reserves, thermal reserves, spinning reserves and hydro maintenance, multiplied by .0335 for peak and .0282 for energy.

TABLE 2: FEDERAL SYSTEM

SHEET 1 OF 2

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

## MEDIUM LOADS

MEGAWATTS	OPERATING YEAR	1999 WHITE BOOK: 12/31/99									
		2000-1 AVG	2001-2 AVG	2002-3 AVG	2003-4 AVG	2004-5 AVG	2005-6 AVG	2006-7 AVG	2007-8 AVG	2008-9 AVG	2009-10 AVG
NON-UTILITY LOADS											
1	FED AGENCIES 1981 PSC 1/	149	24	0	0	0	0	0	0	0	0
2	USBR 1981 PSC 1/	38	10	0	0	0	0	0	0	0	0
3	DSI 1981 PSC 1/	1961	447	0	0	0	0	0	0	0	0
4	FED AGENCIES 2002 PSC 2/	0	103	122	123	123	124	124	125	126	126
5	USBR 2002 PSC 2/	0	27	38	38	38	38	38	38	38	38
6	DSI 2002 PSC 2/	0	1200	1440	1440	1440	1440	240	0	0	0
7	FIRM NON-UTILITY LOADS	2148	1812	1599	1600	1601	1601	402	163	163	164
UTILITY TRANSFERS OUT											
8	NGP 1981 PSC SALES 1/	2218	377	0	0	0	0	0	0	0	0
9	GPU 1981 PSC SALES 1/	1594	246	0	0	0	0	0	0	0	0
10	IOU 1981 PSC SALES 1/	0	0	0	0	0	0	0	0	0	0
11	PUB 2002 PSC SALES 2/	0	3449	4092	4222	4294	4448	5220	5418	5525	5668
12	IOU 2002 PSC SALES 2/	0	833	1000	1000	1000	1000	2000	2200	2200	2200
13	EXPORTS 3/	1246	1385	1388	1396	1246	1156	997	855	798	797
14	INTRA-REG TRANSFERS OUT 4/	1401	1349	1437	1391	1348	1281	646	541	541	528
15	SUPP & ENTITLE CAP OUT 5/	49	46	28	0	0	0	0	0	0	0
16	CSPE TO WEST GROUP UTIL 6/	98	94	61	0	0	0	0	0	0	0
17	FED DIVERSITY 7/	0	0	0	0	0	0	0	0	0	0
18	FIRM LOADS	8753	9591	9606	9609	9490	9486	9266	9177	9227	9356
HYDRO RESOURCES											
19	REGULATED HYDRO	6206	6219	6227	6235	6242	6249	6257	6264	6267	6267
20	INDEPENDENT HYDRO	389	403	404	404	404	404	404	404	404	404
21	SUS. PKNG. ADJUSTMENT 8/	0	0	0	0	0	0	0	0	0	0
22	NFD CER(CSPE) TO BPA 9/	22	21	14	0	0	0	0	0	0	0
23	NFD CER(CAN) TO BPA 10/	81	80	100	142	141	140	139	138	137	136
24	RESTORATION 11/	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26
25	TOTAL HYDRO	6671	6697	6719	6755	6761	6767	6774	6780	6782	6781
OTHER RESOURCES											
26	SMALL THERMAL & MISC	0	0	0	0	0	0	0	0	0	0
27	COMBUSTION TURBINES	0	0	0	0	0	0	0	0	0	0
28	RENEWABLES 12/	29	29	29	29	29	29	29	29	29	29
29	COGENERATION	0	0	0	0	0	0	0	0	0	0
30	IMPORTS 13/	306	338	367	367	281	262	212	183	183	182
31	INTRA-REG TRANSFERS IN 14/	478	633	658	606	558	558	342	283	283	283
32	SUPP & ENTITLE CAP IN 15/	48	45	28	0	0	0	0	0	0	0
33	LARGE THERMAL 16/	875	1000	875	1000	875	1000	875	1000	875	1000
34	NON-UTILITY GENERATION 17/	15	16	38	45	45	45	45	45	45	45
35	RESOURCE ACQUISITIONS 18/	0	0	0	0	0	0	0	0	0	0
36	TOTAL RESOURCES	8422	8758	8714	8802	8550	8662	8277	8321	8198	8321

SUMMARY OF FEDERAL SYSTEM LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION  
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MEDIUM LOADS

