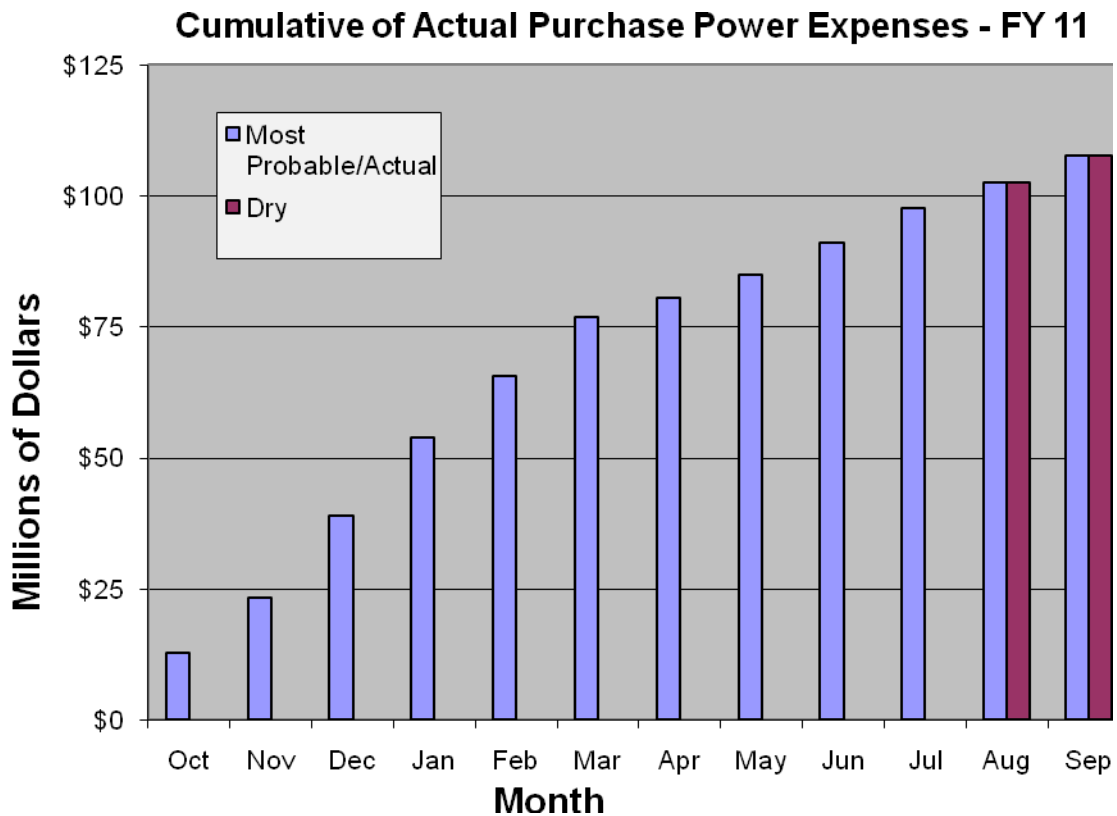


# Hydro Conditions and Purchase Power Monthly Outlook August 31, 2011

## Western Summary

- The most probable forecast of net generation for FY 2011 is 31,307 Gigawatthours (GWh) or 114% of average. October through July generation was 110% of average.
- The lower level forecast of generation for FY 2011 is 30,306 GWh or 110% of average.
- The amount of power purchased for FY 2011 is expected to be approximately 1,783 GWh.
- The average price for purchase power across all hydro projects and off-peak and on-peak periods is expected to be \$60/MWh. This price compares to \$48/MWh last year.
- Purchase power expenses for the fiscal year are forecast at approximately \$108 million.
- October through July purchases totaled \$97 million – compared to \$171 million for the same period last year.



## Upper Great Plains Region

**Storage:** Stream-flows into Canyon Ferry during June were 276% of average. Current hydrologic and climatic conditions indicate the forecasted August runoff into Canyon Ferry is expected to be about 308,700 acre-feet (190% of average). Based on the current water supply outlook and storage in Canyon Ferry at 105% of average, releases out of Canyon Ferry to the Missouri River below Holter Dam, at this time, are expected to be maintained at or near full power-plant capacity of 5,500 through August and September. Stream-flows into the Bighorn Basin during July were 275% of average, the second highest July inflow on record. Based on current hydrologic and climatic conditions and the planned releases out of Boysen and Buffalo Bill Reservoirs, the forecasted August runoff into Bighorn Lake is estimated to be about 267,700 acre-feet (169% of average).

