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# SiNTL SCALE-UP PROGRAM COMMENCED AS 14D MOVES TO COMMERCIAL ENGAGEMENT

***Scale-up equipment for production of manufacturer-relevant quantities of silicon anode material; full-stack battery cell development ; OEM engagement***

## KEY HIGHLIGHTS

**14D PURCHASING SCALE-UP EQUIPMENT TO ADVANCE COMMERCIALISATION**

- **14D is purchasing scale-up equipment to produce manufacturer-relevant quantities of its silicon anode material at research partner George Washington University (GWU), Washington D.C. This is a key step in transitioning from laboratory-scale development to commercial engagement and the next phase of the SiNTL commercialisation program**
- **The Company is seeking to expand its team of industry experts to assist in the commercialisation and rollout phase of its silicon battery anode technology.**

**OEM ENGAGEMENT AND THIRD-PARTY EVALUATION:**

- **The scale-up enables 14D to progress industry discussions into formal third-party material evaluations and structured OEM (Original Equipment Manufacturer) qualification processes.**
- **The scale-up also allows 14D to identify and pursue potential early revenue opportunities.**

**FULL-STACK BATTERY DEVELOPMENT COMMENCES:**

- **Following positive SiNTL performance results from testing at GWU, which established a technical basis to commercialise the battery technology for drone and UAV applications, 14D has begun engagement with full-stack contract battery manufacturers to produce complete battery cells incorporating SiNTL anode material, optimised for testing in drone, UAV, satellites, robotics, aircraft and other target applications.**

**GROWING MARKET INTEREST:**

- **The Company has commenced discussions with several drone and related industry participants and received inbound interest from companies seeking to trial SiNTL materials, reinforcing the commercialisation direction and the decision to advance scale-up at this stage.**

**CAPACITY OPTIMISATION CONTINUING TOWARD 600 mAh/g:**

- **Battery capacity remains a key constraint across many UAV systems. SiNTL aims to address this limitation.**
- **Formulation optimisation and cycle life validation continue in parallel, with development advancing toward the Company's initial 600 mAh/g target — which is over 50% higher than conventional graphite anodes, as well as circa 20% above current commercial silicon-enhanced anode benchmarks — and a credible, obtainable near-term milestone.**
- **Silicon offers a theoretical capacity of ~3,600 mAh/g compared to ~372 mAh/g for graphite anodes, offering potentially significant upside from ongoing development and testing.**
- **SiNTL is developed under an exclusive global licence with George Washington University, where Professor Michael Wagner's team continues to lead the technical program to expand capacity and scale up process.**

**1414 Degrees Ltd** (ASX: 14D) ("1414 Degrees" or the "Company") is pleased to announce the scale-up phase of its SiNTL™ silicon nanoparticle anode program and the initiation of full-stack battery development with contract manufacturers.

**Scale-Up Phase Commences — A Next Step in Commercialisation**

The procurement of scale-up equipment represents the next phase in the SiNTL development program, marking the transition from laboratory-scale materials science to production-relevant quantities capable of supporting commercial engagement activities.

Scale-up is expected to deliver two outcomes: improved material consistency through more disciplined process control, and meaningfully larger production volumes. Both are required to support the formal third-party evaluation processes and OEM engagement that characterise the next stage of the Company's commercialisation pathway.

The Company has commenced discussions with drone and related industry participants and received inbound interest from companies seeking to trial SiNTL materials — an encouraging market signal that reinforces the decision to advance scale-up activities at this stage of the program.

SiNTL is developed under an exclusive global licence with George Washington University, where Professor Michael Wagner's team continues to lead the technical program. The material is produced via a low-temperature (125–180°C), single-step synthesis process with approximately 97% demonstrated yield and compatibility with conventional lithium-ion battery production lines. The process avoids hazardous reagents such as hydrofluoric acid or silanes and does not require chemical vapour deposition infrastructure, supporting a credible path to scaled production and a clear point of differentiation from competing silicon anode technologies. SiNTL's manufacturing approach is designed to deliver a materially lower cost base than competing high-silicon anode technologies, a critical consideration for commercial adoption at scale.

To support this next phase, the Company is actively seeking industry experts in battery materials commercialisation, OEM engagement, and defence and aerospace market development.

This scale up initiative by the company represents a significant milestone in taking the SiNTL battery from concept to a potential scalable and marketable commercial product.

**Full-Stack Battery Development**

In parallel with scale-up activities, 14D is commencing engagement with full-stack contract battery manufacturers to produce complete battery cells incorporating SiNTL anode material, tailored for evaluation in drone, UAV, satellite, and robotics applications and other target markets. These cells will provide tangible real-world performance data to support commercial and defence-sector qualification processes.