1999 WHITE BOOK: 12/31/99  
 RUN DATE: 12/31/99

OPERATING YEAR	2000-1	2001-2	2002-3	2003-4	2004-5	2005-6	2006-7	2007-8	2008-9	2009-10
MEGAWATTS	AVG									
RESERVES MAINTENANCE AND TRANSMISSION LOSSES										
37 HYD SM THRM & MISC RES 19/	0	0	0	0	0	0	0	0	0	0
38 LARGE THERMAL RESERVES 20/	0	0	0	0	0	0	0	0	0	0
39 SPINNING RESERVES 21/	0	0	0	0	0	0	0	0	0	0
40 FED HYDRO MAINTENANCE 22/	0	0	0	0	0	0	0	0	0	0
41 FED TRANSMISSION LOSSES 23/	-238	-247	-246	-248	-241	-244	-233	-235	-231	-235
42 NET RESOURCES	8185	8511	8468	8554	8309	8418	8044	8086	7967	8086
SURPLUS/DEFICITS										
43 FIRM SURPLUS/DEFICIT	-569	-1080	-1138	-1056	-1181	-1068	-1221	-1091	-1260	-1270

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

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

- 2. SCE TO BPA: OPTION ENERGY IS INCLUDED THROUGH 10/31/2004.
- 3. BPA TO SCE: OPTION CAPACITY IS INCLUDED THROUGH 10/31/2004.

- 4. THE FOLLOWING CONTRACTS ARE RESOURCE OPTIONS AND NOT INCLUDED THROUGH THE STUDY HORIZON.
- A. BGP TO BPA: SUPPLEMENTAL ENERGY
- B. SCE TO BPA: SUPPLEMENTAL ENERGY

## **FEDERAL SYSTEM FOOTNOTES**

### **Federal Table 2**

1. BPA's Federal agency, USBR, DSI, and public agency purchases under their 1981 power sales contracts. These contracts expire between June 30 and September 30, 2001.
2. BPA's Federal agency, USBR, DSI, IOU, and public agency estimated purchases under new 2002 power sales contracts. These contracts begin October 1, 2001, and area assumed to continue through the study horizon.
3. BPA's exports include: BPA to Azusa, capacity sale and power sale; BPA to Banning, capacity sale and power sale; BPA to BART, power sale; BPA to Burbank, power sale and capacity/energy exchange; BPA to Colton, power exchange and capacity sale; BPA to ECD entities, power sales; BPA to Farmington, power sale; BPA to Federal agencies, power sale; BPA to Glendale, power sale and capacity/energy exchange; BPA to M-S-R, power sale; BPA to other entities, power sales; BPA to Pasadena, power sale, capacity/energy exchange and seasonal energy exchange; BPA to Riverside, capacity/energy exchange, capacity sale and seasonal exchange; BPA to SCE, power sale, environmental storage and option capacity; BPA to Sierra Pacific for Harney and Wells; BPA to BC Hydro for Canadian Entitlement; and BPA's Northwest-Southwest Intertie losses.
4. BPA's intraregional transfers out include: BPA to AVWP, power sale, energy sale, deferred power exchange and WNP-3 settlement; BPA to Bandon, power sale; BPA to Big Bend Electric Cooperative, power sale and summer seasonal product; BPA to Central Electric Cooperative, summer seasonal product; BPA to the City of Ashland, power sale; BPA to Clatskanie, power sale; BPA to Columbia Basin Electric Cooperative, summer seasonal product; BPA to Columbia River PUD, power sale; BPA to Columbia Rural Electric Association, summer seasonal product; BPA to Cowlitz County PUD, power sale and presubscription power sale; BPA to Douglas County PUD, power sale; BPA to Eugene Water and Electric Board, power sale and presubscription power sale; BPA to City of Forest Grove, power sale; BPA to Harney Electric Cooperative, summer seasonal product; BPA to Inland Power and Light, summer seasonal product; BPA to the City of Idaho Falls, power sale; BPA to Lewis County PUD, power sale; BPA to Lower Valley, power sale; BPA to Mason County PUD #3, power sale; BPA to City of McMinnville, power sale; BPA to Midstate Electric Cooperative, summer seasonal product; BPA to Milton-Freewater, power sale; BPA to Mission Valley, summer seasonal product; BPA to Modern Electric Cooperative, power sale; BPA to Monmouth, power sale; BPA to Nespelem Valley Electric Cooperative, summer seasonal product; BPA to Northern Wasco Electric Cooperative, power sale; BPA to Okanogan, summer seasonal product; BPA to other entities, power sales; BPA to small and nongenerating public agencies, summer seasonal product and power sales; BPA to PP&L, capacity sale, seasonal power exchange, seasonal energy exchange, Southern Idaho exchange, and Centralia standby; BPA to PGE, capacity sale and power sale; BPA to PSE, Baker Head loss, power sale and WNP-3 settlement; BPA to Ravalli Electric Cooperative, power sale; BPA to Richland, Ormet power sale; BPA to Salem Electric Cooperative, green power sale; BPA to Snohomish County PUD, power sale; BPA to Springfield Utility Board, power sale and presubscription power sale; BPA to Surprise Valley, summer seasonal product; BPA to TPU, power sale; BPA to Tillamook County PUD, power sale; BPA to United Electric Cooperative, power sale; BPA to Umatilla Electric Cooperative, summer seasonal product; BPA to U.S. Bureau of Indian Affairs-Wapato, summer seasonal product; BPA to Vigilante Electric Cooperative, summer seasonal product; BPA to Wasco Electric Cooperative, summer seasonal product; and BPA to Western Oregon Cooperative, power sale.

