Transformational Technologies for Global Industries

March 2025

ASX: SPN

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Innovating For A Sustainable Future

Sparc Technologies is an ASX listed (SPN) developer of two transformative technologies

SPARC HYDROGEN

Leading the Next-Generation Green Hydrogen Revolution

- **Disruptive Technology:** Sparc's photocatalysis technology uses only sunlight and water to produce green hydrogen — without electrolysers.
- **World-Class Partners:** Sparc is partnered with **Fortescue** and the **University of Adelaide** within the Sparc Hydrogen JV.
- **Scalable and Low-Cost:** Solar-driven process requires less energy and infrastructure and offers significant potential cost advantages.
- **Key Catalysts:** First-of-its-kind pilot plant under construction in Roseworthy, South Australia, with commissioning expected in mid-2025.

ecosparc®

Tackling the Global Corrosion Challenge using Graphene

- **Global Market Opportunity:** Additive for the **US$43 billion** anti-corrosion coatings market, for extending steel asset longevity.
- **Real-world Trials:** With the **SA Govt**, **BHP Mitsubishi**, **Santos** and **29Metals** to validate **ecosparc®** enhanced coatings on infrastructure.
- **Key Benefits:** 46x ROI for asset owners via extended time between maintenance events plus CO_2 savings.
- **Key Catalysts:** Initial results from **ecosparc®** field trials due H1 2025, positioning the technology for commercialisation.

