

**WESTERN AREA POWER ADMINISTRATION
HYDRO CONDITIONS AND PURCHASE POWER REPORT
May 2024**

	Generation (Megawatt-Hours [MWh])				Purchase Power (MWh)	Purchase Power Expenses (Dollars)		
	Projected Dry	Most Probable	Average	Actual	Actual	Projected Dry	Most Probable	Actual
Oct 23	1,525,114	1,601,376	2,009,421	1,623,818	165,241	\$ 9,637,477	\$ 9,247,728	\$ 8,773,482
Nov 23	1,180,375	1,305,668	1,829,897	1,392,997	259,840	\$ 11,881,374	\$ 11,356,081	\$ 11,602,306
Dec 23	1,023,883	1,188,450	1,753,869	1,100,880	566,215	\$ 22,741,034	\$ 22,341,034	\$ 20,147,037
Jan 24	929,659	1,214,819	1,850,641	1,270,922	531,007	\$ 26,105,013	\$ 26,098,429	\$ 40,789,223
Feb 24	938,201	1,340,282	1,734,517	1,491,863	529,836	\$ 12,296,116	\$ 12,244,202	\$ 14,686,739
Mar 24	1,367,636	1,838,788	1,922,208	1,852,432	296,342	\$ 9,474,326	\$ 9,566,185	\$ 6,409,747
Apr 24	1,910,881	2,181,475	2,170,274	2,112,513				
May 24								
Jun 24								
Jul 24								
Aug 24								
Sep 24								
Total	8,875,749	10,670,858	13,270,827	10,845,424	2,348,481	\$ 92,135,340	\$ 90,853,660	\$ 102,408,534

Actual generation as a percentage of average: 81.7% Cost per MWh: \$43.61

Western Area Power Administration (WAPA) generated a total of 10,845 gigawatt-hours (GWh) from October through April of fiscal year 2024, or 81.7 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 2,348 GWh and total purchase power expenses were \$102,408,534, which equates to \$43.61 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 23	0.70	0.58	514.42	324.00	15.01	8.72	218,843	282,700	392,070	285,680	6,105	\$ 0	\$ 0	\$ 260,838.56
Nov 23	3.40	1.70	474.23	380.00	14.91	8.63	115,541	283,329	379,493	270,178	10,831	\$ 0	\$ 0	\$ 431,850.92
Dec 23	6.50	4.25	362.96	324.00	14.86	8.44	143,368	323,140	449,721	329,427	15,772	\$ 0	\$ 0	\$ 707,450.97
Jan 24	9.60	8.26	361.45	283.00	14.98	8.14	46,967	375,412	457,656	376,043	-3,126	\$ 0	\$ 142,903	\$ (190,336.14)
Feb 24	12.80	12.98	392.01	345.00	15.99	7.94	42,649	338,635	389,089	333,178	113	\$ 0	\$ 0	\$ 3,367
Mar 24	15.50	17.13	666.27	455.00	16.77	7.72	44,385	339,748	412,640	350,973	-2,267	\$ 0	\$ 0	\$ (84,110)
Apr 24	12.94	11.70	1,057.14	733.00	16.74	7.77	67,300	330,917	413,625	355,746	2,054	\$ 0	\$ 0	\$ 34,141
May 24														
Jun 24														
Jul 24														
Aug 24														
Sep 24														
Total							679,053	2,273,881	2,894,294	2,301,225	29,482	\$ 0	\$ 142,903	\$ 1,163,202

Actual generation as a percentage of average: 79.5%

Cost per MWh: \$39.45

Lake/Reservoir Levels

End of April storage volume for Lake Powell was 7.77 million acre-feet (MAF) or about 33 percent of capacity. Lake Powell reservoir inflow for April was 733,000 acre-feet or 81 percent of average. Lake Powell elevation at the end of April was about 3,560 feet, or about 140 feet from maximum reservoir level and 70 feet from the minimum generation level.

