

**WESTERN AREA POWER ADMINISTRATION  
HYDRO CONDITIONS AND PURCHASE POWER REPORT  
January 2021**

	Generation (Megawatt-Hours [MWh])				Purchase Power (MWh)	Purchase Power Expenses (Dollars)		
	Projected	Most	Average	Actual	Actual	Projected	Most	Actual
	<u>Dry</u>	<u>Probable</u>				<u>Dry</u>	<u>Probable</u>	
<b>Oct 20</b>	1,637,082	1,684,470	1,967,791	1,707,748	330,036	\$9,229,116	\$5,582,203	\$9,801,302
<b>Nov 20</b>	1,413,902	1,470,313	1,822,863	1,442,689	480,048	\$10,118,812	\$9,271,720	\$12,556,811
<b>Dec 20</b>	1,276,475	1,369,784	1,800,527	1,367,249				
<b>Jan 21</b>								
<b>Feb 21</b>								
<b>Mar 21</b>								
<b>Apr 21</b>								
<b>May 21</b>								
<b>Jun 21</b>								
<b>Jul 21</b>								
<b>Aug 21</b>								
<b>Sep 21</b>								
<b>Total</b>	4,327,459	4,524,567	5,591,180	4,517,686	810,084	\$19,347,928	\$14,853,923	\$22,358,113

Actual generation as a percentage of average: 80.8% Cost per MWh: \$27.60

Western Area Power Administration (WAPA) generated a total of 4,518 gigawatt-hours (GWh) during October through December of fiscal year 2021, or 80.8 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 810 GWh and total purchase power expenses were \$22,358,113, which equates to \$27.60 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 20	1.30	0.80	514.42	78.00	15.01	10.98	247,024	352,623	382,430	352,623	96,196	\$5,712,150	\$2,456,473	\$2,993,074
Nov 20	4.80	3.40	474.23	261.00	14.91	10.62	241,664	310,304	388,155	310,304	136,279	\$5,110,150	\$4,484,250	\$4,502,668
Dec 20	8.10	6.30	362.96	169.00	14.86	10.13	279,537	345,778	437,962	345,778	156,942	\$6,299,733	\$5,425,491	\$5,473,649
Jan 21														
Feb 21														
Mar 21														
Apr 21														
May 21														
Jun 21														
Jul 21														
Aug 21														
Sep 21														
<b>Total</b>							768,225	1,008,705	1,208,547	1,008,705	389,417	\$17,122,033	\$12,366,214	\$12,969,390

Actual generation as a percentage of average: 83.5%

Cost per MWh: \$33.30

### Lake/Reservoir Levels

Lake Powell's elevation was 3,582 feet at the end of December, about 118 feet below the maximum reservoir level and about 92 feet above the minimum generation level. The storage volume for Lake Powell was 10.1 million acre-feet at the end of December, or about 42 percent of capacity.

### Weather and Other Conditions

The Upper Colorado River Basin is currently experiencing a protracted drought that began in 2000 with hydrologic conditions over the last several months being some of the driest on record. Dry conditions have resulted in low reservoir conditions that reduce power head, greatly reducing power generation.



## 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 20	1.30	0.80	59.65	35.00	19.82	12.25	407,200	384,190	377,268	391,920	27,216	\$498,024	\$498,024	\$1,510,510
Nov 20	4.80	3.40	55.47	56.00	19.86	12.28	361,600	360,155	362,391	355,236	21,032	\$800,684	\$800,684	\$1,098,412
Dec 20	8.10	6.30	73.06	60.00	20.00	12.46	217,750	256,520	365,340	266,410	24,797	\$1,639,676	\$1,639,676	\$1,189,343
Jan 21														
Feb 21														
Mar 21														
Apr 21														
May 21														
Jun 21														
Jul 21														
Aug 21														
Sep 21														
<b>Total</b>							986,550	1,000,865	1,104,999	1,013,566	73,045	\$2,938,384	\$2,938,384	\$3,798,265

Actual generation as a percentage of average: 91.7%

Cost per MWh: \$52.00

### Lake/Reservoir Levels

Lake Mead's elevation was 1,084 feet at the end of December, about 136 feet below the full storage level and about 134 feet above the minimum generation level. Lake Mead's elevation is projected to peak at 1088 feet in February (10 feet below the WY 2020 peak elevation of 1099 feet) and is projected to end the WY at minimum elevation of 1071, a maximum fluctuation in lake elevation of 17 feet. This large fluctuation in elevation, despite the Lower Basin Drought Contingency Plan being implemented, is primarily due to Lake Powell's projected release to Lake Mead of only 8.23 MAF for WY2021 (same as WY 2020).

### Weather and Other Conditions

The Desert Southwest Region's (DSWR) hydrology, or the Lower Colorado River Basin, is mostly dependent on the Colorado River Basin snowpack and precipitation above Lake Powell. The precipitation is currently 60 percent of average and the snowpack is currently 67 percent of average.