**FEDERAL SYSTEM FOOTNOTES (continued)**

**Federal Table 2**

5. BPA's supplemental and entitlement capacity sales consist of a capacity sale to a group of northwest utilities that expires April 1, 2003.
6. Columbia Storage Power Exchange (CSPE) is the sale of the Canadian share of downstream benefits under the Columbia River Treaty with Canada to a group of Northwest utilities, expiring April 1, 2003.
7. Federal diversity is a percentage reduction applied to the Federal system non-coincidental peak utility requirements. This is due to the fact that all peaking electrical loads do not occur simultaneously throughout the region.
8. Sustained peaking adjustment is a percentage reduction applied to the Federal hydrosystem to meet a capacity load of 50 hours per week. This adjustment also includes reductions for Federal hydro maintenance, spinning reserves, forced outage reserves, and summer flow augmentation on the Snake River and John Day hydro projects.
9. Canadian Entitlement Return non-Federal to the Columbia River Storage Exchange (CSPE) reflects the public agencies' and IOUs' obligation of Canadian Entitlement allocation to the Northwest entities of the CSPE, which expires March 31, 2003.
10. Canadian Entitlement Return non-Federal to Canada reflects the Federal system, public agencies' and IOUs' obligation of Canadian Entitlement allocation to Canada, which began April 1, 1998.
11. Restoration adjustments for the losses and gains of the hydro system due to Canadian storage under the terms of the Pacific Northwest Coordination Agreement. It is an obligation to those utilities that gained generation from the addition of Canadian storage, and a resource gain to utilities that lost generation from Canadian storage.
12. Federal renewable resources include: James River Wauna.
13. BPA's imports include: Colton to BPA, power exchange; other entities to BPA, power sales; PP&L (Wyoming Division) to BPA, for Southern Idaho; Pasadena to BPA, exchange energy, peak replacement energy, and seasonal replacement energy; Riverside to BPA, exchange energy, peak replacement energy, and seasonal exchange energy; Sierra Pacific to BPA for Harney and Wells; SCE to BPA, environmental storage, option energy, and option capacity peak replacement; and PowerEx to BPA for Azusa, Banning and Colton, peak replacement.
14. Federal intraregional transfers in include: AVWP to BPA, WNP-3 settlement; other entities to BPA, power sale; PP&L to BPA, seasonal power exchange, surplus energy exchange and peak replacement; PGE to BPA, peak replacement; and PSE to BPA, WNP-3 settlement.
15. BPA supplemental and entitlement capacity in is the off-peak replacement energy component of BPA's supplemental and entitlement capacity sale to a group of Northwest utilities, which expires April 1, 2001.
16. Federal large thermal includes the generation from WNP-2, operated by ENW.
17. Non-utility generation (NUG) resources include generation provided to BPA by independent power producers and resources included under the Public Utility Regulatory Policies Act (PURPA).
18. Resource acquisitions are resources BPA has identified and contracted for future purchase. When new Federal resource acquisitions are contracted for and/or on-line, they will be included in the loads and resources balance.
19. Hydro, small thermal and miscellaneous resources, and combustion turbine reserve requirements are estimated at 5 percent of the Federal capacity of these resources.
20. Large thermal reserve requirements are estimated at 15 percent of the WNP-2 nuclear project.

**FEDERAL SYSTEM FOOTNOTES (continued)**

**Federal Table 2**

21. Federal spinning reserve is the reserve generating capacity maintained to provide a regulating margin for the automatic generation and frequency control of power generation.
22. Hydro maintenance is the sum of all Federal hydro project maintenance based on the mean of the 1983-84 through 1988-89 schedules submitted to the Northwest Power Pool.
23. Federal transmission losses are estimated assuming the total Federal resources less hydro reserves, thermal reserves, spinning reserves, and hydro maintenance multiplied by .0282 for energy and .0335 for peak.