Weather and Other Conditions

Despite above average snowpack in the Basin, inflow forecasts into Lake Powell are still below the 30-year average. The release volume from Glen Canyon Dam for water year 2024 will be 7.48 million acre-feet. With this release volume, it is expected CRSP generation in water year 2024 will be below average. Early forecasts point to the same 7.48 million acre-feet release in water year 2025. Firming purchase power costs through April were \$1,163,202. CRSP is forecasting generation above its Deliverable Sales Amount commitments in May that will likely reduce total purchases for the current water year. Purchase power in the region was available and prices per megawatt-hour over the last month have averaged in the mid \$20s for on-peak and low \$20s for off-peak.



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 23	0.70	0.58	60.19	31.00	20.00	10.92	269,100	261,105	373,406	263,326	18,943	\$ 2,412,331	\$ 2,412,331	\$ 1,291,913
Nov 23	3.40	1.70	54.10	41.00	19.96	10.96	276,100	257,555	360,237	259,438	21,443	\$ 2,973,741	\$ 2,973,741	\$ 1,291,512
Dec 23	6.50	4.25	72.70	74.00	19.97	11.25	171,650	181,445	360,088	183,271	33,374	\$ 5,214,589	\$ 5,214,589	\$ 1,710,441
Jan 24	9.60	8.26	92.00	68.00	20.03	11.67	219,550	183,265	383,339	182,113	38,984	\$ 4,920,163	\$ 4,920,163	\$ 3,129,234
Feb 24	12.80	12.98	104.79	87.00	19.98	11.96	195,900	183,345	382,035	188,654	32,965	\$ 2,436,773	\$ 2,436,773	\$ 1,411,232
Mar 24	15.50	17.13	104.79	59.00	19.78	11.88	434,700	429,765	523,377	428,729	34,256	\$ 1,743,729	\$ 1,743,729	\$ 995,137
Apr 24	12.94	11.70	85.67	78.00	19.68	11.64	493,750	489,495	566,244	474,958	34,346	\$ 873,355	\$ 873,355	\$ 652,574
May 24														
Jun 24														
Jul 24														
Aug 24														
Sep 24														
Total							2,060,750	1,985,975	2,948,726	1,980,488	214,311	\$ 20,574,681	\$ 20,574,681	\$ 10,482,043

Actual generation as a percentage of average: 67.2%

Cost per MWh: \$48.91

Lake/Reservoir Levels

Aggregate system storage for the Lower Colorado River Basin, or Lakes Mead, Mohave, and Havasu, was 11.64 million acre-feet (MAF) at the end of April, or 41 percent of the Lower Basin capacity. The Lower Basin tributary inflow into Lake Mead for April was 79,000 acre-feet, or about 78 percent of the five-year average for the month. The total side inflow into Lake Mead for WY 2024 is projected to be 761,000 acre-feet, which represents a 43.2 percent decrease from last year and 59 percent of the normal annual side inflow. Lake Mead's elevation at the end of April was 1,072.24 feet, or 147.4 feet below full storage elevation and 122.24 feet above the minimum generation elevation for Hoover Dam. For WY 2024, Lake Mead's elevation peaked in February at 1,076.52 feet (10.7 feet above the WY 2023 peak elevation) and the minimum elevation of 1,060.77 feet is projected to occur in September.

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. As of May, precipitation is currently 101 percent of average with a slight uptick in snowpack. The snowpack is 135 percent of 30-year median for late May. Market prices for April averaged \$10 per megawatt-hour (MWh) for firm on-peak and \$21 per MWh for firm off-peak.



