



INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

IPHE Country Update October 2019: South Africa

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Covered Period	April – October 2019

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

The President signed into law the [Carbon Tax Act No 15 of 2019](#), which came into effect on 1 June 2019. As part of its contribution to the global effort on climate change, South Africa is introducing the [Carbon Tax Act](#). Companies will pay a penalty of R120 per ton CO₂-eq. It is hoped that the amount will be increased over time and that the funds will be used to support green initiatives towards decarbonising the economy.

The Integrated Resource Plan 2019 (IRP2019), which gives the proposed energy mix for the country for the next 10 years, was released on 18 October 2019. The IRP 2019, which can be accessed at www.gpwnline.co.za, indicates an increased role of renewables and gas in the energy mix.

2. Hydrogen and Fuel Cell R&D Update

No major developments to report on.

3. Demonstration, Deployments, and Workforce Developments Update

Through the HySA Infrastructure Centre at North West University, the HySA Programme now has a 350 bar dispenser which can be used for a hydrogen fuel cell bus pilot project.

4. Events and Solicitations

A South African delegation travelled to Germany and Spain for a tour of solar power and solar fuels research facilities. The tour will inform the development of Solar Research Infrastructure roadmap which includes facilities for the production of green hydrogen from renewable energy sources such as solar PV.

As part of celebrating the National Transport Month in October, the City of Johannesburg, in partnership with GIZ hosted a [Symposium](#) on how it plans to reduce fossil fuel emissions as it makes a transition towards low carbon transport.

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

The government has earmarked R500 million (US\$33M) for the solar research infrastructure roadmap which includes the production of renewable hydrogen project. Direct funding of the HySA Programme is US\$8M.

6. Regulations, Codes & Standards, and Safety Update

The HySA Programme joined the International Centre for Hydrogen Safety in May 2019. This will allow the Programme to leverage on international knowledge on the safe use of hydrogen as well as to contribute to global knowledge in the area of hydrogen safety.



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Summary Country Update October 2019: South Africa

Transportation	Target Number	Current Status	Partnerships, Strategic Approach	Support Mechanism
Fuel Cell Vehicles ¹	No target	0 as of 18/10/19	• N/A	• General incentives exist within the Department of Trade, Industry and Competition
FC Bus	4 by 2020	0 as of 18/10/19	National and provincial government	• Specific subsidies may be developed
Fuel Cell Trucks ²	No target	0 as of 18/10/19	N/A	• General incentives exist within the Department of Trade, Industry and Competition
Forklifts	No target	1 as of 18/10/19	National and mining companies as well as development finance institutions	• No support policy
Electric Scooters	No target	3 as of 18/10/19	National government and state owned companies	• No support policy
H ₂ Refueling Stations	Target Number	Current Status	Partnerships, Strategic Approach	Support Mechanism
70 MPa On-Site Production	No target	0 as of 18/10/19	N/A	• No Subsidy for operation
70 MPa Delivered	No target	0 as of 18/10/19	N/A	No Subsidy for installation • Subsidy for operation

¹ Includes Fuel Cell Electric Vehicles with Range Extenders

² As above



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35 MPa On-Site Production	No target	1 as of 18/10/19	N/A	• None
35 MPa Delivered	No target	0 as of 18/10/19	N/A	None
Stationary	Target Number³	Current Status	Partnerships, Strategic Approach	Support Mechanism
Small ($\leq 5\text{kW}$) ⁴	No target	5 as of 18/10/19	N/A	None
Medium(100kW) ⁵	No target	1 as of 18/10/19	N/A	None
Large ⁶	No target	0 as of 18/10/19	N/A	None
District Grid ⁷	No target	0 as of 18/10/19	N/A	None
Regional Grid ⁸	No target	0 as of 18/10/19	N/A	None
Telecom backup	500 by 31/03/2020	300 as of 31/03/19. Still to be updated.	Private Sector based on business case	None
H₂ Production	Target⁹	Current Status	Partnerships, Strategic Approach	Support Mechanism

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



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Fossil Fuels ¹⁰	No target	No data available	N/A	None
Water Electrolysis ¹¹ (PEM, Alkaline, SOEC)	No target	No credible data available as of 18/10/19	N/A	None
By-product H ₂				
Energy Storage from Renewables	Target¹²	Current Status	Partnership, Strategic Approach	Support Mechanism
Power to Power ¹³ Capacity	No target	0 as of 18/10/19	N/A	None
Power to Gas ¹⁴ Capacity	No target	0 as of 18/10/19	N/A	None

¹⁰ Hydrogen produced by reforming processes

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

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)