Western Area Power Administration
Hydro Conditions and Purchase Power Report
August 2015

Western-Wide

	Generation (Megawatt-Hours [MWh])				Purchase Power (MWh)	Purchase Power Expenses (Dollars)		
	Projected Dry	Most Probable	Average	Actual	Actual	Projected Dry	Most Probable	Actual
Oct 14	1,826,532	1,977,668	1,886,361	1,959,502	217,758	$8,123,479	$4,518,858	$8,459,359
Nov 14	1,678,876	1,878,130	1,730,985	1,779,466	500,496	$8,874,069	$5,574,443	$20,099,121
Dec 14	1,400,852	1,466,433	1,741,762	1,495,299	512,670	$25,598,065	$19,898,668	$22,600,706
Jan 15	1,582,275	1,685,555	1,858,893	1,772,024	494,032	$21,978,980	$17,467,062	$18,490,242
Feb 15	1,394,573	1,413,966	1,708,390	1,455,474	421,653	$19,588,891	$18,262,214	$15,884,393
Mar 15	1,864,152	1,820,595	1,906,554	1,862,739	441,594	$11,564,400	$12,466,384	$12,141,557
Apr 15	2,110,829	2,225,796	2,143,336	2,025,729	346,309	$5,743,735	$3,508,301	$7,880,103
May 15	2,236,720	2,352,849	2,616,795	2,175,381	211,432	$2,800,825	$1,217,038	$4,448,474
Jun 15	2,262,474	2,393,989	2,699,771	2,359,536	184,539	$3,213,271	$2,965,229	$5,358,853
Jul 15	2,361,247	2,456,073	2,963,554	2,252,737	134,715	$6,466,623	$6,989,211	$4,917,733
Aug 15								
Sep 15								
Total	18,718,530	19,671,054	21,256,400	19,137,887	3,465,198	$113,952,338	$92,867,408	$120,280,541
	Actual generation as a percentage of average:			90%			Cost per MWh:	$34.71

Western Area Power Administration (Western) generated a total of 19,138 gigawatt-hours (GWh) during October through July of fiscal year 2015, or 90 percent of the average. For the same period, total purchase power was 3,465 GWh and total purchase power expenses were $120,280,541, which equates to $34.71 per MWh.

The following pages indicate Western's Regional snowpack, lake/reservoir inflow and content, generation, and purchase power expenses, among other things. Snowpack is reported as snow water equivalent, which is the depth of water that theoretically would result if the entire snowpack is melted instantaneously.

Colorado River Storage Project

	Snowpack (Inches in Snow Water Equivalent)		Lake/Reservoir Inflow (Thousand Acre-Feet)		Lake/Reservoir Content (Million Acre-Feet)		Generation (MWh)				Purchase Power (MWh)	Purchase Power Expenses (Dollars)		
	Median	Actual	Average	Actual	Average	Actual	Projected Dry	Most Probable	Average	Actual	Actual	Projected Dry	Most Probable	Actual
Oct 14	0.20	0.30	408.80	636.00	15.01	12.29	248,012	338,348	382,430	357,465	87,211	$6,704,081	$2,989,589	$3,353,763
Nov 14	1.80	3.90	510.71	420.00	14.91	11.93	230,952	308,547	388,155	337,735	139,836	$7,549,826	$4,237,967	$5,504,854
Dec 14	5.10	7.80	474.22	465.00	14.86	11.54	270,310	408,665	437,962	473,595	36,641	$7,692,571	$1,952,432	$1,405,094
Jan 15	8.70	9.40	363.30	449.00	14.98	11.15	355,138	405,825	457,394	474,003	40,968	$4,412,679	$2,266,923	$1,523,337
Feb 15	12.20	11.70	362.24	464.00	15.99	11.02	265,647	301,110	390,580	322,910	116,656	$5,024,221	$3,790,958	$3,744,097
Mar 15	15.80	12.60	391.67	543.00	16.77	10.91	272,465	304,805	390,170	353,115	122,197	$5,517,603	$4,342,357	$3,876,509
Apr 15	19.60	10.50	665.00	539.00	16.74	10.84	250,695	328,527	397,861	332,925	75,298	$3,468,325	$1,662,291	$1,968,191
May 15	19.90	8.30	1,059.34	1,431.00	16.30	11.49	320,070	383,522	501,886	450,972	6,927	$2,044,585	$460,798	$172,668
Jun 15	9.00	0.30	2,339.33	2,570.00	16.00	13.09	337,289	400,213	585,467	543,787	4,310	$2,301,440	$603,666	$95,862
Jul 15	0.60	0.30	2,665.79	1,002.00	15.88	13.00	436,357	499,635	612,093	436,357	0	$708,807	$0	$0
Aug 15														
Sep 15														
Total							2,986,936	3,679,196	4,543,998	4,082,865	630,044	$45,424,137	$22,306,980	$21,644,374
							Actual generation as a percentage of average:			90%			Cost per MWh:	$34.35

