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## **Non-flammable, Graphene-based Lithium-ion Batteries Approaching Stationary Storage Market**

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US-based Nanotech Energy's graphene battery uses proprietary electrodes with a thermally stable separator, and non-flammable electrolyte that is said to be inexpensive to manufacture. The technology is said to be superior in terms of safety and competitive in terms of cell performance.

Los Angeles-based technology start-up Nanotech Energy says its proprietary, graphene-based, nanotechnology overcomes the safety challenges of traditional lithium-ion batteries, and its latest announcement signals it might be making progress in bringing its products to the mass market.

Nanotech's battery uses lithium-ion chemistry supported by graphene and a proprietary nonflammable electrolyte technology that improves the electrochemical properties and safety of its electrodes.

According to the company, graphene provides ideal electronic and mechanical support to increase the reversible capacity, power and cycling stability of standard cathodes. Nanotech produces its own graphene, which allows it to be vertically integrated.

On Thursday, the company announced it would supply more than 1 GWh of battery energy storage systems (BESS) to Athens-headquartered Smile Energy, acting as the distributor for [Greece](#) and the surrounding region with Nanotech Energy BESS products through to 2028. [Greece](#) has recently doubled its 2030 energy storage target to 3 GW.

Smile Energy will potentially use Nanotech's products to develop BESS for private homes, commercial real estate, and the marine sector and building on its pipeline of 700 MWh of

energy storage across [Greece](#), [Bulgaria](#), and [Romania](#).

## **Battery tech**

[The startup uses a solution processing method](#) that allows graphene to be coated on “any substrate” along with a laser process step that forms a graphene foam. The company had originally applied its graphene technology to making better supercapacitors, but now focuses on its “super battery.”

“Nanotech Energy is the first and only producer to break the 50% content barrier by reaching 98% monolayer graphene, the wonder material that powers our products. We've already developed groundbreaking energy storage using technology that has the high capacity of a battery and the power performance of supercapacitors in a single solution,” said Nanotech Energy CEO Jack Kavanaugh.

According to [the technical data sheet](#) for Nanotech Energy Nonflammable GOC18650A batteries, it has a cycle life of 1200 cycles before it degrades to 88%. Its gravimetric density is 215 Wh/kg, while volumetric density stands at 557 Wh/l. The operating temperature range is from -20 to 60 degrees Celsius.

In August 2021, Nanotech Energy raised \$64 million in a Series D at a \$550 million valuation, with total funding thus far standing at \$94.9 million. The privately held company has been backed by Multiverse Investment Fund, Fubon Financial Group, and Volkswagen, among others.

Meanwhile, Nanotech has announced it is expanding its operations with a new manufacturing facility in the Tahoe Reno Industrial Center, Nevada. The first of two buildings planned will produce 2.5 GWh of batteries annually, with the plan to continue expansion to 15 GWh over the next several years, the company said.

The first building is slated to open in Q4 2022, and Nanotech is currently taking battery pre-orders. Limited production will kick off in 2023 with full production starting in 2024.

Read the [original article](#) on PV Magazine.