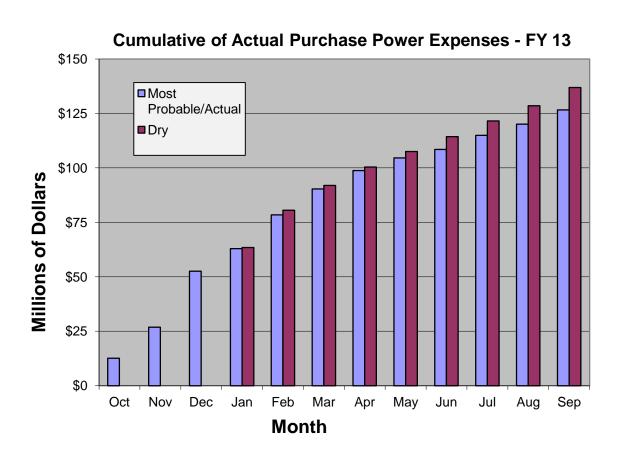
# Hydro Conditions and Purchase Power Monthly Outlook January 31, 2013

# **Western Summary**

- The most probable forecast of net generation for FY 2013 is 25,909 Gigawatthours (GWh) or 95 percent of average. October through December generation was 83 percent of average.
- The lower level forecast of generation for FY 2013 is 24,906 GWh or 92 percent of average.
- The amount of power purchased for FY 2013 is expected to range between 2,806 and 3,125 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 \$127 and \$137 million compared to \$100 million in FY 2012.
- October through December purchases totaled \$53 million compared to \$25 million for the same period last year.



#### **Upper Great Plains Region**

**Storage:** Streamflows into Canyon Ferry improved to 91 percent of average during December. The January 1 water supply forecast indicates the runoff into Canyon Ferry during January will equal 186.0 acre-feet (85% of average). With storage in Canyon Ferry at about 95 percent of average and the anticipated inflows during the April through July period remaining slightly below average, releases out of Canyon Ferry to the Missouri River below Holter Dam will be maintained near 4,300 cfs. Streamflows into Bighorn Lake during November continued to remain well below average at only 74% of average. Based on the January 1 water supply forecast and the planned releases out of Boysen and Buffalo Bill Reservoirs, the December runoff into Bighorn Lake is expected to equal 812,000 acre-feet (69% of average.

As of January 21, 2013, the storage level at Canyon Ferry was 1,545,938 acre feet and the active conservation pool is 81.7% full. Storage at Yellowtail is 895,468 acre feet and the active conservation pool is 87.7% full.

**COE Runoff**: Total runoff for the year is estimated to be only 79% of normal at 19.7 MAF, normal being 24.8 MAF. This may result in lower generation in future months, especially if drought conditions remain.

**Snow pack**: As of January 1, 2013, the mountain snowpack in the reach above Fort Peck is 101% of the average snowpack for this date. Mountain snowpack in the reach between Fort Peck and Garrison is 91% of the average snowpack for this date.

**FY Generation**: The six main stem power plants generated 568 million kilowatt hours of electricity in December. Total energy production for 2012 was earlier forecasted to reach 14.1 billion kWh, but has been reduced to around 10.3 billion kWh. The long-term average is approximately 10 billion kWh.

**Purchased Power**: With colder temperatures at this time of year, prices are at holding steady at lower 30s for on peak power and lower 20s for off peak power. Jan – Mar prices look to be in the high thirties for on peak power and mid to upper twenties for off 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. The reservoir inflow has been well below normal in all three LAP basins so far this year. The accumulated snowpack was below average at the beginning of the month ranging from well below average in the Colorado River headwaters to near average in the Bighorn Basin. The reservoir storage at the end of December was well below average and significantly less than it was at the end of last December. The latest National Weather Service forecast for the February through April period indicates temperatures and precipitation are just as likely to be above

average as below average in Wyoming. In Colorado the temperatures are more likely to be above average and the precipitation more likely below average. Reclamation is forecasting below average spring reservoir inflows based on snowpack and other factors.

