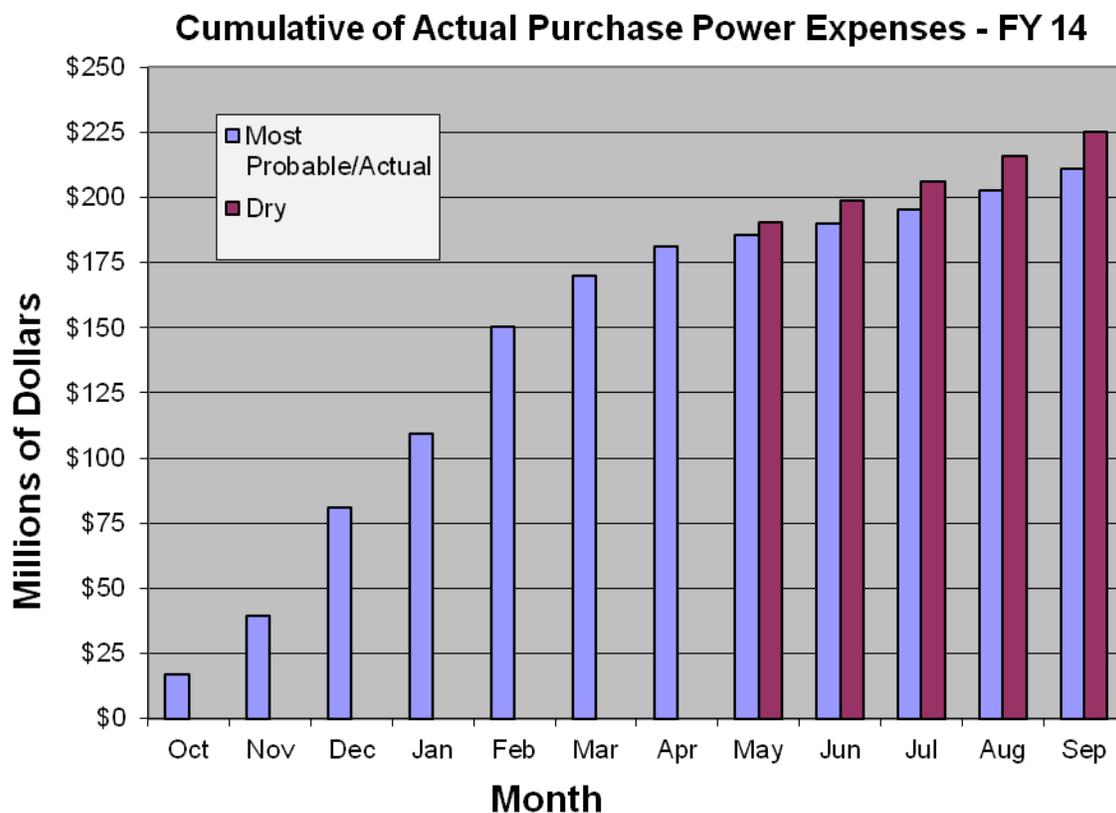


Hydro Conditions and Purchase Power Monthly Outlook May 2014

Western Summary

- The most probable forecast of net generation for fiscal year (FY) 2014 is 23,766 gigawatt-hours (GWh) or 87 percent of average. October through April generation was 81 percent of average.
- The lower level forecast of generation for FY 2014 is 22,809 GWh or 84 percent of average.
- The purchased power for FY 2014 is expected to range between 4,198 and 4,548 GWh.
- The average price for purchase power across all hydro projects and off-peak and on-peak periods is expected to be \$50/megawatt-hour (MWh). This price compares to \$43/MWh last year.
- Purchase power expenses for FY 2014 are forecast to range between \$211 and \$225 million.
- October through April purchases totaled over \$181 million – compared to \$125 million for the same period last year.



Upper Great Plains Region

Storage: The NRCS's snowpack conditions continue to be above average at 138 percent of the 30 year median; therefore the anticipated inflow for the May through July period is forecast to be 1883.0 thousand acre-feet (kAF) or 132 percent of the 30 year average. Streamflows into Bighorn Lake during April were 216 percent of average. On May 1, the NRCS measured the snow water content of the mountain snowpack in the Bighorn Basin at 134 percent of average. Based on the May 1 water supply forecast and the planned releases out of Boysen and Buffalo Bill Reservoirs, the May-July runoff into Bighorn Lake is expected to equal 1,636,200 acre-feet (177 percent of average).

