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Sulzer uses captured CO₂ to optimize oil recovery – reducing greenhouse gas emissions and further oil exploration

Sulzer's pumps are helping to optimize oil recovery while reducing greenhouse gas emissions in a pioneering project in the Middle East. As part of enhanced oil recovery (EOR) techniques, captured CO₂ emissions that have been converted into supercritical CO₂ are pumped into depleted oil reservoirs to push the remaining oil to the riser, allowing much higher recovery rates. The pumped CO₂ is then stored in the underground oil field, providing a perfect storage medium for the greenhouse gas. This groundbreaking circular process has the power to transform the oil and gas industry by reducing CO₂ emissions while simultaneously maximizing recovery from existing oil fields – reducing the need for further oil exploration.

It is widely acknowledged that the traditional primary and secondary recovery methods for oil can leave up to 75% of the oil in the ground. Oil production from mature fields has therefore been declining and discoveries of new reservoirs will be insufficient to match growing energy demands. To reduce the need for further oil exploration, enhanced oil recovery (EOR) techniques are now coming to the fore, with this method using captured CO₂ emissions that have been converted into supercritical CO₂, showing particular promise.

Sulzer's highly specialized pumps allow the CO₂ to be pumped like a liquid, sweeping through a reservoir to push the oil to the riser with much higher efficiency than traditional methods using water. At the same time, the depleted oil fields then provide a perfect storage medium for the CO₂, ensuring that it is not released into the atmosphere.

This pioneering process could therefore be a major benefit for the oil industry, providing new technology to help maximize recovery from existing oil fields, thereby reducing the need for further oil exploration, while also cutting CO₂ emissions. Sulzer's expertise is critical to the process, as the lightness and extremely high pressure of supercritical CO₂ have a significant impact on the design of the pump, with most manufacturers steering clear of such applications.

Frederic Lalanne, CEO and President of Sulzer's Flow Equipment Division commented: "As global demand for energy and materials continues to rise, it's becoming ever more important to optimize the use of existing resources and work towards increasing renewables while also expanding the circular economy. Sulzer is committed to accelerating this transition using its engineering expertise, and this innovative process is one more example of how our technology can help to sustainably transform CO₂-emitting industries".

Sulzer is a global leader in fluid engineering. We specialize in pumping, agitation, mixing, separation and purification technologies for fluids of all types. Our customers benefit from our commitment to innovation, performance and quality and from our responsive network of 180 world-class manufacturing facilities and service centers across the globe. Sulzer has been headquartered in Winterthur, Switzerland, since 1834. In 2021, our 13'800 employees delivered revenues of CHF 3.2 billion. Our shares are traded on the SIX Swiss Exchange (SIX: SUN). www.sulzer.com

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