



INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

IPHE Country Update June 2021: Australia

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1. New Initiatives, Programs, and Policies on Hydrogen and Fuel Cells

Through the latest budget, the Australian Government has announced a number of new initiatives relating to hydrogen (details on these programs provided in point 5).

- Funding for additional regional hydrogen hubs;
- Funding for hydrogen certification trials; and,
- Funding for hydrogen-ready capability for new gas generators.

In addition to these funding measures, Australia has made a number of additional hydrogen initiatives:

- Recent partnership with Singapore to accelerate the deployment of low emissions fuels and technologies like clean hydrogen to reduce emissions in the maritime and port operations.
- Australia's national science agency, the Commonwealth Scientific and Industrial Research Organisation (CSIRO), has launched a Hydrogen Industry Mission to accelerate key projects and boost research collaborations to help grow the sector (further detail on point 2). More than 100 projects are included in this Hydrogen Industry Mission with collaborations across Government and industry domestically and internationally.

2. Hydrogen and Fuel Cell R&D Update

The CSIRO Hydrogen Industry Mission covers two programs of work specific to R&D: the Hydrogen Knowledge Centre; and, Investment to enable science and technology.

The Hydrogen Knowledge Centre is a national resource for industry, government and the research community which highlights Australia's hydrogen projects and provides modelling tools and educational resources.

Investment is also being directed through the Hydrogen Industry Mission to deliver science and technology solutions and socio-economic analysis to remove barriers to hydrogen industry scale-up. This includes an A\$20M (USD\$15.5M) partnership with Fortescue which focuses on the development and commercialisation of new hydrogen technologies.

3. Demonstration, Deployments, and Workforce Developments Update

Nothing new to report.

4. Events and Solicitations

Nothing new to report.



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5. Investments: Government and Collaborative Hydrogen and Fuel Cell Funding

In total the Australian Government has committed over A\$1bn (USD\$775M) directly towards hydrogen and fuel cells.

Specific funding announcements since the last member update are detailed below:

- A\$260M to extend existing funding for hydrogen hubs to include an additional four hydrogen hubs across various regional locations. This funding includes A\$20M for hydrogen hub design work and research studies.
- A\$9.7M to support trials of a hydrogen Guarantee of Origin (GO) certification scheme for Australia.
- A\$24.9M to enable hydrogen-ready capability for new gas generators.
- A\$30M partnership with Singapore to support enabling technologies, processes and systems to facilitate the demonstration and commercialisation of low emissions fuels and technologies for use in maritime shipping and port operations.

6. Regulations, Codes & Standards, and Safety Update

The Australian Government has been undertaking a review of the legal and regulatory frameworks to develop consistent approaches for efficient supply chains and markets. Since the last update, the Federal government has released a number of discussion papers to relevant State and Territory governments for their input.



Summary Country Update June 2021: Australia

Transportation	Target Number	Current Status	Partnerships, Strategic Approach	Support Mechanism
Fuel Cell Vehicles ¹		197 As of 11 June 2021		<ul style="list-style-type: none"> - Victorian government – Zero Emissions Vehicle Subsidy - ACT government – Zero Emissions Vehicle free registration
FC Bus				
Fuel Cell Trucks ²				
Forklifts				
H ₂ Refueling Stations	Target Number	Current Status	Partnerships, Strategic Approach	Support Mechanism
70 MPa On-Site Production		5 (one operating at dual 35 and 70 MPa) As of 11 June 2021		
70 MPa Delivered				
35 MPa On-Site Production				
35 MPa Delivered				

¹ Includes Fuel Cell Electric Vehicles with Range Extenders

² As above



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Stationary	Target Number ³	Current Status	Partnerships, Strategic Approach	Support Mechanism
Small ⁴				
Medium ⁵				
Large ⁶				
District Grid ⁷				
Regional Grid ⁸				
Telecom backup				
H ₂ Production	Target ⁹	Current Status	Partnerships, Strategic Approach	Support Mechanism
Fossil Fuels ¹⁰	225 ktH ₂ /yr by 2030		Based on HESC project output projections	\$50m support from Federal Government, \$50m from VIC Government for HESC
Water Electrolysis ¹¹ (PEM, Alkaline, SOEC)	38,000 ktH ₂ /yr by 2025		Based on the pipeline of renewable projects from Australia's HyResource website	
By-product H ₂				

³ Targets can be units installed and/or total installed capacity in the size range indicated

⁴ <5 kW (e.g., Residential Use)

⁵ 5kW – 400 kW (e.g., Distributed Residential Use)

⁶ 0.3MW – 10 MW (e.g., Industrial Use)

⁷ 1MW – 30 MW (e.g., Grid Stability, Ancillary Services)

⁸ 30MW plus (e.g., Grid Storage and Systems Management)

⁹ Target can be by quantity (Nm³, kg, t) and by percentage of total production; also, reference to efficiency capabilities can be a target

¹⁰ Hydrogen produced by reforming processes

¹¹ Please indicate if targets relate to a specific technology (PEM, Alkaline, SOEC)



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Energy Storage from Renewables	Target ¹²	Current Status	Partnership, Strategic Approach	Support Mechanism
Installed Electrolyser Capacity	30,000 MW by 2030		Based on the pipeline of renewable projects from Australia's HyResource website	
Power to Power ¹³ Capacity				
Power to Gas ¹⁴ Capacity				

¹² Can be expressed in MW of Installed Capacity to use the electricity from renewable energy generation, and Annual MWh of stored energy capacity

¹³ Operator has an obligation to return the electricity stored through the use of hydrogen back to electricity

¹⁴ Operator has the opportunity to provide the stored energy in the form of hydrogen back to the energy system through multiple channels (e.g., merchant product, enriched natural gas, synthetic methane for transportation, heating, electricity)