

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

	Generation (Megawatt-Hours [MWh])				Purchase Power (MWh)	Purchase Power Expenses (Dollars)		
	Projected Dry	Most Probable	Average	Actual	Actual	Projected Dry	Most Probable	Actual
<b>Oct 23</b>	1,525,114	1,601,376	2,009,421	1,623,818	165,241	\$ 9,637,477	\$ 9,247,728	\$ 8,773,482
<b>Nov 23</b>	1,180,375	1,305,668	1,829,897	1,392,997	259,840	\$ 11,881,374	\$ 11,356,081	\$ 11,602,306
<b>Dec 23</b>	1,023,883	1,188,450	1,753,869	1,100,880	566,215	\$ 22,741,034	\$ 22,341,034	\$ 20,147,037
<b>Jan 24</b>	929,659	1,214,819	1,850,641	1,270,922	531,007	\$ 26,105,013	\$ 26,098,429	\$ 40,789,223
<b>Feb 24</b>	938,201	1,340,282	1,734,517	1,491,863	529,836	\$ 12,296,116	\$ 12,244,202	\$ 14,686,739
<b>Mar 24</b>	1,367,636	1,838,788	1,922,208	1,852,432				
<b>Apr 24</b>								
<b>May 24</b>								
<b>Jun 24</b>								
<b>Jul 24</b>								
<b>Aug 24</b>								
<b>Sep 24</b>								
<b>Total</b>	6,964,868	8,489,382	11,100,553	8,732,911	2,052,139	\$ 82,661,014	\$ 81,287,475	\$ 95,998,787
	Actual generation as a percentage of average: 78.7%					Cost per MWh: \$46.78		

Western Area Power Administration (WAPA) generated a total of 8,733 gigawatt-hours (GWh) from October through March of fiscal year 2024, or 78.7 percent of average. Actual purchase power data is currently available from October through February for all of WAPA’s Regions, and during this period total purchase power was 2,052 GWh and total purchase power expenses were \$95,998,787, which equates to \$41.93 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														
May 24														
Jun 24														
Jul 24														
Aug 24														
Sep 24														
<b>Total</b>							611,753	1,942,963	2,480,669	1,945,479	27,428	\$ 0	\$ 142,903	\$ 1,129,061

Actual generation as a percentage of average: 78.4%

Cost per MWh: \$41.16

### Lake/Reservoir Levels

End of March storage volume for Lake Powell was 7.72 million acre-feet (MAF) or about 33 percent of capacity. Lake Powell reservoir inflow for March was 455,000 acre-feet or 76 percent of average. Lake Powell elevation at the end of March was about 3,559 feet, or about 141 feet from maximum reservoir level and 69 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. Firming purchase power costs through March were \$1,129,061, a reduction from February due to generation above CRSP Deliverable Sales Amount (DSA) commitment being sold to the market. CRSP is forecasting little to no purchases will be required over the next few months to meet obligations. Purchase power in the region was generally available and prices over the last month have averaged in the mid \$20s both on-peak and 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														
May 24														
Jun 24														
Jul 24														
Aug 24														
Sep 24														
<b>Total</b>							1,567,000	1,496,480	2,382,482	1,505,531	179,965	\$ 19,701,326	\$ 19,701,326	\$ 9,829,469

Actual generation as a percentage of average: 63.2%

Cost per MWh: \$54.62

### Lake/Reservoir Levels

Aggregate system storage for the Lower Colorado River Basin, or Lakes Mead, Mohave, and Havasu, was 11.88 million acre-feet (MAF) at the end of March, or 42 percent of the Lower Basin capacity. The Lower Basin tributary inflow into Lake Mead for March was 59,000 acre-feet, or about 46 percent of the five-year average for the month. The total side inflow into Lake Mead for WY 2024 is projected to be 782,000 acre-feet, which represents a 41.6 percent decrease from last year and 66 percent of the normal annual side inflow. Lake Mead's elevation at the end of March was 1,075.53 feet, or 144.29 feet below full storage elevation and 125.35 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 1,060.29 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. The precipitation is currently 100 percent of average and the snowpack is 89 percent of 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 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														
May 24														
Jun 24														
Jul 24														
Aug 24														
Sep 24														
<b>Total</b>							443,391	503,391	693,500	403,909	529,623	\$ 20,688,360	\$ 18,288,360	\$ 30,531,918

Actual generation as a percentage of average: 58.2%

Cost per MWh: \$57.65

### Lake/Reservoir Content

At the end of March reservoir inflows were at 102 percent of average, and storage is at 96 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 average for the majority of Wyoming and the Colorado East Slope area. The latest National Weather Service forecast indicates May through July temperatures were slightly 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 have an equal chance to be above and below average in Wyoming and Colorado. Spring generation in the North Platte Basin is forecasted to be average, the Colorado River Basin is forecasted to be slightly above average, and the Big Horn Basin is forecasted to be slightly below 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	37,150	\$ 2,730,355	\$ 2,730,355	\$ 2,730,355
Apr 24														
May 24														
Jun 24														
Jul 24														
Aug 24														
Sep 24														
<b>Total</b>							435,000	690,000	975,000	1,117,204	227,823	\$ 16,794,300	\$ 16,794,300	\$ 16,817,398

Actual generation as a percentage of average: 114.6%

Cost per MWh: \$73.82

### Lake/Reservoir Content

As of March 31, reservoir storage was 121 percent of the 15-year average for Trinity, 121 percent for Shasta, 117 percent for Folsom, and 134 percent for New Melones. Accumulated inflow was 153 percent of the 15-year average for Trinity, 125 percent for Shasta, 82 percent for Folsom, and 91 percent for New Melones.

### Weather and Other Conditions

January had 9.93 inches or 113 percent average, February had 12 inches or 146 percent average, and March ended at 10.44 inches or 144 percent average. The Sierra snowpack was assumed to reach its peak April 1, and blizzard conditions in March resulted in 110 percent of the peak. The water year total is now at 42.92 inches or 85 percent of the annual average of 50 inches. Based on April 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	*	\$ 2,420,122	\$ 2,911,981	*
Apr 24														
May 24														
Jun 24														
Jul 24														
Aug 24														
Sep 24														
<b>Total</b>							3,907,724	3,856,548	4,568,902	3,760,789	1,224,678	\$ 34,951,354	\$ 35,926,772	\$ 43,260,337

Actual generation as a percentage of average: 82.3%

Cost per MWh: \$35.32

### Lake/Reservoir Content

The yearly runoff forecast for the Missouri River Basin as of April 1 was 17.4 million acre-feet (MAF) or 68 percent of average. Runoff above Sioux City for March was 1.8 MAF or 59 percent of average. System storage as of April 23 was 53.9 MAF.

### Weather and Other Conditions

On April 28, the mountain snow water equivalent in the total above Fort Peck reach was 10.3 inches or 89 percent of average, and the mountain snow water equivalent in the Fort Peck to Garrison reach was 10.5 inches or 88 percent of average. The normal peak for both reaches occurs on or around April 17. According to NOAA, North Dakota experienced the 2<sup>nd</sup> warmest period on record between Dec-March. In northeastern Nebraska and northwestern South Dakota, shorter-term improvements in precipitation reduced drought-related conditions to abnormally dry. Overall, the region was generally dry during the past week except for some isolated shower activity in northeastern Kansas, northcentral and northeastern Nebraska, and southwestern South Dakota. 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.*

