WESTERN AREA POWER ADMINSTRATION
HYDRO CONDITIONS AND PURCHASE POWER REPORT
August 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	495,669	$11,939,550	$11,857,033	$19,848,159
Feb 22	1,214,591	1,204,685	1,785,979	1,147,882	466,488	$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	214,524	$5,874,853	$4,704,334	$10,019,712
Jun 22	1,911,761	1,919,690	2,861,885	1,775,032	227,390	$7,608,471	$7,196,108	$12,665,775
Jul 22	2,046,390	2,096,379	3,079,276	1,927,034				
Aug 22								
Sep 22								
Total	15,239,011	15,444,073	22,288,656	14,651,904	3,515,915	$111,642,815	$106,380,902	$146,382,238
Actual generation as a percentage of average:				65.7%			Cost per MWh:	$41.63

Western Area Power Administration (WAPA) generated a total of 14,652 gigawatt-hours (GWh) from October through July of fiscal year 2022, or 65.7 percent of average. Actual purchase power data is currently available from October through June for all of WAPA's Regions, and during this period total purchase power was 3,516 GWh and total purchase power expenses were $146,382,238 which equates to $41.63 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	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	0.00	0.10	2,668.50	1,284.00	16.00	6.88	333,043	340,881	534,248	344,909	29,093	$81,633	$81,633	$1,864,555
Jul 22			1,093.88	491.00	15.88	6.21	361,716	377,113	536,434	369,986	15,615	$ -	$ -	$ 1,166,015
Aug 22														
Sep 22														
Total							2,894,378	2,863,289	4,391,093	2,804,523	445,237	$ 22,497,885	$ 22,636,987	$ 26,302,542
									Actual generation as a percentage of average:	63.9%			Cost per MWh:	$59.08

Lake/Reservoir Levels

End of July storage volume for Lake Powell was 6.21 million acre-feet (MAF) or about 27 percent of capacity. Lake Powell reservoir inflow for July was 491,000 acre-feet or 52 percent of average. Lake Powell elevation at the end of July was about 3,536 feet, or about 164 feet from maximum reservoir level and 46 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 the remainder of WY2022 and in to WY2023. Lake Powell will be in the Lower Elevation Balancing Tier for water year 2023 which requires Lake Powell to balance with Lake Mead while releasing between 7.0 and 9.5 million acre-feet of water. To help protect Lake Powell elevations, Reclamation will operate as if it is a 7.0 million acre-feet release year until April. In April, they will reevaluate whether hydrologic conditions will allow for balancing releases above 7.0 million acre-feet.

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	0.00	0.10	26.08	18.00	19.95	9.49	456,750	441,275	534,902	447,279	34,137	$ 3,127,103	$ 3,127,103	$ 3,917,366
Jul 22	0.00	0.00	66.46	73.00	19.85	9.36	413,350	410,370	543,439	409,565	83,577	$ 3,568,013	$ 3,568,013	$ 6,008,539
Aug 22														
Sep 22														
Total							3,907,950	3,934,610	4,620,694	3,958,532	229,244	$ 17,363,797	$ 17,363,797	$ 18,039,158
							Actual generation as a percentage of average:			85.7%			Cost per MWh:	$78.69

Lake/Reservoir Levels

Aggregate system storage for the Lower Colorado River Basin, or Lakes Mead, Mohave, and Havasu, was 9.36 MAF at the end of July, or 32.8 percent of the Lower Basin capacity. The Lower Basin tributary inflow into Lake Mead for July was 73,000 acre-feet. The total side inflow into Lake Mead for WY 2022 is projected to be 602,000 acre-feet, which represents a 8.1 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 July was 1,040.92 feet, or 178.72 feet below full storage elevation and 90.92 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.

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 97 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	13.08	18.75	1,175.00	1,162.60	4.851	4.788	214,765	256,652	246,200	220,800	11,504	$ 695,474	$ -	$ 235,771
Jul 22	0.00	0.00	539.60	392.20	4.576	4.428	204,169	249,777	261,200	235,907	23,787	$ 7,316,524	$ 2,664,546	$ 1,707,899
Aug 22														
Sep 22														
Total							1,166,988	1,369,120	1,542,300	1,170,985	628,976	$ 29,260,465	$ 20,596,733	$ 33,655,327
							Actual generation as a percentage of average:			75.9%			Cost per MWh:	$53.51

Lake/Reservoir Content

At the end of July reservoir inflows are 73 percent of average, and total system storage is 97 percent of average.

Weather and Other Conditions

LAP's hydrologic conditions can vary from one river basin and watershed to another. The runoff is complete, no snow accumulation yet. The latest National Weather Service forecast indicates October through December temperatures will most likely be above average in Wyoming and Colorado. The same forecast indicates precipitation will be below average for Wyoming and Colorado. Winter generation in the Colorado River Basin, the North Platte Basin and the Big Horn Basin is forecasted to be below average due to unit maintenance schedules.

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	0.00	0.00	698	365	6.906	4.084	188,000	188,000	440,000	111,665	43,374	$ 699,260	$ 699,260	$ 1,713,832
Jul 22	N/A	N/A	605	268	6.190	3.649	179,000	189,000	524,000	141,100	46,129	$ 1,152,450	$ 1,152,450	$ 3,172,005
Aug 22														
Sep 22														
Total							982,000	911,000	2,669,000	675,740	448,318	$ 11,166,433	$ 11,166,433	$ 17,494,450
							Actual generation as a percentage of average:			25.3%			Cost per MWh:	$39.02

Lake/Reservoir Content

As of July 30th, reservoir storage was 45 percent of the 15-year average for Trinity, 60 percent for Shasta, 102 percent for Folsom, and 53 percent for New Melones. Accumulated inflow was 48 percent of the 15-year average for Trinity, 61 percent for Shasta, 71 percent for Folsom, and 60 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

May averages 2.22 and only 0.61 inches were recorded. June averages .97 inches, but 1.36 inches were recorded which is 140 percent of average. July averages 0.17 inches but only 0.04 inches were recorded which is 24 percent of average. 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	350,424	$ 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	391,264	$ 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	125,841	$ 2,879,311	$ 2,570,597	$ 4,988,750
Jun 22	0.50	0.10	11,746.00	8,874.12	60.54	52.91	719,204	692,882	1,106,535	650,379	109,282	$ 3,005,001	$ 3,288,112	$ 4,934,251
Jul 22	0.00	0.00	10,694.00	8,265.24	60.49	53.61	888,155	870,119	1,214,203	770,476	*	$ 2,782,605	$ 2,810,492	*
Aug 22														
Sep 22														
Total							6,287,696	6,366,054	9,065,569	6,042,125	1,933,248	$ 46,173,826	$ 44,812,452	$ 62,945,218
							Actual generation as a percentage of average:			66.6%			Cost per MWh:	$32.56

Lake/Reservoir Content

The yearly runoff forecast for the Missouri River Basin as of Aug 1 was 20.6 MAF or 80 percent of average. Runoff above Sioux City for July was 3.23 MAF or 98 percent of average. System storage as of August 23 is 50.7 MAF.

Weather and Other Conditions

On July 3, the mountain snow water equivalent in the total above Fort Peck reach is 0.0 inches. The mountain snow water equivalent in the Fort Peck to Garrison reach is 0 inches. The "Total above Fort Peck" reach peaked on April 29 at 13.5" SWE and 85% of the normal peak. The "Fort Peck to Garrison" reach peaked on May 3 at 13.4" SWE and 92% of the normal peak. 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. North Dakota and the northern half of Montana are predicting normal precipitation, with the remainder of our territory slightly 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.