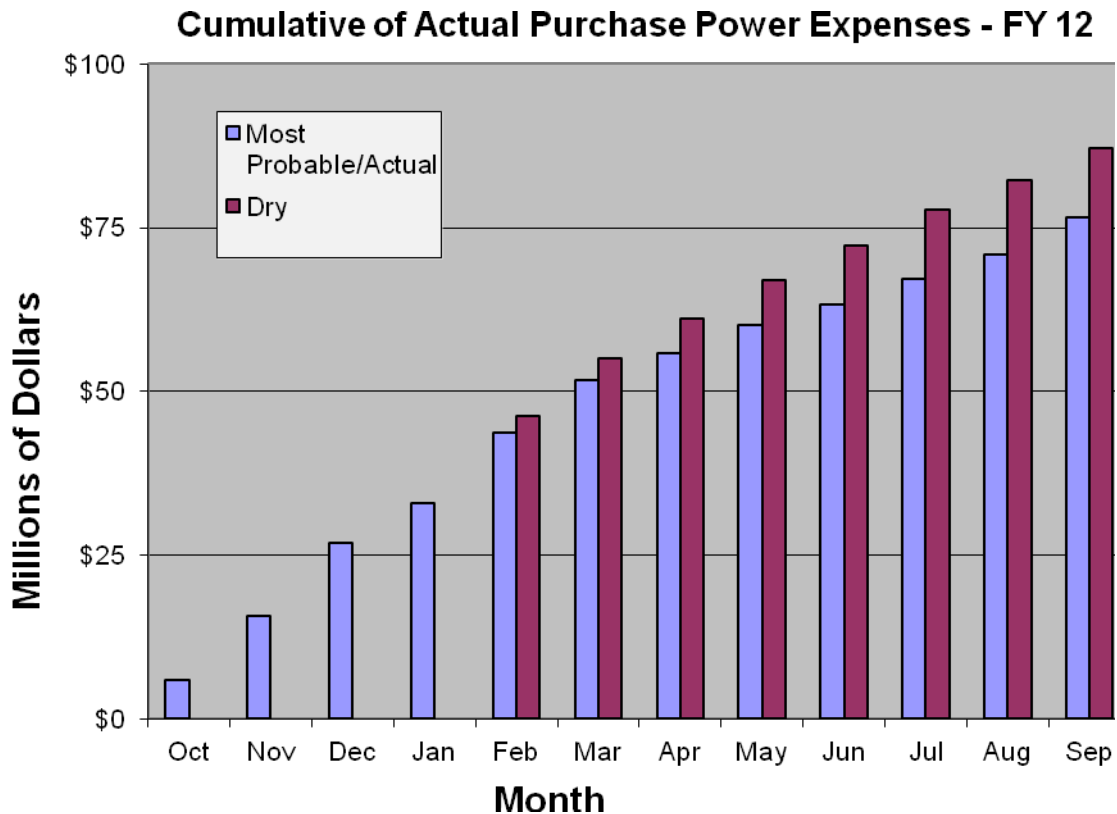


# Hydro Conditions and Purchase Power Monthly Outlook February 29, 2012

## Western Summary

- The most probable forecast of net generation for FY 2012 is 27,410 Gigawatthours (GWh) or 100 percent of average. October through January generation was 107 percent of average.
- The lower level forecast of generation for FY 2012 is 26,576 GWh or 97 percent of average.
- The amount of power purchased for FY 2012 is expected to range between 1,380 and 1,773 GWh.
- The average price for purchase power across all hydro projects and off-peak and on-peak periods is expected to be \$55/MWh. This price compares to \$62/MWh last year.
- Purchase power expenses for FY 2012 are forecast to range between \$76 and \$87 million.
- October through January purchases totaled \$33 million – compared to \$46 million for the same period last year.



## Upper Great Plains Region

**Storage:** Due to the extremely mild winter, streamflows into Canyon Ferry during January were 115% of average, the 10th highest of record. Mountain snowpack conditions in the Missouri River Basin upstream of Canyon Ferry are about 80% of average. Based on the February 1 water supply forecast, the April-July runoff into Canyon Ferry is expected to equal 1,515,000 acre-feet (79% of average). Based on the current conditions, releases out of Canyon Ferry to the Missouri River below Holter Dam are expected to be maintained at or above the minimum fishery flow of 4,100 cfs through early spring. Streamflows into Bighorn Lake during January were 108% of average. Mountain snowpack in the Bighorn Basin is near average. Based on the February 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 1,212,200 acre-feet (102% of average).

