SAVING ENERGY & OPERATIONAL COSTS BY EFFICIENT CONTROL OF A 500KW MINE VENTILATION FAN

"*[Han Solo]* I'm going to shut everything down but the emergency power systems", "*[C-3PO]* Sir, I'm almost afraid to ask but, does that include shutting me down?"

Industry	**Sector**	**Segment**
Resources	Mining	Ventilation

Project

The client is an underground gold mine whose production fluctuates depending on operational requirements. The mine's primary ventilation fan is a significant electrical load and has been designed for operating at 100% production. The client identified that significant electrical savings could be made running the fans at 50% in times of low production but this would require a crane and manually adjusting blade pitch. This is a time consuming and expensive exercise and, on balance, would not provide any savings.

The client recognised that the solution would be to replace the existing fan motor Soft Starter with a Variable Speed Drive. This would provide accessible and fine control over the fan speed, allow remote management and reduce mechanical stress.

The client had a long-standing relationship with Cromarty Automation and requested their assistance.

Solution

Cromarty Automation based the design on an ABB Variable Speed Drive. The drive was custom fitted to an enclosure with the cable entry and connection arrangement such that retro fit was made very simple and minimal downtime would be required. The location of the mine provided an extremely harsh environment to consider; cabinet anti-condensation heaters for cold winter days and cooling for the heat of summer needed to be taken into consideration. The MCC room ventilation was also upgraded and the Cromarty Automation design solution included drawing clean air from the MCC Room and exhausting it through a special chamber built into the cabinet and out of the room through a duct with a bird and rodent proof mesh cover fitted.

The ACS850 also was designed to communicate with an ABB HMI touch screen on the cabinet face and provided local control and supervision functions as well as providing an Ethernet gateway to enable remote access.

Outcome

Not only was the system provided on time and on budget but the performance well exceeded the client's expectations. The system could be easily trimmed to match production, providing substantial energy savings, and could be remotely reset and restarted, saving trips to site and minimising the downtime of the mine ventilation system and maintaining production.