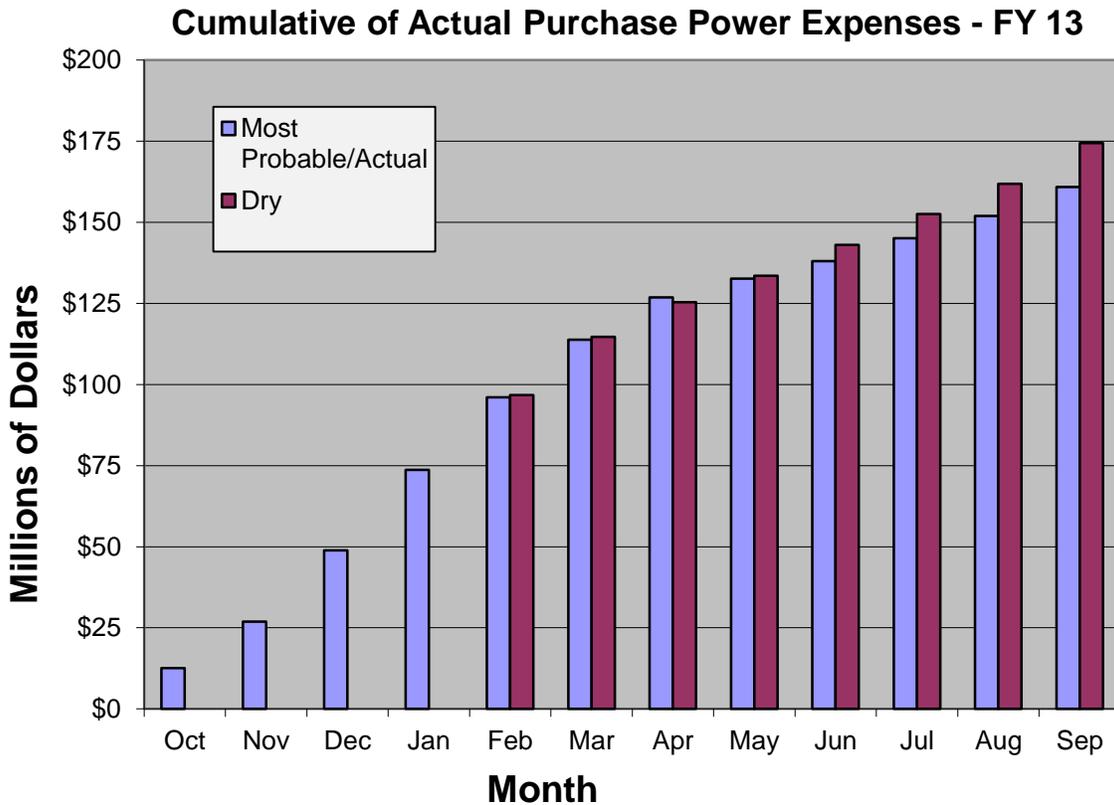


# Hydro Conditions and Purchase Power Monthly Outlook February 28, 2013

## Western Summary

- The most probable forecast of net generation for FY 2013 is 25,478 Gigawatthours (GWh) or 94 percent of average. October through January generation was 83 percent of average.
- The lower level forecast of generation for FY 2013 is 24,472 GWh or 90 percent of average.
- The amount of power purchased for FY 2013 is expected to range between 3,531 and 3,948 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 \$47/MWh last year.
- Purchase power expenses for FY 2013 are forecast to range between \$161 and \$174 million – compared to \$100 million in FY 2012.
- October through January purchases totaled \$74 million – compared to \$33 million for the same period last year.



## Upper Great Plains Region

**Storage:** Streamflows into Canyon Ferry was 92 percent of average during January. Storage in Canyon Ferry is at 98 percent of average and the anticipated inflows during the April through July period is 88 percent of average. Therefore, in preparation for the anticipated spring runoff, releases out of Canyon Ferry to the Missouri River below Holter Dam will be maintained near 4,500 cfs. Streamflows into Bighorn Lake during January continued to remain well below average at only 71% of average. Based on the January 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 788,000 acre-feet (67% of average).

As of February 18, 2013, the storage level at [Canyon Ferry](#) was 1,523,975 acre feet and the active conservation pool is 80.6% full. Storage at [Yellowtail](#) is 885,660 acre feet and the active conservation pool is 86.8% 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.

**Snow Pack:** As of February 1, 2013, the mountain snowpack in the reach above Fort Peck is 92% 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 634 million kilowatt hours of electricity in January. 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 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 persist in the entire LAP area and range from moderate to exceptional with conditions worsening farther east. 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 January was near average in the Bighorn Basin and below average in the North Platte Basin and the Colorado-Big Thompson Project (CBT). The reservoir storage was less than it was at the end of last January in all three basins. The latest National Weather Service forecast for the March through May period indicates temperatures are just as likely to be above average as below average in Wyoming while precipitation is more likely to be below average. In Colorado the temperatures are more likely to be above average and precipitation

is more likely to be below average. Reclamation is forecasting well below average spring reservoir inflows based on snowpack and other factors.

