[Municipality]

City of Clute, Texas

CUSTOMER BENEFITS

- **Guaranteed savings**
- **Reduced energy consumption and costs**
- **Increased operational efficiency**
- **Maximized water revenue**

PROJECT AT A GLANCE

Location:
Clute, TX

Project type:
Performance contract

Properties:
- Wastewater treatment plant
- Multiple facilities citywide

Funding:
- Certificates of Obligation
- CenterPoint Energy rebate of $110,000

ECMs:
- Upgrades to wastewater treatment plant
- Retrofits to indoor lighting, traffic signals and parking lot lights
- Citywide water meter replacement
- Automatic Meter Reading system (AMI)

Annual savings:
$383,359

Installation:
2014

Poised to meet the needs of anticipated population growth, the City of Clute leveraged a performance contract from Schneider Electric to pay for upgrading its aging infrastructure.

The Challenge

Situated just 45 minutes south of Houston and five minutes from area beaches that line the Gulf of Mexico, Clute's population has grown steadily over the years. In 1933 the population numbered only 10. By the 2010 census, the population had grown to 11,211 and occupied an area measuring just 5.6 square miles.

Clute is famous for its discovery of a 38,000-year-old fossilized mammoth. The city is also home to The Great Texas Mosquito Festival, a 3-day event filled with fun and games celebrating the mosquito, half-seriously referred to as "The Texas State Bird").

By 2012, with a residential developer already working in Clute, members of City Council realized they needed to prepare the city's infrastructure to meet the anticipated growth. So they began to explore ways to improve the operational cost-effectiveness and energy efficiency of the city's infrastructure without straining the budget.

After conducting a preliminary audit of the city's infrastructure, Schneider Electric met with the City Council to discuss using a performance contract as a cost-effective approach to paying for the necessary improvements. A performance contract is a turnkey solution that guarantees savings ultimately used to fund the improvements. In the unlikely event Clute did not achieve those savings, Schneider Electric would pay the difference.

As with any infrastructure project, the primary challenge would be to install new equipment and retrofit other devices that typically operate 24/7. Having successfully tackled this challenge on similar projects for other municipalities, Schneider Electric began coordinating and scheduling improvements to ensure there would be no interruptions to Clute's vital services.

"Throughout the process of working with Schneider Electric, including the audit and design processes, they have been professional, knowledgeable and extremely customer focused."

Gary Beverly
City Manager

The Solution

A wastewater treatment plant is essential to a city's financial and environmental success. So Clute decided to implement a wastewater and metering solution that would have a positive impact on the entire city's infrastructure, functionality and sustainability. Other areas identified for improvements under the performance contract included retrofitting traffic signals and installing new interior and exterior lighting across all facilities.

At the wastewater treatment plant, Schneider Electric effectively gutted and replaced the entire plant, installing a new aeration system that greatly improved the plant's operation and denitrification efforts. Today, high-efficiency diffusers at the bottom of the tank along with a fine bubble membrane facilitate the transfer of oxygen into the liquid, improving the quality of the effluence and enabling Clute to satisfy state requirements for water quality.

Instead of having to run the plant at full capacity all the time, the new aeration system blowers and piping allow the plant to operate at the optimized air output to match the constantly changing demand. Virtually frictionless with no metal-to-metal bearings, the new equipment enables the plant to meet the Texas commission on Environmental Quality (TCEQ) permit limits.

In addition to replacing outdated meters with diminishing accuracy throughout the city, Schneider Electric installed a new advanced metering infrastructure (AMI) system. AMI uses "smart" meters to enable two-way communication between meters and the central system.

Constructed of composite material (no metal or lead), the new meters increase meter reading efficiency and accuracy, virtually eliminating the need for manual rereading. In addition to meeting the 2014 EPA low-lead requirements, the new system detects leaks more quickly, minimizing revenue lost due to leaks of treated – but unbilled – water. For Clute that amounts to capturing $250,000 annually in lost water revenue alone. New "smart" meters also enhance customer service by assuring accurate billing for water use.

Upgrades to traffic signals, parking lots and building interiors improved overall color rendering and lighting efficacy. Schneider Electric replaced 135W incandescent bulbs with 9W LED lighting in the traffic signals and changed out HID (high-intensity discharging) bulbs in other areas, replacing them with superior LED lights that cut wattage used by 50 percent.

The Bottom Line

Schneider Electric projected that upgrades at the wastewater treatment plant will yield a 57 percent increase in energy savings. Lighting retrofits will be responsible for energy savings of 72 percent.

The city used Certificates of Obligation to fund improvements to upgrade lighting citywide and to implement high-speed turbo blowers at the wastewater treatment plant.

As a result of energy improvements to the city's infrastructure, Clute expects to reduce its energy use by 2,004,813 kWH annually. That equates to annually removing 1,364 tons of CO_2 from the atmosphere, removing 229 cars from the roads or planting 33,800 trees.

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