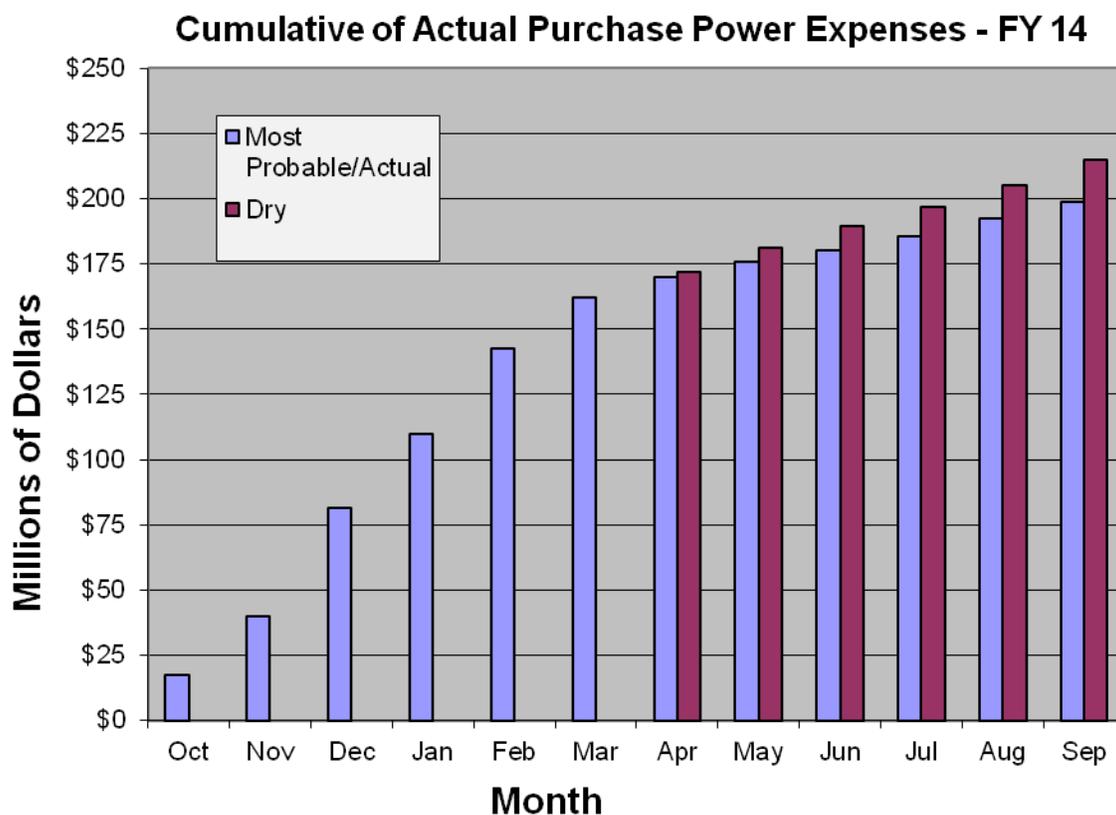


Hydro Conditions and Purchase Power Monthly Outlook April 2014

Western Summary

- The most probable forecast of net generation for fiscal year (FY) 2014 is 23,814 gigawatt-hours (GWh) or 88 percent of average. October through March generation was 77 percent of average.
- The lower level forecast of generation for FY 2014 is 22,608 GWh or 83 percent of average.
- The purchased power for FY 2014 is expected to range between 3,469 and 3,871 GWh.
- The average price for purchase power across all hydro projects and off-peak and on-peak periods is expected to be \$57/megawatt-hour (MWh). This price compares to \$41/MWh last year.
- Purchase power expenses for FY 2014 are forecast to range between \$199 and \$215 million.
- The most probable forecast of October through March purchase power expenses is \$162 million¹ – compared to \$117 million for the same period last year.



¹ At this time, the actual total of Western-wide purchase power expenses is not available for March due to the lack of certain Western Regional data.