Corporate Snapshot

96m
Shares on issue

$18m
Market Cap*

$0.19
Share price*

$2.0m
Cash**

~37%
Top 20 s/holders

6.8%
University of Adelaide

Board & Management

Nick O'Loughlin
Managing Director

Simon Kidston
Non-Exec Chair

Daniel Eddington
NED

Dr Denis Wright
GM Graphene

Kristen Kubank
CFO

Paul Baccanello
Business Dvmt

Key Partners

Fortescue

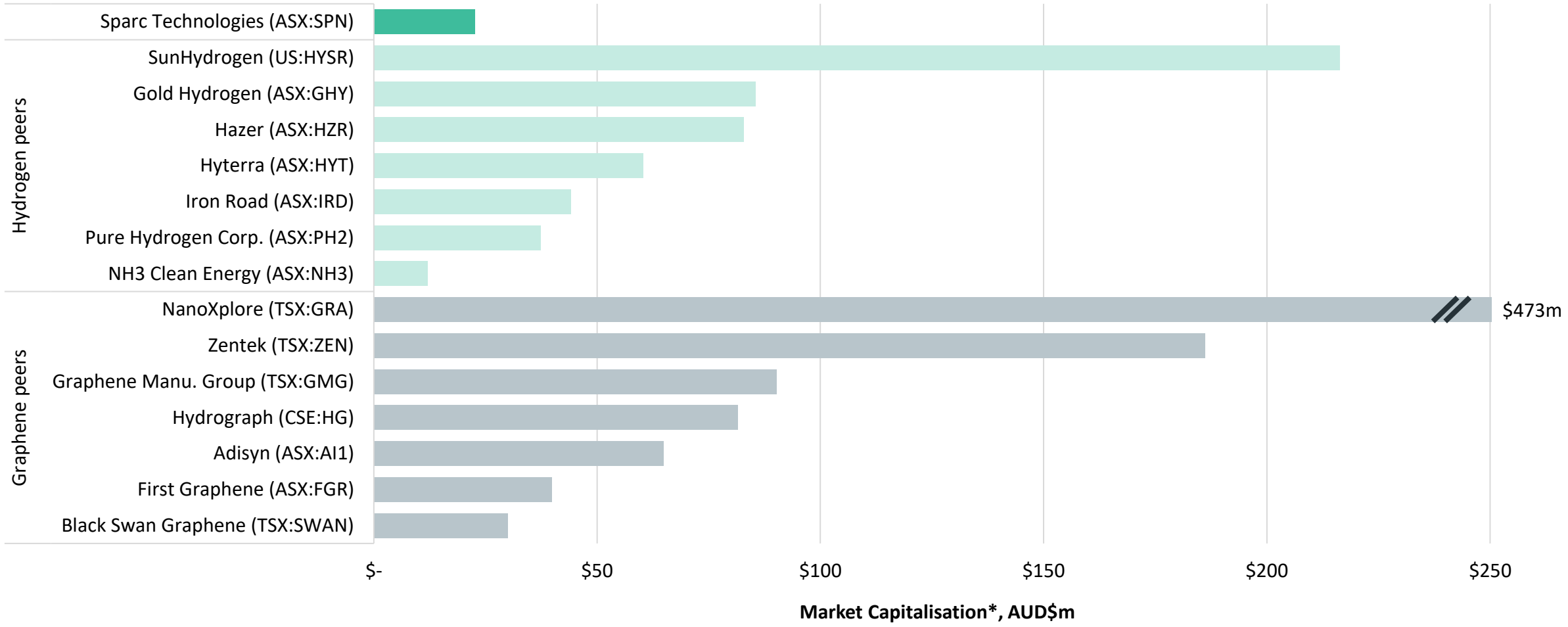
The University of Adelaide

Flinders University

* As at 12 March 2025

** As at 31 December 2024

Low Market Capitalisation Versus Comparables



* As at 31 January 2025

SPARC HYDROGEN

Next Generation Green Hydrogen Technology

sparc TECHNOLOGIES

Fortescue

THE UNIVERSITY of ADELAIDE

Flinders University

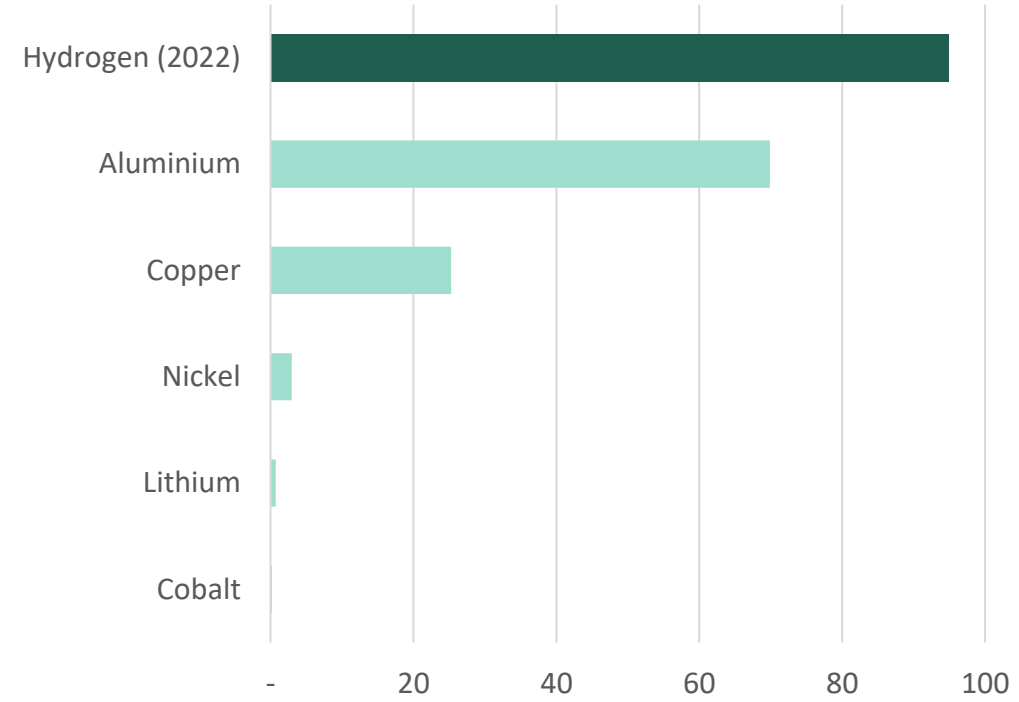
>US$200bn Addressable Market

- **Current Market:** Hydrogen (H_2) is a **~95Mtpa** existing industry, primarily used in ammonia production for fertilisers, methanol for plastics and to remove sulfur from fuels.

- **Environmental Impact:** Current hydrogen production generates **over 1Gt of CO_2** emissions annually, accounting for **2.5% of global emissions**—equivalent to the entire aviation sector. There is an existing need to transition to green hydrogen to decarbonise the current hydrogen industry.

- **Huge Growth Potential:** Green hydrogen is essential for decarbonising sectors like steelmaking, chemicals, cement, high-temperature heating, aviation, shipping, and heavy road transport, with demand projected to **increase sixfold** by 2050[1].

Commodity demand (Mtpa)



Source: Public filings

1. Green hydrogen: Energizing the path to net zero, Deloitte Economics Institute, 2023

Investment in Green Hydrogen Continues…

"Total announced (clean hydrogen) investments through 2030 have increased by approximately 20% – from **USD 570 billion** to **USD 680 billion**." (May-24)

*"Construction of the **USD-8.4-billion** (EUR 7.85bn) Neom green hydrogen plant in northwestern Saudi Arabia is progressing significantly…" (May-24)*

"CIP (Copenhagen Infrastructure Partners) subsidiary to build a $10bn hydrogen project in Oaxaca, Mexico by 2028" (Dec-24)

"Morocco approves six green hydrogen projects with a total investment value of $32.8bn…" (Mar-25)

"Global energy transition investment hit a new record of **$2.1 trillion** last year, more than doubling since 2020, according to **BloombergNEF**" (Feb-25)

*"**BP** takes final investment decision on a 100MW green hydrogen facility in Lingen, Germany" (Dec-24)*

…Despite Challenges For Existing Technology

Green hydrogen from electrolysis faces major challenges in achieving commercial and technical viability at scale

Infrastructure challenge

- HV electricity transmission
  - Social licence issues
- Lengthy development times

Scale & flexibility challenge

- Large scale ‘on-grid’ projects
- Solar PV, Wind, Batteries, Electrolysers
- High capex

Cost challenge

- **<u>Expensive</u>**
- Due to high power costs;
- And high electrolyser capex

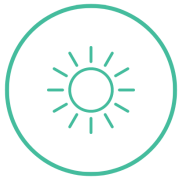
The Future Is Photocatalysis

Zero-electricity

Photocatalysis produces H_2 from H_2O without electricity

Low cost

The simplicity of photocatalysis drives potential for very low costs



Solar driven

Sunlight is the only energy input driving the reaction

Scalable

Utilises a concentrated solar system which is inherently scalable

Emission-free

Water + sunlight = green hydrogen

Positioned to Deliver: Best-in-Class Partners

Funding for the JV is secured until mid-2026 with potential for additional grants

sparc TECHNOLOGIES

- 36% Sparc Hydrogen shareholder[1]
- JV management and coordination
- Technology commercialisation expertise

Fortescue

- 36% Sparc Hydrogen shareholder[1]
- Global leader in green hydrogen
- Substantial project development experience

