

**Western Area Power Administration
Hydro Conditions and Purchase Power Report
January 2016**

Western-Wide

	Generation (Megawatt-Hours [MWh])				Purchase Power (MWh)	Purchase Power Expenses (Dollars)		
	Projected Dry	Most Probable	Average	Actual		Projected Dry	Most Probable	Actual
Oct 15	1,434,895	1,538,279	1,966,014	1,614,375	214,812	\$14,857,785	\$11,511,540	\$6,389,635
Nov 15	1,378,403	1,448,916	1,852,469	1,393,430	260,407	\$18,049,243	\$16,350,999	\$7,198,763
Dec 15	1,325,629	1,506,717	1,755,293	1,519,184	180,057	\$24,259,449	\$18,588,528	\$5,314,823
Jan 16								
Feb 16								
Mar 16								
Apr 16								
May 16								
Jun 16								
Jul 16								
Aug 16								
Sep 16								
Total	4,138,928	4,493,911	5,573,775	4,526,990	655,276	\$57,166,478	\$46,451,067	\$18,903,221
	Actual generation as a percentage of average: 81.2%					Cost per MWh: \$28.85		

Western Area Power Administration (Western) generated a total of 4,527 gigawatt-hours (GWh) during October through December of fiscal year 2016, or 81.2 percent of the average. For the same period, estimated total purchase power was 655 GWh and estimated total purchase power expenses were \$18,903,221, which equates to \$28.85 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														
Feb 16														
Mar 16														
Apr 16														
May 16														
Jun 16														
Jul 16														
Aug 16														
Sep 16														
Total							749,275	1,099,714	1,208,547	1,192,058	216,045	\$21,946,477	\$9,179,988	\$5,978,454
							Actual generation as a percentage of average:				98.6%	Cost per MWh: \$27.67		

Lake/Reservoir Levels

Lake Powell's elevation was 3,601 feet at the end of December, about 99 feet below the maximum reservoir level and about 111 feet above the minimum generation level. Current storage volume for Lake Powell is 11,631,000 acre feet, which is about 49 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														
Feb 16														
Mar 16														
Apr 16														
May 16														
Jun 16														
Jul 16														
Aug 16														
Sep 16														
Total							940,050	968,085	1,116,496	968,403	3,036	\$269,308	\$334,268	\$101,939

Actual generation as a percentage of average: 86.7%

Cost per MWh: \$33.58

Lake/Reservoir Levels

Lake Mead's elevation was 1,081 feet at the end of December, about 139 feet below full storage level and about 31 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 102 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	
		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	
		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	
Oct 15														
Nov 15														
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														
Feb 16														
Mar 16														
Apr 16														
May 16														
Jun 16														
Jul 16														
Aug 16														
Sep 16														
Total						257,600	257,900	268,416	259,269	261,301	\$7,585,794	\$7,575,894	\$7,124,571	

Actual generation as a percentage of average: 96.6%

Cost per MWh: \$27.27

Lake/Reservoir Content

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

Weather and Other Conditions

The LAP area remains drought free but with dryer than normal conditions developing in some places. The very early snowpack is well above average for the Colorado-Big Thompson Project, below average in the Bighorn Basin, and well below average in the North Platte Basin. The latest National Weather Service forecast indicates December through February 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 while more likely to be below normal in 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														
Feb 16														
Mar 16														
Apr 16														
May 16														
Jun 16														
Jul 16														
Aug 16														
Sep 16														
Total							234,000	289,000	410,000	214,731	174,894	\$5,352,108	\$5,352,108	\$5,698,257

Actual generation as a percentage of average: 52.4%

Cost per MWh: \$32.58

Lake/Reservoir Content

As of January 26, accumulated inflow for the water year was 82 percent of the 15-year average for Trinity, 89 percent for Shasta, 73 percent for Folsom, and 91 percent for New Melones. The overall reservoir content at the end of December was 43 percent of average.

Weather and Other Conditions

Cumulative precipitation of the Northern Sierra Eight Station Index is at 104 percent of average for this date, and 58 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 current January 1, 2016 forecast is "critical" for the dry (90 percent) and "dry" for the most probable (50 percent) exceedence cases.

Note: SNR's 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	0	\$4,003,599	\$4,325,049	\$0
Nov 15	3.80	2.90	7,411.00	5,642.70	54.83	58.73	691,201	630,517	915,920	617,861	0	\$5,692,837	\$7,209,949	\$0
Dec 15	7.10	7.00	6,468.00	5,109.00	54.23	58.41	597,319	592,071	697,821	574,005	0	\$12,316,355	\$12,473,810	\$0
Jan 16														
Feb 16														
Mar 16														
Apr 16														
May 16														
Jun 16														
Jul 16														
Aug 16														
Sep 16														
Total							1,958,003	1,879,212	2,570,317	1,892,529	0	\$22,012,791	\$24,008,808	\$0

Actual generation as a percentage of average: 73.6%

Cost per MWh: N/A

Lake/Reservoir Content

As of January 19, the active conservation pools for the Canyon Ferry and Yellowtail Dams were 77.7 percent and 86.2 percent full, respectively.

Weather and Other Conditions

A strong El Nino remains in place this winter but this has not stopped moisture from falling in the lower reaches of the Missouri River Basin. The December actual system runoff was 155 percent of average. Higher releases over the next few months will require fewer purchases to meet firm loads.

Note: The Upper Great Plains Region (UGPR) reports its 50 percent share of generation from Yellowtail Dam, while RMR reports the snowpack, inflow, content, and remaining share of generation. UGPR's financial reports have not been completely updated for market charges, so UGPR is unable to report accurate purchase power data at this time.