Upper Great Plains Region

Storage: The NRCS's snowpack conditions have increased to 136 percent of the 30 year median; therefore, the anticipated inflow for the April through July period is forecast to be 2457.1 thousand acre-feet (kAF) or 142 percent of the 30 year average. Streamflows into Bighorn Lake during March were 144 percent of average. On April 1, the NRCS measured the snow water content of the mountain snowpack in the Bighorn Basin at 134 percent of average. Based on the April 1 water supply forecast and the planned releases out of Boysen and Buffalo Bill Reservoirs, the April-July runoff into Bighorn Lake is expected to equal 1,960,800 acre-feet (194 percent of average).

As of April 18, 2014, the storage level at [Canyon Ferry](#) was 1,352,441 acre-feet and the active conservation pool is 71.5 percent full. Storage at [Yellowtail](#) is 767,236 acre-feet and the active conservation pool is 75.2 percent full.

COE: As of April 11, 2014, mountain snowpack above Ft. Peck is about 128 percent of normal. Between Ft. Peck and Garrison the snowpack is 137 percent. Currently the system storage is slightly below normal due to drought in 2012 but the greater than average snowpack will bring system storage to normal levels and also increase system generation to near normal for the year. Runoff is now estimated to be 106 percent of normal. Forecast energy was raised to 8,404 GWh, up somewhat from last month. The average is 10,027 GWh.

Snow pack: April 1 forecasted runoff for calendar year 2014 is 32.0 million acre-feet (MAF). This runoff would be 127 percent of normal runoff.

FY Generation: The six main stem power plants generated 619 million kilowatt hours of electricity in March. Total energy production for 2014 is forecasted to be 9,640 GWh, up from 8,929 GWh forecasted in March. The long-term average is approximately 10 billion kWh.

Purchased Power: The extreme cold weather has abated and so the price of power is starting to come back down. Prices for off peak power range from lower to mid 20s and on peak power ranges up to mid thirties.

Rocky Mountain Region

The Loveland Area Projects (LAP) reside in both the Upper Missouri and Upper Colorado basins. Hydrologic conditions can vary from one river basin and watershed to another. The three LAP watersheds are the Bighorn River Basin in Wyoming, the North Platte River Basin in Colorado and Wyoming, and the headwaters of the Colorado River Basin in Colorado.

The LAP area is drought free. The reservoir inflow was above average in the Colorado River headwaters and Bighorn Basin over the winter and was average in the North Platte Basin. The overall LAP reservoir storage at the end of March was below average with gains in the Colorado-Big Thompson Project (CBT) and losses in the North Platte Basin since the end of last March. The snowpack was well above average starting the month and remains so as of this writing. The latest National Weather Service forecast indicates May through July temperatures will just as likely be above average as below average in Northern Colorado and Wyoming. The precipitation is more likely to be above average in Colorado and just as likely be above average as below average in Wyoming. The spring snow melt runoff is now forecast to be well above average for all three basins.

LAP Water Conditions At-A-Glance									
	Reservoir Storage 1,000 acre-feet			Snowpack inches snow water equivalent			Most Probable Reservoir Inflow 1,000 acre-feet (April - July)		
	end of March	average	% of average	beginning of April	average	% of average	April forecast	average	% of average
	CBT	574.1	599.1	96%	489.2	361.6	135%	867.0	588.0
North Platte	1,109.3	1,507.8	74%	474.1	375.9	126%	950.0	770.0	123%
Bighorn	1,878.0	1,719.9	109%	491.1	353.8	139%	2,265.9	1,315.0	172%
TOTAL	3,561.4	3,826.8	93%	1,454.4	1,091.3	133%	4,082.9	2,673.0	153%
Net At Plant Generation Projections (GWh)									
	Most Probable Case median inflow			Reasonable Minimum Case lower decile inflow			Reasonable Maximum Case upper decile inflow		
	April projection	average	% of average	April projection	average	% of average	April projection	average	% of average
	Winter 13-14	555.3	718.0	77%	555.3	718.0	77%	555.3	718.0
Summer 14	1,436.5	1,217.8	118%	1,319.1	1,217.8	108%	1,613.2	1,217.8	132%
TOTAL 2014	1,991.8	1,935.8	103%	1,874.4	1,935.8	97%	2,168.5	1,935.8	112%