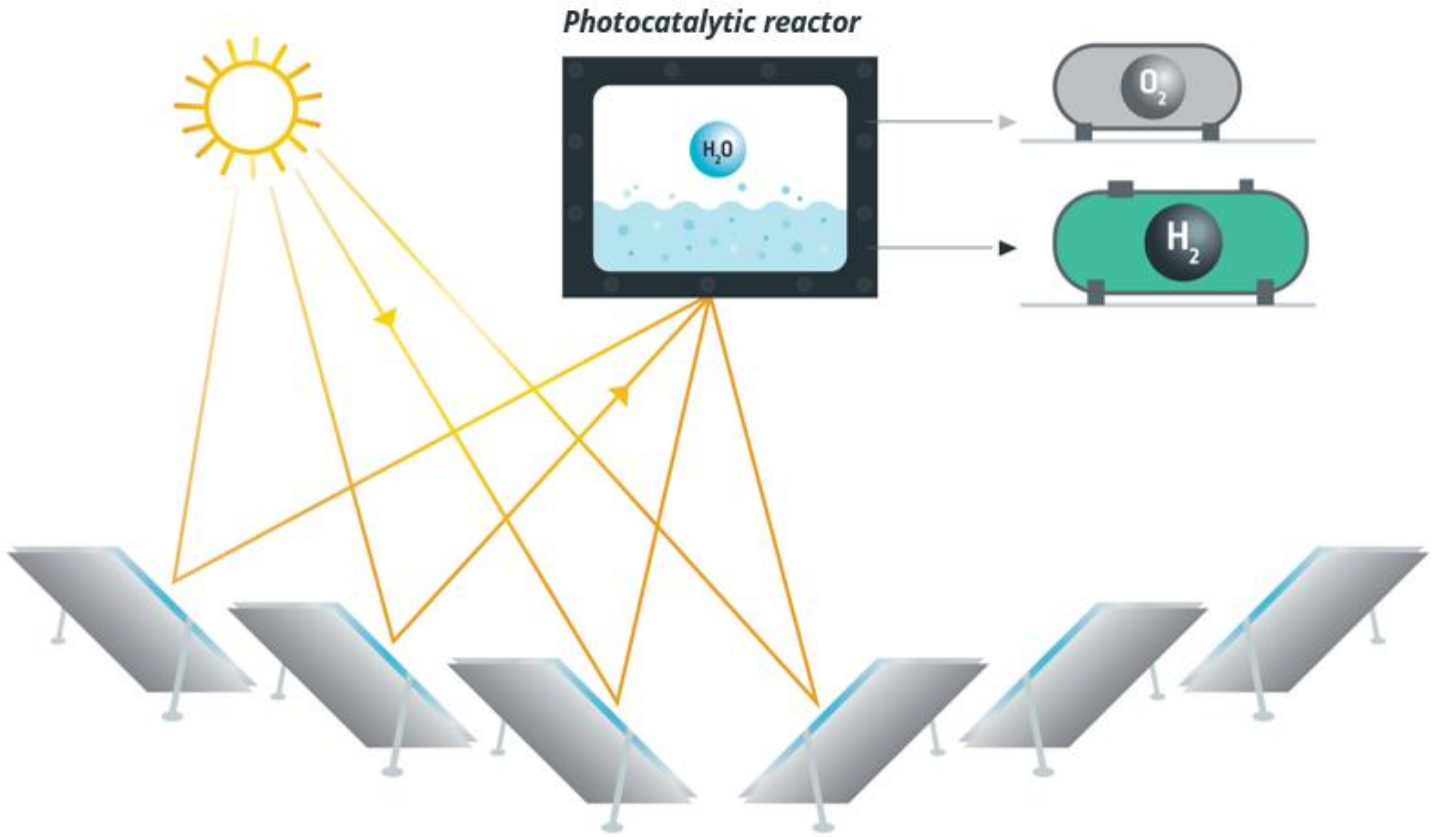
THE UNIVERSITY of ADELAIDE

- 28% Sparc Hydrogen shareholder[1]
- Developer and contributor of IP[2]
- Leading R&D work and providing lab facilities

1. Refer to SPN ASX release 7 January 2025
2. Together with Flinders University

Unique & Patented Technology

- Sparc Hydrogen is one of the only companies combining concentrated solar with photocatalytic water splitting (PWS), advantages being:
  - Reduced photocatalyst use.
  - Modular and scalable mirror fields.
  - Increased efficiencies and heat generation.
- Sparc Hydrogen's reactor is being designed to:
  - Slot into an off-the-shelf linear Fresnel field.
  - Utilise by-product heat for industry use or power generation.
- First patent granted in January 2025.



Pilot Plant Commissioning Expected Mid-2025

- Construction of a first-of-its-kind pilot plant utilizing Sparc Hydrogen's concentrated solar based PWS system is underway.
- The pilot plant will be located at the University of Adelaide's Roseworthy Campus, ~50km north of Adelaide in South Australia.
- The plant will utilize Sparc Hydrogen's scalable reactor design and will represent a key milestone in derisking the technology.
- Construction commenced in March 2025 and plant is expected to be commissioned in mid-2025.

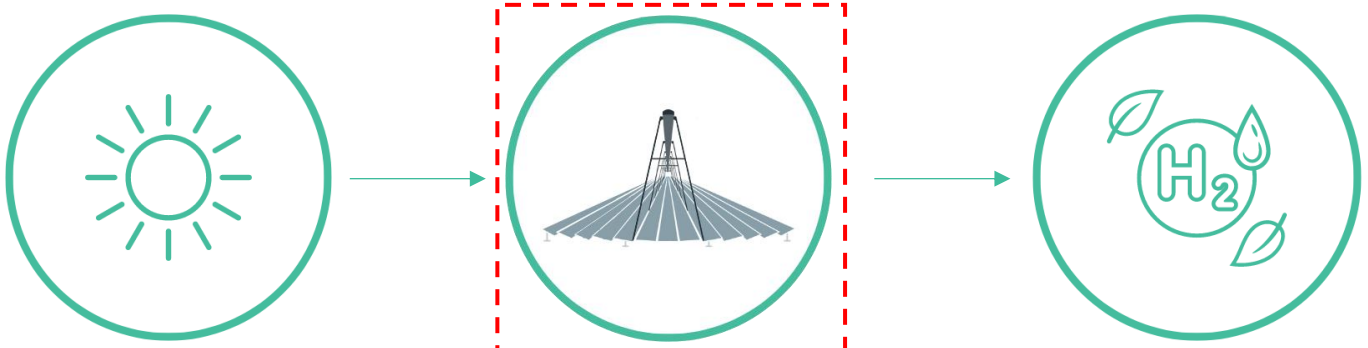
Pilot plant site preparation activities commenced March 2025, Roseworthy, South Australia