TABLE 3: TOTAL PUBLIC AGENCIES

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

MEDIUM LOADS										
1999 WHITE BOOK: 12/31/99										
RUN DATE: 12/31/99										
OPERATING YEAR										
MEGAWATTS	2000-1 AVG	2001-2 AVG	2002-3 AVG	2003-4 AVG	2004-5 AVG	2005-6 AVG	2006-7 AVG	2007-8 AVG	2008-9 AVG	2009-10 AVG
<b>LOADS</b>										
1 SYSTEM LOADS	7808	7861	7916	7969	8023	8077	8132	8182	8236	8292
2 EXPORTS 1/	84	84	84	84	64	43	43	20	14	14
3 INTRA-REG TRANSFERS OUT 2/	234	187	182	163	148	150	149	149	149	145
4 TOTAL LOADS	8125	8133	8181	8215	8235	8270	8324	8352	8400	8452
<b>RESOURCES</b>										
5 REGULATED HYDRO	1630	1642	1653	1664	1674	1773	1813	1813	1813	1963
6 INDEPENDENT HYDRO	156	156	156	156	156	156	156	156	156	156
7 CAN. ENT. RETURN (CSPE) 3/	-6	-6	-4	0	0	0	0	0	0	0
8 CAN. ENT. RETURN (CANADA)4/	-29	-29	-38	-56	-56	-65	-67	-67	-66	-77
9 RESTORATION 5/	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3
10 TOTAL HYDRO	1748	1759	1763	1761	1771	1862	1899	1899	1900	2039
11 SMALL THERMAL & MISC 6/	0	0	0	0	0	0	0	0	0	0
12 COMBUSTION TURBINES 7/	229	230	228	223	232	230	229	230	228	223
13 CSPE PURCHASE 8/	49	47	31	0	0	0	0	0	0	0
14 RENEWABLES 9/	6	6	6	6	6	6	6	6	6	6
15 COGENERATION 10/	14	14	14	14	14	14	14	14	14	14
16 IMPORTS 11/	163	86	68	51	48	48	48	48	48	48
17 INTRA-REG TRANSFERS IN 12/	1223	1001	1036	1016	1013	1003	368	254	254	241
18 LARGE THERMAL 13/	336	336	336	330	330	336	336	336	336	330
19 NON-UTILITY GENERATION 14/	152	152	152	152	152	148	146	146	146	146
20 TOTAL RESOURCES	3920	3630	3635	3553	3566	3647	3046	2934	2933	3047
21 HYD SM THRM & MISC RES 15/	0	0	0	0	0	0	0	0	0	0
22 LARGE THERMAL RESERVES 16/	0	0	0	0	0	0	0	0	0	0
23 PUBLIC HYDRO MAINT 17/	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3
24 NET RESOURCES	3917	3628	3632	3550	3563	3645	3043	2931	2930	3045
25 SURPLUS/DEFICIT	-4208	-4505	-4549	-4665	-4672	-4625	-5281	-5421	-5470	-5407
26 BPA PSC DIVERSIFICATION 18/	1046	136	0	0	0	0	0	0	0	0
27 DEDICATED RESOURCES 19/	2841	3104	3159	3105	3126	3058	2457	2380	2384	2345
28 BPA 1981 PSC SALES 20/	3812	622	0	0	0	0	0	0	0	0
29 BPA 2002 PSC SALES 21/	0	3449	4092	4222	4294	4448	5220	5418	5525	5668
30 SURPLUS/DEFICIT W/PURCHASE	-396	-433	-457	-444	-378	-177	-62	-2	55	261

