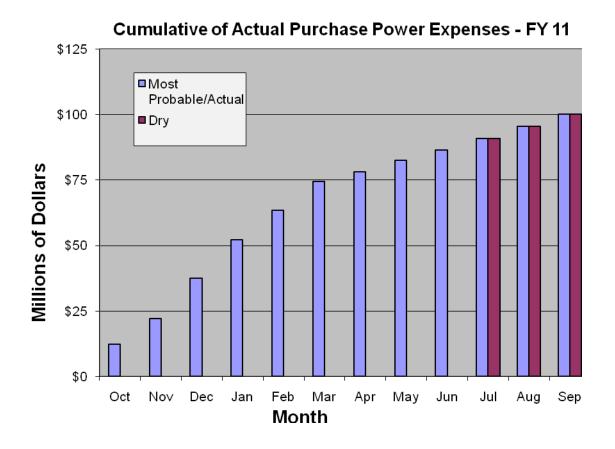
# Hydro Conditions and Purchase Power Monthly Outlook August 1, 2011

## Western Summary

- The most probable forecast of net generation for FY 2011 is 31,905 Gigawatthours (GWh) or 116% of average. October through June generation was 109% of average.
- The lower level forecast of generation for FY 2011 is 30,342 GWh or 111% of average.
- The amount of power purchased for FY 2011 is expected to be approximately 1,685 GWh.
- The average price for purchase power across all hydro projects and off-peak and on-peak periods is expected to be \$59/MWh. This price compares to \$48/MWh last year.
- Purchase power expenses for the fiscal year are forecast at approximately \$100 million.
- October through June purchases totaled \$86 million compared to \$164 million for the same period last year.



## **Upper Great Plains Region**

**Storage**: Streamflows into Canyon Ferry during June were 206% of average. Current hydrologic and climatic conditions indicate the forecasted July runoff into Canyon Ferry is expected to be about 830,000 acre-feet (258% of average). Based on the current water supply outlook and storage in Canyon Ferry at 86% of average, releases out of Canyon Ferry to the Missouri River below Holter Dam, at this time, are expected to be maintained at or above 10,000 cfs through early July. Updated Yellowtail information was not available at the time of this report. Mountain snowpack conditions in the Bighorn Basin on June 1 were 295% of average. Based on current hydrologic and climatic conditions and the planned releases out of Boysen and Buffalo Bill Reservoirs, the June-July runoff into Bighorn Lake is estimated to be about 1,800,000 acre-feet (252% of average).

As of July 14, 2011, the storage level at <u>Canyon Ferry</u> was 1,937,794 acre feet and the active conservation pool is 100.0% full. Storage at <u>Yellowtail</u> is 1,191,385 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. Normally, the mountain snowpack across the upper Missouri River Basin peaks in mid-April, however this year it continued to accumulate into early May. It appears to have peaked at 141% in the reach above Ft. Peck and 136% of normal in the reach between Ft. Peck and Garrison, cooler weather with additional snow could push those figures even higher.

Snow pack The forecasted runoff for 2011 has been increased to 57.7 MAF, 233% 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 as of July 1 is 26% of the average peak accumulation. Mountain snowpack in the reach between Ft Peck and Garrison is 26% of the average peak accumulation. As of July 5, mountain snow pack in the North Platte and South Platte River basins are 18% and 2% of normal, respectively. Missouri River basin mountain snow pack normally peaks near April 15.

**FY Generation**: The six main stem power plants generated 1,135 million kilowatt hours of electricity in June. Total energy production for 2011 is forecast to reach 14.1 billion kWh. The long-term average is approximately 10 billion kWh.

**Purchase Power**: As the weather starts to turn warm, prices for energy will rise. Depending on the day, prices are ranging in the mid 30s to the low 60s.

