Western Area Power Administration
Hydro Conditions and Purchase Power Report
February 2016

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 15	1,434,895	1,538,279	1,966,014	1,614,375	225,012	$13,412,993	$10,002,458	$7,365,916
Nov 15	1,378,403	1,448,916	1,852,469	1,393,430	413,747	$16,197,285	$14,195,619	$10,070,025
Dec 15	1,325,629	1,506,717	1,755,293	1,519,184	506,729	$19,371,552	$13,648,145	$10,672,273
Jan 16	1,709,435	1,760,027	1,882,890	1,744,703	252,494	$9,493,892	$5,902,813	$7,017,678
Feb 16								
Mar 16								
Apr 16								
May 16								
Jun 16								
Jul 16								
Aug 16								
Sep 16								
Total	5,848,363	6,253,938	7,456,666	6,271,692	1,397,982	$58,475,723	$43,749,035	$35,125,891
Actual generation as a percentage of average:				84.1%			Cost per MWh:	$25.13

Western Area Power Administration (Western) generated a total of 6,272 gigawatt-hours (GWh) during October through January of fiscal year 2016, or 84.1 percent of the average. For the same period, total purchase power was 1,398 GWh and total purchase power expenses were $35,125,891, which equates to $25.13 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 15	0.20	0.80	408.80	636.00	15.01	12.29	248,012	340,194	382,430	379,732	71,798	$6,704,081	$2,989,589	$2,100,360
Nov 15	1.80	3.90	510.71	420.00	14.91	11.93	230,952	316,064	388,155	340,308	106,233	$7,549,826	$4,237,967	$2,748,918
Dec 15	4.00	7.90	474.22	465.00	14.86	11.54	270,310	443,456	437,962	472,018	38,014	$7,692,571	$1,952,432	$1,129,176
Jan 16	11.50	11.20	363.30	300.00	14.98	11.33	355,138	441,000	457,394	481,075	35,898	$4,412,679	$619,112	$1,067,937
Feb 16														
Mar 16														
Apr 16														
May 16														
Jun 16														
Jul 16														
Aug 16														
Sep 16														
Total							1,104,413	1,540,714	1,665,941	1,673,133	251,943	$26,359,156	$9,799,100	$7,046,391
									Actual generation as a percentage of average:	100.4%			Cost per MWh:	$27.97

Lake/Reservoir Levels

Lake Powell's elevation was 3,597 feet at the end of January, about 103 feet below the maximum reservoir level and about 107 feet above the minimum generation level. Current storage volume for Lake Powell is 11,427,000 acre-feet, which is about 47 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 15	0.20	0.80	59.90	119.00	20.40	12.01	339,700	319,060	379,926	319,537	1,105	$0	$36,896	$36,896
Nov 15	1.80	3.90	53.51	41.00	20.44	11.95	312,250	338,035	363,256	330,812	136	$25,378	$131,780	$4,408
Dec 15	4.00	7.90	73.77	42.00	20.57	12.23	288,100	310,990	373,314	318,054	1,795	$243,930	$165,592	$60,635
Jan 16	11.50	11.20	93.00	90.00	20.71	12.52	359,550	343,440	397,807	341,451	995	$0	$120,478	$34,984
Feb 16														
Mar 16														
Apr 16														
May 16														
Jun 16														
Jul 16														
Aug 16														
Sep 16														
Total							1,299,600	1,311,525	1,514,303	1,309,854	4,031	$269,308	$454,746	$136,923
									Actual generation as a percentage of average:	86.5%			Cost per MWh:	$33.97

Lake/Reservoir Levels

Lake Mead's elevation was 1,084 feet at the end of January, about 136 feet below full storage level and about 34 feet above 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 2016 precipitation is currently 96 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 15			138.60	117.70	3.85	4.44	86,700	86,400	84,083	86,111	85,616	$2,329,286	$2,339,186	$2,380,387
Nov 15			120.30	107.00	3.85	4.44	65,000	65,300	81,138	65,774	96,455	$3,053,655	$3,043,755	$2,568,247
Dec 15	246.40	205.10	98.80	98.40	3.82	4.42	105,900	106,200	103,195	107,384	79,230	$2,202,853	$2,192,953	$2,175,937
Jan 16	417.90	393.40	96.20	100.90	3.80	4.41	127,800	128,400	113,267	126,958	52,779	$1,476,948	$1,463,748	$1,182,038
Feb 16														
Mar 16														
Apr 16														
May 16														
Jun 16														
Jul 16														
Aug 16														
Sep 16														
Total							385,400	386,300	381,683	386,227	314,080	$9,062,742	$9,039,642	$8,306,609
									Actual generation as a percentage of average:	101.2%			Cost per MWh:	$26.45

Lake/Reservoir Content

The overall reservoir content at the end of January was 116 percent of average.

