

Scale Up and Demonstration of Next Generation CSIRO Axial Flow Electrolyser for Green Hydrogen Production



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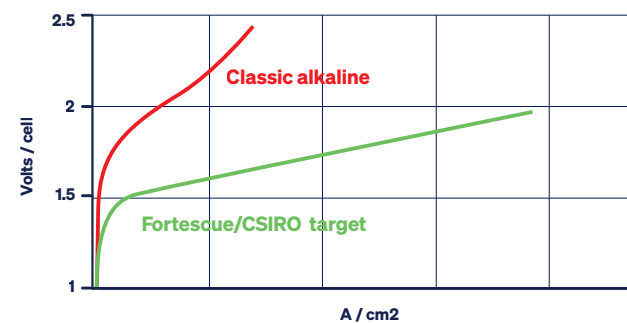
Abstract

Fortescue will develop and deploy the Commonwealth Scientific and Industrial Research Organisation (CSIRO) patented axial flow electrolyser. Next-generation cell design will advance the state-of-the-art in Alkaline Electrolysis at TRL 5, while a process for cell mass production and a scalable stack design will be completed; these learnings forming the basis for a detailed commercialisation plan. A 20kW demonstrator (TRL 6) will then be assembled and tested for performance and long-term durability. A 200kW hydrogen production system (TRL 8) ultimately deployed, targeting subsequent commercialisation by Fortescue as well as deployment for internal hydrogen supply.



Objectives

- Realise a new concept for alkaline electrolysis – the electrochemical flow cell
- Demonstrate as operating, large-scale hydrogen production system
- CSIRO-patented technology and Fortescue production know-how, to design best-in-class performance in a low-cost, highly scalable & manufacturable water electrolyser



Technical Activities

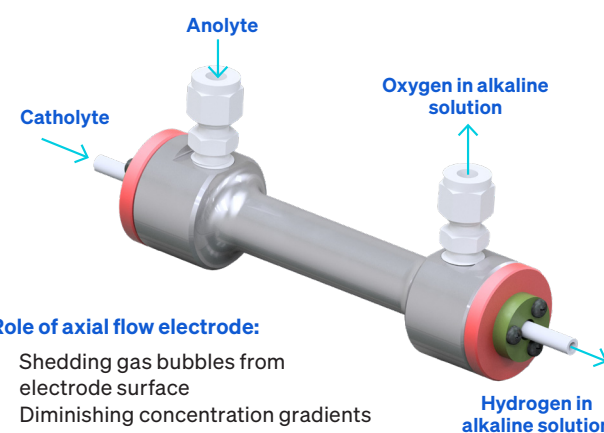
R&D Stage:

- CSIRO: CFD (computational fluid dynamics) Modelling, Electrolysis cell development, multi-cell test system
- Fortescue: Cell Production & Manufacturing, Stack design, techno-economic and lifecycle analysis

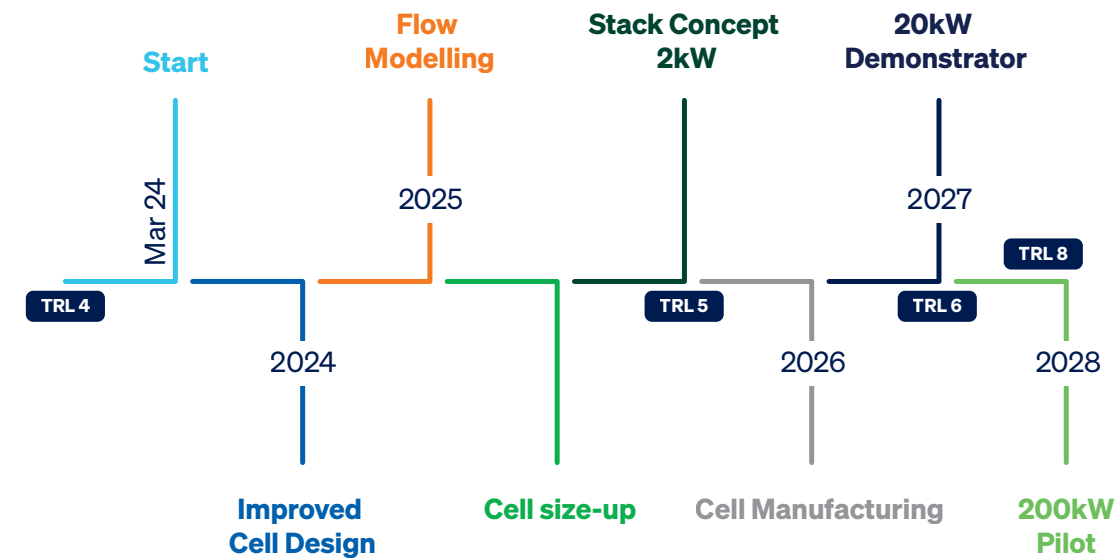
Research Commercialisation Stage:

- A 20kW prototype
- Commercialisation Plan
- 200kW pilot plant

CSIRO Axial Flow Electrolysis Cell



Development Plan



R&D phase > Research commercialisation phase

Outcomes

- Accelerate commercialisation of renewable hydrogen through innovative R&D in production technologies
- Increased academic research capacity in the Australian hydrogen sector
- Facilitation of collaboration between research groups and industry
- Improvement in the technology readiness and commercial readiness of hydrogen production technologies.

“Australian technology, enhancing Australian hydrogen production capability, capacity and efficiency”

Research Teams



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