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Learning Self Sufficiency

Thanks to a wide range of new and emerging technologies, water purveyors can rely on water recycling and reuse to supplement supply.

By Dan Rafter
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This has certainly been the case in Santa Paula, CA. That municipality's water recycling facility, which went operational ahead of schedule in mid-2010, is now using 35% less power to operate than municipal officials had originally been promised.

Much of the credit for this goes to PERC Water Corporation, the designer and builder of the facility, which added important energy-saving technologies to the project.

PERC, for instance, installed high-efficiency blowers throughout the recycling plant. This is important, because the blowers in a biological treatment plant tend to constitute about 50% of these facilities' power consumption.

"If you can save anywhere, you want to save money on the biggest power-eaters in the plant," says PERC's Nespeca. "One of the things that help us is that we have an integrated design-build operation and finance firm. We have on our team engineers who determine the sizing and type of equipment that we use. We have people in our construction division who know how to install equipment. We have an operations group that is involved in the process from the beginning. They are all able to share ideas. We end up with a very efficient program to produce a very efficient plant. Every discipline is involved in this effort from the beginning."

Marian Clayton, director of marketing with PERC Water, says that the city of Santa Paula has saved about $10,000 a month in operating costs of its new water recycling plant for the first seven months in which the plant was in operation.

The Santa Paula plant isn't only about cost savings. It also demonstrates a growing trend in the construction and operation of water recycling facilities: More municipalities are entering into design/build/operate/finance arrangements with technology providers, meaning that these companies not only design the plants, they also handle the building, operation and financing of them. This minimizes the financial risks taken on by municipalities, who only pay service fees to the companies that build and operate their water-recycling facilities.

Under the design/build/operate/finance model, PERC Water and its financial partner finances the design, construction, and startup of the facilities without any capital cost required by the public agency for which it is working, in this case the city of Santa Paula.

Once the Santa Paula facility began operation, PERC Water and this financial partner began to receive a service fee from municipality for the treatment and recycling of its wastewater.

This arrangement works because it encourages operates such as PERC to do everything they can to reduce the operating costs of the water recycling facilities they design and build. After all, they are the ones financially

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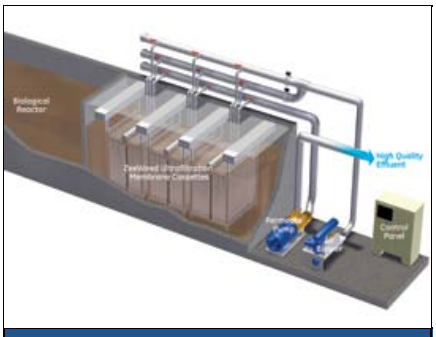

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responsible should the facilities eat up more power than expected.

“We bought the additional energy-saving equipment for the Santa Paula facility on our own dime,” says Clayton. “We are operating it for the next 30 years. We spent a significant amount of capital on the equipment, but we will recover the costs of that in a number of years in reduced energy costs. It only makes sense for us with the design/build/operate/finance structure to make this investment.”

Nespeca says that more municipalities are slowly turning to similar arrangements. “To be honest, a lot of municipalities want to consider design/build/operate, but there is still a bit of resistance to it,” he says. “Many people are still married to the traditional design/build scenario. But this method is becoming more popular. We are certainly seeing more design/build/operate plants in the last five years than we did 10 years ago.”

Photo: Worrell Water Technologies LLC
Worrell Water Technologies’ onsite Living Machine system treats and recycles wastewater for reuse.

High-Quality water

Long Beach, CA-based APTwater, a technology company that specializes in water treatment technologies, has long been a player in the water recycling and reuse business. It is now taking on another important task, this time in the city of Anaheim, CA.

The City of Anaheim has entered into an agreement with USS Cal Builders to build a demonstration water reuse facility in its downtown. This facility, designed by MWH Americas Inc., will provide reclaimed water that will be used for flushing the toilets and watering the landscaping at Anaheim’s city hall building.

It will also serve as a type of showcase for the public, educating them about the importance of reusing water.

APTwater has been contracted to install its HiPOx system, an ozone-based oxidation process, in the new facility. This system will meet California’s disinfection regulations while simultaneously destroying any trace organic compounds in the recycled water as well as remove color and odor.

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