

ARENA

ARENA-FUNDED HYDROGEN PROJECTS AND REPORTS

JUNE 2020

Organisation	Project Title	Project Summary	ARENA Funding	Total Project Cost	Type of Project	Category / Supply chain	Year Funded	State	Key Contact	Key Contact Email	ARENA Project Page
Yara Pilbara Fertilisers Pty Ltd	Yara Pilbara Renewable Ammonia Feasibility Study	A feasibility study for a demonstration of renewable ammonia production and export in the Pilbara. The study will evaluate the implications of integrating new renewable hydrogen into Yara's existing operations.	\$1.0M	\$3.7M	Feasibility Study	Hydrogen / Ammonia Production	2020	WA	Luke Blackburn	luke.blackbourn@yara.com	https://arena.gov.au/projects/yara-pilbara-renewable-ammonia-feasibility-study/
Stanwell Corporation Ltd	Stanwell hydrogen project demonstration project	A study to assess the technical and economic feasibility of the installation of 10 MW (or greater) electrolyser at the Stanwell Power Station, Qld. The study will provide key insights for integrating electrolysers with existing power stations including electrical connections, land requirements and water requirements.	\$2.5M	\$5.0M	Feasibility Study	Hydrogen Production	2020	QLD	Philip Richardson	philip.richardson@stanwell.com	https://arena.gov.au/projects/stanwell-hydrogen-electrolysis-deployment-feasibility-study/
BP Australia Pty Ltd	Project GERI Feasibility Study	The Geraldton Export-Scale Renewable Investment (GERI) Feasibility Study will explore the potential for developing a green Hydrogen and Ammonia production supply chain.	\$1.7M	\$4.7M	Feasibility Study	Hydrogen / Ammonia Production	2020	WA	Kenneth Kong	Kenneth.Kong@bp.com	https://arena.gov.au/projects/project-geri-feasibility-study/
APA Group	Wallumbilla Renewable Methane Demonstration Project	APA Group will build a modular renewable methane production demonstration plant at their Wallumbilla Gas hub near Roma in Queensland.	\$1.1M	\$2.2M	Demonstration	Hydrogen Production	2020	QLD	Rohan Gillespie	rohan.gillespie@bigpond.com	https://arena.gov.au/projects/apa-renewable-methane-demonstration-project/
Australian Gas Infrastructure Group (AGIG)	Blending hydrogen into Victorian and South Australian gas infrastructure - Feasibility studies	A series of studies looking at the feasibility of blending hydrogen into the natural gas network in South Australia and Victoria.	\$1.3M	\$4.2M	Feasibility Study	Hydrogen Production, Power to Gas	2020	SA	Vikram Singh	Vikram.Singh@agig.com.au	https://arena.gov.au/projects/australian-hydrogen-centre/
Queensland Nitrates Pty Ltd (QNP)	Queensland Nitrates Feasibility Study for a Green Hydrogen and Ammonia Project	A demonstration of renewable hydrogen technologies to produce renewable ammonia at the Queensland Nitrates plant in Moura, Qld.	\$1.9M	\$3.8M	Feasibility Study	Hydrogen / Ammonia Production	2019	QLD	David Armstrong	david.armstrong@qnp.com.au	https://arena.gov.au/projects/feasibility-study-for-a-green-hydrogen-and-ammonia-project/
Dyno Nobel Moranbah Pty Ltd	Dyno Nobel Expansion of Moranbah - Feasibility of Renewable ('Green') Hydrogen	A feasibility study of hydrogen technologies to expand the Dyno Nobel Moranbah facility to produce ammonia from renewable hydrogen.	\$1.0M	\$3.0M	Feasibility Study	Hydrogen / Ammonia Production	2019	QLD	Darren Jarvis	darren.jarvis@incitecpivot.com.au	https://arena.gov.au/projects/feasibility-of-renewable-green-hydrogen/