The drone and UAV market remains a compelling near-term entry point for SiNTL. Commercial and military platforms typically operate within cycle life envelopes well matched to SiNTL's current development stage, while placing a high premium on energy density, payload capacity, and rapid recharge capability. The United States has recently formalised policy treating small drones as expendable assets equivalent to ammunition, and the Australian Government committed $5 billion in new defence drone spending in April 2026, citing lessons from conflicts in Ukraine and the Middle East[1]. The global commercial and military drone market is forecast to reach approximately US$160 billion by 2030[2], with the silicon anode battery market alone projected to grow from USD 0.4 billion in 2025 to USD 25.8 billion by 2035 at a CAGR of 51.7%[3].

**Capacity Optimisation — Progressing Toward 600 mAh/g**

Formulation optimisation work is progressing in parallel with cycle life validation, with development advancing through 550 mAh/g toward the Company's initial 600 mAh/g target, representing a further approximately 13% uplift from the current 530 mAh/g result and approximately 20% above current commercial silicon-enhanced anode benchmarks. The Company regards 600 mAh/g as a credible and obtainable near-term milestone, with further capacity increases to be explored beyond that threshold. Higher capacity SiNTL-anode batteries could deliver significant competitive advantages to the UAV industry, both for commercial and military applications.

[1] ABC News, "$5 billion in new spending on drones as Defence learns lessons from Ukraine and Iran," Tom Lowrey, 14 April 2026, abc.net.au

[2] https://ts2.tech/en/global-drone-market-outlook-2025-2030/

[3] Fact.MR, *Silicon Anode Battery Market Global Market Analysis Report – 2035*


Pictured above: satellite (top left), military drone (top right), warehouse robot (bottom left), commercial delivery drone (bottom right)

**Commenting on the program, Chief Technology and Operations Officer Peter Yaron said:**

"The commencement of scale-up is a natural and planned next step for the SiNTL™ program. We have demonstrated the performance of the material at laboratory scale and the focus now shifts to producing consistent, higher-volume quantities that enable formal third-party evaluation and meaningful OEM engagement. This is how laboratory results become commercial outcomes."

**AUTHORISED BY:**

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

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**ABOUT 1414 DEGREES LIMITED**

1414 Degrees (ASX:14D) is advancing an integrated clean-energy and industrial decarbonisation platform spanning grid-scale storage, industrial heat, hydrogen and advanced battery materials.

The Company's strategy combines near-term infrastructure revenue with scalable technology commercialisation, underpinned by deep expertise in energy-dense silicon systems and materials engineering. 1414 Degrees owns the Aurora Energy Precinct in South Australia, a development-ready energy and industrial site spanning 16km² within the Upper Spencer Gulf Renewable Energy Zone. Aurora is designed for firmed renewable electricity and co-located high-demand users, with grid access, development approvals and proximity to fibre infrastructure supporting global connectivity. The site is strategically positioned to support data centre operators and other energy-intensive industries requiring reliable, low-emissions power at scale. The Stage 1 140 MW / 280 MWh Battery Energy Storage System (BESS) represents a near-term revenue opportunity, with expansion potential aligned to customer demand.

**Core Platforms:**

**SiNTL™:** A silicon-enhanced anode material designed to increase lithium-ion battery energy density while remaining compatible with existing manufacturing processes.

**SiBrick®:** Silicon-based thermal energy storage media forming the foundation of the Company's long-duration energy storage systems.

**SiBox® (Industrial Heat-as-a-Service):** Long duration energy storage technology that converts low-cost renewable electricity into dispatchable high-temperature heat, supporting industrial decarbonisation across energy-intensive sectors.

**SiPHyR®:** A silicon-based methane pyrolysis reactor integrating thermal storage to produce low-emissions hydrogen and solid carbon using renewable energy sources.

1414 Degrees' technologies are unified by a single materials platform — leveraging silicon to store, convert and enhance energy across multiple sectors.

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

**Forward-looking statements**

This announcement includes forward-looking statements which may be identified by words such as 'anticipates', 'believes', 'expects', 'intends', 'may', 'will', 'could', or 'should' and other similar words that involve risks and uncertainties. These forward-looking statements are based on the 1414 Degrees' expectations and beliefs concerning future events as at the date of this announcement. Forward-looking statements are necessarily subject to risks, uncertainties and other factors, many of which are outside the control of 1414 Degrees, which could cause actual results to differ materially from such statements. 1414 Degrees makes no undertaking to update or revise the forward-looking statements made in this announcement to reflect any change in circumstances or events after the date of this announcement.