



23 October 2025

ASX:14D

INVESTOR PRESENTATION - SiNTL NANOTECHNOLOGY

1414 Degrees Ltd ("1414 Degrees" the "Company") is pleased to enclose a copy of the Company's SiNTL Nanotechnology Investor Presentation.

AUTHORISED BY:

Dr Kevin Moriarty, Executive Chairman on behalf of the Board of Directors

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ABOUT 1414 DEGREES LIMITED

1414 Degrees is a leader in industrial decarbonisation with its cutting-edge silicon-based solutions, enabling the alignment of energy supply with demand, fostering the widespread adoption of renewable energy. Our key technologies include:

SiBrick®: thermal energy storage technology safely and efficiently stores renewable electricity as latent heat, available for use on demand.

SiBox®: facilitates the transition to sustainable industrial processes, SiBox delivers consistent, high-temperature heat. It can be seamlessly retrofitted into heavy industry processes, offering a viable alternative to conventional energy sources.

SiPHyR™: methane pyrolysis reactor with integrated storage. SiPHyR will produce low-emission hydrogen and solid carbon using renewable energy sources.

1414 Degrees has showcased its capabilities through successful pilot projects that highlight the reliability and effectiveness of its solutions. SiBox has proven its ability to deliver high-temperature air or steam on demand from stored heat. The development of SiPHyR underscores our commitment to innovation and sustainability.

In 2019 the Company made the strategic purchase of the Aurora Energy Project (AEP) located near Port Augusta, South Australia. The project is a long-term renewable energy initiative to deliver reliable electricity to the region and National Electricity Market. The AEP has approval for 14D to pilot and demonstrate a large commercial scale version of the SiBox technology.

For more information, please visit www.1414degrees.com.au



CLEAN
SCALABLE
ENERGY
STORAGE™

SiNTL™ Nanotechnology

Low Temperature Synthesis of Silicon Nanoparticles for Next
Generation Li-ion Battery Anodes

Leveraging Carbon Capture by 14D's SyPHyR technology

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This presentation contains information which was reported in ASX announcements which can be viewed online at **1414degrees.com.au**

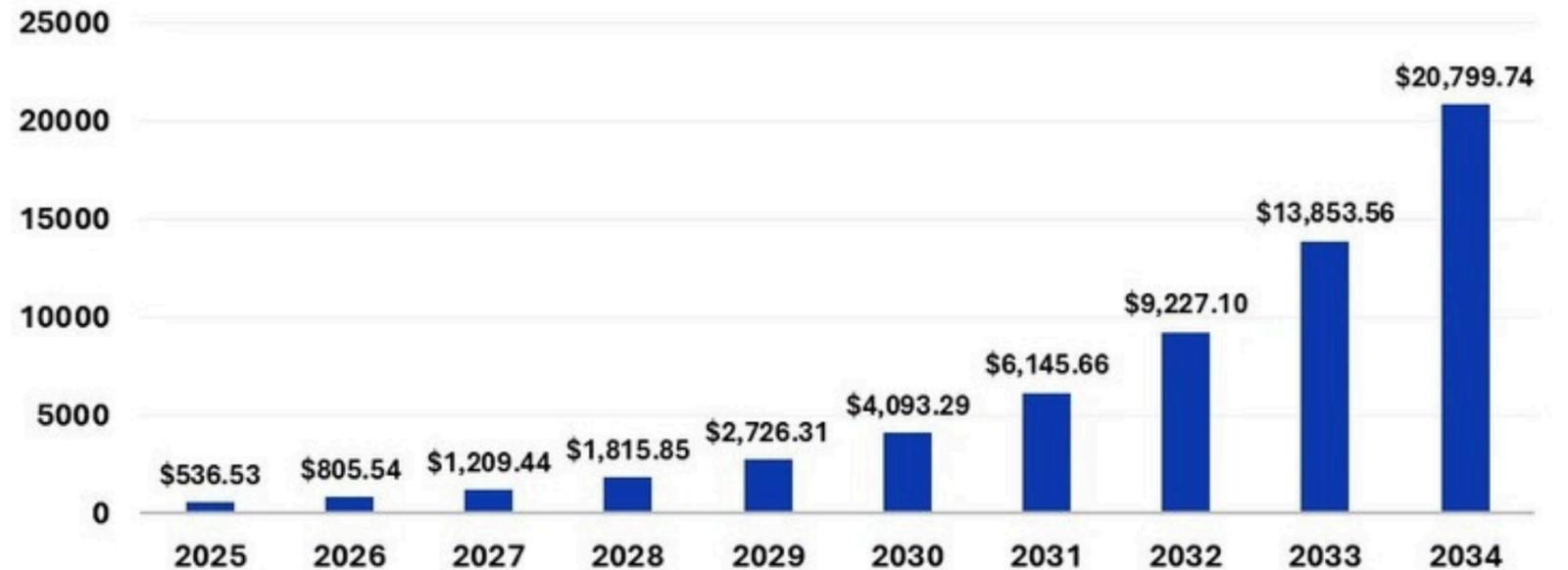
Certain statistical and other information included in this presentation is sourced from publicly available third-party sources and has not been independently verified.