Modularity Drives Ability To Scale Quickly

Commercial scale linear Fresnel field in Spain (28 x ~1km mirror rows) generating ~30MW electricity

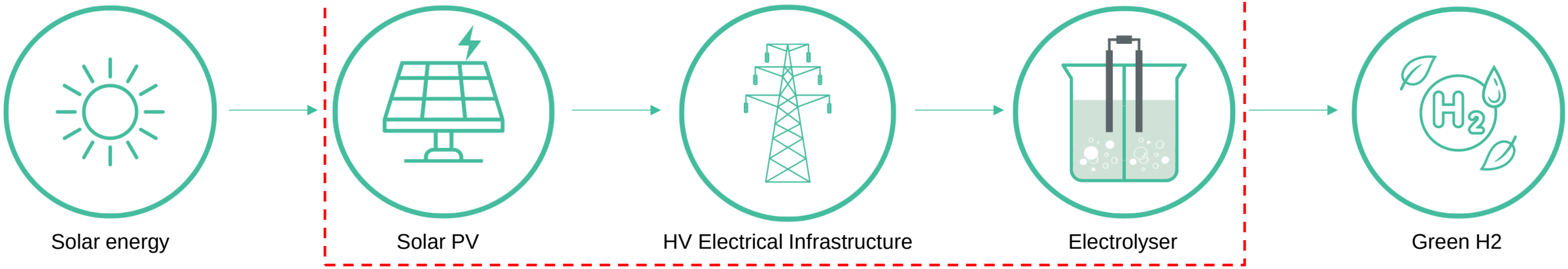
Simplicity Drives Low-Cost Potential

Photocatalysis



Low infrastructure requirements / capex

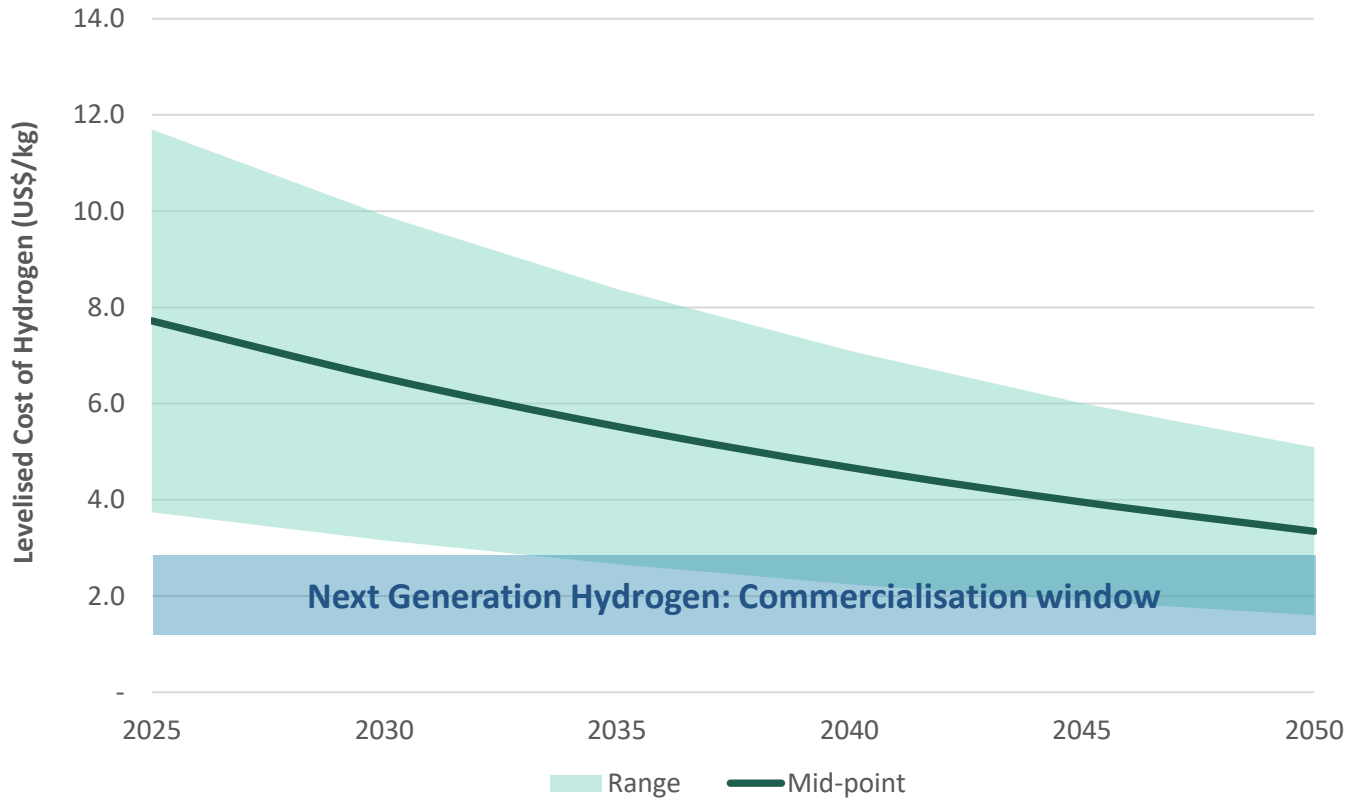
Electrolysis



The Green Hydrogen Race Is On…

- Conventional green hydrogen (electrolysis) projects will not reach industry and Government cost targets until well into the mid 2030s, at best.
- As the costs and limitations of electrolysis projects have become clear, there is an increasing push **towards developing new technologies** which can unlock the substantial opportunity for green hydrogen to decarbonize existing hydrogen use cases and other hard to abate industries.
- Sparc Hydrogen is in the **right place at the right time** with a substantial commercialisation window providing an opportunity for a next generation **low cost photocatalysis production** technology.