As of August 15, 2011, the storage level at [Canyon Ferry](#) was 1,888,218 acre feet and the active conservation pool is 99.8% full. Storage at [Yellowtail](#) is 1,125,325 acre feet and the active conservation pool is 100.0% full.

**COE Runoff:** The COE has ceased sending out monthly reports due to the river conditions.

[Snow pack](#) The forecasted runoff for 2011 has been increased to 61.8 MAF, 249% of normal. This would be a record inflow runoff, exceeding the previous record inflow of 49.0 MAF in 1997. Mountain snow pack in the reach above Ft Peck and Garrison peaked on May 2 at 136% of average April peak. The North Platte peaked on May 3 at 156% of the normal April 15 peak, and the South Platte River peaked on May 21 at 150% of the normal April 15 peak. Missouri River basin mountain snow pack normally peaks near April 15.

**FY Generation:** The six main stem power plants generated 1,173 million kilowatt hours of electricity in July. Total energy production for 2011 is forecast to reach 14.1 billion kWh. The long-term average is approximately 10 billion kWh.

**Purchase Power:** It won't be long and the fall season will be upon us. As the weather starts to turn cooler, prices for energy will lower. Depending on the day, prices are in the upper 30's and lower 40's.

## 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 except for continuing drought conditions in the Lower Arkansas and Rio Grand river basins in Colorado. Heavy snow pack accumulation resulted in spring runoff well above normal in all basins. The reservoir storage at the end of July was once again above average in all three basins and more than it was at this time last year. The latest National Weather Service forecast indicates temperatures will more likely be above average in Colorado and Wyoming for the September through November period and there is no probability that the precipitation will be either above or below average. The total April through July reservoir inflow was well above average in all three basins.

LAP Water Conditions At-A-Glance									
	Reservoir Storage 1,000 acre-feet			Actual Reservoir Inflow To-Date 1,000 acre-feet			April-July Reservoir Inflow 1,000 acre-feet		
	end of July	average	% of average	October - July	average	% of average	Actual	average	% of average
<b>CBT</b>	943.6	803.2	117%	1,252.3	714.0	175%	1,134.1	618.3	183%
<b>North Platte</b>	2,501.0	1,608.7	155%	2,267.2	1,029.2	220%	2,010.4	793.7	253%
<b>Bighorn</b>	2,587.1	2,211.3	117%	2,568.3	1,598.2	161%	2,225.1	1,216.8	183%
<b>TOTAL</b>	6,031.7	4,623.2	130%	6,087.8	3,341.4	182%	5,369.6	2,628.8	204%
Net At Plant Generation Projections (GWh)									
	Most Probable Case median inflow			Reasonable Minimum Case lower decile inflow			Reasonable Maximum Case upper decile inflow		
	August projection	average	% of average	August projection	average	% of average	August projection	average	% of average
<b>Winter 10-11</b>	614.2	726.2	85%	614.2	726.2	85%	614.2	726.2	85%
<b>Summer 11</b>	1,813.3	1,200.3	151%	1,765.2	1,200.3	147%	1,840.8	1,200.3	153%
<b>TOTAL 2011</b>	2,427.5	1,926.5	126%	2,379.4	1,926.5	124%	2,455.0	1,926.5	127%
<b>Winter 11-12</b>	608.1	726.2	84%	594.7	726.2	82%	632.3	726.2	87%

LAP generation was well below average over the winter season but, due to a heavy snowpack, the spring runoff was well above average and the summer generation will remain well above average through September. The Adams Tunnel imports and associated CBT generation have been curtailed through Labor Day to accommodate Grand Lake water clarity tests but overall LAP generation remains well above average. The winter generation was only 85% of average but summer generation will fall somewhere between 147% and 153% of average. The majority of LAP purchases will be made in the winter months this year. The upcoming winter season generation is again expected to be about 85% of average.

### Colorado River Storage Project Management Center

The total storage volume for the CRSP main stem reservoirs is 24,549,000 acre feet, which is about 79 percent of the total main stem reservoir storage capacity. Main stem reservoir inflows for the most recent historical month (July, 2011) were about 264 percent of average. Lake Powell elevation currently is about 3,660 feet, 40 feet from maximum reservoir level. Reservoir releases and elevations were high in July, and power plant bypass releases are finished for this summer.

