

INCREASES REVENUE IN THE POWER INDUSTRY

POWER



- Reduces downtime
- Improves efficiency
- Reduces operation risk
- Creates significant O&M savings



PREVENT FAILURE THROUGH CONDITION BASED MAINTENANCE

Is plant reliability and availability a key priority?

Would you like to prevent failure and minimize costs?

Condition based maintenance supported by condition monitoring of business critical machinery is an effective way to achieve this. The OPENpredictor™ predictive maintenance information system provides online and off-line monitoring of machinery condition, performance and reliability with significant benefits.

Minimised downtime

Reduction of unscheduled downtime:

- Fewer trips by timely process change
- Faster start up after trip due to powerful trip diagnosis
- Instantaneous AutoDiagnosis™ for rapid fault identification and trouble shooting

Reduction of scheduled downtime:

- Fewer inspections
- Optimized maintenance strategy
- Predictive AutoDiagnosis™ for gradual fault development forecast and maintenance planning

Improved performance

Automated performance loss identification:

- Turbines
- Compressors
- Pumps

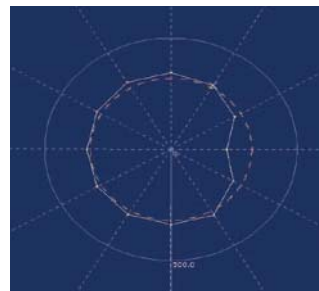
The main objectives and functionalities of the OPENpredictor™:

- Reliability.** Instantaneous AutoDiagnosis to minimise trips
- Availability.** Predictive AutoDiagnosis for maintenance planning

Performance. Performance loss identification and forecasting to improve operation of machines

Combustion monitoring saves turbine trips & costs

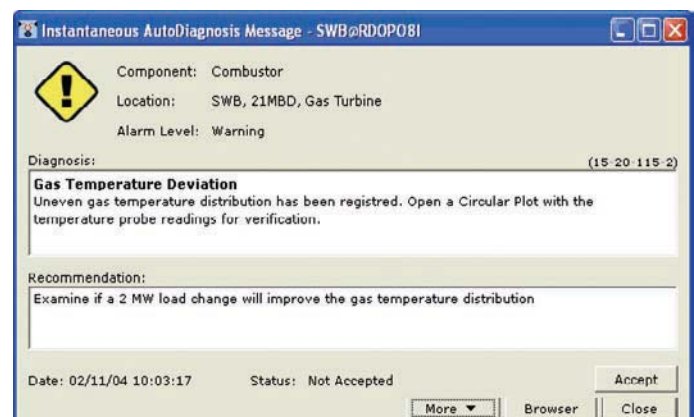
On-line monitoring and diagnosis of gas turbine combustion problems is one of the advanced functions of OPENpredictor™. In this case, clear deviation from optimal thermal distribution was identified (see graph).



Continued operation of the machine in this condition would wreck the turbine blades.

The control system usually protects the machine from this phenomenon by initiating a trip. This can now be avoided by early identification of the problem and presentation of data to the operators before a trip occurs. By varying the load conditions, operators can influence temperature distribution and decide either to continue operation at a lower risk level, or to interrupt operation in case the problem continues.

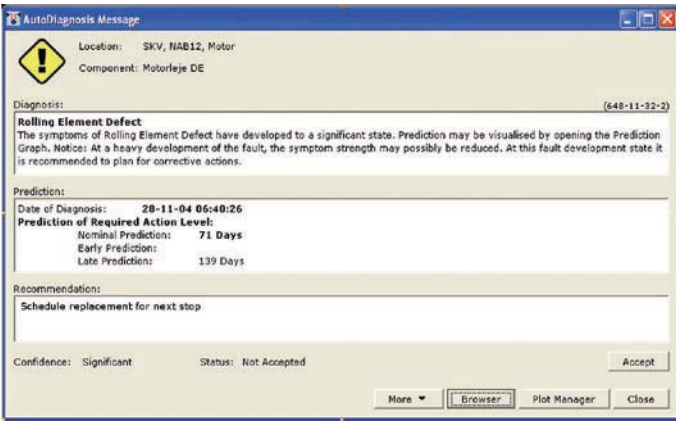
Avoiding a trip enables continued production and fewer equivalent operating hours. Savings from avoided lost production can easily reach 30-60,000 EUR per trip.





“After examination of technical and commercial documentation, meetings with vendors and visits to sites equipped with monitoring systems, we concluded that OPENpredictor™ is probably one of the best products now available on the market.”