Hazer Group Limited	The Hazer Process; Commercial Demonstration Plant	Commercial demonstration of the Hazer hydrogen production technology which converts biogas from sewage treatment and iron ore into hydrogen and graphite.	\$9.4M	\$22.6M	Demonstration	Hydrogen Production, Graphite Production	2019	WA	Geoff Ward	gward@hazergroup.com.au	https://arena.gov.au/projects/the-hazer-process-commercial-demonstration-plant/
RMIT University	RMIT University Melbourne Hydrogen Storage and Transport R&D Project	The project aims to develop an integrated system for storage of electricity from renewable energy and export the stored energy as hydrogen within hydrogenated carbon-based material	\$0.8M	\$1.8M	R&D	Hydrogen Carrier	2018	VIC	John Andrews	john.andrews@rmit.edu.au	https://arena.gov.au/projects/proton-flow-reactor-system/
Commonwealth Scientific and Industrial Research Organisation (CSIRO)	CSIRO Methane Fuel Carrier R&D Project	The project will investigate the production of synthetic methane as a readily exportable, renewable fuel, derived from atmospheric carbon dioxide and hydrogen produced from renewable sources.	\$1.1M	\$2.2M	R&D	Hydrogen Carrier	2018	NSW	Paul Feron	paul.feron@csiro.au	https://arena.gov.au/projects/methane-fuel-carrier/
Commonwealth Scientific and Industrial Research Organisation (CSIRO)	CSIRO Hydrogen to Ammonia R&D Project	The project aims to develop an ammonia production process which is less energy intensive than the conventional Haber-Bosch process and does not contribute to any greenhouse gas emissions.	\$1.2M	\$2.8M	R&D	Renewable Ammonia	2018	VIC	Sarbjit Giddey	sarb.giddey@csiro.au	https://arena.gov.au/projects/hydrogen-to-ammonia/
Macquarie University	Macquarie University Biological Hydrogen Production R&D Project	The project aims to produce a bacteria that can efficiently and rapidly convert sugars from various renewable sources into hydrogen gas.	\$1.1M	\$2.8M	R&D	Hydrogen Production	2018	NSW	Robert Willows	robert.willows@mq.edu.au	https://arena.gov.au/projects/biological-hydrogen-production/
Australian National University	ANU Hydrogen Generation by Electro-Catalytic Systems R&D Project	The project will use biologically inspired catalysts with gas permeable electrode surfaces to develop a simpler and more efficient hydrogen generating electrolysis technology.	\$0.6M	\$1.8M	R&D	Hydrogen Production	2018	ACT	Ronald Pace	ron.pace@anu.edu.au	https://arena.gov.au/projects/bio-inspired-hydrogen-generation/
Australian National University	ANU - Solar Hydrogen Generation R&D Project	The project investigates the fabrication and integration of low-cost semiconductors and earth abundant catalysts to address one of the most significant challenges for hydrogen production: the development of efficient, stable and cheap solar water splitting systems.	\$1.6M	\$4.3M	R&D	Hydrogen Production	2018	ACT	Kylie Catchpole	kylie.catchpole@anu.edu.au	https://arena.gov.au/projects/efficient-solar-hydrogen-generation/
Australian National University	ANU Direct Water Electrolysis R&D Project	This project focusses on developing material technologies for the direct production of gaseous hydrogen using sunlight. The project aims to demonstrate a photo electrochemical system using III-V multi-junction semiconductors through cost-effective epitaxial lift-off techniques that are surface modified.	\$1.2M	\$3.4M	R&D	Hydrogen Production	2018	ACT	Chennupati Jagadish	Chennupati.Jagadish@anu.edu.au	https://arena.gov.au/projects/direct-water-electrolysis/