Silicon Anode Battery Market

KEY TAKEAWAYS

- Market revenue valued at USD 536.53 million in 2025, projected to reach **USD 20.8 billion by 2034**
- Strong growth outlook with a **CAGR of 50.14 %** 2025 to 2034
- **Asia Pacific** held **54% revenue share** in 2024; **North America** forecast fastest growth
- By capacity
 - **<1,500 mAh** held the largest market share at 47% in 2024
 - **1,500 to 2,500 mAh** is forecast to record the highest growth
- By application
 - **Automotive:** largest segment **38% share in 2024**
 - **Energy & Power:** strong growth outlook

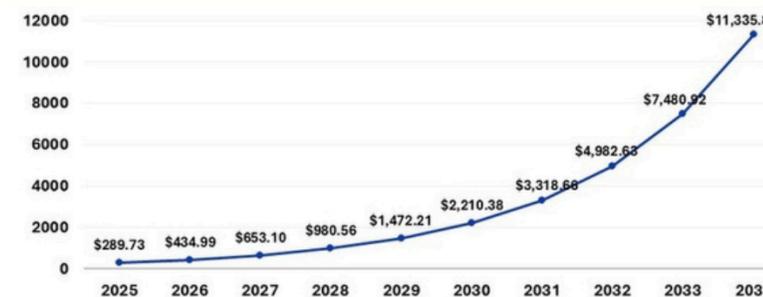
Precedence RESEARCH Silicon Anode Battery Market Size 2025 to 2034 (USD Million)



The global silicon anode battery market size is predicted to increase from USD 536.53 million in 2025 to approximately USD 20,799.74 million by 2034, expanding at a CAGR of 50.14% from 2025 to 2034.

Source: <https://www.precedenceresearch.com/silicon-anode-battery-market>

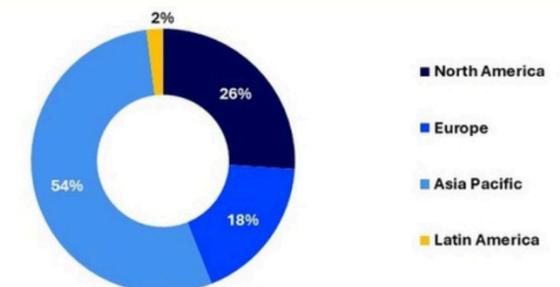
Precedence RESEARCH Asia Pacific Silicon Anode Battery Market Size 2025 to 2034 (USD Million)



The Asia Pacific silicon anode battery market size is calculated at USD 289.73 million in 2025 and is expected to reach around USD 11,335.86 million by 2034, with a CAGR of 50.28% from 2025 to 2034.