## **PUBLIC AGENCIES FOOTNOTES**

### **Public Agencies Table 3**

1. Public agencies' exports include: AVWP to Modesto, power sale; AVWP to West Kootenai, capacity sale; SCL to NCPA, seasonal power exchange; Snohomish County PUD to SMUD, power sale; and TPU to WAPA, power sale.
2. Public agencies' intraregional transfers out include: AVWP to BPA, WNP-3 settlement; AVWP to Cheney, power sale; AVWP to Clark Public Utility, power sale; AVWP to Eugene Water and Electric Board, power sale; AVWP to Montana Power Company, power sale; AVWP to other entities, power sale; AVWP to PP&L, power sale and seasonal power exchange; AVWP to Pend Oreille, power sale; AVWP to PGE, power sale and capacity sale; AVWP to PSE, power sale; AVWP to Snohomish County PUD, power sale; Chelan County PUD to PGE, capacity/energy exchange; Colockum to PP&L, capacity/energy exchange; Douglas County PUD to PGE, power sale; EWEB to PGE, capacity sale; Grant County PUD to PP&L, power sale; Grays Harbor PUD to PSE, Centralia exchange; Lewis County PUD to PSE, power sale; Mason County PUD #3 to PSE, power sale; Northern Wasco PUD to PSE, power sale; other entities to EWEB, power sale; other entities to AVWP, power sale; Pend Oreille to Pondaray Mill, power sale; Pend Oreille to SCL, power sale; SCL to IPC, seasonal power exchange; SCL to Pend Oreille, power sale; SCL to TPU, energy sale; Snohomish County PUD to PSE, power sale; and TPU to SCL, energy sale.
3. Canadian Entitlement Return non-Federal to the Columbia River Power Exchange (CSPE) reflects the public agencies' obligation of Canadian Entitlement allocation to CSPE, which expires April 1, 2003.
4. Canadian Entitlement Return non-Federal to Canada reflects the public agencies' obligation of Canadian Entitlement allocation to Canada, which begins April 1, 1998.
5. Restoration is the obligation of the public agencies that gained generation from the addition of Canadian storage to utilities that lost generation from it, according to the terms of the Pacific Northwest Coordination Agreement.
6. Public agencies' small thermal and miscellaneous resources include: SCL: Boundary.
7. Public agencies' combustion turbines include: Clark County PUD: River Road (Cogentrix).
8. Columbia Storage Power Exchange (CSPE) is the sale to Northwest utilities through April 1, 2003, of the Canadian share of downstream benefits under the Treaty with Canada.
9. Public agencies' renewable resources include: Emerald PUD: Short Mountain; and Consumers Power Incorporated: Coffin Butte.
10. Public agencies' cogeneration includes: EWEB: Weyerhaeuser's WEYCO Energy Center.
11. Public agencies' imports include: BC Hydro to SCL, Ross replacement; PowerEx to EWEB, power sale; and NCPA to SCL, seasonal power exchange.

**PUBLIC AGENCIES FOOTNOTES (continued)**

**Public Agencies Table 3**

12. Public agencies' intraregional transfers in include: AVWP to the city of Cheney, Washington, power sale; AVWP to Clark Public Utilities, power sale; AVWP to EWEB, Cooperative, summer seasonal product; BPA to city of Ashland, power sale; BPA to city of Idaho Falls, power sale; BPA to Clatskanie, power sale; BPA to Columbia Basin Electric Cooperative, summer seasonal product; BPA to Columbia River PUD, power sale; BPA to Columbia Rural Electric Cooperative, summer seasonal product; BPA to Cowlitz County PUD, power sale and presubscription power sale; BPA to Douglas County PUD, power sale; BPA to EWEB, power sale and presubscription power sale; BPA to city of Forest Grove, power sale; BPA to Harney Electric Cooperative, summer seasonal product; BPA to Inland Power and Light, summer seasonal product; BPA to Lewis County PUD, power sale; BPA to Lower Valley, power sale; BPA to Mason County PUD #3, power sale; BPA to city of McMinnville, power sale; BPA to Midstate Electric Cooperative, summer seasonal product; BPA to city of Milton-Freewater, power sale; BPA to Modern Electric Cooperative, power sale; BPA to Monmouth, power sale; BPA to Nespelem Valley, summer seasonal product; BPA to Northern Wasco PUD, power sale; BPA to Okanogan, summer seasonal product; BPA to other entities, power sales; BPA to Ravalli County Electric Cooperative, power sale; BPA to Richland, Ormet power sale; BPA to Salem Electric Cooperative, power sale; BPA to small and nongenerating public agencies, summer seasonal product and power sales including Hungry Horse power sale; BPA to Snohomish County PUD, power sale; BPA to Springfield Utility Board, power sale and presubscription power sale; BPA to Surprise Valley Electric Corporation, summer seasonal product; BPA to Tillamook, power sale; BPA to TPU, power sale; BPA to United Electric Cooperative, power sale; BPA to Umatilla Electric Cooperative, summer seasonal product; BPA to Vigilante Electric Cooperative, summer seasonal product; BPA to Wasco County Electric Cooperative, summer seasonal product; BPA to Western Oregon Electric Cooperative, power sale; IPC to Oregon Trail Cooperative, power sale; IPC to city of Richland, power sale; IPC to SCL, seasonal power exchange; MPC to Glacier Electric Cooperative, power sale; Northern Wasco County PUD to PSE, power sale; other entities to EWEB, power sale; PP&L to Clark Public Utilities, power sale; PP&L to Colockum, exchange energy and peak replacement; PP&L to small, nongenerating public utilities, power sales; PP&L to Springfield Utility Board, power sale; Pend Oreille to Pondaray Mill, power sale; Pend Oreille to SCL, power sale; PGE to Canby, power sale; PGE to Chelan County PUD, exchange energy and peak replacement; PGE to Clallam, power sale; PGE to EWEB, power sale and peak replacement; PGE to PNGC, power sale; PGE to Snohomish County PUD, power sale; PSE to Grays Harbor PUD, Centralia exchange; SCL to Pend Oreille, power sale; SCL to TPU, energy sale; and TPU to SCL, energy sale.
13. Public agencies' large thermal includes: Grays Harbor PUD, SCL, Snohomish County PUD, and TPU shares of Centralia.
14. Public agencies' non-utility generating resources are from independent power producers, power brokers, and qualified facilities under the Public Utilities Regulatory Act (PURPA). These resources are summarized for the following public agencies: Chelan County PUD, Cowlitz County PUD, Douglas County PUD, Eugene Water and Electric Board, Grant County PUD, Pend Oreille County PUD, Seattle City Light, Small and Non-Generating Utilities, Snohomish County PUD, and Tacoma Public Utilities.