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Commonwealth Scientific and Industrial Research Organisation (CSIRO)	CSIRO Liquid Fuel Carrier R&D Project	The project proposes a game changing technology for conversion of solar energy to liquid fuels. Both solar heat and solar PV electricity will be used to drive a solid oxide electrolyser device for a production of hydrogen and syngas which then can be converted onsite into transportable liquid fuels enabling large-scale energy export and storage.	\$1.0M	\$2.5M	R&D	Hydrogen Carrier	2018	VIC	Aniruddha Kulkarni	aniruddha.kulkarni@csiro.au	https://arena.gov.au/projects/liquid-fuel-carrier/
Monash Energy Materials and System Institute (MEMSI)	Monash Water splitting electrodes R&D Project	The project will develop scalable methods for the fabrication of efficient, low-cost and robust electrodes for hydrogen production from renewable energy sources via electrochemical water splitting.	\$1.1M	\$3.7M	R&D	Hydrogen Production	2018	VIC	Alexandr Simonov	alexandr.simonov@monash.edu	https://arena.gov.au/projects/low-cost-robust-high-activity-water-splitting-electrodes/
Monash Energy Materials and System Institute (MEMSI)	Monash Ammonia production from renewables R&D Project	The project will develop high-performing electrodes for direct electrochemical conversion of atmospheric nitrogen to ammonia - a readily exportable carrier of renewable energy.	\$0.9M	\$2.7M	R&D	Renewable Ammonia	2018	VIC	Douglas MacFarlane	douglas.macfarlane@monash.edu	https://arena.gov.au/projects/ammonia-production-from-renewables/
University of Melbourne	University of Melbourne Hydrogen Fuelled Reciprocating Engines R&D Project	This project will demonstrate the performance and the value of highly efficient, reciprocating engines operating on renewable hydrogen.	\$2.6M	\$8.6M	R&D	End Use, Engines	2018	VIC	Michael Brear	mjbrear@unimelb.edu.au	https://arena.gov.au/projects/enabling-efficient-affordable-robust-renewable-hydrogen/
Queensland University of Technology	QUT Hydrogen process R&D Project	The project develops a scalable and systematic process to evaluate the viability of decentralised and regional-scale renewable energy hybrid systems to generate hydrogen from sustainable resources.	\$3.4M	\$8.4M	R&D	Whole supply chain	2018	QLD	Ian Mackinnon	ian.mackinnon@qut.edu.au	https://arena.gov.au/projects/qut-hydrogen-process-research-and-development/
The University of Western Australia	UWA Methanol from Syngas R&D Project	The project seeks to develop an innovative and miniaturised process technology for synthesising renewable methanol from bio-syngas and demonstrate the technology in a laboratory-scale pilot plant for engineering and economic studies.	\$1.1M	\$2.9M	R&D	Hydrogen Carrier	2018	WA	Dongke Zhang	Dongke.Zhang@uwa.edu.au	https://arena.gov.au/projects/uwa-methanol-from-syngas-research-and-development/
The University of New South Wales	UNSW Sydney Photovoltaic Electrolysis to Generate Hydrogen R&D Project	The project aims to lower the cost of renewable hydrogen produced via Photovoltaic Electrolysis (PVE) by improving the energy efficiency of transition metal-based alkaline water electrolyzers and the overall solar to hydrogen conversion efficiency of PVE systems.	\$1.3M	\$5.0M	R&D	Hydrogen Production	2018	NSW	Rose Amal	r.amal@unsw.edu.au	https://arena.gov.au/projects/highly-efficient-and-low-cost-photovoltaic-electrolysis-pve-system-to-generate-hydrogen-by-harvesting-the-full-spectrum-of-sunlight/
The University of New South Wales	UNSW Sydney Waste Biomass to Renewable Hydrogen R&D Project	The project aims to develop a biomass reforming system capable of extracting hydrogen and/or hydrogen-carriers, such as bio-alcohols and bio-acids, from biomass.	\$1.0M	\$2.5M	R&D	Hydrogen Production	2018	NSW	Jason Scott	jason.scott@unsw.edu.au	https://arena.gov.au/projects/waste-biomass-to-renewable-hydrogen/
Commonwealth Scientific and Industrial Research Organisation (CSIRO)	CSIRO Solar Thermochemical Hydrogen R&D Project	The project will thermally split water to produce hydrogen using concentrate solar energy at temperatures of 1300 °C. The project will utilise a newly developed catalyst to perform the splitting reaction in two steps, enabling hydrogen and oxygen to be produced separately.	\$2.0M	\$4.0M	R&D	Hydrogen Production	2018	NSW	Robbie McNaughton	Rob.Mcnaughton@csiro.au	https://arena.gov.au/projects/solar-thermochemical-hydrogen-research-and-development/
BOC	Bulwer Island, Queensland, Renewable Hydrogen Production and Refuelling Project	Demonstration of renewable hydrogen production at Bulwer Island, Qld and a hydrogen refueling station in Brisbane, Qld.	\$1.0M	\$4.2M	Demonstration	Hydrogen Production, Hydrogen Fuel Cell Vehicles	2018	QLD	Kevin Peakman	kevin.peakman@boc.com	https://arena.gov.au/projects/renewable-hydrogen-production-and-refuelling-project/
Jemena Limited	Power to Gas Demonstration	Demonstration of a Power-to-Gas facility which will source renewable electricity and convert it into hydrogen via electrolysis. The majority of the hydrogen produced will be injected into the gas network, providing enough energy to meet the cooking, heating and hot-water requirements of approximately 250 homes.	\$7.5M	\$13.2M	Demonstration	Hydrogen Production, Power to Gas	2018	NSW	Mike Davis	mike.davis@jemena.com.au	https://arena.gov.au/projects/jemena-power-to-gas-demonstration/
Toyota Motor Corporation Australia Ltd	Toyota Ecopark Hydrogen Demonstration	Transformation of part of the decommissioned Toyota car manufacturing plant in Altona, Victoria into a renewable energy hub to produce green hydrogen for transport.	\$3.1M	\$7.4M	Demonstration	Hydrogen Production, Hydrogen Fuel Cell Vehicles	2018	VIC	Matthew Macleod	matthew.macleod@toyota.com.au	https://arena.gov.au/projects/toyota-ecopark-hydrogen-demonstration/
ATCO Gas Australia Pty Ltd	Jandakot Commercial Hybrid Energy H2 Microgrid (ATCO H2 Microgrid)	The ATCO Hydrogen Microgrid project incorporates the production, storage and use of hydrogen, as well as the commercial application of clean energy in micro-grid systems. The project included optimising hydrogen storage solutions, blending hydrogen with natural gas and using hydrogen a direct use fuel.	\$1.8M	\$3.7M	Demonstration	Hydrogen Production, Microgrid	2018	WA	Samuel Lee Mohan	Samuel.Leemohan@atcogas.com.au	https://arena.gov.au/projects/atco-hydrogen-microgrid/

