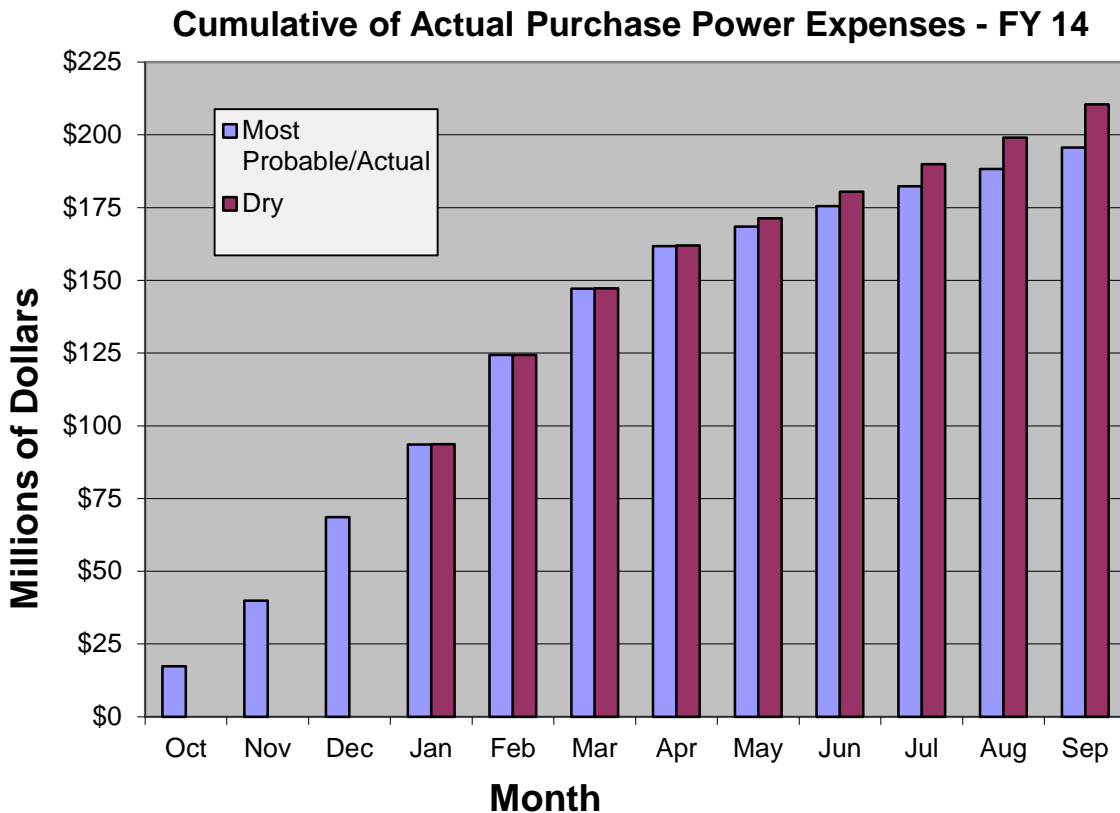


Hydro Conditions and Purchase Power Monthly Outlook January 2014

Western Summary

- The most probable forecast of net generation for FY 2014 is 22,196 gigawatt-hours (GWh) or 82 percent of average. October through December generation was 71 percent of average.
- The lower level forecast of generation for FY 2014 is 21,013 GWh or 77 percent of average.
- The amount of power purchased for FY 2014 is expected to range between 4,274 and 4,659 GWh.
- The average price for purchase power across all hydro projects and off-peak and on-peak periods is expected to be \$46/MWh. This price compares to \$45/MWh last year.
- Purchase power expenses for FY 2014 are forecast to range between \$196 and \$210 million – compared to \$182 million in FY 2013.
- October through December purchases totaled \$69 million – compared to \$53 million for the same period last year.



Upper Great Plains Region

Storage: December inflows totaled 162.5 MAF or 76 percent of average due to colder than normal temperatures. This inflow volume was a new record low for the month of December. The anticipated inflow for the April through July period is forecast to be 1,750.4 KAF or 101 percent of the 30 year average. Based upon the current water supply forecast, releases out of Canyon Ferry to the Missouri River below Holter Dam will be maintained near 3,100 cfs. Streamflows into Bighorn Lake during December were 92 percent of average. On January 1, the NRCS measured the snow water content of the mountain snowpack in the Bighorn Basin at 110 percent of average. Based on the January 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 1,143,200 acre-feet (107 percent of average).

As of January 21, 2014, the storage level at [Canyon Ferry](#) was 1,482,675 acre feet and the active conservation pool is 78.4 percent full. Storage at [Yellowtail](#) is 933,113 acre feet and the active conservation pool is 91.4 percent full.