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 January	average	% of average	end of January	average	% of average	February forecast	average	% of average
<b>CBT</b>	466.5	649.9	72%	158.8	246.2	65%	423.0	590.0	72%
<b>North Platte</b>	1,174.8	1,432.5	82%	167.0	231.7	72%	260.0	750.0	35%
<b>Bighorn</b>	1,840.5	1,800.3	102%	215.8	244.1	88%	1,112.4	1,435.3	78%
<b>TOTAL</b>	3,481.8	3,882.7	90%	541.6	722.0	75%	1,795.4	2,775.3	65%
Net At Plant Generation Projections (GWh)									
	Most Probable Case median inflow			Reasonable Minimum Case lower decile inflow			Reasonable Maximum Case upper decile inflow		
	February projection	average	% of average	February projection	average	% of average	February projection	average	% of average
<b>Winter 12-13</b>	487.8	724.0	67%	484.3	724.0	67%	500.6	724.0	69%
<b>Summer 13</b>	981.0	1,214.7	81%	716.9	1,214.7	59%	1,357.5	1,214.7	112%
<b>TOTAL 2013</b>	1,468.8	1,938.7	76%	1,201.2	1,938.7	62%	1,858.1	1,938.7	96%

LAP generation will be well below average for the entire winter. An extended CBT outage restricted all CBT generation other than at Green Mountain in November and December. There are minimum releases from Seminoe and Pathfinder reservoirs due to lower carryover storage in those reservoirs and low spring inflow forecasts. The winter release from Bighorn Lake is higher than in other recent drought years but still below average. LAP generation is now expected to be below average through the end of the year. Reclamation is planning to limit Adams Tunnel imports to a constant 250 cfs in July and August as a means to improve the water clarity of Grand Lake by minimizing the mixing of introduced suspended sediment and organic matter from Shadow Mountain Reservoir with the clearer Grand Lake waters.

### Colorado River Storage Project Management Center

The total storage volume for the CRSP main stem reservoirs is 16,491,000 acre feet, which is about 53 percent of the total main stem reservoir storage capacity. Main stem reservoir inflows for the most recent historical month (January, 2013) were about 52 percent of average. Lake Powell elevation currently is about 3,603 feet, 97 feet from maximum reservoir level. The elevation is projected to continue to drop over the winter months before bottoming out at about 3,598 feet next April. The February, 2013 inflow forecast for April through July, 2013 at Lake Powell is 54 percent of average.

SLCA/IP net generation for Fiscal Year 2013 is 4,227 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 \$36 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.

### **Desert Southwest Region**

Current Aggregate Storage (Mead, Mohave & Havasu): 16.058 MAF (15.758 MAF Dec-2012), 21.059 MAF (73-Year Historical Avg).

The Lake Mead end of January 2013 elevation was 1,122.32 ft. (1.96 ft. higher than end of Dec 2012 elevation ), or about 97.32 ft. below full storage elevation of 1,219.64 ft. and 72.32 ft. above the minimum generation elevation for Hoover of 1,050 ft.

Lake Mead's elevation is projected to peak at 1122.52 ft in February of WY 2013 (11.66 ft. below the WY 2012 peak elevation of 1134.18 ft.), and drop to a minimum elevation of 1104.14 ft. in September of WY 2013, a maximum fluctuation in lake elevation of 18.38 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 9.466 MAF for WY 2012). The projected 2013 April – July unregulated inflow into Lake Powell is 3.85 MAF or 54% 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 76% of average and the snowpack is 78% of average.

Lower Basin Runoff: The lower basin tributary inflow into Lake Mead for January 2013 was 56 KAF. The projected side inflow into Lake Mead for WY2013 is 799 KAF which represents a 9% increase over last year's actual of 732 KAF, and represents 61% of the normal annual side inflow of 1.3 MAF.

Forecasted WY 2013 Generation: 5275 GWh compared to 5644 GWh (Historical Average). The projected Hoover and Parker-Davis generation for WY 2013 is 93% of the average historical generation.

Wholesale Power Market Conditions: The January market prices in the Desert Southwest averaged about \$32/MWh firm on-peak, \$25/MWh firm off-peak compared to \$30/MWh firm on-peak, \$25/MWh firm off-peak for the previous month.

### **Sierra Nevada Region**

The total storage of the four major CVP reservoirs is 7.706 million-acre-feet, compared to 7.483 MAF last year. Accumulated inflow for the water year-to-date is 106 percent of the 15-year average for Trinity, 99 percent for Shasta, 125 percent for Folsom and 91 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. 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. As of the 14<sup>th</sup>, February is at 0.34 inches or 14 percent of its average.

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<sup>st</sup>. Therefore, snow water equivalents are reported as a percentage of this average. As of February 14<sup>th</sup>, the North is at 60 percent, the Central is at 57 percent and the South is at 51 percent of this average. The Sacramento River Index forecast of water supply based upon February 1<sup>st</sup> conditions is "below normal" for the 90 percent exceedence case and "above normal" for the 50 percent case, reflecting the poor January, which has the highest average of the winter months.

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 December 1<sup>st</sup> conditions, which were based upon water supply forecast of "dry" for the 90 percent exceedence and "below normal" for the 50 percent exceedence. These forecasts would be 91 percent and 111 percent of this "Green Book" average net generation. No update is available at this time.