*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 20	0.00	0.00	142.50	95.30	3.85	4.14	97,268	107,268	104,469	73,515	103,847	\$1,853,600	\$1,533,600	\$3,246,505
Nov 20	3.70	4.00	125.30	111.10	3.70	4.02	49,932	59,932	71,586	48,589	124,138	\$1,131,072	\$811,072	\$3,817,277
Dec 20	11.80	8.90	126.10	111.20	3.79	4.11	92,471	102,471	105,136	81,323	99,875	\$1,319,040	\$999,040	\$3,007,865
Jan 21														
Feb 21														
Mar 21														
Apr 21														
May 21														
Jun 21														
Jul 21														
Aug 21														
Sep 21														
<b>Total</b>							239,671	269,671	281,192	203,427	327,860	\$4,303,712	\$3,343,712	\$10,071,647

Actual generation as a percentage of average: 72.3%

Cost per MWh: \$30.72

### Lake/Reservoir Content

At the end of December, reservoir inflows were 88 percent of average and reservoir storage was at 108 percent of average.

### Weather and Other Conditions

LAP's hydrologic conditions can vary from one river basin and watershed to another. The snowpack is below at average in the Colorado and Wyoming areas. The latest National Weather Service forecast indicates February through April temperatures will most likely be at or warmer than average in Wyoming and Colorado, precipitation will be above average for the upper Wyoming area and normal to below average for southern Wyoming and all of Colorado.

Winter generation in the Colorado River Basin is forecasted to be average this winter due to decent storage and storage movement, and winter generation in the North Platte Basin and Big Horn Basin is forecasted to be slightly below average.



## 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 20	*	*	328.00	256.00	5.38	5.23	139,000	79,000	163,000	119,699	55,232	\$659,220	\$659,220	\$979,064
Nov 20	*	*	399.00	283.00	5.34	5.13	53,000	38,000	104,000	70,365	53,796	\$628,188	\$628,188	\$1,150,708
Dec 20	26.32	5.00	791.00	303.00	5.62	5.12	30,000	0	143,000	74,714	55,552	\$654,300	\$654,300	\$1,302,849
Jan 21														
Feb 21														
Mar 21														
Apr 21														
May 21														
Jun 21														
Jul 21														
Aug 21														
Sep 21														
<b>Total</b>							222,000	117,000	410,000	264,778	164,580	\$1,941,708	\$1,941,708	\$3,432,621

Actual generation as a percentage of average: 64.6%

Cost per MWh: \$20.86

### Lake/Reservoir Content

As of December 31, reservoir storage for the water year was 90 percent of the 15-year average for Trinity, 82 percent for Shasta, 78 percent for Folsom, and 113 percent for New Melones. Accumulated inflow was 14 percent of the 15-year average for Trinity, 63 percent for Shasta, 45 percent for Folsom, and 70 percent for New Melones.

### Weather and Other Conditions

October precipitation was zero percent of average, November was 56 percent of average, and December was 41 percent of average. Reclamation is working to conserve storage while still meeting all its instream flow requirements and Delta water quality requirements. Based upon January 1 conditions, the Sacramento River Index forecast for 50 percent exceedance at 10.9 is "dry" and the 90 percent exceedance at 6.3 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 20	1.20	1.80	7,972.00	7,076.94	56.14	58.83	746,590	761,389	940,624	769,992	47,545	\$506,122	\$434,886	\$1,072,149
Nov 20	3.80	3.60	7,334.00	6,581.48	55.06	57.86	707,706	701,922	896,730	658,194	144,803	\$2,448,719	\$2,547,526	\$1,987,746
Dec 20	7.10	5.80	6,422.00	5,580.68	54.46	57.57	656,717	665,015	749,088	599,023	*	\$6,050,388	\$5,834,628	*
Jan 21														
Feb 21														
Mar 21														
Apr 21														
May 21														
Jun 21														
Jul 21														
Aug 21														
Sep 21														
<b>Total</b>							2,111,013	2,128,326	2,586,443	2,027,209	192,348	\$9,005,228	\$8,817,040	\$3,059,895

Actual generation as a percentage of average: 78.4%

Cost per MWh: \$15.91

### Lake/Reservoir Content

As of January 21, the active conservation pools for the Canyon Ferry and Yellowtail Dams were 80.3 percent and 86.4 percent full, respectively.

### Weather and Other Conditions

The yearly runoff forecast for the Missouri River basin as of January 4 was 23.1 MAF or 90 percent of average. System storage as of January 26 is 56.1 MAF. All stored flood waters from the 2020 runoff season were evacuated as of December 21, 2020. On January 26 the mountain Snow Water Equivalent (SWE) in the “Total above Fort Peck” reach was 7.5 inches or 75 percent of average, and the SWE in the “Fort Peck to Garrison” reach was 6.7 inches or 78 percent of average. The normal peak for both reaches is near April 15. The U.S. Drought Monitor shows large areas of the upper Basin being impacted by abnormally dry conditions and drought conditions.

*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.*