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ATCO Gas Australia Pty Ltd, KPMG and CSIRO	Hydrogen Communities Report H2City Tool and Assessment Framework	H2City is the result of a four-way collaboration between KPMG, ATCO, CSIRO, together with Australian Renewable Energy Agency (ARENA). These entities worked together to develop a tool that can be used to assess the costs and benefits of a regional town or municipality switching to hydrogen.	n.a.	n.a.	Study, Tool	Hydrogen production	2018	Various	KPMG	au-fmfinancialmodel@kpmg.com.au	https://arena.gov.au/knowledge-bank/hydrogen-communities/
ACIL Allen Consulting	Opportunities for Australia from Hydrogen Exports	The Australian Renewable Energy Agency (ARENA) engaged ACIL Allen Consulting to prepare a report to identify the opportunities for Australia to export hydrogen to help meet the potential global demand for hydrogen	n.a.	n.a.	Study	Hydrogen production, export	2018	Various			https://arena.gov.au/knowledge-bank/opportunities-for-australia-from-hydrogen-exports/
University of Queensland	The Australian public's perception of hydrogen for energy	This report demonstrates that the Australian public are supportive of the opportunities that are emerging from a potential hydrogen industry.	n.a.	n.a.	Study	Hydrogen, Safety	2018	Various	Peta Ashworth	p.ashworth@uq.edu.au	https://arena.gov.au/knowledge-bank/the-australian-publics-perception-of-hydrogen-for-energy/

Further information is available at
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