**PUBLIC AGENCIES FOOTNOTES (continued)**

**Public Agencies Table 3**

15. Hydro, small thermal and miscellaneous resources, and combustion turbine reserve requirements are 5 percent of the public agencies' share of capacity from these resources.
16. Large thermal reserve requirements are 15 percent of the public agencies' share of Pacific Northwest thermal resources.
17. Hydro maintenance is the sum of all public agency hydro project maintenance based on the mean of the 1983-84 through 1988-89 schedules submitted to the Northwest Power Pool.
18. BPA Power Sales Contract Diversification is the amount of resource a utility could add to serve its own load as part of BPA's Load Commitment exercise under the 1981 power sales contract. This reduces each utility's power sales contract purchase from BPA, and expires between June 30 and September 30, 2001.
19. Dedicated resources are the actual resources used in the operating year prior to the signing of the Pacific Northwest Electric Power Planning and Conservation Act (Public Law 96-501) and other resources the utility dedicates to serve its load.
20. BPA 1981 power sales contract purchases include public agencies' firm power purchases under their 1981 power sales contracts. This requirement is defined as the sum of the differences between each utility's firm load and its dedicated resources.
21. BPA's 2002 power sales contract purchases are estimates from the 2002 BPA Rate Case. These contracts begin October 1, 2001, and were not disaggregated to the utility level for this analysis.

TABLE 4: TOTAL INVESTOR-OWNED UTILITIES

SUMMARY OF INVESTOR-OWNED UTILITIES LOADS AND RESOURCES IN THE PACIFIC NORTHWEST REGION  
 UNDER THE PACIFIC NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT

MEDIUM LOADS										
1999 WHITE BOOK: 12/31/99										
RUN DATE: 12/31/99										
	OPERATING YEAR									
MEGAWATTS	2000-1 AVG	2001-2 AVG	2002-3 AVG	2003-4 AVG	2004-5 AVG	2005-6 AVG	2006-7 AVG	2007-8 AVG	2008-9 AVG	2009-10 AVG
LOADS										
1 SYSTEM LOADS	10074	10137	10214	10303	10405	10469	10578	10723	10840	10973
2 EXPORTS 1/	460	462	460	431	342	224	182	151	130	130
3 INTRA-REG TRANSFERS OUT 2/	2082	1047	907	663	571	563	529	521	512	514
4 TOTAL LOADS	12616	11646	11582	11397	11318	11256	11289	11395	11482	11618
RESOURCES										
5 REGULATED HYDRO	2416	2403	2392	2382	2370	2271	2234	2233	2233	2085
6 INDEPENDENT HYDRO	568	561	559	561	560	559	561	560	561	562
7 CAN. ENT. RETURN (CSPE) 3/	-14	-13	-9	0	0	0	0	0	0	0
8 CAN. ENT. RETURN (CANADA)4/	-47	-45	-55	-77	-76	-66	-63	-62	-62	-50
9 RESTORATION 5/	30	30	30	30	30	30	30	30	30	30
10 TOTAL HYDRO	2954	2936	2917	2896	2884	2795	2763	2761	2762	2627
11 SMALL THERMAL & MISC 6/	53	52	52	53	52	52	53	53	53	54
12 COMBUSTION TURBINES 7/	460	460	460	460	460	460	460	460	460	460
13 CSPE PURCHASE 8/	49	47	31	0	0	0	0	0	0	0
14 RENEWABLES 9/	41	41	41	41	41	41	41	41	41	41
15 COGENERATION 10/	625	625	625	625	625	625	625	625	625	625
16 IMPORTS 11/	1268	1188	1215	1211	1123	1125	1130	1030	1032	1026
17 INTRA-REG TRANSFERS IN 12/	1703	1047	930	713	615	608	615	615	606	604
18 LARGE THERMAL 13/	3553	3603	3543	3527	3580	3531	3536	3584	3530	3529
19 NON-UTILITY GENERATION 14/	889	858	834	834	831	825	826	826	826	827
20 TOTAL RESOURCES	11595	10857	10648	10358	10209	10061	10048	9996	9934	9792
21 HYD SM THRM & MISC RES 15/	0	0	0	0	0	0	0	0	0	0
22 LARGE THERMAL RESERVES 16/	0	0	0	0	0	0	0	0	0	0
23 IOU HYDRO MAINTENANCE 17/	-10	-10	-10	-10	-9	-9	-9	-9	-9	-9
24 NET RESOURCES	11586	10848	10638	10349	10200	10052	10038	9986	9925	9783
25 SURPLUS/DEFICIT	-1030	-799	-943	-1048	-1118	-1205	-1251	-1409	-1558	-1835
26 BPA PSC DIVERSIFICATION 18/	0	0	0	0	0	0	0	0	0	0
27 DEDICATED RESOURCES 19/	6950	6872	6856	6788	6747	6664	6621	6552	6574	6413
28 BPA 1981 PSC SALES 20/	0	0	0	0	0	0	0	0	0	0
29 BPA 2002 PSC SALES 21/	0	833	1000	1000	1000	1000	2000	2200	2200	2200
30 SURPLUS/DEFICIT W/PURCHASE	-1030	35	57	-48	-118	-205	749	791	642	365