As of April 18, 2014, the storage level at [Canyon Ferry](#) was 1,330,194 acre-feet and the active conservation pool is 70.3 percent full. Storage at [Yellowtail](#) is 725,094 acre-feet and the active conservation pool is 71.0 percent full.

COE: Bird peaking has started once again at Garrison, Ft. Randall, and Gavins Point. The Piping Plover and Least Tern return annually to nest on the sand banks of the river. Periodically the plants will be releasing a pulse of water to ensure the birds nest near the tops of the sandbanks, thus preventing the nests from washing away if the river fluctuates. As of May 12, 2014, mountain snowpack between Ft. Peck and Garrison the snowpack is 119 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 estimated to be 125 percent of normal. Forecast energy was raised to 9,691 GWh, up somewhat from last month. 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 827 million kWh of electricity in April. Total energy production for 2014 is forecasted to be 9,691 GWh, up from 8,964 GWh forecasted in March. The long-term average is approximately 10 billion kWh.

Purchased Power: We are in the shoulder months of the generating season, and with loads being down prices have stayed in the low twenties for off-peak power and on-peak power ranging 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 continues to be drought free. The year to date reservoir inflow has been above average in the North Platte Basin and well above average in the Colorado River headwaters and Bighorn Basin. The overall LAP reservoir storage at the end of April was below average with gains in the Colorado-Big Thompson Project (CBT) and losses in the North Platte Basin since the end of last April. The snowpack was well above average starting the month and remains so as of this writing. The latest National Weather Service forecast indicates June through August temperatures

will just as likely be above average as below average in Northern Colorado and Wyoming while the precipitation is more likely to be above average. The spring snow melt runoff is now forecast to be above average in all three basins and well above average overall due to the snowpack and favorable soil moisture and bank storage carrying over from the heavy fall storms.

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)		
	beginning of May	average	% of average	beginning of May	average	% of average	May forecast	average	% of average
CBT	612.5	599.6	102%	431.8	346.8	125%	825.0	588.0	140%
North Platte	1,264.6	1,572.8	80%	463.2	393.5	118%	900.0	770.0	117%
Bighorn	1,681.0	1,672.0	101%	472.0	317.5	149%	2,268.3	1,315.0	172%
TOTAL	3,558.1	3,844.4	93%	1,367.0	1,057.8	129%	3,993.3	2,673.0	149%
Net At Plant Generation Projections (GWh)									
	Most Probable Case median inflow			Reasonable Minimum Case lower decile inflow			Reasonable Maximum Case upper decile inflow		
	May projection	average	% of average	May projection	average	% of average	May projection	average	% of average
Winter 13-14	555.3	718.0	77%	555.3	718.0	77%	555.3	718.0	77%
Summer 14	1,382.3	1,217.8	114%	1,313.1	1,217.8	108%	1,505.8	1,217.8	124%
TOTAL 2014	1,937.6	1,935.8	100%	1,868.4	1,935.8	97%	2,061.1	1,935.8	106%

The summer season generation is expected to fall between 108 percent and 124 percent of average. Reclamation operating plans project likely plant bypasses in the Bighorn Basin and about a 50 percent chance of an early summer Lake Granby spill due to heavy reservoir inflows. Heavy runoff and likely reduced water demand will result in nearly full East Slope CBT 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. If there is a water clarity operation this summer, there has also been a request to pump from Lake Granby to Shadow Mountain Reservoir during the operation to test the impact of pumping on Shadow Mountain Reservoir algae blooms that occur when there are no Adams Tunnel imports in the hottest summer months. The water pumped to Shadow Mountain Reservoir would immediately spill from the reservoir and run back downstream into Lake Granby. The pumping energy required for the test would either increase the purchases for LAP or reduce the sale of surplus LAP generation during the time of heaviest summer power demands.