The winter season generation was 77 percent of average. There was an extended CBT outage due the flooding in September. Reclamation drained Lake Estes and curtailed all imports through Adams Tunnel through early December to allow for the removal of sediment and debris washed into the Lake by the flood. Imports resumed in mid-December and heavier Adams Tunnel imports later in the winter shifted normal October and November CBT generation into February and March. There were minimum winter reservoir releases and associated generation in the North Platte Basin due to depleted reservoir storage.

The upcoming summer season generation is expected to fall between 108 percent and 132 percent of average. Heavy runoff and likely reduced water demand will result in nearly full East Slope storage. If the possibility of a late summer spill of Lake Granby is low then conditions would be right for another curtailment of Adams Tunnel imports and associated CBT generation in the late summer as a means to improve water clarity in Grand Lake.

Colorado River Storage Project Management Center

The total storage volume for the CRSP main stem reservoirs is 13,919,000 acre-feet, which is about 45 percent of the total main stem reservoir storage capacity. Main stem reservoir inflows for the most recent historical month (March 2014) were about 77 percent of average. Lake Powell elevation currently is about 3,574 feet, 126 feet from maximum reservoir level and about 84 feet from the minimum generation level. Lake Powell elevation is expected to increase in April as spring runoff begins entering the reservoir. Based on the current forecast, the 24-Month study for April projects Lake Powell elevation will peak near approximately 3,614 feet near the end of June and end the water year near 3,610 feet with approximately 12.71 MAF in storage (52 percent capacity).

The forecast for the 2014 April to July water supply season for Lake Powell, issued on April 2, 2014, by the Colorado Basin River Forecast Center, projects that the most probable (median) unregulated inflow volume will be 7.85 MAF (110 percent of average based on the period 1981-2010). The April-July forecast decreased by 0.45 MAF since last month. The winter snow accumulation season has tracked slightly above average over the past month (currently 112 percent of median). We are nearing the end of the typical snow accumulation season and spring runoff is expected to begin in many sub-basins over the next month. However, the timing and final volume of spring runoff is still uncertain. The April-July forecast ranges from a minimum probable of 5.80 MAF (81 percent of average) to a maximum probable of 10.3 MAF (144 percent of average). For reference, the 30-year April-July average is 7.16 MAF. There is a 10 percent chance that inflows could be higher than the maximum probable and a 10 percent chance they could be lower than the minimum probable.

Based on that inflow forecast, estimated SLCA/IP net generation for FY 2014 is 4,133 GWh as compared to 5,584 GWh based on the long-term historical average generation.

Estimated purchase power expenses for firming during FY 2014 are about \$51.9 million as compared to about \$18.4 million based on long-term median historical releases. Purchase power availability in the region is good and prices are somewhat higher than usual for this time of year. Firming purchases for the last month have been averaging about \$40 on-peak and low \$35 off-peak.

Desert Southwest Region

Current Aggregate Storage (Mead, Mohave & Havasu): 14.111 MAF (14.708 MAF as of February 2014), with 20.788 MAF being the 64-year historical average.

The Lake Mead end of March 2014 elevation was 1,101.71 feet (6.23 feet lower than end of February 2014 elevation), or about 117.9 feet below full storage elevation of 1,219.64 feet and 51.71 feet above the minimum generation elevation for Hoover of 1,050 feet.

Lake Mead's elevation peaked at 1108.75 feet in January of water year (WY) 2014 (13.57 feet below the WY 2013 peak elevation of 1122.32 feet), and is projected to drop to a minimum elevation of 1081.97 feet in September of WY 2014, a maximum fluctuation in lake elevation of 26.78 feet.

