

---

## Traditional energy industry

---

Medway Power Station

---

SKF Multilog on-line system IMx-S

---

SKF Machine Condition Transmitters (MCT) series

---

SKF @ptitude Monitoring Suite

---



# SKF monitoring systems provide 30% more uptime for Medway Power Station

The latest condition monitoring technology, developed, supplied and installed by SKF, the knowledge engineering company, is helping engineers at Medway Power Station make significant reductions in downtime due to unexpected failures on the station's induced draft cooling tower. In particular, the integrated condition monitoring system is enabling engineers to assess the real-time performance and functionality of twelve large diameter cooling fans, together with associated drive motors and gearboxes, and to implement a long-term predictive maintenance strategy that has improved uptime by over 30% and delivered tangible cost savings from these business critical systems.

Operated by SSE (Scottish and Southern Energy), Medway Power Station is located on the Isle of Grain on the estuary of the River Medway in Kent. The station uses a combined cycle gas turbine, with a capacity of 690 MW that enables it to power around 970,000 homes in the region.

The station has a single cooling tower, with twelve individual induced draft cooling cells. Each is fitted with a motor-driven 6m diameter fan, with fibreglass blades, mounted in a cowl at the top of the cell, to enable cool ambient air to be drawn in from the base of the cell and across heated turbine water as

it falls through a series of baffles that maximise heat transfer. The drive motors are located on the outside of the cowls and provide power through gearbox units, which are positioned within the body of each cell.

Fans, motors and gearboxes are all subject to extreme conditions. For example, as the site is in an exposed location, high wind speeds and downdrafts can affect fan operation, while the concentration of salt in the atmosphere, combined with dust and particulates from a nearby aggregate plant, cause corrosion and damage to motor and fan units. Similarly, the position of the gearboxes beneath the fan units means that they are continuously exposed to the flow of water as it is blown down each cell.



Clive Davies, Control and Instrumentation Project Engineer, explains, "The nature of the application means that we have to pay particular attention to regular maintenance, as bearings and seals in drive shafts and fan spindles, in particular, can wear or fail. In the past, worn bearings on the drive end of gearboxes led to excessive gear wear, reaching the point where gearboxes had to be replaced or removed for overhaul. This is an expensive operation, requiring partial dismantling of a cell, using heavy lifting gear. A similar situation could occur if fan spindle bearings ran out of alignment, as excessive vibration would eventually lead to de-lamination of the fibreglass blades. In each instance, it means taking a cooling cell offline, which can affect our generating capacity and thus our revenue earning potential from the National Grid."

Until recently, engineers at Medway Power Station had used hand-held vibration and temperature monitoring devices to check on the condition of the various systems used in each cooling tower cell. "Although reasonably accurate, this was a time consuming exercise, as motor, gearbox and fan units are difficult to access, and only provided us with historical data; so we only knew about problems when they had occurred or were about to occur," says Clive Davies.

To improve the operational efficiency of the power station, SSE embarked on a programme to install a dedicated condition monitoring system for the cooling tower, as part of a longer term predictive maintenance strategy. The new system is based around the SKF Multilog on-line system IMx-S, connected to a network of 60 accelerometers; there are five of these on each

fan, motor and gearbox, plus an SKF Machine Condition Transmitter (MCT) fitted to each gearbox input shaft bearing to provide an alarm trip function. Outputs are relayed to a control room terminal running the SKF @ptitude Monitoring Suite software, providing a real-time display of all key operating parameters.

Clive Davies praises the support that SSE received from SKF, "They helped us throughout the planning and implementation phase, providing valuable information and practical advice. They also gave us comprehensive training and undertook the installation in a professional and efficient manner; indeed, they have been one of the few outside contractors with an almost perfect on-site safety record – this is an important factor for us as we have a strong health and safety policy that everybody entering the site has to follow."

He concludes, "The new SKF conditioning monitoring system enables us to identify wear in key components long before it becomes a potential problem. As a result, we can plan essential maintenance in advance and for a time when we know that demand for generating capacity will be low. Just as importantly, we are now seeing significant improvements in availability, typically in the order of 30%, which contribute directly to our ability to maximise the revenue from our power generating plant."



*SKF Multilog on-line system IMx-S*



*SKF Machine Condition Transmitters (MCT)*

**SKF (U.K.) Limited**

T: 01582 490049  
 marketing.uk@skf.com  
 www.skf.co.uk

© SKF, @ptitude, Multilog are registered trademarks of the SKF Group.

© SKF Group 2012

The contents of this publication are the copyright of the publisher and may not be reproduced (even extracts) unless prior written permission is granted. Every care has been taken to ensure the accuracy of the information contained in this publication but no liability can be accepted for any loss or damage whether direct, indirect or consequential arising out of the use of the information contained herein.

PUB CM/S6 12515 EN.UK · January 2012

Printed in England on environmentally friendly paper.