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 23	0.00	0.00	143.40	197.20	3.87	4.41	75,593	85,593	97,400	71,843	90,389	\$ 3,472,280	\$ 3,072,280	\$ 3,840,631
Nov 23	3.70	4.00	124.10	143.00	3.97	4.45	59,796	69,796	110,000	68,764	91,236	\$ 4,096,160	\$ 3,696,160	\$ 4,255,679
Dec 23	11.70	8.00	102.10	116.00	4.00	4.44	111,587	121,587	123,500	64,556	102,944	\$ 2,620,520	\$ 2,220,520	\$ 5,354,587
Jan 24	20.30	14.70	100.70	96.90	3.87	4.37	55,114	65,114	122,100	62,620	106,220	\$ 4,699,440	\$ 4,299,440	\$ 11,801,536
Feb 24	29.00	24.40	98.40	118.00	3.88	4.39	56,504	66,504	111,600	58,078	70,595	\$ 3,219,840	\$ 2,819,840	\$ 3,351,470
Mar 24	38.00	36.30	158.60	161.70	4.41	4.25	84,797	94,797	128,900	78,048	68,239	\$ 2,580,120	\$ 2,180,120	\$ 1,928,015
Apr 24	45.90	49.10	254.90	323.90	3.80	4.43	156,375	166,375	144,600	183,740	35,653	\$ 801,000	\$ 401,000	\$ 428,988
May 24														
Jun 24														
Jul 24														
Aug 24														
Sep 24														
Total							599,766	669,766	838,100	587,649	565,276	\$ 21,489,360	\$ 18,689,360	\$ 30,960,906

Actual generation as a percentage of average: 70.1%

Cost per MWh: \$54.77

Lake/Reservoir Content

At the end of April reservoir inflows were at 127 percent of average, and storage is at 117 percent of average.

Weather and Other Conditions

LAP's hydrologic conditions can vary from one river basin and watershed to another. Looking at the end of April, the snowpack is slightly above average for the majority of Wyoming and the Colorado East Slope area. The latest National Weather Service forecast indicates June through August temperatures will be above average in both Colorado and Wyoming. The same forecast indicates precipitation will have an equal chance for above and below average for both Wyoming and Colorado. The same forecast indicates precipitation will be below average in Wyoming and Colorado. Summer generation in the North Platte Basin and the Big Horn Basin is forecasted to be average, and the Colorado River Basin is forecasted to be slightly above average.

Note: The Rocky Mountain Region's most recent reported actual generation is an estimated value.



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 23	N/A	N/A	300.00	270.00	5.15	6.81	128,000	143,000	163,000	196,031	37,640	\$ 2,822,422	\$ 2,822,422	\$ 2,822,422
Nov 23	N/A	N/A	418.00	382.00	5.12	6.71	60,000	10,000	104,000	76,421	39,504	\$ 2,907,599	\$ 2,907,599	\$ 2,907,599
Dec 23	25.00	2.50	834.00	580.00	5.46	6.85	53,000	18,000	143,000	38,932	41,458	\$ 3,039,643	\$ 3,039,643	\$ 3,039,643
Jan 24	26.25	8.40	1,128.00	1,246.00	6.14	7.52	53,000	53,000	163,000	68,432	37,274	\$ 2,733,880	\$ 2,733,880	\$ 2,747,727
Feb 24	26.43	18.50	1,222.00	1,904.00	6.51	8.10	50,000	175,000	195,000	409,679	34,797	\$ 2,560,400	\$ 2,560,400	\$ 2,569,652
Mar 24	26.18	28.80	1,524.00	1,797.00	7.20	8.87	91,000	291,000	207,000	327,709	37,486	\$ 2,730,355	\$ 2,730,355	\$ 2,751,542
Apr 24	24.80	18.60	1,350.00	1,426.00	7.65	9.34	267,000	291,000	288,000	307,508	25,600	\$ 1,292,140	\$ 1,292,140	\$ 1,292,140
May 24														
Jun 24														
Jul 24														
Aug 24														
Sep 24														
Total							702,000	981,000	1,263,000	1,424,712	253,759	\$ 18,086,440	\$ 18,086,440	\$ 18,130,726

Actual generation as a percentage of average: 112.8%

Cost per MWh: \$71.45

Lake/Reservoir Content

As of April 30, reservoir storage was 121 percent of the 15-year average for Trinity, 118 percent for Shasta, 115 percent for Folsom, and 137 percent for New Melones. Accumulated inflow was 148 percent of the 15-year average for Trinity, 121 percent for Shasta, 87 percent for Folsom, and 93 percent for New Melones.

