

Leclanché and S4 Energy Complete Hybrid Energy Storage Project to Serve Dutch Frequency Containment Reserve Market

• Novel system combines S4 Energy's proprietary KINEXT flywheel storage system with Leclanché's battery energy storage system • Almelo, Netherlands project follows successful proof-of-concept pilot • System provides 9 MW prequalified capacity to support frequency stabilization for TenneT, the Dutch Transmission System Operator

YVERDON-LES-BAINS, Switzerland and ROTTERDAM, Netherlands, August 31st, 2020 – [Leclanché SA](#) (SIX: LECN), one of the world's leading energy storage companies, has together with [S4 Energy](#) completed and handed over an innovative hybrid energy storage project for energy management provider S4 Ancillary Services in Almelo, The Netherlands.

The project is an extension of an earlier pilot system created by Leclanché and S4 Energy. The overall system, now in operation, is a combination of Leclanché lithium-ion battery storage technology coupled with S4 Energy's flywheel storage to provide primary control power for frequency stabilization to TenneT, the local transmission grid operator.

The combination with the fast-responsive flywheels reduces the energy throughput and amount of cycles of the Li-ion batteries and ensures an improved usage profile and longer system lifetime. Leclanché's scope of supply and services in this project was the turnkey delivery of the battery energy storage system (BESS), the battery inverters and the energy management system (EMS) for monitoring and control of the entire energy storage system.

The 8.8 MW capacity battery system provides 7.12 MWh of stored renewable energy. Coupled with six of S4 Energy's proprietary KINEXT flywheel storage systems which deliver 3MW of power, it will help improve the reliability of the grid, protecting it against the fluctuations caused by the intermittency of renewable energy generation. Pairing flywheels with a state-of-the-art BESS will help prolong the lifetime of the batteries to a minimum of 15-years and bring additional value to TenneT.

"We believe that the combination of these two technologies provides a clear advantage for enhanced ancillary services and the further integration of renewables into the grid," **said Daniel Fohr, Vice President System Engineering, Leclanché.**

"Our collaboration with Leclanché has truly delivered a new, best-of-breed solution, with positive implications for clean energy and for the grid operators responsible for delivering reliable energy to their end-users," **said Dominique Becker Hoff, Director of Projects, S4 Energy.**

Pictures available [here](#) or upon request.

About S4 Energy

S4 Energy (<https://www.s4-energy.com/>) employs specialist expertise and equipment together with sophisticated software to fully unlock the power of energy storage. We help energy producers, grid operators and end users to stabilize supply and demand and make the most of their existing infrastructure and energy flows. Their mission is to make their client's energy and power management smarter, more flexible and more profitable.

S4 Energy solutions consist of a range of storage techniques (chemical, electrolytic, kinetic) and incorporate proven technology both from partners and their own portfolio. S4 Energy has developed and holds various patents on energy storage technologies, including their uniquely efficient KINEXT storage units.

S4 Energy is based in the Netherlands and was founded by a group of former corporate executives and informal investors. Their team has extensive international experience up to an executive level in engineering, consultancy, finance, science and manufacturing.

S4 Ancillary Services is supported by Energiefonds Overijssel. Energiefonds Overijssel supports ventures, companies and projects that aim to save energy or generate energy from renewable sources. In doing so, the fund contributes to employment, entrepreneurship, innovation and the ambition of the Dutch Overijssel province: 20% renewable energy in 2023.

About Leclanché

Headquartered in Switzerland, Leclanché SA is a leading provider of high-quality energy storage solutions designed to accelerate our progress towards a clean energy future. Leclanché's history and heritage is rooted in over 100 years of battery and energy storage innovation and the Company is a trusted provider of energy storage solutions globally. This coupled with the Company's culture of German engineering and Swiss precision and quality, continues to make Leclanché the partner of choice for both disruptors, established companies and governments who are pioneering positive changes in how energy is produced, distributed and consumed around the world. The energy transition is being driven primarily by changes in the management of our electricity networks and the electrification of transport, and these two end markets form the backbone of our strategy and business model. Leclanché is at the heart of the convergence of the electrification of transport and the changes in the distribution network. Leclanché is the only listed pure play energy storage company in the world, organised along three business units: stationary storage solutions, e-Transport solutions and specialty batteries systems. Leclanché is listed on the Swiss Stock Exchange (SIX: LECN).

SIX Swiss Exchange: ticker symbol LECN | ISIN CH 011 030 311 9

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