

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.

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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

CASE STUDY CITY OF KENNEWICK

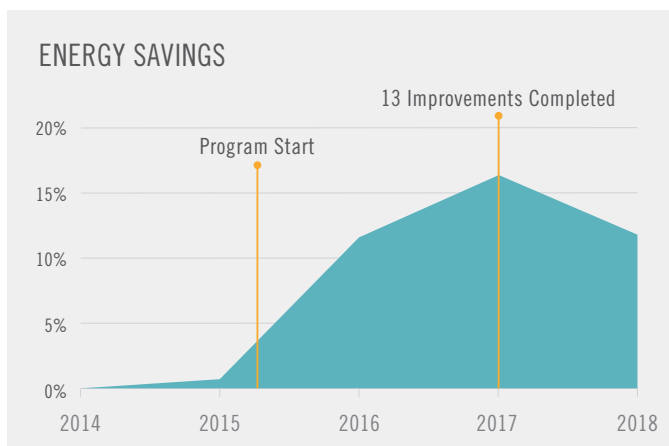
Building an Energy Management Culture

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 Beple (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.



The City has sustained more than a 10% reduction in energy use since its participation in the WEC program began in 2016.



WEC features a series of five training workshops, which provide plant staff with a unique opportunity to share information and experiences with colleagues from neighboring facilities.

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.

Visit www.energysmartindustrial.com for more information about BPA ESI or contact your local utility provider.