COE: Colder weather throughout the system prevented the COE from reaching minimum winter release levels. Snowpack above Ft. Peck is above normal and has reached 107 percent while above Garrison it is 114 percent above normal. Runoff is now estimated to be 99 percent of normal. Forecast energy was raised to 7,508 GWh, up somewhat from last month. Average is 10,027 GWh.

Snow pack: The January 1 forecasted runoff for calendar year 2014 is 26.1 MAF. This runoff would be 110 percent of normal runoff.

FY Generation: The six main stem power plants generated 491 million kilowatt hours of electricity in December. Total energy production for 2013 was earlier forecasted to reach 8.0 billion kWh, but has been reduced to around 7.6 billion kWh. The long-term average is approximately 10 billion kWh.

Purchased Power: Extreme cold weather has caused the purchased power price to increase dramatically. Temperatures below zero and wind chills in dangerously high levels throughout the mid-section of the county caused gas prices to increase. Prices for power are in the upper thirties for off peak power and upwards of seventy dollars for on peak power. Addendum, during the last week in January, a pipeline was damaged which sent the price of natural gas skyrocketing, to the effect of seeing prices increase to \$90 on-peak and \$45 off-peak.

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 remain in a few parts of the LAP area but LAP is now drought free on the whole and that is a significant improvement over last January. The snowpack was near or above average starting the month and remains so as of this writing. Heavy fall precipitation caused record reservoir inflows in some areas and the soil moisture and stream bank storage going into this winter is also an improvement over last year. The overall LAP reservoir storage at the end of December

was still below average with gains in the Colorado-Big Thompson Project (CBT) and significant losses in the North Platte Basin since the end of last January. The latest National Weather Service forecast indicates February through April temperatures and precipitation will just as likely be above average as below average in Colorado and Wyoming.

LAP Water Conditions At-A-Glance									
	Reservoir Storage 1,000 acre-feet			Snowpack inches snow water equivalent			Actual Reservoir Inflow To-Date 1,000 acre-feet		
	end of December	average	% of average	beginning of January	average	% of average	October - December	average	% of average
CBT	607.4	626.2	97%	84.3	84.0	100%	91.0	58.7	155%
North Platte	951.5	1,381.7	69%	155.8	130.8	119%	114.3	100.4	114%
Bighorn	2,020.7	1,822.0	111%	125.2	117.7	106%	282.4	201.2	140%
TOTAL	3,579.6	3,829.9	93%	365.3	332.5	110%	487.7	360.3	135%
Net At Plant Generation Projections (GWh)									
	Most Probable Case median inflow			Reasonable Minimum Case lower decile inflow			Reasonable Maximum Case upper decile inflow		
	January projection	average	% of average	January projection	average	% of average	January projection	average	% of average
Winter 13-14	520.8	718.0	73%	517.4	718.0	72%	535.4	718.0	75%
Summer 14	1,274.5	1,217.8	105%	963.6	1,217.8	79%	1,423.0	1,217.8	117%
TOTAL 2014	1,795.3	1,935.8	93%	1,481.0	1,935.8	77%	1,958.4	1,935.8	101%

LAP generation was below average in FY 2013 with the winter generation well below average. Extended scheduled unit outages required some plant bypass releases in the North Platte Basin last winter. LAP generation was below average all summer with significant shortfalls in August and September due to the Grand Lake water clarity operation and then the historic flooding in Colorado. The Adams Tunnel import and associated CBT generation was curtailed for a six week period starting on June 23 as a means to improve the water clarity in Grand Lake. Flooding along Colorado's Front Range in mid-September forced Reclamation to again curtail Adams Tunnel imports and CBT generation to avoid adding West Slope water to damaging flows in the Big Thompson River. No surplus firm generation was available for LAP customers at the regular LAP energy rate.

The winter season generation is expected to be about 73 percent of average and seasonal energy purchases have been arranged to support LAP firm electric service commitments. There was an additional extended CBT outage due the flooding in September. Reclamation drained Lake Estes and curtailed all imports through Adams Tunnel through early December to allow for the removal of sediment and debris washed into the Lake by the flood. Imports resumed in mid-December and heavier Adams Tunnel imports later in the winter will shift normal October and November CBT generation into February and March. There will also be minimum reservoir releases and associated generation in the North Platte Basin due to depleted reservoir storage.

Colorado River Storage Project Management Center

The total storage volume for the CRSP main stem reservoirs is 14,494,000 acre feet, which is about 47 percent of the total main stem reservoir storage capacity. Main stem reservoir inflows for the most recent historical month (December, 2013) were about 84 percent of average. Lake Powell elevation currently is about 3,582 feet, 118 feet from maximum reservoir level, and about 92 feet from the minimum generation level.

