

WESTERN AREA POWER ADMINISTRATION HYDRO CONDITIONS AND PURCHASE POWER REPORT

June 2022

Total

	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	1,262,076	575,669	\$11,939,550	\$11,857,033	\$19,848,159
Feb 22	1,214,591	1,204,685	1,785,979	1,147,882	543,288	\$12,510,942	\$12,547,403	\$16,954,394
Mar 22	1,528,794	1,525,539	1,962,317	1,452,517	364,554	\$11,197,405	\$10,862,263	\$9,469,803
Apr 22	1,620,869	1,695,665	2,289,248	1,594,481	265,992	\$7,926,516	\$6,825,294	\$10,990,522
May 22	1,811,090	1,955,120	2,711,203	1,745,114				
Jun 22								
Jul 22								
Aug 22								
Sep 22								
Total	11,280,860	11,428,004	16,347,495	10,949,839	3,230,801	\$98,159,491	\$94,480,460	\$123,696,751

Actual generation as a percentage of average: 67.0% Cost per MWh: \$38.29

Western Area Power Administration (WAPA) generated a total of 10,950 gigawatt-hours (GWh) from October through May of fiscal year 2022, or 67 percent of average. Actual purchase power data is currently available from October through April for all of WAPA's Regions, and during this period total purchase power was 3,231 GWh and total purchase power expenses were \$123,696,751 which equates to \$38.29 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

CRSP

	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
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	249.00	14.98	6.34	305,964	286,573	457,394	284,608	6,540	\$ 488,669	\$ 488,669	\$ 243,924
Feb 22	14.80	13.60	392.01	215.00	15.99	6.01	273,210	234,241	390,580	229,398	7,963	\$ 302,244	\$ 494,159	\$ 275,617
Mar 22	18.30	16.40	666.27	329.00	16.77	5.81	287,133	259,395	390,170	249,982	10,984	\$ 369,878	\$ 322,700	\$ 349,510
Apr 22	18.70	14.90	1,057.14	594.00	16.74	5.79	275,958	259,854	397,861	235,717	21,913	\$ 191,270	\$ 185,635	\$ 1,051,098
May 22	7.20	4.60	2,337.68	1,382.00	16.30	6.35	317,792	367,576	475,860	352,268	5,985	\$ -	\$ -	\$ 287,632
Jun 22														
Jul 22														
Aug 22														
Sep 22														
Total							2,199,619	2,145,295	3,320,411	2,089,628	400,529	\$ 22,416,252	\$ 22,555,354	\$ 23,271,972

Actual generation as a percentage of average: 62.9%

Cost per MWh: \$58.10

Lake/Reservoir Levels

End of May storage volume for Lake Powell was 6.35 million acre-feet (MAF) or about 26 percent of capacity. Lake Powell reservoir inflow for May was 1,382,000 acre-feet or 67 percent of average. Lake Powell elevation at the end of May was about 3,532 feet, or about 168 feet from maximum reservoir level and 42 feet from the minimum generation level.

Weather and Other Conditions

Dry conditions persist throughout the Colorado River Basin with much below average reservoir inflows forecasted for water year 2022. In response to the dry conditions, Reclamation, in consultation with the seven Basin States, has decided to implement Drought Response Operations Agreement (DROA) releases from Flaming Gorge Reservoir. Reclamation is planning to release an additional 500,000 acre-feet over the next 12 months from Flaming Gorge to try and maintain elevation at Lake Powell. The CRSP-MC implemented a new rate (WAPA-199) in December of 2021. Under this rate, WAPA will provide customers with only forecasted available energy. Theoretically, purchases should be zero going forward; however, because of uncertainty with hydrology, we still expect to have purchases in some months.



