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Norwegian battery cell producer Morrow Batteries has opened Europe"s first lithium iron phosphate (LFP) gigafactory with an annual production capacity of 1 GWh to supply the ever-growing European battery energy storage market.

On Aug. 16, Norwegian Prime Minister Jonas Gahr Store inaugurated the factory in Arendal, just under two years after Morrow Batteries began construction works and four years after it first presented plans for the facility.

Test production has already started, as the manufacturer continues to work closely with customers to fine-tune the production equipment to achieve serial production quality over the following months. Morrow Batteries said it expects that commercial production will commence at the end of the year.

Since November 2023, Morrow Batteries has produced and shipped thousands of LFP sample cells to potential customers for testing and validation at the company"s Customer Qualification Line (CQL). "The company can now deliver a commercially viable, thoroughly tested, competitive LFP product," Morrow Batteries said in a statement.

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As the world transitions towards a more sustainable future, the demand for renewable energy and electric transportation has been on the rise. Lithium-ion batteries have become the go-to energy storage solution for electric vehicles and renewable energy systems due to their high energy density and long cycle life. Safety concerns surrounding some types of lithium-ion batteries have led to the development of alternative cathode materials, such as lithium-iron-phosphate (LFP).

LFP batteries offer several advantages over other types of lithium-ion batteries, including higher safety, longer cycle life, and lower cost. These batteries have gained popularity in various applications, including electric vehicles, energy storage systems, and consumer electronics emistry of LFP BatteriesLithium-iron phosphate (LFP) batteries use a cathode material made of lithium iron phosphate (LiFePO4). The anode material is

typically made of graphite, and the electrolyte is a lithium salt in an organic solvent.

During discharge, lithium ions move from the anode to the cathode through the electrolyte, while electrons flow through the external circuit, creating an electrical current. At the cathode, the lithium ions react with the LiFePO4 material, releasing electrons and forming Li3PO4.

During charging, the opposite reaction occurs. Lithium ions are extracted from the Li3PO4 material, and they move back to the anode through the electrolyte, while electrons flow through the external circuit in the opposite direction.

The reaction between lithium ions and LiFePO4 is reversible, allowing LFP batteries to undergo multiple charge and discharge cycles without significant degradation. LFP batteries typically have a higher number of charge and discharge cycles compared to other types of lithium-ion batteries, making them a popular choice for applications that require long cycle life.

LFP batteries are often used as backup power sources in case of power outages or emergencies. They can provide reliable power for critical loads, such as hospitals, data centers, and telecommunications facilities.