



INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

IPHE Country Update May 2016: India

Name	Ms. Varsha Joshi, Joint Secretary, Ministry of New and Renewable Energy
Contact Information	varsha.joshi@nic.in 91-11-24361027
Covered Period	1 December, 2015 to 15 May, 2016

1. New Policy Initiatives on Hydrogen and Fuel Cell

The Ministry 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 is likely to be submitted by 30 June, 2016.

2. Hydrogen and Fuel Cell R&D Update

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

Seven new R&D projects in the area of Hydrogen Energy were sanctioned between 1 December, 2015 and 31 March, 2016. Three more R&D projects in the area of hydrogen production, its storage and applications are expected to be sanctioned by 30 June, 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. These buses have got necessary approval for undergoing field trials, which will take place near Indian Oil Corporation's R&D Centre at Faridabad.

4. Events and Solicitations

Nothing to Report this Period.

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

The Ministry of New and Renewable Energy has provided funding for Rs.59.5 Million (0.89 Million US dollars) for R&D related activities in the area of hydrogen energy and fuel cells for the financial year 2015-16 (1 April, 2015 to 31 March, 2016). For the financial year 2016-17, there is a provision of Rs.200 Million (2.985 Million US dollars) for hydrogen energy and fuel cell related activities in the budget of the Ministry of New and Renewable Energy.



INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

Summary Country Update May, 2016: India

1. Transportation
 - Ten fuel cell buses are under development by Tata Motors Ltd. for demonstration with partial financial support from Government of India (Department of Scientific and Industrial Research).
 - Two hydrogen internal combustion engine based mini buses have been developed jointly by Indian Institute of Technology Delhi and Mahindra & Mahindra, with partial financial support from the Ministry of New and Renewable Energy. These buses would undergo field trials during 2016-17.
2. Hydrogen Refuelling Stations
 - Currently, three hydrogen refuelling stations are in operation. One of them is for refuelling 15 hydrogen internal combustion engine based three-wheelers, with hydrogen dispensing at about 200 bar. Hydrogen is delivered at the station in cascades. Other two hydrogen refuelling facilities with on-site hydrogen production are for 350 bar pressure. These facilities have been set up with financial support from the Ministry of New and Renewable Energy.
3. Stationary Power Generation
 - Some PEMFC based systems are reported to have been deployed by some companies for 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.
4. 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 tonne of by-product hydrogen was produced by chlor-alkali units during 2014-15, of which about 90% hydrogen is consumed in-house.
5. Energy Storage from Renewables
 - A new initiative in this regard is likely to be taken up during the financial year 2016-17 by the Ministry of New and Renewable Energy.