

WESTERN AREA POWER ADMINISTRATION HYDRO CONDITIONS AND PURCHASE POWER REPORT

January 2020

	Generation (Megawatt-Hours [MWh])				Purchase Power (MWh)	Purchase Power Expenses (Dollars)		
	Projected	Most	Average	Actual	Actual	Projected	Most	Actual
	Dry	Probable				Dry	Probable	
Oct 19	3,234,188	2,557,218	1,897,637	2,547,402	167,584	\$8,232,725	\$3,634,722	\$3,843,586
Nov 19	2,916,091	2,321,588	1,782,748	2,233,841	226,842	\$6,958,854	\$3,094,132	\$6,908,814
Dec 19	2,742,006	1,826,992	1,757,713	1,765,811				
Jan 20								
Feb 20								
Mar 20								
Apr 20								
May 20								
Jun 20								
Jul 20								
Aug 20								
Sep 20								
Total	8,892,285	6,705,798	5,438,099	6,547,055	394,426	\$15,191,579	\$6,728,854	\$10,752,400
Actual generation as a percentage of average:				120.4%	Cost per MWh: \$27.26			

Western Area Power Administration (WAPA) generated a total of 5,438 gigawatt-hours (GWh) during October through December of fiscal year 2020, or 120.4 percent of the average. Actual purchase power data is currently available from October through November for all of WAPA's Regions, and during this period total purchase power was 394 GWh and total purchase power expenses were \$15,191,579, which equates to \$27.26 per MWh.

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

The monthly purchase power numbers indicated herein are used by WAPA's Regions as a forecasting tool, and therefore they do not reflect energy imbalance transactions and other such information that cannot be forecasted. Furthermore, the purchase power numbers have not been verified for financial auditing purposes. Consequently, these numbers will vary from those reported in WAPA's year-end financial statements, and the latter should be considered the definitive source for WAPA's purchase power data.



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 19	1.90	1.30	514.42	265.00	15.01	13.03	247,024	402,923	382,430	389,492	57,894	\$5,712,150	\$1,470,094	\$1,620,344
Nov 19	4.80	4.70	474.23	404.00	14.91	12.86	241,664	386,154	388,155	378,475	70,539	\$5,110,150	\$1,581,991	\$2,312,315
Dec 19	8.10	8.40	362.96	353.00	14.86	12.60	279,537	463,233	437,962	465,261	36,300	\$6,299,733	\$1,046,122	\$1,035,644
Jan 20														
Feb 20														
Mar 20														
Apr 20														
May 20														
Jun 20														
Jul 20														
Aug 20														
Sep 20														
Total							768,225	1,252,310	1,208,547	1,233,228	164,733	\$17,122,033	\$4,098,207	\$4,968,303

Actual generation as a percentage of average: 102.0%

Cost per MWh: \$30.16

Lake/Reservoir Levels

Lake Powell's elevation was 3,609 feet at the end of December, about 91 feet below the maximum reservoir level and about 119 feet above the minimum generation level. The storage volume for Lake Powell was 12.6 million acre-feet at the end of December, or about 52 percent of capacity.

Weather and Other Conditions

Snowpack in the Upper Colorado River Basin is near average, and current inflow forecasts are average to slightly above average. However, there is much uncertainty with these forecasts as we are still early in the snow accumulation period.



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 19	1.90	1.30	60.21	34.00	19.92	12.38	327,200	329,395	377,088	330,202	15,083	\$294,158	\$294,158	\$447,125
Nov 19	4.80	4.70	55.46	116.00	19.97	12.61	296,000	290,135	362,492	287,607	18,264	\$427,033	\$427,033	\$949,591
Dec 19	8.10	8.40	73.34	117.00	20.11	13.12	184,850	116,990	366,538	116,854	55,017	\$2,216,576	\$2,216,576	\$2,806,967
Jan 20														
Feb 20														
Mar 20														
Apr 20														
May 20														
Jun 20														
Jul 20														
Aug 20														
Sep 20														
Total							808,050	736,520	1,106,118	734,663	88,364	\$2,937,767	\$2,937,767	\$4,203,683

Actual generation as a percentage of average: 66.4%

Cost per MWh: \$47.57

Lake/Reservoir Levels

Lake Mead's elevation was 1,090 feet at the end of December, about 129 feet below the full storage level and about 140 feet above the minimum generation level. Lake Mead's elevation is projected to peak at 1,097 feet in February and then drop to a minimum elevation of 1,080 feet in September.

Weather and Other Conditions

The Desert Southwest Region's (DSWR) hydrology is mostly dependent on the Colorado River Basin snowpack and precipitation above Lake Powell. The precipitation is currently 92 percent of average and the snow pack is 114% of median.

Note: DSWR's projected dry and most probable generation data are reported from studies conducted by the U.S. Bureau of Reclamation.