Projected SLCA/IP net generation for Fiscal Year 2011 is 7,182 GWh as compared to 5,888 GWh based on the long-term historical average generation. The Bureau of Reclamation declared WY2011 an equalization year with a total release of about 12.45 million acre feet, with additional equalization releases planned for the fall and winter months. The CRSP MC extended additional hydro power (AHP) to customers during all summer season months and most months of the winter season 2011/2012 as well.

Estimated purchase power expenses for firming during the fiscal year 2011 are about \$9.7 million as compared to about \$17 million based on long-term median historical releases, almost all of

which was incurred last fall. Purchase power availability in the region is abundant and purchase prices are lower than in the past.

### **Desert Southwest Region**

**Current Aggregate Storage (Mead, Mohave & Havasu):** 14.419 MAF (13.959 MAF June-2011), 21.190 MAF (61-Year Historical Avg).

The Lake Mead end of July 2011 elevation was approximately 1,107.07 ft. (4.69 ft. higher than end of June 2011 elevation ), or about 112.54 ft. below full storage elevation of 1,219.61 ft. and 57.07 ft. above the minimum generation elevation for Hoover of 1,050 ft.

Lake Mead's elevation is projected to peak at 1,115.64 ft in September of WY 2011 (12.43 ft. above the WY 2010 peak elevation of 1,103.21 ft.), and actually dropped to a minimum elevation of 1,081.89 ft. in November of WY 2011 (the lowest elevation since Lake Mead began filling in the late 1930's), *a maximum fluctuation in lake elevation of 33.8 ft.*

In accordance with the Equalization Tier, total releases from Lake Powell are currently projected to be 12.448 MAF for WY 2011. The actual 2011 April – July unregulated inflow into Lake Powell was 163% of average (up 12% from June forecast).

**Basin Snow Pack and Rainfall:** See CRSP Data\*

**Lower Basin Runoff:** The lower basin tributary inflow into Lake Mead for July 2011 was 75 KAF. The projected side inflow into Lake Mead for WY2011 is 1,145 KAF which represents a 23.4% increase from last year's actual of 928 KAF, and represents 88% of the normal annual side inflow of 1.3 MAF.

**Forecast FY11 Generation:** 5,235 GWh compared to 5,700 GWh (Historical Average). Forecasted Hoover and Parker-Davis generation for FY11 is 92% of the average historical generation.

**Wholesale Power Market Conditions:** The July market prices in the Desert Southwest averaged about \$45/MWh firm on-peak, \$21/MWh firm off-peak compared to \$39/MWh firm on-peak, \$9/MWh firm off-peak for the previous month.

\*Note: The DSW hydrology is actually dependent on the Upper Basin snow pack/runoff (little of the inflow is from the Lower Basin).

### **Sierra Nevada Region**

The total storage of the four major CVP reservoirs is 9.077 million acre-feet, compared to 7.225 this time last year. Accumulated inflow for the water year-to-date is 121 percent of the 15-year average for Trinity, 109 percent for Shasta, 169 percent for Folsom and 178 percent for Melones.

The Northern Sierra Eight Station index averages slightly more than 50 inches of precipitation per water year. This water year started out well with October recorded precipitation totaled 8.01 inches, or 5 inches above that month's average. November recorded precipitation totaled 8.56 inches or more than 2 inches above its average. December came in at 17.19 inches which is approximately

double its average. January ended at 2.16 inches or 25 percent of that month's average. February ended at 107 percent of its average. March ended at 243 percent of its monthly average. April ended at 86 percent of its monthly average. May ended at 186 percent of its monthly average. June ended at 387 percent of that month's average. July is at 12 percent of its monthly average having gained only 0.02 inches. There has been no measurable precipitation so far this month. The cumulative average remains 72.25 or 143 percent of the water year average of 50 inches.

The Sacramento River Index forecast of water supply based upon May 1<sup>st</sup> conditions are "wet" for the 50 percent exceedence and "wet" for the 90 percent exceedence case. Year type declarations by the State of California become official based upon May 1<sup>st</sup> conditions and the end of the most recent drought was declared. The snowpack is assumed to reach its peak as of April 1<sup>st</sup>, so snow water equivalent data is reported as a percentage of the April 1<sup>st</sup> average. As of July 7<sup>th</sup>, northern area is at 10 percent, central at 6 percent and 1 percent in the southern part of the state, with the statewide percentage at 7 percent.

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 water year ended at 69 percent of that average. Based upon the May 1<sup>st</sup> conditions forecasts, net generation for the 50 percent exceedence case would be 105 percent of the Green Book average, while the 90 percent exceedence case would be 106 percent of this average, too.