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Customer Postpones the Exchange of the Hot Section of its Gas Turbine Using Data from GE'S System 1* Condition Monitoring System, Correlated with Information Gathered from Inspections

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SITUATION

A Norwegian-based company with operations mainly in the offshore oil and gas industry has identified another benefit from its System 1 installation. The maintenance intervals of the hot section from the gas turbine of an export compressor, a critical machine operating in the Norwegian offshore sector, were specified by the OEM at about every 2,200 running hours. After working closely with the customer, it became apparent that the information in System 1 was better and provided more confidence. The customer especially appreciated the details of the measurements in System 1, particularly the measurement on the noise level in the combustor section of the gas

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turbine.

SOLUTION

The customer decided to experiment using the data from the combustor measurement to assess the condition of the hot section of the gas turbine by using the level of combustor noise. With that information, it could decide whether or not to postpone maintenance for a certain period of time. The customer hoped to be able to reduce the number of maintenance intervals each year from four to two.

PAYBACK

At the time of the maintenance interval, System 1 information was studied first for the presence of elevated combustor noise levels. Subsequently, the customer stopped the unit for a short period for a borescope inspection of the hot section to confirm the readings in System 1 with the actual condition of the hot section of the gas turbine's internals. The main points of attention were the combustor shield coating and the condition of the blade (base metal inspection).

Since no anomaly was found, the unit was put back in operation and continued running to the next 2,200 hours, a practice the customer has continued. The only change since then is that with an increased number of condition monitoring systems, the customer now also is able to correlate even more information for additional successful maintenance activity.

Increasing the maintenance intervals from 2,200 to 4,400 running hours has led to enormous savings from unnecessary downtime, loss of production, cost associated with logistics (parts and people) and the costs of the replacement parts themselves.

BENEFITS

- Increased uptime substantially for one of the customer's most critical machines
- Limitation of unnecessary downtime resulting in an estimated \$30 million USD/event in savings

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