As of February 20, 2012, the storage level at [Canyon Ferry](#) is 1,564,623 acre feet and the active conservation pool is 82.7% full. Storage at [Yellowtail](#) is 837,517 acre feet and the active conservation pool is 82.1% full.

**COE Runoff:** Reservoir levels at Fort Peck and Garrison are currently ½ foot above the level desired for this time of year. Oahe is two feet lower than desired and the reservoir at Fort Randall rose quickly in January due to warmer than normal temperatures, causing more than normal runoff. This imbalance is expected to be corrected in February. Mountain snowpack still lags the normal average. The COE is still predicting an above average runoff this year, though it is only at 103% of average at this time. This is down from 107% last month. Estimated generation for 2012 has been reduced to 9,700 GWh (normal is 10,000 GWh).

**Snow pack** The February 1 forecasted runoff for calendar year 2012 is 26.5 MAF. This runoff would be 103% of normal runoff. As of February 1, 2012, the mountain snowpack in the reach above Fort Peck is 87% of the average snowpack for this date. Mountain snowpack in the reach between Fort Peck and Garrison is 96% of the average snowpack for this date. The snowpack for the North Platte River Basin is currently 71% of average and the snowpack for the South Platte River Basin is 78% of average. Missouri River Basin mountain snowpack normally peaks near April 15.

**FY Generation:** The six main stem power plants generated 843 million kilowatt hours of electricity in January. Total energy production for 2011 was previously forecasted to reach 14.1 billion kWh, but has been reduced to around 11.1 billion kWh. The long-term average is approximately 10 billion kWh.

**Purchase Power:** As we continue into the winter months, and with plenty of generation on line, the prices are holding steady at 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.

Moderate drought conditions have returned to the Colorado River headwaters due to disappointing snow pack accumulation so far this winter. Severe drought conditions in the Arkansas River basin do not materially impact LAP generation. The overall LAP reservoir storage is still higher than it was at this time last year and above average in all three river basins. The snowpack is below average in the Bighorn Basin and well below average in the Colorado River headwaters and the upper North Platte basin. The reservoir inflows from October through January were above average in all three basins but are forecast to be well below average in the Colorado River headwaters and the upper North Platte basin and only forecast to be above average in the Bighorn basin. The latest National Weather Service forecast calls for temperatures in the March through May period to be more likely above normal in southern Colorado with equal chances of being above or below normal in northern Colorado and Wyoming. Precipitation is more likely to be below normal in Colorado with equal chances of being above or below normal in Wyoming.

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>	721.3	649.9	111%	215.9	315.3	68%	514.0	595.0
<b>North Platte</b>	2,018.7	1,403.7	144%	184.7	272.9	68%	500.0	770.0	65%
<b>Bighorn</b>	1,977.9	1,801.0	110%	256.2	278.8	92%	1,506.4	1,409.7	107%
<b>TOTAL</b>	4,717.9	3,854.6	122%	656.8	867.0	76%	2,520.4	2,774.7	91%
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 marketed	February projection	average	% of marketed	February projection	average	% of marketed
	<b>Winter 11-12</b>	614.1	726.2	85%	598.5	726.2	82%	641.1	726.2
<b>Summer 12</b>	1,271.1	1,211.1	105%	1,077.6	1,211.1	89%	1,703.7	1,211.1	141%
<b>TOTAL 2012</b>	1,885.2	1,937.3	97%	1,676.1	1,937.3	87%	2,344.8	1,937.3	121%

LAP generation will be well below average this winter. An extended CBT outage restricted all CBT generation other than at Green Mountain in November and December. There have been minimum releases from Seminoe and Pathfinder reservoirs this winter due to high carryover storage in the downstream Glendo Reservoir. The winter release from Bighorn Lake is higher than in recent drought years but still below average. At this date, the LAP generation is expected to be below average through early spring, above average in the late spring and early summer, and near average later in the summer. The generation may, however, fall well below average in August if Reclamation and other entities decide to curtail Adams Tunnel imports and associated CBT generation as a means to improve the water clarity of Grand Lake.

