ASX ANNOUNCEMENT

13 August 2024

Sparc Files Provisional Patent Application for Photocatalyst Coatings

HIGHLIGHTS

- **Australian provisional patent application lodged in relation to Sparc's development of advanced coating systems for photocatalyst materials**
- **Synergistic application of Sparc's world-leading coatings and polymers expertise with its investment in Sparc Hydrogen**
- **Platform technology targeting higher efficiency, greater durability and improved handling of photocatalysts within water splitting reactors**
- **Intellectual property is 100% owned by Sparc Technologies**

Sparc Technologies Limited (**ASX: SPN**) (**Sparc, Sparc Technologies** or the **Company**) is pleased to announce that it has lodged an Australian provisional patent application associated with its work with the University of Adelaide in developing better performing photocatalyst coating systems for use in water-splitting reactors producing green hydrogen.

The provisional patent application has been submitted by Sparc on the back of >12 months of work with the University of Adelaide investigating alternate substrates, coating methods and delivery systems within photocatalytic water-splitting (**PWS**) reactors.

Initial proof of concept has been achieved with an analogue photocatalyst material demonstrating the potential to improve the current methods for coating and delivery of particulate photocatalysts to achieve higher solar to hydrogen efficiencies and lower operating costs through increased durability and better handling.

The majority of this work has been completed at the University of Adelaide with funding from Sparc Technologies. The techniques and methods described in the provisional patent application have been developed with a view to being relevant to application in Sparc Hydrogen's PWS reactors, albeit not exclusively. Sparc is supporting future R&D work on this project by funding a two-year Masters scholarship at the University of Adelaide which commenced in July 2024. Sparc owns 100% of the intellectual property developed within this project.

Sparc Managing Director, Mr. Nick O'Loughlin commented:

> *"The lodgement of this provisional patent application is significant not just insofar as the technology's potential to improve the cost and efficiency of photocatalytic water splitting systems, but also the synergies it demonstrates between Sparc's coatings and polymers expertise being applied to uplift the value of its investment in Sparc Hydrogen. Results in the lab are very encouraging and given the nascent stage of the PWS industry there is strong potential to deliver a highly relevant and complementary platform technology protected by IP which is 100% owned by Sparc Technologies."*

Advantages of Photocatalytic Water Splitting (PWS)

Sparc Hydrogen's utilisation of PWS technology is set apart from conventional approaches to produce green hydrogen. Crucially, PWS does not rely on renewable energy sources such as solar or wind farms, nor expensive electrolysers, to produce hydrogen from water. This addresses a fundamental issue in the nascent green hydrogen industry - the cost of renewable power. Sparc Hydrogen's pioneering technology employs a photocatalyst material and sunlight to produce 'ultra-green' hydrogen directly from water. Hydrogen produced from PWS can serve as a clean fuel or feedstock to decarbonise hard-to-abate industries. Sparc Hydrogen's key advantages over electrolysis include:

- Photocatalysis does not use electricity to produce hydrogen from water thereby decoupling green hydrogen and energy costs;
- The simplicity of PWS being a direct solar to hydrogen production system drives potential for very low costs;
- Sunlight is the only energy input driving the water-splitting process delivering 100% emissions free hydrogen;
- Sparc Hydrogen utilises concentrated solar infrastructure which is inherently flexible and scalable;
- PWS has a comparative advantage over electrolysis in off-grid and remote locations.

About Sparc Hydrogen

Sparc Hydrogen is a joint venture between Sparc Technologies, the University of Adelaide and Fortescue developing next generation green hydrogen technology using a process known as photocatalytic water splitting. This process requires only sunlight, water and a photocatalyst to produce green hydrogen, without an electrolyser. Sparc Hydrogen's patent pending reactor utilises concentrated sunlight to improve the economics of PWS and to deliver a modular, scalable system. Given lower infrastructure requirements and electricity use, PWS has the potential to deliver a cost and flexibility advantage over electrolysis.