Green hydrogen production costs using electrolysis[1]



1. Bloomberg New Energy Finance, Green Hydrogen Goes From Hyped to Humbled on Eye-Popping Costs (Dec-24)

GRAPHENE

Unique Approach to a Next Generation Super-material

The Problem – Corrosion Of Steel

The Cost and Carbon Problem

- **~$6 trillion** direct and indirect costs associated with the impact of corrosion globally per annum[1]
- Corroded steel replacement accounts for up to **3.4% of global greenhouse gas (GHG) emissions[1]**

The Business Interruption Problem

- Asset shutdowns
- Productivity loss
- Safety risks

1. Iannuzzi, M., Frankel, G.S. The carbon footprint of steel corrosion. *npj Mater Degrad* **6**, 101 (2022)

Protective Coatings Market Opportunity

Global Anti-Corrosive Market Size:

US$43 Billion

by 2029[1]

ecosparc®

Addressable portion of global a/c market (25%)

Value of additive relative to coating (10%)

Est. Addressable Market ~US$1 Billion[2]

1. Estimate of the global anti-corrosion coating market by 2029. Sourced from Exactitude Consultancy https://exactitudeconsultancy.com/reports/3960/anti-corrosion-coatings-market/
2. Addressable market is calculated based on Sparc's estimate of the proportion of products in the global anti-corrosion coatings market suited to the ecosparc® product along with Sparc's proposed selling price relative to coating value

About ecosparc®

What is it?: ecosparc® is a graphene-based additive - Sparc is not a paint company.

Performance Boost: Added at ~2% by weight, **ecosparc®** significantly enhances existing protective coatings used on steel assets to combat corrosion.

Key Benefits: By extending the time between maintenance cycles, **ecosparc®** delivers substantial cost, emissions, productivity and safety benefits.

lower maintenance costs[1]

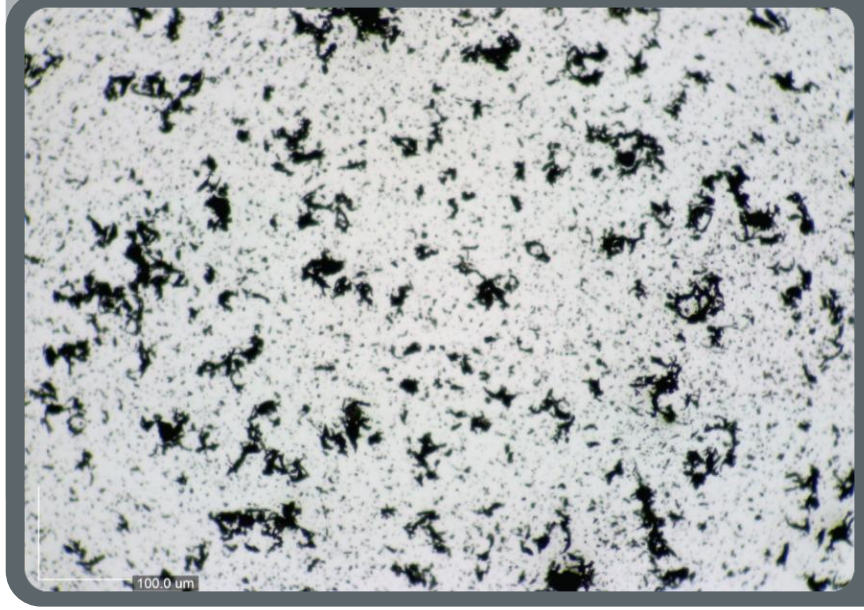
reduction in carbon emissions[1]

1. Bontick, P.A. (2023), Carbon footprint of ecosparc graphene additive for protective coating applications, Lifecycles, Melbourne, Australia

Overcoming The Graphene Challenge

*Sparc Technologies are world leaders in the **long-term stable dispersion** of graphene to facilitate its effective integration into polymer-based materials.*

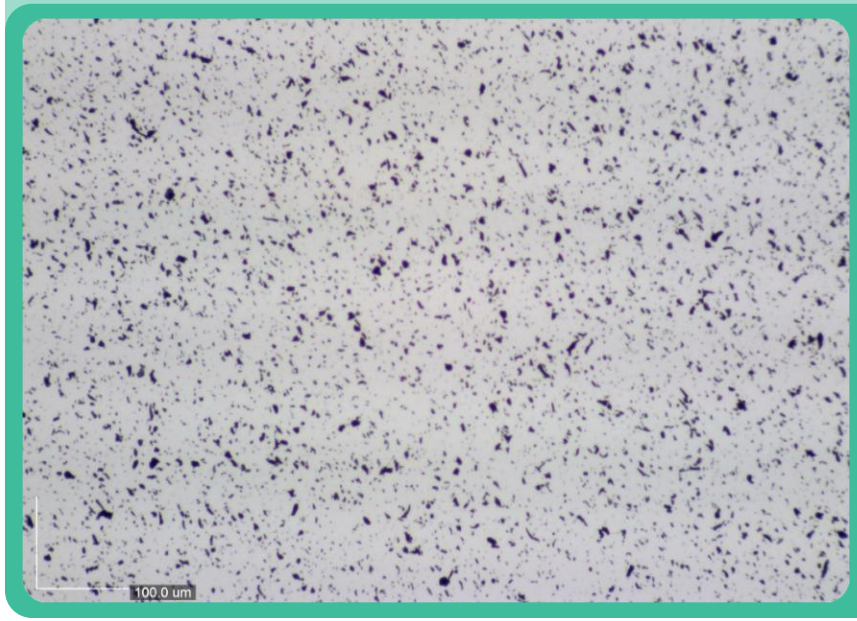
Re-agglomerated Graphene Post Dispersion