The Lake Powell operational tier for WY 2014 is currently the Mid-Elevation Release Tier. Total releases from Lake Powell are projected to average about 7.48 MAF for WY 2014 (actual of 8.232 MAF for WY 2013). The projected 2014 April – July unregulated inflow into Lake Powell (as of 4/8/14) is 7.85 MAF or 110 percent of average (actual of 2.56 MAF or 36 percent of average for 2013).

Basin Snow Pack and Precipitation: DSW hydrology, or the Lower Colorado River Basin, is mostly dependent on the Colorado River Basin snow pack and precipitation above Lake Powell. The WY 2014 precipitation is currently 98 percent of average and the snowpack is 100 percent of the 30-year (1981-2010) median.

Lower Basin Runoff: The lower basin tributary inflow into Lake Mead for March 2014 was 33 kAF. The projected side inflow into Lake Mead for WY2014 is 788 kAF which represents a 4.4

percent decrease over last year's actual of 824 kAF, and represents 61 percent of the normal annual side inflow of 1.3 MAF.

Forecasted WY 2014 Generation: 5,342 GWh compared to the 5,639 GWh historical average. The projected Hoover and Parker-Davis generation for WY 2014 is 95 percent of the average historical generation.

Wholesale Power Market Conditions: The March market prices in the Desert Southwest averaged about \$42/MWh firm on-peak, \$33/MWh firm off-peak compared to \$60/MWh firm on-peak, \$48/MWh firm off-peak for the previous month.

Sierra Nevada Region

The total storage of the four major CVP reservoirs is 5.195 MAF, compared to 8.201 MAF last year. Accumulated inflow for the water year-to-date is 41 percent of the 15-year average for Trinity, 51 percent for Shasta, 42 percent for Folsom, and 43 percent for New Melones. None of the reservoirs is in flood control operations at this time.

The Northern Sierra Eight Station index averages slightly more than 50 inches of precipitation per water year. October recorded precipitation totaled 0.72 inches, or 23 percent of the monthly average. November recorded precipitation totaled 1.66 inches, or 26 percent of average. December came in at 0.92 inches, or 10 percent of average. January came in at 1.20 inches or 13 percent of its average. February ended at 14.20 inches or 130 percent of its average. March came in at 10.21 inches, or 153 percent of average. The cumulative total at this time is 26.91 inches or 53 percent of the annual average. December and January are the months with the highest average, with February very close. March is next and we received another 5 inches during the last week of that month, but April has been rather dry thus far with only 1.50 inches of measurable precipitation.

Water year type forecasting begins in December, but snow surveying doesn't begin until January. The snowpack is assumed to reach its peak on April 1. Therefore, snow water equivalents are reported as a percentage of this average. As of April 24, the North is at 7 percent, the Central is at 20 percent, and the South is at 15 percent of this average. The Sacramento River Index forecast of water supply, based upon April 1 conditions forecast, remains "critical" for the 90 percent exceedence as well as the 50 percent case. Still, March gains in precipitation are reflected in the April 1 conditions forecasts. The year type declaration will be based upon May 1 conditions at the 50 percent exceedence level.

The average projection of net generation is again taken from the latest modeling using the update to our customers' "Green Book." This average, at 3.34 GWh, is less than the 3.63 GWh from the CVPIA PEIS planning studies. Under the Post 2004 Marketing Plan, net generation, after Project Use load, First Preference Customer load and sub-control area reserve requirement, becomes the Base Resource which is allocated among the Base Resource, Variable Resource and Full Load Service Customers. This past fiscal year ended at approximately 91 percent of that average. Reclamation forecasts are based upon January 1 conditions, which were based upon water supply forecast of "critical" for the 90 percent exceedence and "critical" for the 50 percent exceedence. These forecasts remain 65 percent and 66 percent of this "Green Book" average net generation.