A Battery-Powered American Energy Revolution.

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U.S.-developed, next-generation battery material is here, in the market, and powering consumer products today. That same material can and will fuel our electric future—from electric vehicles to mass transportation to the electric power grid. Government support of available proven next-generation battery material will not only enable the U.S. to take a leadership role in the scaling and exporting of new technological innovations in clean energy, but also create substantial economic opportunities.

The global battery race has begun.

21st century clean energy technologies such as electric vehicles, next-generation battery materials, and renewable distributed power generation are no longer the next frontiers of technological innovation. The global foot race to achieve clean energy readiness and market dominance is happening now. And, silicon (Si)-based anodes for lithium-ion batteries (LIBs) are at the center of it. Si-LIBs deliver fundamental advantages over today's graphite-based LIBs, including significantly higher energy density and reduced cost per kWh. Today, best-in-class Si-based anode materials are being manufactured in the U.S. However, these materials are not commercially available in large volumes for the automotive sector yet.

The current supply of Si-based products, which suffer from relatively poor performance and material limitations (see Appendix chart 1), are only produced in China and Japan. The European Union has also begun investing billions of dollars in the battery supply chain and transportation-related technologies. The reality: with increased demand for electric vehicles, the instability of our global supply chain, volatility in metal and mineral pricing, and the need for climate action, energy transformation is not a question of IF it will happen, it's a matter of when and where.

To ensure the U.S. meets the current opportunity for economic growth and climate sustainability, it's important for the federal government to invest in the successful commercialization and high-volume domestic production of next generation Si-dominant anode materials. The development and mass production of these materials can cleanly power our way into the future, while also positioning the U.S. as a leader in the new clean energy economy.

A new standard for lithium-ion batteries.
Developed in the U.S., powered with Sila science.

For over a decade, Sila has been developing and manufacturing advanced battery materials that are both commercially viable and deliver revolutionary performance. In 2021, Sila successfully launched their first product: an ultra-high capacity superior Si-based anode material. This marks only the fifth time in history a fundamentally new battery chemistry made it from the lab to commercial use. The fourth time was the introduction of the intercalation type lithium-ion battery in 1991. To meet the demands of multiple consumer electronics partners and eager automotive OEMs, Sila produces its breakthrough material 24/7 with efficient high-throughput manufacturing with tight quality controls for safe, versatile, and rapid materials development and deployment.

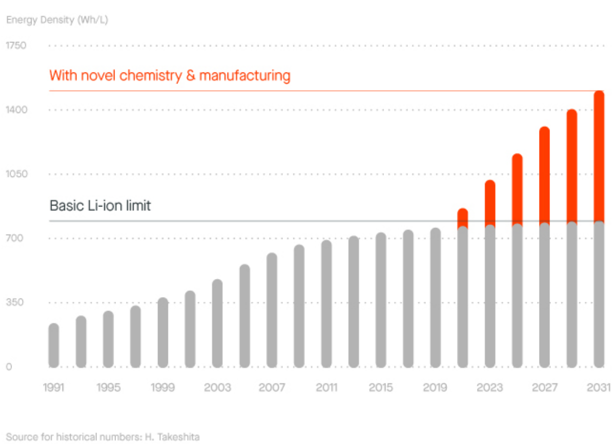
Increasing the energy-density and driving down the cost of LIBs

The relative simplicity of production and the low-cost of synthetic and natural graphite made graphite anode powder a commodity product for LIBs. However, Si-based anodes are the future.

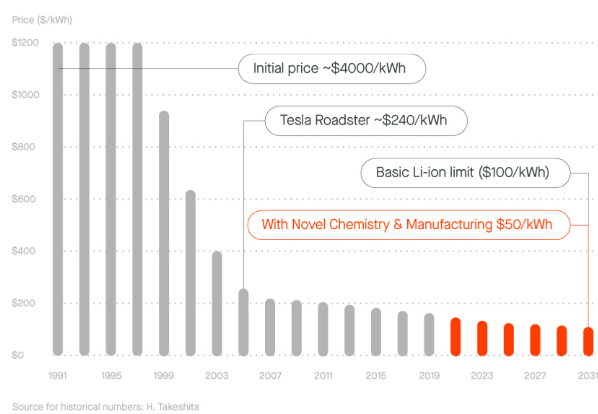
LIBs based on conventional intercalation compounds have reached their theoretical limits, hindering performance and stalling the cost-efficiency our energy needs demand. This limit is primarily due to the use of graphite material for the anode, which not only inhibits improvements in energy density but also significantly impedes the creation of cathode substitute technology thereby restricting any additional gains from other material, cell, and pack innovations.