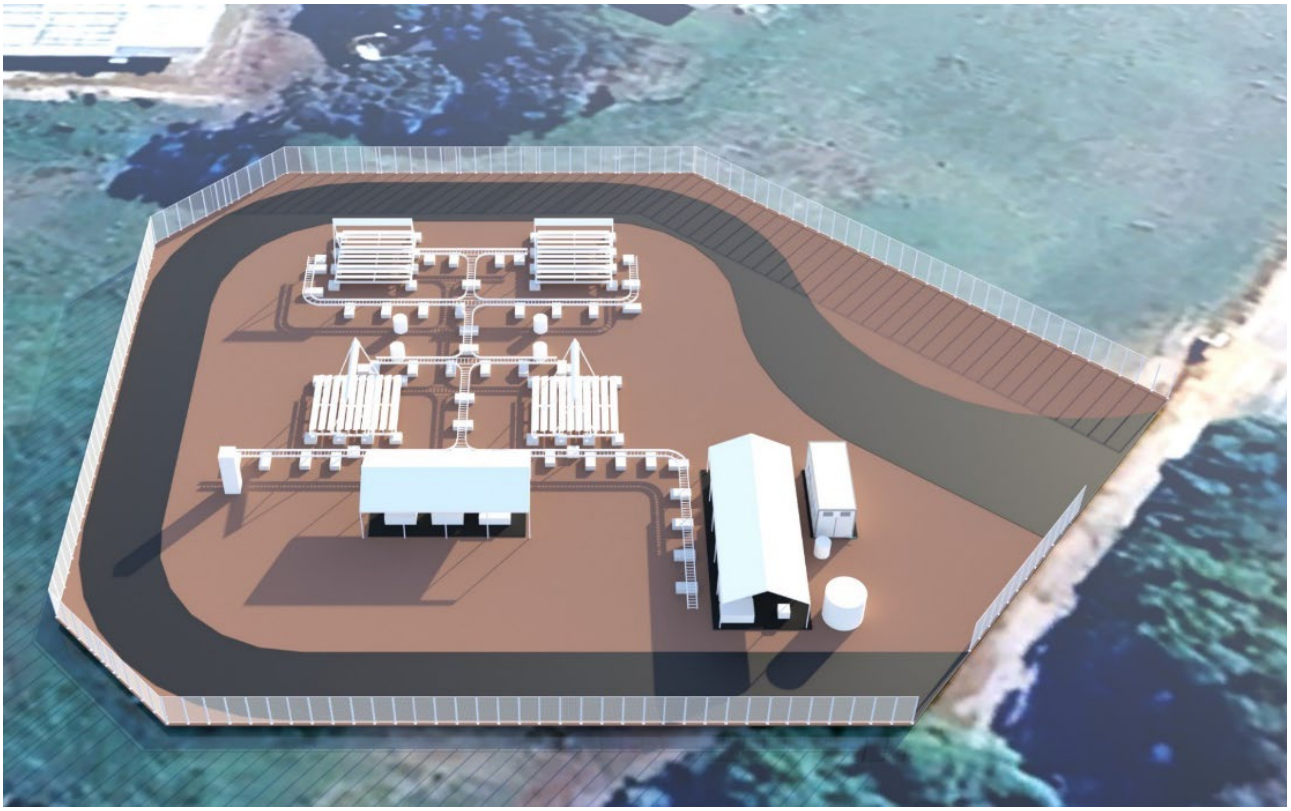

Figure 1: Sparc Hydrogen pilot plant 3D model

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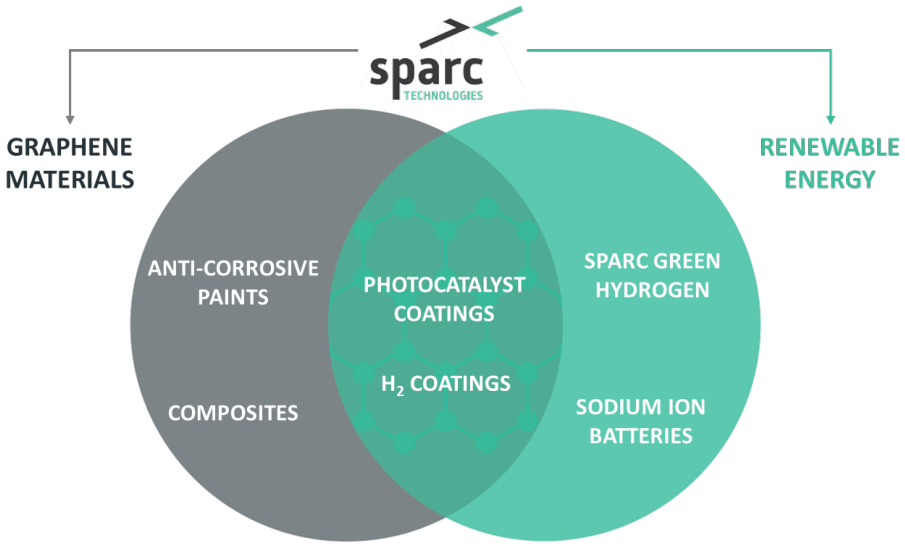
About Sparc Technologies



Sparc Technologies Limited ('Sparc', ASX: SPN) is an Australian company pioneering new technologies to disrupt and transform industry while seeking to deliver a more sustainable world. Sparc has established offices in Australia, Europe and North America and is focused on three core areas of technology development.

1. Sparc has spent over 5 years developing a **graphene based additive** product, **ecosparc®**, which has demonstrated 40% anti-corrosion improvement in commercially available epoxy-based coatings. Sparc recently commissioned a manufacturing facility to produce **ecosparc®** and is engaging with global coatings companies and asset owners to conduct field trials.

2. Sparc is the majority shareholder of **Sparc Hydrogen** which is a company pioneering the development of **photocatalytic water splitting** ('PWS') green hydrogen production technology. PWS is an alternative to producing green hydrogen via electrolysis, using only sunlight, water and a photocatalyst. Given lower infrastructure requirements and energy use, the process has the potential to deliver a cost and flexibility advantage over electrolysis.

3. Sparc is also developing sustainable **sodium ion battery anode technology** utilising agricultural bio-waste feedstock.

For more information please visit: sparctechnologies.com.au

For more information about **ecosparc®** please visit: ecosparc.com.au

For more information about Sparc Hydrogen please visit: sparchydrogen.com