

Barking Power reduces plant downtime and enhances operator safety using Emerson's wireless vibration transmitter

RESULTS

- Avoided potential repair cost of £200,000 by preventing failure
- Prevented potential loss of revenue of up to £50,000/day
- Early detection of machine problems prevents catastrophic failures
- Enhanced operator safety
- Increased the efficiency of maintenance resources



APPLICATION

Temporary vibration monitoring of a starting motor housed in a gas turbine auxiliary compartment.

CUSTOMER

Barking Power Station outside of London has a capacity of 1000MW and is one of the largest independently-owned generating plants in the UK.

CHALLENGE

A gas turbine starting motor was being monitored using a handheld collector with asset data being downloaded for analysis. When a potential problem with excessive vibration noise was identified, the motor needed to be continuously monitored, whilst waiting for replacement parts.

Barking Power staff needed to know if the motor was about to fail, so it could be taken offline before it caused serious damage. Since the vibration noise indicated a possible impending failure it was not possible to take manual readings during operation. With no available cable infrastructure in place, adding continuous vibration monitoring would be difficult. The company needed to install a vibration monitoring capability on a temporary basis quickly and cost effectively.

“The wireless transmitter provided visibility to the health of the motor enabling it to be run with confidence and potentially saving up to £50,000/day in lost revenue.”

Travis Culham,
Rotating Machinery Engineer,
Barking Power Limited

SOLUTION

Emerson's CSI 9420 Wireless Vibration Transmitter provided the ideal solution. A Smart Wireless network had already been installed at the plant to collect stranded control valve diagnostic data. One of the key advantages of this type of wireless technology is the ease with which new devices can be added to the network. A further advantage is that devices can be installed where and when they are most needed.

The CSI 9420 was installed on the starting motor located within a gas turbine auxiliary compartment. Despite this being a challenging environment it instantly joined the network and transmitted data without any problems. Vibration data was transmitted from the motor, via a wireless gateway, directly into the existing Ovation™ expert distributed control system's data historian. This enabled Barking Power personnel to monitor vibration during operation and by trending the data they were able to estimate when the motor was going to fail. Fortunately, there was no failure during the time the maintenance team was waiting for an operational opportunity to make repairs and the motor was successfully repaired during a planned period of maintenance.

The CSI 9420 provided visibility to the health of the motor enabling it to be run with confidence. Without the CSI 9420, Barking Power would not have had visibility to the motor vibration levels and would have been forced to remove the gas turbine from service for approximately 36 hours. Potentially this could cost as much as £50,000 in lost revenue, depending on the price and demand for power on that day.

The CSI 9420 has since been used to monitor the vibration on a number of starting motors on a temporary basis. Without being able to deploy it easily and quickly the machine would have had to be taken offline immediately. By analysing the motors health it was determined that the machine could be run for an additional period which wouldn't affect the process and when a thorough overhaul of the motor could be scheduled.

“We concluded that if Emerson's Smart Wireless technology could be successfully applied on this challenging application, then it could be applied pretty much anywhere on the plant.”

Travis Culham,
Rotating Machinery Engineer,
Barking Power Limited

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