

**CONTROL**   
**TECHNIQUES**

# **VARIABLE SPEED DRIVES PROVIDE COOL SAVINGS**

**CORUS STEELWORKS | FANS & PUMPS**

**DRIVE OBSESSED**

# VERY QUIET & VERY LOW HEAT OUTPUT

**The installation of variable speed drives for fan control in a cooling tower at Teesside Power Station is reducing downtime, as well as giving the potential for improving overall generating efficiency.**

## Overview

- **Improved cooling tower performance**
- **Increased power station efficiency**
- **Reduced maintenance**

## The Challenge

**Px limited, the power station's operating company, needed to replace six two-speed motors for one quadrant of the Q501 cooling tower.**

The company hoped to overcome the maintenance problems it was experiencing due to shock loads on the blades, bearings and gearboxes, a result of the aggressive environment causing high corrosion. Px limited wanted to re-use the existing control cubicles to make the project cost effective but their narrow dimensions were creating an issue.

## The Benefit

**Px is running the new variable speed-controlled quadrant at a slightly higher speed than before, giving improved performance of that quadrant.**

"We were concerned about the possibility of excessive heat and noise from the drives," continued Mr Scott, "but in practice the drives run very quietly with very little heat output."

"It's a very windy site," added Assistant Performance Engineer, Stefano Scazzola, "so that sometimes we have to reduce speed of a quadrant or the fans will trip out due to the vibrations. Using variable speed fans means that a complete quadrant can be ramped down to an intermediate point, keeping the quadrant in service. The performance of a cooling tower is crucial to the vacuum in the condenser on the steam turbines and the overall station efficiency."

## The Solution

**Control Techniques retrofitted six 132 kW Unidrive SP AC drives into the DOL starter suite, each fitting comfortably into its narrow cubicle.**

The drives operate in open-loop control, with additional on-board I/O providing sequencing control, interfacing to the existing system.

"Only one drives company – Control Techniques – could give us the drives features we wanted in a compact package that would fit", explained Jon Scott, Senior Electrical and Control Engineer at px limited. "The DOL starters produce mechanical snatch on high-inertia components, whilst, with the variable-speed drives, the fans are started gently and ramped up to its two-speed set-points. Equally, the stop sequence is a pre-determined ramp-down. We expect to see major benefits of reduced maintenance on this quadrant."

