WESTERN AREA POWER ADMINSTRATION
HYDRO CONDITIONS AND PURCHASE POWER REPORT
May 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				
May 22								
Jun 22								
Jul 22								
Aug 22								
Sep 22								
Total	9,469,770	9,472,884	13,636,292	9,204,725	2,964,809	$90,232,975	$87,655,166	$112,706,229
	Actual generation as a percentage of average:			67.5%			Cost per MWh:	$38.01

Western Area Power Administration (WAPA) generated a total of 9,204 gigawatt-hours (GWh) from October through April of fiscal year 2022, or 67.5 percent of average. Actual purchase power data is currently available from October through March for all of WAPA's Regions, and during this period total purchase power was 2,965 GWh and total purchase power expenses were $112,706,229, which equates to $38.01 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	$ 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														
Jun 22														
Jul 22														
Aug 22														
Sep 22														
Total							1,881,827	1,777,719	2,844,551	1,737,360	394,544	$ 22,416,252	$ 22,555,354	$ 22,984,340
							Actual generation as a percentage of average:			61.1%			Cost per MWh:	$58.26

Lake/Reservoir Levels

End of April storage volume for Lake Powell was 5.79 million acre-feet (MAF) or about 24 percent of capacity. Lake Powell reservoir inflow for April was 594,000 acre-feet or 66 percent of average. Lake Powell elevation at the end of March was about 3,523 feet, or about 177 feet from maximum reservoir level and 33 feet from the minimum generation level.

Weather and Other Conditions

Dry conditions persist throughout the Colorado River Basin with significantly below average reservoir inflows forecasted for water year (WY) 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. Also, under DROA action it was decided to reduce releases from Glen Canyon by 480,000 acre-feet for WY 2022. 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

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														
Jun 22														
Jul 22														
Aug 22														
Sep 22														
Total							2,499,700	2,536,970	2,971,624	2,552,099	98,777	$ 9,256,094	$ 9,256,094	$ 6,837,171
							Actual generation as a percentage of average:			85.9%			Cost per MWh:	$69.22

Lake/Reservoir Levels

Aggregate system storage for the Lower Colorado River Basin, or Lakes Mead, Mohave, and Havasu, was 10.29 MAF at the end of April, or 28.549 percent of the Lower Basin capacity. The Lower Basin tributary inflow into Lake Mead for April was 32,000 acre-feet. The total side inflow into Lake Mead for WY 2022 is projected to be 628,000 acre-feet, which represents an 13 percent increase over last year's actual of 557,000 acre-feet and 48 percent of the normal annual side inflow of 1.3 MAF. Lake Mead elevation at the end of April was 1,054.69 feet, or 164.95 feet below full storage elevation and 104.69 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 92 percent of average, and the snowpack is 64 percent of the median.

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														
Jun 22														
Jul 22														
Aug 22														
Sep 22														
Total							579,785	655,727	838,100	567,941	557,402	$ 20,386,662	$ 17,932,187	$ 29,568,709
							Actual generation as a percentage of average:			67.8%			Cost per MWh:	$53.05

Lake/Reservoir Content

At the end of April, reservoir inflows were 82 percent of average and reservoir storage was at 98 percent of average.

Weather and Other Conditions

LAP's hydrologic conditions can vary from one river basin and watershed to another. Run off has started. LAP basins did see an increase in snowpack in April with late March early April storms. The latest National Weather Service forecast indicates May through July temperatures will most likely be above average in Wyoming and Colorado. The same forecast indicates precipitation will be below average for Wyoming and Colorado. Spring generation in the Colorado River Basin, the North Platte Basin and the Big Horn Basin is forecasted to be average this spring 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														
Jun 22														
Jul 22														
Aug 22														
Sep 22														
Total							467,000	386,000	1,263,000	311,911	325,153	$ 8,593,573	$ 8,593,573	$ 11,284,314
							Actual generation as a percentage of average:			24.7%			Cost per MWh:	$34.70

Lake/Reservoir Content

As of April 30, reservoir storage was 45 percent of the 15-year average for Trinity, 52 percent for Shasta, 107 percent for Folsom, and 64 percent for New Melones. Accumulated inflow was 53 percent of the 15-year average for Trinity, 61 percent for Shasta, 74 percent for Folsom, and 74 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

February precipitation was only 0.38 inches or 4.6 percent of average, and March precipitation was 1.28 inches or 18 percent of average. The statewide snowpack is only 39 percent of the April 1 average. Based on April 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	*	$ 2,982,334	$ 2,499,305	*
May 22														
Jun 22														
Jul 22														
Aug 22														
Sep 22														
Total							4,041,458	4,116,468	5,719,017	4,035,414	1,747,926	$ 37,506,909	$ 36,143,251	$ 51,241,248
									Actual generation as a percentage of average:	70.6%			Cost per MWh:	$29.32

Lake/Reservoir Content

The yearly runoff forecast for the Missouri River Basin as of May 1 was 17.8 MAF or 69 percent of average. Runoff above Sioux City for March was 1.52 MAF or 51 percent of average. System storage as of May 24 is 48.8 MAF.

Weather and Other Conditions

On May 23, the mountain snow water equivalent in the total above Fort Peck reach is 10 inches, or 74 percent of average. The mountain snow water equivalent in the Fort Peck to Garrison reach is 9.8 inches, or 73 percent of average. Severe and Moderate drought conditions are occurring in western North Dakota, with areas of Severe and Moderate Drought in South Dakota. The northern and central regions of Montana are experiencing Extreme and Severe Drought conditions. 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 North Dakota shows normal precipitation, and the remainder of UGP's territory shows slightly below to 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.