Jean Luc Germain, Project Mgr, Electricité de France

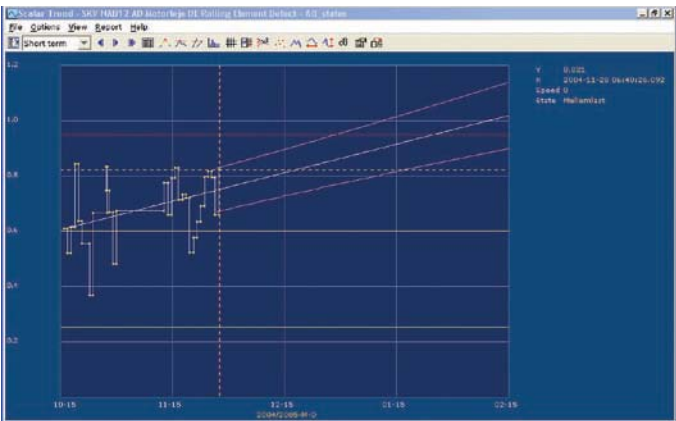


Predicted fault development for motor bearing

A Predictive AutoDiagnosis™ message (above) was automatically issued when the outer race fault on a rolling element bearing developed to a significant state. The automated forecast is calculated as being 71 days

to maintenance action for this motor bearing.

The forecast curve (below) gives information about the fault symptom development trend. The automated extrapolation methodology is depending on the fault type identified.

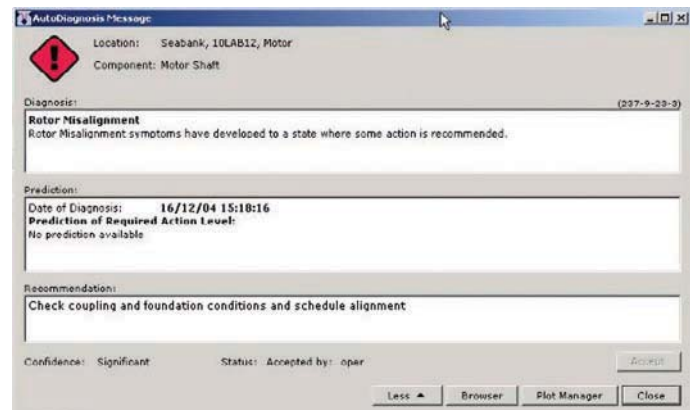


Customer study identified huge saving potential

Electricité de France investigated the economic advantage of OPENpredictor™ monitoring of the turbine trains in a 500 MW combined cycle power plant. A long term service agreement was in place with the main machinery vendor. Therefore, the study focused on quantifying the potential downtime reduction.

For different scenarios the net present value of the investment was between 1.5 and 3.5 million EUR, excluding performance improvements.

- The general economic benefits are achieved through
- Reduced downtime
 - Improved machinery efficiency
 - Expense savings in the areas of operations and maintenance



Rotor misalignment identified on a pump

Condition monitoring of a high pressure feed pump generated an AutoDiagnosis™ message, warning the staff that the rotor was outside alignment specifications. Necessary actions

were taken to bring the pump back to optimal condition.



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How to get started

The way to condition based maintenance facilitated by continuous online monitoring of critical machinery is fast and straightforward.

Once the decision is taken and we have clarified your monitoring needs, the implementation will be guided by Rovsing Dynamics' ISO 9001:2000 certified management system.

Installation of an OPENpredictor™ solution is easily conducted in connection with new build, retrofit or even on plants in service. We strive to ensure that the installation and roll-out to more machinery is as convenient for you as possible. And user training and after sales service is part of our delivery.

Interested?

If you would like know more about how a predictive maintenance information system can support your business, feel free to contact us for specific information about the different solutions or a demonstration of the OPENpredictor™.

About Rovsing Dynamics

Rovsing Dynamics is a global supplier of online solutions for the monitoring of condition, performance and reliability of critical rotating and reciprocating machinery. These are based on the proprietary OPENpredictor™ technology. The predictive maintenance information system has demonstrated its value at numerous maritime vessels, power plants, off-shore platforms etc. increasing revenue and availability significantly by predicting faults and lead time to inspection. Our customers include some of the world's leading shipping, power generation, and oil & gas companies.

We serve our customers worldwide from our head office in Copenhagen, Denmark, and sales offices in the Netherlands and the United Kingdom, and through partners and agents in Europe, Russia, North and South America, the Middle East, China, Asia and Japan.

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