

Why smart data holds the key to greening energy firms



RASHESH MODY: AVEVA

Oil and gas players must adopt integrated operational and carbon data management technology to achieve their decarbonisation goals

Global leaders are on an urgent path towards net zero, acknowledging that the world must slash emissions by 50 per cent within this decade to avert a climate emergency. Amid this pressured backdrop, the world has collectively undertaken colossal initiatives to decarbonise, including electrification and the increased use of hydrogen to reduce fossil fuel use. By 2050, experts expect renewable power to account for roughly 80 per cent of global demand.

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In the same vein, the oil and gas industry must redouble its efforts to stay relevant. To reach the lofty emissions goals leaders have set to meet social and political mandates, the world must lean on a combination of efficiency measures, renewable electricity generation techniques and proper distribution infrastructure, as well as green fuels like hydrogen, renewable diesel, ethanol and biofuels.

For fuel producers, adjusting to this shifting landscape demands innovation, precision and agility, all of which are driven by quality

operational and carbon data management and layers of analytics. In short, fuel producers must use every tool at their disposal – particularly foundational enabling digital technologies – to solve tomorrow’s problems today.

For decades, operational data has been one of the most potent tools to help businesses in all industries optimise their processes, cut costs and empower their workforce. However, as we continue to move from an analogue to a digital world, operational data has become the most important business asset to empower the workforce, underpinning all strategic initiatives including operational excellence and digital transformation. The addition of carbon data management as an extension of environmental data management only amplifies this strategic point.

However, not all information is equally useful. To produce actionable intelligence, data must be structured and accessible to those who can best use it, particularly subject matter experts who have the knowledge and experience to put data insights into action. This strategy is more vital now that fuel producers must prioritise decarbonisation alongside making profits.

With AVEVA’s self-serve digital tools that are grounded in solid operational and carbon data management with streaming analytics, events and notifications with artificial intelligence-infused information at their disposal, as well as



a clear strategy for decarbonisation, oil and gas companies can manage and address these competing interests more easily and effectively.

For the oil and gas industry, which accounts for roughly nine per cent of global greenhouse gas emissions, the decarbonisation path is challenging but not insurmountable. One of the first – and most important – steps for any organisation in its decarbonisation journey is to use operational data intelligence to accelerate traditional energy efficiency efforts, thereby reducing the associated emissions.

Historically, financial concerns motivated businesses to improve their value chains and invest in unified supply chain planning, scheduling and optimisation. However, given the recent proliferation of environmental, social, and governance (ESG) factors, oil and gas companies must now consider the cost of carbon too. They must rely more than ever on digital tools to explore windows of opportunity, both financially and in terms of carbon intensity.

AVEVA's suite of industrial software solutions, built on Microsoft Azure supports these

goals. Our tools are designed and optimised to connect asset, data, people, sites, systems and processes, offering a holistic and bespoke view of operations that is critical for digital transformation.

In addition, AVEVA's software enables organisations to explore consolidated process optimisation models, using real-time data to minimise carbon emissions within their operational and economical constraints. Software that offers a unified supply chain approach enables enterprises to model both financial and carbon-intensity implications.

AVEVA's industrial software also allows oil and gas companies to explore data from the project phase during operations. Combining the engineering digital twin (and its associated streaming analytics, events and notifications) with the operational twin results in a sophisticated, integrated digital twin that empowers teams to make the best decisions.

In a broader sense, enterprises must adapt their business strategies to include decarbonisation solutions and services too. Many early adopters of decarbonisation strategies have

founded alternative energy divisions tasked with managing public-facing ESG strategies.

Oil and gas enterprises must find other ways to reduce their carbon output too. Carbon capture and underground storage (CCUS), or carbon capture and sequestration, is one of the most rapidly deployable technologies at their disposal, although CCUS is not without its challenges. Whether it's stored or repurposed for carbonating soft drinks, agriculture, or other myriad uses, carbon dioxide must be purified of contaminants like sulphur and chlorides.

Ultimately, the core of any comprehensive decarbonisation plan must be solid operational and carbon data management combined with smart data insights. Organisations should seek to tightly integrate their data and information management, rather than accumulating new, disparate systems. They should also diversify their digital toolset to add advanced capabilities. ■

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