Dispersion Level

< 20%

ecosparc®



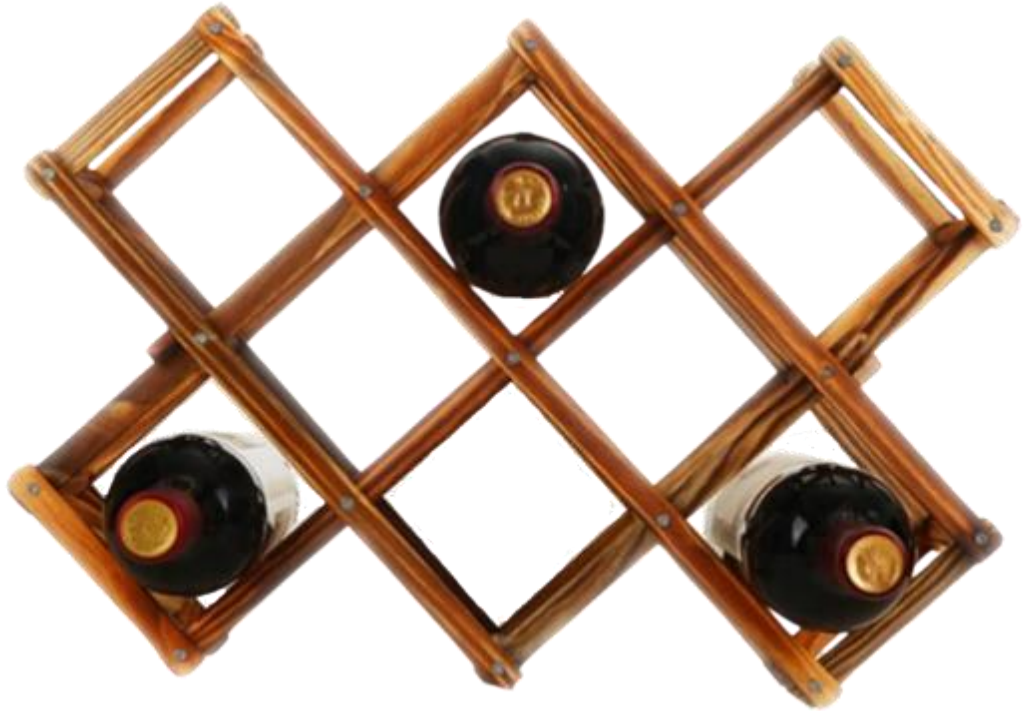
Dispersion Level

94%

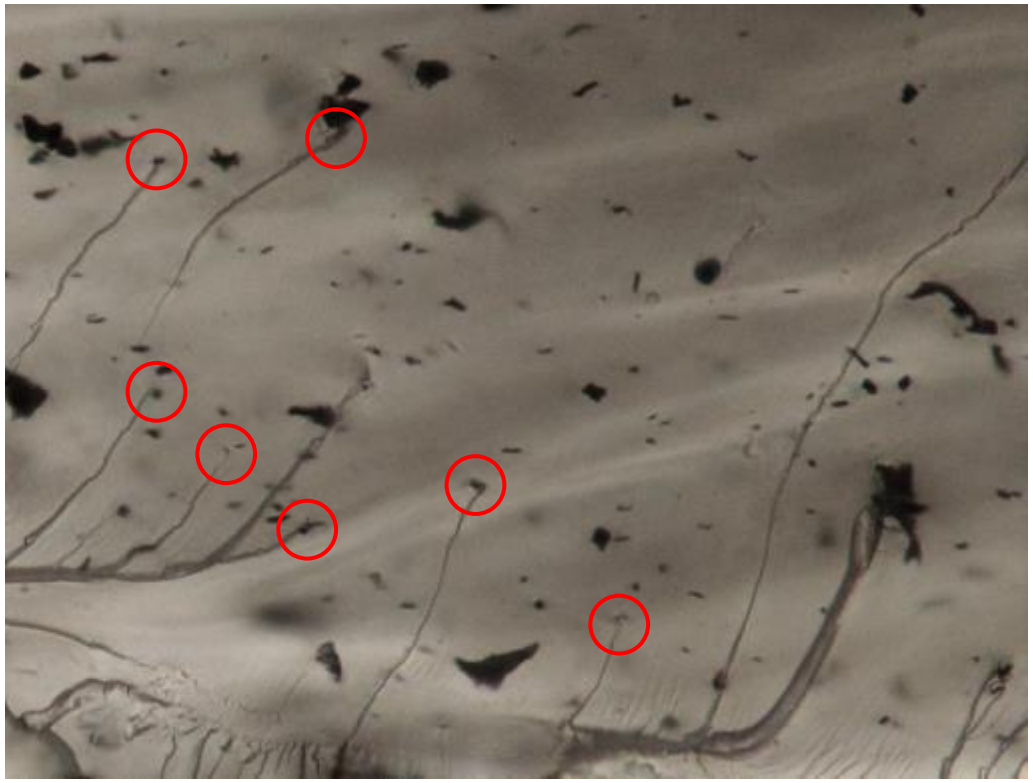
Effective dispersion of graphene particles has been a significant problem for the graphene industry since 2004

