INTERNATIONAL PARTNERSHIP FOR
HYDROGEN AND FUEL CELLS IN THE ECONOMY

IPHE Country Update November 2017: South Africa

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Covered Period	May – October 2017

1. New Policy Initiatives on Hydrogen and Fuel Cell

The Department of Trade and Industry released its report on the viability of hydrogen and fuel cell buses in South Africa. The department with other government and provincial stakeholders undertook a study tour to Germany in October 2017. Planning is now underway for a fuel cell bus pilot with 4 buses in Phase 1, and 10 buses in Phase 2. The objective is to implement a demonstration programme of fuel cell buses in metropolitan areas with a view to comparing performance and cost with other bus options as well as the impact on GHG emissions. Details on this proposed FC Bus demonstration programme will be presented to the Department of Transport and the Department of Environmental Affairs by end of December 2017.

An independent assessment of the HySA technology portfolio was completed in June 2017. The report will be shared with key stakeholders as an input to help with decision-making in the next phase of the HySA Programme as well as in engagements with potential partners.

A special economic zone for fuel cell manufacturing is being established near the Impala Platinum Refinery in Springs, east of Johannesburg.

The Department of Science and Technology has a target of deploying 25 hydrogen fuel cell systems incorporating HySA technology by March 2020.

2. Hydrogen and Fuel Cell R&D Update

HySA Catalysis, Mintek, and Impala are collaborating on a project to build South African capacity in Pt/C catalyst and Membrane Electrode Assembly manufacturing. The project has been successfully up-scaled to produce the catalyst in 3kg batches. The next phase is to consider manufacturing the catalyst at 10kg per batch.

3. Demonstration and Deployments Update

Impala Platinum and the Industrial Development Corporation are each planning new fuel cell forklift projects.. The South African Post Office is looking to demonstrate fuel cells electric scooters and Gauteng Department of Roads and Transport is considering fuel cells to power traffic lights.

4. Events and Solicitations

The HySA Programme will hold its second Technical Conference from 27 to 28 November 2017 in Cape Town. The Technical Meeting provides an opportunity for researchers to present their work to both the public and private sector stakeholders and interact with them.

The focus for this year's technical meeting is on creating partnerships for technology demonstrations.

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

Fuel Cell Funding for 2017/18 financial year (1 April to 31 March 2018) is as follows:

- Government: R89.6 million (US$6.23M);
- Private Sector Funding: R2.5 million (US$174K) towards HySA; and
- Other Private sector Fuel Cell projects: R20.5 million (US$1.4M).

6. Regulations, Codes & Standards Update

None.

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Summary Country Update October 2017: South Africa

Transportation	Target Number	Current Status	Partnerships, Strategic Approach	Policy Support
Fuel Cell Vehicles[1]	No target	0 as of 31/10/17	N/A	General incentives exist within the Department of Trade and Industry
FC Bus	4 by 2020	0 As of 31/10/17	National and provincial government	Specific subsidies to be developed
Fuel Cell Trucks[2]	No target	0 as of 31/10/17	N/A	General incentives exist within the Department of Trade and Industry
Forklifts	No target	1 as of 31/10/17	National and mining companies as well as development finance institutions	No support policy
H_2 Refueling Stations	**Target Number**	**Current Status**	**Partnerships, Strategic Approach**	**Policy Support**
70 MPa On-Site Production	No target	0 as of 31/10/17	N/A	No Subsidy for operation
70 MPa Delivered	No target	0 as of 31/10/17	N/A	No Subsidy for installation Subsidy for operation
35 MPa On-Site Production	No target	0 as of 31/10/17	N/A	Subsidy for installation through a tax measure of an annual 50% capital expenditure write-off
35 MPa Delivered	No target	0 as of 31/10/17	N/A	

[1] Includes Fuel Cell Electric Vehicles with Range Extenders
[2] As above

Stationary	Target Number[3]	Current Status	Partnerships, Strategic Approach	Policy Support
Small[4]	No target	4 as of 31/10/17	N/A	None
Medium[5]	No target	0 as of 31/10/17	N/A	None
Large[6]	No target	0 as of 31/10/17	N/A	None
District Grid[7]	No target	0 as of 31/10/17	N/A	None
Regional Grid[8]	No target	0 as of 31/10/17	N/A	None
Telecom backup	No target	>300 as of 31/10/17	N/A	None
H_2 Production	**Target[9]**	**Current Status**	**Partnerships, Strategic Approach**	**Policy Support**
Fossil Fuels[10]	No target	0 as of 31/10/17	• N/A	None
Water Electrolysis[11] (PEM, Alkaline, SOEC)	No target	0 as of 31/10/17	N/A	None

[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 (Nm^3, 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)

By-product H_2				
Energy Storage from Renewables	**Target[12]**	**Current Status**	**Partnership, Strategic Approach**	**Policy Support**
Power to Power[13] Capacity	No target	0 as of 31/10/17	N/A	None
Power to Gas[14] Capacity	No target	0 as of 31/10/17	N/A	None

[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)