WESTERN AREA POWER ADMINSTRATION
HYDRO CONDITIONS AND PURCHASE POWER REPORT
February 2022

	Generation (Megawatt-Hours [MWh])				Purchase Power (MWh)	Purchase Power Expenses (Dollars)		
	Projected Dry	Most Probable	Average	Actual	Actual	Projected Dry	Most Probable	Actual
Oct 21	1,467,161	1,477,997	1,974,250	1,510,346	313,064	$15,851,765	$15,225,185	$17,623,879
Nov 21	1,228,617	1,160,110	1,870,443	1,133,465	591,945	$24,125,267	$23,271,118	$28,124,884
Dec 21	1,082,403	1,088,536	1,826,740	1,103,958	576,289	$14,608,047	$13,892,164	$20,685,110
Jan 22	1,327,335	1,320,351	1,927,315	1,262,075				
Feb 22								
Mar 22								
Apr 22								
May 22								
Jun 22								
Jul 22								
Aug 22								
Sep 22								
Total	5,105,516	5,046,994	7,598,748	5,009,845	1,481,298	$54,585,078	$52,388,467	$66,433,873
Actual generation as a percentage of average:				65.9%			Cost per MWh:	$44.85

Western Area Power Administration (WAPA) generated a total of 5,010 gigawatt-hours (GWh) from October through January of fiscal year 2022, or 66 percent of average. Actual purchase power data is currently available from October through December for all of WAPA's Regions, and during this period total purchase power was 1,481 GWh and total purchase power expenses were $66,433,873, which equates to $44.85 per MWh overall.

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 melted instantaneously.

The monthly purchase power numbers in this report are used by WAPA's regions as a forecasting tool; 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 21	1.00	1.80	514.42	317.00	15.01	7.18	242,049	256,726	382,430	256,726	142,576	$ 8,536,794	$ 8,536,794	$ 8,536,794
Nov 21	4.30	3.10	474.23	346.00	14.91	7.02	231,017	222,180	388,155	222,180	194,078	$ 12,149,771	$ 12,149,771	$ 12,149,771
Dec 21	7.80	9.20	362.96	266.00	14.86	6.71	266,495	258,749	437,962	258,749	10,490	$ 377,626	$ 377,626	$ 377,626
Jan 22	11.20	11.60	361.45	250.00	14.98	6.30	305,964	286,573	457,394	284,608	6,540	$ 488,669	$ 488,669	$ 243,924
Feb 22														
Mar 22														
Apr 22														
May 22														
Jun 22														
Jul 22														
Aug 22														
Sep 22														
Total							1,045,526	1,024,228	1,665,941	1,022,263	353,684	$ 21,552,860	$ 21,552,860	$ 21,308,115
									Actual generation as a percentage of average:	61.4%			Cost per MWh:	$60.25

Lake/Reservoir Levels

End of January storage volume for Lake Powell was 6.3 million acre-feet (MAF) or about 26 percent of capacity. Lake Powell reservoir inflow for January was 250,000 acre-feet or 74 percent of average. Lake Powell elevation at the end of January was about 3,532 feet, 168 feet from maximum reservoir level and 42 feet from the minimum generation level.

Weather and Other Conditions

Near record dry conditions in January erased the hydrologic improvement observed in December, with much below average reservoir inflows now forecasted for water year 2022. Adding to the uncertainty surrounding CRSP operations in this water year, additional releases from Flaming Gorge and Aspinall are currently being considered under the drought response operations agreement. CRSP implemented a new rate, WAPA-199, in December 2021. Under this rate, CRSP provides customers with only forecasted available energy. Theoretically, energy purchases should be zero going forward; however, CRSP still expects to have purchases in some months due to uncertainty with hydrology.