Desert Southwest Region

DSWR

	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	14.80	13.60	106.49	61.00	20.08	11.16	288,300	312,730	386,047	307,920	676	\$ 370,667	\$ 370,667	\$ 32,821
Mar 22	18.30	16.40	102.47	42.00	19.89	10.81	499,150	517,895	526,266	517,460	6,664	\$ 1,192,504	\$ 1,192,504	\$ 289,328
Apr 22	18.70	14.90	82.53	32.00	19.70	10.29	521,150	529,910	568,974	529,857	4,327	\$ 942,889	\$ 942,889	\$ 422,378
May 22	7.20	4.60	57.31	9.00	19.78	9.82	538,150	545,995	570,729	549,589	12,753	\$ 1,412,587	\$ 1,412,587	\$ 1,276,082
Jun 22														
Jul 22														
Aug 22														
Sep 22														
Total							3,037,850	3,082,965	3,542,353	3,101,688	111,530	\$ 10,668,681	\$ 10,668,681	\$ 8,113,253

Actual generation as a percentage of average: 87.6%

Cost per MWh: \$72.75

Lake/Reservoir Levels

Aggregate system storage for the Lower Colorado River Basin, or Lakes Mead, Mohave, and Havasu, was 9.82 MAF at the end of May, or 28.549 percent of the Lower Basin capacity. The Lower Basin tributary inflow into Lake Mead for May was 9,000 acre-feet. The total side inflow into Lake Mead for WY 2022 is projected to be 592,000 acre-feet, which represents an 6 percent increase over last year's actual of 557,000 acre-feet and 46 percent of the normal annual side inflow of 1.3 MAF. Lake Mead elevation at the end of May was 1,047.69 feet, or 171.95 feet below full storage elevation and 97.69 feet above the minimum generation elevation for Hoover Dam. In order to protect the target elevation at Lake Powell of 3,525 feet, Glen Canyon Dam has been withholding a total of 0.35 MAF of water from Lake Mead from January through April. This initial cutback in Lake Powell releases did not preserve Lake Powell elevation of 3,525 feet. Therefore, the decision has been made that the Lake Powell releases for WY 2022 will be reduced by a total of 480,000 acre-feet from 7.48 MAF to 7.0 MAF. Currently Lake Mead elevation is dropping 2 feet every 8-10 days.

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 93 percent of average, and the snowpack is negligible.



Rocky Mountain Region

RMR

	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	28.40	29.80	98.80	81.60	3.87	3.68	117,035	116,879	111,600	103,544	34,071	\$ 2,293,170	\$ 2,306,606	\$ 1,364,155
Mar 22	38.10	35.00	160.60	134.40	3.90	3.75	76,295	85,157	128,900	74,501	73,185	\$ 2,203,333	\$ 1,964,061	\$ 2,449,471
Apr 22	52.00	41.50	251.80	207.60	4.00	3.91	74,432	95,555	144,600	68,937	101,793	\$ 3,110,763	\$ 2,498,205	\$ 6,561,672
May 22	45.00	43.20	752.00	614.00	4.30	4.17	168,269	206,964	196,800	146,337	36,283	\$ 861,805	\$ -	\$ 2,142,948
Jun 22														
Jul 22														
Aug 22														
Sep 22														
Total							748,054	862,691	1,034,900	714,278	593,685	\$ 21,248,467	\$ 17,932,187	\$ 31,711,657

Actual generation as a percentage of average: 69.0%

Cost per MWh: \$53.41

Lake/Reservoir Content

At the end of April, reservoir inflows were 82 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. The runoff is close to being complete. The latest National Weather Service forecast indicates July through September temperatures will most likely be above average in Wyoming and Colorado. The same forecast indicates precipitation will be below average for Wyoming and Colorado. Summer generation in the Colorado River Basin, the North Platte Basin and the Big Horn Basin is forecasted to be average due to decent storage and water movement



