

GOVERNMENT OF INDIA  
MINISTRY OF NEW AND RENEWABLE ENERGY  
**LOK SABHA**  
**UNSTARRED QUESTION NO. 1991**  
ANSWERED ON 14/12/2023

**SCHEME FOR GREEN HYDROGEN PRODUCTION**

1991. SHRI SHRIRANG APPA BARNE  
SHRI SANJAY SADASHIVRAO MANDLIK  
SHRI PRATAPRAO JADHAV  
SHRI SUDHEER GUPTA  
SHRI DHAIRYASHEEL SAMBHAJIRAO MANE

Will the Minister of NEW AND RENEWABLE ENERGY be pleased to state:

- a) whether India and Finland have collaborated to manufacture green hydrogen electrolyzers in the country and if so, the details thereof;
- b) whether the Government has announced a Production Linked Incentive (PLI) scheme for green hydrogen production and manufacturing electrolyzers and if so, the details thereof;
- c) the manner in which manufacturing of this technology in the country is going to be helpful for domestic manufacturers;
- d) whether the Government proposes to have more bilateral cooperation on this technology with Finland or any other nation; and
- e) if so, the details thereof and the steps taken in this regard?

**ANSWER**

**THE MINISTER OF NEW & RENEWABLE ENERGY AND POWER**

**(SHRI R.K. SINGH)**

(a) India and Finland have signed a Memorandum of Understanding for cooperation in the field of renewable energy on 29th April, 2022 to renew the MoU that expired in 2019. The MoU, inter-alia, envisages cooperation in the areas of Green Hydrogen, Solar Energy, Wind Energy, Biomass/ Bio-energy/ Waste to energy, Small Hydro Power, Storage, Capacity Building and Flexible renewable energy system.

(b) & (c) The National Green Hydrogen Mission inter – alia includes, the Strategic Interventions for Green Hydrogen Transition (SIGHT) Programme, which is a major financial measure with an outlay of ₹ 17,490 crore. The programme consists of two distinct financial incentive mechanisms to support domestic manufacturing of electrolyzers and production of Green Hydrogen.

Request for Selection (RfS) has been issued for Selection of Green Hydrogen Producers for Setting up Production Facilities of 450,000 tons for Green Hydrogen in India under the Strategic Interventions for Green Hydrogen Transition (SIGHT) Scheme (Mode-1-Tranche-I).

Request for Selection (RfS) has been issued for the Selection of Electrolyser Manufacturers (EM) for Setting up 1.5 GW annual Electrolyser Manufacturing Capacities under SIGHT Scheme (Tranche-I).

The scheme has Local Value Addition as one of the selection parameters to promote indigenous manufacturing of electrolysers. Further, a separate bucket of 300 MW has been kept for electrolyser manufacturing capacity based on indigenously developed stack technology.

(d) & (e) In addition to the cooperation with Finland as per the MoU dated 29<sup>th</sup> April 2022, the Government is also undertaking bilateral cooperation on Hydrogen with a number of countries, such as USA, Germany, Australia, France, Saudi Arabia, UAE, among others. The list of existing cooperation frameworks in the field of Green Hydrogen is provided as **Annexure**.

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Annexure referred in reply to part (d) & (e) of the Lok Sabha Unstarred question no. 1991 to be answered on 14.12.2023

**1. LIST OF MEMORANDUM OF UNDERSTANDINGS (MoUs)/PROGRAMME/AGREEMENTS/ LETTER OF INTENT/ JOINT DECLARATION OF INTENT SIGNED BY MNRE AND ITS AUTONOMOUS INSTITUTES UNDER ITS ADMINISTRATIVE CONTROL WITH FOREIGN COUNTRIES/INSTITUTES/ORGANISATIONS IN THE FIELD OF HYDROGEN**

