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## **ABB drives cut out £10,000 pump repairs for Alkane Energy**

ABB is helping a major producer of energy from coal mine methane (CMM) to cut its pumping costs by using variable speed drives (VSDs) to make its process more reliable. The VSDs ensure the pumps are not over stressed, allowing them to last longer.

Alkane Energy is one of the UK's fastest growing independent power generators. The Company operates mid-sized 'gas to power' electricity plants providing both predictable and fast response capacity to the grid. Alkane now has a total of 81 MW of installed generating capacity and an electricity grid capacity of 100 MW.

The company uses VSDs to control the vacuum pumps on new sites but was keen to see if they could be retrofitted to existing sites. The challenge with these is that the pumps are run direct-on-line and operate at full capacity all the time. This causes extreme wear on pumps, which tend to fail after only a few months.

Keith Mitchell of Alkane says: "As we pump gas deeper from the mine, the pumps need to work even harder. A failed pump can cost around £10,000 to repair. We can also lose generation revenue, as well as the cost to remove the failed pump, so it is important we know that retrofits of drives are possible on existing sites."

ABB Drives Alliance member Inverter Drive Systems (IDS) already supplies Alkane with VSDs for the new sites so was asked to investigate the possibility of retrofits, with a trial to be carried out at the Old Mill Lane site in Nottinghamshire.

Phil Nightingale of IDS says: "The existing set up uses soft starts to slowly start the pumps. When the pump is at full speed, the soft start is bypassed with a contactor. The pressure was then controlled with a by-pass valve. The inverter installation does away with this valve and modulates the pump to keep the pressure constant and saves the wasted by-pass energy."

The drive chosen was a 75 kW ABB industrial drive. IDS designed a bespoke door as well as a back panel to fit the existing cabinet so that the drives' switches and connections could be accommodated.

Says Nightingale: "One of the major challenges of the project was the small space available at the site. We needed to fit the drives and panel into the space previously occupied by the soft starters and added fans to cool them. We also had only one day to fit the drive panels so we did all work off-site to minimise disruption and ensure that Alkane could achieve maximum gas pumping."

Says Mitchell: "We have received many benefits from the application. The VSDs give us a fine control of the gas pumping, compared to the coarse control of the soft starts. As well as the money saved from cutting the number of pump repairs and the lost production, the VSDs also save around 12 kW in energy that we can sell to the grid. We also now know that the older sites can be successfully retrofitted with VSDs."

IDS have so far completed two retrofits, with another three to do and a potential to complete more in the future.

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**Caption:** ABB is helping Alkane Energy to cut its pumping costs by using variable speed drives.

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