Lake/Reservoir Levels

Lake Powell's elevation was 3,613 feet at the end of July, about 87 feet from maximum reservoir level and about 123 feet from the minimum generation level. Based on the current forecast, Lake Powell's elevation will end water year (WY) 2015 near 3,608 feet with approximately 12.51 million acre-feet (MAF) in storage or 51 percent of capacity.

Weather and Other Conditions

No unusual conditions reported.

Desert Southwest Region

	Snowpack (Inches in Snow Water Equivalent)		Lake/Reservoir Inflow (Thousand Acre-Feet)		Lake/Reservoir Content (Million Acre-Feet)		Generation (MWh)				Purchase Power (MWh)	Purchase Power Expenses (Dollars)		
	Median	Actual	Average	Actual	Average	Actual	Projected Dry	Most Probable	Average	Actual	Actual	Projected Dry	Most Probable	Actual
Oct 14	0.20	0.30	58.00	68.00	20.53	12.27	294,250	294,250	380,500	272,691	2,420	$0	$109,870	$106,819
Nov 14	1.80	3.90	54.00	44.00	20.57	12.41	325,000	372,000	363,500	357,310	530	$10,239	$22,472	$23,998
Dec 14	5.10	7.80	75.00	56.00	20.69	12.77	286,750	290,400	373,900	251,260	8,905	$294,966	$120	$534,300
Jan 15	8.70	9.40	93.00	72.00	20.84	13.01	411,100	411,100	398,400	428,462	1,179	$0	$0	$39,296
Feb 15	12.20	11.70	110.00	89.00	20.86	12.99	352,400	319,250	391,500	335,602	274	$0	$0	$8,661
Mar 15	15.80	12.60	105.00	57.00	20.66	12.69	543,600	526,100	531,400	560,224	5,187	$57,626	$94,756	$166,762
Apr 15	19.60	10.50	85.00	26.00	20.49	12.20	601,550	601,750	571,800	583,186	187	$0	$0	$7,714
May 15	19.90	8.30	60.00	26.00	20.61	12.03	555,600	530,800	573,200	466,936	5,005	$0	$0	$212,462
Jun 15	9.00	0.30	26.87	15.00	20.83	11.93	479,650	471,300	538,800	458,404	10,978	$163,991	$300,890	$467,114
Jul 15	0.60	0.30	65.95	81.00	20.73	12.13	467,200	463,150	551,200	411,961	26,265	$342,373	$536,409	$1,325,069
Aug 15														
Sep 15														
Total							4,317,100	4,280,100	4,674,200	4,126,036	60,930	$869,195	$1,064,517	$2,892,195
							Actual generation as a percentage of average:			88%			Cost per MWh:	$47.47

Lake/Reservoir Levels

Lake Mead's elevation was 1,078 feet at the end of July, about 142 feet below full storage level and about 28 feet from the minimum generation level.

Weather and Other Conditions

The Desert Southwest Region's hydrology is mostly dependent on the Colorado River Basin snowpack and precipitation above Lake Powell. The WY 2015 precipitation is currently 94 percent of average.