Colorado River Storage Project Management Center

The total storage volume for the CRSP main stem reservoirs is 14,775,000 acre-feet, which is about 48 percent of the total main stem reservoir storage capacity. Main stem reservoir inflows for the most recent historical month (April 2014) were about 93 percent of average. Lake Powell elevation currently is about 3,580 feet, 120 feet from maximum reservoir level, and about 90 feet from the minimum generation level. Lake Powell elevation increased in April as spring runoff began entering the reservoir. Based on the current forecast, the May 24-Month study projects Lake Powell

elevation will peak near approximately 3,616 feet near the end of June and end the water year near 3,610 feet with approximately 12.78 MAF in storage (52 percent capacity).

Note that projections of elevation and storage have uncertainty at this point in the season, primarily due to uncertainty regarding the spring runoff and resulting inflow to Lake Powell. Under the minimum probable inflow scenario, last updated in April, the projected summer peak is 3,599 feet and end of water year storage is 11.0 MAF (45 percent capacity). Under the maximum probable inflow scenario, updated in April, the projected summer peak is 3,632 feet and end of water year storage is 14.9 MAF (61 percent capacity). There is a 10 percent chance that inflows will be higher, resulting in higher elevation and storage, and 10 percent chance that inflows will be lower, resulting in lower elevation and storage.

Based on that inflow forecast, estimated SLCA/IP net generation for FY 2014 is 4,206 GWh as compared to 5,584 GWh based on the long-term historical average generation.

Estimated purchase power expenses for firming during the FY 2014 are about \$54.8 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 in the low \$40s on-peak and upper \$30s off-peak.

Desert Southwest Region

Current Aggregate Storage (Mead, Mohave & Havasu): 13.538 MAF (14.111 MAF March 2014), 20.621 MAF (64-Year Historical Average).

The Lake Mead end of April 2014 elevation was 1,094.55 feet (7.16 feet lower than end of Mar 2014 elevation), or about 125.09 feet below full storage elevation of 1,219.64 feet and 44.55 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 1,122.32 feet), and is projected to drop to a minimum elevation of 1,081.18 feet in September of WY 2014, a maximum fluctuation in lake elevation of 27.57 feet.

The Lake Powell operational tier for WY 2014 is currently the Mid-Elevation Release Tier. Total releases from Lake Powell to Lake Mead 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 May 2, 2104) is 7.550 MAF or 105 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 100 percent of average and the snowpack is 145 percent of the 30-year (1981-2010) median.

Lower Basin Runoff: The lower basin tributary inflow into Lake Mead for April 2014 was 17 kAF. The projected side inflow into Lake Mead for WY 2014 is 708 kAF which represents a 14 percent

decrease over last year's actual of 824 kAF, and represents 54 percent of the normal annual side inflow of 1.3 MAF.

Forecasted WY 2014 Generation: 5,316 GWh compared to 5,640 GWh (Historical Average). The projected Hoover and Parker-Davis generation for WY 2014 is 94 percent of the average historical generation.

Wholesale Power Market Conditions: The March market prices in the Desert Southwest averaged about \$41/MWh firm on-peak, \$32/MWh firm off-peak compared to \$42/MWh firm on-peak, \$33/MWh firm off-peak for the previous month.

Sierra Nevada Region

The total storage of the four major CVP reservoirs is 4.873 million-acre-feet, compared to 7.615 MAF last year. Accumulated inflow for the water year-to-date is 34 percent of the 15-year average for Trinity, 49 percent for Shasta, 40 percent for Folsom and 39 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. April ended at 3.95 inches or 67 percent of average. The cumulative total at this time is 28.80 inches or 57 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. May which averages 2.20 inches is currently at 0.75.

Water year type forecasting begins in December, but snow surveying doesn't begin until January. The snowpack is assumed to reach its peak April 1. Snow water equivalents are reported as a percentage of this average. As of May 23, the North is at 2 percent, the Central is at 3 percent and the South is at 1 percent of this average. The Sacramento River Index forecast of water supply, based upon May 1 conditions forecast, remains "critical" for the 90 percent exceedence as well as the 50 percent case. The 40-30-30 year type declaration based upon May 1 conditions at the 50 percent exceedence level is "critical."

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 are 65 percent and 63 percent of this "Green Book" average net generation.