Recognizing the opportunity and game-changing performance that could be achieved through anode innovation, Sila developed and refined a unique Si-dominant composite anode powder as a drop-in replacement for graphite. Sila's next-generation anode, using their novel chemistry and manufacturing process, boosts LIB energy density by up to 40% and power density by up to 100%. This new ultra-high capacity anode also creates new opportunities for revolutionary conversion-type cathode chemistries over the next 3-5 years, which can increase LIB performance into the next decade. This increase in energy density provided by Sila's Si-anode also drives down cost. At their limit, the cost of graphite-anode LIBs will remain around $100/kWh at the pack level. Sila's Si-anode can help reduce LIB pack costs down to $50/kWh, making it a suitable technology to power the booming EV market.

Future of Advanced Li-ion



Prices of Mass Market Li-ion Cells



Engineered for max performance and simplified manufacturing

Sila's products and manufacturing were developed with the world's biggest markets in mind from the start. To effectively address one of the most pressing issues of our time—sustainable supply chain development of critical minerals and materials—and offer partners revolutionary results, Sila's Si-anode was engineered for performance, safety, and efficiency of manufacturing.

Increases energy density by 20% today and up to 40% in the future: Sila's Si-anode significantly increases LIB energy density and is the only technology that allows for full graphite replacement for maximum performance or partial graphite replacement for faster speed to market.

No compromise on LIB performance and safety: Sila's Si-based anode has been independently validated over the past decade and exhibits truly outstanding performance characteristics and is unmatched by alternative Si anode materials. This anode delivers boosted energy density, while matching the cycle and calendar life of conventional LIB cells. Sila's Si-based composite particles also minimize undesirable side reactions (such as electrolyte decomposition) and, most importantly, it uniquely presents minimal swelling during cycling to maintain:

- Excellent mechanical integrity;
- High coulombic efficiency (comparable to conventional graphite anodes and much higher than alternative Si anodes) because of stable solid electrolyte interphase (SEI);
- Minimal irreversible first cycle capacity losses;
- Outstanding rate performance for fast charging and excellent cycle stability; and
- Superior calendar life.

Drop-in solution compatible with existing LIB factories: Given the significant infrastructure investment necessary to construct new facilities, Sila's Si-based anode was engineered to be a simple replacement for graphite. Sila's material is mechanically stable and fully compatible with all LIB and gigafactories in the U.S. and abroad whether built or being built in the coming years.

Manufacturable economically at global scale: Sila's anode material is produced using only global commodity precursors and bulk manufacturing techniques to ensure economies of scale. Sila's material also has tunable particle properties and can scale for all LIB applications. Additionally, Sila's Si anode material opens the door to the use of low-cost earth-abundant metals (such as iron) for LIB cathodes. This could eliminate our dependency on cobalt (Co) and nickel (Ni) as well as eradicate supply chain risks related to the use of rare, toxic, and expensive transition metals.

Anodes are the beginning

Sila's first product was Si-anode material. However, additional opportunities for innovations within LIBs are on the horizon with the support of investor funding and grants, including a 2012 Advanced Research Project Agency grant awarded by the Department of Energy.

Sila has filed 150+ patents across the areas of cell architectures, materials, components, and processes. Sila actively engages in R&D to enhance the performance of other parts of LIBs such as cathodes, separators, and electrolytes. Their continued innovation aims to enhance the safety and dramatically extend the cycle and calendar life of LIBs for new consumer and EV products as well as new applications, including long-haul trucking, and in grid-scale storage.

Powering consumer electronics today and driving our mass EV future forward.

Sila delivered the first next-generation battery material to go from the lab to the market. And with Sila's game-changing material, product designers, battery makers, and automotive OEMs no longer have to choose between better product design, more features, and battery performance.

