Customer Success Story

High Winding Temperatures Found on a Hydro Turbine

Availability & Performance Center | August 2012

What did the Proficy SmartSignal software find?

On August 2nd, the Proficy SmartSignal solution detected that the Phase A generator winding temperature on a hydro turbine was higher than expected. Based on the current load and ambient conditions, it was expected that the Phase A winding temperature would operate between 38 and 43 degrees Celsius. However, actual values were recorded between 45 and 50 degrees Celsius. An adjacent Phase B winding temperature was operating about 3 degrees higher than expected values. The Availability & Performance Center immediately notified the client and began tracking this issue on the weekly report.

What was the underlying cause?

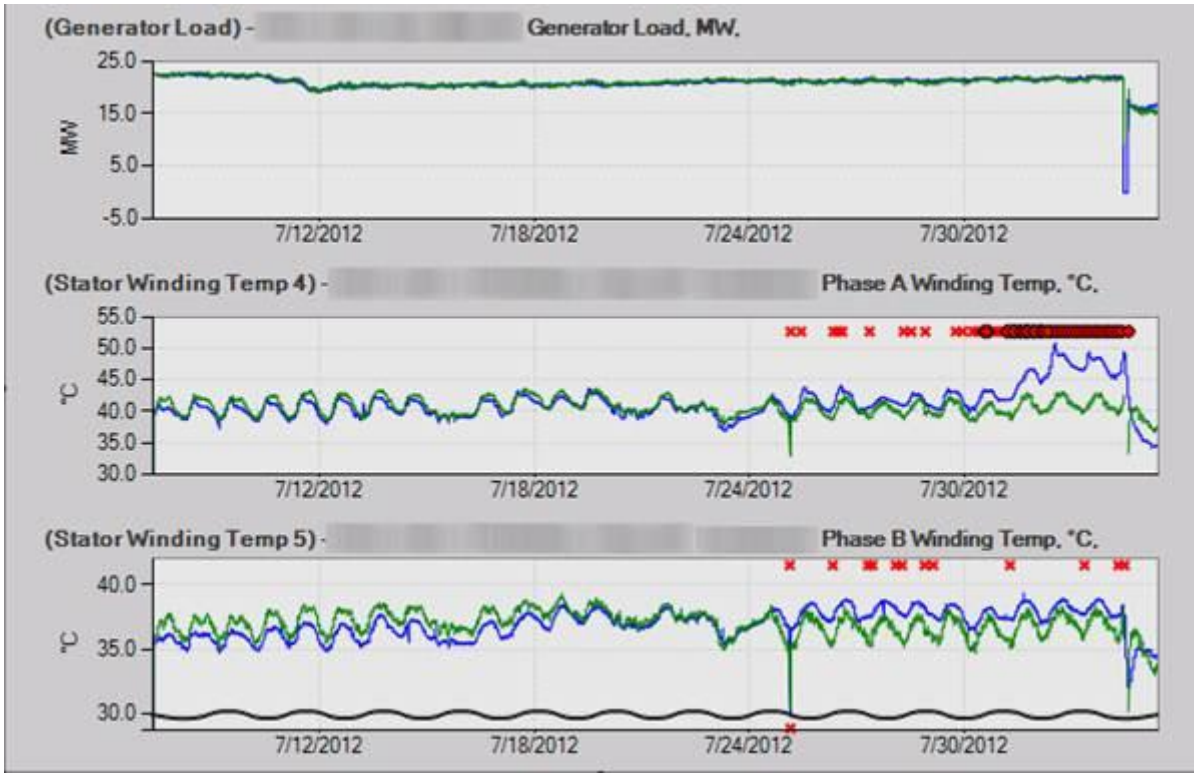
The client dispatched an electrician to the site and the hydro turbine was brought down for a short outage. The electrician first inspected a flow switch and validated that it was working correctly. The electrician was then able to adjust the cooling flow to the A phase of the generator.

What was the value to the client?

The client had the opportunity to adjust the cooling flow to prevent a hot spot on the generator from developing. This notification was especially timely because the client was entering a long holiday weekend with reduced support. If this temperature rise was left unchecked, the temperature could have continued to rise to an alarm limit, causing a turbine trip and loss of production, or the higher temperatures could accelerate aging of the insulation, causing a short and damaging the machine. The Proficy SmartSignal solution helped to validate that after the turbine was brought back online, the risk to the generator had been reduced as actual values returned below expected values.

Who found it?

Jeff Ottow,
Customer Reliability
Engineer



Screenshot depicting actual values (blue) and expected values (green). Increases in Phase A winding temperature shown second from top.