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 21	1.00	1.80	60.11	81.00	19.69	11.00	303,950	309,595	376,487	311,252	20,015	$ 1,502,607	$ 1,502,607	$ 1,453,282
Nov 21	4.30	3.10	55.20	43.00	19.74	10.92	321,100	311,600	361,868	319,154	12,568	$ 1,583,400	$ 1,583,400	$ 593,080
Dec 21	7.80	9.20	72.87	65.00	19.85	9.64	257,800	243,900	363,944	251,578	37,736	$ 2,353,714	$ 2,353,714	$ 2,961,911
Jan 22	11.20	11.60	92.36	65.00	20.04	11.18	308,250	311,340	388,038	314,878	16,791	$ 1,310,313	$ 1,310,313	$ 1,084,371
Feb 22														
Mar 22														
Apr 22														
May 22														
Jun 22														
Jul 22														
Aug 22														
Sep 22														
Total							1,191,100	1,176,435	1,490,337	1,196,862	87,110	$ 6,750,034	$ 6,750,034	$ 6,092,644
							Actual generation as a percentage of average:			80.3%			Cost per MWh:	$69.94

Lake/Reservoir Levels

Aggregate system storage for the Lower Colorado River Basin, or Lakes Mead, Mohave, and Havasu, was 11.2 MAF at the end of January, or 39 percent of the Lower Basin capacity. The Lower Basin tributary inflow into Lake Mead for January was 65,000 acre-feet. The total side inflow into Lake Mead for water year 2022 is projected to be 837,000 acre-feet, which represents a 50 percent increase over last year's actual of 558,000 acre-feet and 64 percent of the normal annual side inflow of 1.3 MAF. Lake Mead elevation at the end of January was 1,067.09 feet, or about 152.55 ft. below full storage elevation and 117.09 feet above the minimum generation elevation for Hoover Dam.

Weather and Other Conditions

The Desert Southwest Region's 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 100 percent of average, and the snowpack is 93 percent of the median.

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 21	0.00	0.00	133.50	131.00	3.89	3.72	52,479	70,240	97,400	69,420	84,307	$ 3,934,516	$ 3,330,640	$ 5,618,676
Nov 21	2.10	4.40	124.70	98.60	3.91	3.75	48,828	66,514	110,000	41,979	110,921	$ 4,255,035	$ 3,636,010	$ 6,664,567
Dec 21	11.50	8.10	102.40	54.90	3.89	3.72	81,875	96,903	123,500	102,082	90,136	$ 3,319,239	$ 2,808,298	$ 4,461,154
Jan 22	20.00	22.60	100.30	91.60	3.87	3.67	128,841	124,479	122,100	107,479	62,989	$ 1,270,606	$ 1,388,367	$ 2,449,014
Feb 22														
Mar 22														
Apr 22														
May 22														
Jun 22														
Jul 22														
Aug 22														
Sep 22														
Total							312,022	358,136	453,000	320,960	348,353	$ 12,779,396	$ 11,163,315	$ 19,193,411
							Actual generation as a percentage of average:			70.9%			Cost per MWh:	$55.10

Lake/Reservoir Content

At the end of January, reservoir inflows were 91 percent of average and reservoir storage was at 95 percent of average.

Weather and Other Conditions

LAP's hydrologic conditions can vary from one river basin and watershed to another. As of the end of January, the snowpack is below average in Wyoming and just below average along Colorado's East Slope. The latest National Weather Service forecast indicates March through May temperatures will most likely be at or warmer than average in Colorado, and there is an equal probability for below or above average temperatures in northwestern Wyoming and warmer than average temperature are expected in southeastern Wyoming. The same forecast indicates precipitation will be below average in Colorado and will have an equal chance to be above or below average for southeastern Wyoming. Winter generation in the Colorado, North Platte, and Bighorn River Basins is forecasted to be below average due to unit outages and low snowpack last year.