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 19	0.00	0.50	140.00	161.80	3.87	4.16	958,083	114,970	96,983	105,845	53,942	\$1,842,801	\$1,486,854	\$1,240,765
Nov 19	3.90	9.10	123.80	151.50	3.83	4.78	905,908	108,709	109,895	64,731	90,100	\$1,066,471	\$729,908	\$2,778,476
Dec 19	11.90	14.30	100.70	123.10	3.79	4.75	1,236,250	148,350	123,353	93,787	78,461	\$483,802	\$24,510	\$2,117,306
Jan 20														
Feb 20														
Mar 20														
Apr 20														
May 20														
Jun 20														
Jul 20														
Aug 20														
Sep 20														
Total							3,100,242	372,029	330,231	264,363	222,503	\$3,393,074	\$2,241,272	\$6,136,547

Actual generation as a percentage of average: 80.1%

Cost per MWh: \$27.58

Lake/Reservoir Content

Reservoir inflows were 120 percent of average at the end of December.

Weather and Other Conditions

Hydrologic conditions for the Loveland Area Projects (LAP) area can vary from one river basin and watershed to another. LAP is currently drought free. The latest National Weather Service forecast indicates February through April temperatures will most likely to be at or below average in Colorado and Wyoming. The same forecast indicates precipitation will be average for all of LAP. Winter generation in the Colorado River Basin is forecasted to be above average due to decent storage. Winter generation in the Bighorn and North Platte River Basins will be average.

Note: The Rocky Mountain Region's (RMR) most recent reported actual generation and purchase power data are provisional values.



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 19	N/A	N/A	335.00	349.00	5.51	7.84	195,000	190,000	163,000	287,596	40,285	\$383,616	\$383,616	\$508,746
Nov 19	22.22	2.00	381.00	356.00	5.47	7.63	83,000	93,000	104,000	156,862	47,391	\$355,200	\$355,200	\$864,154
Dec 19	27.27	9.00	960.00	692.00	5.84	7.78	42,000	57,000	143,000	110,113	53,378	\$355,200	\$355,200	\$738,876
Jan 20														
Feb 20														
Mar 20														
Apr 20														
May 20														
Jun 20														
Jul 20														
Aug 20														
Sep 20														
Total							320,000	340,000	410,000	554,571	141,054	\$1,094,016	\$1,094,016	\$2,111,776

Actual generation as a percentage of average: 135.3%

Cost per MWh: \$14.97

Lake/Reservoir Content

As of December 31, reservoir storage for the water year was 136 percent of the 15-year average for Trinity, 128 percent for Shasta, 130 percent for Folsom, and 141 percent for New Melones. Accumulated inflow for the same date was 48 percent of the 15-year average for Trinity, 87 percent for Shasta, 80 percent for Folsom, and 106 percent for New Melones.

Weather and Other Conditions

October had only 8 percent of average precipitation, November had 32 percent of average, and December had 121 percent of average. The Bureau of Reclamation is doing its best to conserve storage while still meeting their instream flow requirements and Delta water quality requirements. The Sacramento River Index forecast for 50 percent exceedence is "below normal" and the 90 percent exceedence is "critical."

Note: The Sierra Nevada Region's (SNR) average generation is based upon long-term modeling done for its "Green Book." SNR does not project purchase power expenses for dry conditions, and its most probable expenses are based upon term purchases of 35 to 65 percent of projected power needs, with the difference being left to day-ahead markets after project pumping and generation have been 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 19	1.20	2.60	7,972.00	18,502.03	56.14	62.49	1,506,881	1,519,930	878,137	1,434,267	380	\$0	\$0	\$26,606
Nov 19	3.80	4.20	7,334.00	17,463.46	55.06	59.17	1,389,518	1,443,590	818,207	1,346,166	548	\$0	\$0	\$4,278
Dec 19	7.10	6.80	6,422.00	10,075.10	54.46	58.43	999,369	1,041,419	686,859	979,796	*	\$3,345,041	\$1,969,000	*
Jan 20														
Feb 20														
Mar 20														
Apr 20														
May 20														
Jun 20														
Jul 20														
Aug 20														
Sep 20														
Total							3,895,768	4,004,939	2,383,203	3,760,229	928	\$3,345,041	\$1,969,000	\$30,884

Actual generation as a percentage of average: 157.8%

Cost per MWh: \$33.28

Lake/Reservoir Content

As of December 19, the active conservation pools for the Canyon Ferry and Yellowtail Dams were 85.7 percent and 96.0 percent full, respectively.

Weather and Other Conditions

The December runoff was 141 percent of normal. Runoff was average at Fort Peck, Fort Randall, Garrison, Gavins Point and Oahe. Snow pack reports show 90 percent of average above Fort Peck and 93 percent of average in the Fort Peck to Garrison reach. The U.S. Drought Monitor shows no portions of the upper Missouri River Basin being impacted by abnormally dry conditions. The 90- to 180- day precipitation averages outlook is much above normal precipitation across Montana and the western third of North Dakota.

Note: The Upper Great Plains Region reports its 50 percent share of generation from Yellowtail Dam, and RMR reports the snowpack, inflow, content, and remaining share of generation. Asterisks indicate that actual purchase power data is not available for the month, and so the projected dry and most probable purchase power expenses are not included for that month in order to allow for a meaningful comparison between the total amounts.

