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PowerCo confirms results: QuantumScape's solid-state cell passes first endurance test

- **Requirements exceeded:** Solid-state battery from QuantumScape achieved more than 1,000 charging cycles with still more than 95 percent capacity. Depending on the model, an electric car could drive more than 500,000 kilometers without any noticeable loss of range.
- **Performance confirmed:** The battery tests were carried out in the laboratories of PowerCo SE, the battery company of the Volkswagen Group.
- **PowerCo CEO Frank Blome:** "These are very encouraging test results and a milestone on the way to series production of the solid-state cell."

Wolfsburg, 03. January 2024 – The solid-state cell is considered a technology of the future and the next big step in battery development. The technology promises longer ranges, shorter charging times and maximum safety. The U.S. company QuantumScape has recently reached an important milestone, which was now confirmed by PowerCo: its solid-state cell has significantly exceeded the requirements in the A-sample test and successfully completed more than 1,000 charging cycles. For an electric car with a WLTP range of 500-600 kilometres, this corresponds to a total mileage of more than half a million kilometres. At the same time, the cell barely aged and still had 95 percent of its capacity (or discharge energy retention) at the end of the test. The tests, which ran for several months, were carried out in PowerCo's battery laboratories in Salzgitter

PowerCo CEO Frank Blome: "These are very encouraging results that impressively underpin the potential of the solid-state cell. The final result of this development could be a battery cell that enables long ranges, can be charged super-quickly and practically does not age. We are convinced of the solid-state cell and are continuing to work at full speed with our partner QuantumScape towards series production."

In the standardized test procedures for newly developed battery cells, robustness is considered the most important criterion. The industry-standard targets for this development phase are 700 charging cycles and a maximum capacity loss of 20 percent. QuantumScape's solid-state cell significantly exceeded these specifications in the latest test. The cell was also able to meet the requirements for other test criteria such as fast-charging capability, safety and self-discharge. QuantumScape first reported on the results as part of their Q3 2023 shareholder letter.

Commenting on the test results, Jagdeep Singh, Founder & CEO of QuantumScape, said: "These results from the Volkswagen Group's PowerCo testing make clear that QuantumScape's anodeless solid-state lithium-metal cells are capable of exceptional performance. While we have more work to do to bring this technology to market, we are not aware of any other automotive-format lithium-metal battery that has shown such high discharge energy retention over a comparable cycle count under similar conditions. We're excited to be working closely with the Volkswagen Group and PowerCo to industrialize this technology and bring it to market as quickly as possible."

The tested solid-state cell consists of 24 layers and thus already corresponds to the planned series cell. The next step on the way to series production is now to perfect and scale the manufacturing processes. In principle, Volkswagen's unified cell concept developed by PowerCo is also suitable for the use of solid-state cell technology. The Volkswagen Group has been involved in QuantumScape since 2012 and is one of the main investors in the technology start-up.

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About PowerCo:

The Volkswagen Group is bundling global battery activities in the European company (SE) PowerCo. From Salzgitter, the company manages international factory operations, the further development of cell technology, and the vertical integration of the value chain. Looking ahead, further products such as major storage systems for the energy grid are planned. Since its launch in July 2022, PowerCo has decided three gigafactory locations with a total capacity of up to 200 GWh/year: Salzgitter in Germany, Valencia in Spain and St. Thomas in Canada.

About the Volkswagen Group:

The Volkswagen Group is one of the world's leading car makers, headquartered in Wolfsburg, Germany. It operates globally, with 115 production facilities in 19 European countries and 10 countries in the Americas, Asia and Africa. With around 676,000 employees worldwide. The Group's vehicles are sold in over 150 countries.

With an unrivalled portfolio of strong global brands, leading technologies at scale, innovative ideas to tap into future profit pools and an entrepreneurial leadership team, the Volkswagen Group is committed to shaping the future of mobility through investments in electric and autonomous driving vehicles, digitalization and sustainability.

In 2022, the total number of vehicles delivered to customers by the Group globally was 8.3 million (2021: 8.9 million). Group sales revenue in 2022 totaled EUR 279.2 billion (2021: EUR 250.2 billion). The operating result before special items in 2022 amounted to EUR 22.5 billion (2021: EUR 20.0 billion).
