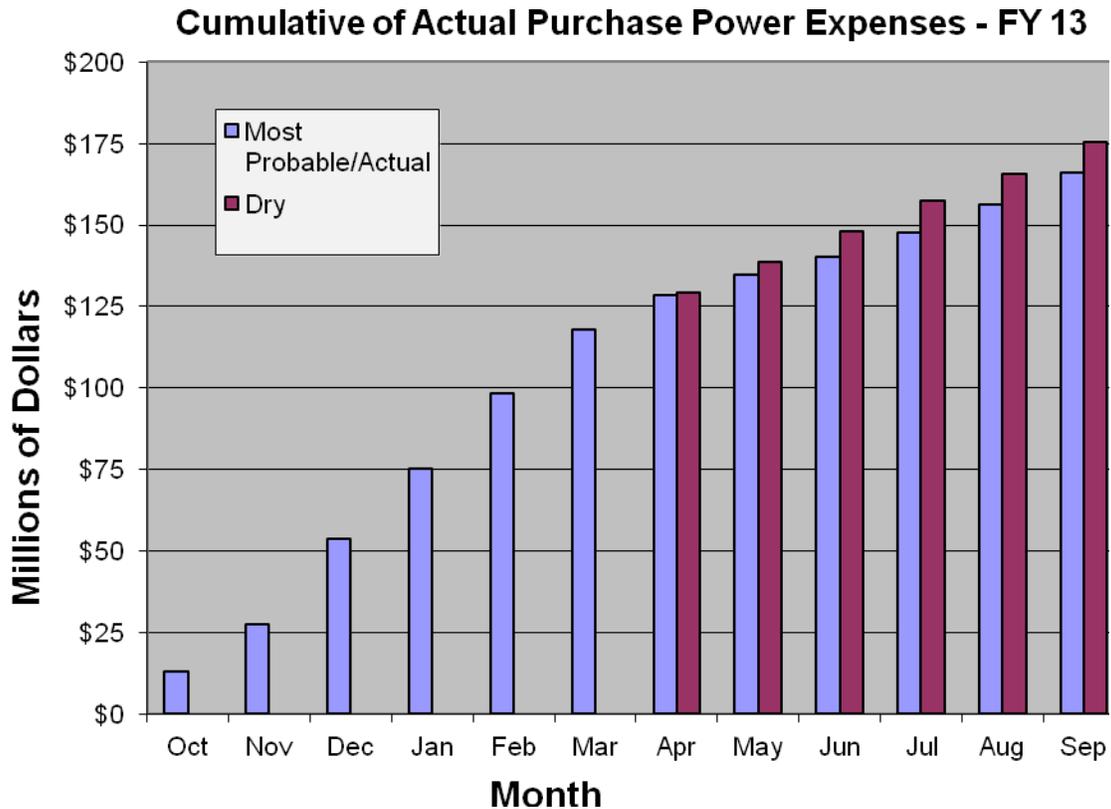


Hydro Conditions and Purchase Power Monthly Outlook April 2013

Western Summary

- The most probable forecast of net generation for FY 2013 is 23,327 gigawatt-hours (GWh) or 85 percent of average. October through March generation was 83 percent of average.
- The lower level forecast of generation for FY 2013 is 22,309 GWh or 81 percent of average.
- The purchased power for FY 2013 is expected to range between 3,669 and 3,924 GWh.
- The average price for purchase power across all hydro projects and off-peak and on-peak periods is expected to be \$45/MWh. This price compares to \$50/MWh last year.
- Purchase power expenses for FY 2013 are forecast to range between \$166 and \$175 million.
- October through March purchases totaled over \$117 million – compared to \$56 million for the same period last year.



Upper Great Plains Region

Storage: Based upon a 30 year average, streamflows into Canyon Ferry were 92 percent of average during March. Storage in Canyon Ferry is at 102 percent of average and the anticipated inflows during the April through July period is forecast to be 77 percent of average. Based upon the current water supply forecast, releases out of Canyon Ferry to the Missouri River below Holter Dam will be maintained near 4,000 cfs to assure the reservoir of filling to the top of the joint-use pool by the end of June. Streamflows into Bighorn Lake during March continued to remain below average at only 74% of average. Based on the April 1 water supply forecast and the planned releases out of Boysen and Buffalo Bill Reservoirs, the April through July runoff into Bighorn Lake is expected to equal 661,000 acre-feet (60% of average).

As of April, 2013, the storage level at [Canyon Ferry](#) was 1,451,689 acre feet and the active conservation pool is 76.7% full. Storage at [Yellowtail](#) is 847,181 acre feet and the active conservation pool is 85.7% full.