Rocky Mountain Region

	Snowpack (Inches in Snow Water Equivalent)		Lake/Reservoir Inflow (Thousand Acre-Feet)		Lake/Reservoir Content (Million Acre-Feet)		Generation (MWh)				Purchase Power (MWh)	Purchase Power Expenses (Dollars)		
	Median	Actual	Average	Actual	Average	Actual	Projected Dry	Most Probable	Average	Actual	Actual	Projected Dry	Most Probable	Actual
Oct 14			139.20	200.80	3.84	4.47	99,021	102,458	83,694	91,560	53,455			$2,257,085
Nov 14			121.40	129.20	3.87	4.47	60,006	60,146	82,089	55,233	91,858			$3,178,702
Dec 14			97.90	139.40	3.83	4.47	89,969	90,045	103,710	88,510	61,151			$2,294,873
Jan 15	407.20	427.80	96.20	129.40	3.80	4.47	106,726	106,906	113,597	102,961	43,082	$2,614,295	$2,606,695	$1,248,645
Feb 15	808.10	739.20	95.00	128.60	3.80	4.51	85,735	86,024	102,200	79,516	37,133	$2,054,163	$2,042,763	$1,136,969
Mar 15	1,065.10	994.40	158.40	199.30	3.83	4.56	96,042	108,706	120,988	103,860	38,228	$2,128,149	$1,645,549	$1,066,792
Apr 15	1,341.70	1,016.80	253.10	257.80	3.85	4.60	125,443	138,545	140,995	128,526	46,418	$1,707,570	$1,278,170	$945,079
May 15	301.50	355.20	694.10	758.20	4.18	5.21	190,340	198,107	198,626	166,491	40,171	$180,000	$180,000	$1,022,010
Jun 15			1,105.70	1,462.30	4.74	5.69	263,985	259,220	243,234	223,790	15,197	$180,000	$180,000	$585,003
Jul 15			521.10	382.40	4.45	5.36	219,918	225,508	257,413	213,347	55,749	$249,600	$287,258	$1,859,733
Aug 15														
Sep 15														
Total							1,337,184	1,375,663	1,446,546	1,253,794	482,442	$9,113,778	$8,220,436	$15,594,891
							Actual generation as a percentage of average:			87%			Cost per MWh:	$32.32

Lake/Reservoir Content

The overall reservoir content at the end of July was 120 percent of average.

Weather and Other Conditions

None of the Loveland Area Projects (LAP) area is considered to be in any level of drought status. The latest National Weather Service forecast indicates September through November temperatures are just as likely to be above as below normal for the Colorado-Big Thompson Project and North Platte Basin and more likely to be above normal in the Bighorn Basin, and the precipitation is more likely to be above average throughout the LAP area.

Note: Rocky Mountain Region (RMR)-related snowpack either is not measured or is relatively insignificant during the months of June through December. In addition, RMR does not project purchase power expenses for the months of October through December.

Sierra Nevada Region

	Snowpack (Inches in Snow Water Equivalent)		Lake/Reservoir Inflow (Thousand Acre-Feet)		Lake/Reservoir Content (Million Acre-Feet)		Generation (MWh)				Purchase Power (MWh)	Purchase Power Expenses (Dollars)		
	Median	Actual	Average	Actual	Average	Actual	Projected Dry	Most Probable	Average	Actual	Actual	Projected Dry	Most Probable	Actual
Oct 14			329.00	263.00	5.61	2.49	161,181	106,181	163,000	115,957	56,702	$1,419,398	$1,419,398	$2,380,441
Nov 14	5.26	1.00	404.00	281.00	5.56	2.40	99,417	69,417	104,000	75,640	53,074	$1,314,004	$1,314,004	$2,396,084
Dec 14	4.94	5.00	1,014.00	1,450.00	6.06	3.66	69,042	0	143,000	13,282	60,541	$1,252,191	$1,252,191	$2,458,218
Jan 15	5.80	4.00	954.00	508.00	6.39	3.89	0	0	163,000	23,872	62,660	$1,508,460	$1,508,460	$2,077,046
Feb 15	9.00	5.00	997.00	1,232.00	6.92	4.93	0	14,968	195,000	29,080	55,937	$1,363,440	$1,363,440	$1,800,319
Mar 15	15.00	2.00	1,330.00	412.00	7.56	5.01	115,340	100,340	207,000	40,197	61,698	$1,506,498	$1,506,498	$1,974,521
Apr 15	10.00	1.00	1,245.00	341.00	7.95	4.91	171,316	231,316	288,000	126,768	53,919	$567,840	$567,840	$1,283,377
May 15			1,203.00	301.00	7.91	4.42	246,135	336,135	442,000	230,955	48,416	$576,240	$576,240	$1,270,668
Jun 15			739.00	251.00	7.44	3.97	337,065	457,065	440,000	295,101	50,921	$567,840	$567,840	$1,271,064
Jul 15			434.00	225.00	6.70	3.50	349,780	404,780	524,000	316,029	52,701	$1,444,840	$1,444,840	$1,732,931
Aug 15														
Sep 15														
Total							1,549,276	1,720,202	2,669,000	1,266,881	556,569	$11,520,752	$11,520,752	$18,644,669
							Actual generation as a percentage of average:			47%			Cost per MWh:	$33.50

Lake/Reservoir Content

Accumulated inflow for the water year to date is 75 percent of average for Trinity, 72 percent for Shasta, 39 percent for Folsom, and 35 percent for New Melones. The overall reservoir content at the end of July was 52 percent of average.

