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Hydropower, new pipeline to benefit TMWA users

John Seelmeyer, 2/22/2010

Century-old hydroelectric facilities along the Truckee River west of Reno have helped control water bills in the Truckee Meadows.

Now the benefits of the hydroelectric facilities owned by Truckee Meadows Water Authority will become more pronounced as a new construction projection uses gravity — rather than electric pumps — to deliver water from the Truckee River to a TMWA treatment plant in west Reno.

Here's how it all comes together:

The three hydroelectric plants generate about 6.7 megawatts of power — that's roughly enough for 3,700 homes — during the warmer months when the river is high enough to drive the plants' turbines.

TMWA sells the power to NV Energy, which needs hydropower to meet state requirements to buy power from renewable sources. NV Energy, in turn, credits the purchases against TMWA's electric bill.

The dollars are significant.

The electric sales from the three hydro plants cover roughly 50 percent of TMWA's annual electric bills — bills that ran about $6.7 million in the agency's last fiscal year. Those bills represent 17 percent of the water utility's total budget.

The numbers are about to get sweeter. An April 2008 earthquake destroyed a section of a wooden flume in Mogul that delivered water to the Chalk Bluff Water Treatment Plant just past McCarran Boulevard in west Reno. After the flume was damaged, TMWA has been forced to spend about $400,000 a year for power to pump water out of the Truckee River up to the plant.

But an $8 million underground pipeline that's nearing completion by Reno-Tahoe Construction Inc. of Sparks will use gravity to deliver up to 95 millions of water a day to the Chalk Bluff plant.

And that savings in power expense will allow TMWA to use the revenues from the hydroelectric plants to offset an even greater percentage of its electric bills.

The hydroelectric plants in the Verdi area were built by Sierra Pacific Power Co. in 1904, 1905 and 1912.

When TMWA, a public agency, was created to purchase the water-utility assets of Sierra Pacific Power in 2001, it took over the hydroelectric plants along with the region's water treatment and distribution system.

The water rights that cover the hydroelectric plants are the oldest on the Truckee River, explains Pat Nielson, manager of distribution and generation for TMWA. So if the newly formed water agency wanted the highly valuable water rights, it needed to take the hydro plants as part of its deal with Sierra Pacific.

Since then, TMWA has made steady investments to modernize the plants, upgrading decades-old mechanical controls with digital systems, for instance.

With the exception of the controls, the facilities look much as they did when they were built to provide power for the mines of Virginia City and the little riverside town of Reno.

Water diverted at small dams on the Truckee River flows down canals and flumes, drives turbines the size of your desk at work and pours back into the river. The turbines spin the generators that produce power that flows onto the NV Energy grid.

"There's not a lot to them," says Nielson.

The carbon footprint of hydroelectric production, Nielson notes, is smaller than any other source of electricity — smaller even than solar, wind-powered or nuclear facility.

On the other hand, their operation is dependent on the flow of the river. When water levels decline in mid-autumn or ice forms on the Truckee River, the hydro plants are out of operation. TMWA's contract to deliver power to NV Energy is tied to river levels.

During the winter months, however, TMWA sometimes is able to run the plant for a few days at a time if a few warm days begins to melt snowpack or a warm storm delivers rain that raises the river level.