COE: Total runoff for the year is estimated to be only 80% of normal at 19.9 MAF, normal being 24.8 MAF. This may result in lower generation in future months, especially if drought conditions remain. The COE continues to operate in drought mode.

Snow pack: The April 1 forecasted runoff for calendar year 2013 is 20.5 MAF. This runoff would be 81% of normal runoff. As of April 1, 2013, the mountain snowpack in the reach above Fort Peck is 90% of the average snowpack for this date. Mountain snowpack in the reach between Fort Peck and Garrison is 84% of the average snowpack for this date.

FY Generation: The six main stem power plants generated 557 million kilowatt hours of electricity in February. Total energy production for 2013 was earlier forecasted to reach 8.0 billion kWh, but has been reduced to around 7.8 billion kWh. The long-term average is approximately 10 billion kWh.

Purchased Power: Generally prices are staying within the mid twenties for off peak power and mid-to upper-thirties for on peak power.

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.

Drought conditions have improved somewhat in the LAP area with recent spring storms but still range from moderate to extreme. The reservoir inflow has been well below normal in all three LAP basins so far this year. The accumulated snowpack at the beginning of the month was below average in the Bighorn Basin and well below average in the North Platte Basin and the Colorado River headwaters. The reservoir storage at the end of March was above average in the Bighorn Basin, below average in the North Platte Basin, and well below average for the Colorado-Big Thompson Project (CBT). The reservoir storage was less than it was at the end of last March in all three basins. The latest National Weather Service forecast for the May through July period indicates temperatures are more likely to be above average and precipitation more likely to be

below average in Wyoming and Colorado. Reclamation is forecasting well below average spring reservoir inflows based on snowpack and other factors with the inflow to Seminole Reservoir forecast to be especially low.

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	end of March	average	% of average	April forecast	average	% of average
CBT	458.5	599.1	77%	312.2	403.3	77%	399.0	590.0	68%
North Platte	1,248.6	1,523.6	82%	295.6	375.9	79%	210.0	750.0	28%
Bighorn	1,840.3	1,713.5	107%	309.6	359.8	86%	908.0	1,435.3	63%
TOTAL	3,547.4	3,836.2	92%	917.4	1,139.0	81%	1,517.0	2,775.3	55%
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 12-13	512.8	724.0	71%	512.8	724.0	71%	512.8	724.0	71%
Summer 13	910.0	1,214.7	75%	720.7	1,214.7	59%	1,252.5	1,214.7	103%
TOTAL 2013	1,422.8	1,938.7	73%	1,233.5	1,938.7	64%	1,765.3	1,938.7	91%

LAP generation was well below average over the winter. LAP generation is now expected to be below average through the end of the year. Based on reservoir inflow forecasts and an expected low water quota declaration, Reclamation is now considering a four to six week curtailment of Adams Tunnel imports and associated CBT generation this summer as a means to improve the water clarity of Grand Lake by minimizing the introduction of suspended sediment and organic matter from Shadow Mountain Reservoir to the clearer Grand Lake waters.

Colorado River Storage Project Management Center

The total storage volume for the CRSP main stem reservoirs is 15,975,000 acre feet, which is about 52 percent of the total main stem reservoir storage capacity. Main stem reservoir inflows for the most recent historical month (March 2013) were about 55 percent of average. Lake Powell elevation currently is about 3,598 feet, 102 feet from maximum reservoir level, and about 108 feet from the minimum generation level. The elevation is projected to level out at about 3,598 feet in April, before increasing slightly due to spring runoff. The April, 2013 inflow forecast for April through July, 2013 at Lake Powell is 38 percent of average at 2.7 million acre feet.

Consistent with Section 6.C.1 of the Interim Guidelines, if the August 24-Month study projects the January 1, 2014, Lake Powell elevation to be less than 3,575.0 feet and at or above 3,525.0 feet and the Lake Mead elevation to be at or above 1,025.0 feet, the operational tier for Lake Powell in water year 2014 will be the Mid-Elevation Release Tier and the water year release volume from Lake Powell will be 7.48 maf. This April 2013 24-Month study projects that, with an 8.23 maf annual release pattern in water year 2014, the January 1, 2014, Lake Powell elevation would be 3,573.66

feet and the Lake Mead elevation would be 1,107.60 feet. Therefore, the 2014 Lake Powell operational tier is currently projected to be the Mid-Elevation Release Tier with an annual release volume of 7.48 maf. Based on analysis of a range of inflow scenarios, the current probability of realizing an inflow volume that would result in the Mid-Elevation Release Tier and a 7.48 maf annual release from Lake Powell in 2014 is approximately 65 percent.

SLCA/IP net generation for Fiscal Year 2013 is 4,208 GWh as compared to 5,607 GWh based on the long-term historical average generation.