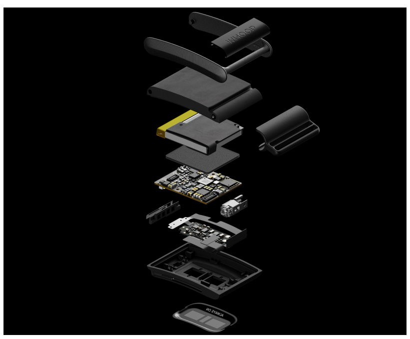
Innovative consumer electronics powered with Sila science

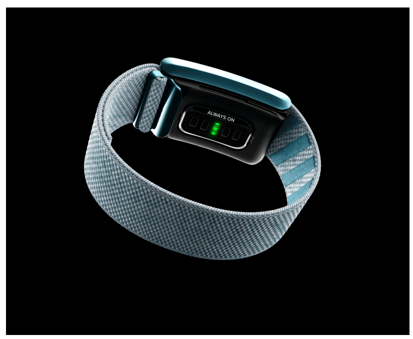
WHOOP 4.0 is the one of the most advanced health and fitness wearables in the market and it's the first product powered with Sila science. Within a mobile phone or wearable, the LIB takes up as much as half of the space and weight of the device, thereby creating limitations with features and size. By partially replacing conventional graphite material with Sila's Si-anode, WHOOP unlocked radical product innovation with increased energy density, while alleviating the squeeze of a big, underperforming LIB.

Partnering with Sila, WHOOP was able to go from Si-anode material testing and validation to launch within 10 months. As a result, the differences between the WHOOP 3.0 and 4.0 are sweeping:

- 17% higher energy density with adjusted cell configuration and partial graphite replacement
- 33% reduction in device size
- 5-day battery life with an upgraded, waterproof battery pack
- Upgraded sensor configuration for new biometric features

Sila's Si-anode material enabling higher energy density in a smaller LIB footprint also facilitated a reimagined industrial design that integrates with WHOOP® Body—a revolutionary line of technical apparel. This new, category-defining form factor, enables consumers to wear their WHOOP 4.0 device across multiple areas of the body for continuous data collection and truly redefines what wearables can be and accomplish.





Driving the next wave of EV innovation

Sila's current path focuses on getting into consumer electronics markets first, followed by the luxury EV market, and then moving to mass market EVs. To meet the demands of a booming EV market for the short and long-term, Sila's Si-anode performance addresses the key concerns of automotive OEMs: range, acceleration, charge time, cost, and viability.

Long-range performance: Sila's Si-anode material significantly increases energy density allowing automotive OEMs to pack more mileage into the same battery footprint.

Light-weight energy: Delivering the opportunity for a smaller, more efficient battery pack, Sila's Si anodes lighten the body of the car, while maintaining exceptional performance to improve acceleration and create room for new weighty rider features.

Charge time: Unlike other solutions, Sila's Si-anode helps enable and is compatible with fast-charge technology so there's no compromise in recharge speed.

Lower cost batteries: Higher energy density drives down the cost per kWh. Also, using less anode material reduces the amount of electrolytes, separator, packaging and other materials needed for cell completion, which further reduces LIB costs.

Successful, continued validation: There are multiple data sources supporting the performance of Sila's anode technology inclusive of numerous on-going customer validation programs held with a growing number of automotive makers, including Mercedes-Benz and BMW.

Scaling economically in the U.S. for global production.

To serve current partners, Sila's Alameda Plant has been operating 24/7 for three years. Sila has also already begun the site selection process for its second plant and is considering three locations across the U.S.

It's also worth noting that integrity in innovation and engineering is a focus for Sila. Sila intends to manufacture and scale-up its technology directly and not license the technology to technology developers in other nations. Sila designs the chemical synthesis process and key manufacturing equipment in-house and will retain related in-house tool design and process control IP as well as control over its product and manufacturing for global supply and distribution.

Near and long-term manufacturing

Alameda Plant | Capacity up to 50 MWh/year
With automated, 24/7 production, our Alameda Plant produces superior Si-anode material using a highly-specialized process that allows for batch production. This Plant will eventually produce enough Si-anode material for millions of LIBs for small consumer devices, including wearables and earbuds. Our Alameda Plant will also produce qualification batches for the first auto launches that will be supplied in production from Plant 2.

Moses Lake Plant | Capacity of 10 - 50 GWh/year | Start-Up in 2024
For the Moses Lake Plant, Sila will scale-up advanced reactor designs with continuous material processing, on-line diagnostics, improved utilization of precursors, and improved material handling to increase efficiency and throughput of its synthesis platform. The Moses Lake Plant will deliver Si-anode material sufficient to power 10 GWh of cells when used as a full graphite replacement, or up to 50 GWh of cells when used as a partial replacement, annually. This is enough material to power batteries in up to 100,000-500,000 premium EVs and 500 million larger consumer devices, like mobile phones, tablets, and headsets.