## **INVESTOR-OWNED UTILITIES FOOTNOTES**

### **Investor-Owned Utilities Table 4**

1. IOUs' exports include: AVWP to Modesto, power sale; AVWP to West Kootenai, capacity sale; IPC to ABC, power sale; IPC to Sierra Pacific, power sale and for Harney and Wells; IPC to Truckee/Donner, power sale; IPC to City of Washington, Utah, power sale; IPC to UAMPS, power sale; PP&L to CDWR, power sale; PP&L to PP&L (Northern California), transfer to PP&L's Northern California load; PP&L to City of Redding, power sale; PP&L to SCE, power sale; PP&L to SMUD, power sale; PP&L to WAPA, power sale; PGE to Burbank, power sale; PGE to Glendale, power sale and seasonal power exchange; and PSE to PG&E, seasonal power exchange.
2. IOUs' intraregional transfers out include: AVWP to BPA, WNP-3 settlement; AVWP to City of Cheney, Washington, power sale; AVWP to Clark Public Utilities, power sale; AVWP to EWEB, power sale; AVWP to MPC, power sale; AVWP to other entities, power sale; AVWP to PP&L, power sale and seasonal power exchange; AVWP to Pend Oreille, power sale; AVWP to PGE, power sale and capacity sale; AVWP to PSE, power sale; AVWP to Snohomish County PUD, power sale; IPC to AVWP, power sale; IPC to Energy Services, power sale; IPC to Oregon Trail, power sale; IPC to PGE, power sale; IPC to MPC, seasonal power exchange; IPC to City of Richland, power sale; IPC to SCL, seasonal power exchange; MPC to Glacier, power sale; MPC to IPC, seasonal power exchange; MPC to PSE, power sale; other entities to AVWP, power sale; other entities to BPA, power sale; other entities to EWEB, power sale; PGE to BPA, peak replacement; PP&L to AVWP, seasonal power exchange; PP&L to BPA, seasonal power exchange, seasonal energy exchange and peak replacement; PP&L to Clark Public Utilities, power sale; PP&L to Colockum, exchange energy and peak replacement; PP&L to PSE, power sale; PP&L to small, nongenerating utilities, power sales; PP&L to Springfield Utility Board, power sale; PGE to AVWP, peak replacement; PGE to BPA, peak replacement; PGE to Canby, power sale; PGE to Chelan, exchange energy and peak replacement; PGE to Clallam, power sale; PGE to EWEB, power sale and peak replacement; PGE to PNGC, power sale; PGE to PP&L, Cove replacement; PGE to Snohomish County PUD, power sale; PSE to AVWP, power sale; PSE to BPA, WNP-3 settlement; and PSE to Grays Harbor PUD, Centralia exchange.
3. Canadian Entitlement Return non-Federal to the Columbia River Power Exchange (CSPE) reflects the IOUs' obligation of Canadian Entitlement allocation to CSPE, which expires April 1, 2003.
4. Canadian Entitlement Return non-Federal to Canada reflects the IOUs' obligation of Canadian Entitlement allocation to Canada, which begins April 1, 1998.
5. Restoration is the obligation of the IOUs that gained generation from the addition of Canadian storage to utilities that lost generation from it, according to the terms of the Pacific Northwest Coordination Agreement.