The dispersion level is the ratio of non-agglomerated particles to the total number of particles.
Results are determined using computer vision and machine learning

How Graphene Inhibits Cracking



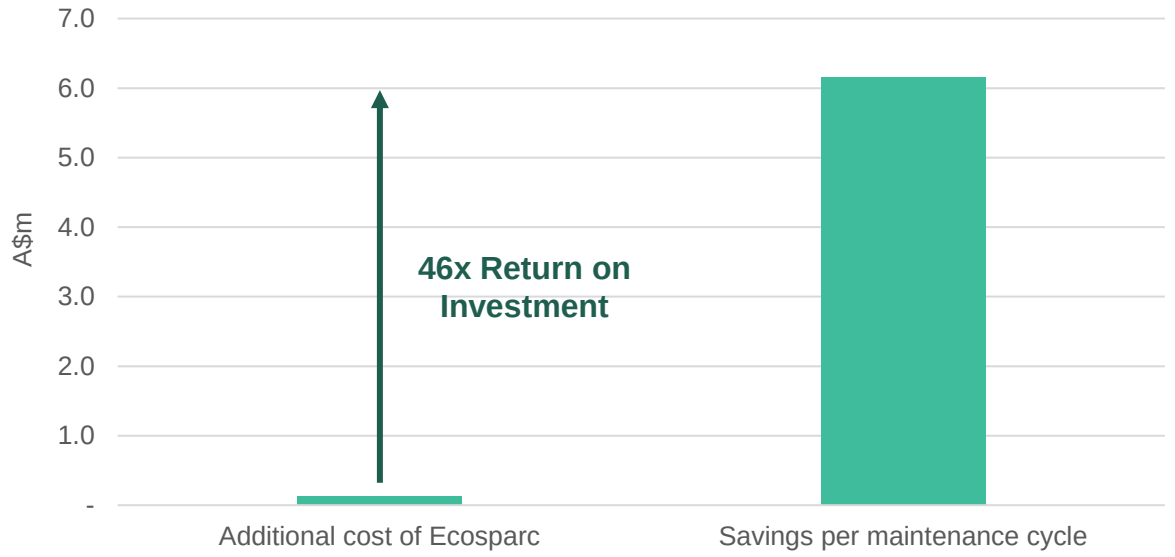
- Wine rack analogy – graphene flexes laterally and takes up stress from the polymer matrix, increasing resiliency.



- Fractured surface of graphene modified epoxy at high magnification shows cracks terminating at graphene particles.

Significant Value-in-Use For Asset Owners

- Independent **lifecycle assessment** (LCA)[3] completed in August 2023.
- Modelled impact of using **ecosparc®** enhanced paint on a major Australian port with 57,883m^2 of re-coatable steel.
- Cost and emissions savings over 50-year asset life were based on a conservative 26% improvement in corrosion resistance[4].
- Analysis **does not** include any returns from potential productivity benefits or life extensions.



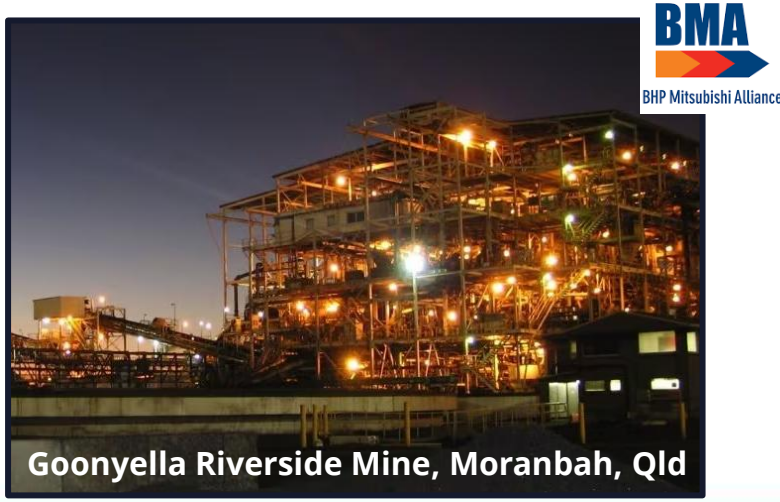
~750t
Lifetime reduction in carbon emissions[1]

~A$34m
Lifetime savings in steel recoating costs[1,2]

1. Bontick, P.A. (2023), Carbon footprint of ecosparc graphene additive for protective coating applications, Lifecycles, Melbourne, Australia
2. Cost savings accruing from both the reduction in paint use and fewer maintenance events
3. See ASX Announcement 30 August 2023
4. See ASX Announcement 12 September 2023

Field Trials With Major Asset Owners Underway

- In 2024, Sparc commenced collaborative field trials using **ecosparc®** enhanced coatings on relevant steel infrastructure in a variety of operational environments. The purpose of the field trials is as follows:
  - Derisking **ecosparc®** enhanced coatings for commercial use.
  - Demonstrating market interest for better performing anticorrosive coatings from significant asset owners.
  - Working towards inclusion of **ecosparc®** enhanced coatings on asset owner specifications.



