2009-2011 INDIANA ENERGY MANAGEMENT PILOT

Lafayette Wastewater Treatment Plant

Who we are

The Lafayette wastewater treatment plant (WWTP) has a design average flow of 26 million gallons per day (MGD). The plant was upgraded in an extensive 60 million dollar renovation and upgrade project that was completed in 2004. Renovation included a new pump station, grit removal, primary clarifiers, additional aeration tanks, additional final clarifiers, sludge thickening, digesters, process air blowers, and disinfection. The upgrade enhanced efficiency, reliability and quality of treatment.

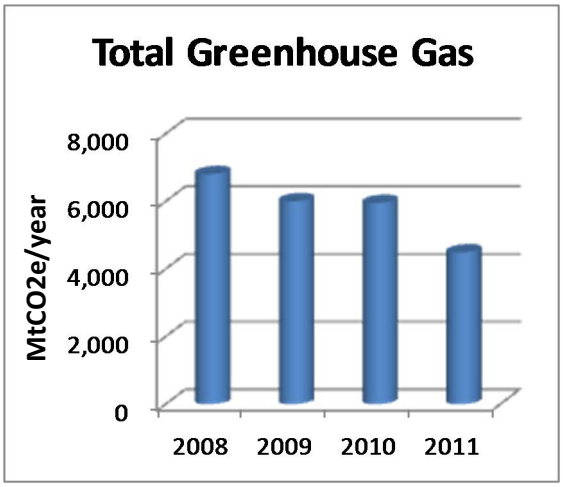
Lafayette Wastewater Treatment Plant

Electricity Usage

2008: 8.923 mWh
2009: 8.244 mWh
2010: 8.187 mWh
2011: 6.185 mWh

Greenhouse gas (GHG) avoided:

1,888 metric tons carbon dioxide equivalent (2011 compared to 2009 baseline).*



Project Success Story

In 2007, Lafayette WWTP management made a commitment to reduce operational cost and improve treatment. The plant hired a consultant to perform a process audit for optimization. The consultant looked at the whole system and optimized the treatment process to reduce energy consumption, chemical use, maintenance needs, and to increase process stability. This fact sheet focuses on energy-saving options identified.

Many options involved low-cost no-cost operating changes. Using the Deming cycle (plan, do, check, act) WWTP personnel methodically verified that each change gave the desired results. Measures implemented include changes in equipment programming to reduce cycle times or frequency, to reduce recycle flows, and to thicken solid streams. Action was taken to switch lights off in un-occupied areas and turn exhaust and supply air fans down when not needed. In addition, the audit recommended capital improvements such as a high-efficiency blower which was installed late in 2010.

Control measures resulted in a reduction in electrical consumption of 21.6% when comparing 2007 consumption to 2010 (see attached graphs). Natural gas consumption is down 50.1% for the same period. Polymer use is down approximately 50%. With the changes in the process final effluent is a higher quality and the treatment process is more stable.

Greenhouse gas emissions avoided are equivalent to

Removing 336 vehicles from the road for a year

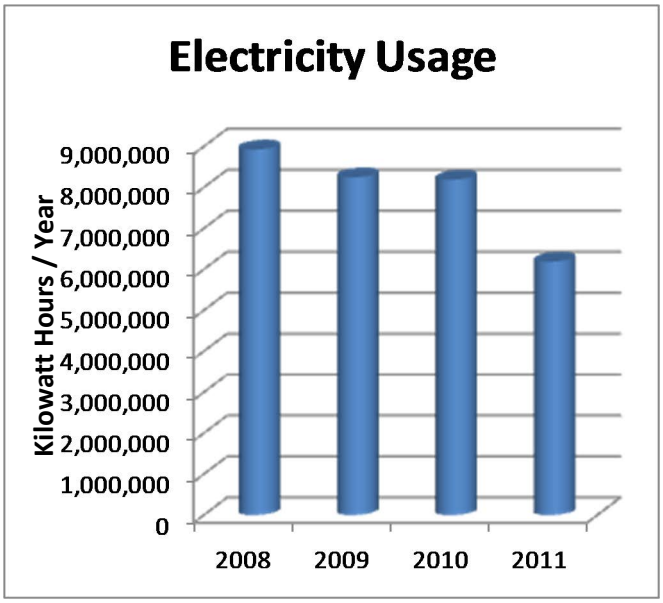
Electricity for 214 homes for a year

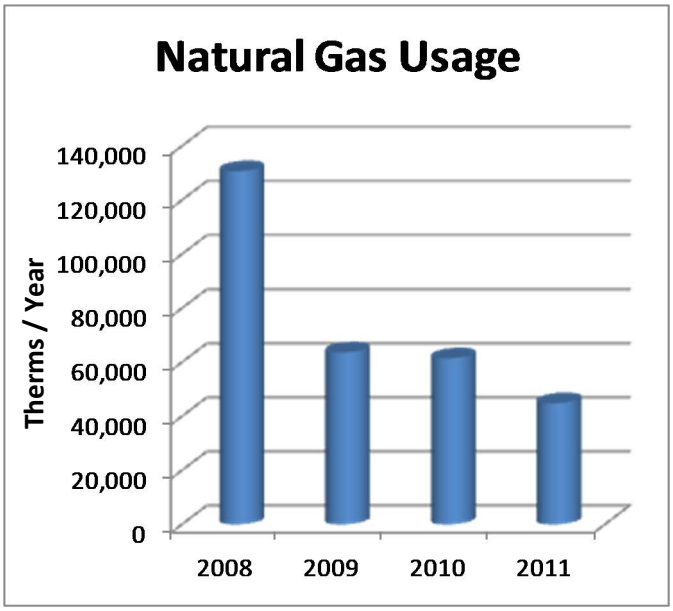
9.3 Railcars of coal

3,983 Barrels of Oil

Green House Gas Equivalencies calculated using USEPA calculator (http://www.epa.gov/cleanenergy/energy-resources/calculator.html

Documented Results





Key Improvements

Goal	Improvement Process	Annual energy saving	Implementation cost	Annual cost saving	Simple payback
Reduce intake and exhaust fan speed when work area is unoccupied	Reprogrammed automatic controls	353,000 kWh/yr 65,000 therms/yr	$0.00	$24,000 electrical	0
Reduced back pressure on aeration diffusers	Cleaned diffusers	384,000 kWh/yr	Appx. $6,000	$26,800	3 months
Reduced cost of supplying compressed air	Installed high efficiency blower	1,700,000 kWh/yr	$794,000 (Includes a $500,000 grant for this project)	$121,000	6.5 years