
The Estonian Superbattery That Is Beating Tesla

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It can be charged in just 15 seconds, and can go through hundreds of thousands of charge-recharge cycles without degrading. Meet the “SuperBattery” developed by Estonian startup [Skeleton Technologies](#), which could solve some of the biggest problems still holding back the transition away from fossil fuels.

“This will be a key enabler of the energy transition,” says Taavi Madiberk, founder and chief executive of Skeleton. “In most cases we see that batteries are not able to fully replace the older technologies — we still have hybrid vehicles or the need for backup generators.”

Skeleton’s graphene-based battery is hoping to help bridge the gap where lithium-ion batteries or hydrogen fuel cells are still not quite meeting energy requirements. The company is today announcing a partnership with Karlsruhe Institute of Technology to complete the development. Skeleton recently signed a €1bn letter of intent with a leading automotive manufacturer to bring the technology to market, most likely in 2023 says Madiberk.

Electric cars will be a key use case. Painfully slow recharge times are still one of the major headaches for electric vehicle owners. Even at Tesla’s super-fast recharge stations, it will take at least half an hour to get the battery re-powered, making it hard for electric vehicles to compete with the fast filling times at petrol stations.

Plus lithium-ion batteries degrade over time, limiting their lifespans. The warranties offered on electric cars are telling: Nissan covers the Leaf for five years, Renault offers an eight-year warranty for the Zoe as does Tesla on the Model S. Developing batteries that can overcome some of these issues is a Holy Grail for the auto industry.

Ultracapacitors — which store charge in an electrical field, without the need for a chemical reaction to release it — have been considered as one potential answer. Ultracapacitors charge up fast and can deliver a powerful energy kick to a vehicle, but they have one big drawback: they are not good at storing energy in the long term, so they are of little use for long car journeys. An ultracapacitor is a bit like a leaky cup that tends to lose its contents over time.

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