

## Winery Water and Energy Savings

### The Issue

California is the fourth largest producer of wine in the world. The California wine industry is a significant water consumer and is the second largest consumer of electricity among the food and beverage industry. As the wine industry and its associated water and energy use continue to expand, efficiency technologies will become increasingly important. Water supply is limited and energy bills will become a larger portion of operating costs if not contained. Water reuse and novel heat recovery can significantly decrease fresh water use in wine production while decreasing energy use, but data on technical and economic feasibility is limited.

### Project Innovation + Advantages

This project is testing two energy and water saving technologies at a winery facility in northern California. The first technology is a water treatment and reuse system to recycle wastewater for indoor barrel washing. The second is a wine-to-wine heat exchanger for the cold-stabilization of white wines. Both technologies have been installed on a single skid at the project location in Sonoma County, along with monitoring and verification equipment. Jackson Family Wines owns the bottling facility where the technologies are being tested.

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Program: EPIC  
Agreement Number: EPC-15-050  
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Project Location: Santa Rosa, CA  
Project Term: 6/30/2016 to 12/31/2019  
Project Status: ACTIVE

## Two Technologies to Achieve Water and Energy Efficiency in the Wine Industry

### BENEFITS

The project focuses on full-scale technology demonstrations of two water and energy saving technologies for the wine industry. The water treatment and reuse system uses reverse osmosis to treat water to potable standards for barrel washing with an estimated water use reduction of 90 percent. The second technology significantly reduces the amount of energy used to stabilize the white wine.

**Lower Costs:** The water and energy savings are expected to result in bill savings, leading to lower operating costs for winemakers and owners of bottling plants. Treating and reusing barrel wash water results to additional energy savings and greenhouse gas emission reductions, due to the embedded energy savings in the fresh water supply that is being offset by the use of the recycled water. Furthermore, the wine-to-wine heat exchanger technology for the cold-stabilization offers significant electricity and natural gas savings. The estimated overall annual cost savings for this project is \$54,418.

**Environment Benefits:** This project is estimated to reduce the amount of fresh groundwater used for barrel washing by 90 percent annually. Reuse of the treated wastewater for barrel washing is expected to save 1.4 million gallons of fresh water annually. In addition, the wine-to-wine heat exchanger technology can result in substantial energy savings and greenhouse gas emissions reduction. The annual greenhouse gas emissions reduction for the overall project is estimated to be 504,111 pounds of CO<sub>2</sub>e, based on electricity, natural gas, and water savings.