To mitigate the lengthy qualification process, the Moses Lake Plant build-out will be conducted in parallel with auto LIB cell qualification with our partners. Sila has already started working with EV customers (BMW and Mercedes-Benz) and major global cell suppliers.

Plant 3 | Capacity up to 100 GWh/year | 2026
Sila will build Plant 3 to meet EV demands and further reduce the anode cost of production. Plant 3 will produce Si-anode material for 1+ million EVs and will become the blueprint for all additional plants in the US and around the world.

Sila's Alameda Plant supplies material to consumer customers today and is expected to start supplying more consumer customers in 2024. Sila also expects to enter the EV market by 2025 with material from its Moses Lake Plant, then produce higher volumes with Plant 3.

Re-energizing the U.S. energy industry

Sila is strongly committed to U.S. innovation and manufacturing. Sila began as a Georgia Tech startup, it is a recipient of several U.S. DOE grants, and has successfully brought breakthrough LIB chemistries to market. In turn, Sila is invested in the domestic innovation and scaling of new clean energy technology products.

> **Investments in jobs:** Sila has already invested about $200 million in U.S.-based jobs and manufacturing, which has created ~300 new and high-quality US-based jobs at their Alameda Plant. Sila is also in the process of investing an additional $1 to $1.5 billion over the next 5 years in the Moses Lake Plant and Plant 3, which will create hundreds of additional jobs.
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> **Investments in training:** Sila has been funding university research in several U.S. states. Sila has provided training for Alameda Plant employees and plans to provide extensive training across all roles for the Moses Lake Plant and Plant 3, including hands-on training and qualification of engineers, technicians, managers, and administrative personnel. Sila will also aim to partner with local educational institutions and trade schools to develop material and content specific to operations and skill set needs for the plants.
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> **Building partnerships:** Sila investments provide additional value to our supply chain partners and adjacent suppliers in the battery industry. Furthermore, Sila's current U.S. investment alone will have downstream effects for the battery supply chain and, in turn, make it significantly more feasible and likely that more battery cells will be manufactured in the U.S.

Establishing U.S. leadership in next-generation battery material production.

From Thomas Edison to Gordon Moore, Henry Ford, and more recently Elon Musk with Tesla, the U.S. has historically led in the creation, manufacturing, and export of new innovations. Today, the U.S. has another opportunity to lead with the domestic-development of superior Si-anode material.

Sila's Si-anode technology is proven, commercially available and is currently the leading solution for maximum LIB performance and advancement. For the U.S. to capitalize on this strategic and economic opportunity, and replicate a history of American innovation, the U.S. needs to support the commercialization of next generation technologies such as those developed by Sila.

Appendix

Comparing Sila's Si-anodes to other LIB technologies

While there are other Si-anode solutions in the market, Sila's technology is the one that delivers elevated energy-density without sacrificing performance.

Chart 1

	Technology	Key Technical Limitations	In Market Today	Higher Energy Density	Demonstrated in Consumer & Auto Cells	Drops-into Gigafactories	Readily Scalable to Automotive Volumes
Silicon	Sila Structurally Engineered Material	• None	●	●	●	●	●
	Silicon & Simple Silicon-Carbon Composites	• Si volume changes damage SEI, yields poor cycling, cell swell and safety hazards • Has not reached the market in spite of 20+ years of R&D	○	◕	◑	◕	◑
	2D Silicon Electrodes	• Poor SEI stability and safety • Remains expensive at scale and hard to integrate into existing Li-ion factories	○	◕	◑	◔	◔
	Silicon Oxides	• High first cycle losses, limited to <5wt.% additives to graphite anodes • Cell swell and safety issues, unless used in cylindrical cells in small quantities	●	◕	◕	◕	◕
Lithium	Polymer Electrolyte Membranes "Partial Solid State"	• Do not prevent "dead" Li and "dendrite" Li formations, yield poor cycling and major safety hazards • High resistance and poor rate performance, especially at low temperatures	○	◕	◑	◔	◕
	Ceramic Electrolyte Membranes "Partial Solid State"	• Ceramic membranes are very brittle, very heavy and hard to integrate into battery production factories • Uneconomical for high-volume applications; nearly unavoidable defects lead to cracks and safety issues	○	◕	◔	◔	◔
Carbon	Graphite (Incumbent)	• Low tech & therefore low margin business • Carbon capacity reached theoretical limits	●	○	●	●	●