Sulzer molten salt pumps improve efficiency of Highview Power's new long duration energy storage facility

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Sulzer has signed an agreement with Highview Power to deliver eight molten salt pumps, five cryopumps and a selection of auxiliary services. The deal represents an engineering-led collaboration that will help unlock long-duration energy storage at Highview Power's new facility at Carrington, Manchester, and at other future facilities across the UK. The Carrington project will be the first to deliver commercial-scale liquid air energy storage in the UK.

While solar, wind and other green power sources offer enormous reserves of emission-free power, they can also be intermittent. If these renewable sources generate more supply than demand at any one time, they can overwhelm the grid. In the UK where wind produces about 30% of all electricity, the grid operator will often pay developers to turn their wind turbines off. This costly process known as curtailment is a growing issue as the UK introduces more wind power supply into the grid.

Highview Power's liquid air energy storage (LAES) system represents a significant opportunity in the global energy transition, delivering more renewable energy into the power grid through its innovative storage technology. The system captures excess power, releasing it back at times of high demand or reduced generation. It also offers critical grid stability services.

Alternative energy storage

Highview Power CEO Richard Butland explains how the system works: “Excess energy is used to clean and dry air, which is then refrigerated and compressed until it liquefies and can be stored in tanks. When power is needed, the liquid is pumped at high pressure and heated, so it expands, and drives a gas turbine to generate electricity.”

Sulzer will supply Highview Power with cryogenic pumps and a molten salt storage system. The new Carrington facility will use these molten salt processes to recover and store otherwise wasted energy for use in heat generation, further maximizing its efficiency.

As well as its market leading technology, Highview Power also recognized the convenience of Sulzer’s local distribution networks in the UK. Added to this was the depth of Sulzer’s experience in pump technology, its global reputation for engineering excellence and its delivery of high-quality, efficient solutions to the energy transition market.

A world-class collaboration

With over fifty years’ experience in molten salt pump manufacture, Sulzer's expertise provides invaluable support for innovative projects like this. Their robust, proven designs ensure reliable service and minimum downtime in an industry where every second matters.

Sulzer pumps also lead the way in molten salt applications, and expected peak temperatures in the new plant of around 435°C sit well below the 650°C standard tolerance of Sulzer’s specialist pumps. Nonetheless, the LAES project poses

specific engineering challenges around integrating both cryogenic pumps and molten salt pumps efficiently.

For Rajesh Chakravarty, Sales Director for Sulzer Energy - Middle East, addressing these challenges is exactly how Sulzer adds value: “Our experts have the knowledge and experience to ensure we provide industry-leading solutions, especially when that requires innovative thinking. This partnership relied on the customer trusting us to deliver the best possible outcome for them.”

Explaining the benefit of the system, he continued: “Molten salts represent a state-of-the-art solution to renewable energy storage, where energy providers can tap into excess production to smooth output at peak times and avoid costly excess. Given the collaborative nature of the project, we anticipate a 14-month manufacturing and delivery timescale despite the complexity involved, and we expect to see the plant operational by March 2027.”

Sulzer’s system will ensure that Highview Power’s innovative liquid air energy storage technology is even more efficient, delivering more renewable energy onto the grid in the UK and beyond.

Image captions:

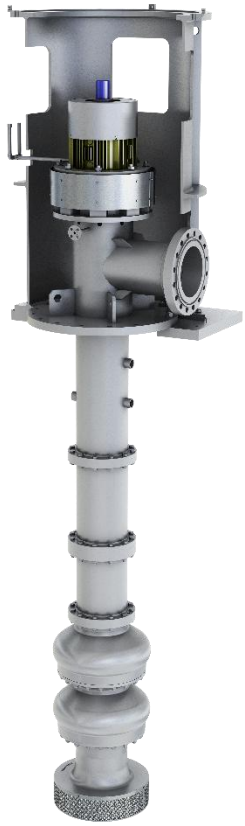

Image 1: Sulzer's VEY and VNY pumps are vertical mixed-flow molten salt pumps with high capacity and medium to high head. They balance high efficiency, low submergence, net positive suction head required (NPSHR) considerations with long lifetime and reliability as required for concentrated solar power.

About Sulzer

Sulzer is a global leader in critical applications for core infrastructure and processes for large essential industries around the world. We ensure the security, quality and durability of critical goods and services by supporting energy security, natural resource management and efficiencies in process industries. This in turn supports the transition to a circular economy. Our integrated solutions add significant value by enabling energy efficiency, carbon emissions and pollution reduction, and process efficiency improvements. Customers benefit from our commitment to innovation, performance and quality through our responsive network of 160 world-class manufacturing facilities and service centers across the globe. Sulzer has been headquartered in Winterthur, Switzerland, since 1834. In 2024, our 13'500 employees delivered revenues of CHF 3.5 billion. Our shares are traded on the SIX Swiss Exchange (SIX: SUN).

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