### Colorado River Storage Project Management Center

The total storage volume for the CRSP main stem reservoirs is 21,270,000 acre feet, which is about 69 percent of the total main stem reservoir storage capacity. Main stem reservoir inflows for the most recent historical month (January 2012) were about 99 percent of average. Lake Powell elevation currently is about 3,638 feet, 62 feet from maximum reservoir level. Reservoir releases

were reduced in January when the first runoff forecast for 2012 turned out much lower than average at 71%.

Projected SLCA/IP net generation for Fiscal Year 2012 is 5,532 GWh as compared to 5,937 GWh based on the long-term historical average generation. Cutbacks in releases from dams has meant an increase in purchases to firm customer allocations.

Estimated purchase power expenses for firming during the fiscal year 2011 are about \$11.7 million as compared to about \$17 million based on long-term median historical releases. Purchase power availability in the region is abundant and purchase prices are quite low compared to the recent past, which is helping to reduce firming purchase costs.

### **Desert Southwest Region**

**Current Aggregate Storage (Mead, Mohave & Havasu):** 17.204 MAF (16.767 MAF Dec-2011), 21.140 MAF (61-Year Historical Avg).

The Lake Mead end of January 2012 elevation was 1,134.18 ft. (1.35 ft. higher than end of December 2011 elevation ), or about 85.43 ft. below full storage elevation of 1,219.61 ft. and 84.18 ft. above the minimum generation elevation for Hoover of 1,050 ft.

Lake Mead's elevation is projected to peak at 1,134.18 ft in February of WY 2012 (18.14 ft. above the WY 2011 peak elevation of 1116.04 ft.), and drop to a minimum elevation of 1,115.9 ft. in September of WY 2012, a maximum fluctuation in lake elevation of 18.28 ft.

The Lake Powell operational tier for WY 2012 is the Equalization Tier. Total releases from Lake Powell are projected to be 9.463 MAF for WY 2012 (actual of 12.518 MAF for WY 2011). The projected 2012 April – July unregulated inflow into Lake Powell is 71% of average (actual of 162% of average for 2011).

**Basin Snow Pack and Rainfall:** DSW hydrology is mostly dependent on the Colorado River Basin snow pack/runoff above Lake Powell. The WY 2012 year-to-date precipitation is currently 85% of average. The current snowpack is 75% of average.

**Lower Basin Runoff:** The lower basin tributary inflow into Lake Mead for January 2012 was 56 KAF. The projected side inflow into Lake Mead for WY2012 is 772 KAF which represents a 33.3 % decrease from last year's actual of 1,157 KAF, and represents 59.4 % of the normal annual side inflow of 1.3 MAF.

**Forecast WY12 Generation:** 5,299 GWh compared to 5,648 GWh (Historical Average). The projected Hoover and Parker-Davis generation for WY 2012 is 93.8% of the average historical generation.

**Wholesale Power Market Conditions:** The January market prices in the Desert Southwest averaged about \$27/MWh firm on-peak, \$21/MWh firm off-peak compared to \$32/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 7.480 million-acre-feet, compared to 7.941 MAF last year. Accumulated inflow for the water year-to-date is 36 percent of the 15-year average for Trinity, 47 percent for Shasta, 42 percent for Folsom, and 70 percent for Melones. New Melones is approximately 5 thousand-acre-feet above flood control level.

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 3.91 inches, which is above average for the month. November recorded precipitation totaled 2.69 inches, which is less than 50 percent of average. December came in at 0.32 inches, making it one of the fifth worst since 1921. January ended at 85 percent of its monthly average. February is at 1.52 inches, but storms are forecast for the 28<sup>th</sup> and 29<sup>th</sup>. We really need another “Miracle March.”

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 27<sup>th</sup>, the North is at 26 percent, the Central is at 22 percent and the South is at 27 percent of this average. The Sacramento River Index forecast of water supply based upon February 1<sup>st</sup> conditions is “critical” for the 90 percent exceedence and “critical” for the 50 percent exceedence case.

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 109 percent of that average. Reclamation forecasts are based upon January 1<sup>st</sup> conditions, which were based upon water supply forecast of “critical” for the 90 percent exceedence and “dry” for the 50 percent exceedence. These forecasts would be 96 percent and 101 percent of this “Green Book” average net generation.