Source: <https://www.precedenceresearch.com/silicon-anode-battery-market>

Precedence RESEARCH Silicon Anode Battery Market Share, By Region, 2024 (%)



The Asia Pacific region is leading the silicon anode battery market, accounting for a significant share of 54% in 2024. North America is expected to expand at a notable CAGR during the forecast period from 2025 to 2034.

Source: <https://www.precedenceresearch.com/silicon-anode-battery-market>

Silicon vs. Graphite (Traditional Anode)

ADVANTAGES OF SILICON:

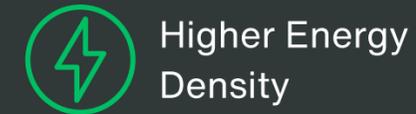
- **~10× higher theoretical capacity**
 - silicon can store ~10 x more lithium ions
 - (graphite: ~372 mAh/g; silicon: ~3,600–4,200 mAh/g)
- **Greater energy density** → longer range / smaller batteries
- **20–40% higher capacity** achievable in real-world applications
- **Faster charging potential** → sub-15-minute EV charging enabled by silicon anodes

KEY CHALLENGE:

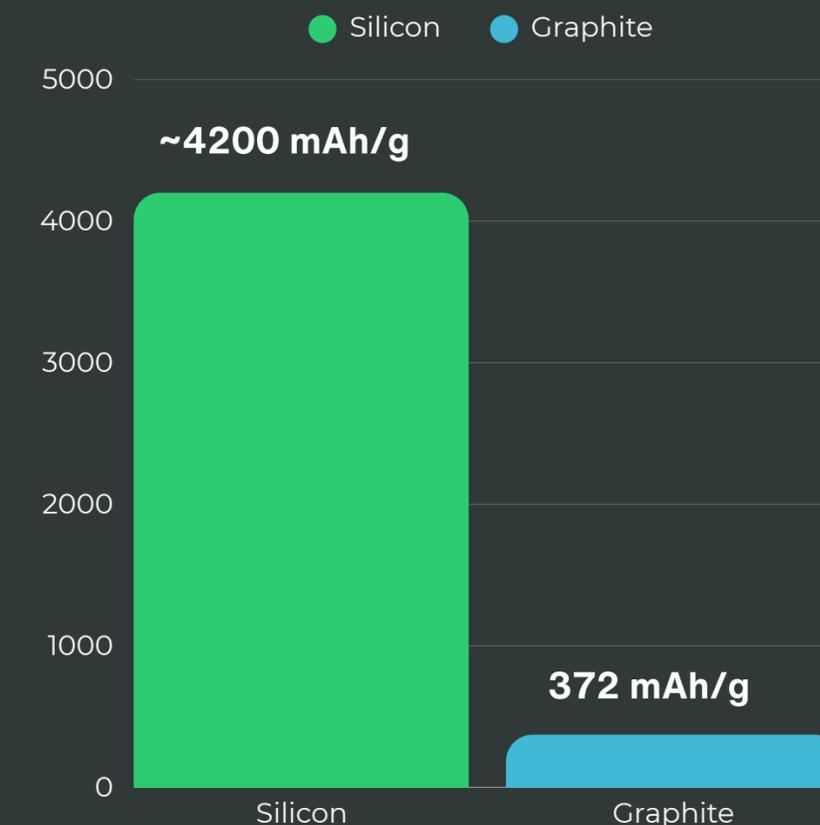
- Volume expansion (~300–400%) during lithiation → causes cracking, capacity fade and shorter cycle life

OPPORTUNITIES:

- Nanostructures, composites and protective coatings
- Artificial SEI layers and prelithiation techniques
- Self-healing binders and metal nanocrystals
- **Coated nanoparticles - SiNTL**



THEORETICAL CAPACITY



A Potential Breakthrough for Li-ion Batteries

LOW COST, LOW TEMPERATURE.

14D has secured the exclusive global license to a breakthrough aluminum-coated silicon nanoparticle technology developed at the George Washington University, Washington DC.