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S. No.	Country	Brief objective(s)	Areas of Cooperation
1.	Australia	i. MoU: (5 <sup>th</sup> February, 2010)  To advance the common area of interest identified in the New and Renewable Energy Action Plan	Solar, Hydrogen/Fuel Cells, Geothermal, Small Hydro, Clean Energy related services
		ii. Letter of Intent: (15 <sup>th</sup> Feb. 2022)  To reduce the cost of new and renewable energy technologies and scale up deployment in order to accelerate global emissions reduction.	Hydrogen and Solar PV Technologies
2.	Finland	MoU: (29 <sup>th</sup> April, 2022)  To establish cooperation between the Indian and Finland entities with the aim of promoting use of Renewable Energy and developing Renewable Energy	Solar Energy, Wind Energy, Biomass/ Bio-energy/ Waste to energy, Small Hydro Power, Storage, Capacity Building, Green Hydrogen, flexible renewable energy system
3.	France	i. MoU: (28 <sup>th</sup> January, 2021)  To establish the basis for Cooperation in the Area of Renewable Energy	Solar, Wind energy, Hydrogen, Biomass

		<p>ii. MoU between National Institute of Solar Energy (NISE) and The French Alternative Energies and Atomic Energy Commission (CEA) <b>(10<sup>th</sup> March, 2018)</b></p> <p>To identify research/ demonstration/ pilot project between NISE and CEA in the mutually identified areas</p>	<p>Solar Photovoltaic, Storage Technologies including Hydrogen etc.</p>
		<p>iii. MoU between National Institute of Solar Energy (NISE) and The French Alternative Energies and Atomic Energy Commission (CEA) <b>(22<sup>nd</sup> August, 2019)</b></p> <p>To work in various areas of Hydrogen Energy and Fuel Cells.</p>	<p>Solar, Storage – battery and Hydrogen</p>
4.	Germany	<p>i. MoU between Solar Energy Centre (SEC) and Fraunhofer Institut für Solare Energiesysteme (ISE) <b>(11<sup>th</sup> April, 2013)</b></p> <p>To implement research/demonstration/pilot in the mutually identified areas of solar energy and Hydrogen &amp; Fuel cells.</p>	<p>Solar Photovoltaic, Solar Thermal, Hydrogen and Fuel Cells</p>
		<p>ii. Joint Declaration of Intent (JDI): <b>(02<sup>nd</sup> May, 2022)</b></p> <p>To establish an Indo-German Green Hydrogen Task Force to strengthen mutual cooperation in production, utilization, storage and distribution of Green Hydrogen through building enabling frameworks for projects, regulations and standards, trade and joint research and development (R&amp;D) projects.</p>	<p>Promotion of public and private investment in production, transport and consumption of green hydrogen and its derivatives.</p>
5.	Saudi Arabia	<p>i. MoU: <b>(10<sup>th</sup> September, 2023)</b></p> <p>To set up a framework for cooperation between the two parties in the field of renewable energy</p>	<p>Renewable energy, Energy Efficiency, Hydrogen, Electricity and Grid Interconnection, Petroleum, Natural Gas, etc.</p>
		<p>ii. MoU: <b>(8<sup>th</sup> October, 2023)</b></p>	<p>Electrical interconnection, Green/ Clean Hydrogen</p>

		To establish a general framework of cooperation in the field of electrical interconnection, Green/Clean Hydrogen and Supply.	
6.	UAE	MoU: (13 <sup>th</sup> January, 2023)  To promote discussion and Cooperation between the Parties in the Potential Areas of Cooperation in the Spectrum of Green Hydrogen Development and Investments in India and the UAE	Green Hydrogen development, deployment and its value chain
7.	Uzbekistan  (International Solar Energy Institute)	MoU between National Institute of Solar Energy (NISE) and International Solar Energy Institute (ISEI) (10 <sup>th</sup> December, 2020) :  The main area of work under this MOU would be to identify research/ demonstration/ pilot projects NISE and ISEI in the mutually identified areas. Based on mutual agreement, both parties would work for implementation & deployment of pilot project in ISA member countries.	Solar Photovoltaic, Storage Technologies including Hydrogen etc.

2. (a) In addition to the above, under the Strategic Clean Energy Partnership with United States, an India-US Hydrogen Task Force has been formed. Further, Green/Clean Hydrogen has also been identified as a focus area under the India-US New and Emerging Renewable Energy Technology Action Platform (RETAP)
- (b) India-Norway Task force on Energy has, *inter-alia*, identified Green Hydrogen as an area of cooperation.