

Project Profile

City of San Bernardino Water Reclamation Plant

Product: 1.4 MW Carbonate Fuel Cell System

Objectives

- Meet air quality standards
- One integrated system provider
- Efficient use of capital
- Preserve biogas use
- Reduce emissions

Challenges

- Biogas contaminants
- Pretreatment process
- Air quality compliance
- Rising energy costs
- Siting requirements

“FuelCell Energy has been responsible for both the fuel cell and the digester gas pretreatment. The fact that one entity does both has been absolutely essential to the project’s success.”

--- Kevin Stewart, Director of
Water Reclamation



Solution

FuelCell Energy and the San Bernardino Municipal Water Department (SBMWD) commissioned a 1.4-megawatt combined heat and power (CHP) system that simplified siting, reduced construction costs by eliminating the need for an additional building, continued their longstanding practice of beneficially using biogas generated at the plant, and aligned with evolving South Coast Air Quality Management District regulations. In 2021, SBMWD began operation of the system at the San Bernardino Water Reclamation Plant (WRP), where it converts biogas into electricity and usable thermal energy, supplying more than 50% of the plant’s electricity needs.

Results

>50%

More than half of the water reclamation plant's energy usage is served by their on-site FuelCell Energy Block system.

200K

SBMWD serves the wastewater needs of approximately 200,000 residents while continuing to beneficially use biogas.

300K

The Digester Gas Beneficial Use Program generated ~2.7 million kWh/year, equal to \$300,000 in utility savings.



FuelCell Energy's biogas conditioning system.

Biogas conditioning system

FuelCell Energy has developed a biogas conditioning process which removes contaminants from raw biogas, making it a suitable feed for the fuel cell. By removing these compounds, the treatment system produces up to 340 scfm of clean biogas that can be used by the fuel cell system for electricity generation.

Power Purchase Agreement (PPA)

FuelCell Energy is a single entity solution provider delivering power, service, operational support, and fuel pretreatment under a 20-year PPA. The PPA enables SBMWD to receive reliable on-site energy, continue to beneficially use their digester gas, and meet the changing SCAQMD regulatory requirements.

Engineering Achievement Award

At the 2023 California Water Environment Association (CWEA) annual conference awards ceremony, SBMWD received the Engineering Achievement Award for its Digester Gas Beneficial Use Program, with the FuelCell Energy Block System serving as a core technology for their facility's environmental stewardship.