The patented process enables scalable, low-temperature synthesis of air- and water-stable silicon nanoparticles and composites, tailored for next-generation lithium-ion battery anodes

A thin aluminum coating forms in-situ during synthesis, enhancing conductivity and oxidation resistance, while also simplifying storage, handling, and integration into existing battery manufacturing lines.

**THE GEORGE
WASHINGTON
UNIVERSITY**

WASHINGTON, DC

Clean energy compatible:

Runs on solar-powered furnaces or resistive heating

No HF or SiH₄ used:

Safer for scale-up and regulatory approval

Recyclable salt system:

MgCl₂ and AlCl₃ fully recoverable

Low CapEx potential and Modular scale-up:

Each module could produce 25 – 100 tonnes/year

Strong ESG positioning:

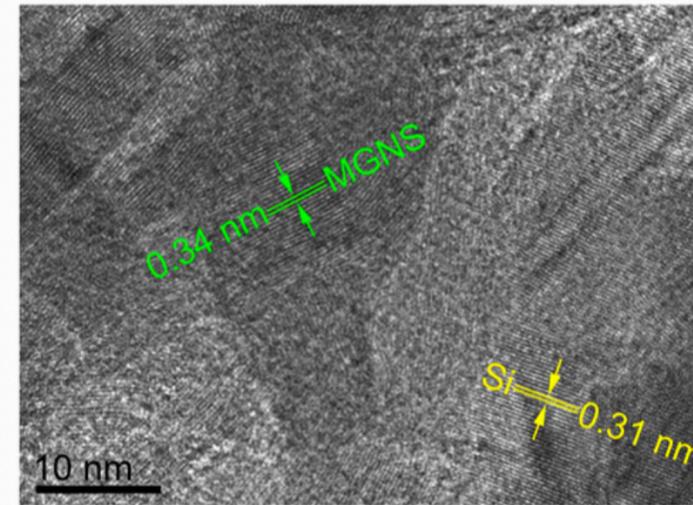
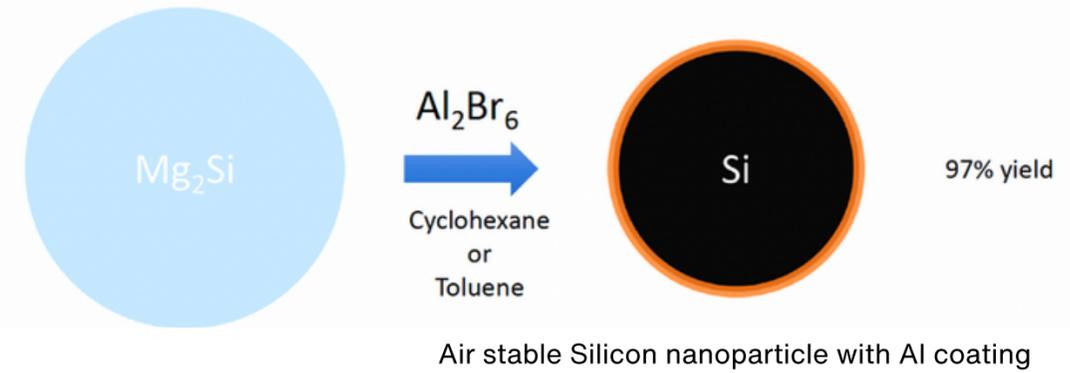
Supports decarbonisation of battery supply chains

Clean-tech grants

(e.g. ARENA, Powering the Regions, U.S. DOE)