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 21	N/A	N/A	333.00	426.00	5.08	2.82	117,000	77,000	163,000	137,694	51,331	$ 1,207,080	$ 1,207,080	$ 1,537,704
Nov 21	N/A	N/A	400.00	485.00	5.05	3.04	72,000	17,000	104,000	0	58,622	$ 1,164,725	$ 1,164,725	$ 1,617,308
Dec 21	28.00	15.40	793.00	789.00	5.35	3.58	0	0	143,000	5,795	54,276	$ 1,207,080	$ 1,207,080	$ 1,678,780
Jan 22	27.89	15.90	966.00	791.00	5.79	3.91	0	24,000	163,000	4,659	58,925	$ 1,451,450	$ 1,451,450	$ 1,842,960
Feb 22														
Mar 22														
Apr 22														
May 22														
Jun 22														
Jul 22														
Aug 22														
Sep 22														
Total							189,000	118,000	573,000	148,149	223,154	$ 5,030,335	$ 5,030,335	$ 6,676,752
							Actual generation as a percentage of average:			25.9%			Cost per MWh:	$29.92

Lake/Reservoir Content

As of January 31, reservoir storage was 55 percent of the 15-year average for Trinity, 62 percent for Shasta, 128 percent for Folsom, and 73 percent for New Melones. Accumulated inflow was 90 percent of the 15-year average for Trinity, 95 percent for Shasta, 113 percent for Folsom and 107 percent for New Melones. End of water year carryover storage was quite low, and Base Resource Energy has been largely unavailable since the end of October. Reclamation has gone to minimum instream flow requirements on most rivers with the exception of Folsom Reservoir. At the same time, Reclamation is at maximum pumping in the Delta sending water to San Luis Offstream Storage.

Weather and Other Conditions

December's precipitation was 14.41 inches or 164 percent of average, while January's precipitation was only 1.36 inches or 15 percent of average. Based on January 1 conditions, the Sacramento River Index forecast for 50 percent exceedance is 6.2 or "dry," while the 90 percent exceedance is 4.7 or "critical."

Note: The Sierra Nevada Region's average generation is based upon long-term modeling done for its "Green Book." The region 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 21	1.20	0.80	7,972.00	6,835.65	56.14	50.80	751,683	764,436	954,934	735,254	14,835	$ 670,768	$ 648,064	$ 477,423
Nov 21	3.80	2.20	7,334.00	5,259.62	55.06	49.68	555,672	542,816	906,420	550,152	215,756	$ 4,972,336	$ 4,737,212	$ 7,100,158
Dec 21	7.10	6.60	6,422.00	4,350.10	54.46	49.29	476,232	488,984	758,334	485,754	383,651	$ 7,350,388	$ 7,145,446	$ 11,205,639
Jan 22	10.30	9.20	6,641.00	5,176.51	54.18	49.32	584,281	573,959	796,783	550,451	*	$ 7,418,511	$ 7,218,233	*
Feb 22														
Mar 22														
Apr 22														
May 22														
Jun 22														
Jul 22														
Aug 22														
Sep 22														
Total							2,367,868	2,370,195	3,416,470	2,321,611	614,242	$ 20,412,002	$ 19,748,956	$ 18,783,220
							Actual generation as a percentage of average:			68.0%			Cost per MWh:	$30.58

Lake/Reservoir Content

The yearly runoff forecast for the Missouri River basin as of February 1 was 21.7 MAF or 84 percent of average. Runoff above Sioux City for January was 0.87 MAF or 111 percent of average. System storage as of February 22 is at 48.7 MAF.

Weather and Other Conditions

On February 27, the mountain snow water equivalent in the total above Fort Peck reach is 10.4 inches, or 80 percent of average. The mountain snow water equivalent in the Fort Peck to Garrison reach is 9.2 inches, or 82 percent of average. Moderate and Severe drought conditions are occurring in the western Dakotas. Northern Montana is experiencing Extreme drought with areas of Exceptional drought. The 90- to 180- day outlook shows chances for slightly below normal temperatures in western Montana, slightly above normal temperatures in eastern South Dakota, and normal temperatures throughout the rest of UGP's territory. The forecast for northwestern Montana shows slightly above normal precipitation, and the remainder of UGP's territory has equal chances of above or below normal precipitation.

Note: The Upper Great Plains Region reports 50 percent share of Yellowtail Dam generation while Rocky Mountain Region reports the snowpack, inflow, content, and remaining share of generation. Asterisks indicate that actual purchase power data is not available for the month.