

Sparc Hydrogen tests prototype photocatalytic water-splitting reactor

Sparc Hydrogen has successfully tested a green hydrogen tech prototype and is now advancing to a pilot plant study near Adelaide, Australia.

NOVEMBER 28, 2023 **BELLA PEACOCK**

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Image: CSIRO, Sparc Technologies

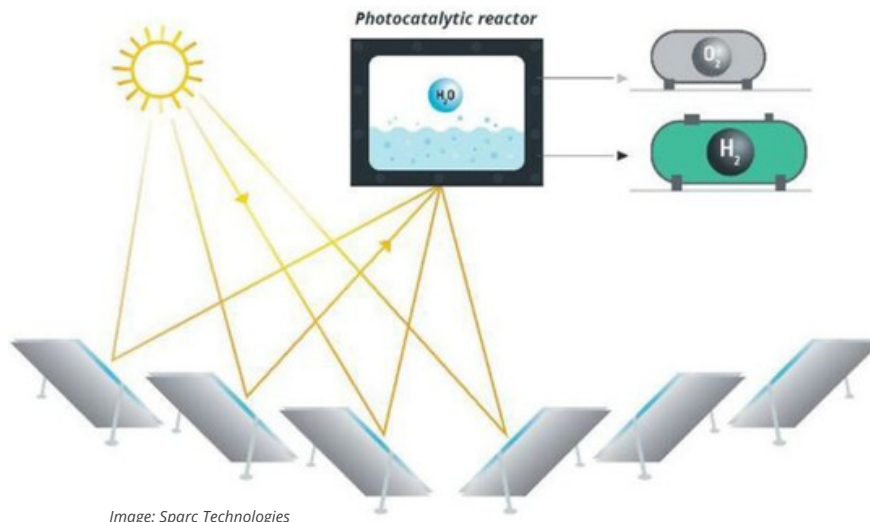
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Sparc Hydrogen, a joint venture involving Sparc Technologies, Fortescue, and the University of Adelaide, has successfully demonstrated its prototype photocatalytic water-splitting reactor at a Commonwealth Scientific and Industrial Research Organisation (CSIRO) facility in Newcastle, Australia. The venture aims to advance next-generation green hydrogen technology.

An alternative to making green hydrogen via electrolysis, photocatalytic water splitting instead relies directly on sunlight, water and a photocatalyst. Sparc Hydrogen is developing a photocatalytic reactor, patent pending, which seeks to efficiently take hydrogen from water molecules using concentrated solar.

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The CSIRO has been operating a concentrated solar thermal plant known as the [CSIRO Energy Centre](#) in Newcastle, New South Wales, where Sparc Hydrogen recently completed its initial testing.

“The data and learnings from the repeated on-sun trials are invaluable and will improve reactor design as we continue to scale the technology towards a pilot plant,” said Sparc Technologies Executive Chair Stephen Hunt.

The company said it has been working with an unnamed external consultant to complete a pilot plant study. It said that study will be completed before the year is out and is based on a site location “proximal to Adelaide.”

It will incorporate a concept flowsheet design, equipment selection, costs, risks and opportunities for a pilot plant which will enable continuous on-sun testing of the technology, the company said, noting the plant’s commissioning would be the next stage in its technology’s readiness.

“The study will provide valuable information for grant applications and will form the basis for detailed design and engineering in 2024,” Sparc Hydrogen said.

Sparc Hydrogen believes photocatalytic water splitting can deliver cost and exibility advantages over electrolysis because of its lowered infrastructure and electricity requirements. The company has been [awarded](#) almost \$500,000 (USD 315,000) by the Australian government to support the development of its photocatalytic technology

Sparc Technologies, the majority stakeholder in Sparc Hydrogen, collaborates with Queensland University of Technology (QUT) on sodium-ion battery technology and works on a graphene-based additive to combat steel corrosion.

[Earlier this year](#), Sparc and QUT said their multiple trials had produced anodes averaging about 45% higher reversible capacities compared to commercial hard carbon anode materials.

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Bella completed her MA in English Studies at the Freie Universität Berlin, living and working in Berlin and Sarajevo for four years before returning home to Australia in 2019. She joined pv magazine Australia in 2020, after 18 months working as a digital producer for Nine, and has since become completely engrossed by the world of renewable energy, technology and sustainability.

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