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ASSBs are regarded as a safer and lower cost alternative to lithium ion widely in use today with their solid electrolyte helping to reduce fire risk. They are expected to become the leading battery type in the global BEV industry.

CEO Choi Yoon-ho said in a statement: "Our preparations for mass producing next generation products such as ASSB are well under way as we are set to lead the global battery market with our unrivalled ‘super-gap’ technology.”

The company completed construction of a pilot ASSB production line last year in Suwon. It produces high density (900Wh/litre) battery prototypes for evaluation ahead of full production. The company said this was a 40% jump in energy density compared with its P5 prismatic battery.

Samsung SDI was also focused on developing prismatic batteries which can be charged from 8% to 80% in nine minutes with commercial production scheduled for 2026, and also extended life batteries with a 20 year life cycle later in the decade.

Samsung SDI announced its participation in InterBattery 2024 that kicked off on March 6 for a three-day run in Seoul. The company is poised to unveil a suite of ‘super-gap’ battery technologies encompassing fast charging and ultra-long life battery as well as its mass-production readiness roadmap for all solid-state battery, a beyond lithium-ion battery solution.

Enriching this year’s InterBattery Korea, Samsung SDI bids to solidify its technological leadership in all solid-state battery while presenting a myriad of product line-ups embodied with its ‘super-gap’ technology that will lead the battery market going forward.

To be made public for the first time ever is Samsung SDI’s roadmap for achieving mass-production of all solid-state battery (ASB) geared with the industry-highest energy density of 900Wh/L.Dubbed as a dream battery by many, ASB is a next-generation battery solution with a filling of solid electrolyte that has significant effect in reducing a fire risk and increasing a driving range.

This roadmap illustrates Samsung SDI’s preparations from development to mass-production of ASB. Its energy density jumps up by 40% from the level posted by P5, Samsung SDI’s own prismatic battery product currently under production. The Samsung battery arm plans to implement the industry-top level energy density in its ASB product by leveraging the company’s proprietary solid electrolyte and anode-less technologies, the latter of which enables higher cathode capacity.

In December 2023, Samsung SDI established a dedicated control tower for the ASB business, ASB

Commercialisation Team. The all solid-state battery pilot line was set up in the Samsung SDI R& D Center in Suwon last year and is currently delivering proto samples. Samsung SDI’s roadmap will demonstrate that every aspect of its plan for mass-producing all solid-state battery in 2027 is well on track, from development, production line, project launch to supply chain management.

Samsung SDI is also slated to unveil its ultra-fast charging technology that reaches 80% charge from 8% in just 9 minutes, an unprecedented feat in the industry.This feature is made possible by optimising lithium-ion transfer path and enabling low resistance. The company aims to carry this technology development to a mass-production phase by 2026. This technology is expected to cut charging time significantly compared to P5.

Another technological prowess Samsung SDI will be presenting is its plan to develop and mass-produce a battery solution that lasts more than 20 years by 2029. Such longer battery life, more than double of battery life of products currently available in the market, will be achieved by strengthening durability of materials going into a battery, according to the company’s plan.

Samsung SDI will exhibit a prismatic battery form factor where terminal is moved side-way in contrast to conventional top terminal, in order to enhance energy efficiency and cooling efficacy. Another eye-catching concept is cell-to-pack (CTP) technology for prismatic cells. Samsung SDI seeks to show how it reduces the number of components by more than 35% and the weight by 20%, which serves to materialise high energy density and remarkable cost reduction.