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Smart Sensors unlock valuable data at carbon capture facility

A new carbon capture plant in the UK, the largest of its kind, has chosen smart sensor technology from ABB to provide remote condition monitoring on critical motors, thereby reducing the number of man-hours required on site.

Tata Chemicals Europe's Winnington site has installed 11 High Performance Smart Sensors from ABB which will enable it to identify trends in the performance and condition of a series of motors across the facility. Using the data, which is collected autonomously by the sensors, the plant can identify faults, reduce unplanned stoppages, minimise the duration of any outages, and plan maintenance tasks in advance of them becoming critical to the ongoing operation of the site.

Matthew Shepherd, Technical Manager for Tata Chemicals Europe in the UK, says: "The Smart Sensors enable remote condition monitoring of our motor-driven processes, enabling us to greatly reduce the number of manned hours on site. The data provides an ongoing trend view of vibration, temperature and bearing condition, and a host of other operational parameters, so we can react before problems arise."

Carbon Capture, Usage and Storage (CCUS) typically involves capturing the carbon created in industrial processes using a process, before converting it to a liquid and either storing or using it to manufacture chemicals used in pharmaceutical applications or in food production. Due to the nature of the process, the sensors are required to be ATEX certified as a fault condition within the system could potentially create a hazardous environment.

The installation is part of a pilot scheme, with Tata keen to move towards more data-driven production methods. "The ability to monitor trends was a key motivation for us with this project," adds Shepherd; "From the start, we're able to establish a baseline of what an optimal process looks like so we will always have a benchmark. This means we can look at process efficiencies and optimisations whenever parameters are changed and monitor the effect they have on other processes at the plant."

The data collected by the sensors is monitored regularly and provides site engineers with email and mobile app notifications over any changes it recognises.

Steve Hughes, Digital Lead for ABB Motion UK, adds: "The installation of High Performance Smart Sensors at the Winnington carbon capture facility proves the concept of Industry 4.0 in a real-life application. The sensors monitor trends that the engineering team there can use to predict when a particular motor is likely to require attention. Employing this approach means the operations team can incorporate preventive maintenance measures into its planned stoppages, reducing the time taken fixing unplanned outages."

ENDS

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Caption: Smart sensor technology from ABB has unlocked valuable data at the UK's largest carbon capture facility.