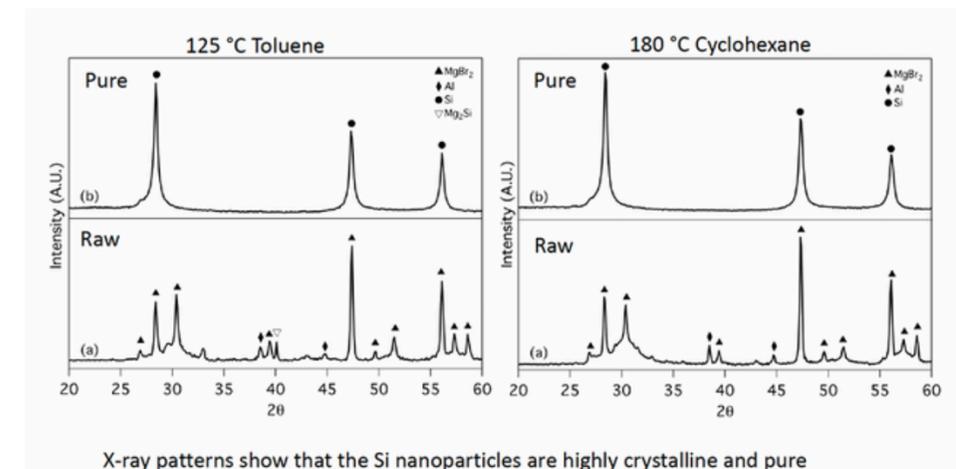
Key Features & Benefits

- Low-temperature, one-pot synthesis **~125–180°C**
- Produces **aluminium-coated silicon nanoparticles and composites** directly during synthesis — high yield, simple, and scalable
- High yield: **~97% conversion** of Mg_2Si to crystalline silicon nanoparticles
- **Air and water stable nanoparticles**: no glovebox or special storage required
- Composite-ready: enables direct formation of **silicon-carbon composites** without post-mixing — lower cost, greater uniformity, superior performance
- **Recyclable byproducts**: $MgBr_2$, $AlCl_3$ can be recovered or reused



Silicon nanoparticles synthesised in the presence of carbon materials forms homogenous composites without further mixing

Al and $MgBr_2$ are removed with HCl



14D history with silicon

1414 Degrees - silicon expertise since 2009

1414 Degrees is a clean energy company using proprietary silicon based technologies to deliver delivering scalable solutions for renewable heat and clean hydrogen to advanced battery materials

Prototype

Silicon thermal energy storage with Stirling heat engine



Storing electric energy
Regenerating 30KW electricity

TESS-IND

Electrically heated 6 MWh_{th} silicon thermal storage coupled to gas turbine



Storing electric energy
Regenerating 180KW electricity

GAS-TESS

Biogas powered 6 MWh_{th} storage coupled to gas turbine installed at SA Water's Glenelg WWTP



Burning and storing biogas energy, regenerating 180KW electricity on National Electricity Market (NEM)

SiBox®

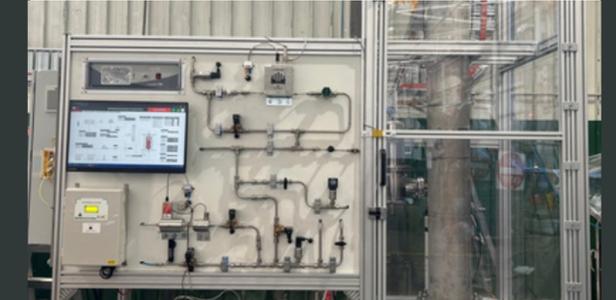
Latent heat battery outputting up to 1000°C stable hot air or steam



Electric energy to high temperature heat for industry up to GWh scale

SiPHyR®

Storage integrated methane pyrolysis hydrogen reactor



Converts natural gas into low-emission hydrogen and solid carbon

SiNTL Development and Commercialisation Timeline

Continuous sample fabrication and testing targeting **>500 mAh/g**, advancing toward **600 mAh/g** within 12 months

OCT'25



Execute exclusive global license agreement with GW

OCT'25 →



Ongoing fabrication and testing of SiNTL samples for performance and durability

OCT'25 - MAR'26



Commercial engagement with anode OEMs

JAN'26 - MAR'26



Provide SiNTL samples to OEMs for testing in production lines

JUN'26 - DEC'26



Execute agreements with OEMs for supply and set up manufacturing facility



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