The forecast for the 2014 April to July water supply season for Lake Powell, issued by the Colorado Basin River Forecast Center, projects that the most probable (median) unregulated inflow volume will be 6.81 MAF (95 percent of average based on the period 1981-2010). The water year 2014 forecast increased by 560 KAF since last month. The winter snow accumulation season has started off near average (currently 96 percent of median); however, at this early point in the season, there is still significant uncertainty regarding the final snowpack and resulting runoff.

The April-July forecast ranges from a minimum probable of 4.0 MAF (56 percent of average) to a maximum probable of 10.2 MAF (142 percent of average). For reference, the 30-year April-July average is 7.16 MAF. There is a 10 percent chance that inflows could be higher than the maximum probable and a 10 percent chance they could be lower than the minimum probable. The Lake Powell operational tier for water year 2014 is the Mid-Elevation Release Tier with an annual release volume of 7.48 MAF.

Based on that inflow forecast, estimated SLCA/IP net generation for Fiscal Year 2014 is 3,784 GWh as compared to 5,584 GWh based on the long-term historical average generation.

Estimated purchase power expenses for firming during the fiscal year 2014 are about \$54.9 million as compared to about \$17.7 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. Firming purchases for the last month have been in the upper \$30's on-peak and low \$30's off-peak, but have spiked for short periods during extreme weather events.

Desert Southwest Region

Current Aggregate Storage (Mead, Mohave & Havasu): 14.481 MAF (14.434 MAF Nov-2013), 20.818 MAF (73-Year Historical Avg).

The Lake Mead end of December 2013 elevation was 1,106.73 feet (.37 feet higher than end of Nov 2013 elevation), or about 112.91 feet below full storage elevation of 1,219.64 feet and 56.73 feet above the minimum generation elevation for Hoover of 1,050 feet.

Lake Mead's elevation is projected to peak at 1109.31 ft in January of WY 2014 (13.01 feet below the WY 2013 peak elevation of 1122.32 feet), and drop to a minimum elevation of 1084.71 feet in September of WY 2014, a maximum fluctuation in lake elevation of 24.6 feet

The Lake Powell operational tier for WY 2014 is currently the Mid-Elevation Release Tier. Total releases from Lake Powell are projected to average about 7.48 MAF for WY 2014 (actual of 8.232 MAF for WY 2013). The projected 2014 April – July unregulated inflow into Lake Powell is 6.81 MAF or 95 percent of average (actual of 2.56 MAF or 36 percent of average for 2013).

Basin Snow Pack and Precipitation: DSW hydrology, or the Lower Colorado River Basin, is mostly dependent on the Colorado River Basin snow pack and precipitation above Lake Powell. The WY 2014 precipitation is currently 92 percent of average and the snowpack is 96 percent of the 30-year (1981-2010) median.

Lower Basin Runoff: The lower basin tributary inflow into Lake Mead for December 2013 was 41 KAF. The projected side inflow into Lake Mead for WY2014 is 866 KAF which represents a 5 percent increase over last year's actual of 824 KAF, and represents 67 percent of the normal annual side inflow of 1.3 MAF.

Forecasted WY 2014 Generation: 5,268 GWh compared to 5,634 GWh (Historical Average). The projected Hoover and Parker-Davis generation for WY 2014 is 94 percent of the average historical generation.

Wholesale Power Market Conditions: The December market prices in the Desert Southwest averaged about \$43/MWh firm on-peak, \$40/MWh firm off-peak compared to \$33/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 4.04 million-acre-feet, compared to 7.527 MAF last year. Accumulated inflow for the water year-to-date is 13 percent of the 15-year average for Trinity, 43 percent for Shasta, 21 percent for Folsom and 52 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 0.72 inches, which is 23 percent of the monthly average. November recorded precipitation totaled 1.66 inches, which is 26 percent of average. December came in at 0.92 inches, or 10 percent of average. January is looking very dry though there is some precipitation in the forecast. As of January 24, January is at 0.22 inches or 2 percent of its average. The cumulative total at this time is 3.52 inches or 7 percent of the annual. December and January are the months with the highest average, with February very close. At the writing of this report, Sacramento has just ended 53 days without precipitation.

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. Therefore, snow water equivalents are reported as a percentage of this average. As of January 24, the North is at 4 percent, the Central is at 8 percent and the South is at 8 percent of this average. The Sacramento River Index forecast of water supply based upon January 1 conditions is "critical" for the 90 percent exceedence as well as the 50 percent case. Calendar Year 2013 has been called the driest on record. Water Year 2014 would appear to be following suit.

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 approximately 91 percent of that average.

Reclamation forecasts are based upon December 1 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 70 percent and 72 percent of this “Green Book” average net generation. Delta salinity has caused export pumping to be extremely low even while reservoir releases have increased.