SIEMENS

Press

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Hannover Messe

FREYR to scale battery cell gigafactory production with Siemens Xcelerator

- **Siemens and FREYR Battery (“FREYR”) to cooperate on large-scale and sustainable battery production as part of Siemens Xcelerator open digital business platform**
- **FREYR will use the Siemens Xcelerator portfolio, including Siemens Industrial Operations X software and hardware to design and operate the planned gigafactories in Norway and the U.S.**
- **Siemens, NVIDIA, and AWS create immersive industrial metaverse experience of FREYR gigafactory by combining real and digital worlds**

Siemens and FREYR announced a strategic partnership today at Hannover Messe. Siemens will become FREYR’s preferred supplier in automation and digitalization technology, enabling FREYR to scale-up production, and maximize its plant and energy efficiency.

Scaling battery production with Siemens technology

FREYR plans to equip its planned gigafactories in Norway and the U.S. with Siemens’ best-in-class Industrial Operations X portfolio. Industrial Operations X is setting a new benchmark with a broad range of products and services for industrial operations that empower operational technology (OT) with integrated information technology (IT).

Siemens and FREYR will join forces along the entire battery design and manufacturing process, from production design, planning and simulation; product design and simulation to the automation of the entire production process. Siemens will provide a broad range of solutions from the Siemens Xcelerator portfolio

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including Product Lifecycle Management (PLM), Manufacturing Execution Systems (MES), industrial Edge computing, and tools for IT/OT connectivity.

By leveraging Industrial Operations X, FREYR will be able to better connect design and manufacturing to scale-up production. It will speed up FREYR's progress towards its planned gigafactories, increasing the availability of high-performing and affordable EV battery solutions as well as energy storage systems, and thus accelerating the transformation of the automotive industry and electricity grids.

"We are honored to partner with a global company such as Siemens that shares our level of ambition to develop sustainable and efficient battery solutions at scale and with pace. We are looking forward to leveraging Siemens' world leading automation and digitalization expertise coupled with the unique capabilities of AWS and NVIDIA in our battery design and manufacturing processes to meet the growing global battery demand. AI or digitally enhanced electrochemical cell design and manufacturing processes are the next frontiers in battery production, and this is a fundamental step in this direction," said Tom Einar Jensen, Co-founder and CEO of FREYR.

Siemens strengthens its technological leadership in fast-growing battery market

With this strategic agreement, Siemens is expanding its footprint in the battery manufacturing industry. The company has recently signed several partnerships with leading companies, demonstrating its deep domain know-how in this dynamic and fast-growing market.

"Speed, scale, sustainability: That's what battery manufacturers need. And this is what our customers get at Siemens better than anywhere else," said Cedrik Neike, Member of the Managing Board of Siemens AG, and CEO Digital Industries. "With this partnership, we underscore our position as prime partner to battery manufacturers worldwide."

As part of their strategic partnership, Siemens and NVIDIA have developed a showcase for Hannover Messe highlighting the transformative potential of the industrial metaverse. A cloud based digital twin of the next-generation FREYR

factories, created using AWS IoT TwinMaker and demonstrated in a custom Siemens application built on the NVIDIA Omniverse platform, the exhibit illustrates how companies like FREYR can make better and faster engineering decisions by visually interacting with, experiencing and utilizing the comprehensive digital twin across the product, production and service lifecycles in a high-fidelity, immersive environment. The model integrates operational data from the factory, 3D definitions of the building, plant, machinery, and equipment, human ergonomics and safety information, detailed production processes, robots and automatic guided vehicles, and simulations of products and production. The exhibit highlights the possible integrations between the Siemens Xcelerator and NVIDIA Omniverse platforms.