**INVESTOR-OWNED UTILITIES FOOTNOTES (continued)**

**Investor-Owned Utilities Table 4**

6. IOUs' existing small thermal and miscellaneous resources include: IPC: Energy Management Systems; PSE: Shuffleton and Crystal Mountain; and MPC: its portion of Corette in the region.
7. IOUs' combustion turbines include: AVWP: Northeastern units 1 and 2; PGE: Beaver; and PSE: Whidbey Island, Whitehorn, Fredrickson, and Fredonia 1 and 2.
8. Columbia Storage Power Exchange (CSPE) is the sale to Northwest utilities through April 1, 2003, of the Canadian share of downstream benefits under the Treaty with Canada.
9. IOUs' renewable resources include AVWP: Kettle Falls.
10. IOUs' cogeneration resources include PGE: Coyote Springs; and PP&L, Hermiston.
11. IOUs' imports include: BC Hydro to PSE, power sale; SCE to PP&L, power sale; Glendale to PGE, seasonal power exchange; PG&E to PSE, seasonal power exchange; PP&L Wyoming division to PP&L, intra-company transfer, and Utah Power Company import for their load within the region; and West Kootenai to AVWP, peak replacement.
12. IOUs' intraregional transfers in include: AVWP to MPC, power sale; AVWP to PP&L, power sale and seasonal power exchange; AVWP to PGE, capacity sale and power sale; AVWP to PSE, power sale; BPA to AVWP, power sale, deferred power exchange, energy sale, and WNP-3 settlement; BPA to PP&L, capacity sale, Southern Idaho exchange, seasonal power exchange, seasonal energy exchange, and Centralia standby; BPA to PGE, capacity sale and power sale including Canby; BPA to PSE, power sale, Baker Head loss, and WNP-3 settlement; Chelan to PGE, capacity/energy exchange; Colockum to PP&L, capacity/energy exchange; Douglas County PUD to PGE, power sale; EWEB to PGE, capacity sale; Grant to PP&L, power sale; Grays Harbor to PSE, Centralia exchange; IPC to AVWP, power sale; IPC to Energy Service, power sale; IPC to MPC, seasonal power exchange; IPC to PGE, power sale; Lewis County PUD to PSE, power sale; Mason County PUD #3 to PSE, power sale; MPC to IPC, seasonal power exchange; MPC to PSE, power sale; Northern Wasco County PUD to PSE, power sale; other entities to AVWP, power sale; PP&L to AVWP, seasonal power exchange; PP&L to PSE, power sale; PGE to AVWP, peak replacement; PGE to PP&L, Cove replacement; PSE to AVWP, power sale; SCL to IPC, seasonal power exchange; and Snohomish County PUD to PSE, power sale.
13. IOUs' large thermal includes the IOUs' shares of Centralia, Jim Bridger, Colstrip 1 and 2, Colstrip 3 and 4, Boardman Coal, and Valmy.
14. IOUs' non-utility generating resources from independent power producers, power brokers, and qualifying facilities under the Public Utilities Regulatory Act (PURPA). These resources are summarized for the following IOUs: Idaho Power Company, Montana Power Company, Pacific Power and Light, Portland General Electric, Puget Sound Power and Light, and Avista Corporation, Washington Water Power Division (AVWP).
15. Hydro, small thermal and miscellaneous resources, and combustion turbine reserve requirements are 5 percent of the IOUs' share in the capacity of these resources.
16. Large thermal reserve requirements are 15 percent of the IOUs' share of Pacific Northwest thermal resources and the Pacific Power and Light import from Wyoming.

**INVESTOR-OWNED UTILITIES FOOTNOTES (continued)**

**Investor-Owned Utilities Table 4**

17. Hydro maintenance is the sum of all IOU hydro project maintenance based on the mean of the 1983-84 through 1988-89 schedules submitted to the Northwest Power Pool.
18. BPA Power Sales Contract Diversification is the amount of resource a utility could add to serve its own load as part of BPA's Load Commitment exercise. For this study, no IOU diversification from the existing power sales contract is assumed.
19. Dedicated resources are the actual resources used in the operating year prior to the signing of the Pacific Northwest Electric Power Planning and Conservation Act (Public Law 96-501) and other resources the utility dedicates to serve its load.
20. BPA 1981 power sales contract sales include the IOUs' contracted firm energy or firm capacity purchases under their power sales contracts and BPA's partnership program. Currently, no IOU places load on BPA through a power sales contract.
21. BPA 2002 power sales contract purchases are estimated from the 2002 BPA Rate Case. These contracts begin October 1, 2001, and were not disaggregated to utility levels for this analysis.