



CASE STUDY

Application OIL REFINERY

Because the local utility power isn't yet available when this particular refinery installs four new water pumps, ConocoPhillips requires generators that can be used as prime power to start up and run the pumps — especially in times of heavy rainfall or hurricane season. The new pumps are located at one of the lowest ground areas of the refinery, designed to redirect any storm water from the plant and refinery. These pumps are activated, depending on water levels, by a flow valve.

During Hurricane Gustav, more than 10 inches of rain fall in five hours, pouring 10 million gallons of water into the refinery. While these heavy rains don't shut down the refinery, the pumps have trouble keeping up with the fast and furious water levels, putting the refinery operations at risk. ConocoPhillips is also very interested in having a redundant generator system in place just in case more than one pump kicks in at a time.



RESULT

In the end, two 2000 kW KOHLER generators are specified for the project, providing redundant backup power to all four pumps, each operating at 390 horsepower.

The customer originally suggests that the generator power be supplied at 2000 kW. Kohler Rental designs the power package to offer 1500 kW so that ConocoPhillips has an extra 500 kW per generator as additional redundant power, giving them the 'gold package' in prime and backup power, explains Greg Guse, Manager, Technical Services and Design-Kohler Rental.



Solution

FLEXIBILITY, SECURITY

Kohler Rental designs the project so that two pumps could run entirely on one generator, or all four pumps could share the electrical load between the two KOHLER generators. In addition, two transformers and one four-bank motor control center (MCC) are wired to the generators. The MCC is configured to take two motors offline if either generator does not run, deflecting any possibility of overloading one generator if the other generator goes down. Kohler Rental runs the cable to connect the transformers to the pumps, allowing the generators to produce 4160 volts.

“We provided several options, from different sized generators (in terms of kilowatts) in different quantities and configurations,” said Gary Davis, Sr. Account Manager—Kohler Rental. “We recommended redundancy be built in so ConocoPhillips could also parallel more than one pump per generator. The pumps required 316 kW each to run, but the startup draw was large (9284 kVA). Projects like this require much scenario planning and problem solving in advance — and that's just the type of technical design challenge we enjoy preparing for.”

Customer URS CORP.

ConocoPhillips is the third-largest integrated energy company in the U.S., based on market capitalization, oil and natural gas reserves. At its downtown New Orleans refinery, ConocoPhillips is in a prime place to explore for and produce oil and natural gas, but the geography can also present challenges when hurricanes or other bad weather threaten to come ashore.

URS Corp., a global provider of engineering, construction and technical services for public agencies and private sector companies such as ConocoPhillips, sought help from Kohler Rental, who had provided a reserve power program for ConocoPhillips for the last few years. So when ConocoPhillips needed a power source to ensure that their new water pumps would function until the local utility could supply them with power, URS Corp. returns to Kohler Rental's **Technical Services and Design team**.

THE JOB

- Two 2000 kW trailerized KOHLER **Power Modules** (generator and switchgear packaged in one trailer)
- One four-bank 4160 volt MCC
- 3,600 feet of **able cable**
- 2500kVA 4160: 480 volt **transformer**
- Engineering consultation and support
- Onsite technical support from the local Kohler distributor throughout the project