Weather and Other Conditions

While the Loveland Area Projects area is mostly drought free parts of the Bighorn Basin are now considered to be in a state of drought. The snowpack is above average for the Colorado-Big Thompson Project, below average in the North Platte Basin, and well below average in the Bighorn Basin. The latest National Weather Service forecast indicates March through May temperatures are more likely to be above normal in Wyoming and just as likely to be above as below normal in Colorado. The precipitation is more likely to be above normal in Colorado and southern Wyoming and just as likely to be above as below normal in northern Wyoming.

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 15			316.00	204.00	5.29	2.34	91,000	136,000	163,000	128,332	56,293	$1,820,820	$1,820,820	$1,871,992
Nov 15	3.57	2.00	386.00	210.00	5.24	2.21	79,000	99,000	104,000	38,675	57,583	$1,727,548	$1,727,548	$1,877,190
Dec 15	5.86	10.00	1,017.00	553.00	5.76	2.47	64,000	54,000	143,000	47,723	61,018	$1,803,740	$1,803,740	$1,949,075
Jan 16	14.13	20.00	1,032.00	1,653.00	6.18	3.96	15,000	0	163,000	6,638	63,436	$1,393,030	$1,393,030	$1,846,712
Feb 16														
Mar 16														
Apr 16														
May 16														
Jun 16														
Jul 16														
Aug 16														
Sep 16														
Total							249,000	289,000	573,000	221,368	238,330	$6,745,138	$6,745,138	$7,544,969
									Actual generation as a percentage of average:	38.6%			Cost per MWh:	$31.66

Lake/Reservoir Content

As of February 22, accumulated inflow for the water year was 106 percent of the 15-year average for Trinity, 97 percent for Shasta, 101 percent for Folsom, and 100 percent for New Melones. The overall reservoir content at the end of January was 64 percent of average.

Weather and Other Conditions

As of February 22, cumulative precipitation of the Northern Sierra Eight Station Index is at 99 percent of average for the date, and 71 percent of the water year average. Forecasts began in December and are updated monthly based upon conditions as of the 1st of each month. The February 1, 2016 forecast is "critical" for the dry (90 percent) and "dry" for the most probable (50 percent) exceedence cases.

Note: The Sierra Nevada Region's (SNR) average projection of generation is taken from the latest modeling using the update to its customers' "Green Book." SNR does not project purchase power expenses for dry conditions, and its most probable projected expenses are based upon term purchases of 70-75 percent of projected power needs with the difference being left to day-ahead markets after project pumping and generation are scheduled.

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 15	1.20	0.40	8,092.00	5,998.12	55.94	59.52	669,483	656,625	956,575	700,663	10,200	$2,558,807	$2,815,967	$976,281
Nov 15	3.80	2.90	7,411.00	5,642.70	54.83	58.73	691,201	630,517	915,920	617,861	153,340	$3,840,879	$5,054,569	$2,871,261
Dec 15	7.10	7.00	6,468.00	5,109.00	54.23	58.41	597,319	592,071	697,821	574,005	326,672	$7,428,458	$7,533,428	$5,357,450
Jan 16	10.30	9.50	6,658.00	6,634.00	53.94	57.73	851,947	847,187	751,422	788,581	99,386	$2,211,235	$2,306,445	$2,886,007
Feb 16														
Mar 16														
Apr 16														
May 16														
Jun 16														
Jul 16														
Aug 16														
Sep 16														
Total							2,809,950	2,726,399	3,321,739	2,681,110	589,598	$16,039,379	$17,710,409	$12,090,999
							Actual generation as a percentage of average:			80.7%			Cost per MWh:	$20.51

Lake/Reservoir Content

As of February 16, the active conservation pools for the Canyon Ferry and Yellowtail Dams were 77.8 percent and 84.2 percent full, respectively.

Weather and Other Conditions

A strong El Nino continues to be in place this winter, bringing milder than normal temperatures to the upper Great Plains. The January actual system runoff was 114 percent of average above Sioux City. As of February 1, snowpack was less than normal at 92 percent above Fort Peck and 72 percent between Fort Peck and Garrison.

Note: The Upper Great Plains Region (UGPR) reports its 50 percent share of generation from Yellowtail Dam, while the Rocky Mountain Region reports the snowpack, inflow, content, and remaining share of generation. UGPR's financial reports are in the process of being finalized, so the data indicated above may change.