

# Advanced Friction Reduction Technology

## Lofrix® Application Case Study



### Wind farm operation

#### The problem

The reliability of wind turbines has always been a major problem for wind farm operators, with the life of gearboxes being a particular major technical and financial headache. Lubricants have consistently failed to adequately inhibit friction in moving components, which are under great load and subject to extreme stress, thereby allowing heat to build up and subsequent wear to occur. Wear leads to particulate loss from moving surfaces and results in loss of lubricant quality and effectiveness and consequent further wear with ultimate catastrophic equipment failure.



#### The solution

One of the largest wind farm operators in the UK treated the gearbox lubricating oil in 5 turbines where monitoring indicated signs of imminent turbine failure with the addition of 1% mix of Lofrix® Windpower – a specially developed friction inhibitor.

Within an hour of treatment with Lofrix® Windpower the operating temperature in all of the gearboxes fell by around 6°C and none of the turbines subsequently failed as originally predicted. Following this success Lofrix® Windpower was added to further turbines and the lubricant oil quality closely monitored over a period of years. The lubricant oil quality and viscosity remained high necessitating no further oil changes.

#### The result

Lofrix® Windpower showed immediate and lasting benefits. Failure of the turbines was avoided and these continued to function effectively. In addition, subsequent regular checks of the quality and viscosity of the gearbox lubricating oil showed no degradation or contamination with metal particulates from the effects of friction.

Lofrix® Hydraulic has subsequently been introduced into the hydraulic systems of turbines where it keeps the viscosity of the oil stable and preserves the integrity of the seals.

**Lofrix® Windpower is now in use in more than 10% of the UK's large wind turbines.**

*Power and energy conservation is of paramount importance to manufacturing and process industries. This simple performance enhancing treatment will return huge savings at low cost. Lofrix® has a cost to performance ratio warranting its introduction in almost all applications.*

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