INTERNATIONAL PARTNERSHIP FOR
HYDROGEN AND FUEL CELLS IN THE ECONOMY

IPHE Country Update October 2016: India

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1. New Policy Initiatives on Hydrogen and Fuel Cell

The Ministry of New and Renewable Energy constituted a Steering Committee on Hydrogen Energy and Fuel Cells in May, 2012 to advise the Ministry and steer the overall activities of Hydrogen Energy and Fuel Cells in the country. Based on the recommendations of the Steering Committee, five Sub-Committees on different aspects of Hydrogen Energy and Fuel Cells have been constituted. The Report of the Steering Committee on Hydrogen Energy and Fuel Cells has been submitted and is available on the website of the Ministry of New and Renewable Energy (www.mnre.gov.in). The Report has identified Mission Mode projects to be taken up for implementation in the next five years i.e. up to 2022.

2. Hydrogen and Fuel Cell R&D Update

Twenty seven R&D projects on different aspects of hydrogen energy and fuel cell technologies are under implementation as on 1 October, 2016, with funding from the Ministry of New and Renewable Energy.

Four new R&D projects in the area of Hydrogen Energy were sanctioned between 16 May, 2016 and 15 October, 2016. Four more R&D projects in the area of hydrogen production and applications are likely to be sanctioned by 31 December, 2016.

3. Demonstration and Deployments Update

Two hydrogen internal combustion engine based mini buses have been developed jointly by the Indian Institute of Technology Delhi and Mahindra & Mahindra, Chennai. The field trials of these buses have started near the Indian Oil Corporation's R&D Centre at Faridabad, where a hydrogen refueling facility is in operation. Field trials of 15 hydrogen fuelled three wheelers in Pragati Maidan, New Delhi, and five hydrogen-diesel dual fuelled vehicles in the National Institute of Solar Energy, Gwal Pahari, Gurgaon, are continuing. These two locations have hydrogen refueling facilities in operation presently.

4. Events and Solicitations

Nil.

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

For the financial year 2016-17 (1 April, 2016 to 31 March, 2017), there is a provision of Rs.200 Million (US$2.985Million) for hydrogen energy and fuel cell related activities in the budget of the Ministry of New and Renewable Energy.

A. Transportation

- Ten fuel cell buses are under development by Tata Motors Ltd. for demonstration with partial financial support from the Government of India (Department of Scientific and Industrial Research). Demonstration of two buses at the R&D Centre, Indian Oil Corporation, Faridabad and five buses at Sanand in Gujarat are planned.

- Two hydrogen internal combustion engine based mini buses have been developed jointly by the Indian Institute of Technology Delhi and Mahindra & Mahindra, with partial financial support from the Ministry of New and Renewable Energy. Field trials of these buses has started at R&D Centre, Indian Oil Corporation, Faridabad.

B. Hydrogen Refueling Stations

- Currently, three hydrogen refueling stations are in operation. One of them is for refueling 15 hydrogen internal combustion engine based three-wheelers, with hydrogen dispensing at about 200 bar. Hydrogen is delivered at the station in cascades. The other two hydrogen refueling facilities with on-site hydrogen production are at 350 bar. These facilities have been set up with financial support from the Ministry of New and Renewable Energy.

C. Stationary Power Generation

- Some PEMFC based systems are reported to have been deployed by companies providing backup power to telecom towers on their own. Ministry of New and Renewable Energy does not have the exact information about number of such installations and capacity of fuel cells deployed as it does not provide any financial support for such deployment, presently.

D. Hydrogen Production

- Ministry of New and Renewable Energy intends to commission a study with regard to hydrogen production capacity and actual hydrogen produced by different industries during 2016-17. About 64,500 tonnes of by-product hydrogen was produced by chlor alkali units during 2014-15, of which about 90% of the hydrogen is consumed in-house.

E. Energy Storage from Renewables

- A new initiative in this regard has been taken up during the financial year 2016-17 by the Ministry of New and Renewable Energy.