## **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 lingering drought conditions in the 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 June was above average except for in the Bighorn Basin. The storage in all basins is less than it was at this time last year because Reclamation released water in anticipation of the heavy spring runoff. The snowpack has now melted except for at the highest elevations. The latest National Weather Service forecast indicates temperatures will more likely be above average in southwestern Colorado for the August through October period and the precipitation will more likely be above average in northeastern Wyoming. The total April through July reservoir inflow will be 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			Most Probable Reservoir Inflow 1,000 acre-feet (April - July)		
	end of		% of	October	,000 00.0 100	% of	July	<u>10 1001 () () ()</u>	% of
	June	average	average	- June	average	average	Forecast	average	average
СВТ	844.5	821.9	103%	840.5	572.2	147%	1,093.6	587.0	186%
North Platte	2,437.9	1,860.5	131%	1,708.7	918.8	186%	1,958.0	714.0	274%
Bighorn	2,094.9	2,203.8	95%	1,515.2	1,306.8	116%	2,084.9	1,372.8	152%
TOTAL	5,377.3	4,886.2	110%	4,064.4	2,797.8	145%	5,136.5	2,673.8	192%
			Ne	et At Plant Ge	neration Pro	ections (GV	Vh)		
	Most Probable Case			Reasonable Minimum Case			Reasonable Maximum Case		
	median inflow			lower decile inflow			upper decile inflow		
	July		% of	July		% of	July		% of
	projection	average	average	projection	average	average	projection	average	average
Winter 10-11	614.2	726.2	85%	614.2	726.2	85%	614.2	726.2	85%
Summer 11	1,945.0	1,200.3	162%	1,906.0	1,200.3	159%	1,984.0	1,200.3	165%
TOTAL 2011	2,559.2	1,926.5	133%	2,520.2	1,926.5	131%	2,598.2	1,926.5	135%
Winter 11-12	584.8	726.2	81%	586.0	726.2	81%	682.1	726.2	94%

LAP generation was well below average over the winter season but, due to a heavy snowpack, the spring runoff has been well above average and the summer generation will be well above average through September. There may be a curtailment of Adams Tunnel imports and associated CBT generation in August to accommodate Grand Lake water clarity tests this year but overall LAP generation will still be above average in August if that happens. A shorter curtailment of CBT imports is imminent without a clarity test due to CBT East Slope storage filling. The winter generation was only 85% of average but summer generation is projected to fall somewhere between 160% and 165% of average. The majority of LAP purchases will be made in the winter months this year. The upcoming winter season generation is expected to be about 80% of average.

#### **Colorado River Storage Project Management Center**

The total storage volume for the CRSP main stem reservoirs is 23,818,000 acre feet, which is about 77 percent of the total main stem reservoir storage capacity. Main stem reservoir inflows for the most recent historical month (June, 2011) were about 161 percent of average. Lake Powell elevation currently is about 3,655 feet, 45 feet from maximum reservoir level, and is expected to top out at about 3,661 feet sometime in July. Reservoir releases and elevations are high in July, with bypasses above power plant capacity at Crystal, and Fontenelle power plants, and high power plant releases from all generating units.

Projected SLCA/IP net generation for Fiscal Year 2011 is 7,085 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 has extended additional hydro power (AHP) to customers during all summer season months, and expects to do so in 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):** 13.959 MAF (13.625 MAF May-2011), 21.049 MAF (61-Year Historical Avg).

The Lake Mead end of June 2011 elevation was approximately 1,102.38 ft. (4.48 ft. higher than end of May 2011 elevation ), or about 117.23 ft. below full storage elevation of 1,219.61 ft. and 52.4 ft. above the minimum generation elevation for Hoover of 1,050 ft.

Lake Mead's elevation is projected to peak at 1,115.48 ft in September of WY 2011 (12.3 ft. above the WY 2010 peak elevation of 1,103.21 ft.), and actually dropped to a minimum elevation of 1,081.91 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 33.6 ft*.

In accordance with the Equalization Tier, total releases from Lake Powell are currently projected to be 12.447 MAF for WY 2011 (up .01 MAF from May). The forecasted 2011 April – July unregulated inflow into Lake Powell is 151% of average (down 8% from May forecast).

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

**Lower Basin Runoff**: The lower basin tributary inflow into Lake Mead for June 2011 was 73 KAF. The projected side inflow into Lake Mead for WY2011 is 1,121 KAF which represents a 20.8 % increase from last year's actual of 928 KAF, and represents 86 % of the normal annual side inflow of 1.3 MAF.

**Forecast FY11 Generation**: 5,238 GWh compared to 5,701 GWh (Historical Average). Forecasted Hoover and Parker-Davis generation for FY11 is 92% of the average historical generation.

**Wholesale Power Market Conditions**: The June market prices in the Desert Southwest averaged about \$39/MWh firm on-peak, \$9/MWh firm off-peak compared to \$35/MWh firm on-peak, \$15/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 9.728 million acre-feet, compared to 7.837 this time last year. Accumulated inflow for the water year-to-date is 120 percent of the 15-year average for Trinity, 109 percent for Shasta, 171 percent for Folsom and 179 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 totalling 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 36 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. The cumulative average is now 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 106 percent of the Green Book average, while the 90 percent exceedence case would be 107 percent of this average, too.