



INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

IPHE Country Update November 2020: South Africa

Name	Cosmas Chiteme
Contact Information	Cosmas.Chiteme@dst.gov.za , +27 82 306 9899
Covered Period	June – November 2020

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

The Department of Mineral Resources and Energy (DMRE) has recently made a Call for the procurement of 2,000 MW of emergency power targeting a range of energy sources and technologies under the Risk Mitigation Independent Power Producer Programme (RMIPPP) in September 2020. The RMIPPP is designed to address the country's short-term electricity supply constraints by delivering power to the grid no later than June 2022.

This paves the way for the procurement of 11,813 MW of new generation capacity with 6,800 MW planned from renewable energy sources (PV or Wind) for the years 2022 to 2024 of which 513 MW is targeted for procurement during 2022. A further 3,000 MW has been earmarked for generation from gas for the years 2024 to 2027.

2. Hydrogen and Fuel Cell R&D Update

No major developments to report

3. Demonstration, Deployments, and Workforce Developments Update

Seven (7) fuel cell systems were deployed at a military hospital in Pretoria to assist with government's response towards the COVID-19 pandemic. The 7 x 5kW systems are being used to provide primary power to the field hospitals with life-saving equipment.

4. Events and Solicitations

A number of stakeholder consultations were conducted as part of the South African Hydrogen Roadmap development process. Stakeholders from IPHE Partner countries including Canada, Japan, Netherlands, Norway, Germany and USA participated in the process.

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

In addition to the US\$4million government funding for technology development through the HySA Programme, US\$2million was set aside for stationary fuel cell deployment in collaboration with the private sector, while an additional US\$2million has been set aside to kick-start the Platinum Valley project.

6. Regulations, Codes & Standards, and Safety Update

None.



Summary Country Update November 2020: South Africa

Transportation	Target Number	Current Status	Partnerships, Strategic Approach	Support Mechanism
Fuel Cell Vehicles ¹		0		
FC Bus		0		
Fuel Cell Trucks ²		0		
Forklifts		2		
H ₂ Refueling Stations	Target Number	Current Status	Partnerships, Strategic Approach	Support Mechanism
70 MPa On-Site Production		0		
70 MPa Delivered		0		
35 MPa On-Site Production		1		
35 MPa Delivered		0		
Stationary	Target Number ³	Current Status	Partnerships, Strategic Approach	Support Mechanism

¹ Includes Fuel Cell Electric Vehicles with Range Extenders

² As above

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



INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

Small ⁴		10		• Government funding
Medium ⁵		1 x 100kW		Consortium funding including government
Large ⁶		0		
District Grid ⁷		0		
Regional Grid ⁸				
Telecom backup		300		Private sector funded
H ₂ Production	Target ⁹	Current Status	Partnerships, Strategic Approach	Support Mechanism
Fossil Fuels ¹⁰		1.4Mt		Private sector funding
Water Electrolysis ¹¹ (PEM, Alkaline, SOEC)		N/A		
By-product H ₂		~9 tonnes/day		Private sector

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)



INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

Energy Storage from Renewables	Target ¹²	Current Status	Partnership, Strategic Approach	Support Mechanism
Installed Electrolyser Capacity				
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)