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## Next steps for pioneering renewable hydrogen technology

On behalf of the Australian Government, the Australian Renewable Energy Agency (ARENA) has today announced \$20.9 million for Wollongong-based startup Hysata to demonstrate their next generation hydrogen electrolyser technology at commercial scale.

Hysata will develop and test a 5 MW unit at their new manufacturing facility in Port Kembla. The electrolyser array will then be installed in situ for further testing and validation before it is relocated to Queensland.

Queensland government-owned power company Stanwell Corporation is backing the project with \$3 million, as well as providing the site and facilities for the field deployment of the electrolyser.

The demonstration unit will be installed adjacent to the Stanwell Power Station near Rockhampton, Queensland. The site has available land, water and grid connection capacity.

Spun out of ARENA-funded research at the University of Wollongong, Hysata was established to commercialise this pioneering electrolysis technology.

Hysata's proprietary 'capillary fed' electrolyser cell eliminates almost all resistance in the electrolysis process. Existing electrolysers face energy losses from electrical resistance and gaseous bubbles forming on electrodes, reducing the overall efficiency of the system.

Hysata's technology has been proven to produce hydrogen with 95% (41.5 kWh/kg) efficiency, well ahead of incumbent technologies that operate with efficiencies close to 75% (52.5 kWh/kg).

This has the potential to reduce the cost of renewable hydrogen production through reduced electricity inputs. The technology also offers lower balance of plant costs, with reduced electrical resistance resulting reduced cooling requirements.

If delivered at scale, these reduced input costs will help lower the levelised cost of hydrogen, making renewable hydrogen a commercially viable energy resource.

ARENA has previously awarded Hysata \$8.98 million under the German-Australian HyGATE program, with an additional contribution from the German Government's Federal Ministry of Education and Research (BMBF) of €5.9 million.

With the help of the [HyGATE grant](#), Hysata is currently working on the development of a 200 kW electrolyser system that will demonstrate the key components of the 5 MW commercial scale demonstration unit.

ARENA CEO Darren Miller said the project is a crucial step to enabling purchase orders for the technology.

"Hysata is a great example of Australian innovation leading the way in renewable energy. This electrolyser technology could be a game-changer for renewable hydrogen," Mr. Miller said.

"The demonstration at Stanwell's site will be key to unlocking commercial demand for Hysata's product by proving the technology works at scale.

ARENA has been involved in this technology since it was just a concept in a laboratory, so we're pleased to be supporting this next step toward commerciality.

Identifying promising renewable energy solutions and helping them along the innovation chain is what ARENA does best."

Hysata CEO Paul Barrett said this was a significant milestone in Hysata's plans to rapidly scale its groundbreaking technology needed to accelerate the world's transition to net zero emissions.

"Hysata is proud to be partnering with ARENA and Stanwell to enter our next phase of commercialisation.

"Green hydrogen is critical for decarbonisation of hard-to-abate sectors, and we are committed to helping our customers deliver the world's lowest cost green hydrogen.

"With exceptional 95% (41.5 kWh/kg) efficiency combined with cost-effective materials and reduced engineering,

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procurement and construction (EPC) costs, Hysata's electrolyser will transform the economics of green hydrogen production.

"We look forward to creating more local jobs and strengthening Australia's sovereign manufacturing capabilities through this project, which will pave the way for Hysata's scaling to fulfil a multi-billion-dollar pipeline of orders from around the world."

Stanwell CEO Michael O'Rourke said the support for Hysata's Technology commercialisation was another important step in Stanwell's goal to driving the development of Queensland's renewable hydrogen industry.

"We are excited to support Hysata by facilitating the commercialisation of this innovative Australian-made technology through a field pilot," Mr O'Rourke said.

"The development of a renewable hydrogen industry is a key component of our energy transformation. The potential to utilise high efficiency Australian technology in large-scale hydrogen projects would be a real advantage."

Initial development of the system is currently underway, with the field pilot at Stanwell due to commence in 2025.