City of Kennewick’s **WASTEWATER TREATMENT PLANT** improves energy efficiency and processing capacity to reduce costs and respond to evolving municipal needs.

Working in close collaboration with public utilities and their industrial customers, across the Northwest, the Bonneville Power Administration’s Energy Smart Industrial program is dedicated to helping industrial end-users achieve cost-effective energy savings.

**Public Utilities Partner for Savings**

Electrical energy provided by the Benton County Public Utility District (Benton PUD) powers the pumping and aeration systems at the City of Kennewick’s wastewater treatment plant, as well as its ultraviolet (UV) treatment, lighting, and other motor-driven processes.

With an annual energy spend of more than $300,000, electrical energy represents a significant operating cost, and each kilowatt-hour saved benefits the City’s citizen rate-payers.

Through the Bonneville Power Administration’s Energy Smart Industrial (ESI) program, Benton PUD partners with the City of Kennewick to offer technical services and performance incentives for energy-efficient equipment and improvements in operations and maintenance (O&M) practices.

**ORGANIZATION**

City of Kennewick
Public Works Department

**UTILITY**

Benton County
Public Utility District

**ANNUAL ENERGY SPEND**

Over $300,000

**PROJECT**

Wastewater Energy Coaching

**ENERGY SAVINGS**

2.7 million kWh through 2018

**COST SAVINGS**

$150,000 through 2018
Building an Energy Management Culture

In April 2016, the City's Utility Services Division enrolled the wastewater treatment plant in ESI's Strategic Energy Management (SEM) program. A sector-specific SEM offering, Wastewater Energy Coaching (WEC), helps wastewater plants improve energy efficiency by increasing education and awareness among staff, identifying and implementing low-cost improvements, and equipping the facility with tools for tracking energy performance.

It Takes a Team

Durable SEM programs require committed leadership and operations staff. Upon enrolling in WEC, the City assembled an energy team that included Chris Espinoza (Water and Wastewater Supervisor), Jeremy Lustig (Capital Projects Manager), Dustin Gerlach (Infrastructure Specialist) and Bob Bepple (Senior Automated Controls and Telemetry Specialist).

The energy team was supported by experts from the ESI program to identify, characterize, and implement technical opportunities. The energy team expanded beyond their immediate group by incorporating energy efficiency topics into lunchtime discussions and casual chats with colleagues. By raising overall awareness of opportunities and successes, the team established a lasting culture of energy management throughout the organization.

Results

Within the first year of WEC participation, the energy team implemented 13 low- and no-cost improvements, including:

- Optimizing aerator control algorithms
- Adjusting set points in the aerated lagoons
- Verifying set points on existing variable frequency drives

The team’s efforts resulted in 1.6 million kWh in total first-year energy savings, a 16% reduction from baseline. The City’s energy team solidified these gains through procedural documentation, training, and other persistence strategies. After the initial focus on O&M improvements, the City appropriated capital to install new heat pumps in the UV building, enhance the UV disinfection control system, and upgrade the plant’s lighting to LED technology.

In 2018, aeration set points were refined to optimize dissolved oxygen levels and odor control. While this increased electrical load, the plant has sustained energy savings of >10%. Through 2018, Kennewick has accumulated more than $150,000 in energy cost savings.