Total purchase power expenses for firming during the fiscal year 2013 are about \$44 million as compared to about \$14.5 million based on long-term median historical releases. Purchase power availability in the region is abundant and prices are reasonable for this time of year. Firming purchases for the last couple of months have been in the lower \$30's on peak and upper \$20's off peak. On peak prices are projected to rise into the \$40's as temperatures increase later in the year.

Desert Southwest Region

Current Aggregate Storage (Mead, Mohave & Havasu): 15.710 MAF (16.058 MAF Feb-2013), 20.894 MAF (73-Year Historical Avg).

The Lake Mead end of March 2013 elevation was 1,118.59 ft. (3.55 ft. lower than end of Feb 2013 elevation), or about 101.05 ft. below full storage elevation of 1,219.64 ft. and 68.59 ft. above the minimum generation elevation for Hoover of 1,050 ft.

Lake Mead's elevation peaked at 1122.32 ft in January of WY 2013 (11.86 ft. below the WY 2012 peak elevation of 1134.18 ft.), and is projected to drop to a minimum elevation of 1104.18 ft. in September of WY 2013, a maximum fluctuation in lake elevation of 18.14 ft.

The Lake Powell operational tier for WY 2013 is currently the Upper Elevation Balancing Tier. Total releases from Lake Powell are projected to be average at 8.23 MAF for WY 2013 (actual of 9.47 MAF for WY 2012). The projected 2013 April – July unregulated inflow into Lake Powell is 2.7 MAF or 38% of average (actual of 2.06 MAF or 29% of average for 2012).

Basin Snow Pack and Precipitation: DSW hydrology is mostly dependent on the Colorado River Basin snow pack and precipitation above Lake Powell. The WY 2013 precipitation is currently 82% of average and the snowpack is 92% of average.

Lower Basin Runoff: The lower basin tributary inflow into Lake Mead for March 2013 was 67 KAF. The projected side inflow into Lake Mead for WY2013 is 775 KAF which represents a 6% increase over last year's actual of 732 KAF, and represents 60% of the normal annual side inflow of 1.3 MAF.

Forecasted WY 2013 Generation: 5202 GWh compared to 5644 GWh (Historical Average). The projected Hoover and Parker-Davis generation for WY 2013 is 92% of the average historical generation.

Wholesale Power Market Conditions: The March market prices in the Desert Southwest averaged about \$33/MWh firm on-peak, \$27/MWh firm off-peak compared to \$32/MWh firm on-peak, \$27/MWh firm off-peak for the previous month.

Sierra Nevada Region

The total storage of the four major CVP reservoirs is 8.228 million-acre-feet, compared to 9.286 MAF last year. Accumulated inflow for the water year-to-date is 86 percent of the 15-year average for Trinity, 78 percent for Shasta, 83 percent for Folsom and 72 percent for New Melones. Reservoir releases have increased to meet instream flow requirements.

The Northern Sierra Eight Station index averages slightly more than 50 inches of precipitation per water year. This water year started out with October recorded precipitation totaling 2.70 inches, which is below average for this month. November recorded precipitation totaled 13.00 inches, which is more than 200 percent of average. December came in at 17.10 inches, or 193 percent of average. January came in at 1.50 inches or 17 percent of its average. It ranks as one of the sixth driest. February ended at 0.90 inches or 11 percent of its average. March ended at only 4.38 inches of 65 percent of its average. The cumulative total at this time is 41.10 inches or 82 percent of the total average of 50.30 inches.

Water year type forecasting begins in December, but snow surveying doesn't begin until January. The snowpack is assumed to reach its peak April 1st. Therefore, snow water equivalents are reported as a percentage of this average. As of April 18th, the North is at 35 percent, the Central is at 46 percent and the South is at 22 percent of this average. The Sacramento River Index forecast of water supply based upon April 1st conditions is "dry" (close to critical) for the 90 percent exceedence case and "dry" for the 50 percent case, reflecting the poor January, February and March, which has set records, but not in a good way. The State's final yeartype declaration is based upon May 1st 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 ended at 109 percent of that average. Reclamation forecasts are based upon March 1st conditions, which were based upon water supply forecast of "below normal" (close to dry) for the 90 percent exceedence and "below normal" for the 50 percent exceedence. These forecasts would be 91 percent and 85 percent of this "Green Book" average net generation. The forecasts sometimes "flip" because during drier conditions, more reservoir releases must be made to meet instream flow while under the "less dry" case, some instream flow requirements could conceivably be met via side flows. Project use pumping remains low due to Vernalis Adaptive Management Plan (VAMP) actions and with increased releases on the Sacramento and Stanislaus rivers to meet instream flow requirements, base resource is quite high at this time, but not as high as the forecasted amounts.