

STANDBY POWER WASTEWATER TREATMENT



- // **Where:** Fairfax County, Virginia, USA
- // **What:** 1,000 kW, 1,500 kW and 1,750 kW MTU Onsite Energy generator sets for three different wastewater pump stations
- // **Why:** Faster response time from generator sets plus improved reliability and reduced maintenance made it more cost-efficient to install new systems than to upgrade existing units

FAIRFAX COUNTY UPGRADES WASTEWATER PUMPING STATIONS WITH MTU ONSITE ENERGY STANDBY POWER SYSTEMS FAST RESPONSE TIME, EASY MAINTENANCE IMPROVE RELIABILITY AND EFFICIENCY

FAIRFAX COUNTY, Virginia—Fairfax County’s wastewater system serves an area covering more than 230 square miles and can collect and clean more than 160 million gallons of wastewater per day from about 340,000 homes and businesses. The wastewater management system consists of approximately 3,200 miles of pipe, dozens of pumping stations and several treatment

facilities. When the 30-year-old emergency standby generators at three wastewater pump stations required upgrading, project officials determined it was more cost-efficient to completely replace the units with standby power systems

from MTU Onsite Energy than to make the needed upgrades to the existing generators. The new units bring backup power online much faster, and they are more compact, easier to maintain

and easier on the environment than their predecessors.

Analysis recommends new units over upgrade

The Wastewater Collection Division’s Pumping Stations Branch operates and maintains the wastewater pump stations, flow meters, a large-pressure sewer system and several facilities that add chemicals to control odor and corrosion. Unmanned and completely automated, each of the Fairfax County pump stations requires a standby power source that automatically comes online to keep the pumps running and wastewater flowing through the collection system when utility power is lost.

Recently, Cynergy Electric Company Inc., an electrical contractor in Crofton, Maryland, completed a yearlong project for ALPHA Construction Company, Upper Marlboro,

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/// Dave Ashburn, president, Cynergy Electric Company



MTU Onsite Energy standby power systems installed at Fairfax County wastewater pumping stations operate at 1,800 rpm, or twice the speed of the units they replaced. The new generators also feature state-of-the-art electronics and will start and accept load within 10 seconds.

Photo: Fairfax County

Maryland, to replace old backup power systems at three of the pumping stations. The original contract called only for upgrades and repairs of the existing standby generators at the three pumping stations. But after completing a cost-benefit analysis, officials at ALPHA recommended replacing the existing generators instead of upgrading the old ones. The benefits of improved response time, reliability and reduced maintenance far outweighed the additional investment for the new units.

Compared to the generators they replaced, “the new equipment is more efficient and provides a higher degree of reliability,” said Dave Ashburn, president of Cynergy Electric.

Loads determine generator size

Cynergy Electric designed and installed new backup power systems, which included new generators, switchgear, batteries and battery chargers. For the generators, Cynergy Electric turned to Curtis Engine & Equipment Inc., a Baltimore-based distributor for MTU Onsite Energy that supplies emergency standby power systems in the Mid-Atlantic region.

The loads and starting requirements of each pump motor determined the choice of generators: a 1,000 kW MTU Onsite Energy unit to power up

to four 250 hp motors; a 1,500 kW unit to power up to four 450 hp motors; and a 1,750 kW generator for up to four 600 hp motors. Each of the backup power systems has a 200-gallon day tank that pulls from a 5,000-gallon main fuel tank. Each generator set is EPA Tier-2 certified and meets and exceeds standards set by the Virginia Department of Environmental Quality, according to Ashburn.

New units pass early tests

Shortly after the new systems were installed, summer storms in Fairfax County caused several short power outages at the pumping stations. Ashburn said that in each case, the MTU Onsite Energy generators sensed the outage, quickly started up and accepted the load. When power was restored, the units transferred the load back to normal utility power.

Based on the results of these early experiences, operations and maintenance personnel responsible for the three pumping stations can have confidence that the new backup power systems will perform as required. What’s more, county residents and businesses near the pumping stations can trust that MTU Onsite Energy standby generators will keep wastewater flowing even when utility power is out.

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MTU Onsite Energy Corp. (formerly Katolight Corporation) is a leading producer of diesel-powered generator sets from 30 kW to 3,250 kW and natural gas-powered generator sets from 30 kW to 400 kW for standby, prime power and cogeneration applications. The company also provides automatic transfer switches, paralleling switchgear, controls and accessories for complete power system solutions.

MTU Onsite Energy Corp., a Tognum Group company based in Mankato, Minnesota, combines the expertise of Katolight and MTU Detroit Diesel Power Generation to meet the ever-increasing distributed power needs of customers in North America and around the world. MTU Onsite Energy Corp. is part of the Tognum Group’s Onsite Energy and Components business unit. For more information, visit www.mtu-online.com.