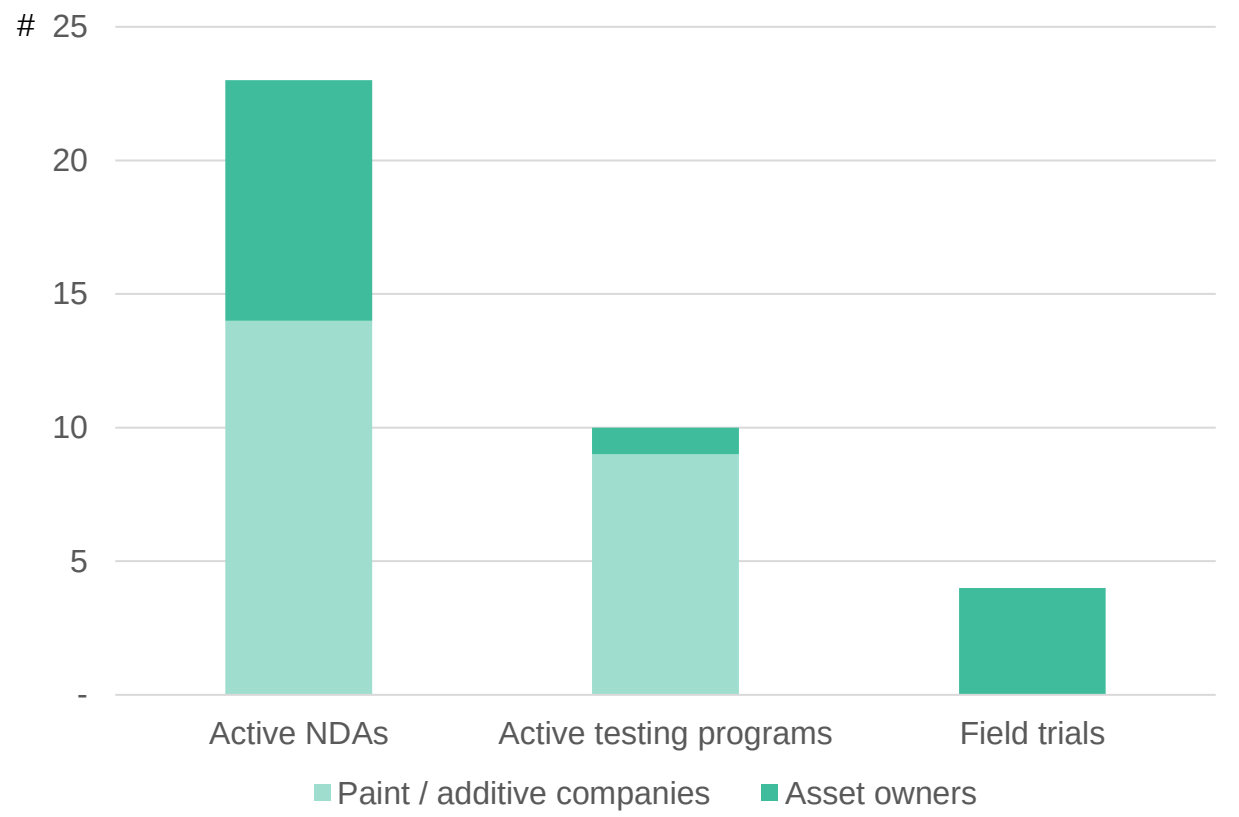
Pathway To Market

Dual track approach to commercialising ecosparc® within the US$43 billion[1] global anti-corrosive coatings market:

1. Sparc is actively working with global coatings companies, regional coatings companies and additive suppliers on testing and trials.

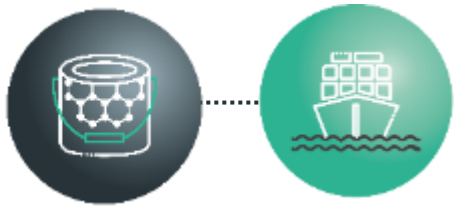
2. Partnering with large **asset owners** to test **ecosparc®** on relevant steel infrastructure under real-world conditions via field trials. Infrastructure owners being targeted include government, defence, mining, and oil and gas companies.

Customer Engagement Status[2]



1. Estimate of the global anti-corrosion coating market by 2029. Sourced from Exactitude Consultancy https://exactitudeconsultancy.com/reports/3960/anti-corrosion-coatings-market/
2. As at 12 March 2025

Other Target Applications



Anti-fouling Coatings

- Fouling is the result of accumulation of marine growth, resulting in reduced vessel speed, increased bunker consumption and high cleaning costs.
- Sparc is developing antifouling technology (**biosparc™**) which substantially reduces fouling on marine vessels and for aquaculture.
- Sparc, together with Flinders University, was recently awarded a **~$350k grant** from the Australian Government to further develop the technology.

Composites & Bioplastics

- Composites are two or more distinct materials that, when combined, create a new material with enhanced properties.
- Bioplastics are sourced from non-fossil fuel-based polymers and are being designed for compostability.
- Sparc's graphene additives are being tested in multiple applications in composites and bioplastics targeting improved flexibility, strength, conductivity and elasticity.

INVESTMENT OPPORTUNITY

Momentum Building With Delivery

2025 is a transformative year for Sparc Technologies – Green hydrogen derisking and ecosparc® commercialisation

☑	ecosparc field trial with Santos (Nov-24)
☑	Appointment of Genex Founding Director Simon Kidston to the Board (Dec-24)
☑	Sparc Hydrogen Proceeds to Stage 2 Pilot Plant (Jan-25)
☑	Sparc Hydrogen Secures First Patent (Jan-25)
☑	ecosparc field trial with BHP Mitsubishi Alliance (Feb-25)
☑	Construction of first-of-its kind pilot plant commences (Mar-25)
Q1/2 25	ecosparc field trial results and announcement of further asset owner trials
H1 25	Grant funding results
Mid 25	Pilot plant commissioning and operations
2025	ecosparc partnerships / commercialisation pathway

1. ASX Announcement 20 November 2024 Link
2. ASX Announcement 6 December 2024 Link
3. ASX Announcement 7 January 2025 Link
4. ASX Announcement 16 January 2025 Link
5. ASX Announcement 7 February 2025 Link
6. ASX Announcement 12 March 2025 Link

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