				LAP Water	Conditions /	At-A-Glance			
	Re	servoir Stora	ge	Snowpack			Most Probable Reservoir Inflow		
	1,000 acre-feet			inches snow water equivalent			1,000 acre-feet (April - July)		
	end of		% of	end of		% of	January		% of
	December	average	average	December	average	average	forecast	average	average
СВТ	473.7	661.1	72%	60.2	90.3	67%	480.9	618.3	78%
North Platte	1,149.0	1,394.5	82%	100.5	125.6	80%	490.0	714.0	69%
Bighorn	1,861.4	1,875.7	99%	128.8	131.5	98%	1,179.9	1,435.3	82%
TOTAL	3,484.1	3,931.3	89%	289.5	347.4	83%	2,150.8	2,767.6	78%
			N	et At Plant Ger	neration Pro	jections (GV	Vh)		
	Most Probable Case			Reasonable Minimum Case			Reasonable Maximum Case		
	median inflow			lower decile inflow			upper decile inflow		
	January		% of	January		% of	January		% of
	projection	average	average	projection	average	average	projection	average	average
Winter 12-13	486.7	724.0	67%	484.4	724.0	67%	498.8	724.0	69%
Summer 13	1,219.1	1,214.7	100%	1,002.1	1,214.7	82%	1,415.1	1,214.7	116%
TOTAL 2013	1,705.8	1,938.7	88%	1,486.5	1,938.7	77%	1,913.9	1,938.7	99%

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 are minimum releases from Seminoe and Pathfinder reservoirs this winter due to lower carryover storage in those reservoirs. The winter release from Bighorn Lake is higher than in other recent drought years but still below average. LAP generation is expected to be above average in the late spring and early summer, below average mid-summer, and near average later in the season. Reclamation is planning to limit Adams Tunnel imports to 250 cfs in July and August as a means to improve the water clarity of Grand Lake by reducing the introduction of suspended sediment and organic matter from Shadow Mountain Reservoir.

### Colorado River Storage Project Management Center

The total storage volume for the CRSP main stem reservoirs is 16,970,000 acre feet, which is about 55 percent of the total main stem reservoir storage capacity. Main stem reservoir inflows for the most recent historical month (December, 2012) were about 58 percent of average. Lake Powell elevation currently is about 3,608 feet, 92 feet from maximum reservoir level. The elevation is projected to continue to drop over the winter months before bottoming out at about 3,599 feet next April. The January, 2013 inflow forecast for April through July, 2013 at Lake Powell is 61 percent of average.

SLCA/IP net generation for Fiscal Year 2013 is 4,209 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 \$34.6 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.

# **Desert Southwest Region**

<u>Current Aggregate Storage (Mead, Mohave & Havasu)</u>: 15.758 MAF (15.422 MAF Nov-2012), 20.918 MAF (73-Year Historical Avg).

The Lake Mead end of December 2012 elevation was 1,120.36 ft. (3.12 ft. higher than end of Nov 2012 elevation), or about 99.28 ft. below full storage elevation of 1,219.64 ft. and 70.36 ft. above the minimum generation elevation for Hoover of 1,050 ft.

Lake Mead's elevation is projected to peak at 1122.39 ft in January of WY 2013 (11.79 ft. below the WY 2012 peak elevation of 1134.18 ft.), and drop to a minimum elevation of 1104.36 ft. in September of WY 2013, a maximum fluctuation in lake elevation of 18.03 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 4.4 MAF or 61% of average (actual of 2.06 MAF or 29% of average for 2012).

<u>Basin Snow Pack and Precipitation</u>: DSW hydrology is mostly dependent on the Colorado River Basin snow pack and precipitation above Lake Powell. The WY 2013 precipitation is currently 73% of average and the snowpack is 77% of average.

<u>Lower Basin Runoff</u>: The lower basin tributary inflow into Lake Mead for December 2012 was 50 KAF. The projected side inflow into Lake Mead for WY2013 is 821 KAF which represents a 12% increase over last year's actual of 732 KAF, and represents 63% of the normal annual side inflow of 1.3 MAF.

<u>Forecasted WY 2013 Generation</u>: 5249 GWh compared to 5646 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 December market prices in the Desert Southwest averaged about \$30/MWh firm on-peak, \$25/MWh firm off-peak compared to \$29/MWh firm on-peak, \$26/MWh firm off-peak for the previous month.

## Sierra Nevada Region

The total storage of the four major CVP reservoirs is 7. 536 million-acre-feet, compared to 7.414 MAF last year. Accumulated inflow for the water year-to-date is 115 percent of the 15-year average for Trinity, 108 percent for Shasta, 145 percent for Folsom and 94 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 was looking very dry until just a few days ago when an inch of measurable precipitation was received. As of the 24th, January is at 1.26 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 1st. Therefore, snow water equivalents are reported as a percentage of this average. As of January 24th, the North is at 58 percent, the Central is at 53 percent and the South is at 48 percent of this average. The Sacramento River Index forecast of water supply based upon January 1st conditions is "wet" for the 90 percent exceedence as well as the 50 percent 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 ended at 109 percent of that average. Reclamation forecasts are based upon December 1st 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.