Weather and Other Conditions

As of May 8, the State of California water year type declaration was "critical" based upon the May 1 conditions 50 percent exceedence forecast. As of August 25, the cumulative precipitation was 36.75 inches or 73 percent of average for the Northern Sierra Eight Station Index.

Note: Sierra Nevada Region (SNR)-related snowpack is either is not measured or is relatively insignificant during the months of May through October. SNR's average projection of generation is taken from the latest modeling using the update to its customers' "Green Book," and SNR does not project purchase power expenses for dry conditions.

Upper Great Plains Region

	Snowpack (Inches in Snow Water Equivalent)		Lake/Reservoir Inflow (Thousand Acre-Feet)		Lake/Reservoir Content (Million Acre-Feet)		Generation (MWh)				Purchase Power (MWh)	Purchase Power Expenses (Dollars)		
	Median	Actual	Average	Actual	Average	Actual	Projected Dry	Most Probable	Average	Actual	Actual	Projected Dry	Most Probable	Actual
Oct 14	0.09	0.00	8,092.00	10,685.90	55.94	59.74	1,024,068	1,136,432	876,737	1,121,829	17,970	$0	$0	$361,250
Nov 14	1.20	0.30	7,411.00	8,616.60	54.83	58.09	963,501	1,068,021	793,241	953,548	215,198	$0	$0	$8,995,483
Dec 14	3.80	3.90	6,468.00	6,229.90	54.23	57.97	684,781	677,324	683,190	668,651	345,432	$16,358,337	$16,693,924	$15,908,221
Jan 15	7.10	7.30	6,658.00	6,786.10	53.94	58.03	709,312	761,724	726,502	742,726	346,143	$13,443,547	$11,084,984	$13,601,918
Feb 15	10.30	9.70	6,291.00	6,679.80	54.25	58.60	690,792	692,614	629,110	688,365	211,653	$11,147,066	$11,065,054	$9,194,348
Mar 15	12.90	11.50	8,226.00	7,837.90	56.02	59.12	836,705	780,645	656,996	805,343	214,284	$2,354,524	$4,877,224	$5,056,973
Apr 15	15.80	10.70	8,061.00	9,554.70	56.91	55.89	961,825	925,659	744,680	854,325	170,487	$0	$0	$3,675,743
May 15	15.10	9.10	9,699.00	9,287.30	58.18	60.04	924,575	904,285	901,082	860,028	110,913	$0	$0	$1,770,665
Jun 15	6.60	2.30	11,819.00	11,339.70	60.38	61.93	844,485	806,191	892,270	838,454	103,133	$0	$1,312,834	$2,939,810
Jul 15	0.60	0.00	10,827.00	9,376.20	60.36	62.45	887,993	863,000	1,018,848	875,042	0	$3,721,004	$4,720,704	$0
Aug 15														
Sep 15														
Total							8,528,035	8,615,893	7,922,656	8,408,311	1,735,213	$47,024,477	$49,754,723	$61,504,411
							Actual generation as a percentage of average:			106%			Cost per MWh:	$35.44

Lake/Reservoir Content

As of August 16, the active conservation pools for the Canyon Ferry and Yellowtail Dams were 87.3 percent and 98.4 percent full, respectively.

Weather and Other Conditions

Dry conditions are moving into northern and western Montana, and warm summer temperatures have decreased stream flows particularly in western Montana. For July, runoff above Sioux City was only 2.7 MAF or 81 percent of normal. The August forecast runoff above Sioux City is 25 MAF or 99 percent of normal, which is a significant decrease from last month's forecast of 26.6 MAF. The decreased runoff will reduce energy for the fall and winter months, but system storage is still in good shape.

Note: The Upper Great Plains Region reports its 50 percent share of generation from Yellowtail Dam, while RMR reports the snowpack, inflow, content, and remaining share of generation.