Weather and Other Conditions

February had 12 inches or 146 percent average, March had 10.44 inches or 144 percent average, and April ended at 2.02 inches or 53 percent average. The statewide snowpack is officially at 75 percent of the April 1st average. The water year total is now at 45.02 inches or 89 percent of the annual average of 50 inches. Based on May 1 conditions, the Sacramento Valley 40-30-30 index at the 50 percent exceedance level is "above normal," as well as at the 90 percent exceedance level.

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 23	1.20	1.00	8,188.00	7,794.25	56.17	55.02	833,578	828,978	983,545	806,938	12,164	\$ 930,443	\$ 940,695	\$ 557,677
Nov 23	3.80	1.80	7,527.00	7,053.46	55.03	54.19	668,938	684,988	876,167	718,196	96,826	\$ 1,903,874	\$ 1,778,581	\$ 2,715,665
Dec 23	7.10	3.30	6,425.00	5,000.04	54.44	54.53	544,278	544,278	677,560	484,694	372,667	\$ 11,866,282	\$ 11,866,282	\$ 9,334,915
Jan 24	10.30	5.20	6,664.00	4,971.07	54.34	54.08	555,028	538,028	724,546	581,715	351,655	\$ 13,751,530	\$ 14,002,043	\$ 23,301,062
Feb 24	13.10	8.30	6,297.00	5,688.02	54.63	55.25	593,148	576,798	656,793	502,273	391,366	\$ 4,079,103	\$ 4,427,189	\$ 7,351,018
Mar 24	0.00	11.30	8,247.00	6,819.79	0.00	55.52	712,754	683,478	650,292	666,973	158,628	\$ 2,420,122	\$ 2,911,981	\$ 819,163
Apr 24	0.00	10.30	8,205.00	8,040.46	0.00	55.61	926,456	903,688	757,805	790,561	*	\$ 470,642	\$ 331,613	*
May 24														
Jun 24														
Jul 24														
Aug 24														
Sep 24														
Total							4,834,180	4,760,236	5,326,708	4,551,350	1,383,306	\$ 35,421,996	\$ 36,258,385	\$ 44,079,500

Actual generation as a percentage of average: 85.4%

Cost per MWh: \$31.87

Lake/Reservoir Content

The yearly runoff forecast for the Missouri River Basin as of May 1 was 19.2 million acre-feet (MAF) or 75 percent of average. Runoff above Sioux City for May was 2.4 MAF or 73 percent of average. System storage as of May 28 was 54.9 MAF. Fort Peck Test Flow to protect the pallid sturgeon are currently in the retention portion and will continue to be adjusted to meet the design hydrograph.

Weather and Other Conditions

On May 22, the mountain snow water equivalent (SWE) in the total above Fort Peck reach was 6.1 inches or 52 percent remaining of the annual peak; the reach peak, which occurred April 9, was 11.6 inches or 73 percent of average. The mountain SWE in the Fort Peck to Garrison reach for May was 8.4 inches or 70 percent remaining of the annual peak; the reach peaked on April 10 at 12 inches or 82 percent of average. According to NOAA, the Great Plains Region observed its 44th wettest (near normal) January-April period on record. Overall, above-normal precipitation in Montana and parts of the lower Basin have improved drought conditions over the Missouri basin. As of May 21, over 67% of the basin had no abnormally dry or drought conditions. The 90- to 180-day averages outlook shows normal to slightly above normal temperatures and anticipates equal chances for normal to slightly below normal precipitation in far western Montana.

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.

