

# INTELLIGENT ARTIFICIAL LIFT PAVES THE WAY FOR THE DIGITAL OILFIELD

Ari Huttunen, product manager for Drives at ABB, explains why modern motor control technology is a vital element in building the digital oilfield.

**I**NTELLIGENT ARTIFICIAL LIFT systems use real-time data provided by variable speed drives (VSDs) and sensors combined with tailored algorithms to make proactive process adjustments. This approach is a step in implementing the digital oilfield concept that will eventually use digital devices and communications to optimise a variety of oil production tasks.

Artificial lift (AL) methods, such as rod pumps, progressing cavity pumps (PCP) and electric submersible pumps (ESP) driven by electric motors are used in approximately 95 per cent of the world's nearly one million oil and gas producing wells.

When these motors and pumps are managed and controlled by new generation VSDs, with built-in oil industry specific programmes, intelligent artificial lift becomes possible. The result is improved process insight and control.

Intelligent artificial lift can address the three main areas of waste found in oilfields. Firstly, the oil that is left in the ground; secondly, inefficient use of electrical energy to run the pumps, and thirdly, damage to equipment that is not being run correctly.

Optimised process management can reduce the number of oil pump strokes and on-off cycles, saving on component wear and energy use.



*The increased digitalisation of oilfields has enormous potential for improved yields and cost savings.*

Image Credit: ABB

ABB has obtained real-life data from nine oil wells to build a picture of the potential economic

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benefits of intelligent artificial lift. We found that oil in-flow could be increased by up to 50 per cent, with a 30 per cent reduction in energy consumption. In some cases, downtime due to maintenance and breakdowns has been reduced by 70 per cent. While these results may not apply to every oil well, it is clear that significant improvements are feasible with relatively little effort and investment.

The detailed real-time data generated and managed by drives is now becoming an important element in the digital oilfield

concept. Among the benefits for operators are improved oil pumping based on the well conditions, optimised energy use and the safeguarding of critical equipment against wear and breakage. There is even the capability for remote monitoring and troubleshooting services by experts from across the world.

The digital oilfield will enable operators to improve decision-making with proactive trend spotting. In many cases, potential problems will be identified before they become serious, costly disturbances, even in remote and difficult-to-access locations. ♦