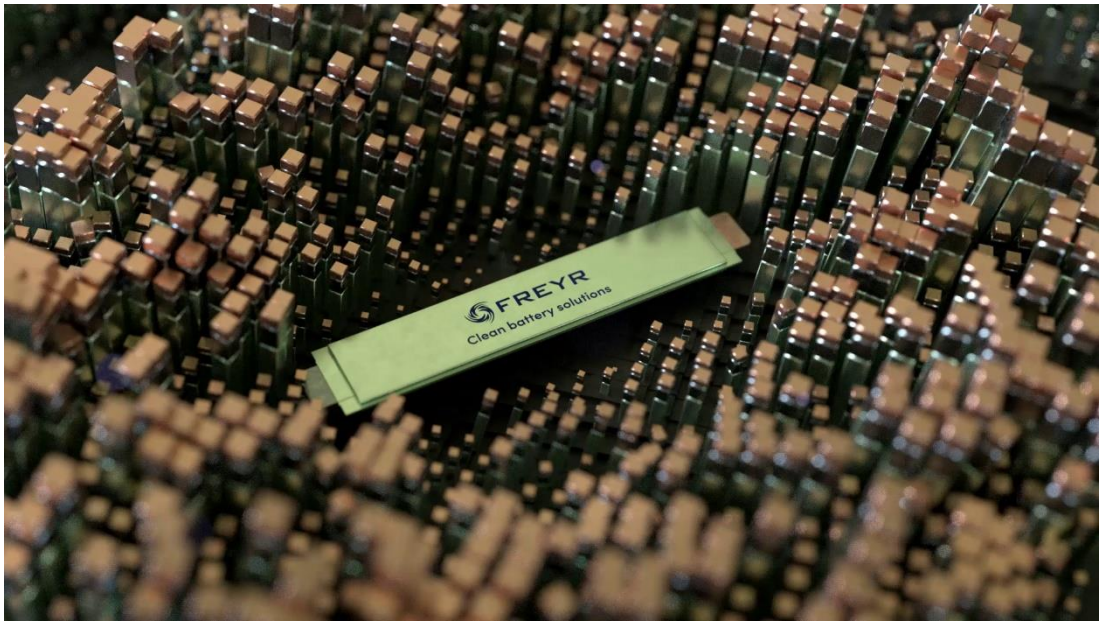
“Combining the power of Siemens’ expertise in industrial automation and digital twin technologies with NVIDIA AI computing and Omniverse will let companies like FREYR take full advantage of the industrial metaverse,” said Rev Lebaredian, Vice President of Omniverse and simulation technology at NVIDIA. “With the new connections between the Siemens Xcelerator and NVIDIA Omniverse platforms, the world’s manufacturers will reach new heights of digitalization and AI-enabled automation, supercharging their efficiency, agility and innovation.”

“Working together, Siemens and AWS are making it easier for industrial customers to use Siemens Xcelerator and AWS’s industry-leading cloud services like AWS IoT TwinMaker to deliver new manufacturing insights, automation, and connected services,” said Bill Vass, Vice President of Engineering at AWS. “As we identify new ways to leverage the cloud and virtualization technology to solve real-world problems like EV battery production, working with leaders like Siemens will help companies of any size turn industrial complexity into a competitive advantage.”

Siemens and FREYR to explore financing options and commercial value streams

FREYR is currently in progress raising project finance for Giga Arctic and raising equity for Giga America. Beyond the traditional customer-supplier relationship, the agreement between FREYR and Siemens will also include discussions about possible financing options via Siemens Financial Services, as well as a potential battery cell offtake agreement.

Earlier this year, Siemens and FREYR announced their intention to join forces with Caterpillar, Glencore and Nidec to form a strategic coalition to promote the scale up of sustainable battery solutions across Europe, North America and beyond. With the strategic partnership announced today, Siemens and FREYR will make more strides in optimizing the entire value chain of battery manufacturing.



A FREYR battery module

This press release can be found at https://sie.ag/3UvGpsm

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Siemens Digital Industries (DI) is a leading innovator in automation and digitalization. In close cooperation with its partners and customers, DI is the driving force for the digital transformation in the process and manufacturing industries. With its Digital Enterprise portfolio, Siemens provides companies of all sizes with all the necessary products, along with consistent solutions and services for the integration and digitalization of the entire value chain. Optimized for the specific requirements of individual industries, this unique portfolio enables customers to enhance their productivity and flexibility. DI continuously extends its portfolio to include innovations and the integration of future-oriented technologies. Siemens Digital Industries, with its headquarters in Nuremberg, has a workforce of around 76,000 employees worldwide.

Siemens AG (Berlin and Munich) is a technology company focused on industry, infrastructure, transport, and healthcare. From more resource-efficient factories, resilient supply chains, and smarter buildings and grids, to cleaner and more comfortable transportation as well as advanced healthcare, the company creates technology with purpose adding real value for customers. By combining the real and the digital worlds, Siemens empowers its customers to transform their industries and markets, helping them to transform the everyday for billions of people. Siemens also owns a majority stake in the publicly listed company Siemens Healthineers, a globally leading medical technology provider shaping the future of healthcare. In addition, Siemens holds a minority stake in Siemens Energy, a global leader in the transmission and generation of electrical power.
In fiscal 2021, which ended on September 30, 2021, the Siemens Group generated revenue of €62.3 billion and net income of €6.7 billion. As of September 30, 2021, the company had around 303,000 employees worldwide. Further information is available on the Internet at www.siemens.com.