Sierra Nevada Region

SNR

	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	28.04	15.70	1,175.00	440.00	6.34	3.99	55,000	75,000	195,000	33,597	32,514	\$ 1,353,528	\$ 1,353,528	\$ 1,576,174
Mar 22	27.95	10.90	1,409.00	490.00	7.00	4.06	110,000	60,000	207,000	57,896	38,525	\$ 1,510,450	\$ 1,510,450	\$ 1,856,983
Apr 22	30.00	7.50	1,237.00	595.00	7.38	4.26	113,000	133,000	288,000	72,269	30,960	\$ 699,260	\$ 699,260	\$ 1,174,405
May 22	3.00	1.20	1,011.00	588.00	7.30	4.28	148,000	148,000	442,000	111,064	33,662	\$ 721,150	\$ 721,150	\$ 1,324,300
Jun 22														
Jul 22														
Aug 22														
Sep 22														
Total							615,000	534,000	1,705,000	422,975	358,815	\$ 9,314,723	\$ 9,314,723	\$ 12,608,614

Actual generation as a percentage of average: 24.8%

Cost per MWh: \$35.14

Lake/Reservoir Content

As of May 31st, reservoir storage was 44 percent of the 15-year average for Trinity, 53 percent for Shasta, 110 percent for Folsom, and 61 percent for New Melones. Accumulated inflow was 50 percent of the 15-year average for Trinity, 60 percent for Shasta, 73 percent for Folsom, and 68 percent for New Melones. Sacramento River remains at minimum instream flow, while the Stanislaus ramped up briefly to meet critical year Vernalis flow requirement. Folsom Reservoir on the American River remained at relative high release to keep the Delta balanced while State and Federal pumping was minimal.

Weather and Other Conditions

April averages 6.06 inches and received 153 percent of its monthly average. May averages 2.22 and only 0.61 inches were recorded. Based on May 1 conditions, the Sacramento Valley index at the 50 percent exceedance level is 4.5 or "critical," while the 90 percent exceedance level is 4.3 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

UGPR

	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	430,424	\$ 7,418,511	\$ 7,218,233	\$ 14,227,890
Feb 22	13.10	10.40	6,281.00	4,456.74	54.50	49.34	481,046	465,835	702,752	473,424	468,064	\$ 8,191,334	\$ 8,022,443	\$ 13,705,627
Mar 22	15.80	12.10	8,151.00	5,846.20	56.20	49.64	556,216	603,092	709,981	552,678	235,196	\$ 5,921,239	\$ 5,872,548	\$ 4,524,511
Apr 22	14.90	14.10	8,041.00	6,990.70	57.06	49.49	636,328	677,346	889,814	687,701	106,999	\$ 2,982,334	\$ 2,499,305	\$ 1,780,969
May 22	6.30	8.30	9,654.00	6,671.78	58.35	50.23	638,879	686,585	1,025,814	585,856	*	\$ 1,879,311	\$ 1,570,597	*
Jun 22														
Jul 22														
Aug 22														
Sep 22														
Total							4,680,337	4,803,053	6,744,831	4,621,270	1,854,925	\$ 39,386,220	\$ 37,713,849	\$ 53,022,217

Actual generation as a percentage of average: 68.5%

Cost per MWh: \$28.58

Lake/Reservoir Content

The yearly runoff forecast for the Missouri River Basin as of June 1 was 18.2 MAF or 71 percent of average. Runoff above Sioux City for May was 2.69 MAF or 79 percent of average. System storage as of June 28 is 50.49 MAF.

Weather and Other Conditions

On June 28, the mountain snow water equivalent in the total above Fort Peck reach is 0.4 inches, or 3 percent of average. The mountain snow water equivalent in the Fort Peck to Garrison reach is 0.4 inches, or 3 percent of average. Conditions have improved, the U.S. Drought Monitor still shows areas of the upper Basin continue to be impacted by drought. Severe and Moderate Drought conditions are occurring in Western South Dakota. Northern and Central Montana is experiencing Severe and Extreme areas of Drought. The 90- to 180- day outlook shows normal temperatures in most of central and eastern North Dakota, and slightly above normal temperatures in most of South Dakota and eastern Montana. The forecast for South Dakota shows normal precipitation, and the remainder of UGP's territory shows slightly 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.

