

# VEROS SYSTEMS

VEROS FORESIGHT CASE STUDY

## NRG ENERGY

NRG Energy's diverse power generating facilities have a capacity of about 47,000 megawatts, capable of supporting almost 40 million homes. Their retail electricity providers — Reliant, Green Mountain Energy Company and Energy Plus — and thermal energy division serve more than two million residential, business, commercial and industrial customers in 16 states.

### LEARN MORE

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### Challenge

Having no unplanned outages in multi-unit power plants throughout the late spring, the summer and the early fall months is challenging in the hot Texas weather. An unplanned outage during these months could mean having to purchase replacement power at spot market prices, which could be spiking during the outage. Knowing when and for how long to overload the equipment in power plants is a significant part of operating strategy. Operators need accurate estimates of motor driven pump and fan loading levels to determine operating limits.

### Solution

NRG installed Veros ForeSight to continuously monitor ten motor driven centrifugal pumps and four motor driven fans in Unit 5 of the W.A. Parrish plant in Thompsons, Texas; a nine unit power plant southwest of Houston. The motors ranged in rating from 1,000 hp to 4,000 hp, with motor voltages rated at 4,160 V and 6,900 V. Total motor hp being monitored is 31,500 hp.

### Results

After installing Veros ForeSight, the system detected a fault on a 4,160V, 1,000 hp motor driven Boiler Feedwater Booster Pump. NRG used hand-held vibration monitors to corroborate the issue. The alarm thresholds for the ForeSight system were set at 2 mils of equivalent vibration. Within a couple of months, the vibration levels reached 3 mils, then 4 mils, and soon 9 mils. The weekly vibration routes tracked the ForeSight system trends. NRG used a planned shutdown to replace both the motor and the pump. The root cause was determined to be a broken bolt and loose motor base that had damaged both motor and pump.

Within a month after this event, the hot Texas summer began and ForeSight started to flag overloaded motors. Among them was a boiler



feed booster pump motor that was being overloaded beyond its limits. As soon as operations overloaded any of the motors being monitored, alarms were issued notifying operators not to increase loading any further. During a forty-eight month period, multiple motor overloading conditions were detected and the appropriate alarms triggered, while no false alarms were issued.

### Testimonial

“Since the installation of Veros ForeSight, I have had instant access to a host of motor performance issues. This system has given us a hands off approach and everything we would need to evaluate issues within the driving equipment such as overloading, voltage imbalance and vibration, to name a few.

With Veros ForeSight, we have 7x24 continuous monitoring capabilities. ForeSight indicates whether the problem lies in the driving or driven equipment, so we can plan and schedule ahead for equipment outages and have everything we need staged and available to repair or replace equipment if needed, and also return the equipment to operations in the shortest amount of time.”

**Homer Calvin**

Electrical Maintenance Leader

**VEROS**  
ForeSight

**7x24**  
monitoring

Time-Saving  
**Problem**  
- Solving