

Media Release

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Hydrogen project wins multi-million-dollar grant to help shift to clean energy

A Curtin University project which could significantly help the global shift to clean energy and see Perth become a hydrogen production hub, has been awarded \$5 million in funding from the Australian Renewable Energy Agency (ARENA).

Working in partnership with Velox Energy Materials, the Kotai Hydrogen Project will use a new method of hydrogen production and transportation developed by Curtin's [Hydrogen Storage Research Group](#) (HSRG) at a pilot facility to be built in Perth.

Head of the HSRG, John Curtin Distinguished Professor [Craig Buckley](#), said the Kotai Hydrogen Project could have a major positive impact on local industry and be a significant step towards zero net emissions.

“Our aim is to provide a circular hydrogen export value chain,” Professor Buckley said.

“The initial research component of the project will feed into the commercial stage, where a pilot facility will be designed and built in Perth to evaluate the technology for large-scale production directly from renewable electricity.”

Hydrogen has long been identified as a clean energy source, however there are challenges in transporting it affordably and practically.

One established method is using sodium borohydride powder as a carrier for transporting hydrogen, however it isn't popular because the by-product left behind, known as sodium metaborate, has always been expensive to recycle.

Until now.

The HSRG research team are developing a new, renewable way of exporting hydrogen as a powder, which is safer and cheaper than other methods.

Their [award-winning](#) chemical process and catalyst has the potential to quickly and cheaply revert sodium metaborate back to sodium borohydride, enabling it to be reused to transport hydrogen.

Professor Buckley said this was a crucial breakthrough.

“The lower costs attached to this method's production and transport could make it potentially the cheapest means of exporting hydrogen from Australia,” Professor Buckley said.

“This method could play a part in meeting the rapidly rising global demand for Australian hydrogen.”

Curtin Institute for Energy Transition Director Professor Peta Ashworth said the project was important on a global scale.

“The whole world has been working to reduce the end-to-end costs of clean hydrogen,” Professor Ashworth said.

“Having been involved in the early development of Australia’s Hydrogen Strategy, it is fantastic to see Australia playing a significant part in delivering on that aspiration through this funded Curtin research.”

Curtin and Velox Energy Materials will also contribute an additional combined cash commitment towards the overall project.

ARENA chief executive officer Darren Miller said pushing innovation and funding early-stage research and development was at the core of ARENA’s mission to support the global transition to net zero emissions.

“We’re backing Australian technological innovation that helps build our clean industries and underpins our ambitions of becoming a renewable energy superpower,” Mr Miller said.

“Through our strategic priorities, we have highlighted the importance of renewable hydrogen and low emissions metals growing to become a significant export industry.

“Innovation starts in the lab and we have the best minds taking our decarbonisation efforts to the next level – to the benefit of all Australians through jobs, lower emissions and cheaper energy.”

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Notes to Editor:

About Curtin University

Curtin University is Western Australia's largest university, with close to 60,000 students. In addition to the University's main campus in Perth, Curtin also has a major regional campus in Kalgoorlie, and a campus in Midland, as well as four global campuses in Malaysia, Singapore, Dubai and Mauritius. Curtin staff and students come from Australia and more than 140 other countries around the world, with about half our international students studying at Curtin's offshore campuses.

Curtin is ranked in the top one per cent of universities worldwide, with the University placed 9th in Australia according to the [Academic Ranking of World Universities \(ARWU\) 2023](#) and has achieved a QS Five Stars Plus rating, the highest available for a tertiary institution, and one of only six to do so in Australia.

The University has built a reputation around innovation and an entrepreneurial spirit, being at the forefront of many high-profile research projects in astronomy, biosciences, economics, mining and information technology. It is also recognised globally for its strong connections with industry, and for its commitment to preparing students for the jobs of the future.

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